LES

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NEF-08-00210-NRC

Director, Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Louisiana Energy Services, LLC
National Enrichment Facility
NRC Docket No. 70-3103

Subject: Response to NRC Review of the 10 CFR 70.72 Summary of Changes for Louisiana Energy Services

References:
1. Letter NEF-07-00018-NRC, Summary of 10 CFR 70.72(c) Evaluations and License Basis Documents Update, dated January 20, 2008
2. Letter from T. Johnson (NRC) to S. Cowne (LES), Louisiana Energy Services Preliminary Review of 10 CFR 70.72 Evaluations and Licensing Basis Document Updates, dated February 28, 2008
3. Letter, NEF-08-00067-NRC, Response to NRC Request for Additional Information Concerning Review of 10 CFR 70.72 Evaluations and Licensing Basis Document Updates, dated Mar 31, 2008
4. Letter from Brian W. Smith (NRC) to S. Cowne (LES), Review of the 10 CFR 70.72 Summary of Changes for Louisiana Energy Services, dated July 29, 2008

By letter dated January 30, 2008 (Reference 1), Louisiana Energy Services provided a summary of changes to the records required by Title 10 of the Code of Federal Regulations (10 CFR) Part 70.62(a)(2) that did not require pre-approval under 10 CFR Part 70.72, pursuant to the requirements of 10 CFR Part 70.72(d)(2). By letter dated February 28, 2008 (Reference 2), the NRC requested additional specificity for the summary of the changes. Specifically, the NRC indicated that the summary should be modified to include: (1) a description of the change, (2) the reasons why the change was made, and (3) why the change did not require NRC pre-approval. By letter dated March 31, 2008 (Reference 3) Louisiana Energy Services provided the requested

information. By letter dated July 29, 2008 (Reference 4), the NRC requested certain facility change information to be submitted with 15 days of receipt of their letter. The letter was received by LES on August 5, 2008. The following configuration changes were requested:

CC-EG-2006-0033, *Security System UPS and Diesel Generator*
CC-EG-2007-0061, *Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001*
CC-EG-2007-0056, *Process Service Corridor – Addition of Security Access Door*
CC-EG-2007-0085, *Modification to Facility Water Feed – From Eunice, NM*
CC-EG-2006-0073, *HVAC Design Changes for Centrifuge Assembly Building*
CC-EG-2007-0226, *QA Level 2 Definition and QA Level 1 Clarification*
CC-EG-2007-0189, *Changes to IROFS Temperature Sensor*
CC-EG-2007-0232, *Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)*

Enclosure 2 includes the information available to support the configuration changes of interest. The following notes regarding each change may answer some questions you may encounter in the review:

CC-EG-2006-0033 – A 70.72 was written and completed on this package in January of 2007. However, there were open action items in this package. On February 1, 2007, the LES Licensing Manager and owner of the 70.72 process stopped 70.72 Evaluations from being performed until retraining was conducted. This was discussed with members of your staff. Since this particular change package had open action items, the 70.72 was considered invalid. In April of 2007 a Regulatory Impact Review was performed by LES to allow the configuration change to be released at risk. Currently the 70.72 for this change has not been completed.

CC-EG-2007-0056 – The License Basis Document Change Request (LBDCR) is not finalized as the changes to the figures have not been made in the Licensing Basis Documents (LBDs). This and other changes regarding figure updates have been discussed with members of your staff.

CC-EG-2007-0085 – Revision 0 of this change did not complete the approval process and thus a 70.72 was not performed on it. This configuration change was revised to Revision 0(a) and the 70.72 evaluation was performed on Revision 0(a). However some of the documentation, such as the LBD page changes and decrease in effectiveness reviews were performed in Revision 0; these page changes were not modified in Revision 0(a). This superseded version is also included.

CC-EG-2006-0073 –The 70.72 Evaluation, as well as the original LBDCR, was revised in 2008 and is also included in the package.

Furthermore, during our review of this letter it was discovered that three decreases in effectiveness reviews could not be located. We are currently searching for these and will transmit them to the NRC upon discovery. If they are not found in a timely manner we will write Condition Reports. The configuration changes that are missing reviews are listed below:

CC-EG-2007-0085 – A change was made to the Environmental Report and the EN-103 review was not found.

CC-EG-2007-0189 – A change was made to the Emergency Plan and the EP-120 review was not found.

CC-EG-2007-0232 – A change was made to the Environmental Report and the EN-103 review was not found.

If you have any questions, please direct them to Stephen Cowne, Quality and Regulatory Affairs Director, at 575.394.4646.

Respectfully,

Gregory OD Smith
Chief Operating Officer and Chief Nuclear Officer

Enclosures: 1) Configuration Change Packages

cc:

Timothy Johnson, Senior Project Manager (w/o)
Cynthia Taylor, Senior Project Inspector (w/o)
NRC Region II (w/o)

ENCLOSURE 1

Configuration Change Packages

CC-EG-2006-0033, *Security System UPS and Diesel Generator*
CC-EG-2007-0061, *Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001*
CC-EG-2007-0056, *Process Service Corridor – Addition of Security Access Door*
CC-EG-2007-0085, *Modification to Facility Water Feed – From Eunice, NM*
CC-EG-2006-0073, *HVAC Design Changes for Centrifuge Assembly Building*
CC-EG-2007-0226, *QA Level 2 Definition and QA Level 1 Clarification*
CC-EG-2007-0189, *Changes to IROFS Temperature Sensor*
CC-EG-2007-0232, *Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)*

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

Configuration Change Number: CC-EG-2006-0033 **Revision:** 0

Configuration Change Title: Security System UPS and Diesel Generator

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☐ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.
SAR Section 1.1.2, Facilities Description, ER Sections ~~2.1.2.3.4~~ 4.6.2.1, 7.2.2.3, ER Tables 3.12-6, 4.6-4, 4.6-6, 4.6-8
ISAS Section 3.5, 3.5.2, ISAS Figure 3.5-19, Electrical One-Line Diagram, SAR Table 6.1-4, ER Table 2.1-4
L4-50-01-FHA, Fire Hazards Analysis for the NEF Facility,
Physical Security Plan
Guard Force Training and Qualification Plan
Site Practice Procedures Plan for Protection of Classified Matter.
The NEF Licensing Basis Document figures listed in Table A1 of CC-EG-2006-0036 are impacted by this Configuration Change. The attached drawing 114489-0000-C-CVL-002-01-3 identifies the rolled up changes. All other listed documents reflect this drawing as appropriate.
PB 1/10/07
See attachment for additional information.

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)
This configuration change is required to address the NEF Licensing Basis Document (LBD) impact of the changes proposed under DCC NEF-2005-0021 and NEF-2005-0021A:
DCC NEF-2005-0021 installs a separate diesel generator & 75kVA UPS for the security system.
DCC NEF-2005-0021A locates the Security Diesel Generator Unit, with an integral double wall fuel tank, approximately 10 feet south of the TSB on a concrete pad.

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

Security system loads require a separate UPS and diesel generator as backup power supply for the Security System in the TSB. These were not included in the Lockwood-Greene electrical single line diagrams or arrangement drawings.

To eliminate the need for additional IROFS due to placing the Security Diesel Generator Unit in close proximity to uranic material in the TSB the Security Diesel Generator Unit, with an integral double wall fuel tank, will be located approximately 10 feet south of the TSB. The unit will be installed on a concrete pad and will be screened from the parking lot, access roads and the main highway.
Environmental Report section 7.2.2.3 is revised to clarify that the diesel generators supply standby electrical power and are not emergency generators. - This is not a Configuration Change Per Attachment 2, EG-101
The use of these facilities must be reviewed and approved prior to declaring the facilities operational to support the physical security plan and prior to receipt of UF_6 on site.

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Configuration Documents. Refer to Attachment 2 of EG-101 for additional guidance.)
Since a separate diesel generator for the security system was not part of the original design, the following revisions to Licensing Basis Documents are required to cover the Security DG & UPS installation as described by DCC NEF-2005-0021:

- Revise SAR Section 1.1.2, Facilities Description to add the Security DG to the discussion of the TSB
- Revise ER Sections ~~2.1.2.3.4~~ 4.6.2.1, 7.2.2.3 to reflect installation of Security DG.

1/10/07

Configuration Change Number: CC-EG-2006-0033 **Revision:** 0

- Revise ER Table 3.12-6 to include fuel inventory increase resulting from additional Security DG (Action Item AI-06-000009)
- Add emission information for Security DG to ER Tables 4.6-4, 4.6-6, 4.6-8 (Action Item AI-06-000010)
- Revise ISAS Section 3.5, Utility And Support Systems, to add a section covering the UPS and Diesel Generator for the Security System. (Action Item AI-06-000011)
- Revise ISAS Section 3.5.2, Electrical System, to provide details of additional onsite power source, i.e., the Security diesel generator, as well as a description of the UPS for the Security System. (Action Item AI-06-000012)
- Revise the appropriate Electrical one-line diagrams to indicate the addition of the Security diesel generator. (Action Item AI-06-000013)
- Review the appropriate Licensing Basis Documents related to Security changes necessary to reflect the addition of Security UPS and Diesel Generator. (Action Item AI-06-000020)
- Revise SAR Table 6.1-4 & ER Table 2.1-4 to reflect additonal fuel inventory (AI-06-000048)

DCC NEF-2005-0021A Impacts L4-50-01-FHA, Fire Hazards Analysis for the NEF facility. This analysis will be revisited to evaluate the impact of the change. (Action Item AI-06-000014).

1/10/07

All Action Items are being tracked via Corrective Action #2 for CR 06-0025.

Preparer (Print Name/Signature): J. P. LOGATTO / J. P. Logatto	**Organization/Mail Stop/Telephone No./E-mail** Design Engineering/Cherry Hill/jlogatto@enercon.com	
FAM	Signature: Paul J. Amarell	Date: Dec. 6, 2006

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

☒ B. Interdisciplinary reviews required (Preparer/FAM check all that apply). Route Configuration Change to :

☒ HS&E Fire Protection, Environmental impact

☒ Licensing LBDs Revised

☐ Production

☐ Quality Assurance

☒ Support Services – Security

☒ Technical Services – Engineering Analysis

Configuration Change Number: CC-EG-2006-0033 **Revision:** 0

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change is a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

CM Coordinator (Print Name/Signature):	**Organization/Mail Stop/Telephone No./E-mail**
Clark Tracy/Clark Tracy 12/7/06	Technical Services/Cherry Hill/[redacted]-3084/CTracy@pnfsm.com

Section 3: Disposition of Interdisciplinary Reviews

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis): HS&E, FP Review: Comments resolved; action item AI-06-0000014 issued
HS&E Env Review: No comments
Licensing Review: No comments
Support Services (EP, Security): No comments
Tech Services: Comments resolved; action item AI-06-000048 issued

Preparer	Signature: [signature]	Date: 01/17/2007
FAM	Signature: Paul S Fennell	Date: Jan 17 2007

Section 4: Disposition of 70.72(c) Evaluation and SRC Review

☐ 70.72(c) Evaluation and SRC Review not required (Change does not impact Licensing Basis) OR

☐ 70.72(c) Evaluation Complete and SRC Review not required OR

☒ 70.72(c) Evaluation Complete and SRC Review Complete.

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	Signature: [signature]	Date: 18 Jan 2007
FAM	Signature: Paul S Fennell	Date: Jan 18, 2007

Configuration Change Number: CC-EG-2006-0033 **Revision:** 0

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change is a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

CM Coordinator (Print Name/Signature):	**Organization/Mail Stop/Telephone No./E-mail**
Clark Tracy / Clark Tracy 12/7/06	Technical Services / Cherry / 836 / Hill / 482-3084 / CTracy@entergy.com

Section 3: Disposition of Interdisciplinary Reviews

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis): HS&E, FP Review: Comments resolved; action item AI-06-0000014 issued
HS&E Env Review: No comments
Licensing Review: No comments
Support Services (EP, Security): No comments
Tech Services: Comments resolved; action item AI-06-000048 issued

Preparer	Signature: [signature]	Date: 01/17/2007
FAM	Signature: Paul S Fammell	Date: Jan 17 2007

Section 4: Disposition of 70.72(c) Evaluation and SRC Review

☐ 70.72(c) Evaluation and SRC Review not required (Change does not impact Licensing Basis) OR

☐ 70.72(c) Evaluation Complete and SRC Review not required OR

☒ 70.72(c) Evaluation Complete and SRC Review Complete.

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	Signature: [signature]	Date: 18 Jan 2007
FAM	Signature:	Date:

Configuration Change Number: CC-EG-2006-0033	**Revision:** 0

Section 5: Release for Implementation

NRC (or other regulatory approval) ☐ Required ☒ **NOT** Required prior to implementation.

☐ CC Released for Full Implementation as described. Any outstanding issues tracked as noted.

☒ CC Released for Partial Implementation. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, CANCEL or HOLD CC as noted.

Comments (Basis): The changes in this CC-EG-2006-0033 are released for earthworks construction. As discussed in Action Items AI 06-000009 thru-000014; AI 06-000020 and AI 06-000048, there are actions that need to be completed before UF6 is received on site or before completion of the Security diesel generator design.

FAM	Signature: Paul J Darnell	Date: Jan 18, 2007

Section 6: Configuration Change Closeout

☐ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted.

☐ B. The Configuration Change has not been implemented. The basis for this decision is described below.

Comments (as applicable):

Preparer	Signature:	Date:
CM Coordinator	Signature:	Date:

Forward to Records Management (CM Coordinator).

DCC SUMMARY

DCC NEF-2005-0021 (08/02/05)

Scope/Description

Installs separate diesel generator & 75kVA UPS for security system.

Impact Assessment

Since a separate diesel generator for the security system was not part of the original design, the following revisions to Licensing Basis Documents are required to cover the Security DG & UPS:

- Revise SAR Section 1.1.2, Facilities Description to add the Security DG to the discussion of the TSB
- Revise ER Sections 4.6.2.1, 7.2.2.3 to reflect installation of Security DG.
- Revise ER Table 2.1-4 and SAR Table 6.1-4 to add fuel inventory to TSB chemical inventory (outdoors) based on final design of Security DG ***(Action Item AI-06-000048)***
- Revise ER Tables 3.12-6 based on final design of Security DG ***(Action Item AI-06-00009)***
- Add emission information for Security DG to ER Tables 4.6-4, 4.6-6, 4.6-8 ***(Action Item AI-06-000010)***
- Revise ISAS Section 3.5, Utility And Support Systems, to add a section covering the UPS and Diesel Generator for the Security System. ***(Action Item AI-06-000011)***
- Revise ISAS Section 3.5.2, Electrical System, to provide details of additional onsite power source, i.e., the Security diesel generator, as well as a description of the UPS for the Security System. ***(Action Item AI-06-000012)***
- Revise the appropriate Electrical one-line diagrams to indicate the addition of the Security diesel generator. ***(Action Item AI-06-000013)***
- Review the Licensing Basis Documents related to security for changes necessary to reflect the addition of Security UPS and Diesel Generator. ***(Action Item AI-06-000020)***

DCC NEF-2005-0021A (09/27/05)

Scope/Description

To eliminate the need for additional IROFS due to placing the Security DG in close proximity to uranic material the Security DG, with an integral double wall fuel tank, will be located outside the TSB on a concrete pad. The associated electrical distribution equipment will remain in the TSB. The changes proposed by NEF-2005-0021 are unchanged by this revision.

Impact Assessment

Revise site plans to show placement of Security DG concrete pad & fuel tank.
Revise L4-50-01-FHA, Fire Hazards Analysis ***(Action Item AI-06-000014)***

ISAS Markup

The 115 kV lines power the utility substation provided by Xcel Energy for the facility service. Duplicate transformers are used in the substation to transform the 115 kV to 13 kV for the facility electrical power distribution system. Each transformer can be supplied from either 115 kV line and is rated to supply the total power requirements of the facility. The average power requirement and the peak power requirement of the facility are approximately 30.3 MVA and 32 MVA, respectively.

3.5.2.1.2 Overall Site Power Distribution

The Xcel Energy substation transformers supply duplicate sets of 13 kV switchgear that distribute power to the site substation transformers. Either of the duplicate switchgears can be supplied from either of the Xcel Energy transformers. Each feeder circuit from the 13 kV switchgear to the site substation transformers has a connection to both switchgears and can be supplied from either switchgear. The site substation transformers convert the 13 kV supply voltage to the voltages needed for utilization in the facility.

3.5.2.1.3 Onsite Power Sources

Standby Diesel Generators are provided to power equipment that can tolerate a short break (short break load) in the normal power supply. This capability is needed to allow for an orderly shutdown of the facility. Each of the Standby Diesel Generators is sized for 100% of the short break load requirement of the equipment to which it is connected. The Standby Diesel Generators are not required for safety operation of the facility and are installed to provide protection of investment only.

Uninterruptible Power Supply (UPS) systems are provided to power the facility process equipment that does not tolerate a break (no break load) in the normal power supply. Input power for this UPS system is normally provided by the short break power system with backup from the Standby Diesel Generators. Batteries power the UPS if all other input power is lost. Each of the UPS systems is sized for 100% of its connected load.

An additional standby Diesel Generator and 75 kVA Uninterruptible Power Supply are provided to power Security System equipment in the event of a failure of the normal power supply.

Additional UPS systems with battery backup are installed to provide no break power to support systems such as emergency lighting. These systems are sized and located as necessary to provide the requirements of the equipment served. Systems requiring no break power are listed in Section 3.5.2.4, Operating Characteristics.

Duplicate batteries supply operating power for the 13 kV and 4160 V switchgear.

Additional batteries provide starting power for each Standby Diesel Generator and operating power for each UPS system.

3.5.2.2 Major Components

The following are the major electrical distribution system components:

A. 115 kV – 13 kV Utility Substation. The utility substation provided by Xcel Energy will consist of 115 kV circuit breakers and switches; two, 115 kV to 13 kV Load Tap Changer (LTC) transformers; and two, 13 kV breakers to provide the dual 13 kV regulated sources for the facility.

H. Standby Diesel Generators. Duplicate Standby Diesel Generators supply standby power for the short break load system. Each Standby Diesel Generator supplies a designated switchgear.

I. Process UPS (No Break) System. Two battery backed UPS units provide power for the process no break loads. Normal input power to the UPSs is from the diesel generator backed up short break switchgear lineups. The batteries power the UPSs if all normal input power is lost. Each UPS is sized for 100% of it's connected load.

J Security Diesel Generator. A separate Diesel Generator supplies power to the Security System.

The process UPS no break load distribution system supplies power to equipment listed in Section 3.5.2.4.

3.5.2.3 Interfaces

The Electrical System interfaces with the Plant Control System (PCS) for monitoring only. The Electrical System signals are centralized in the 13 kV switchgear room and re-transmitted to the PCS.

The following electrical systems are monitored by the PCS.

A. 115 kV – 13 kV Utility Substation
B. 13 kV Switchgear
C. 4.16 kV Switchgear
D. 480/460 V Switchgear
E. Standby Diesel Generators
F. UPS Systems.

3.5.2.4 Operating Characteristics

The facility process load requirements are categorized as follows:

Normal Loads

All normal load equipment is fed from electrical distribution equipment which is not backed-up by either the Standby Diesel Generators or the UPSs. The normal load power distribution equipment is served by the duplicate 115 kV lines, duplicate main transformers and duplicate 13 kV switchgear.

Short Break Loads

The following equipment is supplied power from the short break power distribution system described in Section 3.5.2.2, Major Components.

A. Product Take-off System and Tails Take-off System pump sets
B. Hot air blowers on Low Temperature Take-off Stations
C. Fan motors in the GEVS
D. Contingency Dump Vacuum Pump/Trap Sets

Safety Analysis Report Markup (Section 1.1.2 Facilities Description)

Technical Services Building

The overall layout of the Technical Services Building (TSB) is presented in Figures 1.1-9, Technical Services Building First Floor, and 1.1-10, Technical Services Building Second Floor. The TSB contains support areas for the facility. It also acts as the secure point of entry to the Separations Building Modules and the Cylinder Receipt and Dispatch Building (CRDB). The major functional areas of the TSB are:

- Solid Waste Collection Room
- Vacuum Pump Rebuild Workshop
- Decontamination Workshop
- Ventilated Room
- Cylinder Preparation Room
- Mechanical, Electrical and Instrumentation (ME&I) Workshop
- Liquid Effluent Collection and Treatment Room
- Laundry
- TSB Gaseous Effluent Vent System (GEVS) Room
- Mass Spectrometry Laboratory
- Chemical Laboratory
- Environmental Monitoring Laboratory
- Truck Bay/Shipping and Receiving Area
- Medical Room
- Radiation Monitoring Control Room
- Break Room
- Control Room
- Training Room
- Security Alarm Center
- Security System Uninterruptible Power Supply (UPS)

Source material and SNM are found in this area.

Per DCC NEF-2005-0021 and DCC NEF-2005-0021A

Security Diesel Generator Pad

A Security Diesel Generator Unit, with an integral double wall fuel tank, is located approximately 10 feet south of the TSB. The Diesel Generator Unit is installed on a concrete pad and screened from the parking lot, access roads and the main highway.

Centrifuge Assembly Building

This building is used to assemble centrifuges before they are moved into the Separations Building and installed in the cascades. The overall layout of the Centrifuge Assembly Building (CAB) is presented in Figures 1.1-11 through 1.1-13. The Centrifuge Assembly Building is

located adjacent to the Cylinder Receipt and Dispatch Building. The major functional areas of the CAB are:

- Centrifuge Component Storage Area
- Centrifuge Assembly Area

ER Markup

During operation, offsite air quality will be impacted by passenger vehicles with NEF workers commuting to the site, delivery trucks, UF6 cylinder shipment trucks, and waste removal trucks. Emission rates from passenger vehicle exhaust were estimated for a 64.4-km (40-mi) roundtrip commute for 210 vehicles per workday. No credit was taken for the use of car pools. Emission rates from trucks were estimated for an average distance of 805-km (500-mi) for 18 vehicles per workday. It was assumed that there are 250 workdays per year (five-day work week and fiftyweek work year). Emission factors are based on AP-42. The resulting emission factors, tons of daily emissions, number of vehicles and heavy duty engines are provided in Table 4.6-7, Offsite Vehicle Air Emissions During Operations.

NUREG-1748 (NRC, 2003a) requires that atmospheric dispersion factors (χ/Q's) be used to assess the environmental effects of normal plant operations and facility accidents. In the following subsections, information is presented about the gaseous effluents, the gaseous effluent control systems, and computer models and data used to calculate atmospheric dispersion and deposition factors.

4.6.2.1 Description of Gaseous Effluents

Uranium hexafluoride (UF6) will be the radioactive effluent for gaseous pathways. Average source term releases to the atmosphere are estimated to be 8.9 MBq (240 µCi) per year for the purposes of bounding routine operational impats. Urenco's experience in Europe indicates that uranium discharges from gaseous effluent vent systems are less than 10 g (0.35 ounces) per year. Therefore, 8.9 MBq (240 µCi) is a very conservative estimate and is based upon an NRC estimate (NRC, 1994a) for a 1.5 million SWU plant that LES has doubled for the 3 million SWU NEF.

Nonradioactive gaseous effluents include hydrogen fluoride (HF), ethanol and methylene chloride. HF releases are estimated to be about 1.0 kg (2.2 lbs) each year. Approximately 40 L (10.6 gal) and 610 L (161 gal) of ethanol and methylene chloride, respectively, are estimated to be released each year. Two natural gas-fired boilers (one in operation, one spare) will be used to provide hot water for the plant heating system. These boilers will be located in the Central Utilities Building (CUB). Emission data provided by the vendor for the boilers indicate that they will not emit more than 90,700 kg (100 tons) per year of any regulated air pollutant. At 100% power, each boiler will emit 499 kg (0.55 tons) per year of Carbon Monoxide (CO), 5,008 kg (5.52 tons) per year of Nitrogen Oxides (NOx) and 798 kg (0.88 tons) per year of volatile organic compounds (VOC). The boilers will not require an air quality permit from the State of New Mexico (AQB, 2004)

In addition, there will be ~~two~~ three diesel generators onsite for use as ~~emergency~~ standby power sources. However, the use of these diesel generators will be administratively controlled (i.e., only run a limited number of hours per year) and are exempt from air permitting requirements of the State of New Mexico.

Other smaller standby diesel generators may also be used to provide backup power to some specific systems. The number and size of these other diesel generators are not defined at this time.

centrifuge equipment, production will commence prior to completion of the initial three-year construction period. The manpower and materials used during this phase of the project will vary depending on the construction plan. Table 7.2-2, Estimated Construction Material Yearly Purchases, provides the estimated total quantities of purchased construction materials and Table 7.2-3, Estimated Yearly Labor Costs for Construction, provides the estimated labor that will be required to install these materials. The scheduling of materials and labor expenditures is subject to the provisions of the project construction execution plan, which has not yet been developed.

Approximately 60 to 80% of the construction materials will be purchased from the local NEF site area. According to the labor survey conducted as part of the conceptual estimate, the major portion of the required craft labor forces will come from the five or six counties around the project area, including the nearby Texas counties.

7.2.2 Plant Operation

7.2.2.1 Surface and Groundwater Quality

Liquid effluents at the NEF will include stormwater runoff, sanitary and industrial wastewater, and treated radiologically contaminated wastewater. Radiologically contaminated process water will be treated to 10 CFR 20, Appendix B limits (CFR, 2003q) and discharged to the Treated Effluent Evaporative Basin, which is a double-lined treated effluent evaporative basin with leak detection. Site stormwater runoff from the Uranium Byproduct Cylinder (UBC) Storage Pad is routed to the UBC Storage Pad Stormwater Retention Basin. The general site runoff is routed to the Site Stormwater Detention Basin. Stormwater discharges will be regulated by the National Pollutant Discharge Elimination System (NPDES) during operation. Approximately 174,100 m^3 (46 million gal) of stormwater from the plant site is expected to be released annually to the two stormwater basins.

7.2.2.2 Terrestrial and Aquatic Environments

No communities or habitats defined as rare or unique or that support threatened and endangered species, have been identified anywhere on the NEF site. Thus, no operation activities are expected to impact such communities or habitats.

7.2.2.3 Air Quality

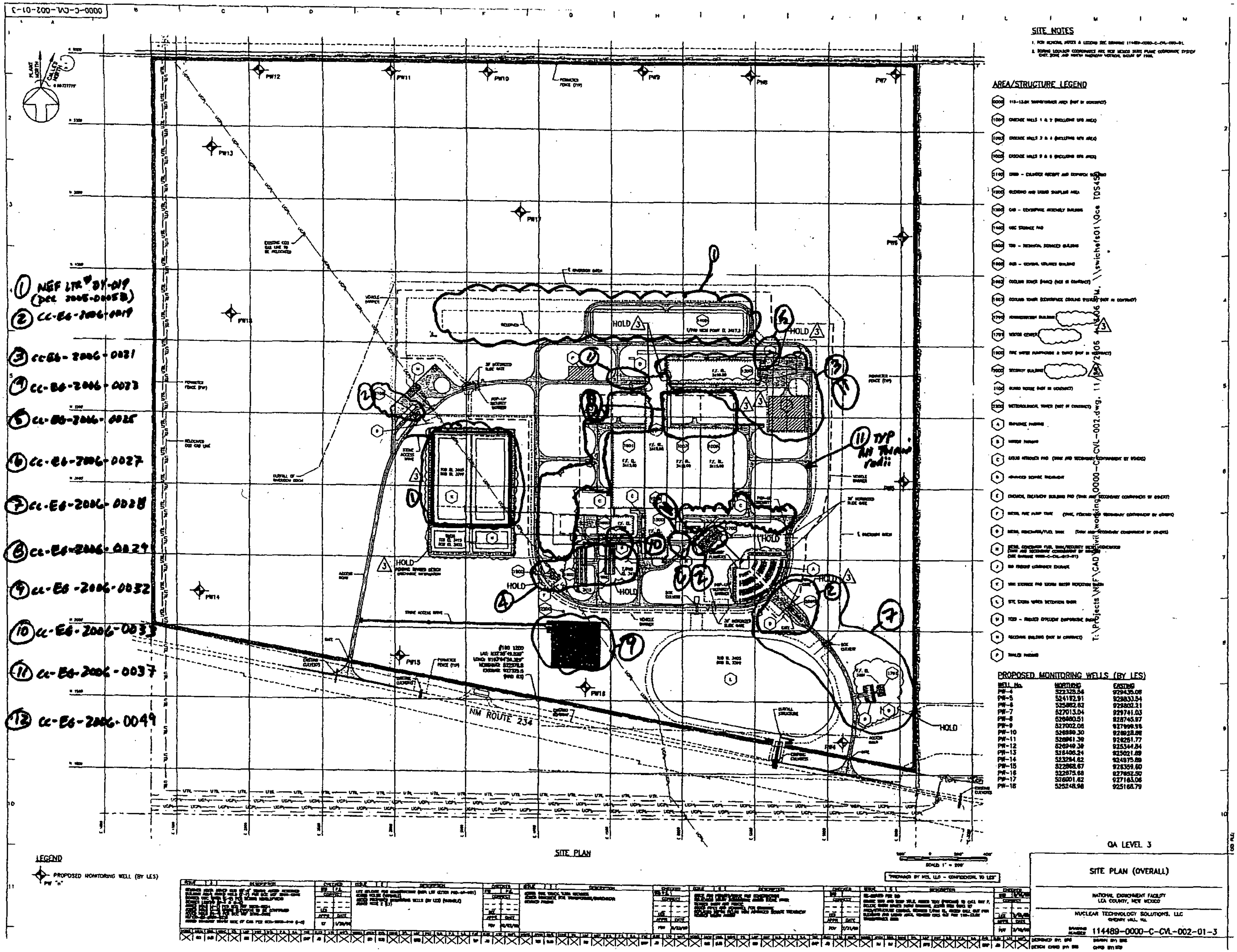
No adverse air quality impacts to the environment, either on or offsite, are anticipated to occur. Air emissions from the facility during normal facility operations will be limited to the plant ventilation air and gaseous effluent systems. All plant process/gaseous air effluents are to be filtered and monitored on a continuous basis for chemical and radiological contaminants, which could be derived from the UF6 process system. If any UF_6 contaminants are detected in ambient in-plant air systems, the air is treated by appropriate filtration methods prior to its venting to the environment. ~~Two emergency~~ Three diesel generators ~~that~~ supply standby electrical power operate only in the event of power interruptions. They will have negligible health and environmental impacts.

Table A1 – NEF Licensing Basis Document Site Plan Figures Requiring Revision (Mark-ups Attached – See Notes)

Change Topic	Description of Change	Emergency Plan (EP)	Environmental Report (ER)	Integrated Safety Analysis Summary (ISAS)	Safety Analysis Report (SAR)	Fundamental Nuclear Material Control Plan (FNMCP)
Site Plan Revision	The site plan has changed, therefore, various sketches provided in the LB documents require revision to reflect the current site plan. This CC covers the changes reflected in the following DCCs, which are cross-referenced to their corresponding CCs (see table below).	Figures: 1.2-1; 1.3-1	Figures: 1.2-4; 2.1-2; 2.1-4; 3.3-12; 3.4-1; 3.6-11; 3.9-2; 3.12-1; 4.4-1; 4.9-1; 4.12-2; 4.12-3; 4.12-4; 6.1-1; 6.1-2	Figures: 3.2-2; 3.2-3; 3.3-1	Figures: 1.1-3; 1.1-4; 4.7-2; 7.5-1; 7.5-2	Figures: 5.1-1, 5.1-2, 5.1-3, D-3, D-4

Notes:

1. Actual figure changes to be finalized by licensing basis document owners based on information presented in the attached NTS drawings 114489-0000-C-CVL-002-01 (Site Plan) and 114489-0000-C-CVL-001-01 (Topographic Survey).
2. Additional figures reflecting the site plan may also be impacted in the safeguarded licensing basis documents (e.g., Guard Force Training and Qualification Plan, Physical Security Plan, Standard Practice Procedures Plan for the Protection of Classified Matter). The impacts and revisions to those documents are to be addressed by Support Services.
3. For information, the NRC Environmental Impact Statement included the site layout in several figures (i.e., Figures 2-4, 2-6, 3-19, 4-1, 4-2, 6-1, C-1 and C-3). The EIS figures are not LES configuration documents and therefore are not subject to revision under this process.


0000-C-CVL-002-01-3
SITE NOTES
AREA/STRUCTURE LEGEND
PROPOSED MONITORING WELLS (BY LES)
HOLD
NM ROUTE 234
SITE PLAN
LEGEND
PROPOSED MONITORING WELL (BY LES)
QA LEVEL 3
SITE PLAN (OVERALL)
NATIONAL ENRICHMENT FACILITY
LEA COUNTY, NEW MEXICO
NUCLEAR TECHNOLOGY SOLUTIONS, LLC
114489-0000-C-CVL-002-01-3
① NEF LTR# BY-019 (DCC 2006-0005B)
② CC-EG-2006-0019
③ CC-EG-2006-0021
④ CC-EG-2006-0023
⑤ CC-EG-2006-0025
⑥ CC-EG-2006-0027
⑦ CC-EG-2006-0028
⑧ CC-EG-2006-0029
⑨ CC-EG-2006-0032
⑩ CC-EG-2006-0033
⑪ CC-EG-2006-0037
⑫ CC-EG-2006-0049
⑪ TYP All Turning radii

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2005-0???
Originator:	Thomas P. Tonden *Thomas P. Tonden*	Date:	August 1, 2005(+0)
Supervision:	Stephen Wright *[signature]*	Date:	8/1/05 (+1)
Project Management:	Charles Cronan *[signature]*	Date:	8/2/05 (+1)
Proposed Change Title:	Security System Uninterruptible Power Supply and Diesel Generator		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

Provide a 75kVA Uninterruptible Power Supply for the Security System located in the TSB.

Provide a diesel generator backup supply for the Security System located in the TSB.

Reason for change:
Security system loads require a separate UPS and backup diesel generator. These were not included in the Lockwood Greene electrical single line diagrams or arrangement drawings.

Safety / Environment ☐
Correction ☒
Improvement ☐

Drawings/Documents Affected (Including License Application and ISA Summary):
Electrical One-Line 000E5201, Rev 0 (LGDB)

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date)(+2)

ISA Potential Impacts:

Assessment of Facility Fire Risk at NEF for ISA and Design Basis (EIR 51-2400553-01).

LA-50-01-FHA, Fire Hazards Analysis Continuation on page 2

Name	Position	Signature	Date
David H. Page	*ISA Scribe*	*[signature]*	*08-04-05* (+2)

Part 3 – Disposition

Disposition (check appropriate)
Approved ☐ Rejected ☐

	Name	Position	Signature	Date
LES	*Dan Green*	*Licensing*	*[signature]*	*8/17/05* (+0)
Urenco	*Allan Brown*	*Design Manager*	*Allan J. Brown*	*17Aug05* (+3)
Disposition Approved:	*Mike Lynch*	LES Vice President – Project Management	*[signature]*	*8/8/05* (+7)

The potential issues identified above will be addressed during the ISA screening/review of the detailed design and upon implementation of AP-CM-1.1

Dan Green / [signature] / 8/19/05

(+x) – Elapsed Time Goal in Calendar Days

Design Change Control Form - Security UPS

Page 1 of 2

Part 4 - Implementation NEF-2005-0021						
Implementation by:				LES		☐
				NTS		☒
				Urenco		☐
Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).				☒
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.				☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.				☐
Approved:	Name:	RM Krich	Signature	[signature]	Date	8/22/05
LES Vice President – Licensing, Safety, and Nuclear Engineering						
Part 5 – Distribution (with Part 2 Assessments attached)						
(Include originator, Assessors, Approvers, and File)						

Part 2 – Assessment (AREVA ISA SME) Continuation from page 1

Table 6.1-4, Chemicals – Technical Service Building of the SAR

Table 621-4, Chemicals – Technical Service Building of the ER

Diesel Generator backup supply for the security system should be segregated from the areas in the TSB containing uranium by fire barriers. The fire barriers shall be designed with a minimum hourly fire resistance rating of 2 hours and an adequate safety margin such that the total combustible loading (in situ and transients) allowed to expose the barrier will not exceed 80% of the hourly fire resistance rating of the barrier.

Secondary Containment for diesel fuel tank

Confinement of diesel fuel day tank, fuel supply within TSB

Potential need for fire suppression and any associated drainage issues that would result from a suppression system.

(+x) – Elapsed Time Goal in Calendar Days

DESIGN CHANGE CONTROL
Response to ISA Team Comments

Number ID: NEF-2005-0021

The following design practices will be followed for consistency with the design basis documents, including the License application and the ISA Summary:

a. The Security Diesel generator will be located at the southernmost end of the TSB along the exterior wall. The wall separating the Security diesel generator room and the TSB will be designed with a minimum hourly fire resistance of 2-hours and adequate safety margin such that the total combustible load exposed to the barrier will not exceed 80% of the hourly fire resistance rating of the barrier.
b. The main fuel tank will be located outside the TSB and will be of the double wall construction type.
c. The day tank will be located in the Security Diesel generator room and will be of the double wall construction type.

The Security Diesel Generator Room will be provided with fire detection and fixed dry chemical system suppression. The Security Diesel load Center Room will be provided with fire detection and manual fire extinguishers.

Stavros Tsombaris
Lead Electrical Engineer S. Tsombaris Date 8/15/05

Stephen Wright
Project Engineer Date 8/17/05

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF- 2005- 0021
Originator:	Thomas P. Tonden *Thomas P. Tonden*	Date:	August 1, 2005(+0)
Supervision:	Stephen Wright *[signature]*	Date:	8/1/05 (+1)
Project Management:	Charles Cronan *[signature]*	Date:	8/2/05 (+1)
Proposed Change Title:	Security System Uninterruptible Power Supply and Diesel Generator		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

Provide a 75kVA Uninterruptible Power Supply for the Security System located in the TSB.

Provide a diesel generator backup supply for the Security System located in the TSB.

Reason for change:
Security system loads require a separate UPS and backup diesel generator. These were not included in the Lockwood Greene electrical single line diagrams or arrangement drawings.

Safety / Environment	☐
Correction	☒
Improvement	☐

Drawings/Documents Affected (including License Application and ISA Summary):
Electrical One-Line 000E5201, Rev 0 (LGDB)

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

NO COMMENTS

Name	P HALE	Position	MECH PROJECT LEAD ENG'	Signature	*[signature]*	Date	8/8/05 (+5)

Part 3 – Disposition

Disposition (check appropriate)
Approved ☒ Rejected ☐

	Name	Position	Signature	Date
~~LES~~	Dan Green	Licensing	*[signature]*	8/17/05 (+6)
Urenco				(+8)
Disposition Approved:	Mike Lynch	LES Vice President – Project Management		(+7)

Dan 8/17/05

(+x) – Elapsed Time Goal in Calendar Days

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2005-0021-A
Originator:	S. Tsombaris	Date:	August 31, 2005(+0)
Supervision:	Stephen Wright	Date:	8/31/05 (+1)
Project Management:	Charles Cronan	Date:	9/27/05 (+1)
Proposed Change Title:	Security System Uninterruptible Power Supply and Diesel Generator		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

NEF-2005-0021 provided a 75kVA Uninterruptible Power Supply for the Security System located in the TSB. This change has been approved for implementation and is unchanged by this revision.

NEF-2005-0021 also provides a diesel generator backup supply for the Security System located in the TSB. This change had also been approved for implementation. However based on comments by the ISA team members, it was recognized that this portion of the change would result in additional IROFS (eg. Fire barriers and fuel oil containment system).

To eliminate the need for additional IROFS due to placing the Security diesel generator in close proximity to uranic material (ie. In the TSB) the Security Diesel Generator Unit, with an integral double wall fuel tank, will be located outside the TSB at the approximate location shown on the attached sketch. The associated electrical distribution equipment remains in the TSB.

The Diesel Generator Unit will be installed on a concrete pad and an L-shaped screen, for security purposes, shall be provided around the unit to block its view from the parking lot, access roads and the main highway in front of the facility.

Reason for change:
Security system loads require a separate UPS and backup diesel generator. These were not included in the Lockwood Greene electrical single line diagrams or arrangement drawings. Reason for NEF-2005-0021-A, is to eliminate need for additional IROFS.

Safety / Environment	☐
Correction	☒
Improvement	☐

Drawings/Documents Affected (including License Application and ISA Summary):
Electrical One-Line 000E5201, Rev 0 (LGDB)

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

SEPARATION OF SEP/ PLANT DIESELS AND SECURITY DIESELS IS SUPPORTED.
POWER CABLE ROUTING BETWEEN THE SECURITY DIESEL AND ITS RELATED DISTRIBUTION SYSTEM SHOULD BE UNDERGROUND AND COMPLETELY ISOLATED FROM THE SEP/TSB SYSTEMS.
THE SECURITY SYSTEM POWER SUPPLYS SHOULD BE SEPARATE FROM ALL OTHER ELECTRICAL SYSTEMS.

Name	AWARING	Position	LE. CEPT	Signature		Date	18-10-05 (+5)

(+x) – Elapsed Time Goal in Calendar Days

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2005-0021-A
Originator:	S. Tsombaris S. Tsombaris	Date:	August 31, 2005 (+0)
Supervision:	Stephen Wright	Date:	8/31/05 (+1)
Project Management:	Charles Cronan	Date:	(+1)
Proposed Change Title:	Security System Uninterruptible Power Supply and Diesel Generator		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

NEF-2005-0021 provided a 75kVA Uninterruptible Power Supply for the Security System located in the TSB. This change has been approved for implementation and is unchanged by this revision.

NEF-2005-0021 also provides a diesel generator backup supply for the Security System located in the TSB. This change had also been approved for implementation. However based on comments by the ISA team members, it was recognized that this portion of the change would result in additional IROFS (eg. Fire barriers and fuel oil containment system).

To eliminate the need for additional IROFS due to placing the Security diesel generator in close proximity to uranic material (ie. in the TSB) the Security Diesel Generator Unit, with an integral double wall fuel tank, will be located outside the TSB at the approximate location shown on the attached sketch. The associated electrical distribution equipment remains in the TSB.

The Diesel Generator Unit will be installed on a concrete pad and an L-shaped screen, for security purposes, shall be provided around the unit to block its view from the parking lot, access roads and the main highway in front of the facility.

Reason for change:
Security system loads require a separate UPS and backup diesel generator. These were not included in the Lockwood Greene electrical single line diagrams or arrangement drawings.
Reason for NEF-2005-0021-A, is to eliminate need for additional IROFS.

Safety / Environment	☐
Correction	☒
Improvement	☐

Drawings/Documents Affected (including License Application and ISA Summary):
Electrical One-Line 000E5201, Rev 0 (LGDB)

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

ISA Potential Impacts: L4-50-01-FHA, Fire Hazards Analysis. Provide Berm around Security Diesel for containment of Diesel Fuel Spill. Berm from TSB to prevent diesel fuel fire against the TSB outside walls.

Name	David M Pepe	Position	ISA Scribe	Signature	David M Pepe	Date	9/12/05 (+5)

(+x) – Elapsed Time Goal in Calendar Days

Part 3 – Disposition				*Disposition (check appropriate)* **Approved ☒ Rejected ☐**
	Name	Position	Signature	Date
LES	Daniel Green	Licensing	Daniel Green	October 19, 2005 (+5)
Urenco	Allan Brown	Design Manager	Allan S. Brown	October 19/05 (+5)
Disposition Approved:	N/A per CH	LES Vice President – Project Management	N/A per CH	Oct 19/05 (+7)

Part 4 - Implementation			
Implementation by:		LES	☐
		NTS	☒
		Urenco	☐
Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☒
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved:	Name	B.M. Krich	Signature		Date	10/19/05 (+10)
LES Vice President – Licensing, Safety, and Nuclear Engineering						

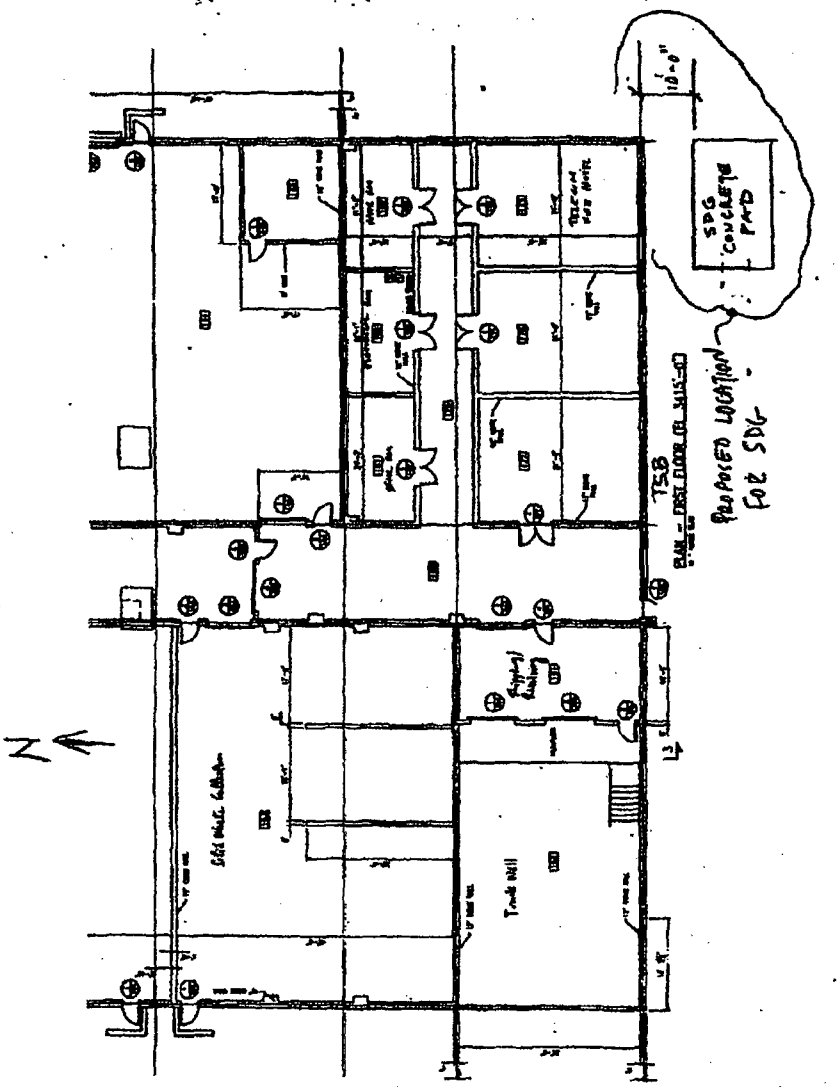
Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

(+x) – Elapsed Time Goal in Calendar Days

NEF-2005-0021-A

DESIGN CHANGE CONTROL
RESPONSE TO ISA TEAM COMMENTS
REVISION A



Action Items (AI) Associated with LES CC-EG-2006-0033

Action Item ID Number	Identifying CC	Referenced DCC	Related CR	Title	Description	Originating Dept.	Originator	Originator's Phone	Date Signed	Recommended AI Owner	Completion Milestone
AI 06-000009	LES CC-EG-2006-0033	DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Revision of ER Table 3.12-6	Revise ER Table 3.12-6 to include fuel inventory increase resulting from additional Security Diesel Generator.	EG	Joe Logatto	908-507-8767	12/6/2006	HS&E	Prior to submittal of ER update
AI 06-000010	LES CC-EG-2006-0033	DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Revision of ER Tables 4.6-4, 4.8-6, and 4.8-8	Add emission information for Security DG to ER Tables 4.8-4, 4.8-6, and 4.8-8	EG	Joe Logatto	908-507-8767	12/6/2006	HS&E	Prior to submittal of ER update
AI 06-000011	LES CC-EG-2006-0033	DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Revision of ISAS Section 3.5	Revise ISAS Section 3.5, Utility and Support Systems, to add a section covering the UPS and Diesel Generator for the Security System.	EG	Joe Logatto	908-507-8767	12/6/2006	Technical Services	Before receipt of UF_6 on site
AI 06-000012	LES CC-EG-2006-0033	DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Revision of ISAS Section 3.5.2	Revise ISAS Section 3.5.2, Electrical System, to provide details of additional onsite power source, i.e., the Security Diesel Generator, as well as a description of the UPS for the Security System.	EG	Joe Logatto	908-507-8767	12/6/2006	Technical Services	Before receipt of UF_6 on site
AI 06-000013	LES CC-EG-2006-0032 LES CC-EG-2006-0033	DCC NEF-2005-0049 DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Revision of Electrical One-Line Diagrams	Revise the appropriate Electrical one-line diagrams to indicate the addition of the Security Diesel Generator.	EG	Joe Logatto	908-507-8767	12/6/2006	Technical Services	Before receipt of UF_6 on site
AI 06-000014	LES CC-EG-2006-0033	DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Revision of L4-50-01-FHA	Revise L4-50-01-FHA, Fire Hazards Analysis for the NEF facility, to account for the addition of the Security Diesel Generator and Fuel Tank.	EG	Joe Logatto	908-507-8767	12/6/2006	Technical Services	Before receipt of UF_6 on site
AI 06-000020	LES CC-EG-2006-0033	DCC NEF-2005-0021, DCC NEF-2005-0021A	CR 06-0025	Review of Security Related Licensing Basis Documents	Review the Licensing Basis Documents related to security for changes necessary to reflect the addition of Security UPS and Diesel Generator	EG	Joe Logatto	908-507-8767	12/6/2006	Support Services	Prior to release of final design for Security System DG & UPS.
AI 06-000048	LES- CC-EG-2006-0033	DCC NEF-2005-0021A	CR 06-0025	Revision of SAR Table 6.1-4 and ER Table 2.1-4	Revise tables to add fuel inventory to TSB chemical inventory (outdoors) based on final design of Security DG	EG	Joe Logatto	908-507-8767		Technical Services	Prior to release of final design for Security System DG & UPS.

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0033 **Revision:** 0 **Title (if applicable): Security System UPS and Diesel Generator**	
Reviewer: Mark Strum	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / 508-573-6578 / mark.strum@areva.com**
Functional Area: HS&E	**Date Due: 01/11/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

Response: The review criteria applied to the HS&E review was to ensure that ER impacts associated with the addition of a new diesel generator and fuel supply near the TSB (outside)

Reference documents reviewed include ER Sections 2.1.2 and 7.2.3 and ER Figures 3.12-6, 4.6-4, 4.6-6, 4.6-8

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:
☐ No additional LES procedure review requirements for this Functional Area.
Comments:

EN-103, Attachment 1 form completed and included in the environmental review of the addition of a new diesel generator and associated fuel oil supply tank.

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis: *The environmental review of the proposed CC per EN-103 identified that the NM Air Quality Board has notified LES that "operation of two emergency diesel generators. . .are exempt from permitting requirements provided all requirements of 20.2.72.202.B (3). . .are met. The addition of a third security diesel generator will need to be confirmed as compliant against these requirements (limited run basis such that the exemption is maintained) when design drawings/specifications are available. The EN-103 review (see attached) concluded that no prior NRC approval is required for this change for the conditions identified per this change package.*

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments: *None.*

Mark Strum _____ 01/17/06

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

EG-101
Revision 0

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2006-0033 **Title (If applicable):** Security System UPS & Diesel Generator				**Revision:** 0	
Reviewer				**Preparer**	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
		No Comments			
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Mark Strum / AREVA / HS&E			Date: 01/17/07	Resolved by:	Date:
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date:		

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 1 of 6)

Document Title: Security System UPS & Diesel Generator Review No.:051EN103

Document No.: CC-EG-2006-0033 Revision: 0

PART 1 ENVIRONMENTAL REVIEW

Does the proposed change:

YES	NO	ITEM
☒	☐	1. Increase environmental impacts from noise levels at the site boundary or generation of regulated air pollutants (e.g., dusts, vapors, asbestos), hazardous waste, solid waste, or wastewater?
☒	☐	2. Increase the potential to release any chemical (e.g., gas, oil, PCB, hydraulic fluid, anti-freeze, etc.) to the environment or introduce new chemicals to the site?
☐	☒	3. Disturb land, streams or wetlands or modify stormwater drainage systems that would change site stormwater runoff or increase the sediment loading of stormwater runoff?
☐	☒	4. Affect the existing capability to control, treat, or monitor releases to the environment?
☐	☒	5. Result in a physical or chemical change in the characteristics of discharges, effluents, emissions, or withdrawals?
☒	☐	6. Result in permanent or temporary storage (for re-use, disposal, or offsite transfer) of a hazardous or regulated chemical or waste outside of established handling facilities; or reduce the margin of control or containment (i.e., increase the potential of a release to the environment)?
☐	☒	7. Result in an alteration to a plant system or component, (e.g., wastewater treatment operation, air emission filters) regulated by an environmental permit (e.g., air emission permit, groundwater discharge permit) or require a modification to an environmental permit?
☐	☒	8. Alter the drinking water treatment system or cause the drinking water distribution system to be opened?
☒	☐	9. Require a change to the NEF Environmental Report and/or the Final Environmental Impact Statement by the NRC?

Complete Part 2.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 2 of 6)

Document Title: Security System UPS & Diesel Generator Review No.:051EN103

Document No.: CC-EG-2006-0033 Revision: 0

PART 2: ASSESSMENT OF IMPACT

☐ All items in Part 1 answered "No."

This proposed change **DOES NOT** involve the potential to adversely impact the environment and the proposed change is within the scope of environmental impacts assessed by the Environmental Report (ER) and/or the Final Environmental Impact Statement (FEIS, NUREG-1790).

1. No further review and evaluation is required.
2. Documentation of the summary of changes is attached as pages _____ to this evaluation.

OR

☒ Item(s) listed in Part 1 are answered "Yes."

This proposed change **DOES** involve the potential to impact the environment in a manner beyond that assessed in the ER and/or FEIS or **DOES** require a modification to an environmental permit.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.
2. Documentation of the affect of the proposed changes impacting the environment is attached as pages 5 and 6 to this evaluation.
3. Complete Part 3 of this review.

Preparer: Scott Tyler Date: 01/15/07

Reviewer: Mark Strum Date: 01/17/07

Environmental Compliance Manager: Date: 1-17-07

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 3 of 6)

Document Title: Security System UPS & Diesel Generator Review No.:051EN103

Document No.: CC-EG-2006-0033 Revision: 0

PART 3 ENVIRONMENTAL EVALUATION

A.1 Does the proposed activity result in a change that is not administrative, organizational or procedural in nature?

☒ **YES** ☐ **NO** (provide justification)

Justification:
This CC package modification adds a new diesel generator and associated fuel storage for supporting security system emergency power needs.

A.2 Does the proposed activity result in a significant change in the types of any effluent that may be release offsite?

☐ **YES** ☒ **NO** (provide justification)

Justification:
This CC package does not modify the type of effluents – diesel engine exhaust and diesel fuel (if spilled) – but does increase the potential quantity slightly.

A.3 Does the proposed activity result in a significant increase in the amounts of any effluent that may be release offsite?

☐ **YES** ☒ **NO** (provide justification)

Justification:
This CC package does not modify the type of effluents – diesel engine exhaust and diesel fuel (if spilled) – but does increase the potential quantity slightly. As noted in A.2

A.4 Does the proposed activity result in a significant increase in individual or cumulative radiological or chemical occupational exposure?

☐ **YES** ☒ **NO** (provide justification)

Justification:

There is no radiological system modification associated with this CC. The potential increase in chemical exposure is minor and is associated with the VOC emission (under permit) and potential exposure to diesel fuel in the event of spill.

A.5 Does the proposed activity result in a significant construction impact?

☐ **YES** ☒ **NO** (provide justification)

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 4 of 6)

Document Title: Security System UPS & Diesel Generator Review No.:051EN103

Document No.: CC-EG-2006-0033 Revision: 0

Justification: There will be a minor change to the grading work required at the installation location for the DG and its associated pad/curb area.

A.6 Does the proposed activity result in a significant increase in the potential for or consequences from radiological accidents?

☐ **YES** ☒ **NO** (provide justification)

Justification:

This modification does not involve any radiological system changes nor impact component relied upon for radiological material/release control.

If 'YES' is checked for question A.1 and any of the questions A.2 through A.6, the change requires NRC approval prior to implementation.

If 'YES' is checked for question A.1 and 'NO' is checked for each of the questions A.2 through A.6, then prior NRC approval of the change is not required.

If 'NO' is checked for each of the questions A.1 through A.6, then prior NRC approval of the change is not required.

A.7 Does the proposed activity require a modification to an existing environmental permit?

☐ **YES** ☒ **NO** (provide justification)

Justification:

As noted in ER Section 1.3.2, the NM Air Quality Board notified LES that "operation of two emergency diesel generators. . .are exempt from permitting requirements provided all requirements of 20.2.72.202.B (3). . .are met. The security diesel generator will need to be confirmed as compliant against these requirements (limited run basis such that the exemption is maintained) when design drawings/specifications are available.

If 'YES' is checked for questions A.7, then a permit revision must be submitted to the applicable permitting agency, and NRC notification may be required, prior to implementation of the change. If 'NO' is checked for questions A.7, then prior permitting agency approval of the change is not required.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 5 of 6)

Document Title: Security System UPS & Diesel Generator Review No.:051EN103

Document No.: CC-EG-2006-0033 Revision: 0

B. Based on this evaluation, the proposed change ☐ **DOES** ☒ **DOES NOT** require NRC and/or permitting agency approval prior implementation.

Preparer: Scott Tyler Date: 1/15/07

Reviewer: Mark Strum Date: 01/17/07

Environmental Compliance Manager: L E Wetherell Date: 1-17-07

Summary Of Changes

As detailed in DCC-NEF-2005-0021A, the proposed modification will add a new diesel generator and fuel supply tanks on a concrete pad at the SE corner of the Technical Services Building. The potential environmental impacts are increased air VOC emissions due to the additional internal combustion engine, a nominal increase in the likelihood of diesel fuel spill with the attendant runoff to storm water drainage. These impacts are minor. The CC package identifies the following documents as impacted:

SAR Section 1.1.2, Facilities Description, ER Sections 2.1.2.3.4, 7.2.3.3, ER Tables 3.12-6, 4.6-4, 4.6-6, 4.6-8
ISAS Section 3.5, 3.5.2, ISAS Figure 3.5-19, Electrical One-Line Diagram
L4-50-01-FHA, Fire Hazards Analysis for the NEF Facility,
Physical Security Plan
Guard Force Training and Qualification Plan
Site Practice Procedures Plan for Protection of Classified Matter.
The NEF Licensing Basis Document figures listed in Table A1 of CC-EG-2006-0036 are impacted by this Configuration Change. The attached drawing 114489-0000-C-CVL-002-01-3 identifies the rolled up changes. All other listed documents reflect this drawing as appropriate.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 6 of 6)

Document Title: Security System UPS & Diesel Generator Review No.:051EN103

Document No.: CC-EG-2006-0033 Revision: 0

Table A1 – NEF Licensing Basis Document Site Plan Figures Requiring Revision
(Mark-ups Attached – See Notes)

Change Topic	Description of Change	Emergency Plan (EP)	Environmental Report (ER)	Integrated Safety Analysis Summary (ISAS)	Safety Analysis Report (SAR)	Fundamental Nuclear Material Control Plan (FNMCP)
Site Plan Revision	The site plan has changed, therefore, various sketches provided in the LB documents require revision to reflect the current site plan. This CC covers the changes reflected in the following DCCs, which are cross-referenced to their corresponding CCs (see table below).	Figures: 1.2-1; 1.3-1	Figures: 1.2-4; 2.1-2; 2.1-4; 3.3-12; 3.4-1; 3.6-11; 3.9-2; 3.12-1; 4.4-1; 4.9-1; 4.12-2; 4.12-3; 4.12-4; 6.1-1; 6.1-2	Figures: 3.2-2; 3.2-3; 3.3-1	Figures: 1.1-3; 1.1-4; 4.7-2; 7.5-1; 7.5-2	Figures: 5.1-1, 5.1-2, 5.1-3, D-3, D-4

Notes:
1. Actual figure changes to be finalized by licensing basis document owners based on information presented in the attached NTS drawings 114489-0000-C-CVL-002-01 (Site Plan) and 114489-0000-C-CVL-001-01 (Topographic Survey).
2. Additional figures reflecting the site plan may also be impacted in the safeguarded licensing basis documents (e.g., Guard Force Training and Qualification Plan, Physical Security Plan, Standard Practice Procedures Plan for the Protection of Classified Matter). The impacts and revisions to those documents are to be addressed by Support Services.
3. For information, the NRC Environmental Impact Statement included the site layout in several figures (i.e., Figures 2-4, 2-6, 3-18, 4-1, 4-2, 6-1, C-1 and C-3). The EIS figures are not LES configuration documents and therefore are not subject to revision under this process.

The following additional documents may need revision:

- SAR Table 6.1-5, to increase diesel fuel quantity
- ER Section 1.3.2, to add the third generator
- ER Section 4.6.2.1, to describe the security diesel generator
- ER Section 7.2.2.3 (noted above as 7.2.3.3)

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0033 **Revision:** 0 **Title (if applicable): Security System UPS and Diesel Generator**	
Reviewer: Scott Tyler	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / 630.778.4439 / scott.tyler@areva.com**
Functional Area: H&S, Fire Protection	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

The following criteria and documents were used to review this configuration change for potential impact on Health & Safety and Fire Protection attributes: NEF ISA (ISA Summary and SAR Chapter 3, Sections 3.1 through 3.8 and supporting documentation – EIRs and calculations re Fire Risk, Evacuation); SAR Chapter 6; SAR Chapter 7;Preliminary Fire Hazards Analysis; and SER. Package was reviewed (cursory) for potential State of NM Building & Fire Code issues

This package contains documents that provides for an additional diesel generator to provide backup power for the site security system and adds the associated diesel fuel system.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Check applicable box:

NRC approval ☒ may *or* ☐ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

The quantity of fuel within the diesel generator tank, the potential for fuel spillage during fuel tank filling and/or along the route that will be used for fuel deliveries to the TSB needs to be assessed to determine if there is any potential for formulation of a fire that would expose intra-site cylinder transport to the CRDB and/or the UBC storage pad. Also the selected route needs to be evaluated for exposure to sole IROFS 35 Fire Barriers to ensure that a fire exceeding 80% of the one hour fire resistance rating (2 hr. walls for code, 1 hr. wall for IROFS credit) is not exceeded.

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

See comments on Attachment 5 with respect to need for action to evaluate FHA/ISA Impact Assessment.

Scott M. Tyler

Reviewer Signature

12/20/06

Date

Return Form to Preparer with copy to CM Coordinator

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2006-0033 Title (if applicable): Security System UPS and Diesel Generator				Revision: 0	
Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Documents: ISAS Section 3.7 and 3.8 L4-50-01-FHA EIR 51-2400553, NEF Fire Risk	Comment: This will require fuel delivery to a new location on site that was not assessed in the ISA. Impact: Potential IROFS/safety margin impact. License basis / code commitment impact. Recommendation: **Create action item to ensure analysis and integration of new arrangement into FHA/ISA.**	Yes	Action Item 06-000014 has been assigned to Technical Services to revise L4-50-01-FHA, Fire Hazards Analysis for the NEF facility, to account for the addition of the Security Diesel Generator and Fuel Tank	N
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) SCOTT TYLER / AREVA / 630.778.4439			Date: 12/20/06	Resolved by: J. P. LOGATTO (Enercon)/Design Engineering/908-507-8767	Date: 12/21/06
Disposition(s) Acceptable: CC may proceed Reviewed by: (Print Name/Signature) S. TYLER Scott M. Tyler			Date: 12/22/06		

ATTACHMENT 5
Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2006-0033 — Revision: 0

Title (if applicable): Security System UPS and Diesel Generator

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Documents: ISAS Section 3.7 and 3.8 L4-50-01-FHA EIR 51-2400553, NEF Fire Risk	Comment: This will require fuel delivery to a new location on site that was not assessed in the ISA. Impact: Potential IROFS/safety margin impact. License basis / code commitment impact. Recommendation: Create action item to ensure analysis and integration of new arrangement into FHA/ISA.	Yes	Action Item 06-000014 has been assigned to Technical Services to revise L4-50-01-FHA, Fire Hazards Analysis for the NEF facility, to account for the addition of the Security Diesel Generator and Fuel Tank	N

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) SCOTT TYLER / AREVA / 630.778.4439	Date: 12/20/06	Resolved by: J. P. LOGATTO (Engineer)/Design Engineering/908-507-6767	Date: 12/21/06
Disposition(s) Acceptable: CC may proceed Reviewed by: (Print Name/Signature) S. TYLER Scott M. Tyler	Date: 12/22/06		

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0033 **Revision:** 0	
Title (if applicable): Security System UPS and Diesel Generator	
Reviewer: Tim Harney	**Organization/Mail Stop/Telephone No./E-mail** Licensing / Cherry Hill / 720-939-4158 / tharney@nefnm.com
Functional Area: Licensing	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

License Basis Documents reviewed: Emergency Plan, Environmental Report, FNMCP, Material License, ISA Summary, QAPD, and SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments: none

C. Check applicable box:

NRC approval ☒ may *or* ☐ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis: none

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

None

_____ 12/12/06

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0033 **Revision:** 0	
Title (if applicable): Security System UPS and Diesel Generator	
Reviewer: Security: Ryan Whitford EP: Max Kohler	**Organization/Mail Stop/Telephone No./E-mail** Security/Hobbs/505.391.1019/rwhitford@nefnm.com EP/Hobbs/505.391.1123/mkohler@nefnm.com
Functional Area: Support Services	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

1. **Security related LBDs (Safeguards Contingency Plan; Physical Security Plan; Guardforce Training and Qualification Plan; Standard Practice Procedures Plan for the Protection Classified Matter))**

2. **Emergency Plan**

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments:

See attached EP-120, SY-120, and SY-130 reviews.

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis: **See attached EP-120, SY-120, and SY-130 reviews.**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

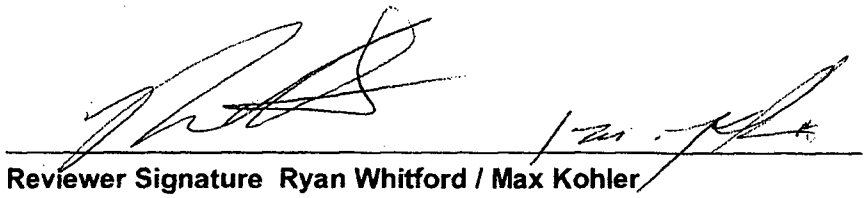
OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:



Reviewer Signature Ryan Whitford / Max Kohler

12/14/06 /12/14/06

Date

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 1 of 4)

Document Title: Security System UPS and Diesel Generator Review No.:042EP120

Document No.: CC-EG-2006-0033 Revision: 0

PART 1 PRELIMINARY SCREEN

Does the proposed change impact:

YES	NO	ITEM
☐	☒	1. Primary responsibilities of LES, offsite agencies or support organizations. OR The ability to respond initially or on a continuous basis.
☐	☒	2. The assignment of responsibilities of personnel. OR Minimum staffing or timely augmentation. OR The interface between onsite and offsite support response activities.
☐	☒	3. Arrangements for requesting and effectively using assistance or resources from offsite authorities. OR The accommodations for federal, state, and/or local staff at the EOC.
☐	☒	4. Emergency Action Levels, types of accidents, and classification of accidents.
☐	☒	5. Notification procedures to either the EO, local, state, or federal entities. OR The content of initial and follow-up messages.
☐	☒	6. Communications capability among principal response organizations to emergency personnel or the public.
☐	☒	7. Dissemination of coordinated information to the general or transient public including periodic information dissemination (brochures).
☐	☒	8. Provisions for or maintenance of emergency facilities and equipment. OR The periodicity of communications and emergency equipment tests.
☐	☒	9. Methods, systems and/or equipment for the detection, assessment, and monitoring of actual or potential onsite and offsite release consequences.
☐	☒	10. Protective Actions.
☐	☒	11. Means for controlling emergency worker radiation exposures consistent with the guidelines established by the EPA.
☐	☒	12. Arrangements for medical services for contaminated injured individuals.
☐	☒	13. Plans for plant reentry and/or recovery organization operations.
☐	☒	14. Periodicity of drills and/or exercises as well as deficiency resolution.
☐	☒	15. Training requirements for EO or local site support personnel.
☐	☒	16. Responsibilities for Emergency Plan development, maintenance, and review as well as training requirements for personnel maintaining the plan.
☐	☒	17. Implementation of other federal regulations and requirements or formal commitments related to the NEF Emergency Plan.
☒	☐	18. The facility description reflected in the NEF Emergency Plan.

Complete Part 2.

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 2 of 4)

Document Title: Security System UPS and Diesel Generator Review No.:042EP120

Document No.: CC-EG-2006-0033 Revision: 0

PART 2: ASSESSMENT OF IMPACT

☐ All items in Part 1 **ARE NOT** impacted.

This proposed change **DOES NOT** involve the requirements of 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3) or additional commitments as described within the Emergency Plan.

1. No further review and evaluation is required.
2. Documentation of the summary of changes is attached as pages _____ to this evaluation.

OR

☒ Item(s) listed in Part 1 **ARE** impacted.

This proposed change **DOES** involve the requirements of 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3) or additional commitments as described within the Emergency Plan.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.
2. Documentation of the affect of the proposed changes impacting the Emergency Plan is attached as pages 4 of 4 to this evaluation.

   A. If the proposed changes ☐ **DO NOT** require a revision to the Emergency Plan, no further review and evaluation is required.

   OR

   B. If the proposed changes ☐ **DO** require a revision to the Emergency Plan, complete Part 3 of this review.

Preparer:_____ Date:_____

Reviewer:_____ Date:_____

Emergency Preparedness Manager: _____ Date: _____

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 3 of 4)

Document Title: Security System UPS and Diesel Generator Review No.:042EP120

Document No.: CC-EG-2006-0033 Revision: 0

PART 3 EFFECTIVENESS REVIEW

A.1 Has the capability to perform the Emergency Planning function(s) been degraded or lost as a result of the proposed change?

☐ **YES** ☒ **NO** (provide justification)

Justification: CC-EG-2006-0033 addresses changes associated with DCC NEF-2005-0021 and DCC NEF-2005-0021A. The purpose of these changes is to install a separate diesel generator and UPS for the security system. The diesel will be located on a concrete pad approximately 10 ft. south of the TSB. As such, the capability to perform the Emergency Planning function(s) has not been degraded or lost as a result of the proposed change

A.2 Have the time requirements of any affected Emergency Planning requirements been relaxed or lost as a result of the proposed change?

☐ **YES** ☒ **NO** (provide justification)

Justification: CC-EG-2006-0033 addresses changes associated with DCC NEF-2005-0021 and DCC NEF-2005-0021A. The purpose of these changes is to install a separate diesel generator and UPS for the security system. The diesel will be located on a concrete pad approximately 10 ft. south of the TSB. As such, the time requirements of any affected Emergency Planning requirements have not been relaxed or lost as a result of the proposed change.

If 'YES' is checked for either question A.1 or A.2, the change does decrease the effectiveness of the Emergency Plan. If 'NO' is checked for both questions A.1 and A.2, then the change does not decrease the effectiveness of the Emergency Plan.

Note: NRC approval is required prior to implementation if the proposed change decreases the effectiveness of the Emergency Plan.

B. Based on this evaluation the proposed change ☐ **DOES** ☒ **DOES NOT** decrease the effectiveness of the Emergency Plan.

C. The Emergency Plan ☒ **CONTINUES** ☐ **DOES NOT CONTINUE** to meet the requirements 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3), and all other applicable regulations, requirements, and commitments.

Preparer: Max A. Kohler II Date: 12/12/06

Reviewer: James G. Sites Date: 12/12/06

Emergency Preparedness Manager: Date: 12/14/06

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 4 of 4)

Document Title: Security System UPS and Diesel Generator Review No.:042EP120

Document No.: CC-EG-2006-0033 Revision: 0

SUMMARY

CC-EG-2006-0033 addresses changes associated with DCC NEF-2005-0021 and DCC NEF-2005-0021A. The purpose of these changes is to install a separate diesel generator and UPS for the security system. The diesel will be located on a concrete pad approximately 10 ft. south of the TSB. The change will not affect implementation of any requirements of the Emergency Plan.

The changes will require revision to Emergency Plan Figures 1.2-1, and 1.3-1. The required document changes will be addressed in accordance with CC-EG-2006-0036, Licensing Basis Document Site Plan Revisions.

ATTACHMENT 1 – Page 1 of 4 RW CPS

10 CFR 70.32(d), (e), and (g) EVALUATION AND EFFECTIVENESS REVIEW

Document Title: Public Works Change Package

Review No.: 029-SY120-PublicWorks Document No.: CC-EQ-2006-0021,25,29,30,32,33,35,36,37, Revision: 0

PART 1 PRELIMINARY SCREEN

Does the proposed change impact:

YES	NO	ITEM
☐	☒	1. The possibility for unauthorized removal of special nuclear material.
☐	☒	2. The capability to facilitate the location and recovery of missing special nuclear material.
☐	☒	3. The capability for detection and assessment of unauthorized access or activities by an external adversary within the controlled access area containing special nuclear material.
☐	☒	4. The capability for detection of removal of special nuclear material by an external adversary from a controlled access area.
☐	☒	5. The ability to assure proper placement and transfer of custody of special nuclear material.
☐	☒	6. The capability to respond to indications of unauthorized removal of special nuclear material.
☐	☒	7. The capability to notify the appropriate response forces of unauthorized removal of special nuclear material in order to facilitate recovery.
☒	☐	8. Background information provided in the Safeguards Contingency Plan.
☐	☒	9. Generic Planning Base information provided in the Safeguards Contingency Plan.
☐	☒	10. Licensee Planning Base information provided in the Safeguards Contingency Plan.
☐	☒	11. The Responsibility Matrix provided in the Safeguards Contingency Plan.
☐	☒	12. Procedures described in the Safeguards Contingency Plan.

Complete Part 2.

ATTACHMENT 1 - Page 2 of 5 Rev 0

10 CFR 70.32(d), (e), and (g) EVALUATION AND EFFECTIVENESS REVIEW

Document Title: Public Works Change Package

Review No.: 029-SY120-PublicWorks Document No.: CC-EQ-2006-0021,25,29,30,32,33,35,36,37, Revision: 0

PART 2: ASSESSMENT OF IMPACT

☐ All items in Part 1 **ARE NOT** impacted.

This proposed change **DOES NOT** involve the requirements of 10 CFR 73.67(a) or additional commitments as described within the Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan.

1. No further review and evaluation is required.
2. Documentation of the summary of changes is attached as pages _____ to this evaluation.

OR

☒ Item(s) listed in Part 1 **ARE** impacted.

This proposed change **DOES** involve the requirements of 10 CFR 73.67(a) or additional commitments as described within the Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan, as applicable.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.
2. Documentation of the affect of the proposed changes impacting the Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan, as applicable, is attached as pages NA 5 Rev 0 to this evaluation.

   A. If the proposed changes ☐ **DO NOT** require a revision to the Physical Security Plan, Guardforce Training and Qualification Plan, or the Safeguards Contingency Plan, no further review and evaluation is required.

   OR

   B. If the proposed changes ☒ **DO** require a revision to the Physical Security Plan, Guardforce Training and Qualification Plan, or the Safeguards Contingency Plan, complete Part 3 of this review.

Preparer: _____ Date: 12/12/06

Reviewer: _____ Date: 12/12/06

Security Manager: _____ Date: 12/12/06

ATTACHMENT 1 – Page 3 of 4 of 5 SRW

10 CFR 70.32(d), (e), and (g) EVALUATION AND EFFECTIVENESS REVIEW

Document Title: Public Works Change Package

Review No.: 029-SY120-PublicWorks Document No.: CC-EQ-2006-0021,25,29,30,32,33,35,36,37, Revision: 0

PART 3 EFFECTIVENESS REVIEW

A.1 Does the proposed change delete or contradict any regulatory requirement?

☐ **YES** ☒ **NO** (provide justification)

Justification: The changes in this package address background information, the site drawing, and provide clarification of existing requirements. No changes contradict any Security Related regulatory commitments.

A.2 Would the change decrease the ability to meet the performance objectives of 10 CFR 73.67(a)?

☐ **YES** ☒ **NO** (provide justification)

Justification: The changes in this package address background information, the site drawing, and provide clarification of existing requirements. No changes contradict any Security Related regulatory commitments.

A.3 Does the change delete or replace any regulatory capabilities described in Appendix C of 10 CFR 73?

☐ **YES** ☒ **NO** (provide justification)

Justification: The changes in this package address background information, the site drawing, and provide clarification of existing requirements. No changes contradict any Security Related regulatory commitments.

If 'YES' is checked for question A.1 or A.2 or A.3, the change does decrease the effectiveness of the Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan, as applicable. If 'NO' is checked for questions A.1, A.2 and A.3, then the change does not decrease the effectiveness of the Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan.

Note: NRC approval is required prior to implementation if the proposed change decreases the effectiveness of the Physical Security Plan, Guardforce Training and Qualification Plan, or the Safeguards Contingency Plan.

B. Based on this evaluation the proposed change ☐ **DOES** ☒ **DOES NOT** decrease the effectiveness of the Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan.

ATTACHMENT 1 - Page 4 of 4 of 5 SRW

10 CFR 70.32(d), (e), and (g) EVALUATION AND EFFECTIVENESS REVIEW

Document Title: Public Works Change Package

Review No.: 029-SY120-PublicWorks Document No.: CC-EQ-2006-0021,25,29,30,32,33,35,36,37, Revision: 0

C. The Physical Security Plan, Guardforce Training and Qualification Plan, and the Safeguards Contingency Plan ☒ **CONTINUE** ☐ **DO NOT CONTINUE** to meet the requirements 10 CFR 70.67(a), and all other applicable regulations, requirements, and commitments.

Preparer: _____ Date: 12/12/06

Reviewer: _____ Date: 12/12/06

Security Manager: _____ Date: 12/12/06

ATTACHMENT 1
10 CFR 95.19 EVALUATION AND REVIEW
(Sheet 1 of 2) 2 CFRs

Document Title: Public Works Change Package

Review No.: 029-SY130-PublicWorks Document No.: CC-EQ-2006-0021,25,29,30,32,33,35,36,37, Revision: 0

PART 1 PRELIMINARY SCREEN

Does the proposed change impact:

YES	NO	ITEM
☐	☒	1. Security procedures and controls for the protection of classified information and matter.
☐	☒	2. Floor plans of area(s) in which classified information or matter is used, processed, stored, reproduced, transmitted, transported, and destroyed.
☐	☒	3. Foreign Ownership, Control, or Influence Information.
☐	☒	4. Implementation of other federal regulations and requirements or formal commitments related to the NEF SPP Plan.

Complete Part 2.

ATTACHMENT 1
10 CFR 95.19 EVALUATION AND REVIEW
(Sheet 2 of 2)

Document Title: Public Works Change Package

Review No.: 029-SY130-PublicWorks Document No.: CC-EQ-2006-0021,25,29,30,32,33,35,36,37, Revision: 0

PART 2: ASSESSMENT OF IMPACT

☒ All items in Part 1 **ARE NOT** impacted.

This proposed change **DOES NOT** involve the requirements of 10 CFR 95.19 or additional commitments as described within the SPP Plan.

1. No further review and evaluation is required.
2. Documentation of the summary of changes is attached as pages NA to this evaluation.

OR

☐ Item(s) listed in Part 1 **ARE** impacted.

This proposed change **DOES** involve the requirements of 10 CFR 95.19 or additional commitments as described within the SPP Plan.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.
2. Documentation of the affect of the proposed changes impacting the SPP Plan is attached as pages _____ to this evaluation.

   A. If the proposed changes ☐ **DO NOT** require a revision to the SPP Plan, no further review and evaluation is required.

   OR

   B. If the proposed changes ☐ **DO** require a revision to the SPP Plan, complete Part 3 of this review.

Preparer: _____ Date: 12/12/06

Reviewer: _____ Date: 12/12/06

Security Manager: _____ Date: 12/12/06

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0033 **Revision:** 0 **Title (if applicable): Security System UPS and Diesel Generator**	
Reviewer: David M Pepe	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / Marlborough MA / 508-573-6513 / david.pepe@areva.com**
Functional Area: ISA / IROFS	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.): Reviewed the ISA Summary, Environmental Report, Emergency Plan, and SAR.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis: No impact on ISA or IROFS

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

See attachment 5

David M Pepe
David M Pepe

02/02/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

EG-101
Revision 0

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2006-0033 **Title (if applicable):** Security System UPS and Diesel Generator				**Revision:** 0	
Reviewer				**Preparer**	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	Page 1, Section A	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y		
2	Page 2, Section D	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y		
3	DCC Summary, DCC NEF 2005-0021	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y		
4	DCC Summary, DCC NEF 2005-0021A	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y		
5	DCC Summary, DCC NEF 2005-0021	Site Plan should indicate location of Security DG tank. Note drawing lists the MET tower which would have a similar small footprint. Would need to add site plan impacts to LBDs.	Y		
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) David M Pepe/ AREVA/ ISA and IROFS David M Pepe			Date: 2/2/07	Resolved by:	Date:
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date:		

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2006-0033 | Revision: 0

Title (if applicable): Security System UPS and Diesel Generator

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Page 1, Section A	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	Comment accepted; reference to affected tables added to sections A and D. Action Item 06-000048 Issued	Y
2	Page 2, Section D	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	S/A	Y
3	DCC Summary, DCC NEF 2005-0021	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	Comment accepted; reference to affected tables added to DCC summary.	Y
4	DCC Summary, DCC NEF 2005-0021A	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	S/A	Y
5	DCC Summary, DCC NEF 2005-0021	Site Plan should indicate location of Security DG tank. Note drawing lists the MET tower which would have a similar small footprint. Would need to add site plan impacts to LBDs.	Y	Comment accepted; DCC summary revised to remove last paragraph of NEF-2005-0021 summary. Site Plan drawings covered by and revised as part of CC-EG-2006-0036.	Y
			dms 1/3/07		

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area)
David M Pepe/ AREVA/ ISA and IROFS David M Pepe 1 — Date: 12/12/07

Resolved by: J. P. Logatto (Enercon)/Design Engineering/908-507-8767 — Date: 1/4/07

Disposition(s) Acceptable:
Reviewed by: (Print Name/Signature) David M Pepe David M Pepe — Date: 1/3/07

NATIONAL ENRICHMENT FACILITY

December 12, 2006 Page 5 of 5

Subject: SY-120 Review for CC-EG-2006-0021, 25, 29, 30, 32, 33, 35, 36, 37

The affects of 0021, 0025, 0029, 0030, 0035, 0036, and 0037 are related specifically to site drawings used for informational purposes in Security related Licensing Basis Documents (LBD's). 0032 addresses ownership and location of power related infrastructure which is mentioned in Security related LBD's. 0033 addresses specific locations for the Security Diesel Generator, and Security UPS. All of the above changes are either editorial, informational, or add addition detail to Security LBD's, and do not impact the documents negatively, or reduce effectiveness.

Ryan Whitford

Security Supervisor
National Enrichment Facility
Office: 505-391-1019
Cell: 505-602-9104

urenco

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

EG-101
Revision 0

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: **CC-EG-2006-0033** | Revision: **0**

Title (if applicable): **Security System UPS and Diesel Generator**

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Documents: ISAS Section 3.7 and 3.8 L4-50-01-FHA EIR 51-2400553, NEF Fire Risk	Comment: This will require fuel delivery to a new location on site that was not assessed in the ISA. Impact: Potential IROFS/safety margin impact. License basis / code commitment impact. Recommendation: **Create action item to ensure analysis and integration of new arrangement into FHA/ISA.**	Yes	Action Item 06-000014 has been assigned to Technical Services to revise L4-50-01-FHA, Fire Hazards Analysis for the NEF facility, to account for the addition of the Security Diesel Generator and Fuel Tank	N

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) SCOTT TYLER / AREVA / 630.778.4439	Date: 12/20/06	Resolved by: J. P. LOGATTO (Enercon)/Design Engineering/908-507-8767	Date: 12/21/06
Disposition(s) Acceptable: CC may proceed Reviewed by: (Print Name/Signature) S. TYLER Scott M. Tyler	Date: 12/22/06		

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

EG-101
Revision 0

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2006-0033 | Revision: 0

Title (if applicable): Security System UPS and Diesel Generator

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Page 1, Section A	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	Comment accepted; reference to affected tables added to sections A and D. Action Item 06-000048 issued	Y
2	Page 2, Section D	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	S/A	Y
3	DCC Summary, DCC NEF 2005-0021	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	Comment accepted; reference to affected tables added to DCC summary.	Y
4	DCC Summary, DCC NEF 2005-0021A	Add reference to affect tables SAR 6.1-4 and ER 2.1-4	Y	S/A	Y
5	DCC Summary, DCC NEF 2005-0021	Site Plan should indicate location of Security DG tank. Note drawing lists the MET tower which would have a similar small footprint. Would need to add site plan impacts to LBDs.	Y	Comment accepted; DCC summary revised to remove last paragraph of NEF-2005-0021 summary. Site Plan drawings covered by and revised as part of CC-EG-2006-0036.	Y
			DMP 1/3/07		

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area)
David M Pepe/ AREVA/ ISA and IROFS — Date: 1/2/07

Resolved by: J. P. Logatto (Epsecom/Design Engineering/908-507-8767) — Date: 1/4/07

Disposition(s) Acceptable:
Reviewed by: (Print Name/Signature) DAVID M PEPE — Date: 1/3/07

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 1 of 4

10 CFR 70.72(c) Evaluation No. 2006-0069 **Rev. No.** 0

Facility Change/Document/Program Number: CC-EG-2006-0033 **Revision Number:** 0

I. Complete the 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer: The installation of a separate diesel generator unit and 75kVA UPS for the security system will not introduce any new failure modes that could be an accident initiator. This change does not create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary.

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer: The addition of a standby diesel generator unit and UPS for the security system does not involve the installation of any different hardware or software. The proposed changes do not involve the use of new processes, technologies, or control systems for which LES has no prior experience.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary? ☐ YES ☒ NO

Basis for answer: Table 3.8-1 of the ISA Summary identifies the existing IROFS. A review of the IROFS did not identify any that would be impacted by the addition of a standby diesel generator unit and UPS for the security system. The change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary.

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer: Table 3.8-2 of the ISA Summary identifies the existing Sole IROFS. A review of the sole IROFS did not identify any that would be impacted by the addition of a standby diesel generator unit and UPS for the security system. The change does not alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer: The proposed changes do not impact any of the license conditions delineated in the Materials License issued by the NRC on June 23, 2006. These changes are not prohibited by 10 CFR 70.72, license condition, or order.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

10 CFR 70.72(c) Evaluation No. 2006-0069 **Rev. No.** 0

Facility Change/Document/Program Number: CC-EG-2006-0033 **Revision Number:** 0

II. Identify references used to perform the evaluation (if not provided in the response to each question).

III. Based upon the results of this Evaluation: (Select one of the following)

- ☒ Implement the Change per plant procedures without obtaining a License Amendment.
- ☐ Request and receive a License Amendment prior to implementation.

IV. Review and Approval:

10 CFR 70.72(c) Evaluator:

J. P. LOGATTO (Printed Name) — (Signature) — Date: 01/12/2007

10 CFR 70.72(c) Reviewer:

TIM HARNEY (Printed Name) — (Signature) — Date: 01/15/07

SRC Review: Required — (Yes) No Circle one — If No, provide basis:

Dave VandeWalle — SRC Chairman (Printed Name)

Lindsay Oldfield per telecon — (Signature) — 1/18/07 — Date

2007-03 — SRC Meeting Number

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 3 of 4

10 CFR 70.72(c) Evaluation No. 2006-0069 **Rev. No.** 0

Facility Change/Document/Program Number: CC-EG-2006-0033 **Revision Number:** 0

Description of Change:
[Provide a brief, concise description of what the proposed change involves.]

This change provides a 75kVA Uninterruptible Power Supply (UPS) and a backup diesel generator for the Security System. The Security Diesel Generator Unit, with an integral double wall fuel tank, will be installed on a concrete pad approximately 10 feet south of the Technical Services Building.

Reason for Change:
[Discuss why the proposed change is being performed.]

Security system loads require a separate UPS and diesel generator as backup power supply for the Security System in the TSB. These were not part of the original design and were not included in the Lockwood-Greene electrical single line diagrams or arrangement drawings.

To eliminate the need for additional IROFS due to placing the Security DG in close proximity to uranic material the Security DG, with an integral double wall fuel tank, will be located outside the TSB on a concrete pad. The associated electrical distribution equipment will remain in the TSB.

Effect of Change:
[Discuss how the change impacts plant procedures and operations, the facility design, and the ISA Summary]

The following revisions to Licensing Basis Documents are required as a result of the Security DG & UPS installation:

- Revise SAR Section 1.1.2, Facilities Description to add the Security DG to the discussion of the TSB
- Revise ER Sections 2.1.2.3.4, 7.2.3.3 to reflect installation of Security DG.
- Revise ER Table 3.12-6 to include fuel inventory increase resulting from additional Security DG.
- Add emission information for Security DG to ER Tables 4.6-4, 4.6-6, 4.6-8.
- Revise ISAS Section 3.5, Utility And Support Systems, to add a section covering the UPS and Diesel Generator for the Security System.
- Revise ISAS Section 3.5.2, Electrical System, to provide details of additional onsite power source, i.e., the Security diesel generator, as well as a description of the UPS for the Security System.
- Revise the appropriate Electrical one-line diagrams to indicate the addition of the Security diesel generator.
- Revise Emergency Plan figures 1.2-1 and 1.3-1 to reflect the addition of Security UPS and Diesel Generator.
- Revise L4-50-01-FHA, Fire Hazards Analysis to account for the addition of the Security Diesel Generator and Fuel tank.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 4 of 4

10 CFR 70.72(c) Evaluation No. 2006-0069 **Rev. No.** 0

Facility Change/Document/Program Number: CC-EG-2006-0033 **Revision Number:** 0

Summary of Conclusion of 10 CFR 70.72(c) Evaluation:
[Provide justification for the conclusion, including sufficient detail to recognize and understand the essential arguments leading to the conclusion.]

The proposed change does not: a) introduce any new failure modes that could be an accident initiator; b) involve the installation of any different hardware or software; c) involve the installation of any control systems; d) impact any IROFS; and e) require a change to a license condition or order. Thus, the 10 CFR 70.72 Evaluation concluded that installation of the UPS and backup diesel generator unit for the Security System can be performed without obtaining a License Amendment.

ATTACHMENT 2
Regulatory Impact Review Form
Page 1 of 2

Facility Change/Document/Program Number: CC-EG-2006-0033 **Revision Number:** 0

This Regulatory Impact Review DOES NOT meet the requirements of 10 CFR 70.72(c) and is NOT intended to replace a formal 10 CFR 70.72(c) Evaluation.

I. Description of Change:

This change provides a 75kVA Uninterruptible Power Supply (UPS) and a backup diesel generator for the Security System. The Security Diesel Generator Unit, with an integral double wall fuel tank, will be installed on a concrete pad approximately 10 feet south of the Technical Services Building.

a. **Description of Open Items:**

- AI 06-000009: Revise ER Table 3.12-6 to include fuel inventory increase resulting from additional Security Diesel Generator.
- AI 06-000010: Add emission information for Security DG to ER Tables 4.6-4, 4.6-6, and 4.6-8.
- AI 06-000011: Revise ISAS Section 3.5, Utility and Support Systems, to add a section covering the UPS and Diesel Generator for the Security System.
- AI 06-000012: Revise ISAS Section 3.5.2, Electrical System, to provide details of additional onsite power source, i.e., the Security Diesel Generator, as well as a description of the UPS for the Security System.
- AI 06-000013: Revise the appropriate Electrical one-line diagrams to indicate the addition of the Security Diesel Generator.
- AI 06-000014: Revise L4-50-01-FHA, Fire Hazards Analysis for the NEF facility, to account for the addition of the Security Diesel Generator and Fuel Tank.
- AI 06-000020: Review the Licensing Basis Documents related to security for changes necessary to reflect the addition of Security UPS and Diesel Generator.
- AI 06-000048: Revise tables to add fuel inventory to TSB chemical inventory (outdoors) based on final design of Security DG.

b. **Description of Construction Release at (Investment) Risk:**

The purpose of the changes described in CC-EG-2006-0033 is preparation of the site for installation of a security DG pad. The changes described in the CC are released for civil earthworks construction activities.

II. Regulatory Impact Review:

NOTES: Provide a written response providing the basis for the answer to each question below.

1. Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

   Basis for answer: The installation of a separate diesel generator unit and 75kVA UPS for the security system will not introduce any new failure modes that could be an accident initiator. This change does not create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary.

2. Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

   Basis for answer: The addition of a standby diesel generator unit and UPS for the security system does not involve the installation of any different hardware or software. The proposed changes do not involve the use of new processes, technologies, or control systems for which LES has no prior experience.

ATTACHMENT 2
Regulatory Impact Review Form
Page 2 of 2

Facility Change/Document/Program Number: CC-EG-2006-0033 **Revision Number:** 0

3. Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

   Basis for answer: Table 3.8-1 of the ISA Summary identifies the existing IROFS. A review of the IROFS did not identify any that would be impacted by the addition of a standby diesel generator unit and UPS for the security system. The change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary.

4. Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

   Basis for answer: Table 3.8-2 of the ISA Summary identifies the existing Sole IROFS. A review of the sole IROFS did not identify any that would be impacted by the addition of a standby diesel generator unit and UPS for the security system. The change does not alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61.

5. Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

   Basis for answer: The proposed changes do not impact any of the license conditions delineated in the Materials License issued by the NRC on June 23, 2006. These changes are not prohibited by 10 CFR 70.72, license condition, or order.

III. References used to perform the evaluation

IV. Evaluator Signature:

THIS RIR IS A PRELIMINARY REVIEW OF THE EXISTING INFORMATION. A 10 CFR 70.72(C) EVALUATION IS REQUIRED WHEN ALL OPEN ITEMS FROM STEP 1.A. ARE COMPLETE. THE 10 CFR 70.72(C) EVALUATION CONCLUSION IS COMPLETELY INDEPENDENT OF THE RESULTS OF THIS RIR.

~~10 CFR 70.72(c)~~
RIR Evaluator: J. P. Logatto (Printed Name) _____ (Signature) 04/05/2007 Date

V. Approval for Construction Release at (Investment) Risk (reference EG-101-101)

THIS RIR IS A PRELIMINARY REVIEW OF THE EXISTING INFORMATION. A 10 CFR 70.72(C) EVALUATION IS REQUIRED WHEN ALL OPEN ITEMS FROM STEP 1.A. ARE COMPLETE. THE 10 CFR 70.72(C) EVALUATION CONCLUSION IS COMPLETELY INDEPENDENT OF THE RESULTS OF THIS RIR.

☒ Proceed with the Construction Release at (Investment) Risk for the change(s) described in Section I. b. above in accordance with plant procedures.

☐ DO NOT PROCEED

FAM ROBERT W SCHRANDER (Printed Name) _____ (Signature) 4/12/07 Date

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

Configuration Change Number: CC-EG-2007-0085 **Revision** 0a

Configuration Change Title: Modification to Facility Water Feed – From Eunice, NM

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☒ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.

Emergency Plan – Sect 1.3.2, Page 1.3-2	Safety Evaluation Report – No Affected Pages	
Env. Report – Sect 1.3.2 - Page 1.3-2		
Env. Report – Sect 2.1.2.5 – Pages 2.1-17, 19		
Env. Report – Sect 3.4.7 - Page 3.4-9		
Env. Report – Sect 4.1.2 – Page 4.1-2	**Figures:**	
Env. Report – Sect 4.4.5 - Pages 4.4-,5,6	Septic Plan, Etc, Sheet 1A,	114489-0000-C-CVL-006-01A-0
Env. Report – Sect 5.1.4 - Page 5.1-2	Septic Plan, Etc, Sheet 1B,	114489-0000-C-CVL-006-01B-0
Env. Report – Sect 7.2.2.7 - Page 7.2-5	Septic Plan, Etc, Sheet 3,	114489-0000-C-CVL-006-03-3
Env. Report – Sect 8.8 - Pages 8.8-1,2,3	Septic Sects, Etc, Sheet 9,	114489-0000-C-CVL-006-09-1
Fire Hazards Analysis – No Affected Pages	Septic Plan, Etc, Sheet 11,	114489-0000-C-CVL-006-11-0
FNMCP – No Affected Pages	Above Ground Water Piping	114489-1900-M-B-001-01-0
ISA Summary – Sect 3.2.2.6.4 – Page 3.2-8	ISA Summary - Fig 3.5-21	

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

Attachment 1 to this CC is NEF-DCC-2006-0051 titled "Modifications to Facility Water Systems Arising from design Review Meetings and Negotiations with City of Eunice, NM". That DCC contains several different items identified as changes. This CC focuses on the **single issue** pertaining to selection of a "single water supply line owned and operated by the City of Eunice, directed from Eunice to the northwest corner of the NEF site. This single supply line differs from the LB documents that describe two independent supply lines, one each from the cities of Eunice and Hobbs, delivering municipal water to the southern site boundary along NM State Highway 234."

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

The purpose of the change is to identify the water supplier for the NEF, and to declare that there is only one supply from one municipality; the purpose of the CC is to enable the single water line to be permanently connected to the NEF. **This revised CC, from Rev 0 to Rev 0a, addresses the comments from the IDRs. All are editorial.**

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

The impact of this change is to clarify that the water supply to the NEF will be from the City of Eunice, NM, utilizing a single incoming, back flow protected, 14" water main, entering the NEF from the North West corner.

Preparer: This package has been reviewed against the requirements of EG-010 R2. Although the forms used for the documentation may be from past revisions of EG, 101, this package meets all technical and regulatory commitments imposed by EG-101 R2 **Gordon R. Skillman** Gordon R Skillman	**Date:** June 20, 2007 June 20, 2007
CC FAM | **Signature:** Ron Schrunder for [illegible]	**Date:** 6-22-07

Configuration Change Number: CC-EG-2007-0085 **Revision** 0a

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

- ☐ HS&E
- ☐ Licensing
- ☐ Production
- ☐ Quality Assurance
- ☐ Support Services
- ☐ Technical Services

NOTE: This Revision (0a) addresses, and incorporates, all IDR comments from the review of Rev 0. Further, in Section 1A, the 'Section Numbers' have been added so that they supplement the page numbers in order to further identify where the LBDs have been changed.

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change may be a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box (es) and note reason for addition in Comments.)

Comments (basis): This revision addresses editorial comments on R0. It is not necessary to resubmit this revision thru IDR because this revision does not affect functional areas other than the Functional Area requesting Change (EG-101 R2 Sect 5.3.8)

CM Coordinator (Print Name/Signature):	**Date**
Clark Tracy/ Clark Tracy	6/26/07

Section 3: Disposition of Interdisciplinary Reviews

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) Action Items (AIs). Identify CR AIs in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

This revised CC addresses and resolves all IDR comments on Revision 0.

Preparer	**Signature:** Gordon R Millman	**Date:** June 26, 07
CC FAM	**Signature:** R.W. Schrauder / Ron Schrauder	**Date:** 6-28-07

Configuration Change Number: CC-EG-2007-0085 **Revision** 0a

Section 4: Disposition of ISA Review

☒ No ISA Impact and No ISA Team Review Required OR

☐ Possible ISA Impact. Complete review per EG-104 and attach result. List any outstanding CR AIs identified in Section 5 Comments below.

Comments (basis):

Preparer: Gordon R Shillman *OR* **ISA Member:**	**Date:** 6/26/2007

Section 5: Disposition of RIR or 70.72(c) Evaluation

☐ Partial Release, RIR attached and CR Action Items noted in comments below OR

☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR

☒ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete.

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CR AIs. Identify CR AI number(s) in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** Gordon R Shillman	**Date:** June 28, 07
CC FAM	**Signature:** R.W. Schneider / Rex Chandler	**Date:** 6-28-07

Configuration Change Number: CC-EG-2007-0085 **Revision** 0a

Section 6: Release or Implementation

☒ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted.

☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR AIs as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC.

☐ CC is not acceptable, CANCEL or HOLD CC as noted.

Comments (Basis):

CC FAM	**Signature:** dlPoole for RW Schrauder	**Date:** 7/12/07

Section 7: Configuration Change Closeout

☒ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR AIs are closed and the 70.72(c) evaluation per LS-104 is complete as required.

☐ B. The Configuration Change has not been implemented. The basis for this decision is described below.

Comments (as applicable):

(evidence confirming implementation is data base confirming Lee Lacy's having imported the LBD changes into the LBO's.) GRGuillman 1/31/2008

Preparer	**Signature:** Gordon R Guillman	**Date:** Jan 31, 2008
CM Coordinator	**Signature:** Clark Tuan	**Date:** 2/4/08

Forward to Records Management (CM Coordinator).

CC-EG-2007-0085 ATT 1

Design Change Control

REV 0a 1 of 28

Project:	National Enrichment Facility	ID Number	NEF-2006-0051
Originator:	RS Du Brul	Date:	10/25/06
Supervision:	P. Visalli	Date:	10/25/06
Project Management:	C Cronan, NTS	Date:	
Proposed Change Title:	Modifications to Facility Water Systems Arising From Design Review Meetings and Negotiations With City of Eunice, NM.		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

The NEF is served by the following water systems. These systems are described in the License Basis (LB) and Design Basis (DB):

- System 691 – Municipal (potable) Water Supply from the City of Eunice, NM.
- System 692 - Domestic Water for potable site consumption and sanitary service
- System 693 – Process Water for distribution to cooling tower spray systems and input to system 696 – Deioinized Water. Note that system 693 also contains water treatment systems for Centrifuge Cooling Water polishing, cooling tower spray water treatment, and water pretreatment for cooling tower spray service (described below).
- System 694 – Fire Water (Protection) for yard mains, hydrants, and input to sprinkler systems.

Changes to these systems are proposed as follows. The proposed changes have resulted from negotiations with the City of Eunice, purchase of a new well and the forthcoming installation of a water pipeline to the site, :d discussions and design review meetings with ETC and Urenco.

Effects to Proposed Municipal Water System

Final water supply negotiations between LES and the cities of Eunice and Hobbs result in a single water supply line, owned and operated by the City of Eunice, directed to the northwest corner of the NEF site. This single supply line differs from LB which describes two independent supply lines, one each from the cities of Eunice and Hobbs, delivering municipal water to the southern site boundary along NM State Highway 234.

A water revenue meter, owned and operated by the City of Eunice, will be installed off site. Immediately onsite, LES will install a backflow preventer, an additional integrator flow meter for record purposes, and a bypass line with associated maintenance block valves (reference Design Review Meeting, December 2005, Drawing 0000-C-CVL-006-04, Action Item 2, page 5 of 91).

LES purchased a local well, approximately 6 miles southwest of the site. The well is not described in the LB or DB. The well is reported to be capable of delivering approximately 90 gpm of potable water (with associated water treatment). A (estimated) 6 in pipeline for water delivery to the south side of the site, approximately where the originally proposed municipal pipelines, will deliver water. The off-site pipe and well equipment will be installed, owned, and operated by LES. LES will negotiate pipeline rights of way between the well and the site. The proposed design changes associated with the new well cannot be completed until the new fence post pipeline location is provided. Costs for the new well, off – site pipeline, associated rights of way, pumps, and instrumentation, controls and communication are not included in this DCC.

A flow totalizing meter and backflow to protect the new well is anticipated. The new well is reported to be higher :an the site so on – site overpressure control may be required. Note that the scope of this DCC does not include estimated capital costs or design development at the new well, the off-site pipeline and the associated acquisition of the rights of way, and status instrumentation, controls, and communication equipment between the site and the well.

The City of Eunice recommends that a treatment system be installed to maintain water quality adjacent to or onsite. LES proposes to have the treatment system installed on site to avoid interface problems with the City. Note that the City will advise LES of the extent of reporting water quality samples to NM state agencies. The conceptual design of the water treatment system provides for chemical injection upstream of a water tank to provide sufficient residence time. The same water treatment techniques will serve the alternate, well water supply.

Estimated costs associated with changes to municipal water delivery system:

- Main on – site yard water piping for the Municipal water and the new well, miscellaneous valves and instrument and controls features ≈ $250,000.
- Water treatment including chlorinating system and (estimated 1,000) gal tank ≈ $250,000.
- Note: Associated pipeline and rights of way costs to deliver municipal water to the NEF site are already included in the project budget and have not been reiterated in this DCC.
- Note: Costs for the new private well acquisition, pipeline installation including excavation, rights of way, piping, and pumping equipment, and controls and communication are not included in this DCC.

Effects to Proposed Domestic Water System

Potable on-site water distribution, from the outlet of the water treatment tank, above, must be accomplished with new, redundant pumps which will no longer be in the City of Eunice's scope of equipment. The LB and DB assumed that water distribution could be accomplished using municipal delivery pressure at the property fence.

Two new distribution pumps (for reliability) are also required to achieve necessary domestic water delivery to applicable onsite buildings including the proposed 3-story Administration Building. The LB and DB expected municipal water sources to provide the necessary pressure for successful water distribution.

Estimated costs associated with changes to domestic water system:

- New pump sets, and instrumentation and controls ≈ $50,000
- Bladder tank for pressurization and associated system controls ≈ $50,000

Effects to Proposed Process Water System

ETC and LES wish to have approximately 750,000 gal of water inventory to avoid reliance on the city's delivery system. Present inventory is 500,000 gal of water including approximately 326,000 gal in reserve for fire fighting in each of the two existing tanks. Therefore, it is proposed to add a third, 250,000 gal tank dedicated exclusively for process water. The increased water inventory accomplishes 2 goals, as follows.

The first goal is to maintain sufficient inventory to replenish fire protection water of ≈163,000 gal without relying on city delivery. Note that the present scheme provides for 2 redundant tanks, each with dedicated fire water in accordance with NFPA 22. NFPA stipulates that one of two tanks may be out of service and that the facility has 8 hrs to replenish fire water once fire fighting occurs.

In addition, the plant requires approximately 750,000 gal to accomplish approximately one day of full production followed by two days of "running light" to achieve an orderly shutdown if water service is lost. This inventory assumes that during this emergency situation, the three tanks are approximately full, one of two fire water tank inventory can be diverted to provide process water, and that ambient temperature conditions are at approximately 101°F. Tank inventory will be maintained with level controls on the new tank, with common piping maintaining equal water elevation in each of the other two tanks.

Based on initial water analysis data, municipal water is marginally hard and contains relatively high TDS for cooling tower spray water service (note that these parameters are within NM state potable consumption limits). Pretreatment will be studied to reduce hardness and TDS and deliver water to the cooling tower basins and input to the Deionized Water System.

Estimated costs associated with changes to domestic water system:

- New Process water tank, pump sets, miscellaneous controls ≈ $400,000.

- Water pre - treatment system ≈ $200,000

Effects to Fire Protection System

o effects will occur to the fire protection system as a result of this proposed DCC. The only performance change is the source of the refill water to make up fire protection water inventory following extinguishing a fire (see Effects to Proposed Process Water System, above).

Summary of Total Estimated Cost Impact

Municipal Water System Revisions:

- Yard piping = $ 250,000
- Potable Water treatment = $250,000

Domestic Water System Revisions

- Bladder tank for pressurization and associated system controls ≈ $50,000
- Pump set, instrumentation and controls ≈ $50,000

Process Water System Revisions

- New water tank with associated piping and controls = $ 400,000
- New process water pretreatment system = $200,000

Total Estimated Cost Impact of DCC ≈ $1,200,000

DIRECT ENGR'G COST ≈ $100,000

Reason for change:		
Reasons for the changes above are cited within the text. In general, changes have been prompted by a combination of reliability enhancement by assuming tasks normally conducted by the water utility; reconfiguring the pipeline delivery systems in accordance with LES' negotiations; and studying/specifying concepts requested by LES and ETC during Design Review Meetings relating to the water systems.	Safety / Environment	☐
	Correction	☒
	Improvement	☐

Drawings/Documents Affected (including License Application and ISA Summary):

Changes to the NEF Licensing Basis are primarily associated with deleting water supply from Hobbs NM and adding LES' new well. The following sections will be affected by these changes.

Paragraph 3.5.4.1, of the NEF ISA Summary Process Water System will be affected by the proposed configuration changes.
Paragraph 3.5.4.2, of the NEF ISA Summary Potable Water System will be affected by the proposed configuration changes.
Paragraph 2.1.2.5, of the NEF Environmental Report, Site and Nearby Utilities, will be affected by the proposed configuration changes.
Paragraph 2.1.2.8, of the NEF Environmental Report, Summary of Potential Environmental Impacts will be affected by the proposed configuration changes.
Paragraph 2.1.3.3.4.4, of the NEF Environmental Report, Criterion 4, Water Supply will be affected by the proposed configuration changes.
Paragraph 3.4.6, of the NEF Environmental Report, Water Rights and Resources will be affected by the proposed configuration changes.
Paragraph 4.1.2, of the NEF Environmental Report, Utilities Impacts will be affected by the proposed configuration changes.
Paragraph 5.1.4, of the NEF Environmental Report, Water Resources will be affected by the proposed configuration changes.
Paragraph 7.2.2.7, of the NEF Environmental Report, Other Impacts of Plant Operation will be affected by the proposed configuration changes.
Paragraph 8.8, of the NEF Environmental Report, Nonradiological Impacts will be affected by the proposed configuration changes.

Paragraph 1.3.2, of the NEF Emergency Plan, Water Use will be affected by the proposed configuration changes.

Paragraph 7.5.1.1.1 of the NEF SAR, System Description (Fire Water Supply System) describes the tank arrangements using two tanks dedicated for combined process water and fire protection water. The description will require modification to consider a third, process water tank. The text describes fire water replenishment in an 8 hr period in conjunction with the municipal water mains (paragraph 7.5.1.1.2, Interfaces).

In addition, Figure 3.5-21, Process Flow Diagram, Process Water Distribution System, Revision December 2003, Reference Number 0000-M-3005 will be affected by the proposed changes.

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date)(+5)

AREVA ISA SME.
Only potential impact. Additional 250,000 gal tank needs to be located away from buildings containing UF6 and enriched uranic material such that failure of new tank will not impact those buildings.

Name David M Pope | Position ISA Sandbox | Signature [signature] | Date 10/30/06 (+5)

Part 3 – Disposition

Disposition (check appropriate) **Approved** ☒ **Rejected** ☐

	Name	Position	Signature	Date
LES				(+6)
Urenco				(+6)
Disposition Approved: [initials]	DICK FRAZAR	LES Vice President – Project Management	[signature]	12/4/06 (+7)

Part 4 - Implementation

Implementation by:	LES	☐
	NTS	☐
	Urenco	☐

Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved:	Name		Signature		Date	(+10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

P HALE [signature] 10/11/06

Paragraph 1.3.2, of the NEF Emergency Plan, Water Use will be affected by the proposed configuration changes.

Paragraph 7.5.1.1.1 of the NEF SAR, System Description (Fire Water Supply System) describes the tank arrangements using two tanks dedicated for combined process water and fire protection water. The description will require modification to consider a third, process water tank. The text describes fire water replenishment in an 8 hr period in conjunction with the municipal water mains (paragraph 7.5.1.1.2, Interfaces).

In addition, Figure 3.5-21, Process Flow Diagram, Process Water Distribution System, Revision December 2003, Reference Number 0000-M-3005 will be affected by the proposed changes.

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5) Licensing Impact Potential

* This change may require LES to obtain an Environmental Impact Statement from the NRC prior to implementation. This is due to the addition of a water treatment facility on the site and the change in location of the water source from Hobbs to a private well. In addition, a number of State permits will be required to be obtained or revised to implement the change. ~~&~~ ~~and~~ the water treatment facility may require Operators to be certified and specific licenses obtained for the facility.

Name	ST DAY JR	Position	Licensing Engineer	Signature	[signature]	Date	(+5)

Part 3 – Disposition

Disposition (check appropriate) **Approved** ☐ **Rejected** ☐

	Name	Position	Signature	Date
LES	* ST DAY JR David E. Sexton	Licensing Engineer Tech Services Director	[signature] [signature]	11/10/06 12/4/06 (+6)
Urenco				(+6)
Disposition Approved:		LES Vice President – Project Management		(+7)

Part 4 - Implementation

Implementation by:			
	LES	For 70.72 + EIS Review + other License Review	☒
	NTS	For Design	☒
	Urenco		☐

Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved: ✓	Name	John Swailes	Signature	[signature]	Date	12/4/06 (+10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

ROA 6/28

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Attachment 01
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1.3.2 Water Use

Hobbs no longer a source

The NEF will connect to the Eunice ~~and Hobbs~~ city water system~~s~~. Discharges will be to an onsite sanitary septic system, evaporative basin, and a low-level liquid waste (process water) basin.

1.3.3 Climate

The NEF site is located in the Southeast Plains of New Mexico close to the border with Texas. The climate is typical of a semi-arid region, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Vegetation consists mainly of native grasses and some mesquite trees. During the winter, the weather is often dominated by a high pressure system located in the central part of the western United States and a low pressure system located in north-central Mexico. During the summer, the region is affected by a low pressure system normally located over Arizona.

activities relating to these statutes and associated programs. Applicable state requirements, permits, and approvals are described in Section 1.3.2, State Agencies.

Environmental Standards for the Uranium Fuel Cycle (40 CFR 190 Subpart B) (CFR, 2003f) establishes the maximum doses to the body organs resulting from operational normal releases and received by members of the public.

The Safe Drinking Water Act (SDWA) provides for protection of public water supply systems and underground sources of drinking water. 40 CFR 141.2 (CFR, 2003h) defines public water supply systems as systems that provide water for human consumption to at least 25 people or at least 15 connections. Underground sources of drinking water are also protected from contaminated releases and spills by this act. NEF is not using site groundwater or surface water supplies. NEF will obtain potable water from nearby municipal water supply systems (cities of Eunice and Hobbs, New Mexico).

The Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 350 to 372) (CFR, 2003i) establishes the requirements for Federal, State and local governments, Indian Tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment.

National Pollutant Discharge Elimination System (NPDES) General Permit for Industrial Stormwater: This permit is required for point source discharge of stormwater runoff from industrial or commercial facilities to the waters of the state. All new and existing point source industrial stormwater discharges associated with industrial activity require a NPDES Stormwater Permit from the EPA Region 6 and an oversight review by the New Mexico Water Quality Bureau. The NEF is eligible to claim the "No Exposure" exclusion for industrial activity of the NPDES stormwater Phase II regulations. As such, the LES would submit a No Exposure Certification immediately prior to initiating operational activities at the NEF site. LES also has the option of filing for coverage under the Multi-Section General Permit (MSGP) because the NEF is one of the 11 eligible industry categories. If this option is chosen, LES will file a Notice of Intent (NOI) with the EPA, Washington, D.C., at least two days prior to the initiation of NEF operations. A decision regarding which option is appropriate for the NEF will be made in the future.

NPDES General Permit for Construction Stormwater: Construction of the NEF will involve the grubbing, clearing, grading or excavation of 0.4 or more ha (1 or more acres) of land coverage and must receive a NPDES Construction General Permit (CGP) from the EPA Region 6 and an oversight review by the New Mexico Water Quality Bureau. Various land clearing activities such as offsite borrow pits for fill material have also been covered under this general permit. LES construction contractors will be clearing approximately 81 ha (200 acres) during the construction phase of the project. LES will develop a Stormwater Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) with the EPA, Washington, D.C., at least two days prior to the commencement of construction activities.

U.S. Department of Transportation (DOT)

Transport of the NEF UF_6 cylinders requires compliance with the following DOT enabling regulations:

impregnated carbon filter (potassium carbonate), centrifugal fan, automatically operated inlet-outlet isolation dampers, monitorings, and differential pressure transducers.

2.1.2.4.6 Laundry System

The Laundry System cleans contaminated and solid clothing and other articles within the plant. The laundry is divided into two main streams: articles with high or low possibility of contamination. Articles likely to be contaminated are collected in special water soluble bags. Articles unlikely to be contaminated are collected in bin bags and sorted into lightly and heavily soiled articles. Lightly soiled articles are laundered; heavy soiled articles are inspected first and if to difficult to clean are sent to the Solid Waste Collection System, otherwise they are laundered as well. Laundry water is discharged to the Liquid Effluent Collection and Treatment System.

2.1.2.4.7 Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System provides exhaust of potentially hazardous contaminants from the Centrifuge Test and Post Mortem Facilities. The system also ensures the Centrifuge Post Mortem Facility is maintained at a negative pressure with respect to adjacent areas. The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System is located in the Centrifuge Assembly Building and is monitored from the Control Room.

The ductwork is connected to one filter station and vents through either of two 100% fans. Both the filter station and either of the fans can handle 100% of the effluent. One of the fans will normally be in standby. Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down. After filtration, the clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the monitored (alpha and HF) stack on the Centrifuge Assembly Building.

2.1.2.5 Site and Nearby Utilities

The ~~cities~~ City of Eunice ~~and Hobbs~~, New Mexico will provide water to the site. Water consumption for the NEF is calculated to be 240 m^3/day (63,423 gal/d) to meet potable and process consumption needs. Peak water usage for fire protection is 33 L/s (521 gal/min). The natural gas requirements of the plant are 354 m^3/hr (12,500 ft^3/hr). Electrical service to the site will be provided by Xcel Energy. The projected demand is approximately 30 MW. Six septic tanks, each with one or more leach fields, will be installed onsite for the collection of sanitary and non-contaminated liquid waste.

Identified, onsite pipelines include a 25.4-cm (10-in) diameter, underground carbon dioxide pipeline that runs southeast-northwest. This pipeline is owned by Trinity Pipeline LLC. A 40.6-cm (16-in) diameter, underground natural gas pipeline, owned by the Sid Richardson Energy Services Company, is located along the south property line, paralleling New Mexico Highway 234. A parallel 35.6-cm (14-in) diameter gas pipeline is not in use. There are no known onsite underground storage tanks, wells, or sewer systems.

General site stormwater runoff is collected and released untreated to a site stormwater detention basin. A single-lined retention basin will collect stormwater runoff from the Uranium Byproduct Cylinder (UBC) Storage Pad, cooling tower blowdown water and heating boiler blowdown water. All stormwater discharges will be regulated, as required, by a National Pollutant Discharge Elimination System (NPDES) Stormwater Permit. LES will also need to obtain a New Mexico Groundwater Quality Bureau (WQB) Groundwater Discharge Permit/Plan prior to operation for its onsite discharges of stormwater, treated effluent water, cooling tower blowdown water, heating boiler blowdown water and sanitary water. Approximately 174,100 m^3 (46 million gal) of stormwater from the site is expected to be released annually to the onsite retention/detention basins.

NEF liquid effluent discharge rates are relatively low, for example, NEF process waste water flow rate from all sources is expected to be about 28,900 m^3/yr (7.64 million gal/yr). This includes waste water from the liquid effluent treatment system, domestic sewerage, cooling tower blowdown water and heating boiler blowdown water . Only the former source can be expected to contain minute amounts of uranic material. The liquid effluent treatment system and shower/hand wash/laundry effluents will be discharged onsite to a double-lined evaporative basin; whereas the cooling tower blowdown water, heating boiler blowdown water and UBC pad stormwater run-off will be discharged onsite to a single-lined retention basin. Domestic sewerage will be discharged to onsite septic tanks and leach fields.

The NEF water supply will be obtained from the city of Eunice, Mew Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply systems are 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) ~~and 23,750 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of ~~both~~ the water systems.

Solid waste that will be generated at the NEF, which falls into the non-hazardous, radioactive, hazardous, and mixed waste categories, will be collected and transferred to authorized treatment or disposal facilities offsite as follows. All solid radioactive waste generated will be Class A low-level waste as defined in 10 CFR 61 (CFR, 2003r). Approximately 86,950 kg (191,800 lbs) of low-level waste will be generated annually. In addition, annual hazardous and mixed wastes generated are expected to be about 1,770 kg (3,930 lbs) and 50 kg (110 lbs), respectively. As a result, the NEF will be a small quantity generator (SQG) of hazardous waste and dispose of the waste by licensed contractors. LES does not plan to treat hazardous waste or store quantities longer than 90 days. Non-hazardous waste, expected to be approximately 172,500 kg (380,400 lbs) annually, will be collected and disposed of by a County licensed solid waste disposal contractor. The non-hazardous wastes will be disposed of in the new Lea Country landfill which has more than adequate capacity to accept NEF non-hazardous wastes for the life of the facility.

No communities or habitats defined as rare or unique, or that support threatened and endangered species, have been identified as occurring on the NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique, or that support threatened and endangered species, within the 220-ha (543-acre) site.

Noise generated by the operation of the NEF will be primarily limited to truck movements on the road. The noise at the nearest residence will probably increase; however, it may not be

3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

See pg 11 of 28 CNT 12/31/07

3.4.7 Quantitative Description of Water Use

No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF. All water used at the facility will be provided through the Eunice and Hobbs Municipal Water Supply Systems, as described in ER Section 4.1.2. ~~These systems obtain water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site.~~ Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the Hobbs and Eunice, New Mexico water supply systems and the expected NEF average and peak usage.

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs), will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

3.4.7 Quantitative Description of Water Use

No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF. All water used at the facility will be provided through the Eunice ~~and Hobbs~~ Municipal Water Supply Systems, as described in ER Section 4.1.2. ~~These systems~~ obtains water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site. Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the ~~Hobbs and~~ Eunice, New Mexico water supply systems and the expected NEF average and peak usage.

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs), will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

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Impacts to land and groundwater will be controlled during construction through compliance with the National Pollution Discharge Elimination System (NPDES) Construction General Permit obtained from Region 6 of the Environmental Protection Agency (EPA). A Spill Prevention, Control and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and to ensure prompt and appropriate remediation. Potential spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notifications of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Adequately maintained sanitary facilities will be provided for construction crews.

4.1.2 Utilities Impacts

The NEF will require ~~the~~ installation ~~of water,~~ natural gas ~~and electrical~~ utility lines. In lieu of connecting to ~~the~~ local sewer system, six onsite underground septic tanks ~~each with~~ one or more leach fields will be installed for the treatment of sanitary wastes. Septic systems are described in Section 3.12.1.3.4, Effluent Discharge.

A new potable water supply line will be extended from the city of Eunice, New Mexico to the NEF site ~~and another potable water supply line will be extended from the city of Hobbs, New Mexico~~. The line from Eunice will be about 8 km (5 mi) in length. ~~The line from Hobbs will be about 32 km (20 mi) in length~~. Placement of the new water supply line~~s~~ along New Mexico Highways 18 and 234 would minimize impacts to vegetation and wildlife. (Refer to Figure 3.1-1, Land Use Map.) Since there are no bodies of water between the site and the city of Eunice, New Mexico, no waterways will be disturbed. ~~Likewise, there are no bodies of water between the site vicinity and the city of Hobbs~~. However, as indicated in ER Section 3.2.1, Transportation Access, there is a 61-m (200-ft) right-of-way easement along both sides of New Mexico Highway 234. Therefore, an application for utility line installation within highway easements will be submitted to the New Mexico State Highway and Transportation Department. Utility line installation coordinated with state planned highway upgrades would minimize traffic impact on New Mexico Highway 234 between the site and the city of Eunice, New Mexico.

The natural gas line feeding the site will connect to an existing, nearby line. This will minimize impacts of short-term disturbances related to the placement of the tie-in line.

Two new electrical transmission lines on a large loop system are proposed for providing electrical service to the NEF. These lines would tie into a trunk line about 13 km (8 mi) to the west. Similar to the new water supply lines, land use impacts would be minimized by placing associated support structures along New Mexico Highway 234. An application for highway easement modification will be submitted to the state. As noted in ER Chapter 2, Alternatives, there are currently several power poles along the highway in front of the adjacent, vacant parcel east of the site. In conjunction with the new electrical lines serving the site, the local company

boiler blowdown. The drainage system will include precast catch basins and concrete trench drains; piping will be reinforced concrete with rubber gasketed joints to preclude leakage. An assessment was made by LES that assumed a conservative level of radioactive contamination level on cylinder surfaces and 100% washoff to the UBC Storage Pad Stormwater Retention Basin from a single rainfall event. Results show the level of radioactivity in such a discharge to the basin will be well below the regulatory unrestricted release criteria (CFR, 2003q).

The UBC Storage Pad Stormwater Retention Basin will be provided with a means to sample sediment. Refer to ER Section 6.1, Radiological Monitoring, for more information regarding environmental monitoring of stormwater site detention/retention basins.

4.4.3 Hydrological System Alterations

Excavation and placement of fill will provide the site with a finished level grade of about +1,041 m (+3,415 ft), msl. This work will not require alteration or filling of any surface water features on the site.

No alterations to groundwater systems will occur due to facility construction. Referring to ER Section 3.4.12, since there is no consistent groundwater in the sand and travel layer above the Chinle Formation, it does not provide a likely contaminant pathway in a lateral or vertical direction. Although engineered fill will be used during site preparation and will likely be placed against the existing dense sand and gravel layer in some locations, the potential for water or other liquids from spills or pipeline leaks to introduce sufficient amounts of liquid to saturate the sand and gravel layer to a point where significant contaminant migration reaches and flows along the top of the Chinle Formation, is considered unlikely. The addition of on-site fill is not expected to alter this situation. Furthermore, the travel time to downstream users through a lateral contaminant pathway would be significant since potential contamination would travel laterally at very small rates, if at all. Groundwater travel through the Chinle clay would be on the order of thousands of years.

4.4.4 Hydrological System Impacts

Due to absence of water extraction, limited effluent discharge from the facility operations, the lack of groundwater in the sand and gravel layer above the Chinle Formation and the considerable depth to groundwater at the NEF site, no significant impacts are expected for the site's hydrologic systems.

Control of surface water runoff will be required for NEF construction activities, covered by the NPDES Construction General Permit. As a result, no significant impacts are expected to either surface or groundwater bodies. Control of impacts from construction runoff is discussed in ER Section 4.4.7, Control of Impacts to Water Quality.

The volume of water discharged into the ground from the Site Stormwater Detention Basin is expected to be minimal, as evapotranspiration is expected to be the dominant natural influence on standing water.

4.4.5 Ground and Surface Water Use

The NEF will not obtain any water from the site or have any planned surface discharges at the site other than to the retention and detention basins. All potable, process and fire water supply used at the NEF will be obtained from the Eunice ~~and Hobbs~~, New Mexico, municipal water systems. Wells serving these systems are about 32 km (20 mi) from the site. Anticipated normal plant water consumption and peak plant water requirements are provided in Table 3.4-4,

Anticipated Normal Plant Water Consumption, and Table 3.4-5, Anticipated Peak Plant Water Consumption, respectively.

Site groundwater will not be utilized for any reason, and therefore, should not be impacted ~~by~~ routine NEF operations. The NEF water supply will be obtained from the city of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply system ~~are~~ 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usage ~~rates are~~ 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

For both peak and the normal usage rates, the needs of the NEF facility should readily met by the municipal water systems. Impacts to water resources onsite and in the vicinity of the NEF are expected to be negligible.

4.4.6 Identification of Impacted Ground and Surface Water Users

Location of an intermittent surface water feature and groundwater users in the site vicinity including an area just beyond a 1.6-km (1-mi) radius of the site boundary are shown on Figure 3.4-7, Water and Oil Wells in the Vicinity of the NEF Site. These locations were provided by the Office of New Mexico State Engineer (NMSE) (NMSE, 2003), the Texas Water Development Board (TWDB) (TWDB, 2003) and the United States Geological Survey (USGS) (USGS, 2003b). No producing supply water wells are within 1.6 km (1 mi) of the boundaries of the NEF site as shown on Figure 3.4-7. However, nearby facilities do have groundwater monitoring wells within this region.

The absence of near-surface groundwater users within 1.6 km (1 mi) from the site and the absence of surface water on the NEF site will prevent any impact to local surface or groundwater users. Due to the lack of process water discharge from the facility to the environment, no impact is expected for these water users.

Effluent discharges will be controlled in a way that will also prevent any impacts. The locations of the closest municipal water systems for both Eunice and Hobbs are in Hobbs, New Mexico, 32 km (20 mi) north northwest of the site. There is no potential to impact these sources.

4.4.7 Control of Impacts to Water Quality

Site runoff water quality impacts will be controlled during construction by compliance with NPDES Construction General Permit requirements and BMPs will be described in a site Stormwater Pollution Prevention (SWPP) plan.

Wastes generated during site construction will be varied, depending on activities in progress. Any hazardous wastes from construction activities will be handled and disposed of in accordance with applicable state regulations. This includes proper labeling, recycling, controlling and protected storage and shipping offsite to approved disposal sites. Sanitary wastes generated at the site will be handled by portable systems until such time that the site septic systems are available for use.

The need to level the site for construction will require some soil excavation as well as soil fill. Fill placed on the site will provide the same characteristics as the existing natural soils thus

are well within the scope of the environmental impacts previously evaluated by the Nuclear Regulatory Commission (NRC). Because these impacts have been addressed in a previous NRC environmental impact statement (NUREG/CR-0170) (NRC, 1977a), no additional mitigation measures are proposed in ER Section 5.2.2, Transportation.

5.1.3 Geology and Soils

The potential impacts to the geology and soils have been characterized in ER Section 4.3, Geology and Soils Impact. No substantive impacts exist as related to the following activities:

- Soil resuspension, erosion, and disruption of natural drainage
- Excavations to be conducted during construction.

Impacts to geology and soils will be limited to surface runoff due to routine operation. Construction activities may cause some short-term increases in soil erosion at the site. Mitigation measures associated with these impacts are listed in ER Section 5.2.3, Geology and Soils.

5.1.4 Water Resources

The potential impacts to the water resources have been characterized in ER Section 4.4, Water Resources Impacts. No substantive impacts exists as related to the following:

- Impacts on surface water and groundwater quality
- Impacts of consumptive water uses (e.g., groundwater depletion) on other water users and adverse impacts on surface-oriented water users resulting from facility activities. Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the town of Eunice, New Mexico and the city of Hobbs, New Mexico. Current capacities for the Eunice and Hobbs, New Mexico municipal water supply systems are 16,350 m^3/day (4.32 million gpd) and 75,700 m^3/day (20 million gpd), respectively and current usages are 5,600 m^3/day (1.48 million gpd) and 23,450 m^3/day (6.2 million gpd), respectively. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hour (378 gpm), respectively. These usage rates are well within the capacities of both water systems. For both peak and the normal usage rates, the needs of the NEF facility should readily be met by the municipal water systems. Impacts to water resources on site and in the vicinity of NEF are expected to be negligible.
- Hydrological system alterations or impacts
- Withdrawals and returns of ground and surface water
- Cumulative effects on water resources.

The NEF will not obtain any water from onsite surface or groundwater resources. Process effluents will be discharged to the double-lined Treated Effluent Evaporative Basin with leak detection. Sanitary waste water discharges will be made through site septic systems. Stormwater from developed portions of the site will be collected in retention/detention basins, as described in ER Section 3.4, Water Resources. These include the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin. Minor impacts to water resources are discussed in ER Section 4.4. Mitigation measures associated with these impacts are listed in ER Section 5.2.4, Water Resources.

are well within the scope of the environmental impacts previously evaluated by the Nuclear Regulatory Commission (NRC). Because these impacts have been addressed in a previous NRC environmental impact statement (NUREG/CR-0170) (NRC, 1977a), no additional mitigation measures are proposed in ER Section 5.2.2, Transportation.

5.1.3 Geology and Soils

The potential impacts to the geology and soils have been characterized in ER Section 4.3, Geology and Soils Impact. No substantive impacts exist as related to the following activities:

- Soil resuspension, erosion, and disruption of natural drainage
- Excavations to be conducted during construction.

Impacts to geology and soils will be limited to surface runoff due to routine operation. Construction activities may cause some short-term increases in soil erosion at the site. Mitigation measures associated with these impacts are listed in ER Section 5.2.3, Geology and Soils.

5.1.4 Water Resources

The potential impacts to the water resources have been characterized in ER Section 4.4, Water Resources Impacts. No substantive impacts exists as related to the following:

- Impacts on surface water and groundwater quality
- Impacts of consumptive water uses (e.g., groundwater depletion) on other water users and adverse impacts on surface-oriented water users resulting from facility activities. Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the town of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs, New Mexico~~ municipal water supply system~~s are~~ 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd),~~ respectively and current usage~~s are~~ 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hour (378 gpm), respectively. These usage rates are well within the capacities of both water systems. For both peak and the normal usage rates, the needs of the NEF facility should readily be met by the municipal water systems. Impacts to water resources on site and in the vicinity of NEF are expected to be negligible.
- ~~Hydrological system alterations or impacts~~
- Withdrawals and returns of ground and surface water
- Cumulative effects on water resources.

The NEF will not obtain any water from onsite surface or groundwater resources. Process effluents will be discharged to the double-lined Treated Effluent Evaporative Basin with leak detection. Sanitary waste water discharges will be made through site septic systems. Stormwater from developed portions of the site will be collected in retention/detention basins, as described in ER Section 3.4, Water Resources. These include the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin. Minor impacts to water resources are discussed in ER Section 4.4. Mitigation measures associated with these impacts are listed in ER Section 5.2.4, Water Resources.

These dose equivalents due to normal operations are small fractions of the normal background radiation range of 2.0 to 3.0 mSv (200 to 300 mrem) dose equivalent that an average individual receives in the US, and within regulatory limits.

7.2.2.7 Other Impacts of Plant Operation

NEF water will be obtained from the ~~Hobbs and~~ Eunice, New Mexico municipal water systems and routine liquid effluent will be treated and discharged to evaporative pond(s), whereas sanitary wastes will be discharged to onsite septic systems. Facility water requirements are relatively low and well within the capacities of the ~~Hobbs and~~ Eunice water utilities. The current capacity for the Eunice Potable water supply system is 16,350 m^3/day (4.3 million gpd), and current usage is 5,600 m^3/day (1.48 million gal/d). ~~The Hobbs water system capacity is 75,700 m^3/day (20 million gal/d) whereas its usage is 23,450 m^3/day (6.2 million gal/d).~~ Requirements for operation of the NEF are expected to be 240 m^3/day (63,423 gal/d), a volume well within the capacity of the supply systems. Non-hazardous and non-radioactive solid waste is expected to be approximately 172,500 kg (380,400 lbs) annually. It will be shipped offsite to a licensed landfill. The local Lea County landfill capacity is more than adequate to accept the non-hazardous waste.

7.2.2.8 Decommissioning

The plan for decommissioning is to decontaminate or remove all materials promptly from the site that prevent release of the facility for unrestricted use. This approach avoids the need for long-term storage and monitoring of wastes on site. Only building shells and the site infrastructure will remain. All remaining facilities, including site basins, will be decontaminated where needed to acceptable levels for unrestricted use. Excavations and berms will be leveled to restore the land to a natural contour.

Depleted UF_6, if not already sold or otherwise disposed of prior to decommissioning, will be disposed of in accordance with regulatory requirements. Radioactive wastes will be disposed of in licensed low-level radioactive waste disposal sites. Hazardous wastes will be treated or disposed of in licensed hazardous waste facilities. Neither conversion (if done), nor disposal of radioactive or hazardous material will occur at the plant site, but at licensed facilities located elsewhere.

Following decommissioning, all parts of the plant and site will be unrestricted to any specific type of use.

8.8 NONRADIOLOGICAL IMPACTS

Numerous design features and administrative procedures are employed to minimize gaseous and liquid effluent releases and keep them within regulatory limits. Potential nonradiological impacts of operation of the NEF include releases of inorganic and organic chemicals to the atmosphere and surface water impoundments during normal operations Other potential impacts involve land use, transportation, soils, water resources, ecological resources, air quality, historic and cultural resources, socioeconomic and public health. Impacts from hazardous, radiological and mixed wastes and radiological effluents have been discussed earlier.

The other potential nonradiological impacts from the construction and operation of NEF are discussed below:

Land-Use Impacts:

The anticipated effects on the soil during construction activities are limited to a potential short-term increase in soil erosion. However, this will be mitigated by proper construction best management practices (BMPs). These practices include minimizing the construction footprint to the extent possible, limiting site slopes, using a sedimentation detention basin, protecting undisturbed areas with silt fencing and straw bales as appropriate, and employing site stabilization practices such as placing crushed stone on top of disturbed soil in areas of concentrated runoff. In addition onsite construction roads will be periodically watered when required, to control fugitive dust emissions. Water conservation will be considered when deciding how often dust suppression sprays will be applied. After construction is complete, the site will be stabilized with natural, low-water maintenance landscaping and pavement.

A Spill Prevention, Control and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and ensure prompt and appropriate remediation. Spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notification of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Water conservation measures will be considered to minimize water use. Adequately maintained sanitary facilities will be provided for construction crews.

The NEF facility will require the installation of water, natural gas and electrical utility lines. In lieu of connecting to the local sewer system, six onsite underground septic tanks each with one or more leach fields will be installed for the treatment of sanitary wastes.

A new potable water supply line will be extended from the city of Eunice to the NEF site ~~and another potable water supply line will be extended from the city of Hobbs~~. The line from Eunice will be about 8 km (5 mi) in length. ~~The line from Hobbs will be about 32 km (20 mi) in length.~~ Placement of the new water supply lines along New Mexico Highways 18 and 234 would

minimize impacts to vegetation and wildlife. Since there are no bodies of water between the site and the city of Eunice, no waterways will be disturbed. ~~Likewise, based on site visits, there are no bodies of water between the site vicinity and the city of Hobbs.~~ The natural gas line feeding the site will connect to an existing, nearby line. This will minimize impacts of short-term disturbances related to the placement of the tie-in line.

Two new electrical transmission lines on a large loop system are proposed for providing electrical service to the NEF. These lines would tie into a trunk line about 13 km (8 mi) to the west. Similar to the new water supply lines, land use impacts would be minimized by placing associated support structures along New Mexico Highway 234. An application for highway easement modification will be submitted to the state. There are currently several power poles along the highway in front of the adjacent, vacant parcel east of the site. In conjunction with the new electrical lines serving the site, the local company providing electrical service, Xcel Energy, will install two onsite transformers for redundant service assurance.

Six underground septic tanks will be installed onsite. The combined leach fields will require about 975 m (3,200 ft) of percolation drain field. The drain field will either be placed below grade or buried in a mound consisting of sand, aggregate and soil.

Overall land use impacts to the site and vicinity will be minimal considering that the majority of the site will remain undeveloped, the current industrial activity on neighboring properties, the nearby, expansive oil and gas well fields, and the placement of most utility installations along highway easements.

Transportation Impacts:

Impacts from construction and operation on transportation will include the generation of fugitive dust, changes in scenic quality, added environmental noise and small radiation dose to the public from the transport of UF_6 feed and product cylinders, as well as low-level radioactive waste.

Dust will be generated to some degree during the various stages of construction activity. The amount of dust emissions will vary according to the types of activity. LES estimated that fugitive dust are expected to be well below the National Ambient Air Quality Standards (CFR, 2003w).

Although site construction will significantly alter its natural state, and considering that there are no high quality viewing areas and the industrial development of surrounding properties, impacts to the scenic quality of the site are not considered to be significant. Also, construction vehicles will be comparable to trucks servicing neighboring facilities. Construction worker and worker during operation transportation impacts are not considered to be significant.

The temporary increase in noise levels along New Mexico Highways 18 and 234 and Texas Highway 176 due to construction vehicles are not expected to impact nearby receptors significantly, due to substantial truck traffic currently using these roadways, and the large distance between the nearest receptors and the site, i.e., 4.3 km (2.63 mi). ~~See the~~ environmental noise discussion below concerning noise levels due to traffic during operations.

Water Resources:

Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the ~~city~~ of Eunice, New Mexico, ~~and Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply system are 16,350 m^3/day (4.32 million gpd) ~~and 76,700 m^3/day~~

(20 million gpd), respectively and current usage are 5,600 m^3/day (1.48 million gpd) and 23,450 m^3/day (6.2 million gpd), respectively. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

Liquid effluents include stormwater runoff, sanitary waste water, cooling tower blowdown water, heating boiler blowdown water and treated contaminated process water. All liquid effluents, with the exception of sanitary waste water, are discharged to one of three onsite basins.

Stormwater from the site will be diverted and collected in the Site Stormwater Detention Basin. This basin collects runoff from various developed parts of the site. It is unlined and will have an outlet structure to control discharges above the design level. The normal discharge will be through evaporation and infiltration into the ground. The basin is designed to contain runoff for a volume equal to that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall. It will have approximately 123,350 m^3 (100-acre-ft) of storage capacity. In addition, the basin has 0.6 m (2 ft) of free-board beyond the design capacity. It will also be designed to discharge post-construction peak flow runoff rates from the outfall that are equal to or less than the pre-construction runoff rates from the area.

Cooling tower blowdown water, heating boiler blowdown water and stormwater runoff from the UBC Storage Pad are discharged to the UBC Storage Pad Stormwater Retention Basin. The ultimate disposition of this water will be through evaporation along with permanent impoundment of the residual dry solids byproduct of evaporation. It is designed to contain runoff for a volume equal to twice that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall and an allowance for cooling tower blowdown water and heating boiler blowdown water. The UBC Storage Pad Stormwater Retention Basin is designed to contain a volume of approximately 77,700 m^3 (63 acre-ft). This basin is designed with a synthetic membrane lining to minimize any infiltration into the ground.

Discharge of treated contaminated plant process water will be to the onsite Treated Effluent Evaporative Basin. The Treated Effluent Evaporative Basin is utilized for the collection and containment of liquid effluent from the Liquid Effluent Collection and Treatment System. The ultimate disposal the liquid effluent will be through evaporation of water and permanent impoundment of the residual dry solids. Total annual discharge to that basin will be approximately 2,535 m^3/yr (669,844 gal/yr). The basin will be designed for double that volume. Evaporation will provide the only means of liquid disposal from this basin. The basin will include a double-layer membrane liner with a leak detection system to prevent infiltration of basin water into the ground.

Ecological Resources:

No communities or habitats that have been defined as rare or unique or that support threatened and endangered species have been identified as occurring on the 220-ha (543-acre) NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique or that support threatened and endangered species within the site area. Field surveys that were performed in September and October 2003, and April 2004, for the lesser prairie chicken, the sand dune lizard, and the black-tailed prairie dog determined that these species were not present at the NEF site. Another survey for the sand dune lizard was conducted in June 2004 and confirmed there were no sand dune lizards at the NEF site.

Several practices and procedures have been designed to minimize adverse impacts to the ecological resources of the NEF site. These practices and procedures include the use of BMPs,

3.2.2.6.2 Agricultural Water Use

Although various crops are grown within Lea and Andrews Counties, local and county officials report that there is no agricultural activity in the site vicinity, except for domestic livestock ranching. The principal livestock for both Lea and Andrews Counties is cattle. Although milk cows comprise a significant number of cattle in Lea County, the nearest dairy farms are about 32 km (20 mi) north of the subject site, near the city of Hobbs, New Mexico. There are no milk cows in Andrews County. Table 3.2-4, Agriculture Census, Crop, and Livestock Information, provides data on agricultural and livestock activities in Lea County, New Mexico, and Andrews County, Texas.

Known sources of water in the site vicinity include the following: a manmade pond on the adjacent quarry property to the north which is stocked with fish for private use; Baker Spring, an intermittent surface water feature, situated a little over 1.6 km (1 mi) northeast of the site which only contains water seasonally; several cattle watering holes where groundwater is pumped by windmill and stored in above ground tanks.

3.2.2.6.3 Municipal Use of Local Surface Water

Surface water is not a source of water for municipal use.

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3.2.2.6.4 Groundwater Use

The NEF water supply is from the municipal water system in ~~Hobbs and~~ Eunice, New Mexico, and thus no water will be drawn from either surface water or groundwater sources at the NEF site. The Eunice system obtains water from a groundwater source in the city of Hobbs, approximately 32 km (20 mi) north of the site. Supply of nearby groundwater users will thus not be affected by operation of the NEF. No subsurface or surface water uses such as withdrawals or consumption are made at the site by the NEF.

3.2.3 Meteorology

In this section, data characterizing the meteorology (e.g., winds, precipitation, and severe weather) for the site are presented. The discussion identifies the design basis natural events for the facility, including the likelihood of occurrence.

The meteorological conditions at the NEF have been evaluated and summarized in order to characterize the site climatology and to provide a basis for predicting the dispersion of gaseous effluents. No on-site meteorological data were available, however, WCS have a meteorological monitoring station within approximately 1.6 km (1 mi) from the proposed NEF site.

Climate information from Hobbs, New Mexico (32 km (20 mi) north of the site), obtained from the Western Regional Climate Center, were used. In addition, National Oceanic and Atmospheric Administration (NOAA) Local Climatological Data (LCD) recorded at Midland-Odessa Regional Airport, Texas (103 km (64 mi) southeast of the site) and at Roswell, New Mexico (161 km (100 mi) northwest of the site) were used. In the following summaries of meteorological data, the averages are based on:

- Hobbs station (WRCC, 2003) averages are based on a 30 year record (1971 to 2000) unless otherwise stated

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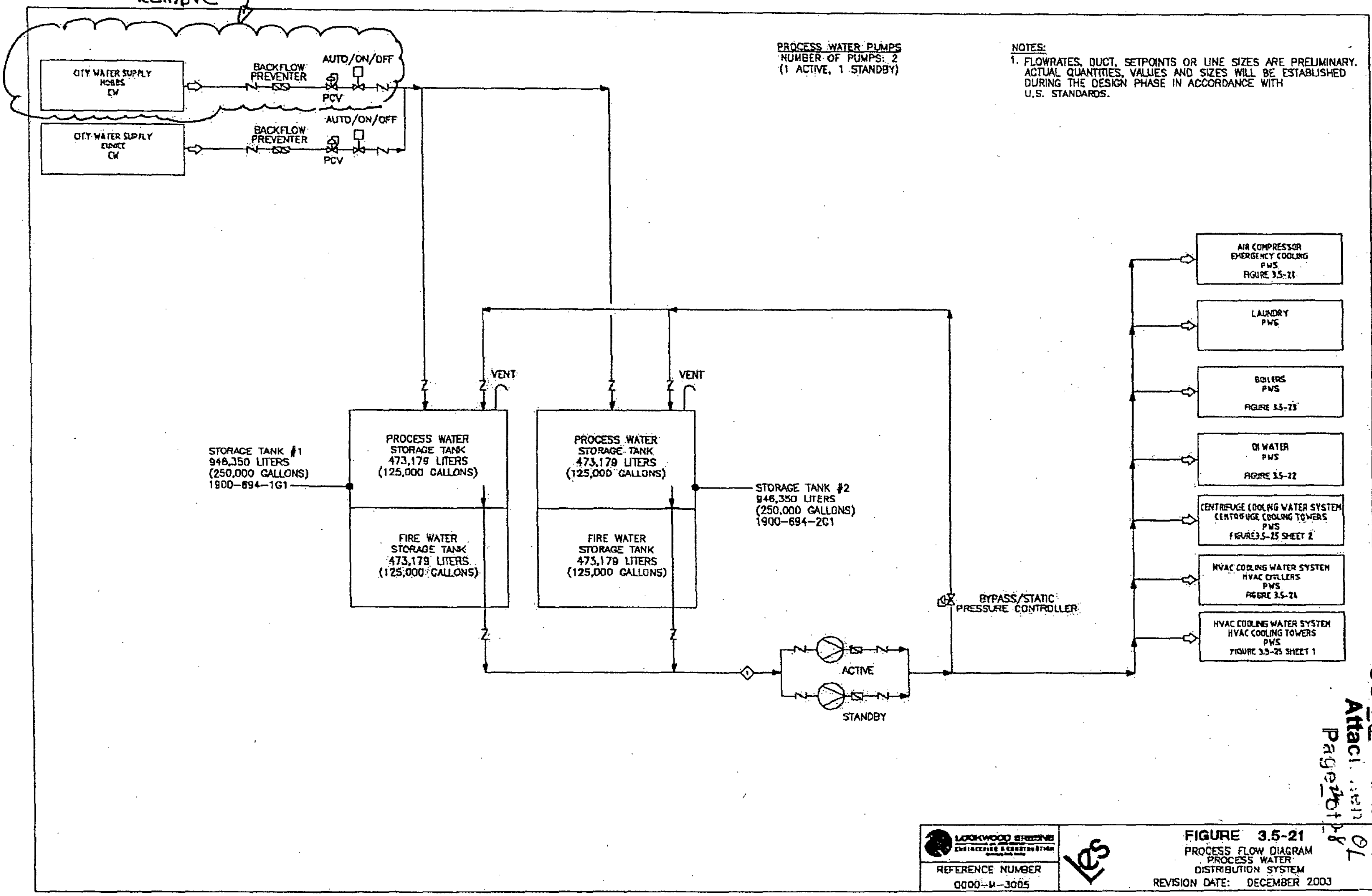

CITY WATER SUPPLY
HOBBS
CW
BACKFLOW PREVENTER
AUTO/ON/OFF
PCV
CITY WATER SUPPLY
EUNICE
CW
BACKFLOW PREVENTER
AUTO/ON/OFF
PCV
PROCESS WATER PUMPS
NUMBER OF PUMPS: 2
(1 ACTIVE, 1 STANDBY)
NOTES:
1. FLOWRATES, DUCT, SETPOINTS OR LINE SIZES ARE PRELIMINARY. ACTUAL QUANTITIES, VALUES AND SIZES WILL BE ESTABLISHED DURING THE DESIGN PHASE IN ACCORDANCE WITH U.S. STANDARDS.
VENT
VENT
STORAGE TANK #1
946,350 LITERS
(250,000 GALLONS)
1900-694-1G1
PROCESS WATER
STORAGE TANK
473,179 LITERS
(125,000 GALLONS)
FIRE WATER
STORAGE TANK
473,179 LITERS
(125,000 GALLONS)
PROCESS WATER
STORAGE TANK
473,179 LITERS
(125,000 GALLONS)
FIRE WATER
STORAGE TANK
473,179 LITERS
(125,000 GALLONS)
STORAGE TANK #2
946,350 LITERS
(250,000 GALLONS)
1900-694-2G1
BYPASS/STATIC PRESSURE CONTROLLER
ACTIVE
STANDBY
AIR COMPRESSOR
EMERGENCY COOLING
PWS
FIGURE 3.5-21
LAUNDRY
PWS
BOILERS
PWS
FIGURE 3.5-23
DI WATER
PWS
FIGURE 3.5-22
CENTRIFUGE COOLING WATER SYSTEM
CENTRIFUGE COOLING TOWERS
PWS
FIGURE 3.5-25 SHEET 2
HVAC COOLING WATER SYSTEM
HVAC CHILLERS
PWS
FIGURE 3.5-24
HVAC COOLING WATER SYSTEM
HVAC COOLING TOWERS
PWS
FIGURE 3.5-25 SHEET 1
LOCKWOOD GREENE
REFERENCE NUMBER
0000-M-3005
FIGURE 3.5-21
PROCESS FLOW DIAGRAM
PROCESS WATER
DISTRIBUTION SYSTEM
REVISION DATE: DECEMBER 2003

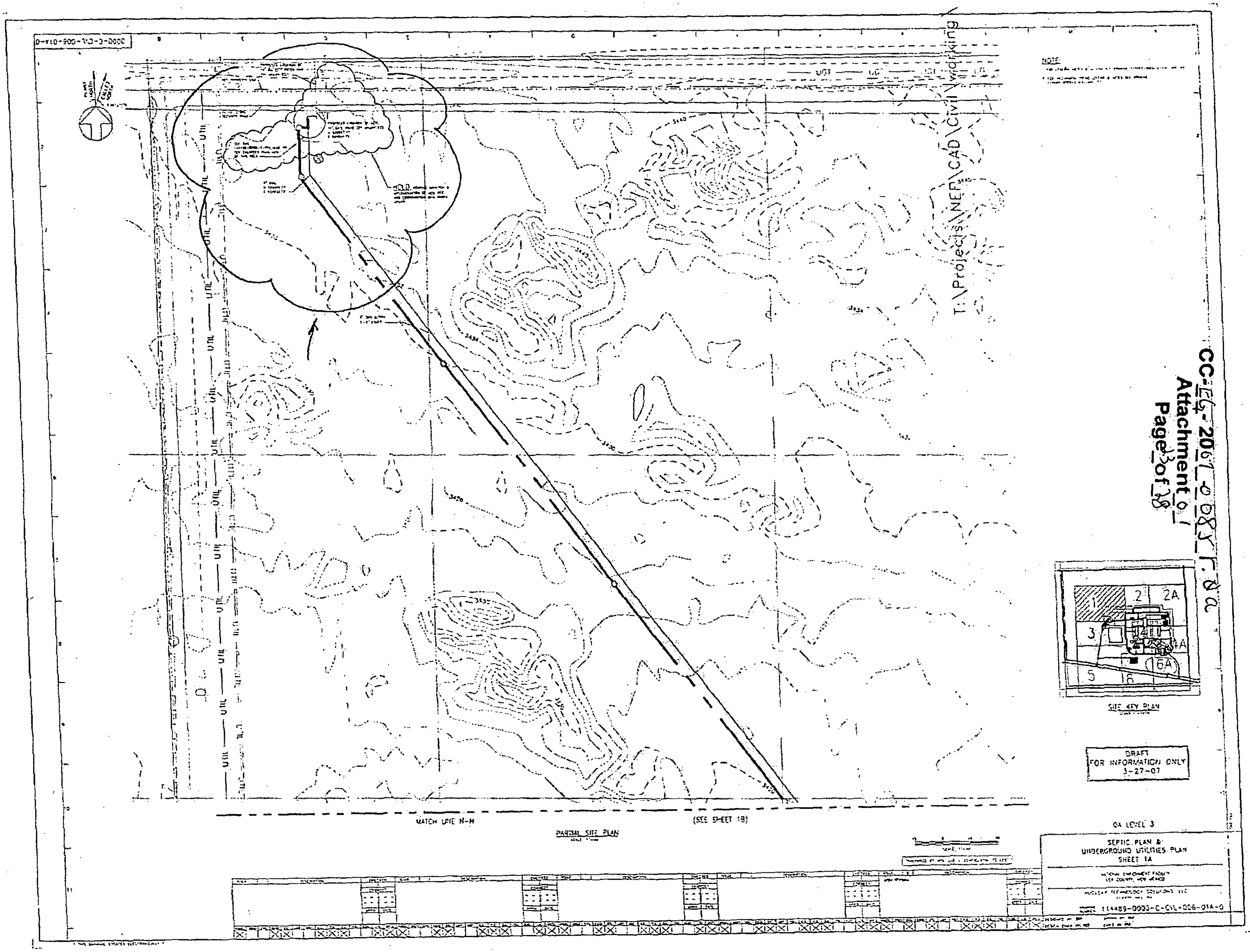
1 SA

CC-EC-2007-0085 r.00

Attachment 01

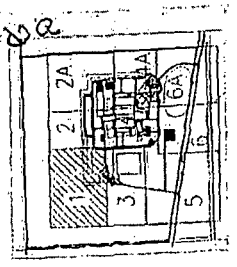
Page 28 of 28

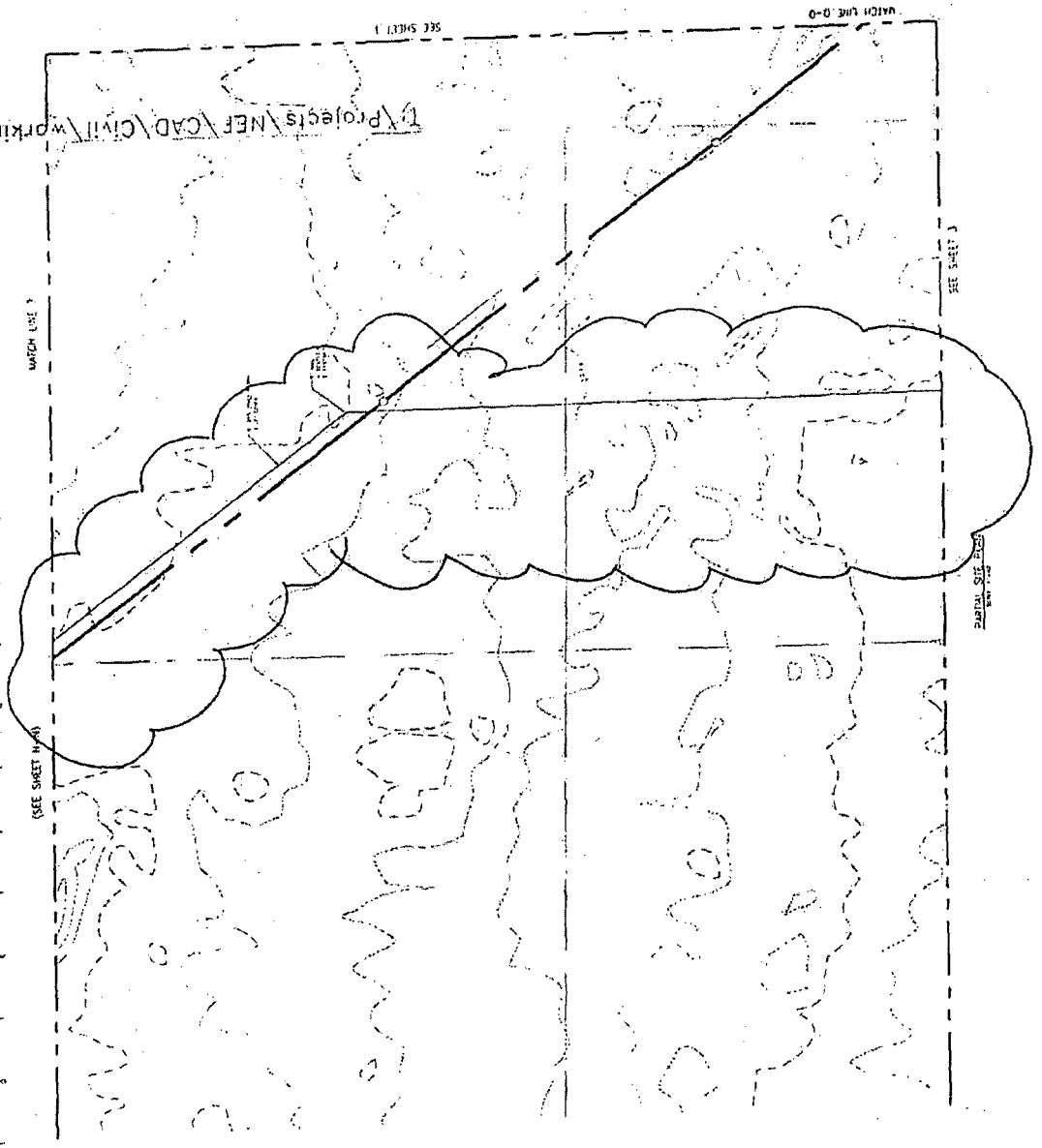
ROA

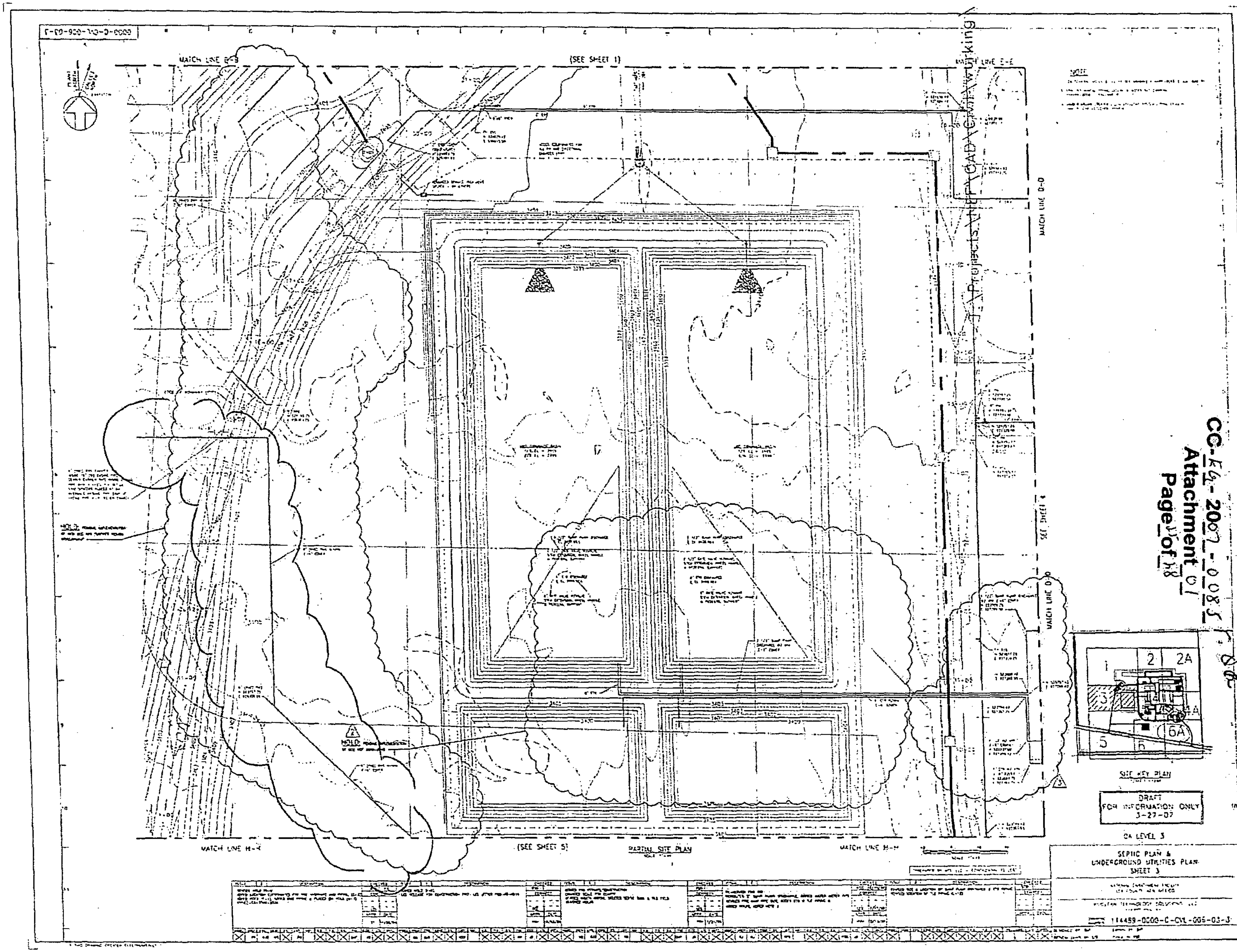

T:\Projects\NEF\CAD\Civil\working
CC-EG-2007-0887.02
Attachment 01
Page 23 of 28
HOLD
UTIL
UGT
SITE KEY PLAN
1
2
2A
3
4A
5
6
6A
DRAFT
FOR INFORMATION ONLY
3-27-07
MATCH LINE N-N
(SEE SHEET 1B)
PARTIAL SITE PLAN
QA LEVEL 3
SEPTIC PLAN &
UNDERGROUND UTILITIES PLAN
SHEET 1A
114489-0003-C-CVL-006-01A-0

ROA 23 of 28

CC-EG-2007-0085 r.2a
Attachment 01
Page 24 of 28

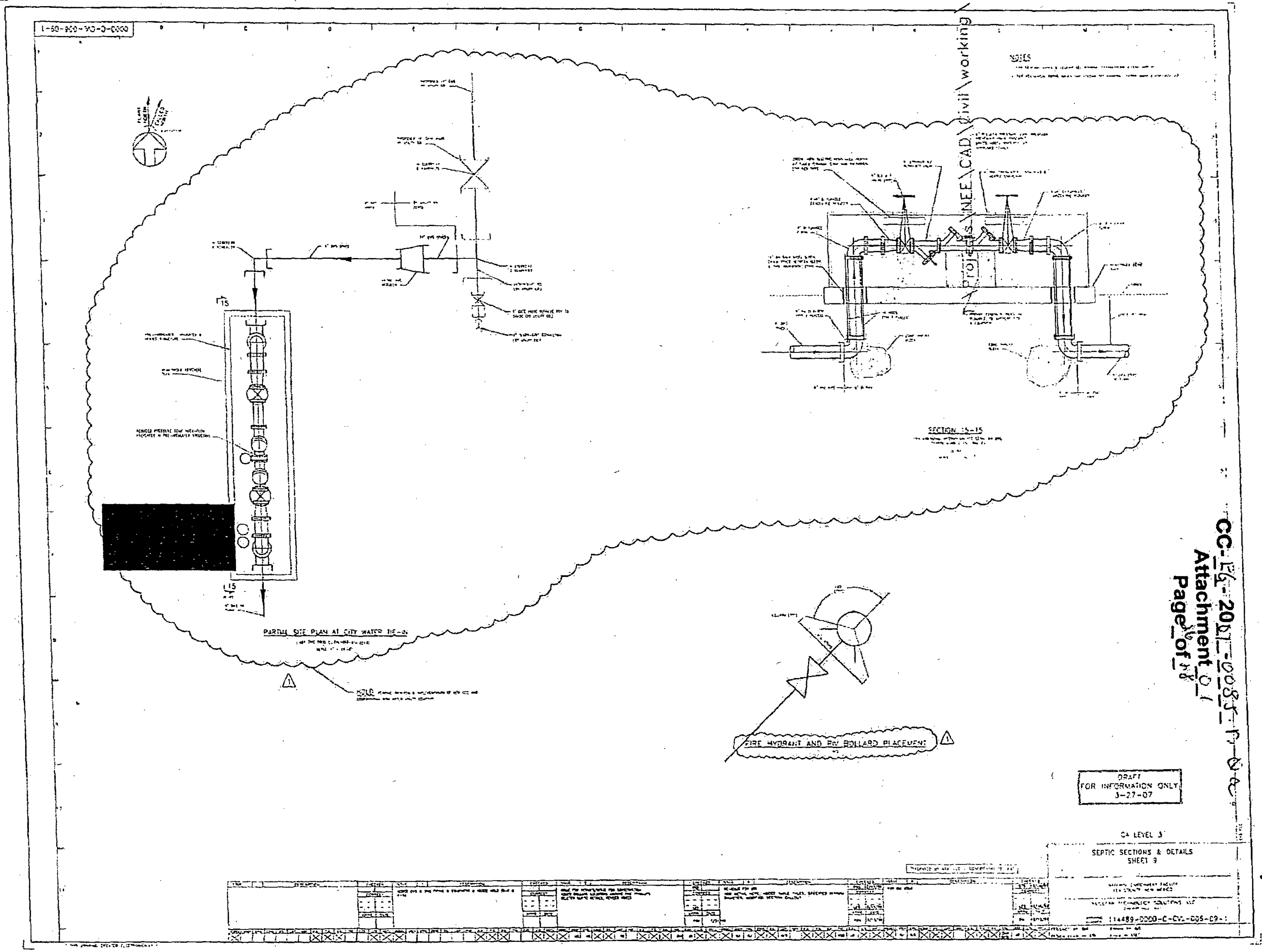






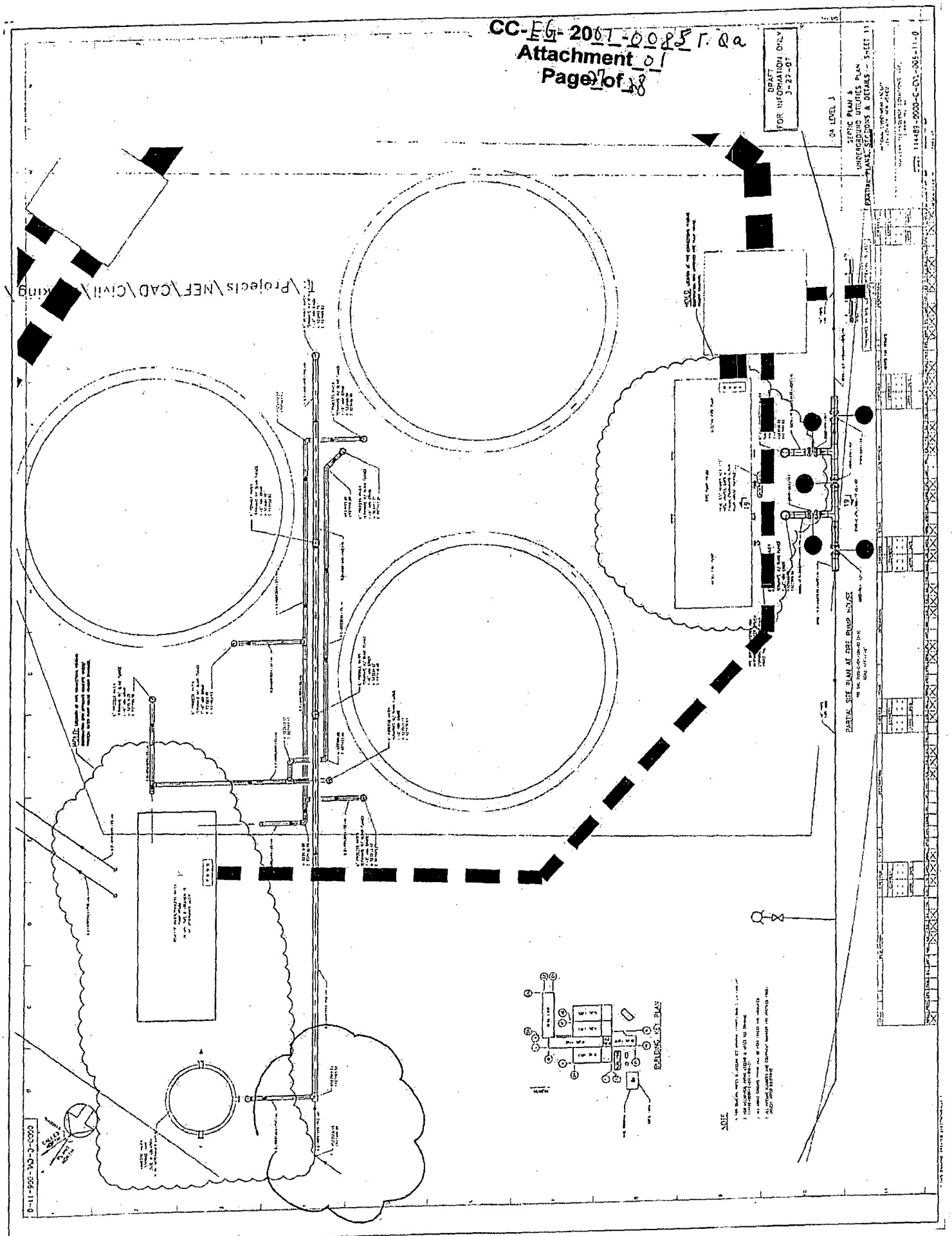
CO-E4-2007-0085
Attachment 01
Page 30 of 28

R 0 C 25 r 28


NOTES
SECTION 15-15
PARTIAL SITE PLAN AT CITY WATER TIE-IN
[redacted]
FIRE HYDRANT AND PIV BOLLARD PLACEMENT
projects\NEE\CAD\civil\working
DRAFT
FOR INFORMATION ONLY
3-27-07
QA LEVEL 3
SEPTIC SECTIONS & DETAILS
SHEET 9
114489-0000-C-CVL-005-09-1

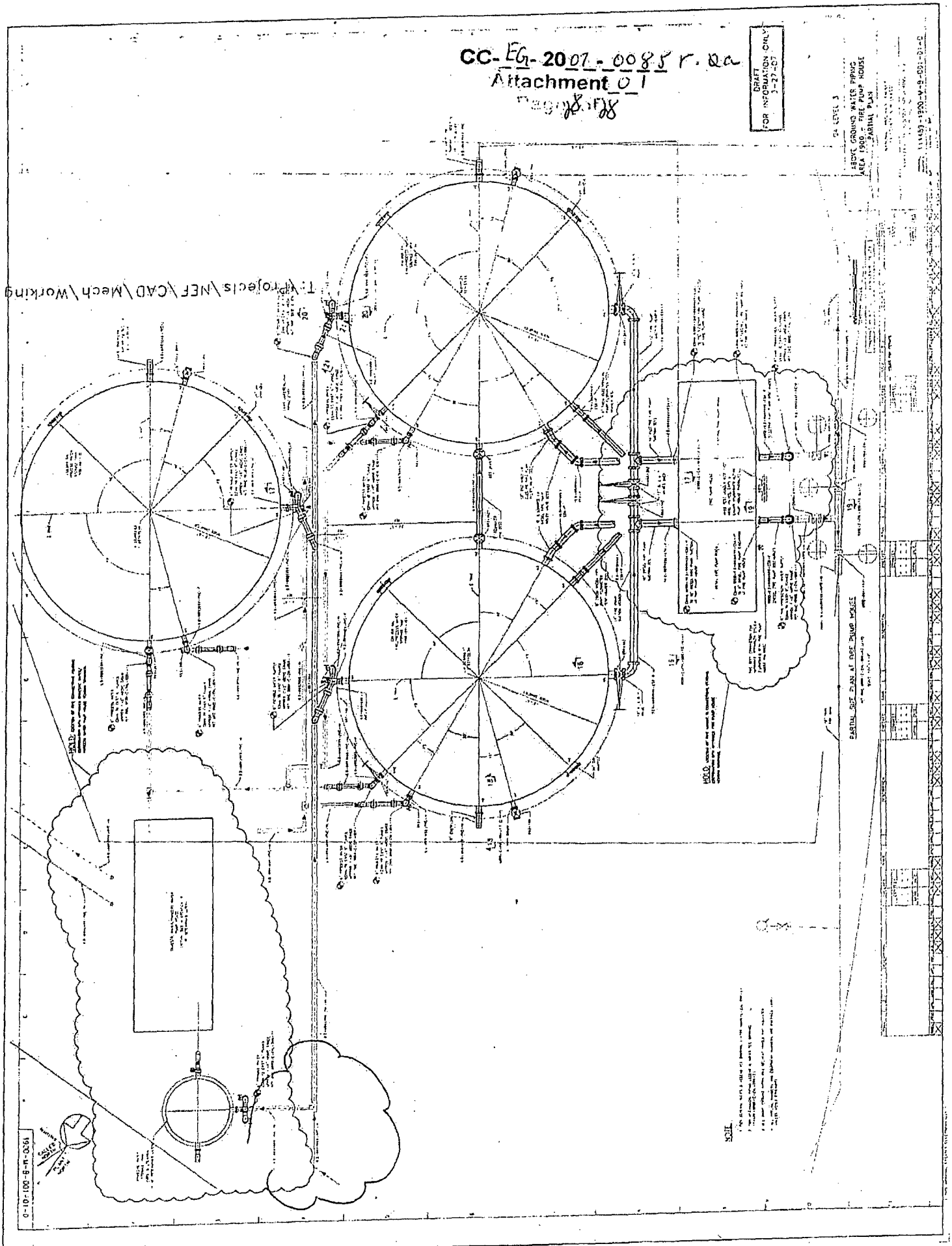
RQ 27, 28

CC-EG-2007-00851.Qa
Attachment 01
Page 7 of 18



ROC 28728 A

CC-EG-2007-0085 r. 0a
Attachment 01
Page 1 of 28



ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 1 of 2

70.72(c) Evaluation Number: : 2007-0104 Rev. Number: 0

Facility Change/Document/Program Number: CC-EG-2007-0085 Revision Number: 0a

I. Description of Change:

The purpose of the change evaluated in this 70.72 (c) evaluation is to identify the water supplier for the NEF, and to declare that there is only one supply from one municipality; the purpose of CC-EG-2007-0085R 0a is to enable the single water line to be permanently connected to the NEF. The revised CC, from Rev 0 to Rev 0a, addresses and resolves the comments on Rev 0 from the IDRs. (All are editorial.) The impact of this change is to clarify that the water supply to the NEF will be from the City of Eunice, NM only (versus one supply from Eunice AND another from Hobbs) utilizing a single, incoming, back flow protected, 14" water main, that enters the NEF at its North West corner. This single supply line differs from the LB documents that describe two independent supply lines, one each from the cities of Eunice and Hobbs, delivering municipal water to the southern site boundary along NM State Highway 234.

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer: This proposed change has no impact on, or is affected by, any accident sequence. There is no relationship between this proposed change and any accident sequence.

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer: This proposed change addresses water supply to the NEF/LES facility. No new process, technology or control system is affected.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

Basis for answer: This change has no IROFS impact. (as identified in ISA Summary Table 3.8-1.)

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer: This change has no sole IROFS impact. (as identified in ISA Summary Table 3.8-2.)

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer: There are no prohibitive statements specified in 10 CFR 70.72 that affect or apply to this proposed change. This proposed change is not prohibited by any license condition or order.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 2 of 2

70.72(c) Evaluation Number: : 2007-0104 Rev. Number: 0

Facility Change/Document/Program Number: CC-EG-2007-0085 Revision Number: 0a

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

IV. References used to perform the evaluation (if not provided in the response to each question).

V. Review and Approval:

10 CFR 70.72(c) Evaluator: Gordon R. Skillman (Printed Name)  (Signature) Date: June 26, 2007

10 CFR 70.72(c) Reviewer: TIMOTHY HARNEY (Printed Name)  (Signature) Date: 6/28/07

SRC Review Required: (Yes) No (Circle one) If No, provide basis:

CARL MARKERT (SRC Chairman (Printed Name))  (Signature) Date: 7/9/2007

2007-32 (SRC Meeting Number)

LBDCR Form

LBDCR No: 07-0005 Configuration Change No: CC EG 2007 0085 R0a

LBDCR Package Preparer: **Gordon R. Skillman** / Gordon R. Skillman LBDCR Initiation Date: 1 / 8 / 2008
(Print Name/Signature) *mm/dd/yy*

1) Proposed License Basis Document Change(s) Brief Description

The purpose of the change evaluated by CC EG 2007 0085 R0a is to identify the water supplier for the NEF, and to declare that there is only one supply from one municipality. The purpose of the underlying (CC-EG-2007-0085R 0a) is to enable the single water line to be permanently connected to the NEF. The impact of this change is to clarify that the water supply to the NEF will be from the City of Eunice, NM only (versus one supply from Eunice AND another from Hobbs) utilizing a single, incoming, back flow protected, 14" water main, that enters the NEF at its North West corner. This single supply line differs from the LB documents that describe two independent supply lines, one each from the cities of Eunice and Hobbs, delivering municipal water to the southern site boundary along NM State Highway 234

2) License Basis Document Change(s) Approval

☒ The LBDCR is a proposed Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections 3, ~~Error! Reference source not found.~~4, and 5 of this Form are Not Applicable (N/A).

☐ The LBDCR is NOT a proposed Configuration Change. The review process defined below shall be utilized. Complete Sections ~~Error! Reference source not found Error! Reference source not found.~~3, 4, and 5 of this Form.

3) Document(s) Affected By Proposed Change(s)

Document	Review Information
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Nuclear Criticality Safety Validation Report (i.e., MONK 8A Validation and Verification report)	NRC approval required before implementation
☐ ISA Summary	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ SAR	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ Environmental Report	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EN-103, Environmental Review and Evaluation.
☐ QAPD	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-400, Quality Assurance Program Description Changes
☐ Emergency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-120, 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☐ FNMCP (non-classified matter)	Assess in accordance with:

	• LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-120, 10 CFR 70.32(c)(1)(iii) Change Evaluation.
☐ Physical Security Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
Continued next page.	

LBDCR Form

LBDCR No: 07-0005 Configuration Change No: CC EG 2007 0085 R0a

Document	Review Information
☐ Safeguards Contingency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Guardforce Training Plan	N/A Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ SPPP for the Protection of Classified Matter	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.
☐ SPPP for the Protection of Classified Matter for the CSF	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.

4) LBDCR Implementation Activities

[e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking No.
	N/A	

5) LBDCR Review and Approval

Reviewer: _____ / _____ Date: _____
(Print/Sign)

FAM: _____ / _____ Date: _____
(Print/Sign) (N/A if NOT applicable.)

HS&E Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign)*

LBDCR Form

LBDCR No: 07-0005 Configuration Change No: CC EG 2007 0085 R0a

6) LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☐ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

☐ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-101, Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.

7) LBDCR Approval

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

1.3.2 Water Use

Hobbs no longer a source CRT 1/8/08

The NEF will connect to the Eunice ~~and Hobbs~~ city water systems. Discharges will be to an onsite sanitary septic system, evaporative basin, and a low-level liquid waste (process water) basin.

1.3.3 Climate

The NEF site is located in the Southeast Plains of New Mexico close to the border with Texas. The climate is typical of a semi-arid region, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Vegetation consists mainly of native grasses and some mesquite trees. During the winter, the weather is often dominated by a high pressure system located in the central part of the western United States and a low pressure system located in north-central Mexico. During the summer, the region is affected by a low pressure system normally located over Arizona.

This is Section 1.3

activities relating to these statutes and associated programs. Applicable state requirements, permits, and approvals are described in Section 1.3.2, State Agencies.

Environmental Standards for the Uranium Fuel Cycle (40 CFR 190 Subpart B) (CFR, 2003f) establishes the maximum doses to the body organs resulting from operational normal releases and received by members of the public.

The Safe Drinking Water Act (SDWA) provides for protection of public water supply systems and underground sources of drinking water. 40 CFR 141.2 (CFR, 2003h) defines public water supply systems as systems that provide water for human consumption to at least 25 people or at least 15 connections. Underground sources of drinking water are also protected from contaminated releases and spills by this act. NEF is not using site groundwater or surface water supplies. NEF will obtain potable water from nearby municipal water supply systems (cities of Eunice and Hobbs, New Mexico).

The Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 350 to 372) (CFR, 2003i) establishes the requirements for Federal, State and local governments, Indian Tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment.

National Pollutant Discharge Elimination System (NPDES) General Permit for Industrial Stormwater: This permit is required for point source discharge of stormwater runoff from industrial or commercial facilities to the waters of the state. All new and existing point source industrial stormwater discharges associated with industrial activity require a NPDES Stormwater Permit from the EPA Region 6 and an oversight review by the New Mexico Water Quality Bureau. The NEF is eligible to claim the "No Exposure" exclusion for industrial activity of the NPDES stormwater Phase II regulations. As such, the LES would submit a No Exposure Certification immediately prior to initiating operational activities at the NEF site. LES also has the option of filing for coverage under the Multi-Section General Permit (MSGP) because the NEF is one of the 11 eligible industry categories. If this option is chosen, LES will file a Notice of Intent (NOI) with the EPA, Washington, D.C., at least two days prior to the initiation of NEF operations. A decision regarding which option is appropriate for the NEF will be made in the future.

NPDES General Permit for Construction Stormwater: Construction of the NEF will involve the grubbing, clearing, grading or excavation of 0.4 or more ha (1 or more acres) of land coverage and must receive a NPDES Construction General Permit (CGP) from the EPA Region 6 and an oversight review by the New Mexico Water Quality Bureau. Various land clearing activities such as offsite borrow pits for fill material have also been covered under this general permit. LES construction contractors will be clearing approximately 81 ha (200 acres) during the construction phase of the project. LES will develop a Stormwater Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) with the EPA, Washington, D.C., at least two days prior to the commencement of construction activities.

U.S. Department of Transportation (DOT)

Transport of the NEF UF_6 cylinders requires compliance with the following DOT enabling regulations:

impregnated carbon filter (potassium carbonate), centrifugal fan, automatically operated inlet-outlet isolation dampers, monitorings, and differential pressure transducers.

2.1.2.4.6 Laundry System

The Laundry System cleans contaminated and solid clothing and other articles within the plant. The laundry is divided into two main streams: articles with high or low possibility of contamination. Articles likely to be contaminated are collected in special water soluble bags. Articles unlikely to be contaminated are collected in bin bags and sorted into lightly and heavily soiled articles. Lightly soiled articles are laundered; heavy soiled articles are inspected first and if to difficult to clean are sent to the Solid Waste Collection System, otherwise they are laundered as well. Laundry water is discharged to the Liquid Effluent Collection and Treatment System.

2.1.2.4.7 Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System provides exhaust of potentially hazardous contaminants from the Centrifuge Test and Post Mortem Facilities. The system also ensures the Centrifuge Post Mortem Facility is maintained at a negative pressure with respect to adjacent areas. The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System is located in the Centrifuge Assembly Building and is monitored from the Control Room.

The ductwork is connected to one filter station and vents through either of two 100% fans. Both the filter station and either of the fans can handle 100% of the effluent. One of the fans will normally be in standby. Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down. After filtration, the clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the monitored (alpha and HF) stack on the Centrifuge Assembly Building.

2.1.2.5 Site and Nearby Utilities

The ~~cities~~ city of Eunice ~~and Hobbs~~, New Mexico will provide water to the site. Water consumption for the NEF is calculated to be 240 m^3/day (63,423 gal/d) to meet potable and process consumption needs. Peak water usage for fire protection is 33 L/s (521 gal/min). The natural gas requirements of the plant are 364 m^3/hr (12,500 ft^3/hr). Electrical service to the site will be provided by Xcel Energy. The projected demand is approximately 30 MW. Six septic tanks, each with one or more leach fields, will be installed onsite for the collection of sanitary and non-contaminated liquid waste.

Identified, onsite pipelines include a 25.4-cm (10-in) diameter, underground carbon dioxide pipeline that runs southeast-northwest. This pipeline is owned by Trinity Pipeline LLC. A 40.6-cm (16-in) diameter, underground natural gas pipeline, owned by the Sid Richardson Energy Services Company, is located along the south property line, paralleling New Mexico Highway 234. A parallel 35.6-cm (14-in) diameter gas pipeline is not in use. There are no known onsite underground storage tanks, wells, or sewer systems.

General site stormwater runoff is collected and released untreated to a site stormwater detention basin. A single-lined retention basin will collect stormwater runoff from the Uranium Byproduct Cylinder (UBC) Storage Pad, cooling tower blowdown water and heating boiler blowdown water. All stormwater discharges will be regulated, as required, by a National Pollutant Discharge Elimination System (NPDES) Stormwater Permit. LES will also need to obtain a New Mexico Groundwater Quality Bureau (WQB) Groundwater Discharge Permit/Plan prior to operation for its onsite discharges of stormwater, treated effluent water, cooling tower blowdown water, heating boiler blowdown water and sanitary water. Approximately 174,100 m^3 (46 million gal) of stormwater from the site is expected to be released annually to the onsite retention/detention basins.

NEF liquid effluent discharge rates are relatively low, for example, NEF process waste water flow rate from all sources is expected to be about 28,900 m^3/yr (7.64 million gal/yr). This includes waste water from the liquid effluent treatment system, domestic sewerage, cooling tower blowdown water and heating boiler blowdown water . Only the former source can be expected to contain minute amounts of uranic material. The liquid effluent treatment system and shower/hand wash/laundry effluents will be discharged onsite to a double-lined evaporative basin; whereas the cooling tower blowdown water, heating boiler blowdown water and UBC pad stormwater run-off will be discharged onsite to a single-lined retention basin. Domestic sewerage will be discharged to onsite septic tanks and leach fields.

The NEF water supply will be obtained from the city of Eunice, Mew Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply systems are 16,380 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) ~~and 23,850 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of ~~both~~ the water systems.

Solid waste that will be generated at the NEF, which falls into the non-hazardous, radioactive, hazardous, and mixed waste categories, will be collected and transferred to authorized treatment or disposal facilities offsite as follows. All solid radioactive waste generated will be Class A low-level waste as defined in 10 CFR 61 (CFR, 2003r). Approximately 86,950 kg (191,800 lbs) of low-level waste will be generated annually. In addition, annual hazardous and mixed wastes generated are expected to be about 1,770 kg (3,930 lbs) and 50 kg (110 lbs), respectively. As a result, the NEF will be a small quantity generator (SQG) of hazardous waste and dispose of the waste by licensed contractors. LES does not plan to treat hazardous waste or store quantities longer than 90 days. Non-hazardous waste, expected to be approximately 172,500 kg (380,400 lbs) annually, will be collected and disposed of by a County licensed solid waste disposal contractor. The non-hazardous wastes will be disposed of in the new Lea Country landfill which has more than adequate capacity to accept NEF non-hazardous wastes for the life of the facility.

No communities or habitats defined as rare or unique, or that support threatened and endangered species, have been identified as occurring on the NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique, or that support threatened and endangered species, within the 220-ha (543-acre) site.

Noise generated by the operation of the NEF will be primarily limited to truck movements on the road. The noise at the nearest residence will probably increase; however, it may not be

This page is a repeat of Page 11 of 28 cpt 1/8/08

3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

See pg 11 of 28 cpt 12/31/07

3.4.7 Quantitative Description of Water Use

~~No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF.~~ All water used at the facility will be provided through the Eunice ~~and Hobbs~~ Municipal Water Supply Systems, as described in ER Section 4.1.2. ~~These systems obtain water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site.~~ Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the Hobbs and Eunice, New Mexico water supply systems and the expected NEF average and peak usage.

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs) will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

3.4.7 Quantitative Description of Water Use

No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF. All water used at the facility will be provided through the Eunice ~~and Hobbs~~ Municipal Water Supply Systems, as described in ER Section 4.1.2. ~~These~~ systems obtains water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site. Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the ~~Hobbs and~~ Eunice, New Mexico water supply system and the expected NEF average and peak usage.

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs), will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

Impacts to land and groundwater will be controlled during construction through compliance with the National Pollution Discharge Elimination System (NPDES) Construction General Permit obtained from Region 6 of the Environmental Protection Agency (EPA). A Spill Prevention, Control and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and to ensure prompt and appropriate remediation. Potential spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notifications of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Adequately maintained sanitary facilities will be provided for construction crews.

4.1.2 Utilities Impacts

The NEF will require the installation of water, natural gas and electrical utility lines. In lieu of connecting to the local sewer system, six onsite underground septic tanks each with one or more leach fields will be installed for the treatment of sanitary wastes. Septic systems are described in Section 3.12.1.3.4, Effluent Discharge.

A new potable water supply line will be extended from the city of Eunice, New Mexico to the NEF site ~~and another potable water supply line will be extended from the city of Hobbs, New Mexic~~o. The line from Eunice will be about 8 km (5 mi) in length. ~~The line from Hobbs will be about 32 km (20 mi) in length~~. Placement of the new water supply lines along New Mexico Highways 18 and 234 would minimize impacts to vegetation and wildlife. (Refer to Figure 3.1-1, Land Use Map.) Since there are no bodies of water between the site and the city of Eunice, New Mexico, no waterways will be disturbed. ~~Likewise, there are no bodies of water between the site vicinity and the city of Hobbs~~. However, as indicated in ER Section 3.2.1, Transportation Access, there is a 61-m (200-ft) right-of-way easement along both sides of New Mexico Highway 234. Therefore, an application for utility line installation within highway easements will be submitted to the New Mexico State Highway and Transportation Department. Utility line installation coordinated with state planned highway upgrades would minimize traffic impact on New Mexico Highway 234 between the site and the city of Eunice, New Mexico.

The natural gas line feeding the site will connect to an existing, nearby line. This will minimize impacts of short-term disturbances related to the placement of the tie-in line.

Two new electrical transmission lines on a large loop system are proposed for providing electrical service to the NEF. These lines would tie into a trunk line about 13 km (8 mi) to the west. Similar to the new water supply lines, land use impacts would be minimized by placing associated support structures along New Mexico Highway 234. An application for highway easement modification will be submitted to the state. As noted in ER Chapter 2, Alternatives, there are currently several power poles along the highway in front of the adjacent, vacant parcel east of the site. In conjunction with the new electrical lines serving the site, the local company

boiler blowdown. The drainage system will include precast catch basins and concrete trench drains; piping will be reinforced concrete with rubber gasketed joints to preclude leakage. An assessment was made by LES that assumed a conservative level of radioactive contamination level on cylinder surfaces and 100% washoff to the UBC Storage Pad Stormwater Retention Basin from a single rainfall event. Results show the level of radioactivity in such a discharge to the basin will be well below the regulatory unrestricted release criteria (CFR, 2003q).

The UBC Storage Pad Stormwater Retention Basin will be provided with a means to sample sediment. Refer to ER Section 6.1, Radiological Monitoring, for more information regarding environmental monitoring of stormwater site detention/retention basins.

4.4.3 Hydrological System Alterations

Excavation and placement of fill will provide the site with a finished level grade of about +1,041 m (+3,415 ft), msl. This work will not require alteration or filling of any surface water features on the site.

No alterations to groundwater systems will occur due to facility construction. Referring to ER Section 3.4.12, since there is no consistent groundwater in the sand and travel layer above the Chinle Formation, it does not provide a likely contaminant pathway in a lateral or vertical direction. Although engineered fill will be used during site preparation and will likely be placed against the existing dense sand and gravel layer in some locations, the potential for water or other liquids from spills or pipeline leaks to introduce sufficient amounts of liquid to saturate the sand and gravel layer to a point where significant contaminant migration reaches and flows along the top of the Chinle Formation, is considered unlikely. The addition of on-site fill is not expected to alter this situation. Furthermore, the travel time to downstream users through a lateral contaminant pathway would be significant since potential contamination would travel laterally at very small rates, if at all. Groundwater travel through the Chinle clay would be on the order of thousands of years.

4.4.4 Hydrological System Impacts

Due to absence of water extraction, limited effluent discharge from the facility operations, the lack of groundwater in the sand and gravel layer above the Chinle Formation and the considerable depth to groundwater at the NEF site, no significant impacts are expected for the site's hydrologic systems.

Control of surface water runoff will be required for NEF construction activities, covered by the NPDES Construction General Permit. As a result, no significant impacts are expected to either surface or groundwater bodies. Control of impacts from construction runoff is discussed in ER Section 4.4.7, Control of Impacts to Water Quality.

The volume of water discharged into the ground from the Site Stormwater Detention Basin is expected to be minimal, as evapotranspiration is expected to be the dominant natural influence on standing water.

4.4.5 Ground and Surface Water Use

The NEF will not obtain any water from the site or have any planned surface discharges at the site other than to the retention and detention basins. All potable, process and fire water supply used at the NEF will be obtained from the Eunice ~~and/or Hobbs~~, New Mexico, municipal water system~~s~~. Wells serving these systems are about 32 km (20 mi) from the site. Anticipated normal plant water consumption and peak plant water requirements are provided in Table 3.4-4,

Anticipated Normal Plant Water Consumption, and Table 3.4-5, Anticipated Peak Plant Water Consumption, respectively.

Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the city of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply system ~~are~~ is 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usage ~~s are~~ is 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of ~~both~~ the water systems.

For both peak and the normal usage rates, the needs of the NEF facility should readily met by the municipal water systems. Impacts to water resources onsite and in the vicinity of the NEF are expected to be negligible.

4.4.6 Identification of Impacted Ground and Surface Water Users

Location of an intermittent surface water feature and groundwater users in the site vicinity including an area just beyond a 1.6-km (1-mi) radius of the site boundary are shown on Figure 3.4-7, Water and Oil Wells in the Vicinity of the NEF Site. These locations were provided by the Office of New Mexico State Engineer (NMSE) (NMSE, 2003), the Texas Water Development Board (TWDB) (TWDB, 2003) and the United States Geological Survey (USGS) (USGS, 2003b). No producing supply water wells are within 1.6 km (1 mi) of the boundaries of the NEF site as shown on Figure 3.4-7. However, nearby facilities do have groundwater monitoring wells within this region.

The absence of near-surface groundwater users within 1.6 km (1 mi) from the site and the absence of surface water on the NEF site will prevent any impact to local surface or groundwater users. Due to the lack of process water discharge from the facility to the environment, no impact is expected for these water users.

Effluent discharges will be controlled in a way that will also prevent any impacts. The locations of the closest municipal water systems for both Eunice and Hobbs are in Hobbs, New Mexico, 32 km (20 mi) north northwest of the site. There is no potential to impact these sources.

4.4.7 Control of Impacts to Water Quality

Site runoff water quality impacts will be controlled during construction by compliance with NPDES Construction General Permit requirements and BMPs will be described in a site Stormwater Pollution Prevention (SWPP) plan.

Wastes generated during site construction will be varied, depending on activities in progress. Any hazardous wastes from construction activities will be handled and disposed of in accordance with applicable state regulations. This includes proper labeling, recycling, controlling and protected storage and shipping offsite to approved disposal sites. Sanitary wastes generated at the site will be handled by portable systems until such time that the site septic systems are available for use.

The need to level the site for construction will require some soil excavation as well as soil fill. Fill placed on the site will provide the same characteristics as the existing natural soils thus

are well within the scope of the environmental impacts previously evaluated by the Nuclear Regulatory Commission (NRC). Because these impacts have been addressed in a previous NRC environmental impact statement (NUREG/CR-0170) (NRC, 1977a), no additional mitigation measures are proposed in ER Section 5.2.2, Transportation.

5.1.3 Geology and Soils

The potential impacts to the geology and soils have been characterized in ER Section 4.3, Geology and Soils Impact. No substantive impacts exist as related to the following activities:

- Soil resuspension, erosion, and disruption of natural drainage
- Excavations to be conducted during construction.

Impacts to geology and soils will be limited to surface runoff due to routine operation. Construction activities may cause some short-term increases in soil erosion at the site. Mitigation measures associated with these impacts are listed in ER Section 5.2.3, Geology and Soils.

5.1.4 Water Resources

The potential impacts to the water resources have been characterized in ER Section 4.4, Water Resources Impacts. No substantive impacts exists as related to the following:

- Impacts on surface water and groundwater quality
- Impacts of consumptive water uses (e.g., groundwater depletion) on other water users and adverse impacts on surface-oriented water users resulting from facility activities. Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the town of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply systems are 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hour (378 gpm), respectively. These usage rates are well within the capacities of both water systems. For both peak and the normal usage rates, the needs of the NEF facility should readily be met by the municipal water systems. Impacts to water resources on site and in the vicinity of NEF are expected to be negligible.
- Hydrological system alterations or impacts
- Withdrawals and returns of ground and surface water
- Cumulative effects on water resources.

The NEF will not obtain any water from onsite surface or groundwater resources. Process effluents will be discharged to the double-lined Treated Effluent Evaporative Basin with leak detection. Sanitary waste water discharges will be made through site septic systems. Stormwater from developed portions of the site will be collected in retention/detention basins, as described in ER Section 3.4, Water Resources. These include the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin. Minor impacts to water resources are discussed in ER Section 4.4. Mitigation measures associated with these impacts are listed in ER Section 5.2.4, Water Resources.

are well within the scope of the environmental impacts previously evaluated by the Nuclear Regulatory Commission (NRC). Because these impacts have been addressed in a previous NRC environmental impact statement (NUREG/CR-0170) (NRC, 1977a), no additional mitigation measures are proposed in ER Section 5.2.2, Transportation.

5.1.3 Geology and Soils

The potential impacts to the geology and soils have been characterized in ER Section 4.3, Geology and Soils Impact. No substantive impacts exist as related to the following activities:

- Soil resuspension, erosion, and disruption of natural drainage
- Excavations to be conducted during construction.

Impacts to geology and soils will be limited to surface runoff due to routine operation. Construction activities may cause some short-term increases in soil erosion at the site. Mitigation measures associated with these impacts are listed in ER Section 5.2.3, Geology and Soils.

5.1.4 Water Resources

The potential impacts to the water resources have been characterized in ER Section 4.4, Water Resources Impacts. No substantive impacts exists as related to the following:

- Impacts on surface water and groundwater quality
- Impacts of consumptive water uses (e.g., groundwater depletion) on other water users and adverse impacts on surface-oriented water users resulting from facility activities. Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the town of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs, New Mexico~~ municipal water supply systems ~~are~~ 16,350 m³/day (4.32 million gpd) ~~and 75,700 m³/day (20 million gpd),~~ respectively and current usages ~~are~~ 5,600 m³/day (1.48 million gpd) ~~and 23,450 m³/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m³/day (63,423 gpd) and 85 m³/hour (378 gpm), respectively. These usage rates are well within the capacities of both water systems. For both peak and the normal usage rates, the needs of the NEF facility should readily be met by the municipal water systems. Impacts to water resources on site and in the vicinity of NEF are expected to be negligible.
- Hydrological system alterations or impacts
- Withdrawals and returns of ground and surface water
- Cumulative effects on water resources.

The NEF will not obtain any water from onsite surface or groundwater resources. Process effluents will be discharged to the double-lined Treated Effluent Evaporative Basin with leak detection. Sanitary waste water discharges will be made through site septic systems. Stormwater from developed portions of the site will be collected in retention/detention basins, as described in ER Section 3.4, Water Resources. These include the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin. Minor impacts to water resources are discussed in ER Section 4.4. Mitigation measures associated with these impacts are listed in ER Section 5.2.4, Water Resources.

These dose equivalents due to normal operations are small fractions of the normal background radiation range of 2.0 to 3.0 mSv (200 to 300 mrem) dose equivalent that an average individual receives in the US, and within regulatory limits.

7.2.2.7 Other Impacts of Plant Operation

NEF water will be obtained from the ~~Hobbs and~~ Eunice, New Mexico municipal water systems, and routine liquid effluent will be treated and discharged to evaporative pond(s), whereas sanitary wastes will be discharged to onsite septic systems. Facility water requirements are relatively low and well within the capacities of the ~~Hobbs and~~ Eunice water utilities. The current capacity for the Eunice Potable water supply system is 16,350 m^3/day (4.3 million gpd), and current usage is 5,600 m^3/day (1.48 million gal/d). ~~The Hobbs water system capacity is 75,700 m^3/day (20 million gal/d) whereas its usage is 23,450 m^3/day (6.2 million gal/d).~~ Requirements for operation of the NEF are expected to be 240 m^3/day (63,423 gal/d), a volume well within the capacity of the supply systems. Non-hazardous and non-radioactive solid waste is expected to be approximately 172,500 kg (380,400 lbs) annually. It will be shipped offsite to a licensed landfill. The local Lea County landfill capacity is more than adequate to accept the non-hazardous waste.

7.2.2.8 Decommissioning

The plan for decommissioning is to decontaminate or remove all materials promptly from the site that prevent release of the facility for unrestricted use. This approach avoids the need for long-term storage and monitoring of wastes on site. Only building shells and the site infrastructure will remain. All remaining facilities, including site basins, will be decontaminated where needed to acceptable levels for unrestricted use. Excavations and berms will be leveled to restore the land to a natural contour.

Depleted UF_6, if not already sold or otherwise disposed of prior to decommissioning, will be disposed of in accordance with regulatory requirements. Radioactive wastes will be disposed of in licensed low-level radioactive waste disposal sites. Hazardous wastes will be treated or disposed of in licensed hazardous waste facilities. Neither conversion (if done), nor disposal of radioactive or hazardous material will occur at the plant site, but at licensed facilities located elsewhere.

Following decommissioning, all parts of the plant and site will be unrestricted to any specific type of use.

8.8 NONRADIOLOGICAL IMPACTS

Numerous design features and administrative procedures are employed to minimize gaseous and liquid effluent releases and keep them within regulatory limits. Potential nonradiological impacts of operation of the NEF include releases of inorganic and organic chemicals to the atmosphere and surface water impoundments during normal operations Other potential impacts involve land use, transportation, soils, water resources, ecological resources, air quality, historic and cultural resources, socioeconomic and public health. Impacts from hazardous, radiological and mixed wastes and radiological effluents have been discussed earlier.

The other potential nonradiological impacts from the construction and operation of NEF are discussed below:

Land-Use Impacts:

The anticipated effects on the soil during construction activities are limited to a potential short-term increase in soil erosion. However, this will be mitigated by proper construction best management practices (BMPs). These practices include minimizing the construction footprint to the extent possible, limiting site slopes, using a sedimentation detention basin, protecting undisturbed areas with silt fencing and straw bales as appropriate, and employing site stabilization practices such as placing crushed stone on top of disturbed soil in areas of concentrated runoff. In addition onsite construction roads will be periodically watered when required, to control fugitive dust emissions. Water conservation will be considered when deciding how often dust suppression sprays will be applied. After construction is complete, the site will be stabilized with natural, low-water maintenance landscaping and pavement.

A Spill Prevention, Control and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and ensure prompt and appropriate remediation. Spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notification of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Water conservation measures will be considered to minimize water use. Adequately maintained sanitary facilities will be provided for construction crews.

The NEF facility will require the installation of water, natural gas and electrical utility lines. In lieu of connecting to the local sewer system, six onsite underground septic tanks each with one or more leach fields will be installed for the treatment of sanitary wastes.

A new potable water supply line will be extended from the city of Eunice to the NEF site ~~and another potable water supply line will be extended from the city of Hobbs~~. The line from Eunice will be about 8 km (5 mi) in length. ~~The line from Hobbs will be about 32 km (20 mi) in length.~~ Placement of the new water supply lines along New Mexico Highways 18 and 234 would

minimize impacts to vegetation and wildlife. Since there are no bodies of water between the site and the city of Eunice, no waterways will be disturbed. ~~Likewise, based on site visits, there are no bodies of water between the site vicinity and the city of Hobbs.~~ The natural gas line feeding the site will connect to an existing, nearby line. This will minimize impacts of short-term disturbances related to the placement of the tie-in line.

Two new electrical transmission lines on a large loop system are proposed for providing electrical service to the NEF. These lines would tie into a trunk line about 13 km (8 mi) to the west. Similar to the new water supply lines, land use impacts would be minimized by placing associated support structures along New Mexico Highway 234. An application for highway easement modification will be submitted to the state. There are currently several power poles along the highway in front of the adjacent, vacant parcel east of the site. In conjunction with the new electrical lines serving the site, the local company providing electrical service, Xcel Energy, will install two onsite transformers for redundant service assurance.

Six underground septic tanks will be installed onsite. The combined leach fields will require about 975 m (3,200 ft) of percolation drain field. The drain field will either be placed below grade or buried in a mound consisting of sand, aggregate and soil.

Overall land use impacts to the site and vicinity will be minimal considering that the majority of the site will remain undeveloped, the current industrial activity on neighboring properties, the nearby, expansive oil and gas well fields, and the placement of most utility installations along highway easements.

Transportation Impacts:

Impacts from construction and operation on transportation will include the generation of fugitive dust, changes in scenic quality, added environmental noise and small radiation dose to the public from the transport of UF_6 feed and product cylinders, as well as low-level radioactive waste.

Dust will be generated to some degree during the various stages of construction activity. The amount of dust emissions will vary according to the types of activity. LES estimated that fugitive dust are expected to be well below the National Ambient Air Quality Standards (CFR, 2003w).

Although site construction will significantly alter its natural state, and considering that there are no high quality viewing areas and the industrial development of surrounding properties, impacts to the scenic quality of the site are not considered to be significant. Also, construction vehicles will be comparable to trucks servicing neighboring facilities. Construction worker and worker during operation transportation impacts are not considered to be significant.

The temporary increase in noise levels along New Mexico Highways 18 and 234 and Texas Highway 176 due to construction vehicles are not expected to impact nearby receptors significantly, due to substantial truck traffic currently using these roadways, and the large distance between the nearest receptors and the site, i.e., 4.3 km (2.63 mi). ~~See the environmental noise discussion below concerning noise levels due to traffic during operations.~~

Water Resources:

Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the ~~cities~~ city of Eunice, New Mexico, ~~and Hobbs, New Mexico.~~ Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply system are 16,350 m³/day (4.32 million gpd) ~~and 75,700 m³/day~~

~~(20 million gpd), respectively~~ and current usage are 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

Liquid effluents include stormwater runoff, sanitary waste water, cooling tower blowdown water, heating boiler blowdown water and treated contaminated process water. All liquid effluents, with the exception of sanitary waste water, are discharged to one of three onsite basins.

Stormwater from the site will be diverted and collected in the Site Stormwater Detention Basin. This basin collects runoff from various developed parts of the site. It is unlined and will have an outlet structure to control discharges above the design level. The normal discharge will be through evaporation and infiltration into the ground. The basin is designed to contain runoff for a volume equal to that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall. It will have approximately 123,350 m^3 (100-acre-ft) of storage capacity. In addition, the basin has 0.6 m (2 ft) of free-board beyond the design capacity. It will also be designed to discharge post-construction peak flow runoff rates from the outfall that are equal to or less than the pre-construction runoff rates from the area.

Cooling tower blowdown water, heating boiler blowdown water and stormwater runoff from the UBC Storage Pad are discharged to the UBC Storage Pad Stormwater Retention Basin. The ultimate disposition of this water will be through evaporation along with permanent impoundment of the residual dry solids byproduct of evaporation. It is designed to contain runoff for a volume equal to twice that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall and an allowance for cooling tower blowdown water and heating boiler blowdown water. The UBC Storage Pad Stormwater Retention Basin is designed to contain a volume of approximately 77,700 m^3 (63 acre-ft). This basin is designed with a synthetic membrane lining to minimize any infiltration into the ground.

Discharge of treated contaminated plant process water will be to the onsite Treated Effluent Evaporative Basin. The Treated Effluent Evaporative Basin is utilized for the collection and containment of liquid effluent from the Liquid Effluent Collection and Treatment System. The ultimate disposal the liquid effluent will be through evaporation of water and permanent impoundment of the residual dry solids. Total annual discharge to that basin will be approximately 2,535 m^3/yr (669,844 gal/yr). The basin will be designed for double that volume. Evaporation will provide the only means of liquid disposal from this basin. The basin will include a double-layer membrane liner with a leak detection system to prevent infiltration of basin water into the ground.

Ecological Resources:

No communities or habitats that have been defined as rare or unique or that support threatened and endangered species have been identified as occurring on the 220-ha (543-acre) NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique or that support threatened and endangered species within the site area. Field surveys that were performed in September and October 2003, and April 2004, for the lesser prairie chicken, the sand dune lizard, and the black-tailed prairie dog determined that these species were not present at the NEF site. Another survey for the sand dune lizard was conducted in June 2004 and confirmed there were no sand dune lizards at the NEF site.

Several practices and procedures have been designed to minimize adverse impacts to the ecological resources of the NEF site. These practices and procedures include the use of BMPs,

3.2.2.6.2 Agricultural Water Use

Although various crops are grown within Lea and Andrews Counties, local and county officials report that there is no agricultural activity in the site vicinity, except for domestic livestock ranching. The principal livestock for both Lea and Andrews Counties is cattle. Although milk cows comprise a significant number of cattle in Lea County, the nearest dairy farms are about 32 km (20 mi) north of the subject site, near the city of Hobbs, New Mexico. There are no milk cows in Andrews County. Table 3.2-4, Agriculture Census, Crop, and Livestock Information, provides data on agricultural and livestock activities in Lea County, New Mexico, and Andrews County, Texas.

Known sources of water in the site vicinity include the following: a manmade pond on the adjacent quarry property to the north which is stocked with fish for private use; Baker Spring, an intermittent surface water feature, situated a little over 1.6 km (1 mi) northeast of the site which only contains water seasonally; several cattle watering holes where groundwater is pumped by windmill and stored in above ground tanks.

3.2.2.6.3 Municipal Use of Local Surface Water

Surface water is not a source of water for municipal use.

3.2.2.6.4 Groundwater Use

Remove

The NEF water supply is from the municipal water systems in ~~Hobbs and~~ Eunice, New Mexico, and thus no water will be drawn from either surface water or groundwater sources at the NEF site. The Eunice system obtains water from a groundwater source in the city of Hobbs, approximately 32 km (20 mi) north of the site. Supply of nearby groundwater users will thus not be affected by operation of the NEF. No subsurface or surface water uses such as withdrawals or consumption are made at the site by the NEF.

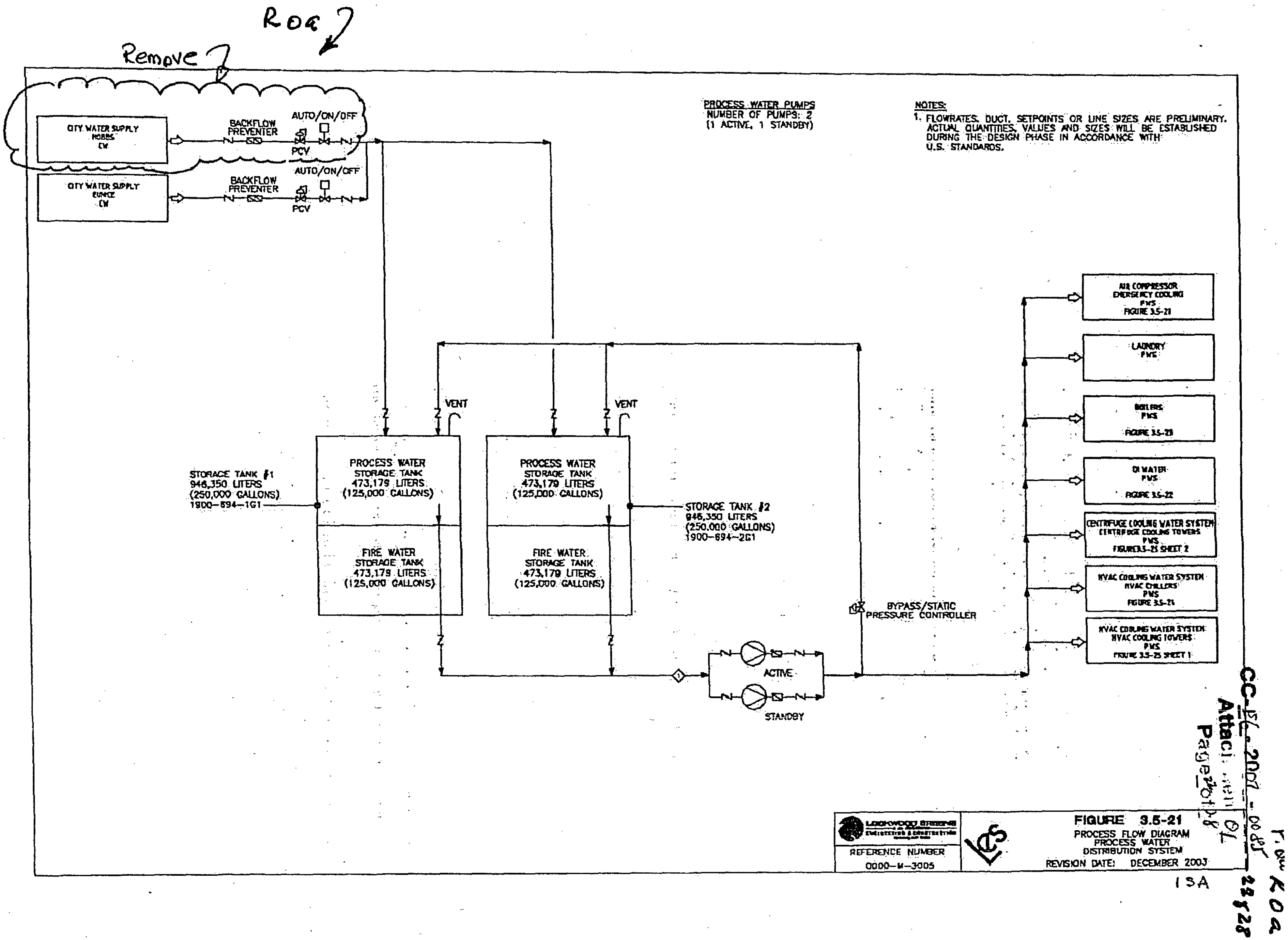
3.2.3 Meteorology

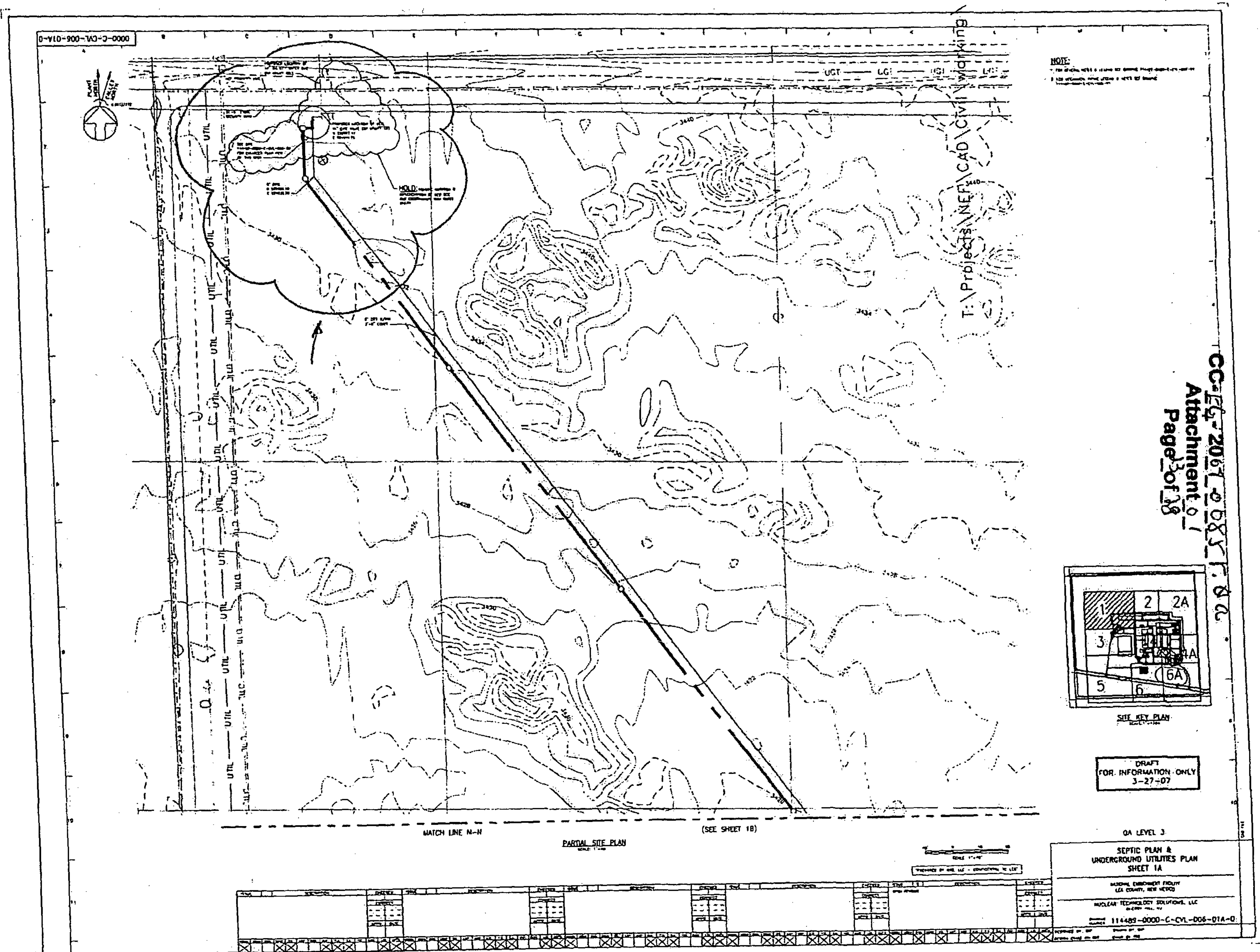
In this section, data characterizing the meteorology (e.g., winds, precipitation, and severe weather) for the site are presented. The discussion identifies the design basis natural events for the facility, including the likelihood of occurrence.

The meteorological conditions at the NEF have been evaluated and summarized in order to characterize the site climatology and to provide a basis for predicting the dispersion of gaseous effluents. No on-site meteorological data were available, however, WCS have a meteorological monitoring station within approximately 1.6 km (1 mi) from the proposed NEF site.

Climate information from Hobbs, New Mexico (32 km (20 mi) north of the site), obtained from the Western Regional Climate Center, were used. In addition, National Oceanic and Atmospheric Administration (NOAA) Local Climatological Data (LCD) recorded at Midland-Odessa Regional Airport, Texas (103 km (64 mi) southeast of the site) and at Roswell, New Mexico (161 km (100 mi) northwest of the site) were used. In the following summaries of meteorological data, the averages are based on:

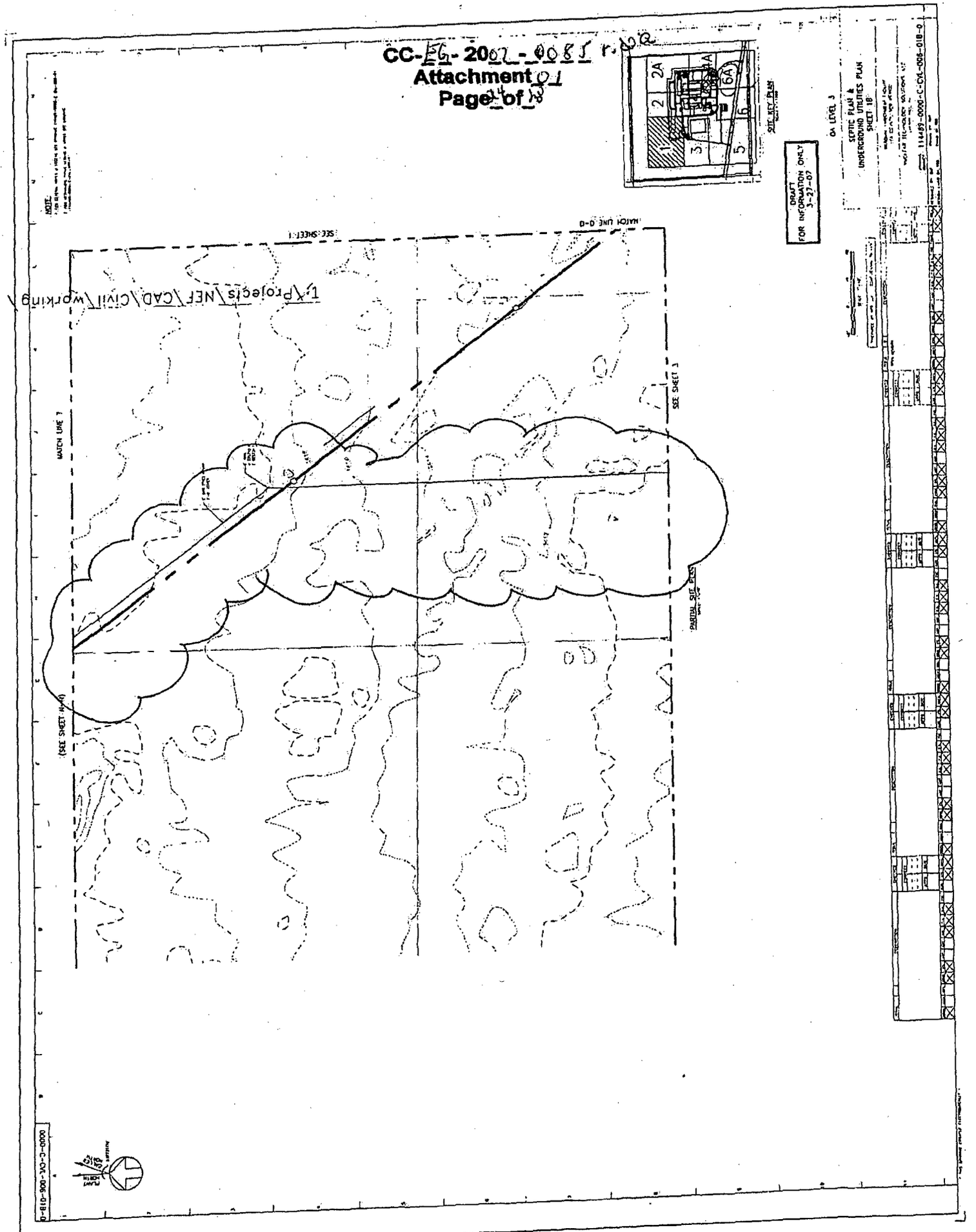
- Hobbs station (WRCC, 2003) averages are based on a 30 year record (1971 to 2000) unless otherwise stated


Remove
ROA
CITY WATER SUPPLY HOBBS CW
BACKFLOW PREVENTER
AUTO/ON/OFF
PCV
CITY WATER SUPPLY EUNICE CW
PROCESS WATER PUMPS
NUMBER OF PUMPS: 2
(1 ACTIVE, 1 STANDBY)
NOTES:
1. FLOWRATES, DUCT, SETPOINTS OR LINE SIZES ARE PRELIMINARY. ACTUAL QUANTITIES, VALUES AND SIZES WILL BE ESTABLISHED DURING THE DESIGN PHASE IN ACCORDANCE WITH U.S. STANDARDS.
VENT
STORAGE TANK #1
946,350 LITERS
(250,000 GALLONS)
1900-694-1G1
PROCESS WATER STORAGE TANK 473,179 LITERS (125,000 GALLONS)
FIRE WATER STORAGE TANK 473,179 LITERS (125,000 GALLONS)
STORAGE TANK #2
946,350 LITERS
(250,000 GALLONS)
1900-694-2G1
BYPASS/STATIC PRESSURE CONTROLLER
ACTIVE
STANDBY
AIR COMPRESSOR EMERGENCY COOLING PWS FIGURE 3.5-21
LAUNDRY PWS
BOILERS PWS FIGURE 3.5-23
DI WATER PWS FIGURE 3.5-22
CENTRIFUGE COOLING WATER SYSTEM CENTRIFUGE COOLING TOWERS PWS FIGURE3.5-25 SHEET 2
HVAC COOLING WATER SYSTEM HVAC CHILLERS PWS FIGURE 3.5-21
HVAC COOLING WATER SYSTEM HVAC COOLING TOWERS PWS FIGURE 3.5-25 SHEET 1
REFERENCE NUMBER
0000-M-3005
FIGURE 3.5-21
PROCESS FLOW DIAGRAM
PROCESS WATER DISTRIBUTION SYSTEM
REVISION DATE: DECEMBER 2003
ISA
CC-EC-2007-0085
Attachment 01
Page 20 of 28
Rev ROA
22 of 28


0000-C-CVL-006-01A-0
NOTE:
UGT
UTIL
HOLD:
T:\Projects\NEF\CAD\Civil\working
Attachment
Page
SITE KEY PLAN
DRAFT
FOR INFORMATION ONLY
3-27-07
MATCH LINE N-N
(SEE SHEET 1B)
PARTIAL SITE PLAN
QA LEVEL 3
SEPTIC PLAN &
UNDERGROUND UTILITIES PLAN
SHEET 1A
NATIONAL ENRICHMENT FACILITY
LEA COUNTY, NEW MEXICO
NUCLEAR TECHNOLOGY SOLUTIONS, LLC
114489-0000-C-CVL-006-01A-0

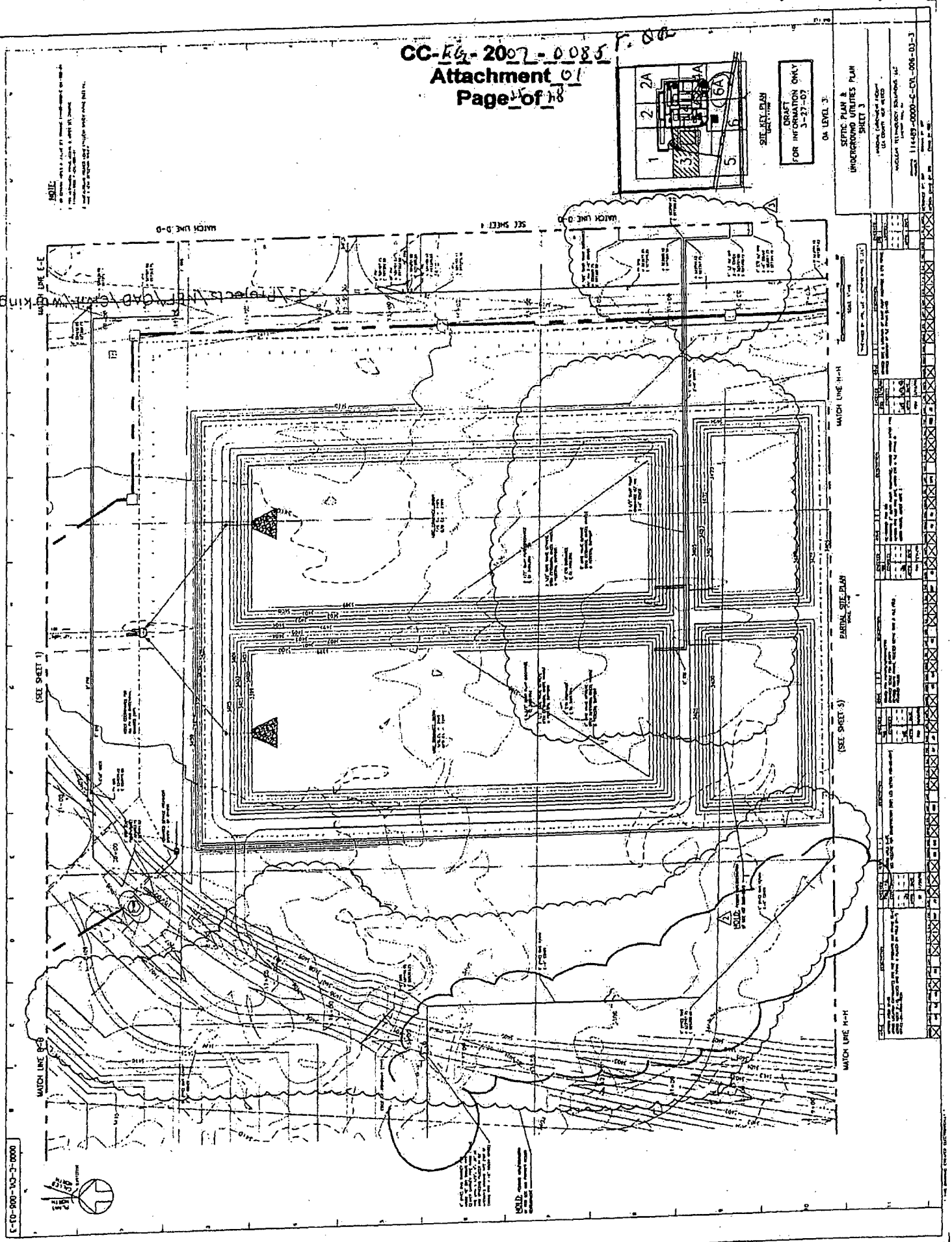
ROA 4948

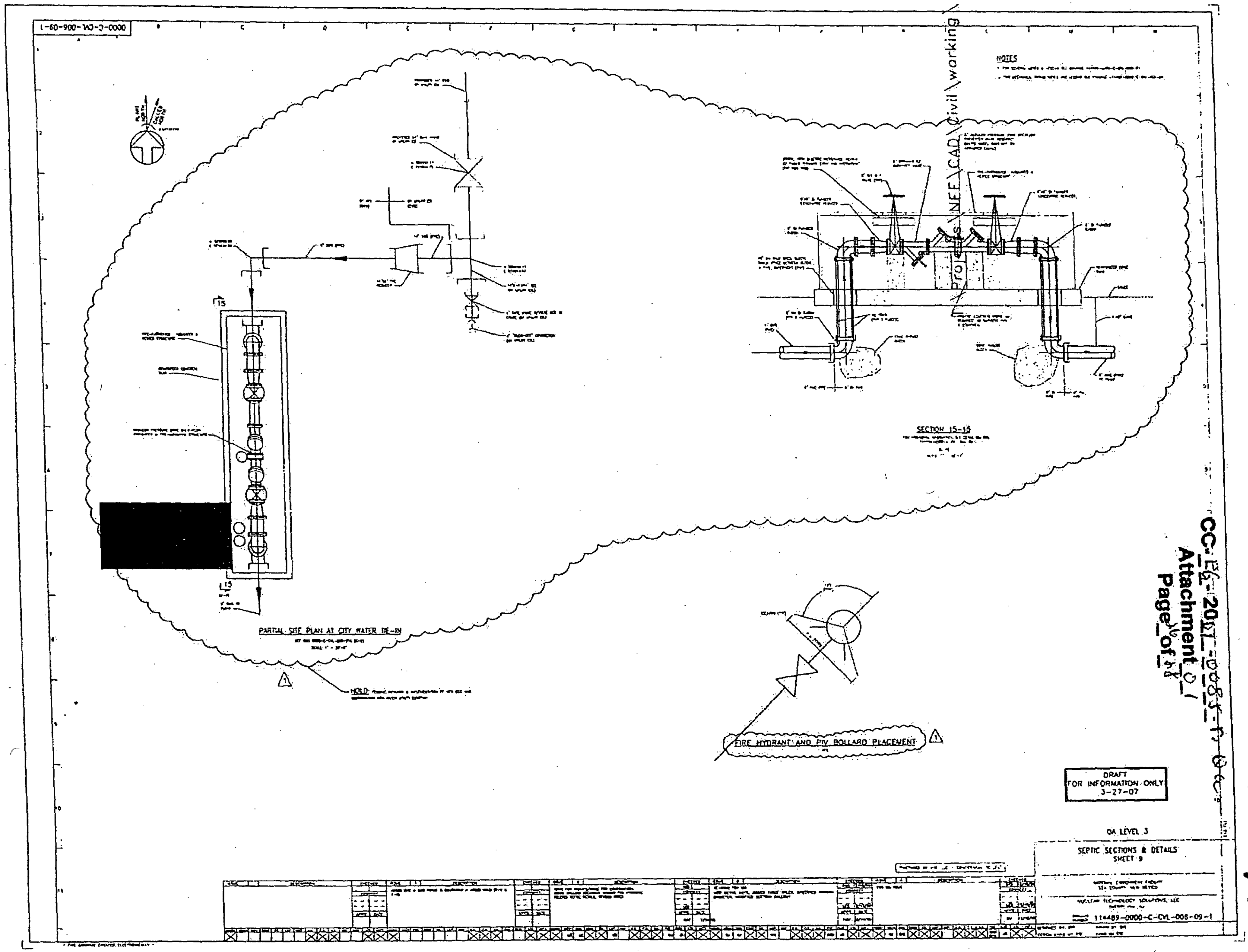
CC-EG-2007-0081 r.02
Attachment 01
Page 14 of 28

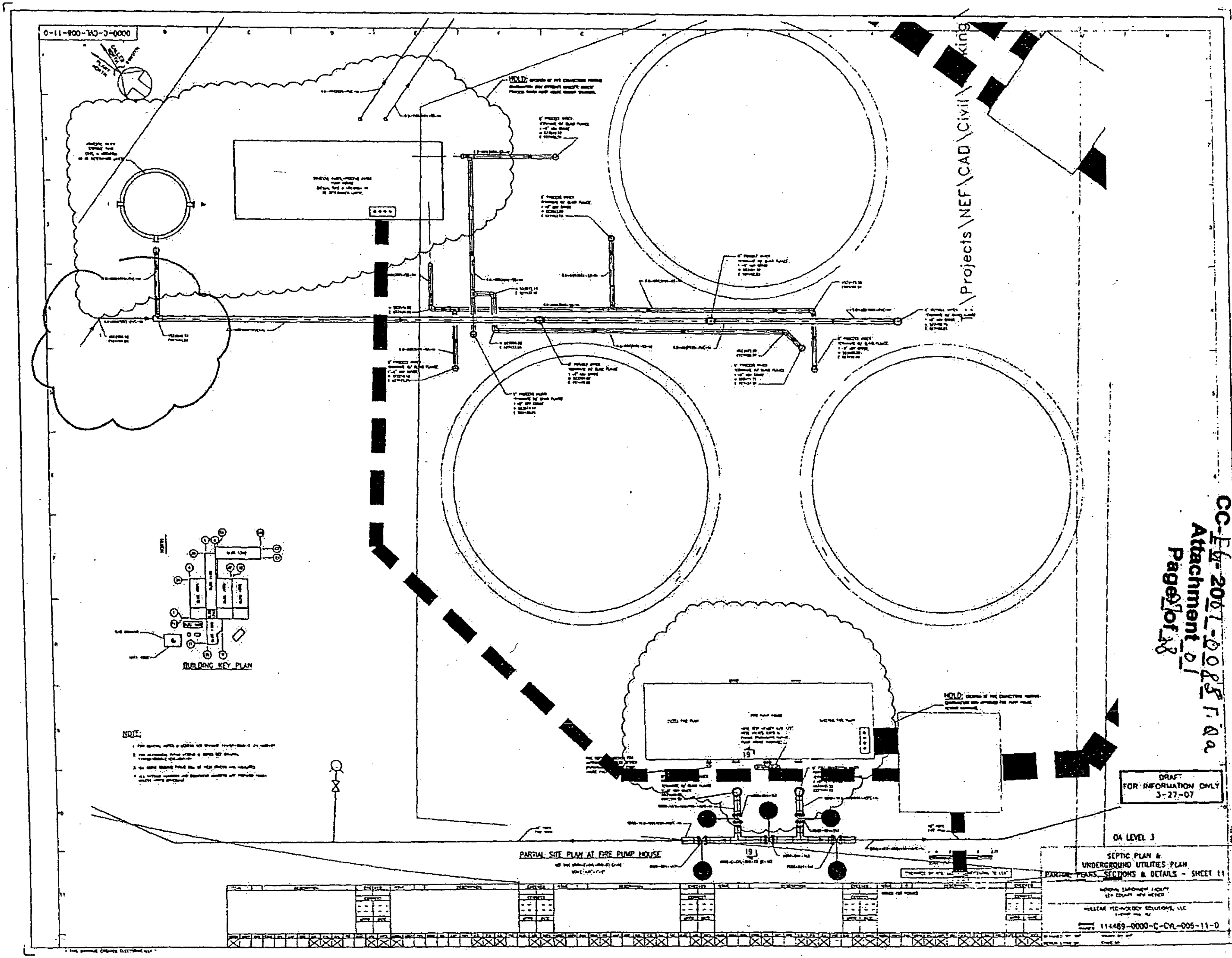


R 0 R 25, 28

CC-EG-2007-0085
Attachment 01
Page 1 of 18



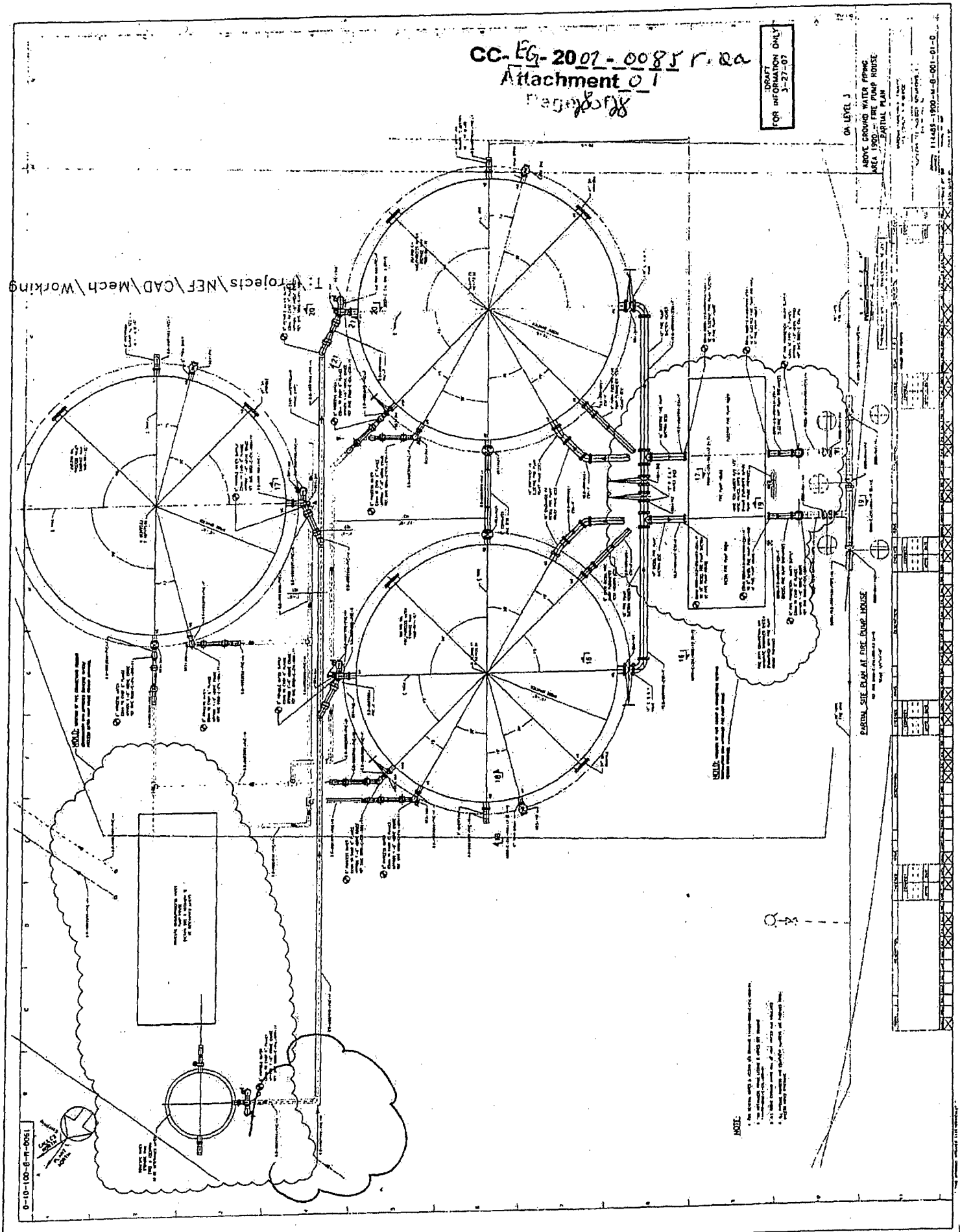

0000-C-CVL-006-09-1
NOTES
PARTIAL SITE PLAN AT CITY WATER TIE-IN
[redacted]
HOLD
SECTION 15-15
FIRE HYDRANT AND PIV BOLLARD PLACEMENT
DRAFT
FOR INFORMATION ONLY
3-27-07
QA LEVEL 3
SEPTIC SECTIONS & DETAILS
SHEET 9
114489-0000-C-CVL-006-09-1



HOLD:
BUILDING KEY PLAN
NOTE:
PARTIAL SITE PLAN AT FIRE PUMP HOUSE
DRAFT
FOR INFORMATION ONLY
3-27-07
QA LEVEL 3
SEPTIC PLAN &
UNDERGROUND UTILITIES PLAN
PARTIAL PLANS, SECTIONS & DETAILS - SHEET 11
114489-0000-C-CYL-005-11-0
Projects\NEF\CAD\Civil\

ROA 28 of 28

CC-EG-2007-0085 r. Qa
Attachment 01
Page 28 of 28



Configuration Change Number: CC-EG-2007-0085 **Revision** 0

Configuration Change Title: Modification to Facility Water Feed – From Eunice, NM

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☒ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.

Emergency Plan - Page 1.3-2	Fire Hazards Analysis – No Affected Pages
Environmental Report - Page 1.3-2	Fundamental Nuclear Material Control Plan – No Affected Pages
Environmental Report - Page 2.1-17, 19	ISA Summary – ~~No affected pages~~ Fig 3.5-21, Page 3.2-8
Environmental Report - Page 3.4-9	Safety Evaluation Report – No Affected Pages
Environmental Report - Page 4.1-2	Figures:
Environmental Report - Page 4.4-6, 4.4-5	Septic Plan, Etc, Sheet 1A, 114489-0000-C-CVL-006-01A-0
Environmental Report - Page 5.1-2	Septic Plan, Etc, Sheet 1B, 114489-0000-C-CVL-006-01B-0
Environmental Report - Page ~~7.5-2~~ 7.2-5	Septic Plan, Etc, Sheet 3, 114489-0000-C-CVL-006-03-3
Environmental Report - Page 8.8-1	Septic Plan, Etc, Sheet 9, 114489-0000-C-CVL-006-09-1
Environmental Report - Page 8.8-2	Septic Plan, Etc, Sheet 11, 114489-0000-C-CVL-006-11-0
Environmental Report - Page 8.8-3	Above Ground Water Piping 114489-1900-M-B-001-01-0

**** NO LBD FIGURES ARE IMPACTED BY THIS CHANGE****

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

Attachment 1 to this CC is NEF-DCC-2006-0051 titled "Modifications to Facility Water Systems Arising from design Review Meetings and Negotiations with City of Eunice, NM". That DCC contains several different items identified as changes. This CC focuses on the **single issue** pertaining to selection of a "single water supply line owned and operated by the City of Eunice, directed from Eunice to the northwest corner of the NEF site. This single supply line differs from the LB documents that describe two independent supply lines, one each from the cities of Eunice and Hobbs, delivering municipal water to the southern site boundary along NM State Highway 234."

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

The purpose of the change is to identify the water supplier for the NEF, and to declare that there is only one supply from one municipality.

The purpose of the CC is to enable the single water line to be permanently connected to the NEF.

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

The impact of this change is to clarify that the water supply to the NEF will be from the City of Eunice, NM, utilizing a single incoming, back flow protected, 14" water main, entering the NEF from the North West corner.

Preparer (Print Name/Signature): Gordon R. Skillman Gordon R Skillman		**Date:** March 28, 2007 March 28, 2007
CC FAM	**Signature:**	**Date:** 3-28-07

Configuration Change Number: CC-EG-2007-0085 **Revision** 0

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

☒ HS&E - For Environmental Impacts relating to the selection of a single line from Eunice, and de-selecting a second line from Hobbs.

☒ Licensing - See LBD markup pages attached.

☐ Production

☐ Quality Assurance

☒ Support Services Security Contingency Plan Conf 3/28/07

☒ Technical Services - For accuracy of use quantities of the water from Eunice

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change may be a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis): Unknown if redundant water supply addressed in Security Contingency Plan.

CM Coordinator (Print Name/Signature):	**Date**
Clark Tracy / Clark Tracy	3/28/07

Section 3: Disposition of Interdisciplinary Reviews

☐ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) Action Items (AIs). Identify CR AIs in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:**	**Date:**
CC FAM	**Signature:**	**Date:**

Configuration Change Number: CC-EG-2007-0085 **Revision** 0		
Section 4: Disposition of ISA Review		
☐ No ISA Impact and No ISA Team Review Required OR ☐ Possible ISA Impact. Complete review per EG-104 and attach result. List any outstanding CR AIs identified in Section 5 Comments below. Comments (basis):		
Preparer:	***OR*** **ISA Member:**	**Date:**
Section 5: Disposition of RIR or 70.72(c) Evaluation		
☐ Partial Release, RIR attached and CR Action Items noted in comments below OR ☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR ☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete.		
☐ Comments resolved or none. ☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CR AIs. Identify CR AI number(s) in Comments below. ☐ CC is not acceptable, cancel CC. Comments (basis):		
Preparer	**Signature:**	**Date:**
CC FAM	**Signature:**	**Date:**

Configuration Change Number: CC-EG-2007-0085 **Revision** 0		
Section 6: Release or Implementation		
☐ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted. ☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR AIs as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC. ☐ CC is not acceptable, CANCEL or HOLD CC as noted. Comments (Basis):		
CC FAM	**Signature:**	**Date:**
Section 7: Configuration Change Closeout		
☐ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR AIs are closed and the 70.72(c) evaluation per LS-104 is complete as required. ☐ B. The Configuration Change has not been implemented. The basis for this decision is described below. Comments (as applicable):		
Preparer	**Signature:**	**Date:**
CM Coordinator	**Signature:**	**Date:**
Forward to Records Management (CM Coordinator).		

SUPERSEDED DC-EG-2007-0085 ATT 1 Pg 5

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0051
Originator:	RS Du Brul	Date:	10/25/06
Supervision:	P. Visalli	Date:	10/25/06
Project Management:	C Cronan, NTS	Date:	
Proposed Change Title:	Modifications to Facility Water Systems Arising From Design Review Meetings and Negotiations With City of Eunice, NM.		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

The NEF is served by the following water systems. These systems are described in the License Basis (LB) and Design Basis (DB):

- System 691 – Municipal (potable) Water Supply from the City of Eunice, NM.
- System 692 - Domestic Water for potable site consumption and sanitary service
- System 693 – Process Water for distribution to cooling tower spray systems and input to system 696 – Deioinized Water. Note that system 693 also contains water treatment systems for Centrifuge Cooling Water polishing, cooling tower spray water treatment, and water pretreatment for cooling tower spray service (described below).
- System 694 – Fire Water (Protection) for yard mains, hydrants, and input to sprinkler systems.

Changes to these systems are proposed as follows. The proposed changes have resulted from negotiations with the City of Eunice, purchase of a new well and the forthcoming installation of a water pipeline to the site, :d discussions and design review meetings with ETC and Urenco.

Effects to Proposed Municipal Water System

Final water supply negotiations between LES and the cities of Eunice and Hobbs result in a single water supply line, owned and operated by the City of Eunice, directed to the northwest corner of the NEF site. This single supply line differs from LB which describes two independent supply lines, one each from the cities of Eunice and Hobbs, delivering municipal water to the southern site boundary along NM State Highway 234.

A water revenue meter, owned and operated by the City of Eunice, will be installed off site. Immediately onsite, LES will install a backflow preventer, an additional integrator flow meter for record purposes, and a bypass line with associated maintenance block valves (reference Design Review Meeting, December 2005, Drawing 0000-C-CVL-006-04, Action Item 2, page 5 of 91).

LES purchased a local well, approximately 6 miles southwest of the site. The well is not described in the LB or DB. The well is reported to be capable of delivering approximately 90 gpm of potable water (with associated water treatment). A (estimated) 6 in pipeline for water delivery to the south side of the site, approximately where the originally proposed municipal pipelines, will deliver water. The off-site pipe and well equipment will be installed, owned, and operated by LES. LES will negotiate pipeline rights of way between the well and the site. The proposed design changes associated with the new well cannot be completed until the new fence post pipeline location is provided. Costs for the new well, off – site pipeline, associated rights of way, pumps, and instrumentation, controls and communication are not included in this DCC.

A flow totalizing meter and backflow to protect the new well is anticipated. The new well is reported to be higher :an the site so on – site overpressure control may be required. Note that the scope of this DCC does not include estimated capital costs or design development at the new well, the off-site pipeline and the associated acquisition of the rights of way, and status instrumentation, controls, and communication equipment between the site and the well.

The City of Eunice recommends that a treatment system be installed to maintain water quality adjacent to or onsite. LES proposes to have the treatment system installed on site to avoid interface problems with the City. Note that the City will advise LES of the extent of reporting water quality samples to NM state agencies. The conceptual design of the water treatment system provides for chemical injection upstream of a water tank to provide sufficient residence time. The same water treatment techniques will serve the alternate, well water supply.

Estimated costs associated with changes to municipal water delivery system:

- Main on – site yard water piping for the Municipal water and the new well, miscellaneous valves and instrument and controls features ≈ $250,000.
- Water treatment including chlorinating system and (estimated 1,000) gal tank ≈ $250,000.
- Note: Associated pipeline and rights of way costs to deliver municipal water to the NEF site are already included in the project budget and have not been reiterated in this DCC.
- Note: Costs for the new private well acquisition, pipeline installation including excavation, rights of way, piping, and pumping equipment, and controls and communication are not included in this DCC.

Effects to Proposed Domestic Water System

Potable on-site water distribution, from the outlet of the water treatment tank, above, must be accomplished with new, redundant pumps which will no longer be in the City of Eunice's scope of equipment. The LB and DB assumed that water distribution could be accomplished using municipal delivery pressure at the property fence.

Two new distribution pumps (for reliability) are also required to achieve necessary domestic water delivery to applicable onsite buildings including the proposed 3-story Administration Building. The LB and DB expected municipal water sources to provide the necessary pressure for successful water distribution.

Estimated costs associated with changes to domestic water system:

- New pump sets, and instrumentation and controls ≈ $50,000
- Bladder tank for pressurization and associated system controls ≈ $50,000

Effects to Proposed Process Water System

ETC and LES wish to have approximately 750,000 gal of water inventory to avoid reliance on the city's delivery system. Present inventory is 500,000 gal of water including approximately 326,000 gal in reserve for fire fighting in each of the two existing tanks. Therefore, it is proposed to add a third, 250,000 gal tank dedicated exclusively for process water. The increased water inventory accomplishes 2 goals, as follows.

The first goal is to maintain sufficient inventory to replenish fire protection water of ≈163,000 gal without relying on city delivery. Note that the present scheme provides for 2 redundant tanks, each with dedicated fire water in accordance with NFPA 22. NFPA stipulates that one of two tanks may be out of service and that the facility has 8 hrs to replenish fire water once fire fighting occurs.

In addition, the plant requires approximately 750,000 gal to accomplish approximately one day of full production followed by two days of "running light" to achieve an orderly shutdown if water service is lost. This inventory assumes that during this emergency situation, the three tanks are approximately full, one of two fire water tank inventory can be diverted to provide process water, and that ambient temperature conditions are at approximately 101°F. Tank inventory will be maintained with level controls on the new tank, with common piping maintaining equal water elevation in each of the other two tanks.

Based on initial water analysis data, municipal water is marginally hard and contains relatively high TDS for cooling tower spray water service (note that these parameters are within NM state potable consumption limits). Pretreatment will be studied to reduce hardness and TDS and deliver water to the cooling tower basins and input to the Deionized Water System.

Estimated costs associated with changes to domestic water system:

- New Process water tank, pump sets, miscellaneous controls ≈ $400,000.

- Water pre - treatment system ≈ $200,000

Effects to Fire Protection System

) effects will occur to the fire protection system as a result of this proposed DCC. The only performance change is the source of the refill water to make up fire protection water inventory following extinguishing a fire (see Effects to Proposed Process Water System, above).

Summary of Total Estimated Cost Impact

Municipal Water System Revisions:

- Yard piping = $ 250,000
- Potable Water treatment = $250,000

Domestic Water System Revisions

- Bladder tank for pressurization and associated system controls ≈ $50,000
- Pump set, instrumentation and controls ≈ $50,000

Process Water System Revisions

- New water tank with associated piping and controls = $ 400,000
- New process water pretreatment system = $200,000

Total Estimated Cost Impact of DCC ≈ $1,200,000

DIRECT ENGR'G COST ≈ $100,000

Reason for change:		
Reasons for the changes above are cited within the text. In general, changes have been prompted by a combination of reliability enhancement by assuming tasks normally conducted by the water utility; reconfiguring the pipeline delivery systems in accordance with LES' negotiations; and studying/specifying concepts requested by LES and ETC during Design Review Meetings relating to the water systems.	Safety / Environment	☐
	Correction	☒
	Improvement	☐

Drawings/Documents Affected (including License Application and ISA Summary):

Changes to the NEF Licensing Basis are primarily associated with deleting water supply from Hobbs NM and adding LES' new well. The following sections will be affected by these changes.

Paragraph 3.5.4.1, of the NEF ISA Summary Process Water System will be affected by the proposed configuration changes.
Paragraph 3.5.4.2, of the NEF ISA Summary Potable Water System will be affected by the proposed configuration changes.
Paragraph 2.1.2.5, of the NEF Environmental Report, Site and Nearby Utilities, will be affected by the proposed configuration changes.
Paragraph 2.1.2.8, of the NEF Environmental Report, Summary of Potential Environmental Impacts will be affected by the proposed configuration changes.
Paragraph 2.1.3.3.4.4, of the NEF Environmental Report, Criterion 4, Water Supply will be affected by the proposed configuration changes.
Paragraph 3.4.6, of the NEF Environmental Report, Water Rights and Resources will be affected by the proposed configuration changes.
Paragraph 4.1.2, of the NEF Environmental Report, Utilities Impacts will be affected by the proposed configuration changes.
Paragraph 5.1.4, of the NEF Environmental Report, Water Resources will be affected by the proposed configuration changes.
Paragraph 7.2.2.7, of the NEF Environmental Report, Other Impacts of Plant Operation will be affected by the proposed configuration changes.
Paragraph 8.8, of the NEF Environmental Report, Nonradiological Impacts will be affected by the proposed configuration changes.

Paragraph 1.3.2, of the NEF Emergency Plan, Water Use will be affected by the proposed configuration changes.

Paragraph 7.5.1.1.1 of the NEF SAR, System Description (Fire Water Supply System) describes the tank arrangements using two tanks dedicated for combined process water and fire protection water. The description will require modification to consider a third, process water tank. The text describes fire water replenishment in an 8 hr period in conjunction with the municipal water mains (paragraph 7.5.1.1.2, Interfaces).

In addition, Figure 3.5-21, Process Flow Diagram, Process Water Distribution System, Revision December 2003, Reference Number 0000-M-3005 will be affected by the proposed changes.

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*

Add comments and return to individuals in Part 1 Distribution by: *(Date)* (+5)

AREVA ISA SME
Only potential impact. Additional 250,000 gal tank needs to be located away from buildings containing UF6 and enriched uranic material such that failure of new tank will not impact those buildings.

Name	Position	Signature	Date
David M Pope	ISA Scribe		10/30/06 (+5)

Part 3 – Disposition

Disposition (check appropriate) Approved ☒ Rejected ☐

	Name	Position	Signature	Date
LES				(+6)
Urenco				(+6)
Disposition Approved:	DICK FRAZAR	LES Vice President – Project Management		12/4/06 (+7)

Part 4 - Implementation

Implementation by:		
	LES	☐
	NTS	☐
	Urenco	☐

Implementation Schedule:			
	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved:	Name		Signature		Date	(+10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

P HALE 10/11/06

Paragraph 1.3.2, of the NEF Emergency Plan, Water Use will be affected by the proposed configuration changes.

Paragraph 7.5.1.1.1 of the NEF SAR, System Description (Fire Water Supply System) describes the tank arrangements using two tanks dedicated for combined process water and fire protection water. The description will require modification to consider a third, process water tank. The text describes fire water replenishment in an 8 hr period in conjunction with the municipal water mains (paragraph 7.5.1.1.2, Interfaces).

In addition, Figure 3.5-21, Process Flow Diagram, Process Water Distribution System, Revision December 2003, Reference Number 0000-M-3005 will be affected by the proposed changes.

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: *(Date)* (+5) Licensing Impact Potential

* This change may require LES to obtain an Environmental Impact Statement from the NRC prior to implementation. This is due to the addition of a water treatment facility on the site and the change in location of the water source from Hobbs to a private well. In addition, a number of State permits will be required to be obtained or revised to implement the change. ~~&~~ The water treatment facility may require Operators to be certified and specific licenses obtained for the facility.

Name	ST DAY JR	Position	Licensing Engineer	Signature		Date	(+5)

Part 3 – Disposition

Disposition (check appropriate) **Approved** ☐ **Rejected** ☐

	Name	Position	Signature	Date
LES	* ST DAY JR Kevin E. Leaver	Licensing Engineer Tech Services Director		11/10/06 (+8) 12/1/06
Urenco				(+6)
Disposition Approved:		LES Vice President – Project Management		(+7)

Part 4 - Implementation + other License Review

Implementation by:		
	LES For 70.72 + EIS Review	☒
	NTS For Design	☒
	Urenco	☐

Implementation Schedule:			
	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved: ✓	Name	John Jerald	Signature		Date	12/4/06 (+10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

SUPERSEDED

1.3.2 Water Use

Hobbs no longer a source

The NEF will connect to the Eunice ~~and Hobbs~~ city water systems. Discharges will be to an onsite sanitary septic system, evaporative basin, and a low-level liquid waste (process water) basin.

1.3.3 Climate

The NEF site is located in the Southeast Plains of New Mexico close to the border with Texas. The climate is typical of a semi-arid region, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Vegetation consists mainly of native grasses and some mesquite trees. During the winter, the weather is often dominated by a high pressure system located in the central part of the western United States and a low pressure system located in north-central Mexico. During the summer, the region is affected by a low pressure system normally located over Arizona.

activities relating to these statutes and associated programs. Applicable state requirements, permits, and approvals are described in Section 1.3.2, State Agencies.

Environmental Standards for the Uranium Fuel Cycle (40 CFR 190 Subpart B) (CFR, 2003f) establishes the maximum doses to the body organs resulting from operational normal releases and received by members of the public.

The Safe Drinking Water Act (SDWA) provides for protection of public water supply systems and underground sources of drinking water. 40 CFR 141.2 (CFR, 2003h) defines public water supply systems as systems that provide water for human consumption to at least 25 people or at least 15 connections. Underground sources of drinking water are also protected from contaminated releases and spills by this act. NEF is not using site groundwater or surface water supplies. NEF will obtain potable water from nearby municipal water supply systems (cities of Eunice and Hobbs, New Mexico).

The Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 350 to 372) (CFR, 2003i) establishes the requirements for Federal, State and local governments, Indian Tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment.

National Pollutant Discharge Elimination System (NPDES) General Permit for Industrial Stormwater: This permit is required for point source discharge of stormwater runoff from industrial or commercial facilities to the waters of the state. All new and existing point source industrial stormwater discharges associated with industrial activity require a NPDES Stormwater Permit from the EPA Region 6 and an oversight review by the New Mexico Water Quality Bureau. The NEF is eligible to claim the "No Exposure" exclusion for industrial activity of the NPDES stormwater Phase II regulations. As such, the LES would submit a No Exposure Certification immediately prior to initiating operational activities at the NEF site. LES also has the option of filing for coverage under the Multi-Section General Permit (MSGP) because the NEF is one of the 11 eligible industry categories. If this option is chosen, LES will file a Notice of Intent (NOI) with the EPA, Washington, D.C., at least two days prior to the initiation of NEF operations. A decision regarding which option is appropriate for the NEF will be made in the future.

NPDES General Permit for Construction Stormwater: Construction of the NEF will involve the grubbing, clearing, grading or excavation of 0.4 or more ha (1 or more acres) of land coverage and must receive a NPDES Construction General Permit (CGP) from the EPA Region 6 and an oversight review by the New Mexico Water Quality Bureau. Various land clearing activities such as offsite borrow pits for fill material have also been covered under this general permit. LES construction contractors will be clearing approximately 81 ha (200 acres) during the construction phase of the project. LES will develop a Stormwater Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) with the EPA, Washington, D.C., at least two days prior to the commencement of construction activities.

U.S. Department of Transportation (DOT)

Transport of the NEF UF_6 cylinders requires compliance with the following DOT enabling regulations:

impregnated carbon filter (potassium carbonate), centrifugal fan, automatically operated inlet-outlet isolation dampers, monitorings, and differential pressure transducers.

2.1.2.4.6 Laundry System

The Laundry System cleans contaminated and solid clothing and other articles within the plant. The laundry is divided into two main streams: articles with high or low possibility of contamination. Articles likely to be contaminated are collected in special water soluble bags. Articles unlikely to be contaminated are collected in bin bags and sorted into lightly and heavily soiled articles. Lightly soiled articles are laundered; heavy soiled articles are inspected first and if to difficult to clean are sent to the Solid Waste Collection System, otherwise they are laundered as well. Laundry water is discharged to the Liquid Effluent Collection and Treatment System.

2.1.2.4.7 Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System provides exhaust of potentially hazardous contaminants from the Centrifuge Test and Post Mortem Facilities. The system also ensures the Centrifuge Post Mortem Facility is maintained at a negative pressure with respect to adjacent areas. The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System is located in the Centrifuge Assembly Building and is monitored from the Control Room.

The ductwork is connected to one filter station and vents through either of two 100% fans. Both the filter station and either of the fans can handle 100% of the effluent. One of the fans will normally be in standby. Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down. After filtration, the clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the monitored (alpha and HF) stack on the Centrifuge Assembly Building.

2.1.2.5 Site and Nearby Utilities

The ~~cities~~ city of Eunice ~~and Hobbs~~, New Mexico will provide water to the site. Water consumption for the NEF is calculated to be 240 m^3/day (63,423 gal/d) to meet potable and process consumption needs. Peak water usage for fire protection is 33 L/s (521 gal/min). The natural gas requirements of the plant are 354 m^3/hr (12,500 ft^3/hr). Electrical service to the site will be provided by Xcel Energy. The projected demand is approximately 30 MW. Six septic tanks, each with one or more leach fields, will be installed onsite for the collection of sanitary and non-contaminated liquid waste.

Identified, onsite pipelines include a 25.4-cm (10-in) diameter, underground carbon dioxide pipeline that runs southeast-northwest. This pipeline is owned by Trinity Pipeline LLC. A 40.6-cm (16-in) diameter, underground natural gas pipeline, owned by the Sid Richardson Energy Services Company, is located along the south property line, paralleling New Mexico Highway 234. A parallel 35.6-cm (14-in) diameter gas pipeline is not in use. There are no known onsite underground storage tanks, wells, or sewer systems.

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3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

3.4.7 Quantitative Description of Water Use

No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF. All water used at the facility will be provided through the Eunice ~~and Hobbs~~ Municipal Water Supply Systems, as described in ER Section 4.1.2. ~~These systems obtain water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site.~~ Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the Hobbs and Eunice, New Mexico water supply systems and the expected NEF average and peak usage.

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs), will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

Impacts to land and groundwater will be controlled during construction through compliance with the National Pollution Discharge Elimination System (NPDES) Construction General Permit obtained from Region 6 of the Environmental Protection Agency (EPA). A Spill Prevention, Control and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and to ensure prompt and appropriate remediation. Potential spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notifications of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Adequately maintained sanitary facilities will be provided for construction crews.

4.1.2 Utilities Impacts

The NEF will require the installation of water, natural gas and electrical utility lines. In lieu of connecting to the local sewer system, six onsite underground septic tanks each with one or more leach fields will be installed for the treatment of sanitary wastes. Septic systems are described in Section 3.12.1.3.4, Effluent Discharge.

A new potable water supply line will be extended from the city of Eunice, New Mexico to the NEF site ~~and another potable water supply line will be extended from the city of Hobbs, New Mexico~~. The line from Eunice will be about 8 km (5 mi) in length. ~~The line from Hobbs will be about 32 km (20 mi) in length~~. Placement of the new water supply lines along New Mexico Highways 18 and 234 would minimize impacts to vegetation and wildlife. (Refer to Figure 3.1-1, Land Use Map.) Since there are no bodies of water between the site and the city of Eunice, New Mexico, no waterways will be disturbed. ~~Likewise, there are no bodies of water between the site vicinity and the city of Hobbs~~. However, as indicated in ER Section 3.2.1, Transportation Access, there is a 61-m (200-ft) right-of-way easement along both sides of New Mexico Highway 234. Therefore, an application for utility line installation within highway easements will be submitted to the New Mexico State Highway and Transportation Department. Utility line installation coordinated with state planned highway upgrades would minimize traffic impact on New Mexico Highway 234 between the site and the city of Eunice, New Mexico.

The natural gas line feeding the site will connect to an existing, nearby line. This will minimize impacts of short-term disturbances related to the placement of the tie-in line.

Two new electrical transmission lines on a large loop system are proposed for providing electrical service to the NEF. These lines would tie into a trunk line about 13 km (8 mi) to the west. Similar to the new water supply lines, land use impacts would be minimized by placing associated support structures along New Mexico Highway 234. An application for highway easement modification will be submitted to the state. As noted in ER Chapter 2, Alternatives, there are currently several power poles along the highway in front of the adjacent, vacant parcel east of the site. In conjunction with the new electrical lines serving the site, the local company

Anticipated Normal Plant Water Consumption, and Table 3.4-5, Anticipated Peak Plant Water Consumption, respectively.

Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the city of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply system are 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

For both peak and the normal usage rates, the needs of the NEF facility should readily met by the municipal water systems. Impacts to water resources onsite and in the vicinity of the NEF are expected to be negligible.

4.4.6 Identification of Impacted Ground and Surface Water Users

Location of an intermittent surface water feature and groundwater users in the site vicinity including an area just beyond a 1.6-km (1-mi) radius of the site boundary are shown on Figure 3.4-7, Water and Oil Wells in the Vicinity of the NEF Site. These locations were provided by the Office of New Mexico State Engineer (NMSE) (NMSE, 2003), the Texas Water Development Board (TWDB) (TWDB, 2003) and the United States Geological Survey (USGS) (USGS, 2003b). No producing supply water wells are within 1.6 km (1 mi) of the boundaries of the NEF site as shown on Figure 3.4-7. However, nearby facilities do have groundwater monitoring wells within this region.

The absence of near-surface groundwater users within 1.6 km (1 mi) from the site and the absence of surface water on the NEF site will prevent any impact to local surface or groundwater users. Due to the lack of process water discharge from the facility to the environment, no impact is expected for these water users.

Effluent discharges will be controlled in a way that will also prevent any impacts. The locations of the closest municipal water systems for both Eunice and Hobbs are in Hobbs, New Mexico, 32 km (20 mi) north northwest of the site. There is no potential to impact these sources.

4.4.7 Control of Impacts to Water Quality

Site runoff water quality impacts will be controlled during construction by compliance with NPDES Construction General Permit requirements and BMPs will be described in a site Stormwater Pollution Prevention (SWPP) plan.

Wastes generated during site construction will be varied, depending on activities in progress. Any hazardous wastes from construction activities will be handled and disposed of in accordance with applicable state regulations. This includes proper labeling, recycling, controlling and protected storage and shipping offsite to approved disposal sites. Sanitary wastes generated at the site will be handled by portable systems until such time that the site septic systems are available for use.

The need to level the site for construction will require some soil excavation as well as soil fill. Fill placed on the site will provide the same characteristics as the existing natural soils thus

are well within the scope of the environmental impacts previously evaluated by the Nuclear Regulatory Commission (NRC). Because these impacts have been addressed in a previous NRC environmental impact statement (NUREG/CR-0170) (NRC, 1977a), no additional mitigation measures are proposed in ER Section 5.2.2, Transportation.

5.1.3 Geology and Soils

The potential impacts to the geology and soils have been characterized in ER Section 4.3, Geology and Soils Impact. No substantive impacts exist as related to the following activities:

- Soil resuspension, erosion, and disruption of natural drainage
- Excavations to be conducted during construction.

Impacts to geology and soils will be limited to surface runoff due to routine operation. Construction activities may cause some short-term increases in soil erosion at the site. Mitigation measures associated with these impacts are listed in ER Section 5.2.3, Geology and Soils.

5.1.4 Water Resources

The potential impacts to the water resources have been characterized in ER Section 4.4, Water Resources Impacts. No substantive impacts exists as related to the following:

- Impacts on surface water and groundwater quality
- Impacts of consumptive water uses (e.g., groundwater depletion) on other water users and adverse impacts on surface-oriented water users resulting from facility activities. Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the town of Eunice, New Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply systems are 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hour (378 gpm), respectively. These usage rates are well within the capacities of both water systems. For both peak and the normal usage rates, the needs of the NEF facility should readily be met by the municipal water systems. Impacts to water resources on site and in the vicinity of NEF are expected to be negligible.
- Hydrological system alterations or impacts
- Withdrawals and returns of ground and surface water
- Cumulative effects on water resources.

The NEF will not obtain any water from onsite surface or groundwater resources. Process effluents will be discharged to the double-lined Treated Effluent Evaporative Basin with leak detection. Sanitary waste water discharges will be made through site septic systems. Stormwater from developed portions of the site will be collected in retention/detention basins, as described in ER Section 3.4, Water Resources. These include the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin. Minor impacts to water resources are discussed in ER Section 4.4. Mitigation measures associated with these impacts are listed in ER Section 5.2.4, Water Resources.

These dose equivalents due to normal operations are small fractions of the normal background radiation range of 2.0 to 3.0 mSv (200 to 300 mrem) dose equivalent that an average individual receives in the US, and within regulatory limits. .

7.2.2.7 Other Impacts of Plant Operation

NEF water will be obtained from the ~~Hobbs and~~ Eunice, New Mexico municipal water systems, and routine liquid effluent will be treated and discharged to evaporative pond(s), whereas sanitary wastes will be discharged to onsite septic systems. Facility water requirements are relatively low and well within the capacities of the ~~Hobbs and~~ Eunice water utilities. The current capacity for the Eunice Potable water supply system is 16,350 m^3/day (4.3 million gpd), and current usage is 5,600 m^3/day (1.48 million gal/d). ~~The Hobbs water system capacity is 75,700 m^3/day (20 million gal/d) whereas its usage is 23,450 m^3/day (6.2 million gal/d).~~ Requirements for operation of the NEF are expected to be 240 m^3/day (63,423 gal/d), a volume well within the capacity of the supply systems. Non-hazardous and non-radioactive solid waste is expected to be approximately 172,500 kg (380,400 lbs) annually. It will be shipped offsite to a licensed landfill. The local Lea County landfill capacity is more than adequate to accept the non-hazardous waste.

7.2.2.8 Decommissioning

The plan for decommissioning is to decontaminate or remove all materials promptly from the site that prevent release of the facility for unrestricted use. This approach avoids the need for long-term storage and monitoring of wastes on site. Only building shells and the site infrastructure will remain. All remaining facilities, including site basins, will be decontaminated where needed to acceptable levels for unrestricted use. Excavations and berms will be leveled to restore the land to a natural contour.

Depleted UF_6 , if not already sold or otherwise disposed of prior to decommissioning, will be disposed of in accordance with regulatory requirements. Radioactive wastes will be disposed of in licensed low-level radioactive waste disposal sites. Hazardous wastes will be treated or disposed of in licensed hazardous waste facilities. Neither conversion (if done), nor disposal of radioactive or hazardous material will occur at the plant site, but at licensed facilities located elsewhere.

Following decommissioning, all parts of the plant and site will be unrestricted to any specific type of use.

8.8 NONRADIOLOGICAL IMPACTS

Numerous design features and administrative procedures are employed to minimize gaseous and liquid effluent releases and keep them within regulatory limits. Potential nonradiological impacts of operation of the NEF include releases of inorganic and organic chemicals to the atmosphere and surface water impoundments during normal operations Other potential impacts involve land use, transportation, soils, water resources, ecological resources, air quality, historic and cultural resources, socioeconomic and public health. Impacts from hazardous, radiological and mixed wastes and radiological effluents have been discussed earlier.

The other potential nonradiological impacts from the construction and operation of NEF are discussed below:

Land-Use Impacts:

The anticipated effects on the soil during construction activities are limited to a potential short-term increase in soil erosion. However, this will be mitigated by proper construction best management practices (BMPs). These practices include minimizing the construction footprint to the extent possible, limiting site slopes, using a sedimentation detention basin, protecting undisturbed areas with silt fencing and straw bales as appropriate, and employing site stabilization practices such as placing crushed stone on top of disturbed soil in areas of concentrated runoff. In addition onsite construction roads will be periodically watered when required, to control fugitive dust emissions. Water conservation will be considered when deciding how often dust suppression sprays will be applied. After construction is complete, the site will be stabilized with natural, low-water maintenance landscaping and pavement.

A Spill Prevention, Control and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and ensure prompt and appropriate remediation. Spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notification of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Water conservation measures will be considered to minimize water use. Adequately maintained sanitary facilities will be provided for construction crews.

The NEF facility will require the installation of water, natural gas and electrical utility lines. In lieu of connecting to the local sewer system, six onsite underground septic tanks each with one or more leach fields will be installed for the treatment of sanitary wastes.

A new potable water supply line will be extended from the city of Eunice to the NEF site ~~and another potable water supply line will be extended from the city of Hobbs~~. The line from Eunice will be about 8 km (5 mi) in length. ~~The line from Hobbs will be about 32 km (20 mi) in length.~~ Placement of the new water supply lines along New Mexico Highways 18 and 234 would

minimize impacts to vegetation and wildlife. Since there are no bodies of water between the site and the city of Eunice, no waterways will be disturbed. ~~Likewise, based on site visits, there are no bodies of water between the site vicinity and the city of Hobbs.~~ The natural gas line feeding the site will connect to an existing, nearby line. This will minimize impacts of short-term disturbances related to the placement of the tie-in line.

Two new electrical transmission lines on a large loop system are proposed for providing electrical service to the NEF. These lines would tie into a trunk line about 13 km (8 mi) to the west. Similar to the new water supply lines, land use impacts would be minimized by placing associated support structures along New Mexico Highway 234. An application for highway easement modification will be submitted to the state. There are currently several power poles along the highway in front of the adjacent, vacant parcel east of the site. In conjunction with the new electrical lines serving the site, the local company providing electrical service, Xcel Energy, will install two onsite transformers for redundant service assurance.

Six underground septic tanks will be installed onsite. The combined leach fields will require about 975 m (3,200 ft) of percolation drain field. The drain field will either be placed below grade or buried in a mound consisting of sand, aggregate and soil.

Overall land use impacts to the site and vicinity will be minimal considering that the majority of the site will remain undeveloped, the current industrial activity on neighboring properties, the nearby, expansive oil and gas well fields, and the placement of most utility installations along highway easements.

Transportation Impacts:

Impacts from construction and operation on transportation will include the generation of fugitive dust, changes in scenic quality, added environmental noise and small radiation dose to the public from the transport of UF_6 feed and product cylinders, as well as low-level radioactive waste.

Dust will be generated to some degree during the various stages of construction activity. The amount of dust emissions will vary according to the types of activity. LES estimated that fugitive dust are expected to be well below the National Ambient Air Quality Standards (CFR, 2003w).

Although site construction will significantly alter its natural state, and considering that there are no high quality viewing areas and the industrial development of surrounding properties, impacts to the scenic quality of the site are not considered to be significant. Also, construction vehicles will be comparable to trucks servicing neighboring facilities. Construction worker and worker during operation transportation impacts are not considered to be significant.

The temporary increase in noise levels along New Mexico Highways 18 and 234 and Texas Highway 176 due to construction vehicles are not expected to impact nearby receptors significantly, due to substantial truck traffic currently using these roadways, and the large distance between the nearest receptors and the site, i.e., 4.3 km (2.63 mi). See the environmental noise discussion below concerning noise levels due to traffic during operations.

Water Resources:

Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the ~~cities~~ city of Eunice, New Mexico, ~~and Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply system are 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day~~.

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~~(20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) and ~~23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

Liquid effluents include stormwater runoff, sanitary waste water, cooling tower blowdown water, heating boiler blowdown water and treated contaminated process water. All liquid effluents, with the exception of sanitary waste water, are discharged to one of three onsite basins.

Stormwater from the site will be diverted and collected in the Site Stormwater Detention Basin. This basin collects runoff from various developed parts of the site. It is unlined and will have an outlet structure to control discharges above the design level. The normal discharge will be through evaporation and infiltration into the ground. The basin is designed to contain runoff for a volume equal to that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall. It will have approximately 123,350 m^3 (100-acre-ft) of storage capacity. In addition, the basin has 0.6 m (2 ft) of free-board beyond the design capacity. It will also be designed to discharge post-construction peak flow runoff rates from the outfall that are equal to or less than the pre-construction runoff rates from the area.

Cooling tower blowdown water, heating boiler blowdown water and stormwater runoff from the UBC Storage Pad are discharged to the UBC Storage Pad Stormwater Retention Basin. The ultimate disposition of this water will be through evaporation along with permanent impoundment of the residual dry solids byproduct of evaporation. It is designed to contain runoff for a volume equal to twice that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall and an allowance for cooling tower blowdown water and heating boiler blowdown water. The UBC Storage Pad Stormwater Retention Basin is designed to contain a volume of approximately 77,700 m^3 (63 acre-ft). This basin is designed with a synthetic membrane lining to minimize any infiltration into the ground.

Discharge of treated contaminated plant process water will be to the onsite Treated Effluent Evaporative Basin. The Treated Effluent Evaporative Basin is utilized for the collection and containment of liquid effluent from the Liquid Effluent Collection and Treatment System. The ultimate disposal the liquid effluent will be through evaporation of water and permanent impoundment of the residual dry solids. Total annual discharge to that basin will be approximately 2,535 m^3/yr (669,844 gal/yr). The basin will be designed for double that volume. Evaporation will provide the only means of liquid disposal from this basin. The basin will include a double-layer membrane liner with a leak detection system to prevent infiltration of basin water into the ground.

Ecological Resources:

No communities or habitats that have been defined as rare or unique or that support threatened and endangered species have been identified as occurring on the 220-ha (543-acre) NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique or that support threatened and endangered species within the site area. Field surveys that were performed in September and October 2003, and April 2004, for the lesser prairie chicken, the sand dune lizard, and the black-tailed prairie dog determined that these species were not present at the NEF site. Another survey for the sand dune lizard was conducted in June 2004 and confirmed there were no sand dune lizards at the NEF site.

Several practices and procedures have been designed to minimize adverse impacts to the ecological resources of the NEF site. These practices and procedures include the use of BMPs,

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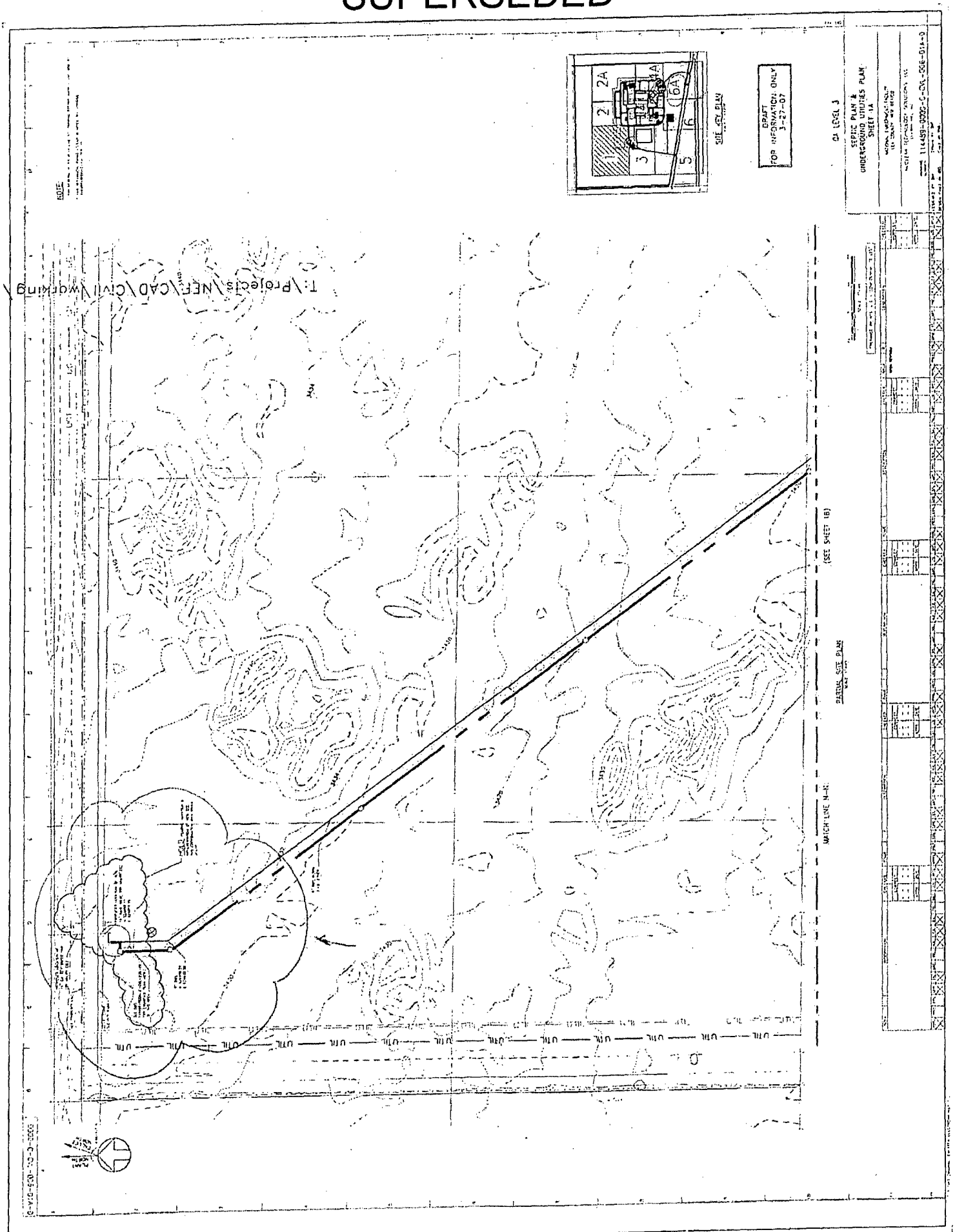
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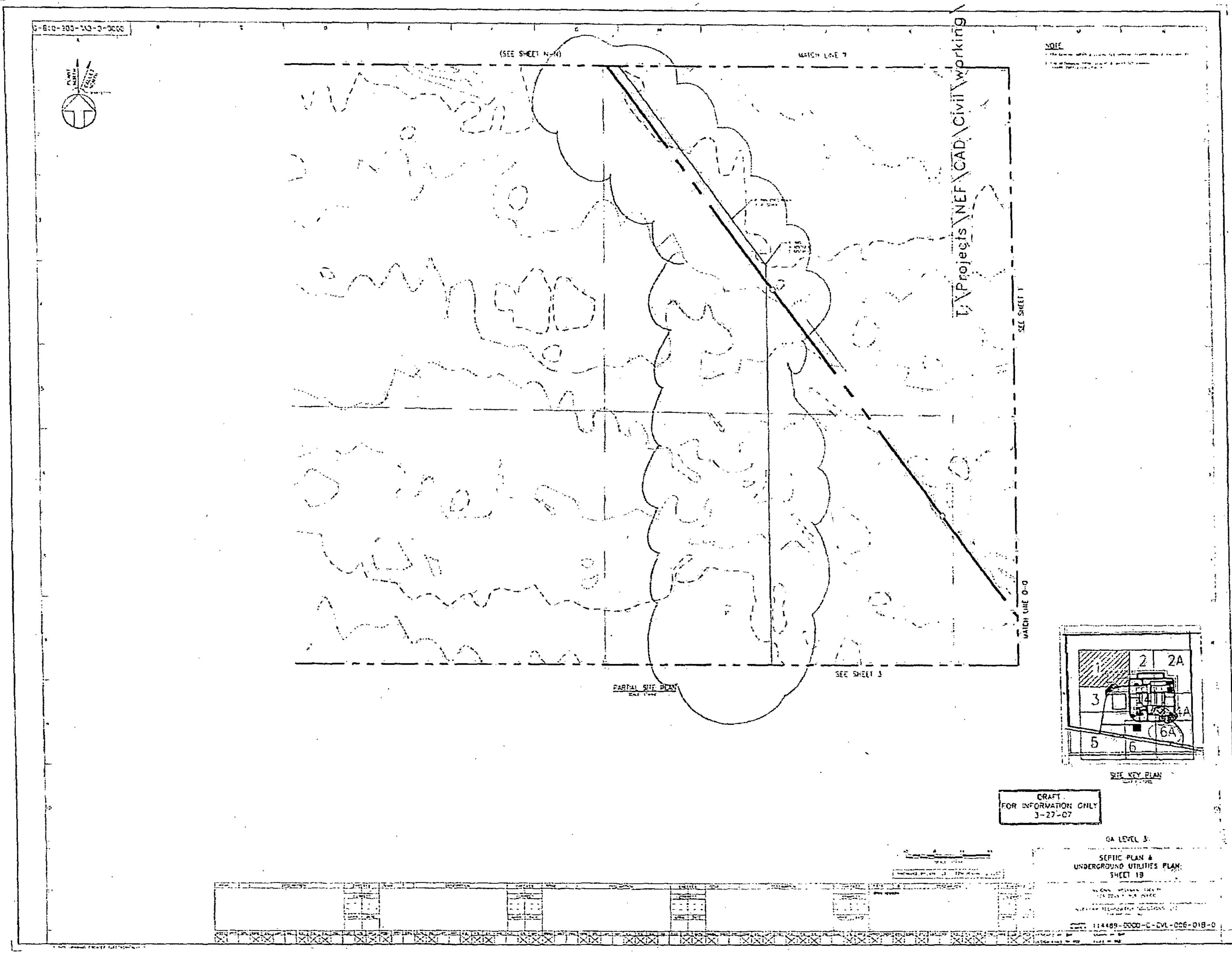
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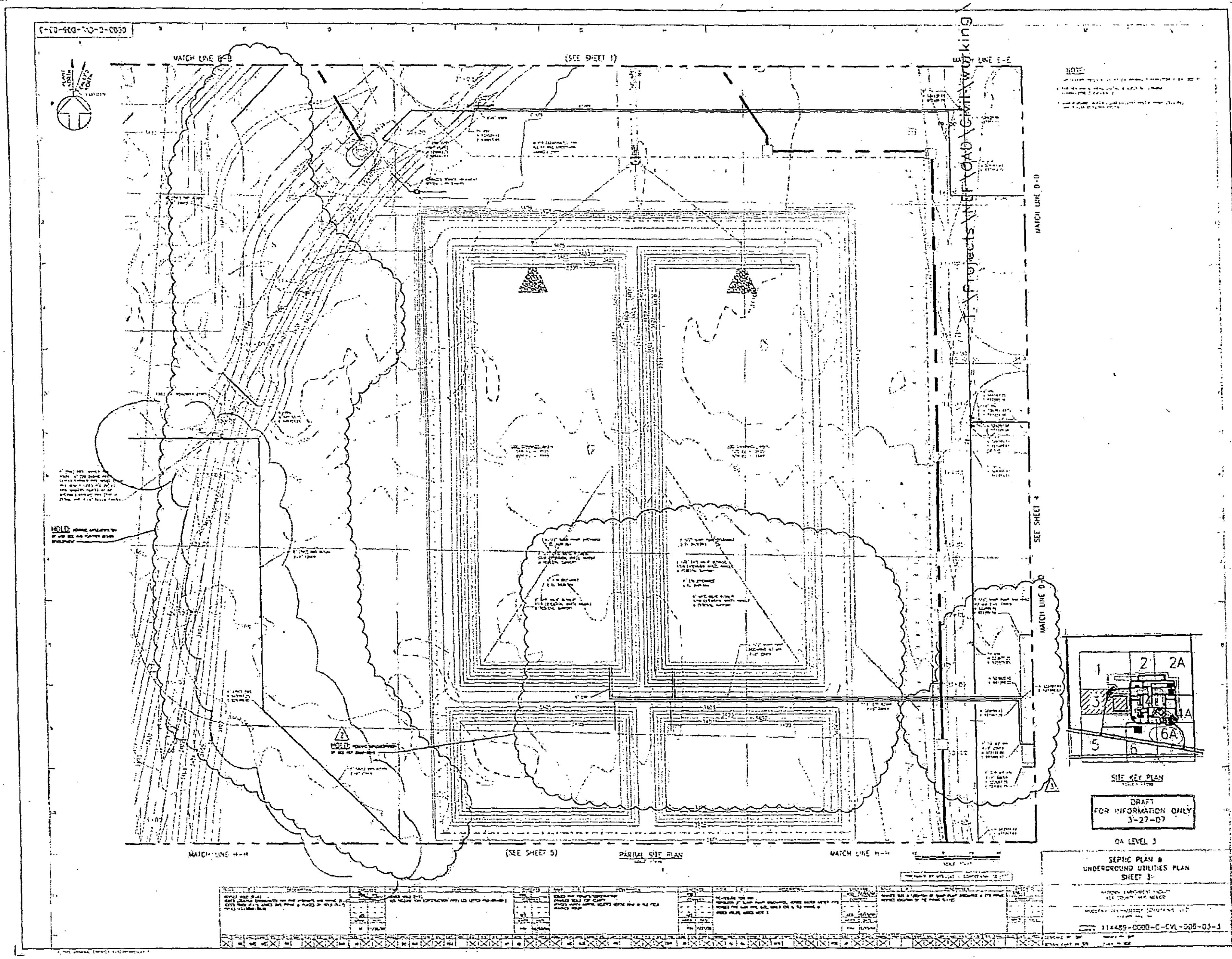
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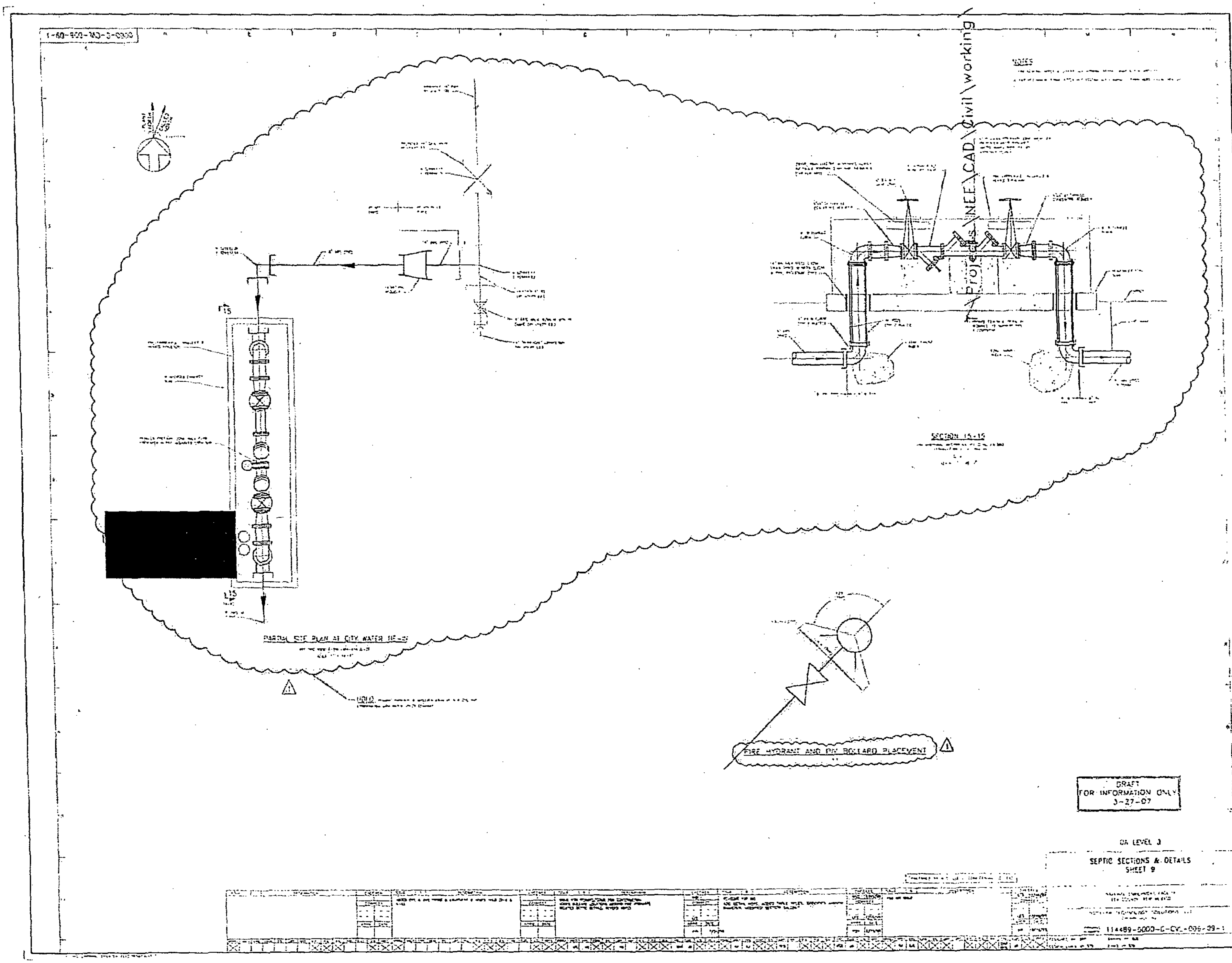

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SECTION 15-15
PARTIAL SITE PLAN AT CITY WATER TIE-IN
FIRE HYDRANT AND PIV BOLLARD PLACEMENT
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3-27-07
QA LEVEL 3
SEPTIC SECTIONS & DETAILS
SHEET 9

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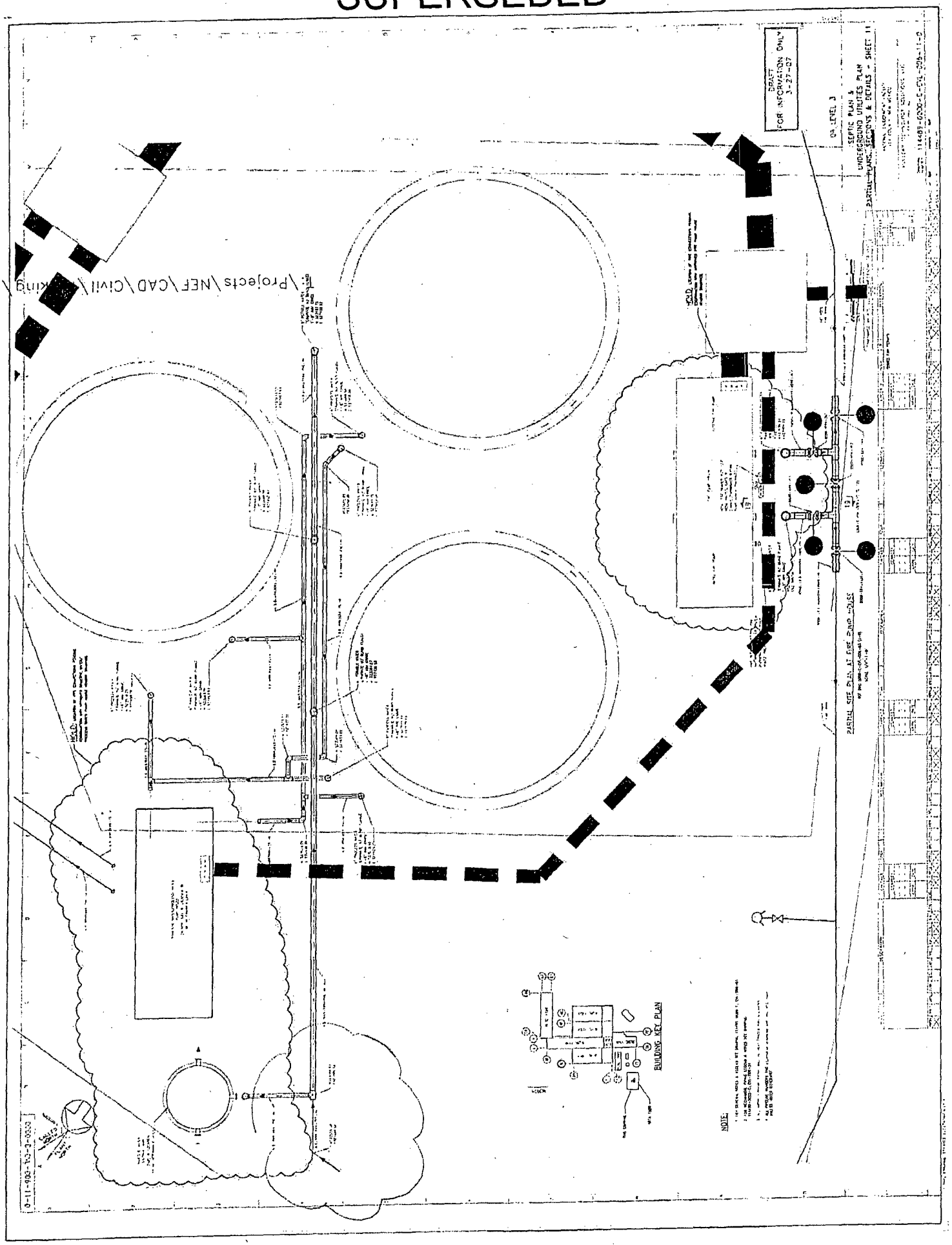
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SEPTIC PLAN &
UNDERGROUND UTILITIES PLAN
PARTIAL PLANS, SECTIONS & DETAILS - SHEET 11
BUILDING KEY PLAN
NOTE:

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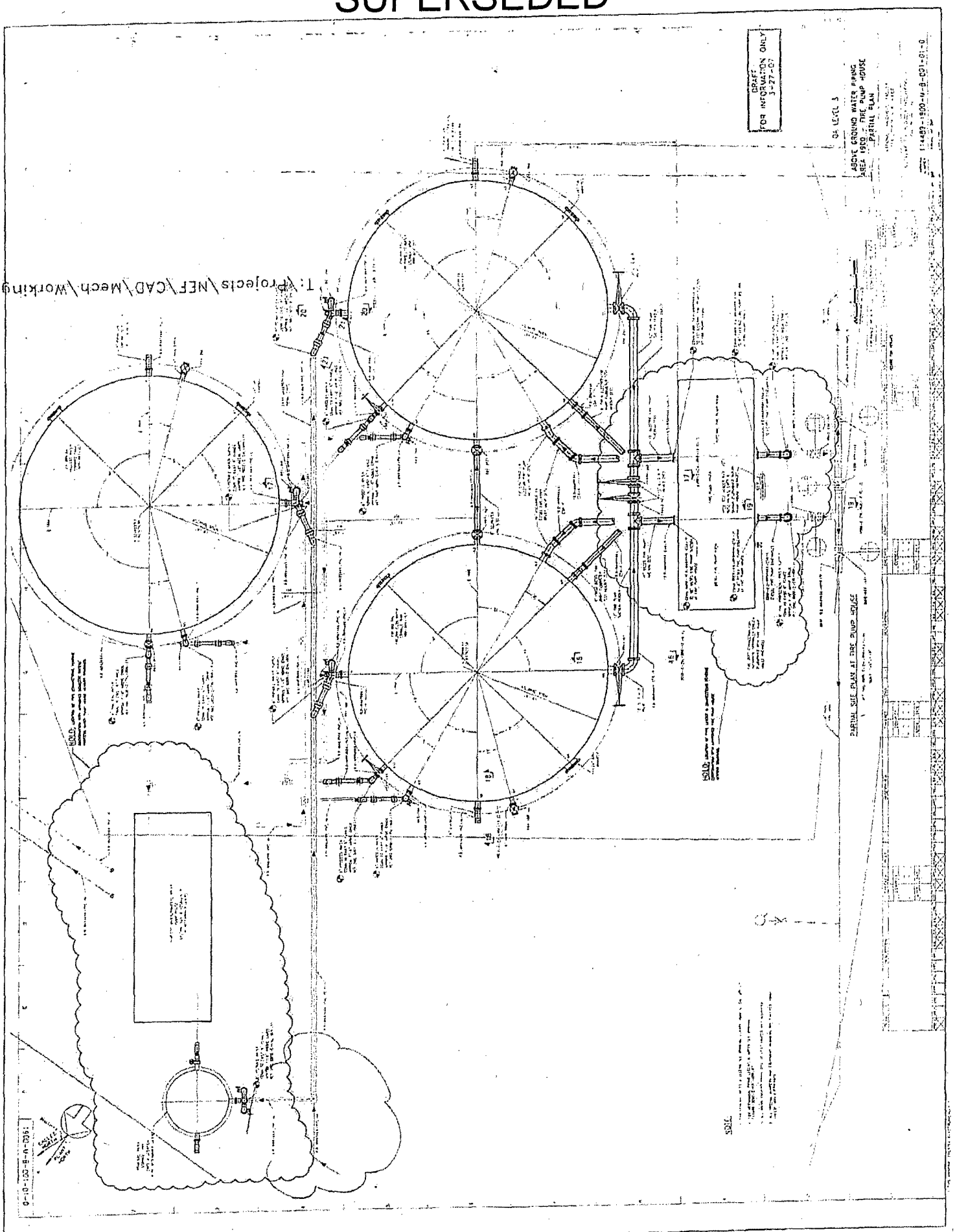
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ABOVE GROUND WATER PIPING
AREA 1500 - FIRE PUMP HOUSE
PARTIAL PLAN
PARTIAL SITE PLAN AT FIRE PUMP HOUSE
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Kathryn Scanlan (CTR)

From: Kathryn Scanlan (CTR)
Sent: Thursday, March 29, 2007 2:01 PM
To: Laurie Wetherell (LES); Vern Hull (CTR); David Vandewalle (LES); Sushil Jain (CTR)
Cc: Dick Skillman (CTR)
Subject: IDR Review for CC-EG-2007-0085

Laurie, Vern, Dave, and Sushil,

Your areas have been identified as requiring IDR(s) reviews (see Attachment 3 Section 2B) for the following CC.

CC for Review: CC-EG-2007-0085, Modification to Facility Water Feed - From Eunice, NM.

IDR Due Date per CM Coordinator: Thursday, April 12, 2007*
*Note: *Please contact Clark Tracy, CM Coordinator at 856.856.3084 if you require a different due date.*

FAM – Action
Assign IDRs from your organization to support the processing of this package. Copy Dick Skillman and Kate Scanlan on your assignment transmittal.

Reviewer – Action
Send your completed (i.e., signed and dated) EG-101 Attachment 4 and 5 forms to Dick Skillman (856.663.4008, dskillman@nefnm.com) and Kate Scanlan (856.482-4007, kscanlan@nefnm.com) per EG-101, 4.3.4 by **Thursday, April 12, 2007**.

Supporting Documentation
To support your review, I have attached the complete CC-EG-2007-0085 Attachment 3 package and the WORD files for EG-101, Attachments 4 and 5 to be completed during your review.

Tracking
To help track open IDRs, LES has instituted a configuration change tracking system, CCTS. Design Management produces a report for the Thursday management conference call. This report identifies the open IDRs for each functional area manager, FAM. The actions requested of the FAM and the Reviewer will ensure the most accurate and complete information is presented for this conference.

I thank you in advance for your cooperation.

Kate Scanlan for Clark Tracy
Config. Mgmt, Admin. Assistant
856.482.4007

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0085 **Revision:** 0 **Title (if applicable): Modification to Facility Water Feed - From Eunice, NM**	
Reviewer: Scott Tyler	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / 630.778.4439 /** scott.tyler@areva.com
Functional Area: HS&E	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

The following criteria and documents were used to review this configuration change for potential impact on Health & Safety and Fire Protection attributes: NEF ISA (ISA Summary and SAR Chapter 3, Sections 3.1 through 3.8 and supporting documentation – EIRs and calculations re Fire Risk, Evacuation); SAR Chapter 4, 5, 6 and 7; Preliminary Fire Hazards Analysis; NEF Environmental Report and Final Environmental Impact Statement. Package was reviewed (cursory) for potential State of NM Building & Fire Code issues.

This package modifies the conceptual design arrangement that proposed two independent potable water feeds to the NEF to now only providing one external water supply line. This CC identifies that it is limited to only the change to bring a single line to the plant. DCCs within this package indicate that a chemical treatment facility will need to be added on-site for potable water. This CC package (and this IDR) ***DOES NOT*** *assess this change (future CC).*

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

None

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

This CC identifies changes to features that ARE NOT relied upon for mitigating chemical and/or radiological release exposures. It does not alter any IROFS or IROFS performance criteria, therefore, it is not believed to negatively impact any IROFS, IROFS functionality, any margin of safety for nuclear criticality, radiological safety, chemical safety or fire safety. This change does not impact program effectiveness from other regulatory assessments nor does it impact QAPD level of commitment. This modification does make changes to plant supply/utility arrangement as was committed to in the License Application however, this change does not appear to have any impact on plant safety.

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Add ER Page 2.1-19 to list of affected pages. ✓

Correct typo error in affected pages list, ER Page 7.2-5 is affected, not 7.5-2. ✓

SCOTT TYLER / HS&E Scott M. Tyler 04/28/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0085	**Revision: 0**
Title (if applicable): Modification to Facility Water Feed - From Eunice, NM	
Reviewer: Mike Plunkett	**Organization/Mail Stop/Telephone No./E-mail** **NEF/ 856-482-3090/ mplunkett@nefnm.com**
Functional Area: Mechanical	**Date Due:** 5/8/07

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

Configuration Change Number:	Revision:

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

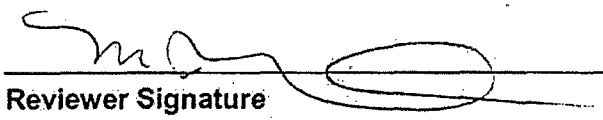
OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:



5/8/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0085	**Revision: 0**
Title (if applicable): Modification to Facility Water Feed - From Eunice, NM	
Reviewer: George A. Harper AREVA	**Organization/Mail Stop/Telephone No./E-mail**
Functional Area: ISA	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Reviewed Facility water feed with respect to the ISA Summary.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts: No impacts with respect to the ISA.

Configuration Change Number:	**Revision:**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Suggest that the word "systems" in Section 1.3.2 of E-Plan and Section 3.4.7 of ER be changed to "system." See attached

George C. Hay — 5/16/07

Reviewer Signature — **Date**

Return Form to Preparer with copy to CM Coordinator

1.3.2 Water Use

Hobbs no longer a source

The NEF will connect to the Eunice ~~and Hobbs~~ city water systems. Discharges will be to an onsite sanitary septic system, evaporative basin, and a low-level liquid waste (process water) basin.

1.3.3 Climate

The NEF site is located in the Southeast Plains of New Mexico close to the border with Texas. The climate is typical of a semi-arid region, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Vegetation consists mainly of native grasses and some mesquite trees. During the winter, the weather is often dominated by a high pressure system located in the central part of the western United States and a low pressure system located in north-central Mexico. During the summer, the region is affected by a low pressure system normally located over Arizona.

SUPERSEDED

3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

3.4.7 Quantitative Description of Water Use

No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF. All water used at the facility will be provided through the Eunice ~~and Hobbs~~ Municipal Water Supply Systems, as described in ER Section 4.1.2. ~~These systems obtain water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site.~~ Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the Hobbs and Eunice, New Mexico water supply systems and the expected NEF average and peak usage.

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs), will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0085 **Revision:** 0	
Title (if applicable): Modification to Facility Water Feed - From Eunice, NM	
Reviewer: Wyatt Padgett	**Organization/Mail Stop/Telephone No./E-mail** **Licensing/Eunice/505.394.5257**
Functional Area: Licensing	**Date Due:4/12/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

License Basis Documents reviewed: Emergency Plan, Environmental Report, FNMCP, Material License, ISA Summary, QAPD, and SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

This determination is made following the performance of the 10 CFR 70.72 review.

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Wyatt Padgett (See Attached Forms w/ W. Padgett Signature) 3/30/07

Reviewer Signature

GR Swillman 4/14/2008

Date

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0085 — **Revision:** 0

Title (if applicable): Modification to Facility Water Feed - From Eunice, NM

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	ALL	From my discussions with the preparer this change only involves the removal of the Hobbs water supply. It does not add the water supply from the company owned water well. Nor does this change involve the addition of another process water storage tank.	Y	Comment is accurate	No CHANGE MADE.
2	ISA	Figure 3.5-21 needs to be revised to show the removal of water supply from Hobbs.	Y	Acknowledged - Figure 3.5-21 marked up to show removal of Hobbs supply. AT 1	Yes
3	ISA	Section 3.2.2.6.4 needs to be revised to show the removal of water supply from Hobbs municipal supply.	Y	Acknowledged - Section 3.2.2.6.4 marked up to show removal of Hobbs supply. AT 2	Yes
4	ER	Changes to Section 2.1.2.8 need to be made to reflect the removal of the water supply from Hobbs municipal supply.	Y	Acknowledged - Page 2.1-19 marked up to show removal of Hobbs supply AT 3	Yes
5	ER	Additional changes to Section 3.4.7 are needed. It states "for detailed information concerning the capacities of the Hobbs and Eunice water supply systems". Please change to reflect the removal of the Hobbs system.	Y	Acknowledged - Page 3.4-7 additionally marked up to show removal of Hobbs supply. AT 4	Yes
6	ER	Additional changes to Section 4.4.5 on page 4.4-5 need to be made to reflect the removal of the water supply from Hobbs municipal supply.	Y	Acknowledged - Section 4.4.5 on Page 4.4-5 marked up to show removal of Hobbs supply. AT 5 & 6	Yes
7	ER	In Section 5.1.4 it states that "these usage rates are well within the capacities of both systems." There is only one system used, please change to reflect this change.	Y	Acknowledged - Section 5.1.4 further modified to communicate System versus Systems. AT 7	Yes

SUPERSEDED

Original Communication w/ W. Padgett.
1/8/11 To Wyatt Padgett
FAX 505 394 4700

8	ER	The first two changes that were made to Section 7.2.2.7 were removing the EUNICE water supply. This needs to be changed to show the removal of the Hobbs water supply.	Y	Good Catch – Thank you – marked up to show removal of Hobbs Supply AR8	Yes
9	ER	In Section 8.8 it states that "these usage rates are well within the capacities of both systems." There is only one system used, please change to reflect this change.	Y	Acknowledged – Page 8.8-3, at top of Page, marked up to show System. AR9	Yes
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Wyatt Padgett/Licensing – Transmitted by W. Padgett. 4/14/08			Date: 3/30/07	Resolved by: Gordon Rothwell	Date: 4/20/2007
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) WYATT PADGETT			Date: 4/23/08		

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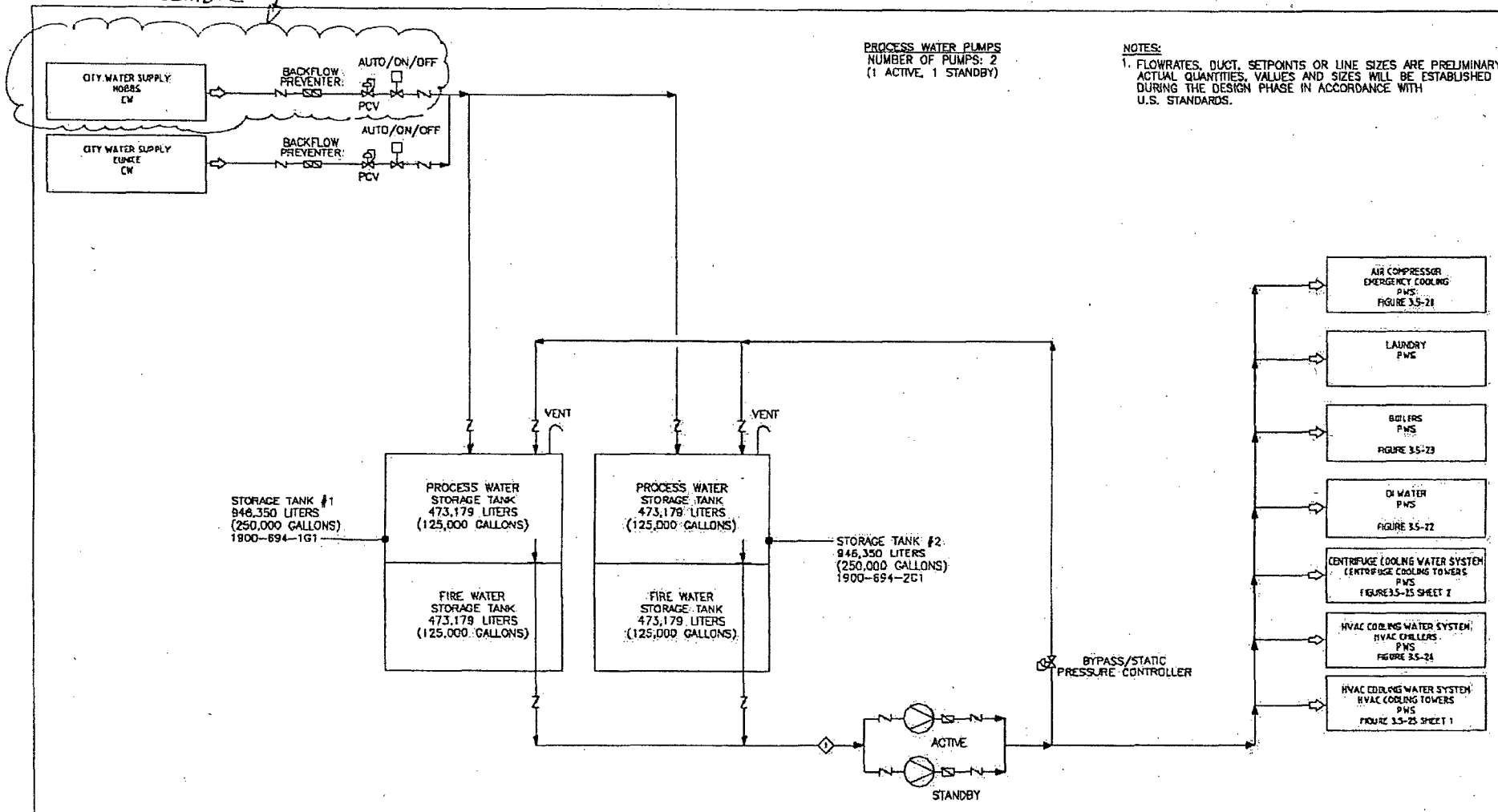


ISA Summary

LOCKWOOD GREENE	FIGURE 3.5-21
	PROCESS FLOW DIAGRAM
	PROCESS WATER
	DISTRIBUTION SYSTEM
REFERENCE NUMBER	REVISION DATE: DECEMBER 2003
0000-M-3005	

AT 1

SUPERSEDED

3/9/11

3.2.2.6.2 Agricultural Water Use

Although various crops are grown within Lea and Andrews Counties, local and county officials report that there is no agricultural activity in the site vicinity, except for domestic livestock ranching. The principal livestock for both Lea and Andrews Counties is cattle. Although milk cows comprise a significant number of cattle in Lea County, the nearest dairy farms are about 32 km (20 mi) north of the subject site, near the city of Hobbs, New Mexico. There are no milk cows in Andrews County. Table 3.2-4, Agriculture Census, Crop, and Livestock Information, provides data on agricultural and livestock activities in Lea County, New Mexico, and Andrews County, Texas.

Known sources of water in the site vicinity include the following: a manmade pond on the adjacent quarry property to the north which is stocked with fish for private use; Baker Spring, an intermittent surface water feature, situated a little over 1.6 km (1 mi) northeast of the site which only contains water seasonally; several cattle watering holes where groundwater is pumped by windmill and stored in above ground tanks.

3.2.2.6.3 Municipal Use of Local Surface Water

Surface water is not a source of water for municipal use.

3.2.2.6.4 Groundwater Use

Remove

The NEF water supply is from the municipal water systems in ~~Hobbs and~~ Eunice, New Mexico, and thus no water will be drawn from either surface water or groundwater sources at the NEF site. The Eunice system obtains water from a groundwater source in the city of Hobbs, approximately 32 km (20 mi) north of the site. Supply of nearby groundwater users will thus not be affected by operation of the NEF. No subsurface or surface water uses such as withdrawals or consumption are made at the site by the NEF.

3.2.3 Meteorology

In this section, data characterizing the meteorology (e.g., winds, precipitation, and severe weather) for the site are presented. The discussion identifies the design basis natural events for the facility, including the likelihood of occurrence.

The meteorological conditions at the NEF have been evaluated and summarized in order to characterize the site climatology and to provide a basis for predicting the dispersion of gaseous effluents. No on-site meteorological data were available, however, WCS have a meteorological monitoring station within approximately 1.6 km (1 mi) from the proposed NEF site.

Climate information from Hobbs, New Mexico (32 km (20 mi) north of the site), obtained from the Western Regional Climate Center, were used. In addition, National Oceanic and Atmospheric Administration (NOAA) Local Climatological Data (LCD) recorded at Midland-Odessa Regional Airport, Texas (103 km (64 mi) southeast of the site) and at Roswell, New Mexico (161 km (100 mi) northwest of the site) were used. In the following summaries of meteorological data, the averages are based on:

- Hobbs station (WRCC, 2003) averages are based on a 30 year record (1971 to 2000) unless otherwise stated

5 of 11

General site stormwater runoff is collected and released untreated to a site stormwater detention basin. A single-lined retention basin will collect stormwater runoff from the Uranium Byproduct Cylinder (UBC) Storage Pad, cooling tower blowdown water and heating boiler blowdown water. All stormwater discharges will be regulated, as required, by a National Pollutant Discharge Elimination System (NPDES) Stormwater Permit. LES will also need to obtain a New Mexico Groundwater Quality Bureau (WQB) Groundwater Discharge Permit/Plan prior to operation for its onsite discharges of stormwater, treated effluent water, cooling tower blowdown water, heating boiler blowdown water and sanitary water. Approximately 174,100 m^3 (46 million gal) of stormwater from the site is expected to be released annually to the onsite retention/detention basins.

NEF liquid effluent discharge rates are relatively low, for example, NEF process waste water flow rate from all sources is expected to be about 28,900 m^3/yr (7.64 million gal/yr). This includes waste water from the liquid effluent treatment system, domestic sewerage, cooling tower blowdown water and heating boiler blowdown water . Only the former source can be expected to contain minute amounts of uranic material. The liquid effluent treatment system and shower/hand wash/laundry effluents will be discharged onsite to a double-lined evaporative basin; whereas the cooling tower blowdown water, heating boiler blowdown water and UBC pad stormwater run-off will be discharged onsite to a single-lined retention basin. Domestic sewerage will be discharged to onsite septic tanks and leach fields.

The NEF water supply will be obtained from the city of Eunice, Mew Mexico ~~and the city of Hobbs, New Mexico~~. Current capacities for the Eunice ~~and Hobbs~~, New Mexico municipal water supply systems are 16,350 m^3/day (4.32 million gpd) ~~and 75,700 m^3/day (20 million gpd), respectively~~ and current usages are 5,600 m^3/day (1.48 million gpd) ~~and 23,450 m^3/day (6.2 million gpd), respectively~~. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of ~~both~~ the water systems.

AE 2

Solid waste that will be generated at the NEF, which falls into the non-hazardous, radioactive, hazardous, and mixed waste categories, will be collected and transferred to authorized treatment or disposal facilities offsite as follows. All solid radioactive waste generated will be Class A low-level waste as defined in 10 CFR 61 (CFR, 2003r). Approximately 86,950 kg (191,800 lbs) of low-level waste will be generated annually. In addition, annual hazardous and mixed wastes generated are expected to be about 1,770 kg (3,930 lbs) and 50 kg (110 lbs), respectively. As a result, the NEF will be a small quantity generator (SQG) of hazardous waste and dispose of the waste by licensed contractors. LES does not plan to treat hazardous waste or store quantities longer than 90 days. Non-hazardous waste, expected to be approximately 172,500 kg (380,400 lbs) annually, will be collected and disposed of by a County licensed solid waste disposal contractor. The non-hazardous wastes will be disposed of in the new Lea Country landfill which has more than adequate capacity to accept NEF non-hazardous wastes for the life of the facility.

No communities or habitats defined as rare or unique, or that support threatened and endangered species, have been identified as occurring on the NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique, or that support threatened and endangered species, within the 220-ha (543-acre) site.

Noise generated by the operation of the NEF will be primarily limited to truck movements on the road. The noise at the nearest residence will probably increase; however, it may not be

6 5 11

3.4.6 Water Rights and Resources

The NEF site will obtain water for operational purposes from one or more municipal water systems. Memoranda of Understanding (HNM, 2003; LG, 2004) have been signed with the City of Eunice, New Mexico, and the City of Hobbs, New Mexico, for the supply of water to NEF. Any water rights potentially required for this arrangement will be negotiated with the municipalities. A description of the available municipal water supply systems, the source of plant water, is provided in ER Section 4.1.2.

3.4.7 Quantitative Description of Water Use

No subsurface or surface water use, such as withdrawals and consumption are made at the site by the NEF. All water used at the facility will be provided through the Eunice ~~and Hobbs~~ Municipal Water Supply Systems, as described in ER Section 4.1.2. Those systems obtain water from groundwater sources in or near the city of Hobbs, approximately 32 km (20 mi) north of the site. Water use by the facility is shown in Table 3.4-4, Anticipated Normal Plant Water Consumption and Table 3.4-5, Anticipated Peak Plant Water Consumption. Water supply is sufficient for operation and maintenance of the NEF. See ER Section 4.4.5, Ground and Surface Water Use, for detailed information concerning the capacities of the ~~Hobbs and~~ Eunice, New Mexico water supply systems and the expected NEF average and peak usage.

3.4-4

3.4.8 Non-Consumptive Water Use

The NEF makes no non-consumptive use of water. Non-consumptive water use is water that is used and returned to its source and made available for other uses. An example is a once-through cooling system.

3.4.9 Contaminant Sources

There will be no discharges to natural surface waters or groundwaters from the NEF. The EPA reports (EPA, 2003a) that no Superfund (CERCLA) sites exist in the area near the NEF site in either Lea County, New Mexico or Andrews County, Texas.

Water intake for the NEF plant will be made from one or more municipal supply systems. There is sufficient capacity available to provide water supply for the NEF, as discussed in ER Section 4.4.

Stormwater runoff from the NEF site will be controlled during construction and operation. Appropriate stormwater construction runoff permits for construction activities will be obtained before construction begins. Design of stormwater run-off controls for the operating plant are described in Section 4.4. Appropriate routine erosion control measures best management practices (BMPs), will be implemented, as is normally required by such permits.

During operation stormwater will be collected from appropriate site areas and routed to detention/retention basins. These basins and the site stormwater system are described in ER Section 3.4.1.2.

3.4.10 Description of Wetlands

An evaluation of the site and of available wetlands information has been used to determine that the site does not contain jurisdictional wetlands.

boiler blowdown. The drainage system will include precast catch basins and concrete trench drains; piping will be reinforced concrete with rubber gasketed joints to preclude leakage. An assessment was made by LES that assumed a conservative level of radioactive contamination level on cylinder surfaces and 100% washoff to the UBC Storage Pad Stormwater Retention Basin from a single rainfall event. Results show the level of radioactivity in such a discharge to the basin will be well below the regulatory unrestricted release criteria (CFR, 2003q).

The UBC Storage Pad Stormwater Retention Basin will be provided with a means to sample sediment. Refer to ER Section 6.1, Radiological Monitoring, for more information regarding environmental monitoring of stormwater site detention/retention basins.

4.4.3 Hydrological System Alterations

Excavation and placement of fill will provide the site with a finished level grade of about +1,041 m (+3,415 ft), msl. This work will not require alteration or filling of any surface water features on the site.

No alterations to groundwater systems will occur due to facility construction. Referring to ER Section 3.4.12, since there is no consistent groundwater in the sand and travel layer above the Chinle Formation, it does not provide a likely contaminant pathway in a lateral or vertical direction. Although engineered fill will be used during site preparation and will likely be placed against the existing dense sand and gravel layer in some locations, the potential for water or other liquids from spills or pipeline leaks to introduce sufficient amounts of liquid to saturate the sand and gravel layer to a point where significant contaminant migration reaches and flows along the top of the Chinle Formation, is considered unlikely. The addition of on-site fill is not expected to alter this situation. Furthermore, the travel time to downstream users through a lateral contaminant pathway would be significant since potential contamination would travel laterally at very small rates, if at all. Groundwater travel through the Chinle clay would be on the order of thousands of years.

4.4.4 Hydrological System Impacts

Due to absence of water extraction, limited effluent discharge from the facility operations, the lack of groundwater in the sand and gravel layer above the Chinle Formation and the considerable depth to groundwater at the NEF site, no significant impacts are expected for the site's hydrologic systems.

Control of surface water runoff will be required for NEF construction activities, covered by the NPDES Construction General Permit. As a result, no significant impacts are expected to either surface or groundwater bodies. Control of impacts from construction runoff is discussed in ER Section 4.4.7, Control of Impacts to Water Quality.

The volume of water discharged into the ground from the Site Stormwater Detention Basin is expected to be minimal, as evapotranspiration is expected to be the dominant natural influence on standing water.

4.4.5 Ground and Surface Water Use

The NEF will not obtain any water from the site or have any planned surface discharges at the site other than to the retention and detention basins. All potable, process and fire water supply used at the NEF will be obtained from the Eunice ~~and/or Hobbs~~, New Mexico, municipal water systems. Wells serving these systems are about 32 km (20 mi) from the site. Anticipated normal plant water consumption and peak plant water requirements are provided in Table 3.4-4,

Anticipated Normal Plant Water Consumption, and Table 3.4-5, Anticipated Peak Plant Water Consumption, respectively.

Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the city of Eunice, New Mexico and the city of Hobbs, New Mexico. Current capacities for the Eunice and Hobbs, New Mexico municipal water supply system are 16,350 m^3/day (4.32 million gpd) and 75,700 m^3/day (20 million gpd), respectively and current usages are 5,600 m^3/day (1.48 million gpd) and 23,450 m^3/day (6.2 million gpd), respectively. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

For both peak and the normal usage rates, the needs of the NEF facility should readily met by the municipal water systems. Impacts to water resources onsite and in the vicinity of the NEF are expected to be negligible.

4.4.6 Identification of Impacted Ground and Surface Water Users

Location of an intermittent surface water feature and groundwater users in the site vicinity including an area just beyond a 1.6-km (1-mi) radius of the site boundary are shown on Figure 3.4-7, Water and Oil Wells in the Vicinity of the NEF Site. These locations were provided by the Office of New Mexico State Engineer (NMSE) (NMSE, 2003), the Texas Water Development Board (TWDB) (TWDB, 2003) and the United States Geological Survey (USGS) (USGS, 2003b). No producing supply water wells are within 1.6 km (1 mi) of the boundaries of the NEF site as shown on Figure 3.4-7. However, nearby facilities do have groundwater monitoring wells within this region.

The absence of near-surface groundwater users within 1.6 km (1 mi) from the site and the absence of surface water on the NEF site will prevent any impact to local surface or groundwater users. Due to the lack of process water discharge from the facility to the environment, no impact is expected for these water users.

Effluent discharges will be controlled in a way that will also prevent any impacts. The locations of the closest municipal water systems for both Eunice and Hobbs are in Hobbs, New Mexico, 32 km (20 mi) north northwest of the site. There is no potential to impact these sources.

4.4.7 Control of Impacts to Water Quality

Site runoff water quality impacts will be controlled during construction by compliance with NPDES Construction General Permit requirements and BMPs will be described in a site Stormwater Pollution Prevention (SWPP) plan.

Wastes generated during site construction will be varied, depending on activities in progress. Any hazardous wastes from construction activities will be handled and disposed of in accordance with applicable state regulations. This includes proper labeling, recycling, controlling and protected storage and shipping offsite to approved disposal sites. Sanitary wastes generated at the site will be handled by portable systems until such time that the site septic systems are available for use.

The need to level the site for construction will require some soil excavation as well as soil fill. Fill placed on the site will provide the same characteristics as the existing natural soils thus

are well within the scope of the environmental impacts previously evaluated by the Nuclear Regulatory Commission (NRC). Because these impacts have been addressed in a previous NRC environmental impact statement (NUREG/CR-0170) (NRC, 1977a), no additional mitigation measures are proposed in ER Section 5.2.2, Transportation.

5.1.3 Geology and Soils

The potential impacts to the geology and soils have been characterized in ER Section 4.3, Geology and Soils Impact. No substantive impacts exist as related to the following activities:

- Soil resuspension, erosion, and disruption of natural drainage
- Excavations to be conducted during construction.

Impacts to geology and soils will be limited to surface runoff due to routine operation. Construction activities may cause some short-term increases in soil erosion at the site. Mitigation measures associated with these impacts are listed in ER Section 5.2.3, Geology and Soils.

5.1.4 Water Resources

The potential impacts to the water resources have been characterized in ER Section 4.4, Water Resources Impacts. No substantive impacts exists as related to the following:

- Impacts on surface water and groundwater quality
- Impacts of consumptive water uses (e.g., groundwater depletion) on other water users and adverse impacts on surface-oriented water users resulting from facility activities. Site groundwater will not be utilized for any reason, and therefore, should not be impacted by routine NEF operations. The NEF water supply will be obtained from the town of Eunice, New Mexico and the city of Hobbs, New Mexico. Current capacities for the Eunice and Hobbs, New Mexico municipal water supply systems are 16,350 m^3/day (4.32 million gpd) and 75,700 m^3/day (20 million gpd), respectively and current usages are 5,600 m^3/day (1.48 million gpd) and 23,450 m^3/day (6.2 million gpd), respectively. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hour (378 gpm), respectively. These usage rates are well within the capacities of both water systems. For both peak and the normal usage rates, the needs of the NEF facility should readily be met by the municipal water systems. Impacts to water resources on site and in the vicinity of NEF are expected to be negligible.
- Hydrological system alterations or impacts
- Withdrawals and returns of ground and surface water
- Cumulative effects on water resources.

The NEF will not obtain any water from onsite surface or groundwater resources. Process effluents will be discharged to the double-lined Treated Effluent Evaporative Basin with leak detection. Sanitary waste water discharges will be made through site septic systems. Stormwater from developed portions of the site will be collected in retention/detention basins, as described in ER Section 3.4, Water Resources. These include the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin. Minor impacts to water resources are discussed in ER Section 4.4. Mitigation measures associated with these impacts are listed in ER Section 5.2.4, Water Resources.

These dose equivalents due to normal operations are small fractions of the normal background radiation range of 2.0 to 3.0 mSv (200 to 300 mrem) dose equivalent that an average individual receives in the US, and within regulatory limits. .

7.2.2.7 Other Impacts of Plant Operation

NEF water will be obtained from the ~~Hobbs and~~ Eunice, New Mexico municipal water systems, and routine liquid effluent will be treated and discharged to evaporative pond(s), whereas sanitary wastes will be discharged to onsite septic systems. Facility water requirements are relatively low and well within the capacities of the ~~Hobbs and~~ Eunice water utilities. The current capacity for the Eunice Potable water supply system is 16,350 m^3/day (4.3 million gpd), and current usage is 5,600 m^3/day (1.48 million gal/d). ~~The Hobbs water system capacity is 75,700 m^3/day (20 million gal/d) whereas its usage is 23,450 m^3/day (6.2 million gal/d).~~ Requirements for operation of the NEF are expected to be 240 m^3/day (63,423 gal/d), a volume well within the capacity of the supply systems. Non-hazardous and non-radioactive solid waste is expected to be approximately 172,500 kg (380,400 lbs) annually. It will be shipped offsite to a licensed landfill. The local Lea County landfill capacity is more than adequate to accept the non-hazardous waste.

7.2.2.8 Decommissioning

The plan for decommissioning is to decontaminate or remove all materials promptly from the site that prevent release of the facility for unrestricted use. This approach avoids the need for long-term storage and monitoring of wastes on site. Only building shells and the site infrastructure will remain. All remaining facilities, including site basins, will be decontaminated where needed to acceptable levels for unrestricted use. Excavations and berms will be leveled to restore the land to a natural contour.

Depleted UF_6 , if not already sold or otherwise disposed of prior to decommissioning, will be disposed of in accordance with regulatory requirements. Radioactive wastes will be disposed of in licensed low-level radioactive waste disposal sites. Hazardous wastes will be treated or disposed of in licensed hazardous waste facilities. Neither conversion (if done), nor disposal of radioactive or hazardous material will occur at the plant site, but at licensed facilities located elsewhere.

Following decommissioning, all parts of the plant and site will be unrestricted to any specific type of use.

(20 million gpd), respectively and current usages are 5,600 m^3/day (1.48 million gpd) and 23,450 m^3/day (6.2 million gpd), respectively. Average and peak potable water requirements for operation of the NEF are expected to be approximately 240 m^3/day (63,423 gpd) and 85 m^3/hr (378 gpm), respectively. These usage rates are well within the capacities of both water systems.

Liquid effluents include stormwater runoff, sanitary waste water, cooling tower blowdown water, heating boiler blowdown water and treated contaminated process water. All liquid effluents, with the exception of sanitary waste water, are discharged to one of three onsite basins.

Stormwater from the site will be diverted and collected in the Site Stormwater Detention Basin. This basin collects runoff from various developed parts of the site. It is unlined and will have an outlet structure to control discharges above the design level. The normal discharge will be through evaporation and infiltration into the ground. The basin is designed to contain runoff for a volume equal to that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall. It will have approximately 123,350 m^3 (100-acre-ft) of storage capacity. In addition, the basin has 0.6 m (2 ft) of free-board beyond the design capacity. It will also be designed to discharge post-construction peak flow runoff rates from the outfall that are equal to or less than the pre-construction runoff rates from the area.

Cooling tower blowdown water, heating boiler blowdown water and stormwater runoff from the UBC Storage Pad are discharged to the UBC Storage Pad Stormwater Retention Basin. The ultimate disposition of this water will be through evaporation along with permanent impoundment of the residual dry solids byproduct of evaporation. It is designed to contain runoff for a volume equal to twice that for the 24-hour, 100-year return frequency storm, a 15.2-cm (6.0-in) rainfall and an allowance for cooling tower blowdown water and heating boiler blowdown water. The UBC Storage Pad Stormwater Retention Basin is designed to contain a volume of approximately 77,700 m^3 (63 acre-ft). This basin is designed with a synthetic membrane lining to minimize any infiltration into the ground.

Discharge of treated contaminated plant process water will be to the onsite Treated Effluent Evaporative Basin. The Treated Effluent Evaporative Basin is utilized for the collection and containment of liquid effluent from the Liquid Effluent Collection and Treatment System. The ultimate disposal the liquid effluent will be through evaporation of water and permanent impoundment of the residual dry solids. Total annual discharge to that basin will be approximately 2,535 m^3/yr (669,844 gal/yr). The basin will be designed for double that volume. Evaporation will provide the only means of liquid disposal from this basin. The basin will include a double-layer membrane liner with a leak detection system to prevent infiltration of basin water into the ground.

Ecological Resources:

No communities or habitats that have been defined as rare or unique or that support threatened and endangered species have been identified as occurring on the 220-ha (543-acre) NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique or that support threatened and endangered species within the site area. Field surveys that were performed in September and October 2003, and April 2004, for the lesser prairie chicken, the sand dune lizard, and the black-tailed prairie dog determined that these species were not present at the NEF site. Another survey for the sand dune lizard was conducted in June 2004 and confirmed there were no sand dune lizards at the NEF site.

Several practices and procedures have been designed to minimize adverse impacts to the ecological resources of the NEF site. These practices and procedures include the use of BMPs,

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0085	**Revision: 0**
Title (if applicable): Modification to Facility Water Feed - From Eunice, NM	
Reviewer: Ryan Whitford	**Organization/Mail Stop/Telephone No./E-mail** **NEF Site Eunice NM/505-975-5561**
Functional Area: Support Services (Security)	**Date Due: 4/12/2007**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

The following security related License Basis Documents were reviewed:

1. Safeguards Contingency Plan
2. Standard Practice Procedure Plan for the Protection of classified matter
3. Security Plan
4. Guardforce Training and Qualification plan

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

Based on evaluations of the documents listed in section A. there are no impacts to any Security license commitments. Therefore SY-120, and SY-130 reviews are not required.

Configuration Change Number:	Revision:

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Reviewer Signature

4/24/07
Date

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0085	**Revision: 0**
Title (if applicable): Modification to Facility Water Feed - From Eunice, NM	
Reviewer: Lee Lacey	**Organization/Mail Stop/Telephone No./E-mail** **Emergency Preparedness/505.394.6024/leelacey@nefnm.com**
Functional Area: Emergency Preparedness	**Date Due: 4/12/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

10 CFR 70.22(i)(3)

10 CFR 40.31(j)(3)

NEF Emergency Plan, rev 4

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments: EP-120 review required because of change in facility description.

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts: The change does not degrade the capability to perform any emergency preparedness function and has no impact on time requirements of any emergency preparedness requirements.

Configuration Change Number: CC-EG-2007-0085 **Revision: 0**

Title (if applicable): Modification to Facility Water Feed - From Eunice, NM

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

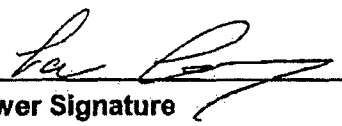
OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments: EP-120 review attached.



04/11/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 1

10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW

(Sheet 1 of 3)

Document Title: EMERGENCY PLAN Review No.: 079EP120

Document No.: _____ Revision: 4

PART 1 PRELIMINARY SCREEN

Does the proposed change impact:

YES	NO	ITEM
☐	☒	1. Primary responsibilities of LES, offsite agencies or support organizations. OR The ability to respond initially or on a continuous basis.
☐	☒	2. The assignment of responsibilities of personnel. OR Minimum staffing or timely augmentation. OR The interface between onsite and offsite support response activities.
☐	☒	3. Arrangements for requesting and effectively using assistance or resources from offsite authorities. OR The accommodations for federal, state, and/or local staff at the EOC.
☐	☒	4. Emergency Action Levels, types of accidents, and classification of accidents.
☐	☒	5. Notification procedures to either the EO, local, state, or federal entities. OR The content of initial and follow-up messages.
☐	☒	6. Communications capability among principal response organizations to emergency personnel or the public.
☐	☒	7. Dissemination of coordinated information to the general or transient public including periodic information dissemination (brochures).
☐	☒	8. Provisions for or maintenance of emergency facilities and equipment. OR The periodicity of communications and emergency equipment tests.
☐	☒	9. Methods, systems and/or equipment for the detection, assessment, and monitoring of actual or potential onsite and offsite release consequences.
☐	☒	10. Protective Actions.
☐	☒	11. Means for controlling emergency worker radiation exposures consistent with the guidelines established by the EPA.
☐	☒	12. Arrangements for medical services for contaminated injured individuals.
☐	☒	13. Plans for plant reentry and/or recovery organization operations.
☐	☒	14. Periodicity of drills and/or exercises as well as deficiency resolution.
☐	☒	15. Training requirements for EO or local site support personnel.
☐	☒	16. Responsibilities for Emergency Plan development, maintenance, and review as well as training requirements for personnel maintaining the plan.
☐	☒	17. Implementation of other federal regulations and requirements or formal commitments related to the NEF Emergency Plan.
☒	☐	18. The facility description reflected in the NEF Emergency Plan.

Complete Part 2.

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 2 of 3)

Document Title: EMERGENCY PLAN Review No.: 079EP120
Document No.: _____ Revision: 4

PART 2: ASSESSMENT OF IMPACT

☐ All items in Part 1 **ARE NOT** impacted.

This proposed change **DOES NOT** involve the requirements of 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3) or additional commitments as described within the Emergency Plan.

1. No further review and evaluation is required.
2. Documentation of the summary of changes is attached as pages _____ to this evaluation.

OR

☒ Item(s) listed in Part 1 **ARE** impacted.

This proposed change **DOES** involve the requirements of 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3) or additional commitments as described within the Emergency Plan.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.
2. Documentation of the affect of the proposed changes impacting the Emergency Plan is attached as pages 4+5 to this evaluation.

   A. If the proposed changes ☐ **DO NOT** require a revision to the Emergency Plan, no further review and evaluation is required.

   OR

   B. If the proposed changes ☒ **DO** require a revision to the Emergency Plan, complete Part 3 of this review.

Preparer: _____ Date: 4-4-07
Reviewer: James G. Sites _____ Date: 4/5/07
Emergency Preparedness Manager: _____ Date: 4/5/07

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 3 of 3)

Document Title: EMERGENCY PLAN Review No.: 079 EP 120

Document No.: _____ Revision: 4

PART 3 EFFECTIVENESS REVIEW

A.1 Has the capability to perform the Emergency Planning function(s) been degraded or lost as a result of the proposed change?

☐ **YES** ☒ **NO** (provide justification)

Justification: CC-EG-2007-0085, which proposes to change the NEF water supply from Hobbs and Eunice municipal water to Eunice municipal water and a well does not impact the adequate and redundant fire water reserve at NEF.

A.2 Have the time requirements of any affected Emergency Planning requirements been relaxed or lost as a result of the proposed change?

☐ **YES** ☒ **NO** (provide justification)

Justification: CC-EG-2007-0085 has no effect on emergency planning time requirements.

If 'YES' is checked for either question A.1 or A.2, the change does decrease the effectiveness of the Emergency Plan. If 'NO' is checked for both questions A.1 and A.2, then the change does not decrease the effectiveness of the Emergency Plan.

Note: NRC approval is required prior to implementation if the proposed change decreases the effectiveness of the Emergency Plan.

B. Based on this evaluation the proposed change ☐ **DOES** ☒ **DOES NOT** decrease the effectiveness of the Emergency Plan.

C. The Emergency Plan ☒ **CONTINUES** ☐ **DOES NOT CONTINUE** to meet the requirements 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3), and all other applicable regulations, requirements, and commitments.

Preparer: Lee Laun Date: 4-5-07

Reviewer: James G. Eiter Date: 4/5/07

Emergency Preparedness Manager: David Arnold Wolf Date: 4/5/07

10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW

CONFIGURATION CHANGE CC-EG-2007-0085

1. Background and Scope:

   This change is required because NEF now plans to connect to Eunice city water system only. The Emergency Plan presently states that the NEF will connect to the Eunice and Hobbs city water systems. The only concern of the Emergency Plan with water supply would be to ensure the NEF has an adequate supply for the fire water system. To off set any loss of water supply capacity that may potentially result from this change, NEF:

   a) Has purchased a well that is capable of supplying 90 gpm, as a second water source.

   b) Is planning a third 250,000 gallon tank to be used solely for process water.

   c) Half of the capacity of the two 250,000 gallon tanks originally planned is reserved for fire water use and unavailable for process use. This reserves 125,000 gallons in each of two tanks for fire water use only. It takes only one of these tanks to meet site fire water requirements.

2. Change Comparison:

   Entry as it exists now:

   1.3.2 Water Use

   The NEF will connect to the Eunice and Hobbs city water systems.

   Proposed revision:

   1.3.2 Water Use

   The NEF will connect to the Eunice city water system.

3. Program Requirements

   Regulatory Guide 3.67 - Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities states:

   > Provide a concise description of all site features affecting emergency response, including communication and assessment centers, assembly and relocation areas, and process and storage areas. Identify any additional site features likely to be of interest because they are related to the safety of site operations.

4. Change Assessment:

   This change, considering the compensatory measures planned, will maintain an adequate supply of fire water on site, and, therefore, will not degrade the Emergency Plan.

5. Justification:

   Since there is no degradation of the Emergency Plan, no justification is necessary.

 SUPERSEDED

10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW

6. References:
   a) NEF Emergency Plan, Rev. 4
   b) Regulatory Guide 3.67 - Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities

Lee Lacey

4-5-07
date

 SUPERSEDED

NATIONAL ENRICHMENT FACILITY

License Basis Document Change Request

Configuration Change # CC-EG-2007-0085 LBDCR # 07-0005

Preparer Lee Lacey (Print and Sign) Initiation Date 4/3/07

A. Brief Description of Proposed Change [What is being changed and why?]

The NEF Emergency Plan states, in section 1.3.2 Water Use:

"The NEF will connect to the Eunice and Hobbs city water systems."

Configuration Change CC-EG-2007-0085 states that only the Eunice city water supply will be connected to the site. The statement needs to be changed to:

"The NEF will connect to the Eunice city water system."

The purpose of the change is to state that the NEF will be connected to only one municipal water supply, the city of Eunice..

The fire water supply on site will still meet requirements.

B. Change Approval

☒ The LBDCR is a Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections C, D, and E of this form are Not Applicable (N/A).

☐ The LBDCR is not a configuration change. The review process defined below shall be utilized. Complete Sections C, D, and E of this form.

C. Denote the License Basis Documents Affected By the Proposed Change

[Attach Marked-Up Pages of Affected License Basis Document(s)]

LICENSE BASIS DOCUMENT	REVIEW INFORMATION
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with LS-102. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with LS-102. NRC approval required before implementation.
☐ Integrated Safety Analysis Summary	Assess in accordance with LS-104.
☐ Safety Analysis Report	Assess in accordance with LS-104.
☐ Environmental Report	Assess in accordance with LS-104 and EN-103.
☐ Quality Assurance Program Document	Assess in accordance with LS-104 and QA-400.
☒ Emergency Plan	Assess in accordance with LS-104 and EP-120.
☐ Fundamental Nuclear Material Control Plan (non-classified matter)	Assess in accordance with LS-104 and MC-120.

 SUPERSEDED

NATIONAL ENRICHMENT FACILITY

License Basis Document Change Request

Configuration Change # CC-EG-2007-0085 LBDCR # 07-0005

D. Identify Implementation Activities [e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking #

E. Review and Approval

Licensing Reviewer: _____ Date: _____
(Print and Sign)

FAM: David J. VandeWalle David J. VandeWalle Date: 4/5/07
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

Licensing Manager: (or designee) _____ Date: _____
(Print and Sign)

F. LBDCR Implementation [Completed by Licensing Manager (or designee)]

- ☐ Supporting Regulatory Assessment(s) determined that regulatory approval is not required prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached to the LBDCR.
- ☐ Regulatory approval **IS REQUIRED** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and permit) is attached. If applicable, a copy of the completed supporting Regulatory Assessment(s) is attached to the LBDCR.
- ☐ LBDCR implemented by incorporation into copy of License Basis Document(s) maintained by Records Management and electronic copy of the License Basis Document maintained on the public drive.

License Basis Document	Revision #	Implementation Date

Licensing Manager: (or designee) _____ Date: _____
(Print and Sign)

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

Configuration Change Number: CC-EG-2007-0061 **Revision** 0

Configuration Change Title: **Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001**

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☐ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.

ISAS Section 3.5.2.4

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

The scope of changes are limited to SBM-1001.

DCC NEF 2006-0054 (Copy provided as Attachment 1) removed the Product Take-off System pump sets and the Blending System heat trace from the diesel backed power supply. This affects Section 3.5.2.4 of the ISAS. The Section states:

> The following equipment is supplied power from the short break power distribution system described in Section 3.5.2.2, Major Components.
>
> A. Product Take-off System and Tails Take-off System pump Sets.

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

This document supports license basis reconciliation to support SBM-1001 release for construction. CC-EG-2007-0062 addresses the Electrical OAR for SBM-1001.

Design reviews carried out by ETC / Urenco have confirmed the following:

- The Product Pumps are no longer part of the cascade evacuation route and consequently are not required to be diesel backed.
- The Blending system has enough thermal energy to evacuate the process pipework without the need for diesel back-up.
- A key ETC / Urenco design principle is not to have non-essential loads connected to the diesel back-up system, this is to prevent confusion during a power fail period such that operators concentrate on the essential equipment / evacuation routes.

The existing diesel supply distribution boards 1001-739-DP3A-1 through 4 and DP3B-1 through 4 to have the product pumps removed. Product pumps to be assigned to normal distribution boards 1001-738-DP3A and DP3B (manual switch at pumps).

The existing blending system has two trace heating cabinets. There is now only required to be one cabinet numbered 1200-772-01; this cabinet is to be supplied from distribution boards 1200-738-DP1A/1B via a manual selector switch.

During preparation, Drawings 114489-1001-E-WIR-005-36-0, 114489-10012-E-005-46-0 and Calculation 114489-E-0002-03 (See Section 4.7) were reviewed.

Configuration Change Number: CC-EG-2007-0061 **Revision** 0

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

ISAS Section 3.5.2.4 needs to have reference to product pumps removed as diesel backed. (Markup Provided in Attachment 2)

There are no IROFS impacted by this change.

E.

Preparer (Print Name/Signature): Eugene Dale Pruitt C Dale Pruitt		**Date:** 4/09/07
CC FAM	**Signature:** Mark A. Scanlan for R.W. Schmidt per email delegation	**Date:** 10 APR 2007

Configuration Change Number: CC-EG-2007-0061 **Revision** 0

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

- ☐ HS&E
- ☒ Licensing **(ISAS Change Required)** &
- ☐ Production
- ☐ Quality Assurance
- ☒ Support Services **(Operator training may be impacted)** &
- ☒ Technical Services **(Electrical System, R. Kaltan), ~~(General ISA, Dave Pepe)~~** addressed Section 4 CMT 4/10/07

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change may be a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

CM Coordinator (Print Name/Signature):	**Date**
Clark Tracy / Clark Tracy	4/10/07

Section 3: Disposition of Interdisciplinary Reviews

☑ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) Action Items (AIs). Identify CR AIs in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** E Dale Pruitt	**Date:** 5/2/07
CC FAM	**Signature:** J.W. SCHRADER	**Date:** 5-3-07

Configuration Change Number: CC-EG-2007-0061 **Revision** 0

Section 4: Disposition of ISA Review

☑ No ISA Impact and No ISA Team Review Required OR

☑ Possible ISA Impact. Complete review per EG-104 and attach result. List any outstanding CR AIs identified in Section 5 Comments below.

CAH 5/4/07

Comments (basis):

Review was performed and no comments (See Attached)

Preparer: E Dale Pruitt (for) OR ISA Member:	Date: 5/3/07

Section 5: Disposition of RIR or 70.72(c) Evaluation

☐ Partial Release, RIR attached and CR Action Items noted in comments below OR

☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR

☑ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete. Mtg 2007-24(05)

☑ Comments resolved or none. See 10.72 2007-0075 R0 GR Williamson 6/24/08

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CR AIs. Identify CR AI number(s) in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	Signature: E Dale Pruitt	Date: 5/24/07
CC FAM	Signature: [signature]	Date: 5/25/07

Configuration Change Number: <u>CC-EG-2007-0061</u> **Revision** ___0____		
Section 6: Release or Implementation		
☒ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted. ☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR AIs as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC. ☐ CC is not acceptable, CANCEL or HOLD CC as noted. Comments (Basis):		
CC FAM	**Signature:** [signature] for RW Schrauder	**Date:** 5/25/07
Section 7: Configuration Change Closeout		
☒ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR AIs are closed and the 70.72(c) evaluation per LS-104 is complete as required. ☐ B. The Configuration Change has not been implemented. The basis for this decision is described below. Comments (as applicable): Based on Completion of IDR's, completion of enclosed 70.72 (2007-0075 R0) and Completed LBDCR 07-0007, This CC has been satisfactorily Implemented. Gordon R Snillman		
Preparer	**Signature:** Gordon R Snillman	**Date:** 6/24/2008
CM Coordinator	**Signature:** Clark Tracy	**Date:** 6/24/2008
Forward to Records Management (CM Coordinator).		

CC-EG-2007-0061, R0
ATTACHMENT 1 PAGE 1 OF 3

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0054
Originator:	A.Waring	Date:	01 Nov 06 (40)
Supervision:	A.Brown	Date:	1 NOV 06 (41)
Project Management:	N/A	Date:	(41)
Proposed Change Title:	Power supply change for Product Pumps and Blending Trace Heating		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate):
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

The existing Product Pumps and Blending Trace Heating Systems are provided with a diesel backed power supply.

The proposal is to remove the requirement for diesel back-up and to supply the product pumps and blending trace heating with a normal (no emergency back-up) power supply.

The existing diesel supply distribution boards 1001-738-DP3A-1 thro' 4 and DP3B-1 thro' 4 to have the product pumps removed. Product pumps to be assigned to normal distribution boards 1001-738-DP3A and DP3B (manual switch at pumps).

The existing blending system has two trace heating cabinets. There is now only required to be one cabinet numbered 1200-772-01, this cabinet is to be supplied from distribution boards 1200-738-DP1A / 1B via a manual selector switch.

Reason for change:
Design reviews carried out by ETC / Urenco have confirmed the following:

- The Product Pumps are no longer part of the cascade evacuation route and consequently do not require to be diesel backed
- The Blending system has enough thermal energy to evacuate the process pipework without the need for diesel back-up
- A key ETC / Urenco design principle is not to have non-essential loads connected to the diesel back-up system, this is to prevent confusion during a power fail period such that operations concentrate on the essential equipment/evacuation routes

Safety / Environment	☐
Correction	☐
Improvement	☒

Drawings/Documents Affected (including License Application and ISA Summary):
License application defines the requirement for the Product Pumps to be diesel backed.
Power distribution drawings for PSO 2nd floor diesel/normal supply as well as layout drawings will require to be revised.

Distribution: LES ( ), Urenco (A. Brown)

CC-EG-2007-0061, R0
ATTACHMENT 1
PAGE 2 of 3

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*

Add comments and return to individuals in Part 1 Distribution by: (Date) (#5)

AREVA ISA SME – No ISA impact.

Name	DAVID N Pope	Position	ISA Scribe	Signature	David N Pope	Date	11/2/06 (#5)

Part 3 – Disposition

Disposition (check appropriate) Approved ☑ Rejected ☐

	Name	Position	Signature	Date
LES	[illegible]	Licensing Engineer	[signature]	11/10/06 (#6)
Urenco				(#6)
Disposition Approved:	DICK FRAZEE	LES Vice President – Project Management	[signature]	12/4/06 (#7)

Part 4 – Implementation

Implementation by:		
	LES	☐
	NTS	☐
	Urenco	☐

Implementation Schedule:			
	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved:	Name		Signature		Date	(#10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

CC-EG-2007-0061, R0
ATTACHMENT 1
PAGE 3 OF 3

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (43)

Trace heating shall not be auto-restart when circuits are less than "TBD" °C.

Also – alarm to Operations that heat tracing has not re-set also required

– Ops procedure and training required for assessment. D.E. 12/4/06

Name	M. Buitelaar	Position	Design UEC	Signature	[signature]	Date	20/11/06 (45)

Part 3 – Disposition

Disposition (check appropriate) Approved ☒ Rejected ☐

	Name	Position	Signature	Date
LES	D.E. Sexton	Tech Services Director	see note D.E. Sexton	12/4/06 (45)
Urenco	M. Buitelaar	UEC approval	[signature]	20/11/06 (46)
Disposition Approved:		LES Vice President – Project Management		(47)

Part 4 – Implementation

Implementation by:			
	LES	For License reviews	☒
	NTS	For Detail Design	☒
	Urenco	For logic control – no restart! ETC	☒

Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved: ✓	Name	John Sisak	Signature	[signature]	Date	12/4/06 (49)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

CC-EG-2007-0061, R0
Attachment 2, Page 1 of 1

CHANGES PER CC-EG-2007-0061

H. Standby Diesel Generators. Duplicate Standby Diesel Generators supply standby power for the short break load system. Each Standby Diesel Generator supplies a designated switchgear.

I. Process UPS (No Break) System. Two battery backed UPS units provide power for the process no break loads. Normal input power to the UPSs is from the diesel generator backed up short break switchgear lineups. The batteries power the UPSs if all normal input power is lost. Each UPS is sized for 100% of it's connected load.

The process UPS no break load distribution system supplies power to equipment listed in Section 3.5.2.4.

3.5.2.3 Interfaces

The Electrical System interfaces with the Plant Control System (PCS) for monitoring only. The Electrical System signals are centralized in the 13 kV switchgear room and re-transmitted to the PCS.

The following electrical systems are monitored by the PCS.

A. 115 kV – 13 kV Utility Substation

B. 13 kV Switchgear

C. 4.16 kV Switchgear

D. 480/460 V Switchgear

E. Standby Diesel Generators

F. UPS Systems.

3.5.2.4 Operating Characteristics

The facility process load requirements are categorized as follows:

Normal Loads

All normal load equipment is fed from electrical distribution equipment which is not backed-up by either the Standby Diesel Generators or the UPSs. The normal load power distribution equipment is served by the duplicate 115 kV lines, duplicate main transformers and duplicate 13 kV switchgear.

Short Break Loads

The following equipment is supplied power from the short break power distribution system described in Section 3.5.2.2, Major Components. — DELETE

A. ~~Product Take-off System and~~ Tails Take-off System pump sets

B. Hot air blowers on Low Temperature Take-off Stations

C. Fan motors in the GEVS

D. Contingency Dump Vacuum Pump/Trap Sets

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0061	**Revision: 0**
Title (if applicable): Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001	
Reviewer: Ramesh Kartan	**Organization/Mail Stop/Telephone No./E-mail** **LES/Cherry Hill/856-482-4129/rkartan/nefnm.com**
Functional Area: Electrical	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

1. DCC NEF-2006-0054
2. CC-EG-2007-0061 attachment 2

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

None

Configuration Change Number: CC-EG-2007-0061	**Revision:**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Ramesh Kanter — 4-26-07

Reviewer Signature — **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2007-0061 Title (if applicable): Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001				Revision: 0	
Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
	CC-EG-2007-0061	No Comments	N		
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Ramesh Kartan /LES/Electrical			Date: 4-26-07	Resolved by:	Date:
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date:		

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0061	**Revision: 0**
Title (if applicable): Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001	
Reviewer: David M Pepe	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / Marlborough, MA / 508-573-6513 / david.pepe@areva.com**
Functional Area: ISA / IROFS	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.): ISA, ISA Summary, SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts: No impacts to IROFS functionality.

Configuration Change Number:	**Revision:**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments: No Comments

David M Pope — 4/24/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0061	**Revision: 0**
Title (if applicable): Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001	
Reviewer: Wyatt Padgett	**Organization/Mail Stop/Telephone No./E-mail** **Licensing/Eunice/505.394.5257/Wpadgett@nefnm.com**
Functional Area: Licensing	**Date Due: 4/25/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

License Basis Documents reviewed: Emergency Plan, Environmental Report, FNMCP, Material License, ISA Summary, QAPD, and SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

No Impacts

Configuration Change Number: CC-EG-2007-0061	**Revision: 0**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

None

Reviewer Signature

4/11/07

Date

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0061	**Revision: 0**
Title (if applicable): Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001	
Reviewer: J. Allen/B. Geise	**Organization/Mail Stop/Telephone No./E-mail** **Training/NMJC/492-2543/jallen@nefnm.com** **Training/NMJC/wgeise@nefnm.com**
Functional Area: Support Services	**Date Due: 4/25/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Technical Training Review

Reviewed the ISA Summary, Operating License, SY-120, Emergency Plan, LS-104
Reviewed IROFS and associated Accident Sequences, No Impact
There is currently no written training material associated with the Technical Training Program that is affected by these changes. Therefore, this configuration change has no impact on Technical Training.

Operations Training

Reviewed the ISA Summary, Operating License, SY-120, Emergency Plan, LS-104
Reviewed IROFS and associated Accident Sequences, No Impact

There is currently no written training material associated with the Operations Training Program that is affected by these changes. Therefore, this configuration change has no impact on Operations Training.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

Reviewed IROFS and associated Accident Sequences. None of the recommended changes affect any Technical or Operations Training material at this time for this functional area.

Configuration Change Number: CC-EG-2007-0061	**Revision: 0**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Reviewer Signature	**Date** 4/19/07

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 1 of 3

70.72(c) Evaluation Number: 2007-0075 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0061 **Revision Number:** 0

I. Description of Change:

This activity removed the Product Take-off System pump sets and the Blending System heat trace from the diesel backed power supply. The Product Take-off pump sets and the Blending System heat trace system will now be powered from a normal electrical distribution system which is not diesel backed.

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer: Changing from one power supply with a diesel generator backup system to an equivalent normal distribution power supply without a diesel generator back up system does not of itself, add any new hazards. Failure of the Product Take-off pump sets or the Blending system heat trace is not an initiator for, or contributor to any accident sequence identified in ISA Summary Table 3.7-2 or 3.7-4. There are no mechanical changes being made to the mechanical portion of the Product Take-off System or the Blending System. Therefore, this change does not create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 that have not previously been described in the ISA Summary.

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer: This activity changes electrical distribution power sources. This activity does not use a new process, technology or control system since the technical aspects are common for the construction of this type of facility.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

Basis for answer: ISA Table 3.7-2 and 3.8-1 were reviewed. No IROFS were identified that would be affected by this activity. No safety function of any of the listed IROFS is affected. Thus the proposed change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61.

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer: ISA Table 3.8-2 identifies Sole IROFS. A review of the Sole IROFS did not identify any that would be impacted by this change in source of electrical power. Thus the change does not alter any IROFS listed in the ISA summary, that is the sole item preventing or mitigating an accident sequence

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 2 of 3

70.72(c) Evaluation Number: 2007-0075 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0061 **Revision Number:** 0

that exceeds the performance requirements of 10 CFR 70.72.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer: The change in the source of electrical power for these components is not prohibited by a 10 CFR 70.72 license condition or order. There are no prohibitive statements specified in 10 CFR 70.72. The material License contains specific prohibitive statements concerning the use of certain types of controllers, initial introduction of UF6 to the facility and the depleted UF6 deconversion process. It also contains limits on the types and quantities of material allowed to be on site. The NRC issued orders for the NEF concern additional Security Measures, Protection of Safeguards Information, and Fingerprinting and Criminal Background checks. None of these issues are affected by these changes.

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 3 of 3

70.72(c) Evaluation Number: 2007-0075 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0061 **Revision Number:** 0

IV. References used to perform the evaluation (if not provided in the response to each question).

1. **Materials License: 11, 14, 20 and orders 1, 2, 3 ,4**
2. **NRC Orders: EA-06-193, EA-06-230, EA-06-264, EA-07-086**
3. **ISA Summary: 3.4.4, 3.4.4.7, 3.4.4.843.4.2.9.6, 3.4.8.5, 3.5.2.1.3, 3.5.2.2, 3.5.10, 3.5.10.1, Table 3.7-2, 3.7-4, 3.7-16, 3.7-7, 3.8-1, 3.8.2.**
4. **SAR: Sections 3.1.1.**
5. **SER (NUREG 1827): Sections 3.3.1.3**

V. Review and Approval:

10 CFR 70.72(c) Evaluator: Eugene Dale Pruitt (Printed Name) — E Dale Pruitt (Signature) Date: 5/11/07

10 CFR 70.72(c) Reviewer: James Alex Brinkley (Printed Name) — James Alex Brinkley (Signature) Date: 5/11/07

SRC Review Required: (Yes) No (Circle one) If No, provide basis:

CARL MARKERT (SRC Chairman (Printed Name)) — Carl Markert (Signature) Date: 5/10/2007

2007-24 (SRC Meeting Number)

LBDCR Form

LBDCR No: 07-0007 Configuration Change No: CC-EG-2007-0061

LBDCR Package Preparer: E. Dale Pruitt / E Dale Pruitt (Print Name/Signature) LBDCR Initiation Date: 01/12/08 (mm/dd/yy)

1) Proposed License Basis Document Change(s) Brief Description

(What is being changed and why?)

This activity removed the Product Take-off System pump sets and the Blending System heat trace from the diesel backed power supply. The Product Take-off pump sets and the Blending System heat trace system will now be powered from a normal electrical distribution system which is not diesel backed.

2) License Basis Document Change(s) Approval

☒ The LBDCR is a proposed Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections 3,4, and 5 of this Form are Not Applicable (N/A).

☐ The LBDCR is NOT a proposed Configuration Change. The review process defined below shall be utilized. Complete Sections 3, 4, and 5 of this Form.

3) Document(s) Affected By Proposed Change(s)

Document	Review Information
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Nuclear Criticality Safety Validation Report (i.e., MONK 8A Validation and Verification report)	NRC approval required before implementation
☐ ISA Summary	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ SAR	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ Environmental Report	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EN-103, Environmental Review and Evaluation.
☐ QAPD	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-400, Quality Assurance Program Description Changes
☐ Emergency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-120, 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☐ FNMCP (non-classified matter)	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-120, 10 CFR 70.32(c)(1)(iii) Change Evaluation.
☐ Physical Security Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.

Continued next page.

LBDCR Form

LBDCR No: 07-0007 Configuration Change No: CC-EG-2007-0061

Document	Review Information
☐ Safeguards Contingency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Guardforce Training Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ SPPP for the Protection of Classified Matter	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.
☐ SPPP for the Protection of Classified Matter for the CSF	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.

4) LBDCR Implementation Activities

[e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking No.

5) LBDCR Review and Approval

Reviewer: _____ / _____ Date: _____
(Print/Sign)

FAM: _____ / _____ Date: _____
(Print/Sign) (N/A if NOT applicable.)

HS&E Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign)*

LBDCR Form

LBDCR No: 07-0007 Configuration Change No: CC-EG-2007-0061

6) LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☐ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

☐ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-101, Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.
LS-08-004	ISA Summary	00

7) LBDCR Approval

Licensing Director: Stephen R. Cowne Stephen R Cowne Date: 2/24/08
(or designee) *(Print/Sign)* *(N/A if NOT applicable.)*

Support Services Director: _____ Date: _____
(or designee) *(Print/Sign)* *(N/A if NOT applicable.)*

Vice President of Engineering: _____ Date: _____
(or designee) *(Print/Sign)* *(N/A if NOT applicable.)*

National Enrichment Facility
Safety Review Committee Meeting

Agenda

Meeting Number: 2007-24

Meeting Date: May 24, 2007 1200 MST

SRC Membership:

	Representing	Name
Chair	Operations	Dave VandeWalle
Member	Radiation Protection, Chemical Safety & Industrial Safety	Laurie Wetherell
Member	Plant Design	Dave Sexton
Member	Criticality Safety	Doug Croucher
Member	Radiation Protection	Mark Strum
Member	Industrial & Chemical Safety	Scott Tyler
Member	Operations	Gary Sanford
Member	Operations	Carl Markert
Member	Operations & Industrial Safety	Neal Wetherell
Member	Licensing	Timothy Harney
Member	Criticality Safety	Shiaw-Der (Steve) Su
Guest	Quality Assurance	Jim Gearhart
Guest	Production	Theo Botter
Guest	Licensing	Steve Cowne
SRC	Coordinator	Lindsay Oldfield

Meeting Agenda:

Item No.	Issue	Substantive Safety Questions and Responses	SRC Recommendation
2007-24-01	Review of SRC 2007-21 & 2007-23 Minutes and Open Action Items (All)		
2007-24-02	SQP 7-1, Rev. 8, "Evaluation of Nuclear Suppliers" (WGI Procedure) and CC-EG-2007-0096, "Firewall Between 115kV and 13.8 kV Transformers"		Approved by SRC Chair prior to meeting. No potential safety concerns.
2007-24-03	TQ-501, "General Employee Training and Qualification"		
2007-24-04	CC-EG-2007-0056, "Process Service Corridor – Addition of Security Access Control"		
2007-24-05	CC-EG-2007-0061, "Removal of Diesel Backup Power for Product Pumps and Blending System Trace Heating in SBM-1001"		
2007-24-06	CC-EG-2007-0010, "Changes in Environmental Criteria"		

2007-24-07 LES-SR-2007-013 For Review Only
LES-SR-2007-017
LES QA Surveillance No. 2007-009
LES QA Surveillance No. 2007-011
LES QA Surveillance No. 2007-014
LES QA Surveillance No. 2007-015
LES-ETUK-2007-001

Action Items:

Action Item	Action	Assigned	Due Date
2007-13-01	Confirm that the "Release for Operation" procedure includes adequate closure of activities from "cradle to grave".	SRC	5/31/07
2007-14-05	Review the CAP to determine if the new employees and the new processes are being implemented and review the status of the program as a result of the changes.	J. Gearhart	8/16/07
2007-14-06	Present to the SRC the results of the next evaluation of readiness to start Quality Level 1 construction work.	Project/ Construction Manager	6/07/07
2007-15-01	Determine if there is a need to make a clarification or change to the SAR regarding the Systematic Approach to training (based on the findings presented by training and licensing.)	**S. Cowne**	**5/24/07**

Meeting Critique:

Other Business:

Next Meeting: Thursday, May 31, 2007 1200 MST

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

Configuration Change Number: CC-EG-2007-0056 **Revision** 0

Configuration Change Title: Process Service Corridor – Addition of Security Access Control

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☒ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.

ISAS Section 3.3.1.1
SAR Section 1.1.2
ISAS Figures 3.3-2, 3.3-4, 3.3-5
SAR Figures 1.1-5, 1.1-6, 1.1-7
FNMCP Figures D-5, D-6 cap 5/3/07

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

DCC-NEF-2006-0064 (copy is provided in Attachment 2) provided additional security doors. One door was between rooms 170 and 120 on the first floor. Also, walls, doors and barriers were added to the 2nd and 3rd floors to provide personnel access control between the elevator area and the Process Service Corridor. The sections listed in Section A above are affected as the changes to accommodate doors and walls which may not be identical between modules as later modules have the advantage of more flexibility since the designs are not as far advanced. However, these future design changes are expected to be minor. The associated figures are listed in Section A above.

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

DCC-NEF-2006-0064 provided additional security doors as requested by Security after a Security System Design Review.

This CC is being processed to support the Release for Construction of SBM-1001. This CC is part of the Licensing Basis Documentation reconciliation effort that is performed in parallel with the Owner Acceptance Review (OAR) of the SBM-1001 Civil/Structure/Architectural (CSA) package performed under CC-EG-2007-0022.

Note: Due to potential future changes for SBM-1003 and SBM-1005, DCC-NEF-2006-0064 is being processed for SBM-1001 only. The changes for the additional security doors require changes to the figures depicting the modules 5 and 6. The proposed locations of the doors and walls for SBM-1001 will be noted on these figures (listed in Section A).

D Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

ISAS Section 3.3.1.1 and SAR Section 1.1.2 are marked up to indicate the SBM modules are similar as they may have minor differences (included in Attachment 1). Marked up ISAS Figures 3.3-2, 3.3-4, 3.3-5 & SAR Figures 1.1-5, 1.1-6, 1.1-7 are also included (included in Attachment 1) to show differences for SBM-1001.

Preparer (Print Name/Signature): **James Brinkley** / James Brinkley **E. Dale Pruitt** / E Dale Pruitt		**Date: 4/11/07**
CC FAM	**Signature:** Mark A. Scanlan for R.W. Edwards per delegation	**Date:** 11 APR 2007

Configuration Change Number: CC-EG-2007-0056 **Revision** 0

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

- ☒ HS&E **(Radiological Boundary may be affected)**
- ☒ Licensing **(Review required as LB documents changed)**
- ☐ Production
- ☐ Quality Assurance
- ☒ Support Services **(Security needs to review for additional door, Operator Training may be affected)**
- ☒ Technical Services **(Review required for ISA as LB documents changed, Seismic Review, Fire Safety)**

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change may be a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

Security needs to review for the effect on the Security Training and Security plan. Also the door could affect radiological and operator procedures. Fire Safety needs to review. Seismic will need to review for the consideration of the wall. Technical Services and Licensing needs to review as the ISAS and SAR are affected by this change.

CM Coordinator (Print Name/Signature):	**Date**
Clark Tracy Clark Tracy	4/11/07

Section 3: Disposition of Interdisciplinary Reviews

☑ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) Action Items (AIs). Identify CR AIs in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** C Dale Pruitt	**Date:** 5/3/07
CC FAM	**Signature:** Ron Edwards	**Date:** 5-4-07

Configuration Change Number: CC-EG-2007-0056 **Revision** 0

Section 4: Disposition of ISA Review

☑ No ISA Impact and No ISA Team Review Required OR

☑ Possible ISA Impact. Complete review per EG-104 and attach result. List any outstanding CR AIs identified in Section 5 Comments below.

Comments (basis):

Review performed by ISA team member, no comments, See Attached IDR from Dave Pepe.

Preparer: E Dale Prewitt **OR ISA Member:**	**Date:** 5/4/07

Section 5: Disposition of RIR or 70.72(c) Evaluation

☐ Partial Release, RIR attached and CR Action Items noted in comments below OR

☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR

☑ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete. Meeting # 2007-24 (2007-24-04)

☑ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CR AIs. Identify CR AI number(s) in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** E Dale Prewitt	**Date:** 5/24/07
CC FAM	**Signature:** Ron Alexander	**Date:** 5/25/07

Configuration Change Number: CC-EG-2007-0056 **Revision** 0

Section 6: Release or Implementation

☒ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted.

☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR AIs as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC.

☐ CC is not acceptable, CANCEL or HOLD CC as noted.

Comments (Basis):

CC FAM	**Signature:** M Poole for RWSchrauder	**Date:** 5/25/07

Section 7: Configuration Change Closeout

☐ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR AIs are closed and the 70.72(c) evaluation per LS-104 is complete as required.

☐ B. The Configuration Change has not been implemented. The basis for this decision is described below.

Comments (as applicable):

Preparer	**Signature:**	**Date:**
CM Coordinator	**Signature:**	**Date:**

Forward to Records Management (CM Coordinator).

ISAS & SAR Marked Up Sections & Figures

1.1.1 Facility Location, Site Layout, And Surrounding Characteristics

Site features are well suited for the location of a uranium enrichment facility as evidenced by its favorable conditions of hydrology, geology, seismology and meteorology as well as good transportation routes for transporting feed and product by truck.

The facility is located on approximately 220 ha (543 acres) of land in Section 32 of Lea County, New Mexico. The Separations Building Modules, Administration Building, Cylinder Receipt and Dispatch Building, Centrifuge Assembly Building, Central Utilities Building, Technical Services Building, and UBC Storage Pad are located approximately in the center of the Section on 73 ha (180 acres) of developed area. A Plot Plan of the facility is shown in Figure 1.1-3, Plot Plan (1 Mile Radius). The Facility Layout (Site Plan) depicting the Site Boundary and Controlled Area Boundary is shown in Figure 1.1-4, Facility Layout (Site Plan) with Site Boundary and Controlled Access Area Boundary.

The site lies along the north side of New Mexico Highway 234. It is relatively flat with slight undulations in elevation ranging from 1,033 to 1,061 m (3,390 to 3,430 ft) above mean sea level (msl). The overall slope direction is to the southwest. A barbed wire fence runs along the east, south and west property lines. The fence along the north property line has been dismantled. A 254-mm (10-in) diameter, underground carbon dioxide pipeline owned by Trinity Pipeline LLC, traverses the site from southeast to northwest. A 406-mm (16-in) diameter, underground natural gas pipeline, owned by the Sid Richardson Energy Services Company, is located along the south property line, paralleling New Mexico Highway 234.

The nearest community is Eunice, approximately 8 km (5 mi) from the site. There are no residences, schools, stores or other population centers within a 1.6 km (1 mi) radius of the site.

Additional details of proximity to nearby populations are provided in the Environmental Report.

1.1.2 Facilities Description

The major structures and areas of the facility are outlined below.

Separations Building Modules — similar

The overall layout of a Separations Building Module is presented in Figures 1.1-5 through 1.1-7 and the UF_6 Handling Area is shown in Figure 1.1-8, UF_6 Handling Area Equipment Location. The facility includes three identical Separations Building Modules. Each module consists of two Cascade Halls, each having eight cascades with each cascade having hundreds of centrifuges. Each Cascade Hall is capable of producing approximately 500,000 SWU per year. The major functional areas of the Separations Building Modules are:

- Cascade Halls (2)
- Process Services Area
- UF_6 Handling Area

Source material and special nuclear material (SNM) are used or produced in this area.

3.3 FACILITY DESCRIPTION

The arrangement of the National Enrichment Facility (NEF) is shown in Figure 3.3-1, Facility Buildings and Areas. The major structures and functional areas of the facility are discussed in the following sections.

Distances from the facility to the site boundary were determined using guidance from U.S. NRC Regulatory Guide 1.145 (NRC, 1982), i.e., the nearest point on the building complex to the site boundary within a 45-degree sector centered on the compass direction of interest. These distances are provided in Table 3.3-1, Distances to Site Boundary and to Restricted Area Boundary and Wind Frequencies.

The distance to the nearest resident is greater than 4.26 km (2.63 mi).

3.3.1 Buildings and Major Components

3.3.1.1 Separations Building Modules

similar

The overall layout of a Separations Building Module is presented in Figures 3.3-2 through 3.3-6. The facility includes three identical Separations Building Modules. Each module consists of two Cascade Halls, each of which houses a number of cascades connected in parallel producing a single product concentration at any one time. Each Cascade Hall is capable of producing 500,000 separative work units (SWU) per year. In addition to the Cascade Halls, each Separations Building Module houses a UF_6 Handling Area and a Process Services Area.

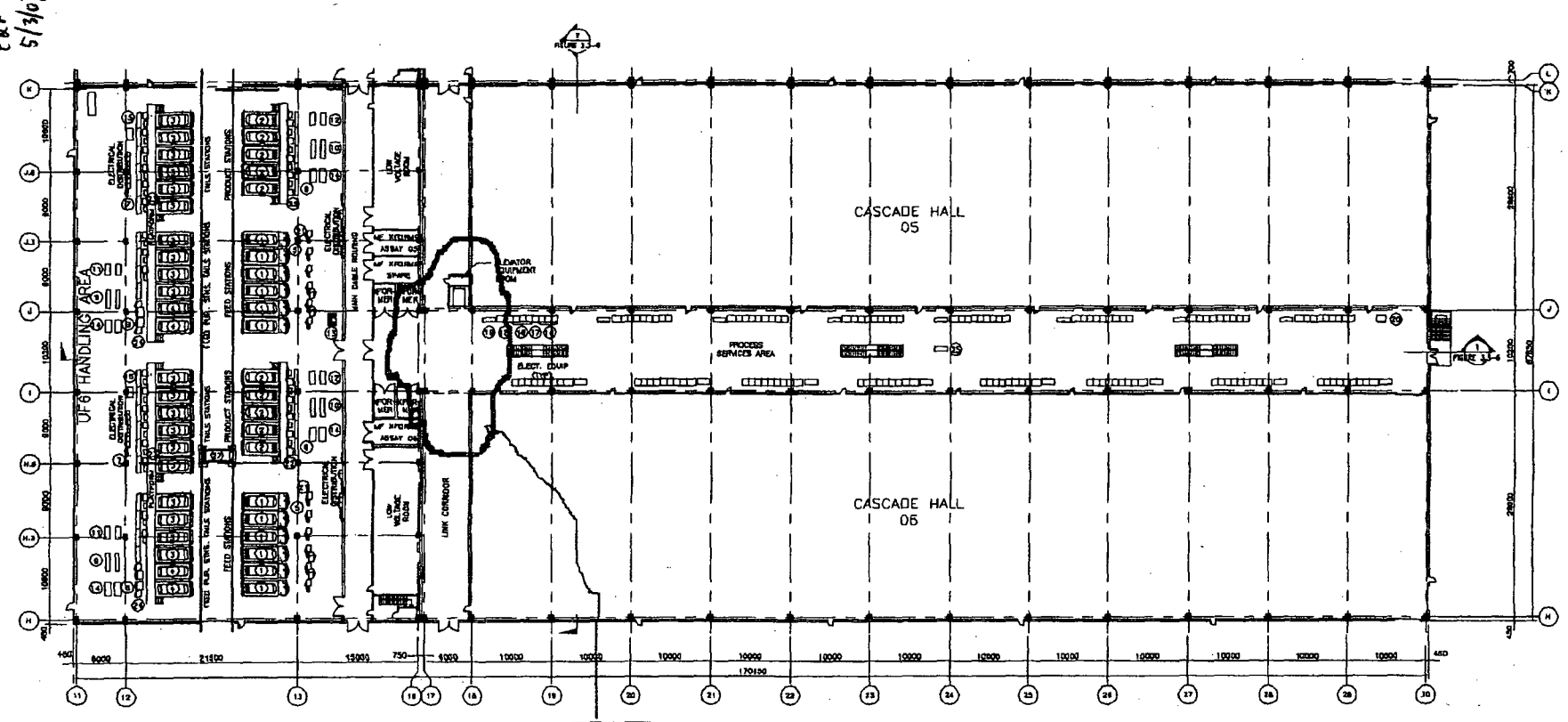
3.3.1.1.1 Design Description

Each Separations Building Module is approximately 170.0 m (557.75 ft) long x 67.9 m (222.75 ft) wide and 13.0 m (42.7 ft) high and totals 12,730 m^2 (137,025 ft^2), including both elevated floors of the Process Services Area. It is classified as a Special Purpose Industrial Occupancy area by the NFPA 101 (NFPA, 1997). It is classified as a Type I Unsprinklered Construction area by the New Mexico Building Code (NMBC, 1997) and as Type I Construction by NFPA 220 (NFPA, 1999). The thermal enclosure surrounding each assay (centrifuge) shall be constructed of and insulated with non-combustible materials (and is considered a fire barrier addressed by IROFS35).

Several chemical traps on the second floor of the Process Services Area contain hazardous materials. The chemical traps are housed in fire rated enclosures to meet the requirements of Section 6.4 of NFPA 101 (NFPA, 1997). The Separations Building Modules are designed to meet the occupant and exiting requirements set by NFPA 101 (NFPA, 1997) and to meet the construction type classifications set by the New Mexico Building Code (NMBC, 1997). The construction type and occupancy classification allow the Separations Building Modules to be unsprinklered. The UF_6 Handling Areas are separated from the Cascade Halls by one-hour fire-rated construction. The Separations Building Modules are also separated from each other by one-hour fire-rated construction.

CC-EG-2007-0056, R0
ATTACHMENT 1, PAGE 4 OF 10

5/3/07



Location for new door for SBM-1001.

EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION MOTEUR	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION T-HORTEN	28	CASCADE VALVE STATION
9	FEED PURIFICATION COLD TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VENT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FOOT & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAT/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	SODIUM FLUORIDE DUMP TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	RUN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: * ITEM NOT USED

KEYPLAN

LOCKWOOD GREENE ENGINEERS & CONSTRUCTORS

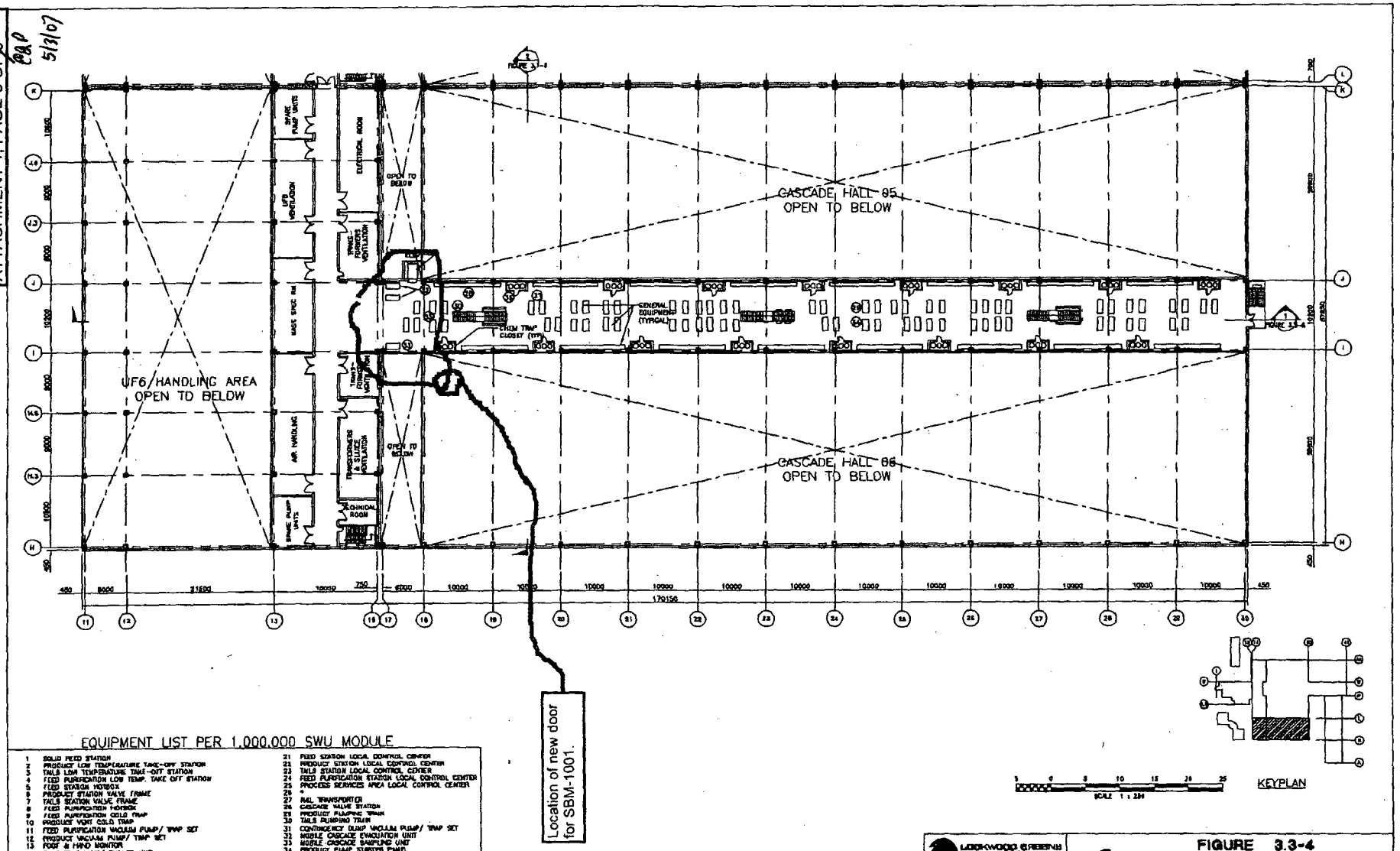
REFERENCE NUMBER
1000A2000

FIGURE 3.3-2
SEPARATIONS BUILDING MODULE
FIRST FLOOR

REVISION DATE: DECEMBER 2003

CC-EG-2007-0056, R0
ATTACHMENT 1, PAGE 5 OF 8

10
CAP
5/3/07



EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION HOTBOX	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION MANIFOLD	28	CASCADE VALVE STATION
9	FEED PURIFICATION CELLS TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VORT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FOOT & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAT/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	SODIUM FLUORIDE DUMP TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	RUN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: * ITEM NOT USED

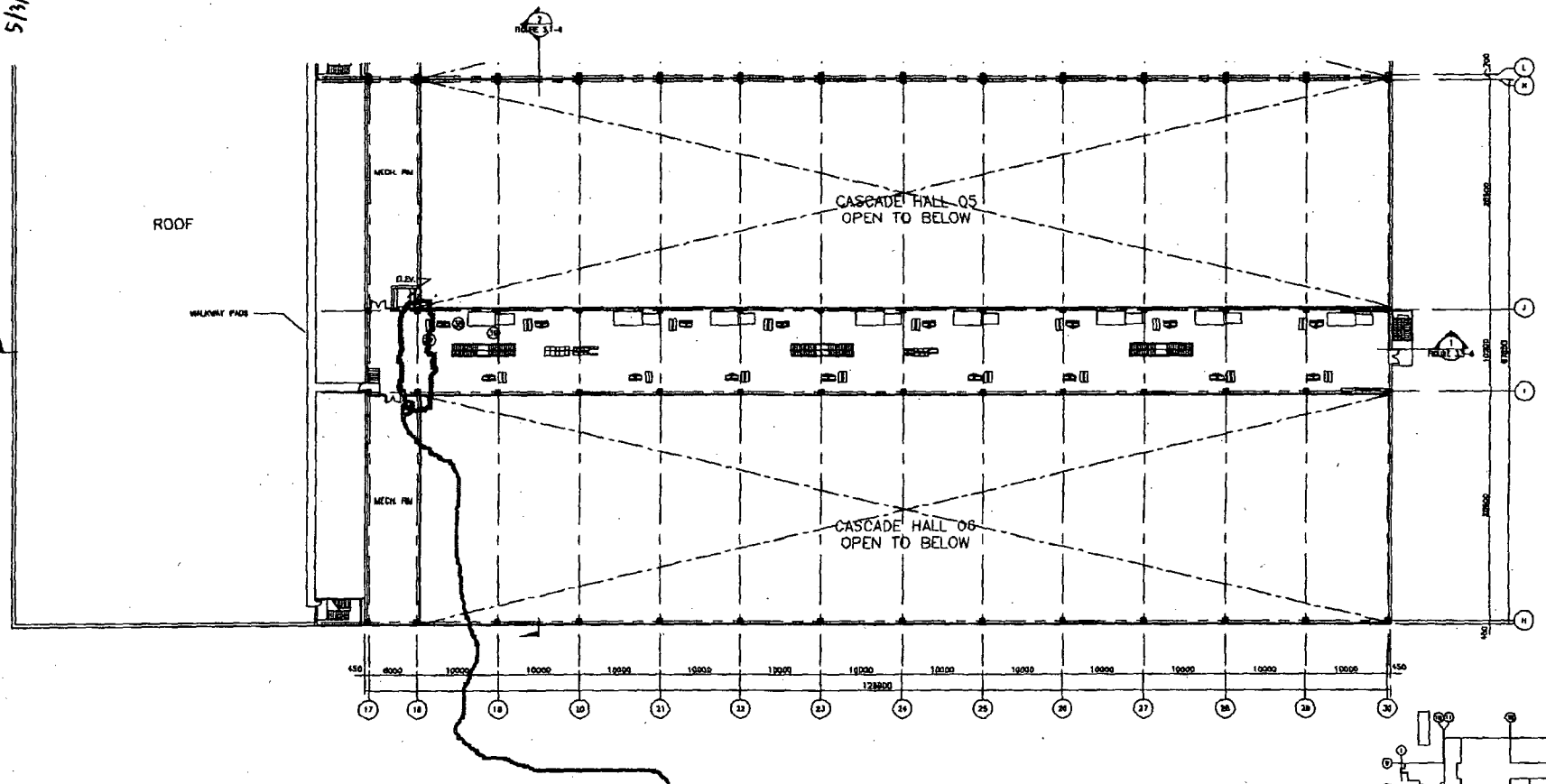
LOCKWOOD GREENE
ENGINEERING & CONSTRUCTION

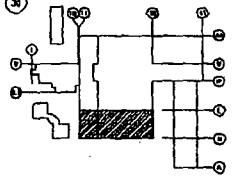
REFERENCE NUMBER
1000A2100

FIGURE 3.3-4
SEPARATIONS BUILDING MODULE
SECOND FLOOR

REVISION DATE: DECEMBER 2003

CC-EG-2007-0056, R0
ATTACHMENT 1, PAGE 6 OF 10
egp 5/3/07





KEYPLAN

SCALE 1 : 250

EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION HOTBOX	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION HOTBOX	28	CASCADE VALVE STATION
9	FEED PURIFICATION COLD TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VENT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FEED & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAD/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	SODIUM FLUORIDE DUMP TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	RUN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: * ITEM NOT USED

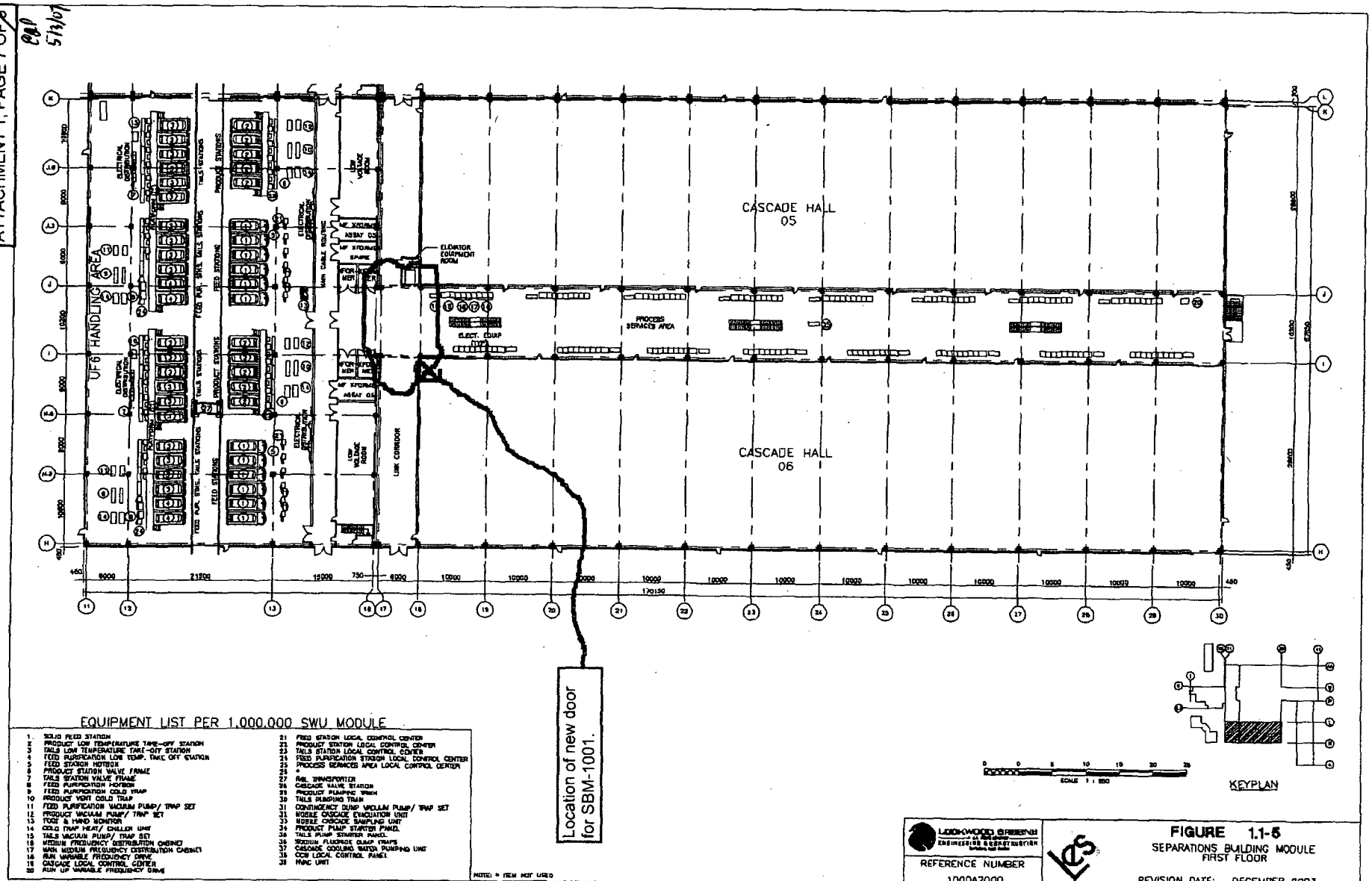
LOCKWOOD GREENE
AN SPX COMPANY
ENGINEERING & CONSTRUCTION

REFERENCE NUMBER
1000A2200

FIGURE 3.3-5
SEPARATIONS BUILDING MODULE
THIRD FLOOR

REVISION DATE: DECEMBER 2003

CC-EG-2007-0056, R0
ATTACHMENT 1, PAGE 7 OF 8



EQUIPMENT LIST PER 1,000,000 SWU MODULE

1. SOLID FEED STATION	21 FEED STATION LOCAL CONTROL CENTER
2 PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22 PRODUCT STATION LOCAL CONTROL CENTER
3 TAILS LOW TEMPERATURE TAKE-OFF STATION	23 TAILS STATION LOCAL CONTROL CENTER
4 FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24 FEED PURIFICATION STATION LOCAL CONTROL CENTER
5 FEED STATION MOTEOR	25 PROCESS SERVICES AREA LOCAL CONTROL CENTER
6 PRODUCT STATION VALVE FRAME	26 *
7 TAILS STATION VALVE FRAME	27 RAIL TRANSPORTER
8 FEED PURIFICATION H-DITSON	28 CASCADE VALVE STATION
9 FEED PURIFICATION COLD TRAP	29 PRODUCT PUMPING TRAIN
10 PRODUCT VENT COLD TRAP	30 TAILS PUMPING TRAIN
11 FEED PURIFICATION VACUUM PUMP/ TRAP SET	31 CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12 PRODUCT VACUUM PUMP/ TRAP SET	32 MOBILE CASCADE EVACUATION UNIT
13 TOOL & HAND MONITOR	33 MOBILE CASCADE SAMPLING UNIT
14 COLD TRAP HEAT/ CHILLER UNIT	34 PRODUCT PUMP STARTER PANEL
15 TAILS VACUUM PUMP/ TRAP SET	35 TAILS PUMP STARTER PANEL
16 MEDIUM FREQUENCY DISTRIBUTION CABINET	36 SODIUM FLUORIDE SUMP TRAPS
17 MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37 CASCADE COOLING WATER PUMPING UNIT
18 RUN VARIABLE FREQUENCY DRIVE	38 CCW LOCAL CONTROL PANEL
19 CASCADE LOCAL CONTROL CENTER	39 HVAC UNIT
20 RUN UP VARIABLE FREQUENCY DRIVE	

NOTE: * ITEM NOT USED

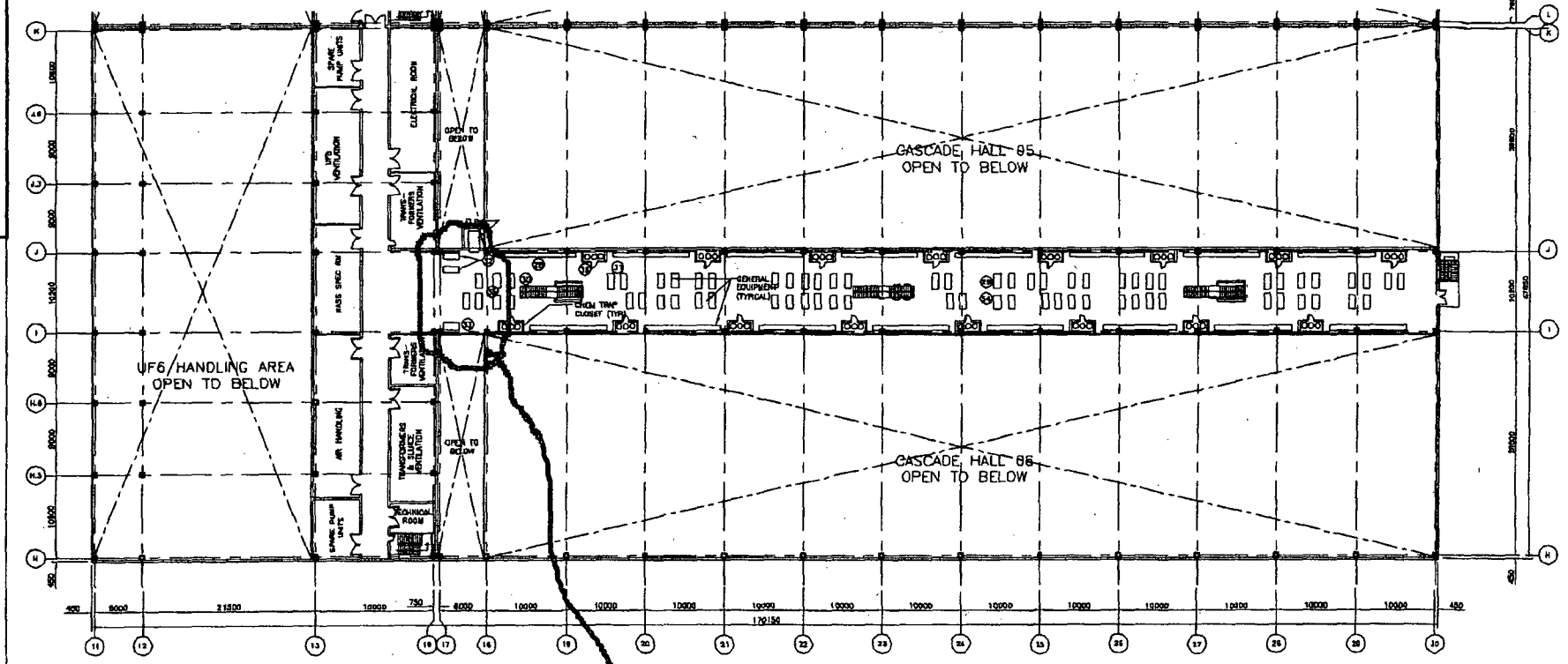
REFERENCE NUMBER
1000A2000

FIGURE 1.1-5
SEPARATIONS BUILDING MODULE
FIRST FLOOR

REVISION DATE: DECEMBER 2003

CC-EG-2007-0056, R0
ATTACHMENT 1, PAGE 8 OF 9

EAP 5/14/07



EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION HOTBOX	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION HOTBOX	28	CASCADE VALVE STATION
9	FEED PURIFICATION COLD TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VENT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FEED & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAT/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	MEDIUM FLUORIDE DUMP TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	MAIN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: * ITEM NOT USED

KEYPLAN

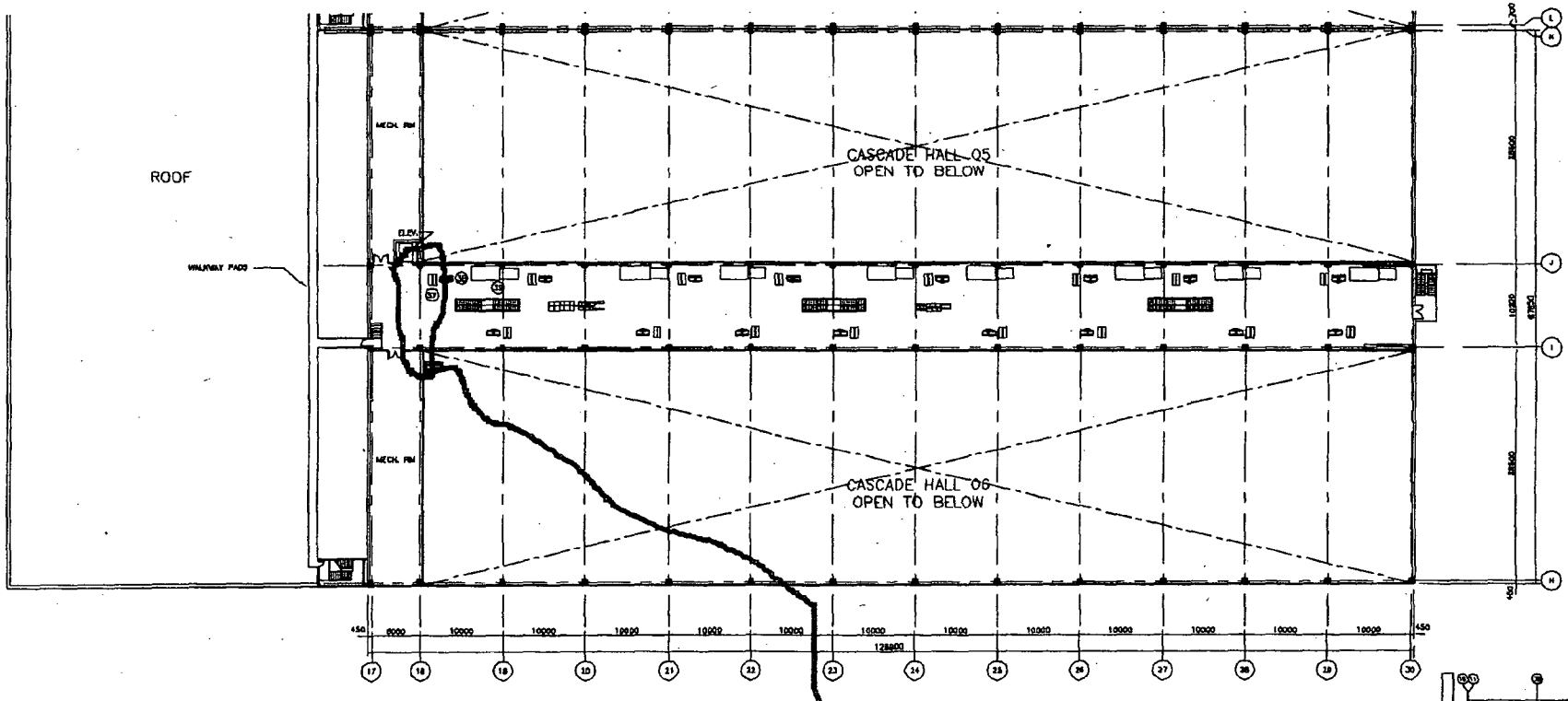
REFERENCE NUMBER
1000A2100

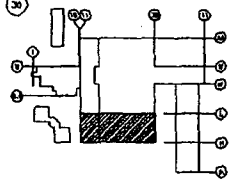
FIGURE 11-6
SEPARATIONS BUILDING MODULE
SECOND FLOOR

REVISION DATE: DECEMBER 2003

CC-EG-2007-0056, R0
ATTACHMENT 1, PAGE 9 OF 10

CDO 5/4/07





KEYPLAN

SCALE 1 : 250

EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION NOTEBOX	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION NOTEBOX	28	CASCADE VALVE STATION
9	FEED PURIFICATION COLD TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VENT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FIXED & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAD/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	SODIUM FLUORIDE TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	MAIN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: ITEM NOT USED

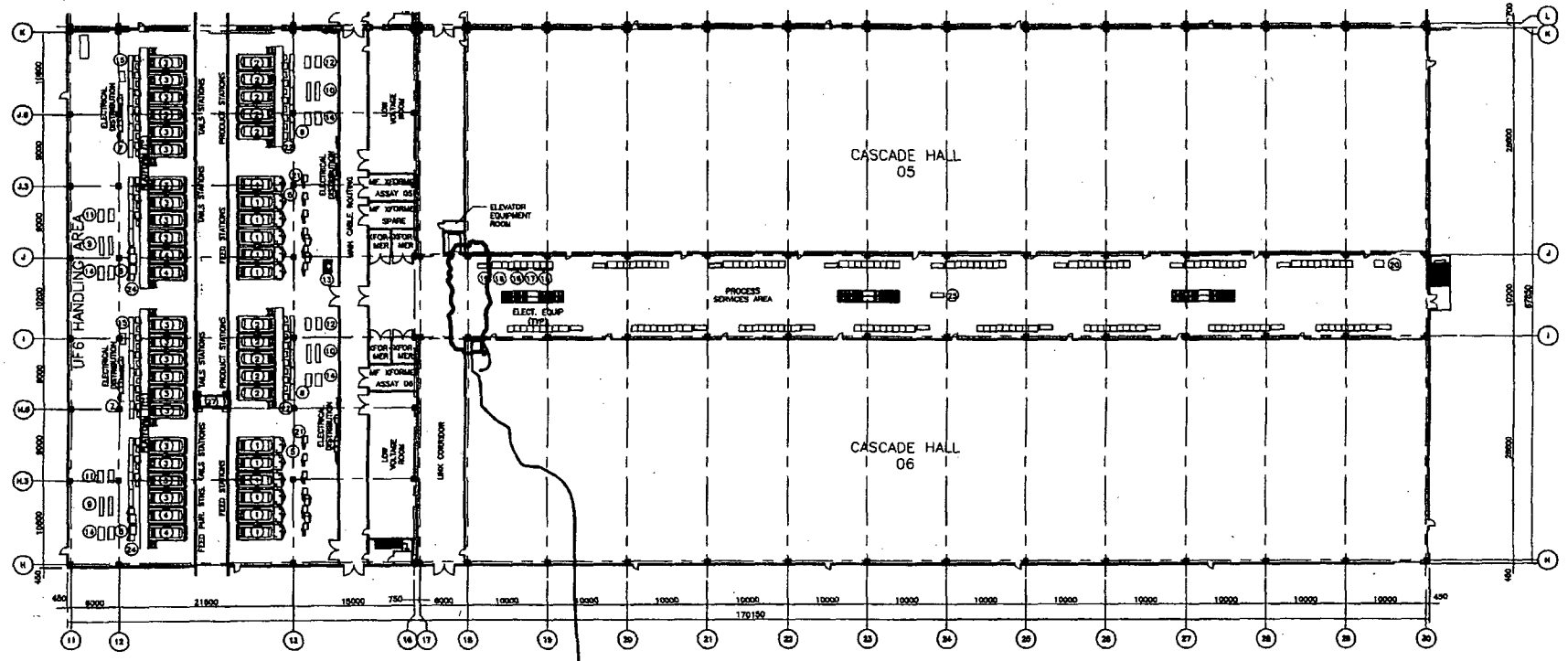
LOCKWOOD GREENE
Engineers & Constructors

REFERENCE NUMBER
100DA2200

FIGURE 1.1-7
SEPARATIONS BUILDING MODULE
THIRD FLOOR

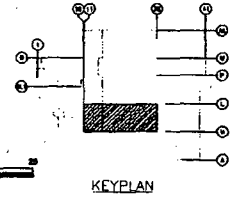
REVISION DATE: DECEMBER 2003

PROPRIETARY INFORMATION



Location of new door for SBM-1001.

2



KEYPLAN

EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION HOTBOX	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION HOTBOX	28	CASCADE VALVE STATION
9	FEED PURIFICATION COLD TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VENT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FIXED & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAT/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	SODIUM FLUORIDE DUMP TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	RUN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: * ITEM NOT USED

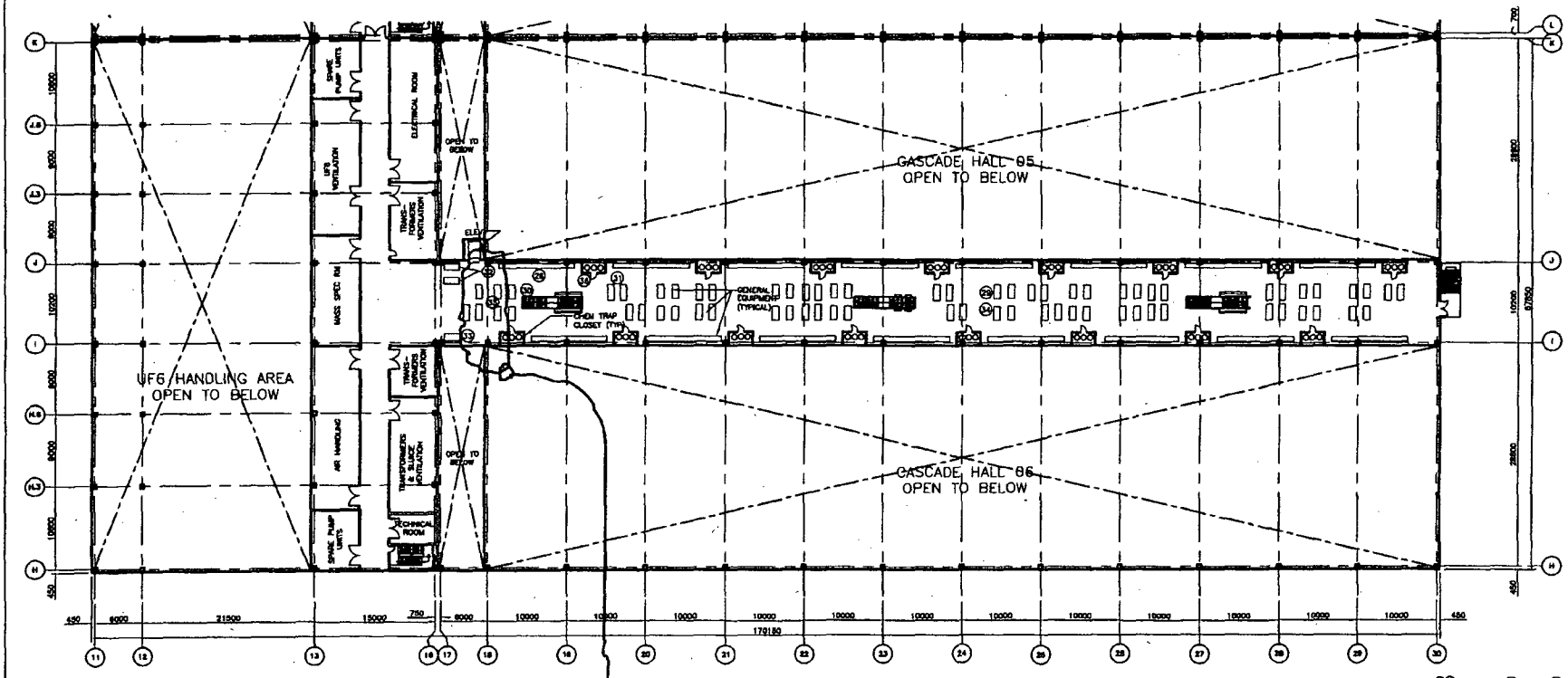
LOCKWOOD GREENE ENGINEERING & CONSTRUCTION

REFERENCE NUMBER
1000A2000

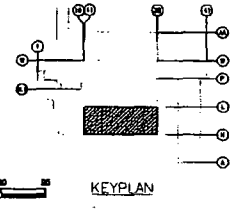
FIGURE D-5
SEPARATIONS BUILDING MODULE
FIRST FLOOR

REVISION 2 DATE: JULY 2004

PROPRIETARY INFORMATION



Location of new door for SBM-1001.



KEYPLAN

EQUIPMENT LIST PER 1,000,000 SWU MODULE

1	SOLID FEED STATION	21	FEED STATION LOCAL CONTROL CENTER
2	PRODUCT LOW TEMPERATURE TAKE-OFF STATION	22	PRODUCT STATION LOCAL CONTROL CENTER
3	TAILS LOW TEMPERATURE TAKE-OFF STATION	23	TAILS STATION LOCAL CONTROL CENTER
4	FEED PURIFICATION LOW TEMP. TAKE OFF STATION	24	FEED PURIFICATION STATION LOCAL CONTROL CENTER
5	FEED STATION HOTBOX	25	PROCESS SERVICES AREA LOCAL CONTROL CENTER
6	PRODUCT STATION VALVE FRAME	26	*
7	TAILS STATION VALVE FRAME	27	RAIL TRANSPORTER
8	FEED PURIFICATION HOTBOX	28	CASCADE VALVE STATION
9	FEED PURIFICATION COLD TRAP	29	PRODUCT PUMPING TRAIN
10	PRODUCT VENT COLD TRAP	30	TAILS PUMPING TRAIN
11	FEED PURIFICATION VACUUM PUMP/ TRAP SET	31	CONTINGENCY DUMP VACUUM PUMP/ TRAP SET
12	PRODUCT VACUUM PUMP/ TRAP SET	32	MOBILE CASCADE EVACUATION UNIT
13	FEED & HAND MONITOR	33	MOBILE CASCADE SAMPLING UNIT
14	COLD TRAP HEAT/ CHILLER UNIT	34	PRODUCT PUMP STARTER PANEL
15	TAILS VACUUM PUMP/ TRAP SET	35	TAILS PUMP STARTER PANEL
16	MEDIUM FREQUENCY DISTRIBUTION CABINET	36	SODIUM FLUORIDE DUMP TRAPS
17	MAIN MEDIUM FREQUENCY DISTRIBUTION CABINET	37	CASCADE COOLING WATER PUMPING UNIT
18	RUN VARIABLE FREQUENCY DRIVE	38	CCW LOCAL CONTROL PANEL
19	CASCADE LOCAL CONTROL CENTER	39	HVAC UNIT
20	RUN UP VARIABLE FREQUENCY DRIVE		

NOTE: * ITEM NOT USED

LOCKWOOD GREENE ENGINEERS & CONSTRUCTION

REFERENCE NUMBER
1000A2100

FIGURE D-6
SEPARATIONS BUILDING MODULE
SECOND FLOOR

REVISION 2 DATE: JULY 2004

Copy of Design Change Control NEF-2006-0064

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0064
Originator:	S.Tsombaris	Date:	December 18, 2006 (+0)
Supervision:	S. Tsombaris	Date:	12/18/06 (+1)
Project Management:	Peter D. Visalli	Date:	12/18/06 (+1)
Proposed Change Title:	Process Service Corridor Access Control		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

During the July 2005 Security System Design Review, LES Operations (Tim Lambka) requested provision for a wall with a double door and card reader between rooms 170 and 120. Similarly, a wall with a double door and card reader to be added on the second and the third floor, to provide personnel access control between the elevator area and the Process Service Corridor. The space above the door to be provided with means to restrict personnel access by virtue of metal screening or wire rope, similar to the installation in Almelo.

Cost. The cost impact is estimated at $30,000/door for $270,000 for buildings 1001, 1003 and 1005.

The work to design and install this change can be accommodated in the project schedule.

Reason for change:
LES Security requires Personnel Access Control at the Process Service Corridor

Safety / Environment	☐
Correction	☐
Improvement	☒

Drawings/Documents Affected (including License Application and ISA Summary):

1. Architectural drawing 1001-C-ARC-002-01
2. Architectural drawing 1001-C-ARC-003-01
3. Architectural drawing 1001-C-ARC-004-01
4. SAR Figures: 1.1-5; 1.1-6; 1.1-7
5. ISA SUMMARY Figures: 3.3-2; 3.3-4; 3.3-5

Distribution: LES (D.Sexton & S.Day), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

No Comments / Change is Required by Security

Name	Tim Lambka	Position	Security	Signature		Date	12/15/06 (+5)

(+x) – Elapsed Time Goal in Calendar Days

CC-EG-2007-0056, R0
Attachment 2, Page 3 of 11

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0064
Originator:	S.Tsombaris	Date:	December 18, 2006 (+0)
Supervision:	S. Tsombaris	Date:	12/18/06 (+1)
Project Management:	Peter D. Visalli	Date:	12/18/06 (+1)
Proposed Change Title:	Process Service Corridor Access Control		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

During the July 2005 Security System Design Review, LES Operations (Tim Lambke) requested provision for a wall with a double door and card reader between rooms 170 and 120. Similarly, a wall with a double door and card reader to be added on the second and the third floor, to provide personnel access control between the elevator area and the Process Service Corridor. The space above the door to be provided with means to restrict personnel access by virtue of metal screening or wire rope, similar to the installation in Almelo.

Cost. The cost impact is estimated at $30,000 for $270,000 for buildings 1001, 1003 and 1005.

The work to design and install this change can be accommodated in the project schedule.

Reason for change:
LES Security requires Personnel Access Control at the Process Service Corridor

Safety / Environment	☐
Correction	☐
Improvement	☒

Drawings/Documents Affected (including License Application and ISA Summary):

1. Architectural drawing 1001-C-ARC-002-01
2. Architectural drawing 1001-C-ARC-003-01
3. Architectural drawing 1001-C-ARC-004-01
4. SAR Figures: 1.1-5; 1.1-6; 1.1-7
5. ISA SUMMARY Figures: 3.3-2; 3.3-4; 3.3-6

Distribution: LES (D.Seaton & S.Day), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

No Comments, this change was made at the request of Security.

Name	Position	Signature	Date
Roger Whitford	Security Supervisor		12/19/06 (+6)

(+x) – Elapsed Time Goal in Calendar Days

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0064
Originator:	S.Tsombaris S. Tsombaris	Date:	December 18, 2006(+0)
Supervision:	S. Tsombaris S. Tsombaris	Date:	12/18/06 (+1)
Project Management:	Peter D. Visalli Peter D. Visalli	Date:	12/18/06 (+1)
Proposed Change Title:	Process Service Corridor Access Control		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

During the July 2005 Security System Design Review, LES Operations (Tim Lambka) requested provision for a wall with a double door and card reader between rooms 170 and 120. Similarly, a wall with a double door and card reader to be added on the second and the third floor, to provide personnel access control between the elevator area and the Process Service Corridor. The space above the door to be provided with means to restrict personnel access by virtue of metal screening or wire rope, similar to the installation in Almelo.

Cost. The cost impact is estimated at $30,000/for $270,000 for buildings 1001, 1003 and 1005.

The work to design and install this change can be accommodated in the project schedule.

Reason for change:
LES Security requires Personnel Access Control at the Process Service Corridor

Safety / Environment	☐
Correction	☐
Improvement	☒

Drawings/Documents Affected (Including License Application and ISA Summary):

1. Architectural drawing 1001-C-ARC-002-01
2. Architectural drawing 1001-C-ARC-003-01
3. Architectural drawing 1001-C-ARC-004-01
4. SAR Figures: 1.1-5; 1.1-6; 1.1-7
5. ISA SUMMARY Figures: 3.3-2; 3.3-4; 3.3-5

Distribution: LES (D.Sexton & S.Day), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

Provided walls are non load bearing, no fire rating reqs. (NUREG Table 601) and opening above (screening) is acceptable. Location proposed does not impact IROFS fire walls

Name	SCOTT TYLER	Position	FIRE/CODE ENGINEER	Signature	Scott Tyler	Date	12/21/06 (+5)

(+x) – Elapsed Time Goal in Calendar Days

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0064
Originator:	S.Tsombaris S Tsombaris	Date:	December 18, 2006(+0)
Supervision:	S. Tsombaris S-Tsombaris	Date:	12/18/06 (+1)
Project Management:	Peter D. Visalli PDVisalli	Date:	12/18/06 (+1)
Proposed Change Title:	Process Service Corridor Access Control		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

During the July 2005 Security System Design Review, LES Operations (Tim Lambka) requested provision for a wall with a double door and card reader between rooms 170 and 120. Similarly, a wall with a double door and card reader to be added on the second and the third floor, to provide personnel access control between the elevator area and the Process Service Corridor. The space above the door to be provided with means to restrict personnel access by virtue of metal screening or wire rope, similar to the installation in Almelo.

Cost. The cost impact is estimated at $30,000/door or $270,000 for buildings 1001, 1003 and 1005.

The work to design and install this change can be accommodated in the project schedule.

Reason for change:
LES Security requires Personnel Access Control at the Process Service Corridor

Safety / Environment	☐
Correction	☐
Improvement	☒

Drawings/Documents Affected (including License Application and ISA Summary):

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2. Architectural drawing 1001-C-ARC-003-01
3. Architectural drawing 1001-C-ARC-004-01
4. SAR Figures: 1.1-5; 1.1-6; 1.1-7
6. ISA SUMMARY Figures: 3.3-2; 3.3-4; 3.3-5

Distribution: LES (D.Sexton & S.Day), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to Individuals in Part 1 Distribution by: (Date) (+5)

AREVA ISA SME –

No ISA impact. ISAS changes per Drawings/Documents Affected. Note - Arch Drawings would affect ER, EP etc.

Name	David M Pope	Position	ISA Scribe	Signature	David M Pope	Date	01/15/07 (+5)

(+x) – Elapsed Time Goal in Calendar Days

CC-EG-2007-0056, RO
Attachment 2, Page 6 of 11

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2006-0064
Originator:	S.Tsombaris S Tsombaris	Date:	December 18, 2006(+0)
Supervision:	S. Tsombaris S-Tsombaris	Date:	12/18/06 (+1)
Project Management:	Peter D. Visalli	Date:	12/18/06 (+1)
Proposed Change Title:	Process Service Corridor Access Control		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

During the July 2005 Security System Design Review, LES Operations (Tim Lambka) requested provision for a wall with a double door and card reader between rooms 170 and 120. Similarly, a wall with a double door and card reader to be added on the second and the third floor, to provide personnel access control between the elevator area and the Process Service Corridor. The space above the door to be provided with means to restrict personnel access by virtue of metal screening or wire rope, similar to the installation in Almelo.

Cost. The cost impact is estimated at $30,000/door for $270,000 for buildings 1001, 1003 and 1005.

The work to design and install this change can be accommodated in the project schedule.

Reason for change:
LES Security requires Personnel Access Control at the Process Service Corridor

Safety / Environment	☐
Correction	☐
Improvement	☒

Drawings/Documents Affected (including Licensee Application and ISA Summary):

1. Architectural drawing 1001-C-ARC-002-01
2. Architectural drawing 1001-C-ARC-003-01
3. Architectural drawing 1001-C-ARC-004-01
4. SAR Figures: 1.1-5; 1.1-6; 1.1-7
5. ISA SUMMARY Figures: 3.3-2; 3.3-4; 3.3-5

Distribution: LES (D.Sexton & S.Day), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+6)

As discussed in Design Review Meeting Cherry Hill!

Name	N. Buitelaar.	Position		Signature		Date	(+6)

(+x) – Elapsed Time Goal in Calendar Days

Part 3 – Disposition				Disposition (check appropriate) Approved [X] Rejected [ ]
	Name	Position	Signature	Date
LES				(+6)
Urenco	M. Buitelaar	UEC Design Authority		01/02/07 (+6)
Disposition Approved:		LES Vice President – Project Management		2/7/07 (+7)

Part 4 - Implementation

Implementation by:		
	LES For 70.72	[X]
	NTS for Design	[X]
	Urenco	[ ]

Implementation Schedule:			
	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	[ ]
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	[ ]
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	[ ]

Approved:	Name	John Suicu	Signature		Date	2/7/07 (+10)
LES Vice President – Licensing, Safety, and Nuclear Engineering						

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

THIS DCC IS SUPPORTED. THERE IS NO IMPACT ON THE CORE TECHNOLOGY OR THE TECHNOLOGY PACKAGE. THIS DCC MEETS THE ORIGINAL DESIGN INTENT.

P MALE MECH PROCESS LE (ETC) 2/2/07

(+x) – Elapsed Time Goal in Calendar Days

Part 3 – Disposition				Disposition (check appropriate) **Approved** ☐ **Rejected** ☐
	Name	Position	Signature	Date
LES	D. Sexton T Hardey	Technical Security Dept LES Licensing	[signature] [signature]	3/6/07 12/19/06 (+6)
Urenco				(+6)
Disposition Approved:		LES Vice President – Project Management		(+7)

Part 4 - Implementation

Implementation by:		
	LES For 70.72 Review	☒
	NTS For Design	☒
	Urenco	☐

Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved:	Name		Signature		Date	(+10)
LES Vice President – Licensing, Safety, and Nuclear Engineering						

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

(+x) – Elapsed Time Goal in Calendar Days

Carr, Sandra

From: Dave Sexton (LES) [dsexton@nefnm.com]
Sent: Tuesday, December 19, 2006 8:41 AM
To: Carr, Sandra
Subject: FW: NEF Project: DCC NEF-2006-0064 - Process Service Corridor Access Control
Attachments: Scan5465.pdf

Sandy,

Please place with DCC.

Dave Sexton, P.E.
Technical Services Director
National Enrichment Facility
(856) 482-3098 (office)
(505) 803-5925 (mobile)

From: Tim.Lambka@ch2m.com [mailto:Tim.Lambka@ch2m.com]
Sent: Tuesday, December 19, 2006 8:40 AM
To: Dave Sexton (LES)
Cc: Ryan Whitford (LES); Sandra Carr
Subject: RE: NEF Project: DCC NEF-2006-0064 - Process Service Corridor Access Control

Dave,

Hers is the signed DCC form for Security.

Thanks

From: Dave Sexton (LES) [mailto:dsexton@nefnm.com]
Sent: Tuesday, December 19, 2006 8:33 AM
To: Lambka, Tim/SPB
Cc: Ryan Whitford (LES)
Subject: RE: NEF Project: DCC NEF-2006-0064 - Process Service Corridor Access Control

Thanks Tim,

Please provide any comments or acceptance of the DCC in Section 2 and return. I want documentation on the DCC that security also concurs with the change. Ryan can also review and sign as needed.

Dave Sexton, P.E.
Technical Services Director
National Enrichment Facility
(856) 482-3098 (office)
(505) 803-5925 (mobile)

From: Tim.Lambka@ch2m.com [mailto:Tim.Lambka@ch2m.com]
Sent: Tuesday, December 19, 2006 8:33 AM
To: Dave Sexton (LES)
Cc: Sandra Carr; Steven Strout (LES); Ryan Whitford (LES); Bruce Rowland (LES); Steve Tsombaris (NTS)
Subject: RE: NEF Project: DCC NEF-2006-0064 - Process Service Corridor Access Control

Dave,

This is in fact a request made by security and operations (Herald Voschezang). Thanks goes out to Steve Tsombaris for capturing the requirements on the DCC form.

From: Dave Sexton (LES) [mailto:dsexton@nefnm.com]
Sent: Tuesday, December 19, 2006 8:23 AM
To: PEPE David M; Lambka, Tim/SPB; TYLER Scott M
Cc: Paul Damerell; Tim Lubnow (MPR); Sandra Carr
Subject: FW: NEF Project: DCC NEF-2006-0064 - Process Service Corridor Access Control

Gentlemen,

I would like all of you to perform a review of this DCC in your respective areas (ISA, security, and fire protection) and document any concerns, comments, and signature on the attached DCC. Please return to me and Sandy Carr.

Thanks,

Dave Sexton, P.E.
Technical Services Director
National Enrichment Facility
(856) 482-3098 (office)
(505) 803-5925 (mobile)

From: Carr, Sandra [mailto:sandra.carr@shawgrp.com]
Sent: Tuesday, December 19, 2006 8:15 AM
To: Allan Brown2; Clark Tracy (CTR); Dave Pepe2; David Riley (ETC); Dave Sexton (LES); Denise Knight; Dick Frazar (LES); Dick Skillman2; Herald Voschezang2; John Lowther (LES); John Swalles (LES); Karl Gross (LES); Marco Buitelaar; Pat Harney (CTR); Paul Damerell; Rae Cogar (LES); Stan Day (LES); Tim Harney (CTR); Tim Lubnow (MPR)
Cc: Stan Dubrul (NTS); Mojibian, Mansour; NEFP; Pickett, Earl; Larry Shea (NTS); Steve Tsombaris (NTS); Peter Visalli (NTS)
Subject: FW: NEF Project: DCC NEF-2006-0064 - Process Service Corridor Access Control

Attached is Design Change Control for your action please:

DCC NEF-2006-0064 - Process Service Corridor Access Control

Sandy Carr

Administrative Assistant
Shaw Stone & Webster
3 Executive Campus
Cherry Hill, NJ 08002
(856) 482-3089 direct
(856) 482-3039 fax

12/19/2006

sandra.carr@shawgrp.com

CC-EG-2007-0056, RD
Attachment 2, Page 11 of 11

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0056	**Revision: 0**
Title (if applicable): Process Services Corridor - Addition of Security Access Control	
Reviewer: Tim Harney	**Organization/Mail Stop/Telephone No./E-mail** **Licensing / Cherry Hill / 720-939-4158 / tharney@nefnm.com**
Functional Area: Licensing	**Date Due: 4/25/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

License Basis Documents reviewed: Emergency Plan, Environmental Report, FNMCP, Material License, ISA Summary, QAPD, and SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:
None

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

There is no impact to IROFS functionality.

Configuration Change Number: CC-EG-2007-0056	**Revision: 0**

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

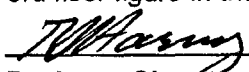
☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Add markup of Figures D-5 and D-6 of the FNMCP, which are also affected by this change (there is no SBM 3rd floor figure in the FNMCP).



Reviewer Signature 4/20/07 **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0056

Title (if applicable): Process Services Corridor - Addition of Security Access Control

Revision: 0

Reviewer				Preparer	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	FNMCP	Figures D-5 and D-6 are affected and need to be updated.	Y	Added Mark-ups	Y

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Timothy Harney / [signature] / Licensing	Date: 4/20/07	Resolved by: E Dale Pruitt	Date: 5/3/07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) [signature]	Date: 5/3/07		

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0056	**Revision: 0**
Title (if applicable): Process Services Corridor - Addition of Security Access Control	
Reviewer: J. Allen/B. Geise	**Organization/Mail Stop/Telephone No./E-mail** **Training/NMJC/492-2543/jallen@nefnm.com** **Training/NMJC/wgeise@nefnm.com**
Functional Area: Support Services	**Date Due: 4/25/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Technical Training

Reviewed the ISA Summary, Operating License, SY-120, Emergency Plan, LS-104; IROFS and associated Accident Sequences, No Impact
There is currently no written training material associated with the Technical Training Program that is affected by these changes. Therefore, this configuration change has no impact on Technical Training.

Operations Training

Reviewed the ISA Summary, Operating License, Emergency Plan, LS-104; IROFS and associated Accident Sequences, No Impact

There is currently no written training material associated with the Operations Training Program that is affected by these changes. Therefore, this configuration change has no impact on Operations Training.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

Reviewed IROFS and associated Accident Sequences. None of the recommended changes affect any Technical or Operations Training material at this time for this functional area.

Configuration Change Number: CC-EG-2007-0056	**Revision: 0**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Reviewer Signature	4/19/07 **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0056	**Revision: 0**
Title (if applicable): Process Services Corridor - Addition of Security Access Control	
Reviewer: David M Pepe	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / Marlborough, MA / 508-573-6513**
Functional Area: ISA / IROFS	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.): ISA , ISA Summary, SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts: No impacts to IROFS functionality.

Configuration Change Number:	**Revision:**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

David M Page — 4/27/07

Reviewer Signature — **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0056	**Revision: 0**
Title (if applicable): Process Services Corridor - Addition of Security Access Control	
Reviewer: Mark Strum	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / 508-573-6578 / mark.strum@areva.com**
Functional Area: HS & E (Radiological Protection)	**Date Due: 4/25/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

The proposed change which adds additional security doors in the Process Security Corridors was reviewed against licensing basis documents that describe occupational health commitments and expected occupational health impacts, ER Sections 3.11 and 4.12.; SAR Section 4.0, Radiation Protection, and ISAS Section 3.8.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts: *There is no change in the occupational radiological impact associated with this CC for normal operations, or accident sequences since no credit for radiological safety to prevent or mitigate the consequences of postulated accidents was assumed for, or provided by the sub-compartments created by the placement of the additional security doors. There are no IROFS's that include or take credit for the doors as indicated in the CC for controlling or mitigating the radiological consequences of accident sequences included in the ISA.*

Configuration Change Number: CC-EG-2007-0056	**Revision: 0**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Mark Strum _____ 4/30/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2007-0056 Title (if applicable): Process Services Corridor - Addition of Security Access Control				Revision: 0	
Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
		None			
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Mark Strum / AREVA / HS&E (Radiological) Mark Strum			Date: 4/30/07	Resolved by:	Date:
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date:		

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0056	**Revision: 0**
Title (if applicable): Process Services Corridor - Addition of Security Access Control	
Reviewer: J. Allen/B. Geise	**Organization/Mail Stop/Telephone No./E-mail** **Training/NMJC/492-2543/jallen@nefnm.com** **Training/NMJC/wgeise@nefnm.com**
Functional Area: Support Services	**Date Due: 4/25/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Technical Training

Reviewed the ISA Summary, Operating License, SY-120, Emergency Plan, LS-104; IROFS and associated Accident Sequences, No Impact
There is currently no written training material associated with the Technical Training Program that is affected by these changes. Therefore, this configuration change has no impact on Technical Training.

Operations Training
Reviewed the ISA Summary, Operating License, Emergency Plan, LS-104; IROFS and associated Accident Sequences, No Impact

There is currently no written training material associated with the Operations Training Program that is affected by these changes. Therefore, this configuration change has no impact on Operations Training.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

Reviewed IROFS and associated Accident Sequences. None of the recommended changes affect any Technical or Operations Training material at this time for this functional area.

Configuration Change Number: CC-EG-2007-0056	**Revision: 0**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Reviewer Signature	4/19/07 **Date**

Return Form to Preparer with copy to CM Coordinator

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0056	**Revision: 0**
Title (if applicable): Process Services Corridor - Addition of Security Access Control	
Reviewer: Ryan Whitford	**Organization/Mail Stop/Telephone No./E-mail** **Security/NEF Site/505-975-5561/rwhitford@nefnm.com**
Functional Area: Support Services	**Date Due: 04/25/2007**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Safeguards Contingency Plan

Standard Practice Procedures Plan for the Protection of Classified Information

Guardforce Training and Qualification Plan

Physical Security Plan

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

This configuration change does impact background information in the Physical Security Plan. Specifically; drawings are figures will need to be revised. The Physical Security Plan does not need to be revised at this time, and will undergo a thorough revision prior to starting Guardforce operations. Based on the above information, SY-120, and SY-130 reviews are not required at this time.

Configuration Change Number: CC-EG-2007-0056	**Revision:** 0

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

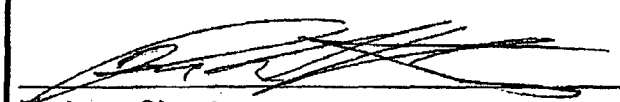
OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:



Reviewer Signature

4/27/07

Date

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 1 of 3

70.72(c) Evaluation Number: 2007-0077 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0056 **Revision Number:** 0

I. Description of Change:

This change provides additional security doors for the SBM-1001. One door was between rooms 170 and 120 on the first floor. Also, walls, doors and barriers were added to the 2nd and 3rd floors to provide personnel access control between the elevator area and the Process Service Corridor. These walls / doors are non load bearing, not a fire barrier and openings above the doors is acceptable.

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer:

This change adds walls and doors which are to be installed in accordance with the codes and requirements of the licensing basis documents. Seismic compliance will be accomplished per confirmatory seismic performance calculations for the seismic IROFS (Reference EE-SEISMIC-2, Table 3.7-4).

The changes were reviewed with regards to radiological and fire safety and the changes were found to be acceptable with no new concerns determined.

The installation would not affect an initiator for, or contributor to any accident sequence identified in ISA Summary Table 3.7-2 or 3.7-4.

Therefore, this change does not create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 that have not previously been described in the ISA Summary.

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer: This activity is a physical construction change that adds walls and doors for security control similar to what is already used throughout the facility. This activity does not use a new process, technology or control system since the technical aspects are common for the construction of this type of facility.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

Basis for answer: ISA Tables 3.7-2 and 3.8-1 were reviewed. No IROFS were identified that would be affected by this activity.

IROFS41 (building leak integrity) would not be affected as these are interior walls and not exterior walls to the outside. If the interior walls collapsed, the exterior walls would still limit leakage. Exterior walls must also sustain expected impacts from falling interior walls. Seismic compliance for the building will be accomplished per confirmatory seismic performance calculations for the seismic IROFS (Reference EE-SEISMIC-2, Table 3.7-4).

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 2 of 3

70.72(c) Evaluation Number: 2007-0077 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0056 **Revision Number:** 0

No safety function of any of the listed IROFS is affected. Thus the proposed change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61.

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer: ISA Table 3.8-2 identifies Sole IROFS.

IROFS41 (building leak integrity) would not be affected as these are interior walls and not exterior walls to the outside. If the interior walls collapsed, the exterior walls would still limit leakage. Exterior walls must also sustain expected impacts from falling interior walls. Seismic compliance will be accomplished per confirmatory seismic performance calculations for the seismic IROFS (Reference EE-SEISMIC-2, Table 3.7-4).

A review of the Sole IROFS did not identify any that would be impacted by these structure changes. Thus the change does not alter any IROFS listed in the ISA summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.72.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer: The change in egress and ingress control accomplished by this structure change is not prohibited by a 10 CFR 70.72 license condition or order. There are no prohibitive statements specified in 10 CFR 70.72. The material License contains specific prohibitive statements concerning the use of certain types of controllers, initial introduction of UF6 to the facility and the depleted UF6 deconversion process. It also contains limits on the types and quantities of material allowed to be on site. The NRC issued orders for the NEF concern additional Security Measures, Protection of Safeguards Information, and Fingerprinting and Criminal Background checks. None of these issues are affected by these changes. Therefore, this change is not otherwise prohibited by 10 CFR 70.72, licnese condition or order.

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 3 of 3

70.72(c) Evaluation Number: 2007-0077 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0056 **Revision Number:** 0

IV. References used to perform the evaluation (if not provided in the response to each question).

1. **Materials License: 11, 14, 20**
2. **NRC Orders: EA-06-193, EA-06-230, EA-06-264, EA-07-086**
3. **Fundamental Nuclear Material Control Plan: Figures D-5, D-6**
4. **ISA Summary: 3.3.1.1, Figures 3.3-2, 3.3-4, 3.3-5, Tables 3.7.2, 3.7.4, 3.8-1, 3.8-2**
5. **SAR: Sections 1.1.2, 3.1.1, Figures 1.1-5, 1.1-6, 1.1-7,**
6. **SER (NUREG 1827): Sections 3.3.1.3**

V. Review and Approval:

10 CFR 70.72(c) Evaluator: Eugene Dale Pruitt (Printed Name) — E Dale Pruitt (Signature) Date: 05/21/07

10 CFR 70.72(c) Reviewer: James Alex Brinkley (Printed Name) — James Alex Brinkley (Signature) Date: 05/21/07

SRC Review Required: (Yes) No (Circle one) If No, provide basis:

CARL MARKERT (Printed Name) SRC Chairman — Carl Markert (Signature) Date: 5/24/2007

2007-24 SRC Meeting Number

NATIONAL ENRICHMENT FACILITY

License Basis Document Change Request

Configuration Change # CC-EG-2007-0056 LBDCR # 07-0008

Preparer Eugene Dale Pruitt / E Dale Pruitt (Print and Sign) Initiation Date 05/19/07

A. Brief Description of Proposed Change [What is being changed and why?]

This change provides additional security doors for the SBM-1001. One door was between rooms 170 and 120 on the first floor. Also, walls, doors and barriers were added to the 2nd and 3rd floors to provide personnel access control between the elevator area and the Process Service Corridor. These walls / doors are non load bearing, not a fire barrier and openings above the doors is acceptable.

B. Change Approval

☒ The LBDCR is a Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections C, D, and E of this form are Not Applicable (N/A).

☐ The LBDCR is not a configuration change. The review process defined below shall be utilized. Complete Sections C, D, and E of this form.

C. Denote the License Basis Documents Affected By the Proposed Change

[Attach Marked-Up Pages of Affected License Basis Document(s)]

LICENSE BASIS DOCUMENT	REVIEW INFORMATION
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with LS-102. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with LS-102. NRC approval required before implementation.
☐ Integrated Safety Analysis Summary	Assess in accordance with LS-104.
☐ Safety Analysis Report	Assess in accordance with LS-104.
☐ Environmental Report	Assess in accordance with LS-104 and EN-103.
☐ Quality Assurance Program Document	Assess in accordance with LS-104 and QA-400.
☐ Emergency Plan	Assess in accordance with LS-104 and EP-120.
☐ Fundamental Nuclear Material Control Plan (non-classified matter)	Assess in accordance with LS-104 and MC-120.

NA
CAP 5/21/07

NATIONAL ENRICHMENT FACILITY

License Basis Document Change Request

Configuration Change # CC-EG-2007-0056 LBDCR # 07-0008

D. Identify Implementation Activities [e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking #
N/A		

E. Review and Approval

Licensing Reviewer: N/A Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

Licensing Manager: _____ Date: _____
(or designee) (Print and Sign)

F. LBDCR Implementation [Completed by Licensing Manager (or designee)]

☐ Supporting Regulatory Assessment(s) determined that regulatory approval is not required prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached to the LBDCR.

☐ Regulatory approval **IS REQUIRED** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and permit) is attached. If applicable, a copy of the completed supporting Regulatory Assessment(s) is attached to the LBDCR.

☐ LBDCR implemented by incorporation into copy of License Basis Document(s) maintained by Records Management and electronic copy of the License Basis Document maintained on the public drive.

License Basis Document	Revision #	Implementation Date

Licensing Manager: _____ Date: _____
(or designee) (Print and Sign)

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

This configuration change addresses the water usage only and does not address the impact of removing the chilled water system or other configuration changes that resulted in changes to the water usage. Descriptive material is changed in the LBDs and is noted on the markups in attachment A.

Preparer (Print Name/Signature): **Frank Kelly** /		**Date: 10/24/07**
CC FAM[1]	**Signature:** Clark T Sacy	**Date:** 10/24/07

(1) The CM Coordinator may sign for the CC FAM for Owner Acceptance Review of Design Deliverables from Design Agencies.

11/30/07

Configuration Change Form

Configuration Change Number: CC-EG-2007-0232 **Revision** 0

Section 2: Disposition of Configuration Change Request

☐ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

- ☐ Construction Management
- ☐ Design Management
- ☐ HS&E
- ☐ Licensing
- ☐ Production
- ☐ Quality Assurance
- ☐ Support Services
- ☐ Chief Financial Officer
- ☐ Technical Services (Mandatory for CC's related to FCR's or to NCR's with disposition of "Repair" or "Use-As-Is")

C. Configuration C

Note: This insert replaces the EG-101 revision 4 documentation for sections 3 forward. See attached memorandum providing details of basis for acceptability.

☐ Proposed change d ed (provide basis below). Route copy to preparer and cor s Management. NA all remaining sections of the CC

☐ Proposed change n linary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

CM Coordinator (Print Name/Signature):	**Date**

Section 3: Disposition of Interdisciplinary Reviews

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) actions. Identify CR actions in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** Frank Kelly	**Date:** 11/30/07
CC FAM(2)	**Signature:** Clark Tracy	**Date:** 11/30/07

(2) The CM Coordinator may sign for the CC FAM for Owner Acceptance Review of Design Deliverables from Design Agencies.

5 5

one illegible

Configuration Change Form

Configuration Change Number: CC-EG-2007-0232	Revision 0

Section 6: Release or Implementation

☒ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted.

☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR actions as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC.

☐ CC is not acceptable, CANCEL **or** HOLD CC as noted.

Comments (Basis): Open items are described in section 5

CC FAM	Signature: Rick Schrader	Date: 4-7-08

Section 7: Configuration Change Closeout

☒ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR actions are closed and the 70.72(c) evaluation per LS-104 is complete as required.

☐ B. The Configuration Change has not been implemented. The basis for this decision is described below.

Comments (as applicable):

Evidence demonstrating configuration documents have been revised is attached. See attachment F

Preparer	Signature: Frank Kelly Frank Kelly	Date: 4/7/07
CM Coordinator	Signature: K.C. PRASAD K.C. Prasad	Date: 4/7/07

Forward to Records Management (CM Coordinator).

NA	No impacts were noted in this review	NA

Quality Assurance Program Description		
DCC related	**Impacted Section**	**Description of change**
NA	No impacts were noted in this review	NA

Material License		
DCC related	**Impacted Section**	**Description of change**
NA	No impacts were noted in this review	NA

Fundamental Nuclear Material Control Plan		
DCC related	**Impacted Section**	**Description of change**
NA	No impacts were noted in this review	NA

E. Administration Building and Visitor Center. Restrooms, service sinks, canteen, and drinking fountains

F. CUB. Restroom, service sink, drinking fountain, emergency shower, and eyewash stations.

G. HVAC Humidifiers in building areas where required.

3.5.4.2.4 Operational Characteristics

Potable water is available for use on demand. The use of potable water is intermittent and there are no continuou thermostatic control of

3.5.4.2.5 Safety Considerations

Failure of this system does not endanger the health and safety of the plant personnel or the public.

3.5.4.3 Deionized Water Supply and Distribution System

Deionized (DI)water is produced on site. A single DI Water Supply and Distribution System provides DI water to the Centrifuge Cooling Water Distribution System of each Separation Building Module, to the laboratory users, to the Liquid Effluent Collection and Treatment System areas, and the Decontamination Workshop areas in the TSB.

3.5.4.3.1 System Description

A single DI Water Supply and Distribution System is located in the CUB. The system consists of a DI water storage tank, a supply pump, bag filter, ultraviolet sterilizers, heat exchanger, replaceable vessel style deionizers, and associated piping and instrumentation. This equipment serves each Separations Building Module, the DI water users in the TSB, ~~and each HVAC unit humidifier.~~ The DI Water Make-up System operates on an intermittent basis, while the DI Water Distribution System operates continuously. The system flow diagram is shown on Figure 3.5-22, Process Flow Diagram, DI Water Supply and Distribution System. The functional requirements of the DI Water Supply and Distribution System are provided in Table 3.5-4, Deionized Water Supply and Distribution System Design Parameters.

Delete reference to DI water for HVAC humidifiers. (humidifiers are now supplied by domestic water)

3.5.4.3.2 Major Components

The major components and de

A. DI water storage tank. L (500 gal). Fiberglass reinforced plastic (FRP) is used because of its compatibility with DI water and low cost. The tank is designed and equipped with a nitrogen blanket to deter biological growth.

Type	Dome roof
Quantity	1
Capacity	1893 L (500 gal)
Operating temperature	Ambient
Operating pressure	Approx. 76.2 mm (3 in) water column
Materials of construction	FRP

Table 3.5-2 Compressed Air System Design Parameters

Nos. of Air Compressors and Air System Components Required	Two of each
Design Air Compressor Capacity, ea	
Design Compressor Outlet Air Press	
Compressed Air Receiver Tank, O Pressure	
Compressed Air Distribution System Design Pressure	
Compressed Air Receiver Tank Capacity	
Compressed Air Receiver Tank Capacity	
Compressed Air Dew Point	-40°C [illegible] 75 psig)
Maximum Oil Concentration in Compressed Air	0.5 m
Maximum Particle Size in Compressed Air	1.0 micron

Area / Usage	Average Usage Rates		
	Gal/Day	GPM	Gal/Year
Domestic (Potable) Water	16,531	11.48	6,033,906
Cooling Tower Make Up	23,879	16.6	8,720,000
DI Water Make Up	2,304	1.6	840,960
Total Liquid Effluents	1,835	1.27	669,775
Total Average Flow (rounded up)	**44,500**	**31 ***	**16,265,000**

* Implies a constant and continuous (non-stop) supply of water flowrate. In reality, the City of Eunice Municipal Water Authority needs to supply water at a flowrate of 200 gpm to the facility to support the fire tank water replenishment – see discussion in Section 8.3 below. Thus, at 200 gpm, the daily water usage can be replenished in 3.7 hours (i.e. [44,500 gallons] / [200 gal/min] / [60 min/hour] = 3.7 hours).

Replace table

Table 3.5-3 Average Water Consumption

	Average (L/s (gal/d))
Potable Water	0.2 L/s (5,250 gal/d)
Process Water (Cooling Tower Water)	2.5 L/s (56,338 gal/d)
Process Water (Other)	0.1 L/s (1,835 gal/d)
Total	2.8 L/s (63,423 gal/d)

2.1.2.4.7 Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System provides exhaust of potentially hazardous contaminants from the Centrifuge Test and Post Mortem Facilities. The system also ensures the Centrifuge Post Mortem Facility is maintained at a negative pressure with respect to adjacent areas. The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System is located in the Centrifuge Assembly Building and is monitored from the Control Room.

The ductwork is connected to one filter station and vents through either of two 100% fans. Both the filter station and either of the fans can handle 100% of the effluent. One of the fans will normally be in standby. Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down. After filtration, the clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the monitored (alpha and HF) stack on the Centrifuge Assembly Building.

2.1.2.5 Site and Nearby Utilities

168.5 m^3/day (44,500 gal/d)

The cities of Eunice and Hobbs, New Mexico will provide water to the site. Water consumption for the NEF is calculated to be ~~240 m^3/day (63,423 gal/d)~~ to meet potable and process consumption needs. Peak water usage for fire protection is ~~33 L/s (521 gal/min)~~. The natural gas requirements of the plant are 354 m^3/hr (12,500 ft3/hr). Electrical service to the site will be provided by Xcel Energy. The projected demand is approximately 30 MW. Six septic tanks, each with one or more leach fields, will be installed onsite for the collection of sanitary and non-contaminated liquid waste.

23.3 L/s (369 gal/min)

Identified, onsite pipelines include a 25.4-cm (10-in) diameter, underground carbon dioxide pipeline that runs southeast-northwest. This pipeline is owned by Trinity Pipeline LLC. A

40.6-cm (16-in) diameter, underground natural gas pipeline, owned by the Sid Richardson Energy Services Company, is located along the south property line, paralleling New Mexico Highway 234. A parallel 35.6-cm (14-in) diameter gas pipeline is not in use. There are no known onsite underground storage tanks, wells, or sewer systems.

Detailed information concerning water resources and the use of potable water supplies is discussed in ER Section 3.4, Water Resources, and the impacts from these water resources are discussed in ER Section 4.4, Water Resources Impacts. A discussion of impacts related to utilities that will be provided is included in ER Section 4.1, Land Use Impacts.

2.1.2.6 Chemicals Used at NEF

The NEF uses various types and quantities of non-hazardous and hazardous chemical materials. Table 2.1-1, Chemicals and Their Properties, lists the chemicals associated with the NEF operation and their associated hazards. Tables 2.1-2 through 2.1-5 summarize the chemicals in use and storage, categorized by building. These tables also include the physical state and the expected quantity of chemical materials.

Table 3.4-4 Anticipated Normal Plant Water Consumption

Potable Water/Sewer Average Consumption	**L/Day**	**Gal/Day**
All Shifts – 210 People	19,873	5,250
Cooling Tower Water		
Process Cooler Drift	5,924	1,565
Process Cooler Evaporation	59,677	15,765
Process Cooler Blowdown	22,379	5,912
HVAC Cooler Drift	6,768	1,788
HVAC Cooler Evaporation	80,035	21,143
HVAC Cooler Blowdown	30,015	7,929
Humidification	8,464	2,236
Total Cooling Water	213,263	56,338
Summation of Liquid Effluents (excluding utilities)		
Floor Washings, Misc Effluent	Replace Table with attached	17
Degreaser Washer		3
Citric Acid	8	2
Laundry	1,113	294
Hand Wash and Shower Water	5,754	1,520
Total Liquid Effluents	6,950	1,836
Total City Water Consumption	240,086	63,423

Table 3.4-5 Anticipated Peak Plant Water Consumption

				Flow Rate	
Peak Potable Water Consumption	**No. of Fixtures**	**Fixture Units**	**Total Fixtures**	**gpm**	**L/s**
TSB Sinks	10	3	30		
TSB WC	10	4	40		
TSB Urinals	3	2	6		
TSB Showers	4	2	8		
TSB JC	1	3	3		
Admin Sinks	6	3	18		
Admin WC	7	4	28		
Admin Urinals	2	2	4		
Admin JC	1	3	3		
CAB Sinks	9	3	27		
CAB Urinals	2	2	4		
CAB JC	1	3	3		
CAB WC					
Fixture Subtotal				93	5.9
Safety Showers (estimate				30	1.9
Total				123	8
Peak Process Water Consumption					
DI Water Makeup				30	1.9
Boiler Make-up				20	1.3
CH Water Make-up				20	1.3
Tower Water Make-Up				175	11.0
Laundry	1	3	3	10	0.6
HVAC Humidifiers				0	0
Total				255	16.1
Two 474 m^3 (125,000-Gal) Fire Water Tanks				520.8	32.9

Replace Table with attached

Table 3.12-4 Estimated Annual Liquid Effluent
(Title missing in rev 9a)

Effluent	Typical Annual Quantities	Typical Uranic Content
Contaminated Liquid Process Effluents:	**m^3 (gal)**	**kg (lb)**
Laboratory Effluent/Floor Washings/Miscellaneous Condensates	23.14 (6,112)	16 (35)[1]
Degreaser Water	3.71 (980)	18.5 (41)[1]
Spent Citric Acid	2.72 (719)	22 (49)[1]
Laundry Effluent	405.8 (107,213)	0.2 (0.44)[2]
Hand Wash and Showers	2,100 (554,820)	None
Total Contaminated Effluent :	2,535 (669,884)	56.7 (125)[3]
Cooling Tower Blowdown:	19,123 (5,051,845)	None
Heating Boiler Blowdown:	138 (36,500)	None
Sanitary:	7,253 (1,916,250)	None
Stormwater Discharge:		
Gross Discharge[4]	174,100 (46 E+06)	None

1 Uranic quantities are before treatment, volumes for degreaser water and spent citric acid include process tank sludge.

2 Laundry uranic content is a conservative estimate.

3 Uranic quantity is before treatment. After treatment approximately 1% or 0.57 kg (1.26 lb) of uranic material is expected to be discharged into the Treated Effluent Evaporative Basin.

4 Maximum gross discharge is based on total annual rainfall on the site runoff areas, contributing runoff to the Site Stormwater Detention Basin and the UBC Storage Pad Stormwater Retention Basin, neglecting evaporation and infiltration.

PROPRIETARY INFORMATION

Table 1.1-3 Estimated Annual Liquid Effluent

Effluent	Typical Annual Quantities	Typical Uranic Content
Contaminated Liquid Process Effluents:	m^3 (gal)	kg (lb)
Laboratory Effluent/Floor Washings/Miscellaneous Condensates	23.14 (6,112)	16 (35)[1]
Degreaser Water		18.5 (41)[1]
Spent Citric Acid		22 (49)[1]
Laundry Effluent		0.2 (0.44)[2]
Hand Wash and Showers	2,100 (554,802)	None
Total Contaminated Effluent :	2,535 (669,884)	56.7 (125)[3]
Cooling Tower Blowdown:	19,123 (5,051,845)	None
Heating Boiler Blowdown:	138 (36,500)	None
Sanitary:	7,253 (1,916,250)	None
Stormwater Discharge:		
Gross Discharge[4]	174,100 (46 E+06)	None

Replace Table 1.1-3 with attached replacement table

[1]Uranic quantities are before treatment, values for degreaser water and spent citric acid include process tank sludge.
[2] Laundry uranic content is a conservative estimate.
[3] Uranic quantity is before treatment. After treatment approximately 1% or 0.57 kg (1.26 lb) of uranic material is expected to be discharged into the Treated Effluent Evaporative Basin.
[4]Maximum gross discharge is based on total annual rainfall on the site runoff areas contributing runoff to the Site Stormwater Detention Basin and the UBC Storage Pad Retention Basin neglecting evaporation and infiltration.

7.5 FIRE PROTECTION AND EMERGENCY RESPONSE

This section documents the fire protection systems and fire emergency response organizations provided for the facility.

7.5.1 Fire Protection System

The facility fire protection systems consist of a dedicated fire water supply and distribution system, automatic suppression systems (sprinklers and alternate systems), standpipe and hose systems, portable fire extinguishers, fire detection and alarm systems, fire pump control systems, valve position supervision, system maintenance and testing, fire prevention program, fire department/fire brigade response and pre-fire plans.

7.5.1.1 Fire Water Supply and Distribution System

A single Fire Protection Water Supply System provides st~~~~ 681,000 L (180,000 gal)
Fire Protection System that protects the entire facility as ~~shown in Figure 7.5-1, Exterior Fire~~ Protection System Overall Site Plan, and Figure 7.5-2, Sprinkler System Coverage.

7.5.1.1.1 System Description

A reliable fire protection water supply and distribution system of adequate flow, pressure, and duration is provided based on the characteristics of the site and the FHA. The fire protection water supply and distribution system is based on the largest fixed fire suppression system demand, including a hose stream allowance, in accordance with NFPA 13. The fire protection water supply consists of two 946,354-lL (250,000-gal) (minimum) water storage tanks designed and constructed in accordance with NFPA 22. The tanks are used for both fire protection water supply and process water supply. A reserve quantity of ~~473,179 L (125,000 gal)~~ is maintained in the bottom of each tank for fire protection purposes. The elevation of the suction line for the process water pump is above the level of the required fire protection water supply in each tank. Thus the process water pump cannot pump water required for fire protection purposes. The fire protection water supply in each tank is sized for the maximum anticipated water supply needed to control and extinguish the design basis fire at the facility. Two, 3785 l/min at 10.35 bar (1000 gpm at 150 psi) horizontal, centrifugal, fire pumps designed and installed in accordance with NFPA 20 are provided. For redundancy the capacity of the fire protection water supply is designed to ensure that 100% of the required flow rate and pressure are available in the event of failure of one of the water storage tanks or fire pumps. The maximum demand anticipated based on a design basis fire is 3785 l/min (1000 gpm) based on 1982 l/min (500 gpm) flowing from a building sprinkler system plus 1982 l/min (500 gpm) for hose streams for a duration of two hours. The tanks are arranged so that one will be available for suction at all times.

Fill and make up water for the storage tanks are from the city water supply to the site which is capable of filling either storage tank in an 8-hour period.

The fire water service main for the plant is designed and installed in accordance with NFPA 24. The distribution system, including piping associated with the fire pumps is looped and arranged so that a single pipe break or valve failure will not totally impair the system per the Fire Hazard Analysis and NFPA 801. Through appropriate valve alignment, either fire pump can take suction from either storage tank and discharge through either leg of the underground piping loop. The system piping is sized so that the largest sprinkler system demand (including hose

	• LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-400, Quality Assurance Program Description Changes
☐ Emergency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-120, 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☐ FNMCP (non-classified matter)	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-120, 10 CFR 70.32(c)(1)(iii) Change Evaluation.
☐ Physical Security Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
Continued next page.	

LBDCR Form
Page 3 of 3

LBDCR No: 08-0004 Configuration Change No: CC-EG-2007-0232 Revision 0

6. LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☒ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

☒ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-101, Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.
RM-3 3000-01-F-3 01-30-08	ISAS	10
RM-3 3000-01-F-3 01-30-08	EA	10
RM-3 3000-01-F-3 01-30-08	SMA	16

7. LBDCR Approval

Licensing Director: Vera Hall for Steve Coon, Date: 2/4/08
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: / Date:
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: / Date:
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

NTS Configuration Change Impact Assessment

CCIA No. NTS-0176
(Note 1)
Reference DCC No(s). N/A

C. List NTS Configuration Documents Requiring Revision/Issue. List the SAR, ISA, ER, or SER reviewed to asses the Impact of Change in Part D. Identify those that require revision to implement the Configuration Change.

SEE DESCRIPTION OF CHANGES FOR CONFIGURATION DOCUMENTS REVISION

D. Impact of Change: (Describe any known or anticipated impacts on the following LES Design Input Documents:, the SAR, ISA, ER, or SER.

FOR ANTICIPATED AND APPARENT IMPACTS, SEE ATTACHED DESCRIPTION OF VARIOUS LICENSING DOCUMENTS

CONFIGURATION CHANGE IMPACT ASSESSMENT

Configuration Change Tracking No.: **CCIA-CM-NTS-0176**

Calculation No. 114489-M-0006, Revision 02, Water Balance

Summary

This configuration change impact assessment (CCIA) package provides Revision 02 to Calculation 114489-M-0006. The calculation supersedes Revision 01. As a new objective, the calculation determines the water pressure and flow rate necessary to assure that the site water requirements are met. This additional objective responds to Condition Report CR 07-0201, 14" Potable Water Line. The calculation determines that a flow test should be conducted at a flow rate of 200 gpm to demonstrate that a minimum pressure of 31 psig can be maintained at the fence post.

Nuclear Technology Solutions, LLC

CALCULATION TITLE PAGE

CLIENT & PROJECT	PAGE 1 OF 15
LOUISIANA ENERGY SERVICES/NATIONAL ENRICHMENT FACILITY	Total Pages (incl. Attachments) = 67

CALCULATION TITLE (Indicative of the Objective):	QA LEVEL (X)
Water Balance	☐ 1 – ITEMS RELIED ON FOR SAFETY (IROFS) AND SAFE BY DESIGN ☐ 2 ☒ 3 ☐ OTHER

CALCULATION IDENTIFICATION NUMBER				OPTIONAL
J.O. OR W.O. NO.	DISCIPLINE CODE	SEQUENCE NUMBER	REVISION NUMBER	WORK PACKAGE NO.
114489	M	0006	02	N/A

APPROVALS-SIGNATURE & DATE			REV. NO. OR NEW CALC. NO.	SUPERSEDES CALC. NO. OR REV. NO.	CONFIRMATION REQUIRED (X)	
PREPARER(S)/DATE(S)	REVIEWER(S)/DATE(S)	INDEPENDENT REVIEWER(S)/DATE(S)			YES	NO
I Marsh 9/28/05	F Capuano 9/28/05	N/A	00	N/A	X	
M. O. Bandeira 9/17/07	R. Terry 9/17/07	N/A	01	00	X	
M. O. Bandeira 10/15/07	R. Terry 10/15/07	N/A	02	01	X	

DISTRIBUTION

GROUP	NAME & LOCATION	GROUP	NAME & LOCATION
DOCUMENTUM	R RUMBOS RSR 10/15/07		

CALCULATION IDENTIFICATION NUMBER					
PROJECT or W.O. NO.	DISCIPLINE CODE	SEQUENCE NO.	REV NO	WBS NO.	PAGE
114489 -	M -	0006	02		3 of 15

REVISION STATUS SHEET

Revision Number	Affected Sections	Description of Revision
00	N/A	Original Issue
01	1, 2, 3, 4, 6, 7, 8 Attachment A, Attachment C, Attachment D	• Deleted "Review Statement Sheet". • Renumbered pages. • Added new Section "INPUTS". • Incorporated the effects of DCC 2007-0009, "Removal of CUB Chillers" that eliminated the cooling towers that supported the HVAC chillers. The cooling tower water usage requirement was reduced as a result of this document. • Reevaluated the Domestic (Potable) Water and Cooling Tower Water usage. New cooling tower data is available in Attachment C. Site Population projections are provided in Attachment D. New water usage values are located in Attachment A.
02	All pages of Calculation Body and Attachment A were revised. New Attachment E has been added.	• Renumbered pages • CONFIRMATION REQUIREMENT SUMMARY ▪ Removed discussion regarding the following Sections since calculation 114489-M-0018, Revision 1 has been issued: ▪ Reference 5.11, ▪ Input 4.3, ▪ Section 7.5, ▪ Section 8.2. • Section 1 OBJECTIVE ▪ Numbered each Objective ▪ Added a new Objective – see new Objective 1.3 • Section 3 METHODOLOGY ▪ Numbered each Methodology step ▪ Added new step to Mehodology Section – see step 3.5 • Section 4 INPUTS ▪ Step 4.3 – Clarified that the volume of water required in each fire tank is 180,000 gallons. Removed CONFIRMATION REQUIRED. • Section 5 REFERENCES ▪ Added additional References • Section 7 CALCULATION / ANALYSIS ▪ Step 7.5 – Clarified that the volume of water to be maintained and replenished following a design basis fire is 180,000 gallons.

CALCULATION IDENTIFICATION NUMBER						
PROJECT or W.O. NO.		DISCIPLINE CODE	SEQUENCE NO.	REV NO	WBS NO.	PAGE
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CONFIRMATION REQUIREMENT SUMMARY

Assumption 2.4	Cooling tower performance, as shown in Attachment A, is based on preliminary vendor input. **COMFIRMATION REQUIRED**
Section 3, Methodology	DI water usage is estimated in Calculation 114489-M-0029 (Reference 5.10) Revision 4. **CONFIRMATION REQUIRED**
Reference 5.10	Calculation 114489-M-0029 Revision 4 pending issuance
Input 4.2	The deionized water usage of 40 gpm is from Calculation 114489-M-0029 (Reference 5.10), Revision 4. **CONFIRMATION REQUIRED**
Attachment A page 2 of 6	Deionized Water usage is from Calculation 114489-M-0029 (Reference 5.10) Revision 4. **CONFIRMATION REQUIRED**

CALCULATION IDENTIFICATION NUMBER						
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The above estimates for individual means of plant water usage are then combined, as appropriate, to establish minimum tank sizes to accommodate the storage of either potable or process water for a required reserve reservoir containing a two-day water supply to meet the plant's projected needs.

3.5 To evaluate the ability of the Process Water System to provide the required flow from the City Supply Node at the LES site boundary to the Process Water Tank, the following steps were taken.

- Developed material takeoffs for the Process Water from the site boundary to the Process Water Tank to establish piping lengths, type and number of fittings, elevations, etc.

- Develop an Excel spreadsheet that uses standard pressure drop methodology (i.e. L/D, K, Cv) and populated with the information obtained from the material takeoffs for each segment.

  This spreadsheet uses accepted engineering methodology presented in Crane (Reference 5.23) and Cameron (Reference 5.23) to estimate the pressure drop through the system. The basic methodology was to establish the various accepted engineering parameters for the various components in the system piping runs. These engineering parameters include the L/D, K, and Cv that best describe the contribution to pressure loss for the specific components. Once the individual parameters were selected from engineering technical source documents such as Crane and Cameron or from applicable equipment drawing / datasheets, all of the component sets were translated into total L/Ds for the individual component sets.

  The pressure drop, due to flow, associated with each system segment was calculated by using the following fundamental equation:

$$\Delta H = f\left(\frac{L}{D}\right)\frac{V^2}{2g_c} = K\frac{V^2}{2g_c}$$

  The ΔH equation above converts into the following equation, used in the spreadsheet model, after the units and constants are normalized:

$$\Delta H = 0.00259\left[f\left(\frac{L}{D}\right)\right]\frac{Q^2}{d^4}$$

  Where: Δ H = pressure drop across the segment; ft
  f = friction factor;
  V = velocity of the fluid inside the component, fps;
  f(L/D) = K, the resistance coefficient associated with each component obtained from Crane or Cameron; (L = length, ft; D = inside diameter, ft);
  g_c = gravity constant = 32.2 ft/sec^2
  d = inside diameter, inches,
  Q = rate of flow in gpm

  The tabulation in the spreadsheet follows fundamental engineering principals for the calculation of pressure drops in a system and is self explanatory.

CALCULATION IDENTIFICATION NUMBER						
PROJECT or W.O. NO.	DISCIPLINE CODE	SEQUENCE NO.	REV NO	WBS NO.	PAGE
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$$v=\frac{D_t}{t}$$

Since by Bernoulli's principal all of the residual pressure at the nozzle exit is converted to velocity, it is possible to calculate the residual pressure as follows:

$$P_{residual}=\frac{v^2}{2g}$$

These steps were performed in the spreadsheet in Attachment E to determine the required residual pressure.

4 INPUTS

4.1 The domestic (potable) water peak usage of 290 gpm is from Calculation 114489-M-0066 (Reference 5.3)

4.2 The deionized water usage of 40 gpm is from Calculation 114489-M-0029 (Reference 5.10), Revision 4. **CONFIRMATION REQUIRED**

4.3 The volume of water required in each fire water tank is 180,000 gallons per Calculation 114489-M-0018 Revision 1 (Reference 5.11).

4.4 The liquid effluent values are from Lockwood Greene Calculation L4-50-05-CALC (Reference 5.5)

5 REFERENCES

5.1 NOT USED

5.2 NTS Calculation 114489-M-0005 Rev 0, 09/08/05, Wet Bulb/Dry Bulb Temperature Analysis

5.3 NTS Calculation 114489-M-0066, Revision 0, Overall Plant Domestic Water Demand and Sizing of Domestic Water Booster Pump

5.4 Response to NTS Question 134 – This document is included in this calculation as Attachment D

5.5 Lockwood Greene Calculation L4-50-05-CALC, City Water Consumption

5.6 NOT USED

5.7 ASME Steam Tables, 1967 Edition

5.8 Specification 114489-S-M-15641, High Efficiency Closed Cell Cooling Tower

5.9 NTS Calculation 114489-M-0002, Revision 0, Attachment G, Page 7, Cooling Tower Data Sheet

5.10 NTS Calculation 114489-M-0029, Revision 4, Sizing the Deionized Water System **CONFIRMATION REQUIRED**

5.11 NTS Calculation 114489-M-0018, Revision 1, Fire Protection Water Demand and Water Supply Requirements

5.12 Integrated Safety Analysis Summary (ISAS), Revision 5

5.13 Safety Analysis Report (SAR), Revision 13

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for 10% intervals for an earlier tower selection with lower switch points. This profile was a linear relationship between duty and temperature. The current tower selections have better water conservation characteristics with higher switch points. Using the 100% and 50% switch points provided with the current tower selections and applying the same linear relationship from the previous selections a new performance profile was developed for use in calculating the cooling tower water usage.

7.3 Cooling Tower Water Usage

The cooling tower water usage consists of evaporation, blow down and drift. The evaporation is determined by the relationship Evap = Flow *ΔT / H_L where H_L is the latent heat of vaporization of water. The flow rate is 7,400 gpm with a corresponding temperature range of 6.5°F for the process centrifuge water system from the Cooling Tower Specification (Reference 5.8). The vendor provided performance data from Attachment C is based on a slightly higher flow rate (7,695 gpm with a corresponding temperature range of 7.5°F). It is conservative and deemed adequate for estimating the average make-up rate for the towers. H_L is taken from the ASME Steam Tables (Reference 5.7) for the makeup water which is assumed to be 80°F.

The blow down is determined by the amount of concentrations allowed in the tower basin. A typical value is in the 5 to 6 range so for the purpose of this calculation a value of 5.5 was assumed.

Drift is a function of the spray water flow. The amount of drift varies based on the type of tower and the type of drift eliminators used in the tower. The hybrid towers conceptually selected for this application typically have very low drift rates. Since drift is a very small quantity compared with the evaporation a value of 0.001% was assumed. The spray water flow is 903 gpm per cell for this type of hybrid tower per Cooling Tower Datasheet (Reference 5.9).

The annual average usage was determined by factoring the total peak usage by the percentage of duty done in the wet section of each tower. The weighted averages for each temperature range are summed to determine the annual average.

7.4 Potable Water Usage

Peak potable water usage is estimated using the value from calculation 114489-M-0066 (Reference 5.3). Average potable water usage is estimated from the number of people that will work at the facility as described in NTS Question 134 Response (Reference 5.4).

7.5 Fire Protection

The volume of fire protection water required to be maintained and replenished following a design basis fire is 180,000 gallons based on calculation 114489-M-0018, Revision 1 (Reference 5.11).

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Since a 48 hour storage requirement is needed, and the average water usage per day is 16,531 gallons per day, the required volume to meet the 48 hour requirement is as follows:

$$\text{Domestic Water Storage Volume} = \frac{16{,}531 \text{ gallons}}{24 \text{ hours}} * 48 \text{ hours} = 33{,}062 \text{ gallons}$$

The above is the minimum domestic water storage volume required.

- Process Water Storage (Tank) Volume

The Process Water storage tank is required to store enough water for 2 days (48 hours) to support the process water system and the fire water system needs.

Since a 48 hour storage volume is needed and the average process water usage per day is 26,669 gallons per day (i.e. from the Table above: 44,500 gallons total – 16,531 gallons domestic water = 27,969 gallons), the required volume to meet the 48 hour requirement is as follows:

$$\text{Process Water Storage Volume} = \frac{27{,}969 \text{ gallons}}{24 \text{ hours}} * 48 \text{ hours} = 55{,}938 \text{ gallons}$$

In addition to the above volume there is another requirement related to replenishing the Fire Water Storage tank in 8 hours following a design basis fire. From Calculation 114489-M-0018 (Reference 5.11) the fire water tank volume to be replenished is 180,000 gallons.

Thus, the total storage volume required is the sum of the Process Water usage in 48 hours plus the fire water tank volume:

Process Water Volume + Fire Water Volume = 55,938 gallons + 180,000 gallons = 235,938 gallons.

The above volume is the minimum required Process Water storage volume necessary to meet the ISAS (Reference 5.12) requirements to sustain a loss of water supply to the facility for 48 hours.

8.2 Peak Water Usage

The peak water usage rates are shown in the following table.

Peak Water Usage Rate (see Attachment A page 2 of 6)

Area / Usage	GPM
Domestic (Potable) Water	290.0
Cooling Tower Make Up	56.2
DI Water Make Up	40.0
Total Peak Flow	**386.2**

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- City Water Supply Pressure at Site Boundary = 31 psig (i.e. rounded up from 30.7 psig stated in Attachment E)

9 CONCLUSIONS

9.1 The estimated annual NEF water usage is 16,265,000 gallons / year. This is less than the licensing requirement of 23,186,000 gallons / year established in calc L4-50-05-CALC (Reference 5.5).

9.2 The minimum Domestic Water Tank storage volume requirement is 33,062 gallons.

9.3 The minimum Process Water Tank storage requirement is 235,938 gallons.

9.4 The domestic (potable) peak water flowrate is 290 gpm.

9.5 The makeup flowrate from the Process Water tank to the Fire Water tank is 375 gpm to assure that the fire water volume is replenished within 8 hours.

9.6 City Water supply flowrate required is 200 gpm at a supply pressure of 31 psig at the site boundary to satisfy the conditions described under Section 8.3 of this Calculation.

Area / Usage	Data Source	GPM
Domestic Water	Note 1	290.0
Cooling Tower Make Up	Note 2	56.2
Deionized Water Make Up	Note 3	40.0
Fire Protection	Note 4	375.0

Notes

Note 1: Value for the peak flowrate is from Calculation 114489-M-0066.

Note 2: See Cooling Tower Water Usage Tabulation on page 4.

Note 3: From Calculation 114489-M-0029 (Reference 5.10) **CONFIRMATION REQUIRED.** Values are small relative to the cooling tower & potable usages.

Note 4: Fire Protection Volume requirements are 180,000 gallons per calculation 114489-M-0018 (Reference 5.11). This volume must be replenished in 8 hours, hence the flowrate is calculated above.

Process Cooling Water System Cooling Tower

Peak Evaporation & Makeup Rate		
Rate = $Q*R/H_L$		
Tower Flow	7400	GPM
Range	6.5	
No. of Cells Operating (12 available, 9 required)	9	
Spray Flow per Cell	903	GPM
Peak Flow	45.9	GPM
Blowdown Rate		
Rate = Evap/(Conc - 1)		
Concentrations	5.5	
Peak Evaporation Flow	10.20	GPM
Drift		
Rate = 0.001% of Spray Flow	0.08	GPM
Make Up Water		
Rate = Evap + Blowdown + Drift	56.16	GPM

Cooling Tower Flow	
Total Cooling Tower Peak Flow	**56.2 GPM**
	80,900 GPD
Total Cooling Tower Average Flow	**16.6 GPM**
	23,879 GPD
	8,720,000 GPY

Annual Makeup Rate					
Switch Point Temp °F	Percentage of Wet Cooling	Avg of Range of Temp °F	Percent of the Year	Weighted Rate	Flow Units
87.5	1.00			7.19	
		86.41	0.1280		
85.3	0.90			1.34	
		84.08	0.1545		
82.8	0.80			1.46	
		81.60	0.1869		
80.4	0.70			1.39	
		79.12	0.2224		
77.9	0.60			1.38	
		76.64	0.2634		
75.4	0.50			1.22	
		74.16	0.3067		
72.9	0.40			1.07	
		71.68	0.3544		
70.4	0.30			0.79	
		69.20	0.4012		
68.0	0.20			0.50	
		66.72	0.4461		
65.5	0.10			0.24	
		64.24	0.4891		
63.0	0				
Average Rate				16.6	GPM
				23,879	GPD
Total Annual Flow			8,720,000		Gallons

NOTE: The above analysis is conservative. The cooling tower data is based on a higher process flowrate than 7,400 gpm

Latent heat of vaporization for water at 80 °F,	$H_{L_{80}}$ =	1,048.3	Btu/lb

Fraction of Time Temperature is Exceeded

Temperature	Fraction of Time Temperature is Exceeded
°F	ATI
30	0.9900
35	0.9345
40	0.8700
45	0.7937
50	0.7159
55	0.6345
60	0.5551
65	0.4772
70	0.3867
75	0.2906
80	0.2078
85	0.1425
90	0.0910
95	0.0430
100	0.0096

WCS & Hobbs Dry Bulb Temperature Data Percent of Time Equal To or Exceeded

Dry Bulb Temperature		WCS Hourly Data		Hobbs Data	
		ATI	ATu	Mean Daily	Hourly
°F	°C	%	%	%	%
30.00	-1.11	99.00	98.27	99.24	97.41
35.00	1.67	93.45	93.28	97.95	94.21
40.00	4.44	87.00	87.09	93.70	88.93
45.00	7.22	79.37	79.94	86.26	81.22
50.00	10.00	71.59	72.35	77.68	74.54
55.00	12.78	63.45	64.26	68.94	66.50
60.00	15.56	55.51	56.71	60.52	58.80
65.00	18.33	47.72	48.94	52.54	49.62
70.00	21.11	38.67	39.80	45.41	38.98
75.00	23.89	29.06	29.34	35.76	29.70
80.00	26.67	20.78	20.38	24.37	21.06
85.00	29.44	14.25	13.44	10.86	14.03
90.00	32.22	9.10	7.62	2.13	7.86
95.00	35.00	4.30	2.81	0.30	3.81
100.00	37.78	0.96	0.37	0.00	0.85

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Average City Water Consumption

Potable Water/Sewer Average Consumption	# people [1]	Gal/8 hr Day/Person [3]	Gal/Day	Gal/Yr	Liters/sec
All Shifts	210	25	5,250	1,916,250	0.2

Cooling Tower Water			GPM	Gal/Day	Gal/Yr	Liters/sec
Process Cooler Drift			1.1	1,565	571,196	0.1
Process Cooler Evaporation			10.9	15,765	5,754,407	0.7
Process Cooler Blowdown			4.1	5,912	2,157,903	0.3
HVAC Cooler Drift			1.2	1,788	652,795	0.1
HVAC Cooler Evaporation			14.7	21,143	7,717,178	0.9
HVAC Cooler Blowdown			5.5	7,929	2,893,942	0.3
Humidification (DI Water Makeup)			1.6	2,236	815,994	0.1
Total Cooling Water			39.1	56,338	20,563,415	2.5

Summation of Liquid Effluents (excluding utilities) [2]				Gal/Day	Gal/Yr	Liters/sec
Floor Washings, Misc. condensates, and Lab effluent				17	6,112	0.0
Degreaser Water				3	980	0.0
Citric Acid				2	719	0.0
Laundry				294	107,213	0.0
Hand Wash and Shower Water				1,520	554,820	0.1
Total Liquid Effluents				1,835	669,844	0.1

				Gal/Day	Gal/Yr	Liters/sec
Boiler Blowdown [4]				100	36,500	0.0

				Gal/Day	Gal/Yr	Liters/sec
Total City Water Consumption				63,523	23,186,009	2.8

NOTES:

1. Number of people from RIMS Model.
2. Liquid Effluents for plant identified in L4-53-47-LIST - Summary of Annual Liquid, Solid, and Gaseous Effluents.
3. Estimated waste/sewage flow rates from Uniform Plumbing Code Illustrated Training Manual (2000 Edition), Appendix K (page 505) - UPC Table K-3.
4. Boiler blowdown from vendor.

3. OUTSTANDING ISSUES

N/A

4. QUALITY ASSURANCE SYSTEM

This document conforms to the Lockwood Greene Nuclear Quality Assurance Program, which is based upon ASME NQA-1-1994 and Title 10, Code of Federal Regulations (CFR) Part 50, Appendix B.

5. NUCLEAR SAFETY CRITERIA

N/A

process cooling towers operating, 21 grains/lb cooling tower differential for evaporation, and 10 grains/lb differential humidification makeup

e. Cooling tower drift is 0.02%

f. Weather data used to determine water consumption quantities is average and future conditions will not deviate significantly from recorded data

g. The building sizes, building equipment loads, and building orientations will not change

h. A safety factor of 15% was included in Cooling Tower and Humidifcation water usage calculations.

8. REGULATORY REQUIREMENTS

a. Uniform Plumbing Code Illustrated Training Manual (2000 Edition)

9. REGULATORY GUIDANCE

N/A

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10. REFERENCES

a. L4-50-01-FHA – Fire Hazards Analysis for License Application

b. L4-50-03-STU – Study Report – Heat Rejection Options

c. L4-53-47-LIST – Summary of Annual Liquid, Solid, and Gaseous Effluents

d. L4-20-03-NAR – The Potential Economic Impact of a Uranium Enrichment Facility in Lea County, NM

e. Uniform Plumbing Code Illustrated Training Manual (2000 Edition)

11. ATTACHMENTS

a. Uniform Plumbing Code Illustrated Training Manual (2000 Edition), Table 7-3 – Drainage Fixture Unit Values (1 page)

b. Uniform Plumbing Code Illustrated Training Manual (2000 Edition), Appendix A (page 429) – UPC Charts A-2 and A-3 – Estimate Curves for Demand Load and Enlarged Scale Demand Load (1 page)

c. Uniform Plumbing Code Illustrated Training Manual (2000 Edition), Appendix K (page 505) – UPC Table K-3 – Estimated Waste/Sewage Flow Rates (1 page)

d. HVAC Average Water Usage Summary and Calc (2 pages)

e. Process Tower Average Water Usage Summary and Calc (2 pages)

f. HVAC Humidification Calc (1 page)

g. Cooling Tower Operation Calc (1 Page)

h. Average Water Usage Spreadsheet (1 page)

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ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

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ATTACHMENT D

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HVAC Average Water Usage Calc

Calculation Data

1285 Average Ton System

Calculations for Total System

Pump HP

gpm x TDH / (3960 x 0.8) = 109.6 — 710.0 hp

8,760.0 hours of operation
6,944.0 gpm
500 TDH
0.044 $/kwh

Pump Amps

hp x 746 / (1.732 x 480 x 0.95 x 0.9) = 135.4 amps

Pump kw

volts x amps x power factor x 1.732 / 1,000.0 = 86.4 kw

Pump cost

kw x $0.044 kwh = 3.8 usd$ hr

usd$/hr x hours of operation = 33,293.9 usd$/yr

Water Usage Evaporation

8,760.0 hours of operation
670,564.0 cfm
32.4 entering grains/lb
53.8 lvg grains/lb

cfm x (lvg grns - ent grns) x 60 min/hr / (13.5 cf/lb x 7000 grns/lb) = 6,381.2 lbs/hr

lbs/hr / (8.33 lb/gal x 60 min / hr) = 12.8 gpm

lbs/hr / 8.33 lb/gal = 766.0 gph

gph x hours of operation = 6,710,589.5 gpy

Water Usage Drift

Per ASHRAE and Tower Mfgr. Use 0.02% of water flow

6,570.0 hours of operation
7,200.0 Tower gpm
0.02 %

tower gpm x % = 1.4 gpm

gpm x 60min/hr = 86.4 gph

gph x hours of operation = 567,648.0 gpy

Water Usage Blowdown

Per Mfgr.

12.8 Tower Evaporation gpm
2.0 Blowdown divisor
6,570.0 Hours of operation

tower evaporation gpm / Blowdown divisor = 6.4 gpm

gpm x 60min/hr = 383.0 gph

gph x hours of operation = 2,516,471.1 gpy

Summary_HVAC_Average.xls

Process Tower Average Water Usage Summary

Process Tower	Water Usage	Average GPY
	7 Closed Circuit Coolers operate continuously with 3 standby coolers Water usage operating 6570 hours per year (9 months)	
	Drift	496,692
	Evaporation	5,003,832
	Blowdown	1,876,437
	Total	7,376,961

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Summary_Process_Average.xls

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ATTACHMENT F

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ATTACHMENT G

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ATTACHMENT H

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ATTACHMENT I

Attachment 5

LOCKWOOD GREENE
A JA JONES COMPANY
ENGINEERING & CONSTRUCTION

Job N. 018511.55
Sheet No. 1/1
Date 02-MAR-2004
Computed By J. Tramel
Checked By

Job Name LES Bldg. N/A
Subject Boiler Blowdown Estimate

From Vendor (W.C. Rouse & Son, Inc. - Fitchugh Austin - Telephone Call on 03/02/2004)

300 hp boiler → 1 1/4" ø blowdown line

For a closed system with soft water → blow down once per day for approximately 5 seconds

Use 50 psi @ 1 1/4" → 330 gpm discharge (Cameron Hydraulic Data (2-9))

330 gpm for 5s = 27.5 gallons

Use 100 gal/day to account for dilution of boiler water + water hardening

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Attachment C: Baltimore Air Coil Closed Circuit Hybrid Cooling Tower Data

Baltimore Aircoil Company

HXV Closed Circuit Hybrid Cooling Tower

BAC HXV Rel. 1.21 NA

Product data correct as of January 11, 2005

Design Duty: 91.0 / 84.8 / 78.6 °F 3301.6 MBH w/ 0 % DG

Total flow 9 cells: 7,695 gpm

9/5/07

Model		HXV-662-O	HXV-Q660-O	HXV-Q661-O
Number of units		1	1	1
Serpentine		triple	triple	triple
3 Way Valve ND	(in.)	6	6	6
Dry/Wet				
Safety	(%)	6.0	0.4	15.3
Dry				
Switch point (100%)	(°F)	62.8	63.0	62.3
Switch point (50%)	(°F)	75.3	75.4	75.1
Hydraulic info				
Pd. Finned Coil	(psi)	9.0	6.6	8.2
Pd. Bare Coil	(psi)	17.9	3.6	4.7
Pd. 3 Way Valve	(psi)	3.0	3.0	3.0
Total Pressure Drop	(psi)	29.8	13.2	15.9

Date: February 6, 2007

Note: This page cannot be part of any contract

Note: Data contained on this sheet was used in Attachment A page 5 of 6. Remaining sheets for information only. 9/13/07

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Attachment C: Baltimore Air Coil Closed Circuit Hybrid Cooling Tower Data

Baltimore Aircoil Company

HXV Closed Circuit Hybrid Cooling Tower

BAC HXV Rel. 1.31 NA

Product data current as of January 11, 2005

Design Data: 92.0 / 84.5 / 80.0 °F 2400.0 MBH with 0 % EG

Total flow + cooling down: 5,222 gpm

Model		HXV-661-0	HXV-661-0	HXV-662-0	HXV-662-0	HXV-Q660-0
Number of units		1	1	1	1	1
Serpentine		1 1/2	triple	1 1/2	triple	1 1/2
3 Way Valve ND	(in.)	6	6	6	6	6
Dry/Wet						
Safety	(%)	6.2	4.8	18.7	18.2	10.4
Dry						
Switch point (100%)	(°F)	69.2	68.9	69.0	69.0	69.0
Switch point (50%)	(°F)	78.4	78.4	78.4	78.4	78.4
Hydraulic Info						
Pd. Finned Coil	(psi)	12.4	4.6	14.2	5.3	10.5
Pd. Bare Coil	(psi)	8.3	8.1	10.5	10.5	2.1
Pd. 3 Way Valve	(psi)	1.7	1.7	1.7	1.7	1.7
Total Pressure Drop	(psi)	22.2	14.4	26.4	17.4	14.3

Date: February 6, 2007

Note: This page cannot be part of any quotation

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2/6/2007

CALCULATION IDENTIFICATION NUMBER					
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Attachment C: Baltimore Air Coil Closed Circuit Hybrid Cooling Tower Data

Baltimore Aircoil Company

HXV Closed Circuit Hybrid Cooling Tower

BAC HXV Rel. 1.21 NA

Product data correct as of January 11, 2005

Design Data: 97.0 / 84.5 / 77.5 °F 25950.0 MBH with 0 % EG

Model		HXV-0660-O	HXV-661-O
Number of units		8	9
Serpentine		triple	triple
3 Way Valve ND	(in.)	6	6
Dry/Wet			
Safety	(%)	6.3	6.8
Dry			
Switch point (100%)	(°F)	60.0	62.6
Switch point (50%)	(°F)	75.8	75.3
Hydraulic info			
Pd. Finned Coil	(psi)	6.2	7.8
Pd. Bare Coil	(psi)	4.5	13.8
Pd. 3 Way Valve	(psi)	3.7	3.0
Total Pressure Drop	(psi)	16.5	24.5

Date: February 6, 2007

Note: This page cannot be part of any contract

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CALCULATION 114489-M-0006
REVISION 02
ATTACHMENT D PAGE 2 OF 2

Step 3: Total Staff Size:

Based on prior discussions: LES – 320, ETC – 80, and Construction Workers ~ 200

Step 4: Tabularize Results and Review with Urenco and LES Operations

Building	Peak Day Shift (for sizing utilities)	Weekends/Night Shift	Total Personnel
Technical Services Building	80	15	95
Operations & Security not on shift	-	-	40
Administration Building	135	2	137
Central Utilities Building	16	1	17
CRDB	16	1	17
Security Building/Visitors	5 + 40 (training or visitors)	3	8 + 40
CAB	55	26	81
Guard House	3	2	5
TOTAL	310 + 40	45	400 + 40

NOTE: In addition to the LES and ETC staff numbers shown above, it is expected that approximately 200 construction works will remain on site for an extended period to support ongoing installation, etc. if facility expansion occurs. Separate, temporary facilities, outside of secured buildings may be required to provide services for these personnel and they should not be included in building occupancy requirements. However, they should be accounted for in parking lot space design and layout.

Determining the Pipeline Pressure Drop at the Selected Flowrate -- this will be done considering individual segments:

Segment 1: Segment description: From Utility Company Boundary (fire hydrant) to 4" X 6" Reducer

Pipe Length - Horizontal run -- ΔX 12.4 feet Source Reference: 5.18

Section Volume 12 feet^3
87 gallons

Piping ID, Inches: 13.073 Inches (14" Nominal)

Calculating Friction Factor:

Fluid Temperature	Fluid Density, rho	Fluid Flowrate, Q	Pipe Diameter, d	Pipe Diameter, D	Pipe Velocity, V	Kinematic Viscosity, ν	Reynolds # DV/ν	ε	ε / D
F	#/ft^3	gpm	inch	ft	ft/sec	ft^2 / sec	#	ft	#
50.0	62.41	200	13.073	1.089	0.48	1.63E-05	32,049	0.00007	6.42546E-05

Calculating f for the Piping	
1/sqrt(f)=-2log((e/3.7D)+2.51/((R*sqrt(f)))	
f (initial guess)	0.010000
	0.023303
	0.023303
Final Result	0.023303 friction factor f

Reynold's # Fully Turbulent
100,000,000

Calculating $f_{Turbulent}$ for the Fittings	
1/sqrt(f)=-2log((e/3.7D)+2.51/((R*sqrt(f)))	
$f_{Turbulent}$ (initial guess)	0.010000
	0.011060
	0.011060
Final Result	0.011060 friction factor f

	Piping Length, ft	90° Ells	45° Ells	Tees-Branch	Tees-Thru	Abrupt Entrance	Gate Valve (By Water Utility Company)	Control Valve	Check Valve (swing)	Area Changes	Orifice	Total f L/D
# Fittings or Feet of Piping	12.4	0	0	1	0	0	1	0	0	0	0	
Diameter, in	13.073	13.073	13.073	13.073	13.073	13.073	13.073	13.073	13.073	13.073	13.073	
Cv / Unit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1050	N/A	N/A	N/A	
K / Unit	N/A	0.33179923	N/A	0.663598458	0.221199486	0.5	N/A	N/A	N/A	0.28850336	0	
L/D / Unit	0.918	30	16	60	20	N/A	13	N/A	135	0	0	
Reference for L/D, Cv, K per Unit	None: Calculated L/D	Crane page A-30	N/A	Crane page A-30	Crane page A-30	Cameron page 3-108	Crane page A-30	Manufacturer Data	Crane page A-30	N/A	N/A	
L/D Total	11.40	0	0	60	0	0.0	13.0	0.0	0	0	0	
f L/D	0.27	0.00	0.00	0.77	0.00	0.00	0.17	0.00	0.00	0.00	0.00	1.2

Cv is converted to L/D as follows per Crane: 891*d^4/f*Cv^2

Calculating Pressure Drop for this segment:

ΔH =	0.004	feet
ΔP =	0.002	psid

Calculated from $\Delta H = 0.00259 * [f L/D * Q^2/d^4]$

Segment 3: Segment description: From Backflow Preventor Arrangement Outlet to Process Water Tank (NOTE: All of the horizontal runs)

Establishing the Length of the Pipeline:

Pipe Length - Horizontal run -- ΔX	1496.3	1563.5	1258.6	862.1	85.6
Source References:	5.14	5.15	5.16	5.17	5.19

Total ΔX: 5266.0

The above are the horizontal dimensions that do not consider the slope of the lines. For conservatism, assume that the slope is constant from the high point at the site boundary to the low point at the tank inlet.

High Point Elevation: 3428.52 from 114489-0000-C-CVL-006-14 (Reference 5.20)
Low Point Elevation: 3402.52 from 114489-0000-C-CVL-006-14 (Reference 5.20)
ΔY 26

Pipe Length Considering Slope -- ΔZ	5266.1 feet

Total Flow through this Segment:	200	gpm

Piping ID, inches: 6.031 Inches (6" nominal)

Section Volum: 1,045 feet^3
7,815 gallons

Calculating Friction Factor:

Fluid Temperature	Fluid Density, rho	Fluid Flowrate, Q	Pipe Diameter, d	Pipe Diameter, D	Pipe Velocity, V	Kinematic Viscosity, ν'	Reynolds # DV/ν'	ε	ε / D
F	gm^3	gpm	inch	ft	ft/sec	ft^2 / sec	#	ft	#
50.0	62.41	200	6.031	0.503	2.25	1.63E-05	69,470	0.00007	0.00013928

Calculating f for the Piping	
1/sqrt(f)=-2log((e/3.70)+2.51/((R*sqrt(f)))	
f (initial guess)	0.010000
	0.020026
	0.020026
Final Result	0.020026 friction factor f

Reynold's # Fully Turbulent
100,000,000

Calculating $f_{Turbulent}$ for the Fittings	
1/sqrt(f)=-2log((e/3.7D)+2.51/((R*sqrt(f)))	
$f_{Turbulent}$ (initial guess)	0.010000
	0.012786
	0.012786
Final Result	0.012786 friction factor f

	Piping Length, ft	90° Ells	45° Ells	Tees-Branch	Tees-Thru	Abrupt Entrance	Butterfly Valve	Control Valve	Check Valve (swing)	Area Changes	Orifice	Total f L/D
# Fittings or Feet of Piping	5266.1	2	4	1	2	0	0	0	0	1	0	
Diameter, in	6.031	6.031	6.031	6.031	6.031	6.031	6.031	6.031	6.031	6.031	6.031	
Cv / Unit	N/A	N/A	N/A	N/A	N/A	N/A	1050	1050	N/A	N/A	N/A	
K / Unit	N/A	0.38359351	N/A	0.767187018	0.255729006	0.5	N/A	N/A	N/A	0	0	
L/D / Unit	1.990	30	16	60	20	N/A	N/A	N/A	135	0	0	
Reference for L/D, Cv, K per Unit	None: Calculated L/D	Crane page A-30	N/A	Crane page A-30	Crane page A-30	Cameron page 3-108	Crane page A-30	Manufacturer Data	Crane page A-30	N/A	N/A	
L/D Total	10477.99	60	64	60	40	0.00	0.00	0.00	0.00	0.00	0.00	213
f L/D	209.84	0.77	0.82	0.77	0.51	0.00	0.00	0.00	0.00	0.00	0.00	

Cv is converted to L/D as follows per Crane: 891*d^4/I*Cv^2

In addition to the above, there is a meter in this line that has a pressure drop of less than 2 psi at full scale = 4.6 feet
2 psid ← See Catalogue Info regarding Meter dP at the end of analysis.

Calculating Pressure Drop for this segment:

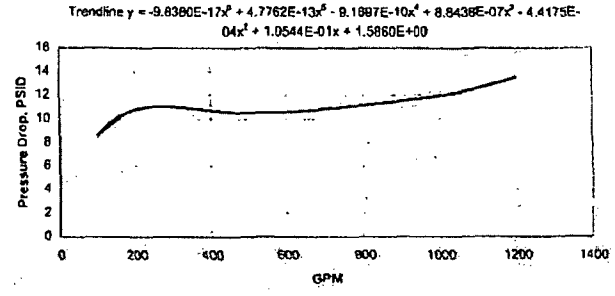
ΔH =	21.3	feet
ΔP =	9.2	psid

Calculated from ΔH = 0.00259*[f L/D * Q^2/d^4]

Background Data: Pressure Drop Characteristics of the Backflow Prevention Arrangement:

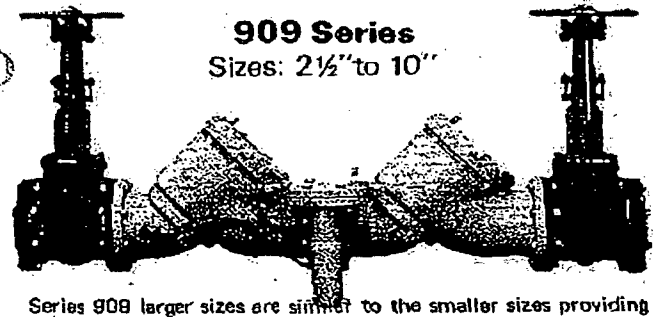
Data from catalogue information provided below.

Flow gpm	ΔP psid	ΔP Trendline psid
100	8.5	8.5
200	10.8	10.8
300	10.95	11.0
400	10.7	10.7
500	10.5	10.5
600	10.6	10.6
700	10.8	10.8
800	11.1	11.1
900	11.5	11.5
1000	12	11.9
1100	12.5	12.6
1200	13.5	13.5



BACKFLOW PREVENTERS

909 Series
Sizes: 2½"to 10"



Series 909 larger sizes are similar to the smaller sizes providing the same protection in cross connection control, with its unique patented design incorporating the "air-in/water-out" principle. Furnished with non-rising stem (NRS) gate valve shut-offs.

OPTIONS: (Options can be combined)

Suffix
- S - with strainer, FDA approved epoxy coating.
- M1 - with bronze body. Sizes: 2½", 3".
- OSY - with OS&Y gate valve shut-offs.
- **QT - with ¼ turn, full port, resilient seated, ball valve shut-offs
- QT-FDA- for FDA epoxy coated ball valve shut-offs.
- RW - with resilient wedge shut-off valves.
- LF - without shut-off valves.

Send for PL-BPDL for illustrated price list.

NOTE: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary (see page 5). For vertical installations, an air gap should be fabricated and the direction of flow must be (down) for 2½"- 10".

FEATURES

- FDA approved epoxy coated, inside and out, check and relief valves.
- Removeable bronze seats
- No special tools required
- Stainless steel internal parts

MATERIALS

No. 909 sizes: 2½"-10" have FDA approved epoxy coated cast iron check valve bodies with bronze seats, and FDA approved epoxy coated cast iron relief valve with stainless steel trim. All sizes furnished with bronze body ball valve test cocks.

No. 909 M1 sizes: 2½", 3" bronze body construction.

PRESSURE-TEMPERATURE

Suitable for supply pressure up to 175 PSI and water temperature to 110°F.

STANDARDS

Tested and certified under the following standards for reduced pressure backflow preventers: A.S.S.E. No. 1013; AWWA C506; CSA B64.4; FCCCHR of USC Manual Section 10; U.L. Classified File No. EX3185 (sizes 2½" thru 10"). Listed by IAPMO (UPC); SBCCI (Standard Plumbing Code). Consult your Watts representative or factory for other state, county or city acceptances.

Information on In-Site Flow Meter Pressure Drop:

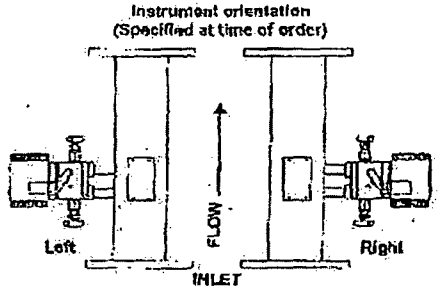
Specifications for Models V2150 (150 psi) and V2300 (300 psi)

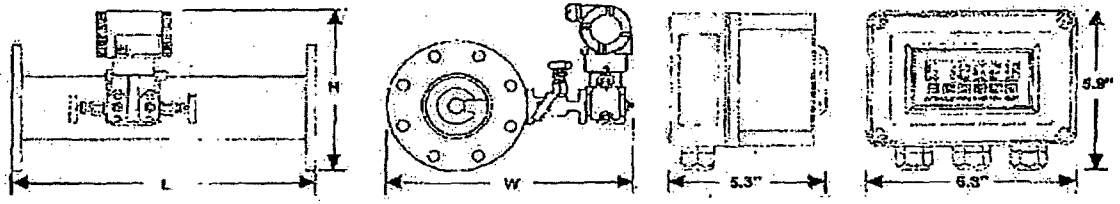
PERFORMANCE

ACCURACY: Up to ±1% of reading over standard flowrange.
RANGE: See dimensions chart below.
HEAD LOSS: Typical ≤2 psi at Full Scale
MAXIMUM TEMPERATURE: (Standard Construction)
180°F constant
PRESSURE RATING: Model V2150: 150 psi
Model V2300: 300 psi
POWER: 110 VAC, optional 24VDC
OUTPUTS: Analog 4-20mA
OPTICALLY ISOLATED PULSE OUTPUT For Remote Totalization
TRANSMITTER HOUSING & DISPLAY ENCLOSURE: NEMA 4X (IP66)
MATERIALS
Remote mount display includes 50 feet of power/signal cable. For additional length, please consult factory.
BODY: 6-inch & larger: Fusion-bonded epoxy coated carbon steel
4-inch: All 304 stainless steel
MEASURING ELEMENT: 304 stainless steel
END CONNECTIONS
V2150: 6-inch & larger: Carbon Steel AWWA Class D;
4-inch: Raised Face ANSI Class 150
V2300: 6-inch and larger: Carbon Steel AWWA Class F;
4-inch: Raised Face ANSI Class 300

OPTIONS

- Other flange standards available
- Other laying lengths available
- Transmitter may be mounted on either side of the flow tube

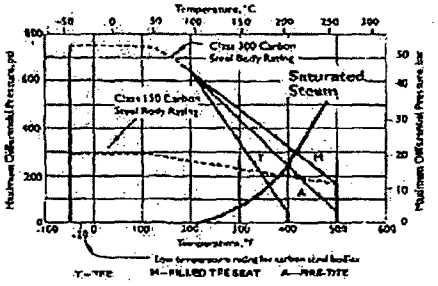




SPECIFICATIONS

Valve Seat Ratings

Seat ratings are based on differential pressure with the *disc in the fully closed position* and refer to seats only. Maximum body working pressures are shown in the Valve Body Ratings tables at right.



NOTE: 14"–40" Class 150 valves equipped with 316 stainless or Alloy 20 shafts are rated for maximum differential pressure of 150 psi.
3"–16" Class 300 valves equipped with 316 stainless or Alloy 20 shaft are rated for maximum differential pressure of 300 psi.

These ratings are a conservative guide for general service. Previous experience in a process or new developments and alternative seat materials may permit application at ratings above those shown. Please contact Nibco Jonesboro's home office for specific recommendations.

Valve Body Ratings

The tables below are maximum working pressure ratings of the valve body only. The seat ratings determine the practical pressure limitations according to actual service conditions. Test pressures are for hydrostatic test with disc open.

Series 818, Class 150 Valve Body Ratings — psi (bar)

Temp. °F (°C)	Carbon Steel*	Ductile Iron*	316 Stainless Steel*	Alloy 20*	Monel*
-20 to 100	285 psi	250 psi	275 psi	230 psi	230 psi
(-29 to 38)	(19.7 bar)	(17.2 bar)	(19 bar)	(15.8 bar)	(15.8 bar)
200 (93)	260 (17.9)	235 (16.2)	240 (16.5)	215 (14.8)	200 (13.8)
300 (149)	230 (15.8)	215 (14.8)	215 (14.8)	200 (13.8)	190 (13.1)
400 (204)	200 (13.8)	200 (13.8)	195 (13.4)	—	185 (12.8)
500 (260)	170 (11.7)	170 (11.7)	170 (11.7)	—	170 (11.7)
Test Pressure	450 (31)	400 (27.6)	425 (29.3)	350 (24.1)	350 (24.1)

Series 830, Class 300 Valve Body Ratings — psi (bar)

Temp. °F (°C)	Carbon Steel*	316 Stainless Steel*	Alloy 20*	Monel*
-20 to 100	740 psi	720 psi	600 psi	600 psi
(-29 to 38)	(51 bar)	(49.6 bar)	(41.4 bar)	(41.4 bar)
200 (93)	675 (46.5)	620 (42.7)	555 (38.3)	530 (36.5)
300 (149)	655 (45.2)	560 (38.6)	525 (36.2)	495 (34.1)
400 (204)	635 (43.8)	515 (35.5)	—	490 (33.1)
500 (260)	600 (41.4)	480 (33.1)	—	475 (32.8)
Test Pressure	1125 (77.6)	1100 (75.8)	900 (62)	900 (62)

* Ratings correspond to ASME/ANSI B16.34–1988 for material grades shown in bills of material herein. Ductile iron ratings conform to ASME/ANSI B16.42

Cv Data Source for Manual and Controls 6" valves.

Flow Data

The tables below provide flow coefficients for Series 815 and 830 butterfly valves covered in this bulletin. The Cv values represent the number of gallons per minute of 60°F water that flows through the valve at a pressure drop of 1 psi. See Bulletin T150-1 for more information.

SERIES 815

Valve Size Inches (DN)	C_v
2½" (65)	78
3" (80)	165
4" (100)	400
5" (125)	650
6" (150)	1,050
8" (200)	2,200
10" (250)	3,300
12" (300)	5,400
14" (350)	5,800
16" (400)	8,000

Valve Size Inches (DN)	C_v
18" (450)	10,500
20" (500)	14,000
24" (600)	21,600
30" (750)	34,000
36" (900)	53,500
42" (1050)	92,650
48" (1200)	108,300
54" (1350)	133,500
60" (1500)	159,000

SERIES 830

Valve Size Inches (DN)	C_v
3" (80)	165
4" (100)	400
6" (150)	1,050
8" (200)	1,600
10" (250)	3,150
12" (300)	4,750
14" (350)	5,200

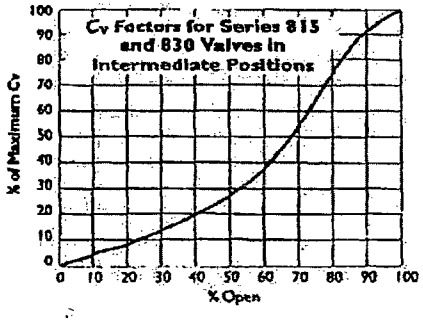
Valve Size Inches (DN)	C_v
14/E (450)	6,900
16" (450)	9,200
20" (500)	11,300
24" (600)	18,500
30" (750)	29,100
36" (900)	47,500

To determine Cv values for a valve in an intermediate position:
(1) determine the percent of maximum Cv from the graph below
(2) multiply the percent of maximum Cv shown on the graph by the appropriate Cv value on the table below.

EXAMPLE: The Cv for a 6" 815 that is 70% open is:

(1) From the graph, a 6" 815 that is 70% open has a Cv value that is 53% of the maximum Cv.

(2) 53% of the maximum Cv = 0.53 X 1050 = 560.



CC-EG-2007-0232
Attachment E
Page 1 of 1
Memorandum to File
November 30, 2007

This memorandum to file is applicable to configuration change CC-EG-2007-0232. The purpose is to identify and justify differences between the package prepared and the latest EG-101 revision 5 procedure. The preparer is satisfied that the intent of the changes has been met and that all requirements are satisfied.

The CC package was developed to support owner acceptance review of Calculation 114489-M-0006-02 Water Balance (NTS-LES-0549). The effort was initiated using EG-101 revision 5, before the current procedure revision 5 was issued. Form Attachment F-1, Sections 1 and 2 from revision 4 are being retained for processing with sections 3 through 6 completed using the current revision 5. For this reason the justification review was concentrated on sections 1 and 2.

The information required for Section 1 of Attachment 3, EG-101 revision 1 did not substantially change for revision 4 and 5. EG-101 Step 5.3.2.d added a requirement for completion of AD-1020, Change Management Desktop Information, Attachment 1, Sections 12 and 14. A review of this procedure and checklist identified no impacts that would result in changes to the documentation provided. There were no Section 2 changes between revision 4 and 5.

This package has been reviewed against the requirements of EG-101 Revision 5. Although the form for section 1 and 2 used for documentation is different from later revisions of EG-101, this package meets all technical and regulatory commitments imposed by EG-101 Revision 5.

Frank Kelly
November 30, 2007
Frank Kelly 11/30/07

3.5.4.3.1 System Description

A single DI Water Supply and Distribution System is located in the CUB. The system consists of a DI water storage tank, a supply pump, bag filter, ultraviolet sterilizers, heat exchanger, replaceable vessel style deionizers, and associated piping and instrumentation. This equipment serves each Separations Building Module, the DI water users in the TSB. The DI Water Make-up System operates on an intermittent basis, while the DI Water Distribution System operates continuously. The system flow diagram is shown on Figure 3.5-22, Process Flow Diagram, DI Water Supply and Distribution System. The functional requirements of the DI Water Supply and Distribution System are provided in Table 3.5-4, Deionized Water Supply and Distribution System Design Parameters.

3.5.4.3.2 Major Components

The major components and design parameters are listed below.

A. DI water storage tank. The DI water storage tank has a capacity of approximately 1,893 L (500 gal). Fiberglass reinforced plastic (FRP) is used because of its compatibility with DI water and low cost. The tank is designed and equipped with a nitrogen blanket to deter biological growth.

Type	Dome roof
Quantity	1
Capacity	1893 L (500 gal)
Operating temperature	Ambient
Operating pressure	Approx. 76.2 mm (3 in) water column
Materials of construction	FRP

B. DI water loop supply pump. The DI water loop supply pump delivers DI water to the Centrifuge Cooling Water Distribution Systems and other users. A minimum flow bypass is provided to protect the pump from damage due to low flow operation.

Type	Centrifugal
Quantity	2 active
Design capacity	1.3 L/s (20 gpm)
Operating capacity	1.3 L/s (20 gpm)
Materials of construction	Stainless steel (no copper or pumps with copper bearings allowed)

C. Raw water bag filter. This filter is sized for approximately 2.6 L/s (40 gpm) and to remove suspended particulate material of 20 micron nominal.

D. Chlorine destruct ultraviolet sterilizer. The UV sterilizer is sized for approximately 2.6 L/s (40 gpm) and to remove free and total chlorine residual from the chlorinated water supply.

E. Deionizers. The replaceable ion exchange vessels are supplied with cation, anion, and mixed bed ion exchange resins, sized for 2.6 L/s (40 gpm) operation.

F. DI water cooling heat exchanger. This plate and frame stainless steel heat exchanger utilizes process chilled water supply to maintain the DI water loop temperature.

G. Biokill ultraviolet sterilizer. The UV sterilizer reduces the biological growth within the circulation loop with the chlorine residual removed.

Table 3.5-7 Centrifuge Cooling Water Distribution System Design Parameters

Centrifuge Cooling Tower Water Supply Loop Circulation Rate	467 L/s (7400 gpm)
Centrifuge Cooling Tower Water Supply Loop Temperature	TBD
Centrifuge Cooling Tower Water Return Loop Temperature	TBD
Centrifuge Cooling Water Distribution Loop Circulation Rate	156 L/s (2467 gpm), per 2 Cascade Halls 78 L/s (1233 gpm), per Cascade Hall
Centrifuge Cooling Water Distribution Loop Supply Temperature	TBD
Centrifuge Cooling Water Distribution Loop Return Temperature	TBD
Cascade Cooling Water Temperature Control Range	TBD

Table 3.5-8 Nitrogen System Design Parameters

Liquid Nitrogen Storage Capacity	4 Storage Tanks, each at 9464 L, (2500 gal), 30 day supply each.
Liquid Nitrogen Supply Rate	0.315 L/s (5 gpm)
Liquid Nitrogen Supply Pressure	3.1 barg (45 psig)
Gaseous Nitrogen Supply Rate	170 m^3/hr (100 scfm)
Gaseous Nitrogen Supply Pressure	2.4 barg (35 psig)
Nitrogen Maximum Particle Size	1.0 micron

2.1 Detailed Description of the Alternatives

NEF liquid effluent discharge rates are relatively low, for example, NEF process waste water flow rate from all sources is expected to be about 28,900 m^3/yr (7.64 million gal/yr). This includes waste water from the liquid effluent treatment system, domestic sewerage, cooling tower blowdown water and heating boiler blowdown water . Only the former source can be expected to contain minute amounts of uranic material. The liquid effluent treatment system and shower/hand wash/laundry effluents will be discharged onsite to a double-lined evaporative basin; whereas the cooling tower blowdown water, heating boiler blowdown water and UBC pad stormwater run-off will be discharged onsite to a single-lined retention basin. Domestic sewerage will be discharged to onsite septic tanks and leach fields.

The NEF water supply will be obtained from the city of Eunice, Mew Mexico. Current capacities for the Eunice, New Mexico municipal water supply system is 16,350 m^3/day (4.32 million gpd) and current usage is 5,600 m^3/day (1.48 million gpd). Average and peak potable water requirements for operation of the NEF are expected to be approximately 168.5 m^3/day (44,500 gpd) and 87.7 m^3/hr (386 gpm), respectively. These usage rates are well within the capacity of the water system.

Solid waste that will be generated at the NEF, which falls into the non-hazardous, radioactive, hazardous, and mixed waste categories, will be collected and transferred to authorized treatment or disposal facilities offsite as follows. All solid radioactive waste generated will be Class A low-level waste as defined in 10 CFR 61 (CFR, 2003r). Approximately 86,950 kg (191,800 lbs) of low-level waste will be generated annually. In addition, annual hazardous and mixed wastes generated are expected to be about 1,770 kg (3,930 lbs) and 50 kg (110 lbs), respectively. As a result, the NEF will be a small quantity generator (SQG) of hazardous waste and dispose of the waste by licensed contractors. LES does not plan to treat hazardous waste or store quantities longer than 90 days. Non-hazardous waste, expected to be approximately 172,500 kg (380,400 lbs) annually, will be collected and disposed of by a County licensed solid waste disposal contractor. The non-hazardous wastes will be disposed of in the new Lea Country landfill which has more than adequate capacity to accept NEF non-hazardous wastes for the life of the facility.

No communities or habitats defined as rare or unique, or that support threatened and endangered species, have been identified as occurring on the NEF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique, or that support threatened and endangered species, within the 220-ha (543-acre) site.

Noise generated by the operation of the NEF will be primarily limited to truck movements on the road. The noise at the nearest residence will probably increase; however, it may not be noticeable. While the incremental increases in noise level are small, some residents may experience some disturbance for a short period of time as they adjust to these slight increases.

The results of the economic analysis show that the greatest fiscal impact (i.e., 66% of total value impacts) will derive from the 8-year construction period associated with the proposed facility. The largest impact on local business revenues stems from local construction expenditures, while the most significant impact in household earnings and jobs is associated with construction payroll and employment projected during the 8-year construction period.

Domestic Water	290.0
Cooling Tower Make Up	56.2
Deionized Water Make Up	40.0
Fire Protection	375.0

Table 1.1-2 Estimated Annual Radiological and Mixed Wastes

	Radiological Waste		Mixed Waste[1]	
Waste Type	**Total Mass kg (lb)**	**Uranium Content kg (lb)**	**Total Mass kg (lb)**	**Uranium Content kg (lb)**
Activated Carbon	300 (662)	25 (55)	-	-
Activated Alumina	2160 (4763)	2.2 (4.9)	-	-
Fomblin Oil Recovery Sludge	20 (44)	5 (11)	-	-
Liquid Waste Treatment Sludge	400 (882)	57 (126)	-	-
Activated Sodium Fluoride[2]	-	-	-	-
Assorted Materials (paper, packing, clothing, wipes, etc.)	2100 (4,631)	30 (66)	-	-
Ventilation Filters	61,464 (135,506)	5.5 (12)		-
Non-Metallic Components	5000 (11,025)	Trace[3]	-	-
Miscellaneous Mixed Wastes (organic compounds)[4]			50 (110)	2 (4.4)
Combustible Waste	3,500 (7,718)	Trace[3]	-	-
Scrap Metal	12,000 (26,460)	Trace[3]	-	-

Table 1.1-3 Estimated Annual Liquid Effluent

Summation of Liquid Effluents (excluding utilities)	Gal/Day	Gal/Yr	Liters/sec
Floor Washings, Misc. condensates, and Lab effluent	17	6,112	0.0
Degreaser Water	3	980	0.0
Citric Acid	2	719	0.0
Laundry	294	107,213	0.0
Hand Wash and Shower Water	1,520	554,820	0.1
Total Liquid Effluents	1,835	669,844	0.1

[1] A mixed waste is a low-level radioactive containing listed or characteristic of hazardous wastes as specified in 40 CFR 261, Subparts C and D.
[2] No sodium fluoride (NaF) wastes are produced on an annual basis. The contingency dump system NaF traps are not expected to saturate over the life of the plant.
[3] Trace is defined as not detectable above naturally occurring background concentrations.
[4] Representative organic compounds consist of acetone, toluene, ethanol, and petroleum ether.

Basilia Malara (CTR)

From: Basilia Malara (CTR)

Sent: Monday, October 29, 2007 3:49 PM

To: Robert Schrauder (CTR); Vern Hull (CTR); Dave Sexton (LES); Carl Markert (LES); Mike Plunkett (LES); Shiaw-Der Su (LES); Michael Keller (LES)

Cc: Frank Kelly (CTR); Clark Tracy (CTR); Kathryn Scanlan (CTR); Dan Poole (CTR); Lonnie Worley (CTR); Mark Scanlan (CTR)

Subject: Review Requested, CC-EG-2007-0232 Rev. 0, Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)

Bob, Vern, Dave and Carl,

Your areas have been identified as requiring IDR(s) reviews (see EG-101-F-1 Section 2B) for the following CC:

Design Management Office
Mike Plunkett – you have been assigned to do the mechanical review.

CC for Review: CC-EG-2007-0232 Rev. 0, **Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)**
IDR Due Date per CM Coordinator: Friday, November 9, 2007*
*Note: *Please contact Clark Tracy, CM Coordinator at 856.856.3084 if you require a different due date.*

FAM – Action
Assign IDRs from your organization to support the processing of this package. Send a copy of your assignment transmittal to Frank Kelly and Basilia Malara for Clark Tracy, CM Coordinator, per EG-101, 5.31.

Reviewer – Action
Send your completed (i.e., signed and dated) EG-101-F-2 and, only IF you have comments, EG-101-F-3 to Frank Kelly (856-663-3460 ext. 126, fkelly@nefnm.com) and Basilia Malara (856.663.3460 x. 128, bmalara@nefnm.com) for Clark Tracy, CM Coordinator per EG-101, 5.3.2.f by **Friday, November 9, 2007***.

Supporting Documentation
To support your review, I have attached the complete CC-EG-2007-0232 Rev. 0, EG-101-F-1 package and the WORD files for EG-101-F-2 and, **only IF you have comments**, EG-101-F-3 to be completed during your review.

Tracking
To help track open IDRs, LES has instituted a configuration change tracking system, CCTS. Design Management produces a report for the FAMs to review every Wednesday. This report identifies the open IDRs for each functional area manager, FAM. The actions requested of the FAM and the Reviewer will ensure the most accurate and complete information is presented.

I thank you in advance for your cooperation

Basilia Malara for Clark Tracy
LES Engineering Design
Config. Mngmt. Admin. Assistant
Records Custodian
3 Executive Campus
Suite 140
Cherry Hill, NJ 08002
(856) 663-3460 ext. 128

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0232	**Revision: 0**
Title (if applicable): **Review of NTS Calc M-0006-02 Water Balance** (NTS-LES-0549)	
Reviewer: **Steve Su**	**Organization/Mail Stop/Telephone No./E-mail** **Engineering/Eunice/575-602-0330/ssu@nefnm.com**
Functional Area: Technical Services/Engineering – ISA & NCS	**Date Due: 11-9-07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

ISA Summary

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts: No impacts identified.

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0232	**Revision: 0**
Title (if applicable): Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)	
Reviewer: Mike Plunkett	**Organization/Mail Stop/Telephone No./E-mail** **NEF/ 856-663-3460/ mplunkett@nefnm.com**
Functional Area: Mechanical	**Date Due: 11-9-07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

NTS Calc M-0006-02 Water Balance (NTS-LES-0549)

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

None Known

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM

Configuration Change Number: CC-EG-2007-0232 **Revision:** 0

Title (if applicable): Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)

Reviewer: Timothy Harney	**Organization/Mail Stop/Telephone No./E-mail** Licensing / Cherry Hill / 856-663-3460 x111 / tharney@nefnm.com
Functional Area: Licensing	**Date Due: 11/09/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Documents reviewed: Emergency Plan, Environmental Report, FNMCP, IN-06-00038, IN-06-00071, IN-06-00038-DOE, IN-06-00107, IN-06-00112, ISA Summary, Material License, NEF-05-00034a-NRC, QAPD, SAR, and SER (NUREG 1827).

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:
None

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

The identified changes do not affect IROFS Functionality.

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

See Form 3.

Tim Harney — 11/05/07

Reviewer Signature — **Date**

Return Form to Preparer with copy to CM Coordinator

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0232	**Revision: 0**
Title (if applicable): Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)	
Reviewer: Mike Keller	**Organization/Mail Stop/Telephone No./E-mail** Operations / NEF Trailer 10-2 / 505-975-7156 / mkeller@nefnm.com
Functional Area: Production	**Date Due: 11-9-07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Operating Experience

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

None.

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

None.

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0232	**Revision: 0**
Title (if applicable): Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)	
Reviewer:	**Organization/Mail Stop/Telephone No./E-mail**
Functional Area: ETC	**Date Due: 12-6-07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Calculation 114489-M-0006-2

UPD/0200494B

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

No impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc. were identified

Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0232 | **Revision: 0**

Title (if applicable): Review of NTS Calc M-0006-02 Water Balance (NTS-LES-0549)

Reviewer				Preparer	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	General	Should the document, Building Heating Ventilation & Air Conditioning System (670) UPD/0200494B, be listed as an effected document?	N	This document was not a reference for the water balance calculation and is not maintained by NTS.	N
2	7.6	There is no longer a laundry facility which utilizes and water. This needs to be corrected.	N	The Lockwood Green calculation was used to provide relevant water usage data based on the previously accepted research. In some cases values provided by LG (e.g. laundry usage) were not removed from the totals because they were minor and the totals were conservative with respect to the values included in the Environmental Report. NTS indicated that the final wrap up would include the minor corrections (i.e. when final cooling tower performance data is provided by the vendor).	N

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Dimitri Georgopoulos Dave Kelly signed by verbal telecon	Date: 11/1/07	Resolved by: Dave Kelly	Date: 12/6/07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) a-d by email correspondence on 12/6/07 Dave Kelly	Date: 12/6/07		

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: 2007-0273 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0232 **Revision Number:** 0

I. Description of Change:

This configuration change is for issuance of revised Calculation 114489-M-0006-02 "Water Balance". The domestic water and cooling tower usage were reevaluated based on design developments such as removal of the HVAC humidification, removal of the natural gas boilers and changes in the Centrifuge Cooling Water System cooling tower performance. The cooling tower water usage requirement was changed as a result and required recalculation of the water usage. The calculation also determines the minimum required potable and process water tank volumes, and establishes the required city water supply flowrate and pressure necessary to assure that the site water requirements are met.

Two open items were generated based on preliminary information for the cooling tower performance and deionized water flow that required confirmation. The open items were documented in CR 07-0282 Action Items 4 and 5. These open items do not affect the conclusions of this evaluation.

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer:
Calculation 114489-M-0006-02 "Water Balance" establishes the average and peak water usage rates for the site during normal operation and determines the minimum required domestic (potable) water tank volume and the process water tank volume. The calculation also determines the water pressure and flow rate necessary to assure that the site water requirements are met. The water balance values are derived from various other calculations and design basis requirements. The flows and water volumes provide inputs to update license basis documents such as the environmental report and establish the tank volumes and flows required to meet replenishment statements provided in the SAR and ISAS. As such, the derived water usage values, tank volumes and site water requirements are based on considerations for previously analyzed conditions. The configuration changes that resulted in specific water usage changes are evaluated independently to determine impact to accident scenarios. For example, the fire water storage tank capacity was noted as half the storage tank (125,000 gal) in the ISAS. This volume is now 180,000 gal as noted by input from calculation 114489-M-0018-01, "Fire Protection Water Demand and Water Supply Requirements". Any impact to the fire accident sequences or consequences would be evaluated for 114489-M-0018.

The water storage requirements are determined from the ISAS Section 3.5.4.1 that requires the Process Water system to have sufficient storage capacity to perform basic functions without receiving makeup water from the city of Eunice for up to 48 hours. This design basis was used to determine the domestic storage water volume and the Process Water storage volume. The total storage volume of the Process Water (55,938 gallons) and Fire Water (180,000 gallons) was determine to be 235,938 gallons which is less than the 250,000 gallon storage capacity of each tank provided by the current design. This confirms that adequate water storage is available to meet the design basis requirements.

The peak water usage determined by the Water Balance calculation was 386 gpm and provides the basis for the pumping equipment and related piping requirements. The Safety Analysis Report Section 7.5.1 states that the fill and make up water for the storage tanks are from the city water supply to the site which is capable of filling either storage tank in an 8-hour period. The resulting required flow to meet this

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: 2007-0273 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0232 **Revision Number:** 0

independent evaluation for 10 CFR 70.72 (c). [Note: IROFS19 uses bookkeeping methods of the liquid effluents to administratively limit the calculated tank uranic mass inventory to ensure a subcritical mass.] Similarly the flows calculated for city water and peak water usage are based on the stated ISAS and SAR requirements as described above. There are no IROFS associated with these requirements and no IROFS are removed.

Therefore, it is concluded that the proposed change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61?

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer:
ISAS table 3.8-2 identifies the Sole Items Relied On For Safety. A review did not identify any sole IROFS that relied on water or any calculated value from the water balance calculation to function. The Water Balance calculation provides water usage rates, minimum tank volumes and the city water supply flowrate and pressure. These calculated values are used to provide input into environmental updates and establish the tank volumes and flows required to meet replenishment statements provided in the SAR and ISAS. There are no sole IROFS associated with these requirements and no sole IROFS are altered.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer:

The configuration change for the Water Balance calculation is not prohibited by a 10 CFR 70.72 license condition or order. There are no prohibitive statements specified in 10 CFR 70.72. The material License contains specific prohibitive statements concerning the use of certain types of controllers, initial introduction of UF6 to the facility and the depleted UF6 deconversion process. It also contains limits on the types and quantities of material allowed to be on site. The NRC issued orders for the NEF concern additional Security Measures, Protection of Safeguards Information, and Fingerprinting and Criminal Background checks. None of these issues are affected by these changes.

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

Configuration Change Form

Configuration Change Number: CC-EG-2007-0189 **Revision** 0

Configuration Change Title: Changes to IROFS Temperature sensor

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☐ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.

1. ISA Summary , sections: 3.4.2.6 A, 3.4.2.6D, 3.4.4.7C, 3.4.5.7D, 3.4.6.7A, 3.4.6.7B, 3.4.10.1.4, Table 3.8-1 (IROFS2), Table 3.8-1 (IROFS5), and Table 3.8-1 (IROFSC15).

2. Emergency Plan , section 2.1.1.5.

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

1. Change document wording from " capillary " to " thermocouple ".

Reference, Request-For-Information " RAI-07-0030 ".

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

1. Currently no Temperature Capillary instrument exists that is qualified NQA-1 or can be commercially dedicated as NQA-1. Replacing the Capillary with a Thermocouple will satisfy the license basis to provide a diverse method for temperature measurement.

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

1. No Impact, excepted as stated above.

Preparer (Print Name/Signature):		**Date:**
Terry Fletcher	Terry Fletcher	9/4/07
CC FAM[1]	**Signature:** R.W. Schrauder / Rw Schrauder	**Date:** 9-4-07

(1) The CM Coordinator may sign for the CC FAM for Owner Acceptance Review of Design Deliverables from Design Agencies.

Configuration Change Form

Configuration Change Number: CC-EG-2007-0189__________ Revision__0______

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

☐ Construction Management	☐ Production
☒ Design Management I & C	☐ Quality Assurance
☐ HS&E	CRE 9/5/07 ☒ Support Services
☒ Licensing	Not a Substantive Change ☐ Chief Financial Officer

☒ Technical Services ISAS (Mandatory for CC's related to FCR's or to NCR's with disposition of "Repair" or "Use-As-Is")

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and completed Configuration Change documentation to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change may be a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

CM Coordinator (Print Name/Signature):	**Date**
Clark Tracy / Clark Tracy	9/5/07

Section 3: Disposition of Interdisciplinary Reviews

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) actions. Identify CR actions in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** Terry Fletcher	**Date:** 11/7/07
CC FAM(2)	**Signature:** R.W. Schrauder / R. Schrauder	**Date:** 11-7-07

(2) May be signed by Building Lead, Discipline Lead or System Lead for Owner Acceptance Reviews of Design Deliverables from Design Agencies.

Configuration Change Form

Configuration Change Number: _____ **CC-EG-2007-0189**_____ **Revision**___**0**_____

Section 4: Disposition of ISA Review

☒ No ISA Impact and No ISA Team Review Required OR

☐ Possible ISA Impact. Complete review per EG-104 and attach result. List any outstanding CR actions identified in Section 5 Comments below.

Comments (basis):

PER RESOLUTION OF COMMENTS S.SU. AND INSTRUCTIONS PER EG-104

Preparer: Terry Fletcher **or** **ISA Member:**	**Date:** 11/7/07

Section 5: Disposition of RIR or 70.72(c) Evaluation

☐ Partial Release, RIR attached and CR action noted in comments below OR

☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR

☒ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete.

☐ Comments resolved **or** none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CRs. Identify CR action(s) in Comments below.

☐ CC is not acceptable, cancel CC.

TRF
12/12/07

Comments (basis):

Preparer	**Signature:**	**Date:**
CC FAM	**Signature:**	**Date:**

Configuration Change Form

Configuration Change Number: CC-EG-2007-0189 **Revision** 0

Section 4: Disposition of ISA Review

☐ No ISA Impact and No ISA Team Review Required OR

☐ Possible ISA Impact. Complete review per EG-104 and attach result. If any CR Actions are identified by this review, Then record CR Actions in Section 5 Comments below.

Comments (basis):

TLF 12/12/07

Preparer:	***or*** **ISA Member:**	**Date:**

Section 5: Disposition of RIR or 70.72(c) Evaluation

☐ Partial Release, RIR attached and CR action noted in comments below OR

☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR

☒ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete.

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CRs. Identify CR action(s) in Comments below.

☐ CC is not acceptable, cancel CC.

☒ Licensing Basis Document Change Request in accordance with LS-104 included, if LBD markups included.

Comments (basis):

Preparer	**Signature:** Terry Fletcher	**Date:** 12/12/07
CC FAM	**Signature:** R.W. SELTZER	**Date:** 1-8-08

Configuration Change Form

Configuration Change Number: ____CC-EG-2007-0189_____ **Revision**___0_____

Section 6: Release or Implementation

☒ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted.

☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR actions as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC.

☐ CC is not acceptable, CANCEL or HOLD CC as noted.

Comments (Basis):

CC FAM	Signature: R.W. SCHRADER / Ron Schrader	Date: 1-8-08

Section 7: Configuration Change Closeout

☒ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR actions are closed and the 70.72(c) evaluation per LS-104 is complete as required.

☐ B. The Configuration Change has not been implemented. The basis for this decision is described below.

Comments (as applicable):

I verified by use of the Licensing LBDCR database that the LBDCR-07-0056 changes have been incorporated into the LBDs. CAF 4/1/08

Preparer	Signature: Clark Tracy for Terry Fletcher per authorization memo to file.	Date: 4/1/08
CM Coordinator	Signature: Clark Tracy	Date: 4/1/08

Forward to Records Management (CM Coordinator).

Memo to file for Configuration Change Number CC-EG-2007-0189 Rev. 0

Date: March 27, 2008

From: _____
Design Manager/Designee

Based on the absence of Terry Fletcher
(Name and position of absent party)

Clark Tracy, Configuration Management Coordinator, has the authority to sign section 7
(Name and title)

of this CC after performance of appropriate review/verification.

CC-EG-2007-0189
Attachment 1
Page 1 of 1
Memorandum to File
December 12, 2007

This memorandum to file is applicable to configuration change CC-EG-2007-0189. The purpose is to identify and justify differences between the package prepared and the latest EG-101 revision 6 procedure. The preparer is satisfied that the intent of the changes has been met and that all requirements are satisfied.

The package was developed to clarify the types of temperature elements to be used in IROFS 1,2,4,5, C15 & C16. The effort was begun using EG-101 revision 3, before the current revision 6 was issued. Sections 1 thru 4 of the EG-101-F-1; Configuration Change Form EG-101 Revision 3 are retained for processing with sections 5 thru 7 completed using the current revision 6.

Therefore this justification was concentrated on sections 1 thru 4. Sections 1 thru 4 have not changed between revision 3 and revision 6 and there would be no change in the information provided.

This package has been reviewed against the requirements of EG-101 revision 6. Thus, this package meets all technical and regulatory commitments imposed for EG-101 revision 6.

Terry Fletcher
December 12, 2007

Basilia Malara (CTR)

From: Basilia Malara (CTR)
Sent: Wednesday, September 12, 2007 7:43 PM
To: Robert Schrauder (CTR); Vern Hull (CTR); Darrell Cooksey (CTR); Ralph Wild (CTR)
Cc: Terry Fletcher (CTR); Kathryn Scanlan (CTR)
Subject: CC-EG-2007-0189 Rev. 0 Changes to IROFS Temperature Sensor

Bob and Vern,

Your areas have been identified as requiring IDR(s) reviews (see EG-101-F-1 Section 2B) for the following CC:

Darrel Cooksey – you have been assigned to do the I&C review.
Ralph Wild – you have been assigned to do the ISAS review.

CC for Review: CC-EG-2007-0189 Rev. 0, Changes to IROFS Temperature Sensor.

IDR Due Date per CM Coordinator: Friday, September 21, 2007*
**Note*: *Please contact Clark Tracy, CM Coordinator at 856.663.3460 ext. 216 if you require a different due date.*

FAM – Action
Assign IDRs from your organization to support the processing of this package. **Send a copy of your assignment transmittal to** CC-EG-2007-0189 Rev. 0 **and Basilia Malara per EG-101, 5.31.**

Reviewer – Action
Send your completed (i.e., signed and dated) EG-101-F-2 and EG-101-F-3 to CC-EG-2007-0189 Rev. 0 **to** Terry Fletcher (856-663-3460 ext. 112, tfletcher@nefnm.com) **and Basilia Malara (856.663-3460 ext. 128,** bmalara@nefnm.com) **per EG-101, 5.3.2.f by Friday, September 21, 2007***.

Supporting Documentation
To support your review, I have attached the complete CC-EG-2007-0189 Rev. 0 EG-101-F-1 package and the WORD files for EG-101-F-2 and EG-101-F-3 to be completed during your review.

Tracking
To help track open IDRs, LES has instituted a configuration change tracking system, CCTS. Design Management produces a report for the FAMs to review every Wednesday. This report identifies the open IDRs for each functional area manager, FAM. The actions requested of the FAM and the Reviewer will ensure the most accurate and complete information is presented.

PLEASE TAKE NOTICE that these packages are also available for review on Documentum under the Engineering Cabinet under the OAR folder, etc. I thank you in advance for your cooperation.

Basilia Malara
LES Engineering Design
Config. Mngmt. Admin. Assistant
Records Custodian
3 Executive Campus
Suite 140
Cherry Hill, NJ 08002
(856) 663-3460 ext. 128
(856) 663-3215 fax

NATIONAL ENRICHMENT FACILITY

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Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0189	**Revision: 0**
Title (if applicable): Changes to IROFS Temperature Sensor	
Reviewer: **Ralph E. Wild/S. Su**	**Organization/Mail Stop/Telephone No./E-mail** **(505) 394-6114, rwild@nefnm.com**
Functional Area: Engineering/ISA	**Date Due: 9/21/07**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

ISA Summary, Rev. 5

Tails Takeoff HazOp – Areva Document No. 51-2400529-02

Feed & Purification HazOp – Areva Document No. 51-2400530-01

Product Takeoff HazOp – Areva Document No. 51-2400531-01

Product Blending & Sampling HazOp – Areva Document No. 51-2400533-01

Centifuge Test/Post-Mortem HazOp - ETC Document UPD 0202948, Issue F.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments:

Review per EG-104 and EG-213 may be required. Definitions of IROFS2, IROFS5, or IROFSC15 in affected HazOps need to be updated and failure indices of these IROFS reviewed.

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

The functionality of IROFS2, IROFS5, and IROFSC15 may be altered in the sense that their failure (or reliability) indices may need to be altered in affected HazOps and in the ISA Summary.

Interdisciplinary Review Form

Configuration Change Number: CC-EG-2007-0189 **Revision:** 0

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

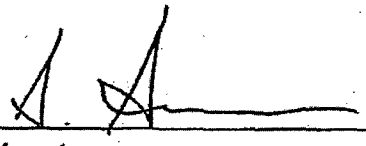
☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Need confirmation that the functionality of the affected IROFS and their failure indices remain unchanged. Upon confirmation, the Configuration Change is then acceptable.



9/29/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0189 | **Revision:** 0

Title (if applicable): Changes to IROFS Temperature Sensor

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Areva 51-2400529-02 Areva 51-2400530-01 Areva 51-2400531-01 Areva 51-2400533-01 ETC UPD 0202948.	The proposed configuration change may alter the functionality of the IROFS in that the change in the type of sensor may alter the IROFS failure index. In any case, the proposed change requires that the descriptions of the IROFS be updated in the affected HazOps.	Y	Confirm that the functionality of the affected IROFS and their failure indices remain unchanged. Otherwise, comments need to be resolved by LES Engineering Department per EG-104 and EG-213. Thermocouples are more reliable	
2	CC-EG-2007-0189, p1,C HazOp listed in (1) above ISA Summary	The CC indicates that the thermocouple temperature sensors will be "diverse". Of three IROFS pairs IROFS1/2 and IROFS 4/5 could be considered "diverse" even if both members of the pair are thermocouples because they measure temperature at different locations or in different environments; however IROFSC15/C16 measure temperature at the same location or environment and would not be diverse unless they were different types of sensors. Please clarify the basis for describing the IROFS as diverse.	Y	IROFS 1, 4, & C16 are RTD's. IROFS 2, 5, & C15 are Thermocouple's Text is changed to reflect the above information.	
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Ralph E. Wild and S. Su /LES Engineering/ISA			Date: 9/29/07	Resolved by: T.Fletcher	Date: 10/18/07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) S. Su			Date: 11/6/07		

LBDCR Form

LBDCR No: 07-0056 Configuration Change No: CC-EG-2007-0189

LBDCR Package Preparer: Terry Fletcher / Terry Fletcher (Print Name/Signature) LBDCR Initiation Date: 12 / 12 / 07 mm/dd/yy

1) Proposed License Basis Document Change(s) Brief Description

(What is being changed and why?)

Change clarifies the types of temperature elements to be used in IROFS 1,2,4,5, C15 & C16.

2) License Basis Document Change(s) Approval

☒ The LBDCR is a proposed Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections 3, **Error! Reference source not found.**4, and 5 of this Form are Not Applicable (N/A).

☐ The LBDCR is NOT a proposed Configuration Change. The review process defined below shall be utilized. Complete Sections **Error! Reference source not found.Error! Reference source not found.**3, 4, and 5 of this Form.

3) Document(s) Affected By Proposed Change(s) N/A

Document	Review Information
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Nuclear Criticality Safety Validation Report (i.e., MONK 8A Validation and Verification report)	NRC approval required before implementation
☐ ISA Summary	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ SAR	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ Environmental Report	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EN-103, Environmental Review and Evaluation.
☐ QAPD	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-400, Quality Assurance Program Description Changes
☐ Emergency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-120, 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☐ FNMCP (non-classified matter)	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-120, 10 CFR 70.32(c)(1)(iii) Change Evaluation.
☐ Physical Security Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.

Continued next page.

LBDCR Form

LBDCR No: 07-0056 Configuration Change No: CC-EG-2007-0189

Document	Review Information
☐ Safeguards Contingency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Guardforce Training Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ SPPP for the Protection of Classified Matter	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.
☐ SPPP for the Protection of Classified Matter for the CSF	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.

4) LBDCR Implementation Activities N/A

[e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking No.
N/A		

5) LBDCR Review and Approval N/A

Reviewer: _____ / _____ Date: _____
(Print/Sign)

FAM: _____ / _____ Date: _____
(Print/Sign) (N/A if NOT applicable.)

HS&E Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign)*

LBDCR Form

LBDCR No: 07-0056 Configuration Change No: CC-EG-2007-0189

6) LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☒ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

☒ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-101, Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.
RM-3-3000-01-F-3 01-30-08	ISAS	6
RM-3-3000-01-F-3 01-30-08	EP	6

7) LBDCR Approval

Licensing Director: Vincent Hill for Stan Cowan / [signature] Date: 2/4/08
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: ______ / ______ Date: ______
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: ______ / ______ Date: ______
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

A. Solid Feed Station

Both the Solid Feed Station air temperature and cylinder temperature are monitored to prevent over pressurization of the feed cylinder due to overheating. Normal air temperature in the Solid Feed Station during heating ranges from ambient to 61°C (142°F), while the cylinder temperature ranges from ambient to 53°C (127°F). The first alarm level is 62°C (144°F) for the Solid Feed Station air and 54°C (129°F) for the cylinder to give the operator warning of high temperature. The second alarm level is 55°C (131°F) for the cylinder, which trips the Solid Feed Station heater off.

In addition to the temperature controls, the Solid Feed Station has two independent and diverse temperature protection instruments. One is failsafe hard wired and measures cylinder temperature, and the other is a failsafe ~~capillary type~~ and measures the Solid Feed Station air temperature. These provide extra safety margin to prevent overheating the cylinder if the air temperature control fails. Both systems automatically de-energize the air heater and blower, if either the cylinder temperature reaches 55°C (131°F) or the Solid Feed Station air temperature reaches 63°C (145°F).

The feed cylinder pressure is monitored with dual sensors to prevent over pressurization of the cylinder, piping and valves. Normal pressure is 500 mbar (7.25 psia). The first alarm level is 600 mbar (8.7 psia) to give the operator warning of over pressure. The second alarm level at 850 mbar (12.3 psia) automatically closes the cylinder valve and trips the Solid Feed Station off-line, which de-energizes the air heaters and blower.

Each Solid Feed Station has a weighing system to monitor the contents of the feed cylinder. The first weight trip of 800 kg (1,764 lb) gross is used to indicate a cylinder is present in the Solid Feed Station. The second weight trip, equal to a net UF_6 weight of 100 kg (221 lb), indicates the cylinder is empty and puts the Solid Feed Station in standby.

B. Solid Feed Station Valve Hotbox

A single pressure transducer is located in the piping in each Solid Feed Station Valve Hotbox. When selected to control the Solid Feed Station, it is used to modulate the Solid Feed Station feed control valve. Normal pressure is approximately 55 mbar (22.1 in. H_2O). A first alarm, at 58 mbar (23.3 in. H_2O), warns the operator of high pressure. The second alarm level, at 64 mbar (25.7 in. H_2O), automatically switches the Solid Feed Station to standby and closes the outlet valve.

Low feed pressure is also alarmed. The first alarm, at 50 mbar (20.1 in. H_2O), warns the operator of loss of feed supply. A second alarm at 30 mbar (12.0 in. H_2O) indicates that the feed cylinder is empty.

C. Main Feed Header

Two pressure transducers are located in the main feed header near the Solid Feed Stations. When selected to control a Solid Feed Station, one of the instruments is used to modulate the Solid Feed Station feed control valve. Normal pressure is 55 mbar (22.1 in. H_2O). A first alarm at 57 mbar (22.9 in. H_2O) warns the operator of high pressure. The second alarm level, at 67 mbar (26.9 in. H_2O), automatically switches all of the Solid Feed Stations to standby and closes each Solid Feed Station's outlet valve. A low alarm at 20 mbar (8.03 in. H_2O) warns the operator of loss of feed supply.

In addition, three pressure transducers are evenly distributed along the feed header near the cascades. These act on a one out of three basis to protect the cascades from abnormal pressures. A first high alarm at 57 mbar (22.9 in. H_2O) warns the operator of high pressure. The second high alarm level, at 70 mbar (28.1 in. H_2O), automatically prevents feeding into the cascades. A first low alarm at 50 mbar (20.1 in. H_2O) warns of loss of the feed supply. The second low alarm level, at 20 mbar (8.03 in. H_2O), automatically prevents feeding into the cascades.

D. Feed Purification Low Temperature Take-off Stations

The purification cylinder inlet pressure is monitored to assure that a cylinder is connected to the system. Normal pressure is approximately 50 mbar (20.1 in. H_2O). A first alarm warns of high pressure at 400 mbar (5.8 psia). At 450 mbar (6.53 psia) the LTTS Valve Hotbox inlet valve is closed and the LTTS is tripped to standby. At a pressure below 40 mbar (16.1 in. H_2O) the cylinder is available for feed purification, and below 10 mbar (4.01 in. H_2O) it is available for feed cylinder heel removal.

Each LTTS has a weighing system to monitor the contents of the purification cylinder. The first alarm is 8,500 kg (18,743 lb) net weight for a 48Y type cylinder, above which efficiency is reduced. At 12,400 kg (27,342 lb), the maximum operational net weight for a 48Y type cylinder, the LTTS trips to standby and the inlet valve closes. A second trip at 15,300 kg (33,737 lb) gross weight for a 48Y type cylinder also closes the inlet valve and trips the LTTS off-line. A low alarm at 800 kg (1,764 lb) gross weight indicates no cylinder present in the LTTS. Similar trips and alarms are established for a 48X type cylinder. The output of the weighing system also allows cylinder weight to be verified to be within specified trending limits.

For temperature control and protection from high temperatures, the LTTS has a stand-alone control and protection system. The total system consists of three sensors. For main LTTS temperature control, one sensor is mounted in the air return to the chiller unit and monitors the circulating air temperature. This sensor and local control maintains the LTTS temperature to a normal value of –25°C (-13°F). In addition to controlling the LTTS temperature, one output is monitored by the Plant Control System (PCS) and warns when the air temperature rises from –25°C (-13°F) to –5°C (23°F). This would indicate a chiller failure or that the defrost heater is not functioning properly. The LTTS refrigeration unit has a defrost cycle to remove ice from the cooling coils. This is done with a defrost heater at the coils. When the defrost heater is on, the circulating air fan is off to minimize the increase in LTTS air temperature.

In addition to the closed loop control system previously described, there are two independent and diverse temperature protection instruments. These provide extra safety margin to protect against increases in temperature that may occur if the defrost heater control does not operate properly. The first instrument measures the circulating air temperature and is fail-safe hardwired. The second measures the air inside the LTTS and is a fail-safe capillary device. Both of these instruments will trip the defrost heater and fan power supply in the event the air temperature rises above set points. Set point on the hardwired instrument is 50°C (122°F) and set point on the capillary instrument is 63°C (145°F). If heater trip occurs from these two instruments, the LTTS is automatically taken off-line and put into a standby mode.

To prevent desublimation in the cylinder valve, hot air is blown over the valve with a hot air blower. A temperature sensor on the valve controls the temperature to 63°C (145°F).

C. Product Low Temperature Take-off Stations

Each product cylinder inlet pressure is monitored. Normal operating pressure is less than 50 mbar (20.1 in H_2O). The first alarm level is set at 50 mbar (20.1 in H_2O) to automatically initiate the timed cylinder venting sequence. A second alarm level set at 70 mbar (28.1 in H_2O) warns of high pressure. A third alarm level, at 80 mbar (32.1 in H_2O), closes the Product LTTS inlet valve and trips the Product LTTS off-line.

For weight control, each Product LTTS has a weighing system consisting of four load cells and a transmitter to monitor the contents of the product cylinder. A weight of less than 800 kg (1,764 lb) indicates no cylinder present in the Product LTTS. The first alarm, set at the net allowable weight of UF_6 in the product cylinder, promotes a standby Product LTTS to on-line and closes the Product LTTS inlet valve to prevent overfilling. A second alarm, set at the gross allowable weight of the product cylinder filled with UF_6, also closes the inlet valve and trips the Product LTTS off-line. The output of the weighing system also allows cylinder weight to be verified to be within specified trending limits.

For temperature control and protection from high temperatures, the Product LTTS has a stand-alone control and protection system. The total system consists of three sensors. For main Product LTTS temperature control, one sensor is mounted in the air return to the chiller unit and monitors the circulating air temperature. This sensor and local control maintains the Product LTTS temperature to a normal value of –25°C (-13°F). In addition to controlling the Product LTTS temperature, one output is monitored by the Plant Control System and warns when the air temperature rises to from -25°C (-13°F) to –5°C (23°F). This would indicate a chiller failure or that the defrost heater is not functioning properly. When the defrost heater is on, the circulating air fan is off to minimize the increase in Product LTTS air temperature. In addition to the closed loop control system previously described, there are two independent and diverse temperature protection instruments. These provide extra safety margin to protect against increases in temperature that may occur if the heater control did not operate properly. The first instrument measures the circulating air temperature and is fail-safe hardwired. The second measures the air inside the Product LTTS and is a fail-safe capillary device. Both of these instruments will trip the defrost heater and fan power supply in the event the air temperature rises above set points. Set point on the hardwired instrument is 50°C (122°F) and set point on the capillary instrument is 53°C (127°F). If heater trip occurs from these two instruments, the Product LTTS is automatically taken off-line and put into a standby mode.

LBDCR-07-0025

LBDCR-07-0025

RTD Thermocouple RTD Thermocouple

To prevent desublimation in the cylinder valve, heated air is blown over the valve with a hot air blower. A temperature sensor on the valve controls the temperature to 63°C (145°F).

D. Product Vent Subsystem

1. UF_6 Cold Traps

The vent header pressure, between the Product LTTS and the UF_6 cold traps, is monitored. During the vent sequence the normal pressure is at or below 50 mbar (20.1 in. H_2O). During the gas-back sequence, when UF_6 is sublimed in the UF_6 cold trap for transfer back to a product cylinder, the header pressure is at the UF_6 vapor pressure. A gas-back first alarm level at 90 mbar (26.1 in. H_2O) warns of high pressure. A second alarm level at 99 mbar (39.7 in. H_2O) closes the Product LTTS vent valve to prevent flow back into the Product Take-off System.

B. Tails Pumping Trains.

Each Tails Pumping Train inlet pressure is monitored. Normal pressure is less than 4 mbar (0.8 in. H_2O). First alarm level (H) gives operator warning of high pressure. Second alarm level (HH) trips the vacuum pump off-line to protect the cascade from air ingress. A third alarm at 80 mbar prevents the pump from running and the outlet valve from opening to protect against gross leakage into the system.

C. Secondary Header.

The tails secondary pipe header pressure is monitored with three sensors. Normal pressure is less than 55 mbar (22.1 in. H_2O). The first alarm level provides operator warning of high pressure at 70 mbar (28.1 in. H_2O). At the second alarm level, 80 mbar (32.1 in. H_2O) on two of three sensors, the vacuum pump trips off-line and a signal that the tails system is unavailable goes to the programmable logic controller (PLC) in each cascade.

D. Tails Low Temperature Take-off Stations.

For pressure control, each tails cylinder inlet pressure is monitored. Normal pressure is between 5 and 50 mbar (2 and 20 in H_2O). The first alarm level is 70 mbar (28.1 in H_2O) to give operator warning of high pressure. The second alarm level at 80 mbar (32.1 in H_2O) automatically closes the Tails LTTS inlet valve and trips the Tails LTTS off-line.

For weight control, each Tails LTTS has a weighing system consisting of four load cells and a transmitter to monitor the contents of the UBCs. A weight of less than 800 kg (1,764 lb) indicates no cylinder present in the Tails LTTS. The first alarm, set at the net allowable weight of UF_6 for the 48-in cylinder, trips the Tails LTTS to standby to prevent overfilling. This promotes the standby auto Tails LTTS to on-line. The second trip, set at the gross allowable weight of a 48-in cylinder filled with UF_6, closes the inlet valve and trips the Tails LTTS to off-line. The output of the weighing system also allows cylinder weight to be verified to be within specified trending limits.

For temperature control and protection from high temperatures, the Tails LTTS has a stand-alone control and protection system. The total system consists of three sensors. For main Tails LTTS temperature control, one sensor is mounted in the air return to the chiller unit and monitors the circulating air temperature. This sensor and local control maintains the Tails LTTS temperature to a normal value of –25°C (-13°F). In addition to controlling the station temperature, one output is monitored by the Plant Control System (PCS) and warns when the air temperature rises to –5°C from –25°C (23°F from -13°F). This would indicate a chiller failure or that the defrost heater is not functioning properly. When the defrost heater is on, the circulating air fan is off to minimize the increase in Tails LTTS air temperature. LBDCR-07-0025 LBDCR-07-0025

In addition to the closed loop control system previously described, there are two independent and diverse temperature protection instruments. These provide extra safety margin to protect against increases in temperature that may occur if the heater control does not operate properly. The first instrument measures the circulating air temperature and is fail-safe hardwired. The second measures the air inside the Tails LTTS and is a fail-safe ~~capillary device~~. Both of these instruments will trip the defrost heater and fan power supply in the event the air temperature rises above set points. Set point on the hardwired instrument is 50°C (122°F) and set point on the ~~capillary~~ instrument is 53°C (127°F). If heater trip occurs from these two instruments, the Tails LTTS is automatically taken off-line and put into a standby mode.

RTD

Thermocouple

Thermocouple

RTD

A. Blending Donor Station.

Both the Blending Donor Station air temperature and cylinder temperature are monitored to prevent over pressurization of the donor cylinder due to overheating. Normal air temperature in the Blending Donor Station during heating ranges from ambient to 61°C (142°F), while the cylinder temperature ranges from ambient to 53°C (127°F). The first alarm level is 62°C (144°F) for the Blending Donor Station air and 54°C (129°F) for the cylinder to give the operator warning of high temperature. The second alarm level is 55°C (131°F) for the cylinder, which trips the Blending Donor Station heater off.

In addition to the above temperature controls, the Blending Donor Station has two independent and diverse temperature protection instruments. One is hard wired and measures cylinder temperature, and the other is a capillary-type and measures the Blending Donor Station air temperature. These provide extra safety margin to prevent overheating the cylinder if the air temperature control fails. Both systems automatically de-energize the air heater and blower, if either the cylinder temperature reaches 55°C (131°F) or the Blending Donor Station air temperature reaches 63°C (145°F).

The donor cylinder pressure is monitored with dual sensors to prevent over-pressurization. Normal header pressure is limited to 500 mbar (7.25 psia). The first alarm level is 600 mbar (8.7 psia) to give operator warning of high pressure. The second alarm level at 850 mbar (12.3 psia) automatically closes the cylinder valve and trips the Blending Donor Station off-line. A low pressure alarm at 200 mbar (2.9 psia) warns that a cylinder vent is complete.

Each Blending Donor Station has a weighing system to monitor the mass of UF_6 remaining in the cylinder. The first weight trip at 800 kg (1,764 lb) gross is used to indicate a cylinder is present in the Blending Donor Station. The second weight trip, equal to the net cylinder contents weight after meeting the receiver cylinder requirements, indicates that the target transfer weight has been reached and trips the Blending Donor Station to standby. A third weight trip signals that the donor cylinder is empty and trips the Blending Donor Station to standby.

B. Blending Receiver Station.

The weight of the receiver cylinder is monitored to determine when the required amount of UF_6 has been transferred and to protect against overfilling the cylinder. A low weight trip at 800 kg (1,764 lb) gross indicates that a cylinder is present in the Blending Receiver Station. The Blending Receiver Station trips to standby and automatically closes the inlet valve when the required transfer weight is reached. A second trip, at the maximum net weight for a 30B cylinder, also trips the Blending Receiver Station to standby and closes the inlet valve. A third trip, at the maximum gross weight for a 30B cylinder, closes the inlet valve and trips the Blending Receiver Station off-line. The output of the weighing system also allows cylinder weight to be verified to be within specified trending limits.

The receiver cylinder inlet pressure is monitored to assure that a cylinder is connected to the system. Normal pressure is from 0 to 500 mbar (0 to 7.25 psia). A first alarm level at 550 mbar (7.98 psia) warns the operator of high pressure. A second alarm level at 650 mbar (9.43 psia) automatically closes the Blending Receiver Station inlet valve and trips the Blending Receiver Station off-line.

For temperature control and protection from high temperatures, the Blending Receiver Station has a stand-alone control and protection system. The total system consists of three sensors. For main Blending Receiver Station temperature control, one sensor is mounted in the air return to the chiller unit and monitors the circulating air temperature. This sensor and local control maintains the Blending Receiver Station temperature to a normal value of –25°C (-13°F). In addition to controlling the Blending Receiver Station temperature, one output is monitored by the Plant Control System and warns when the air temperature rises to –5°C from –25°C (23° F from -13°F). This would indicate a chiller failure or that the defrost heater is not functioning properly. When the defrost heater is on, the circulating air fan is off to minimize the increase in Blending Receiver Station air temperature. | LBDCR-07-0025 | LBDCR-07-0025

In addition to the closed loop control system previously described, there are two independent and diverse temperature protection instruments. These provide extra safety margin to protect against increases in temperature that may occur if the heater control does not operate properly. The first instrument measures the circulating air temperature and is fail-safe hardwired. The second measures the air inside the Blending Receiver Station and is a fail-safe capillary device. Both of these instruments will trip the defrost heater and fan power supply in the event the air temperature rises above set points. Set point on the hardwired instrument is 50°C (122°F) and set point on the capillary instrument is 53°C (127°F). If heater trip occurs from these two instruments, the Blending Receiver Station is automatically taken off-line and the transfer sequence stopped. RTD Thermocouple Thermocouple RTD

To prevent desublimation in the cylinder valve, hot air is blown over the valve with a hot air blower. A temperature sensor on the valve controls the temperature to 63°C (145°F).

C. Blending and Sampling Vent Subsystem UF_6 Cold Trap.

During the venting operation, the Blending and Sampling Vent Subsystem UF_6 cold trap outlet pressure is monitored. A first high alarm, at 70 mbar (28.1 in. H_2O), warns of high pressure in the UF_6 cold trap. A first low alarm, at 20 mbar (8.03 in. H_2O), warns of low pressure and indicates the UF_6 cold trap is empty when collected UF_6 is being sublimed for transfer back to a receiver cylinder (gas-back). A second low alarm, at 1 mbar (0.401 in. H_2O), closes the UF_6 cold trap outlet valve to prevent UF_6 flow to the vacuum pump. A second high alarm, at 80 mbar (32.1 in. H_2O), trips the UF_6 cold trap off-line, switching the heater/chiller unit off and closing the inlet/outlet valves.

A weighing system monitors the UF_6 contents of the UF_6 cold trap. A first alarm at 20 kg (44.1 lb) warns that the UF_6 cold trap is full. At 25 kg (55.1 lb) the UF_6 cold trap trips off-line, the inlet and outlet valves are closed, and a gas-back sequence is required.

The temperature of the UF_6 cold trap is controlled at –60°C (-76°F) during cooling to desublime any UF_6 and at 20°C (68°F) for heating during sublimation to empty the UF_6 cold trap of collected UF_6 (gas-back). A low alarm at –63°C (-81.4°F) warns of a chiller unit fault. A first high alarm at –52°C (-61.6°F) closes the UF_6 cold trap outlet valve and a second high alarm at 25°C (77°F) warns of high temperature during gas-back. At 30°C (86°F) the UF_6 cold trap trips off-line to avoid desublimation of UF_6 in the header. | LBDCR-07-0025 | LBDCR-07-0025

I. SCADA System

The centrifuge test facility has a dedicated control and data acquisition system. Control functions are performed using a Programmable Logic Controller (PLC). Independent hard wired trips are used for safety related functions.

The operator interfaces with the SCADA system via a computer terminal. The operator interface displays real time values and trends of all instruments associated with the centrifuge test facility and allows selection of various process modes and initiation of sequences.

J. Uninterruptible Power System (UPS).

A UPS is required to provide backup power to the PLC, the operator interface, and the hardwired safety circuits.

K. Centrifuge Crash Detection System.

Each test position is fitted with a centrifuge Crash Detection System. This system consists of a shock sensor, that is strapped to the test centrifuge, and signal processing electronics. The signal processor provides a digital input to the SCADA system PLC that, in turn, initiates a system shutdown and provides an alarm signal.

3.4.10.1.4 Design and Safety Features

As stated previously, control of the Centrifuge Test Facility is undertaken via the SCADA system. All process states and sequences are initiated by the operator. The operator can override any sequence and take manual control of the facility.

There are few hazards associated with the facility. The principal hazards are centrifuge failure or heat tracing failure of the feed vessel resulting in overheating of the vessel.

The safety enclosure for the centrifuge containment is well established and underpinned with experimental evidence.

In the event of an electrical heating or heat trace control failure, the design is such that with continuous maximum power input to the heating elements, no damage to the equipment can occur.

The electrical heating and heat tracing circuits of the UF_6 feed and take-off vessels are each fitted with two resistance temperature devices (RTDs). One RTD is used for control. The second RTD provides an independent fail-safe, hardwired trip of the heat tracing, set at 35°C (95°F). An independent ~~capillary~~ temperature sensor for automatic, fail safe, high temperature trip of the heat tracing is also provided. This value has been selected to prevent the formation of UF_6 gas at above atmospheric pressure.

Thermocouple

The power to these electrical circuits is also removed if the pressure at the UF_6 feed or take-off vessel exit rises above 120 mbar (1.74 psia).

Table 3.8-1 Items Relied On For Safety (IROFS)

IROFS	Accident Sequence	Type of Accident	Type (1)	Class (2)	Description of Safety Function	FPIN (3)	FPIN Basis (4)
IROFS1	TT2-1 UF2-1 PT2-1 PB2-1	Chemical	AEC	B	Automatic trip of defrost heater and fan on high air return temperature to ensure cylinder integrity. RTD This is implemented with a hardwired temperature sensor for automatic, fail-safe, high air return temperature trip of defrost heaters and fans at Tails Low Temperature Take-off Stations, Feed Purification Low Temperature Take-off Stations, Product Low Temperature Take-off Stations, and Product Blending Receiver Stations. Setpoint conservative with respect to assuring cylinder integrity.	-2	N/A
IROFS2	TT2-1 UF2-1 PT2-1 PB2-1	Chemical	AEC	B	Automatic trip of defrost heater and fan on high station internal air temperature to ensure cylinder integrity. Thermocouple This is implemented with a capillary temperature sensor for automatic, hardwired, fail-safe, high station internal air temperature trip (independent and diverse from IROFS1) of defrost heaters and fans at Tails Low Temperature Take-off Stations, Feed Purification Low Temperature Take-off Stations, Product Low Temperature Take-off Stations and Product Blending Receiver Stations. Setpoint conservative with respect to assuring cylinder integrity.	-2	N/A
IROFS3	DC1-6 DC1-8	Chemical	AEC	A	Automatic trip of the vacuum pump on carbon trap high weight to ensure the carbon trap does not become saturated with UF_6. This is implemented with an automatic hardwired, fail-safe, trip of the vacuum pump on high weight of the evacuation skid carbon trap in the Tails Evacuation System, Feed Purification Subsystem, Product Vent Subsystem, Blending and Sampling Vent Subsystem, Ventilated Room Cylinder Pressure Test & Pump Out Rig, Cylinder Preparation Vacuum Pump and Trap Set System, and Contingency Dump System. Setpoint conservative with respect to saturated carbon trap weight.	-2	N/A

Table 3.8-1 Items Relied On For Safety (IROFS)

IROFS	Accident Sequence	Type of Accident	Type (1)	Class (2)	Description of Safety Function	FPIN (3)	FPIN Basis (4)
IROFS4	UF1-1 PB1-1	Chemical	AEC	B	Automatic trip of station heaters on high cylinder temperature to ensure cylinder integrity. This is implemented with a hardwired RTD temperature sensor for automatic, fail-safe, trip on high cylinder temperature of Solid Feed Station and Blending Donor Station heaters. Setpoint conservative with respect to assuring cylinder integrity.	-2	N/A
IROFS5	UF1-1 PB1-1	Chemical	AEC	B	Automatic trip of station heaters on high station internal air temperature to ensure cylinder integrity. This is implemented with a capillary Thermocouple temperature sensor for automatic, fail-safe, trip (independent and diverse from IROFS4) on high internal air temperature of Solid Feed Station and Blending Donor Station heaters. Setpoint conservative with respect to assuring cylinder integrity.	-2	N/A
IROFS6a	PT2-2	Criticality	AC	N/A	Administrative verification of distinguishing visual markings/ identification of 48X and 48Y cylinders within the UF_6 area to ensure that cylinders containing product are not placed on-line to the cascade. Each 48X and 48Y cylinder will have distinguishing feature(s) that identifies product cylinders as not feed cylinders.	N/A	N/A
IROFS6b	PT2-2	Criticality	AC	B	Administrative verification of ^{235}U concentration in feed cylinders to ensure that product material is not used as feed material by sampling and assay analysis. This is implemented by sampling and assay analysis of feed cylinder contents for uranic enrichment and verification that it is not a product cylinder before being placed on-line to the cascade consistent with the assumptions in the Nuclear Criticality Safety Analyses. If the established acceptance criterion is not met, the cylinder shall not be placed on-line to the cascade.	-2	N/A

Table 3.8-1 Items Relied On For Safety (IROFS)

IROFS	Accident *Sequence*	Type of *Accident*	Type (1)	Class (2)	Description of Safety Function	FPIN (3)	FPIN Basis (4)
IROFSC6	EC3-1	Criticality	AC	A	Administratively calculate and set the cascade enrichment control device in accordance with the calculation to ensure ^{235}U enrichment < 5 w/0 to ensure subcriticality within the designed process and analyzed activities. This is implemented by ensuring the calculation performed accurately, and the associated cascade enrichment control device setting is implemented in accordance with the calculation. The 5 w/0 limit is based on the NEF Materials License limit and consistent with the Nuclear Criticality Safety Analyses to ensure subcriticality within the designed process and analyzed activities. If the acceptance criterion is not met and the cascade enrichment control device setting has not been changed, then the cascade enrichment control device setting shall not be changed. If the acceptance criterion is not met and the cascade enrichment control device setting has been changed, then the associated cascade shall be isolated such that no additional UF_6 can enter or exit the cascade.	-3	3.8.3.C6
IROFSC15	TP8-1	Chemical	AEC	B	Automatic trip of the Centrifuge Test Facility feed/take-off vessel heat tracing on high temperature to ensure feed/take-off vessel integrity. This is implemented with a capillary temperature sensor (Thermocouple) for automatic, hardwired, fail-safe, high temperature trip of the Centrifuge Test Facility feed/take-off vessel heat trace. Setpoint based on centrifuge integrity calculation.	-2	N/A
IROFSC16	TP8-1	Chemical	AEC	B	Automatic trip of the Centrifuge Test Facility feed/take-off vessel heat tracing on high temperature to ensure feed/take-off vessel integrity. This is implemented with a temperature sensor (RTD) for automatic, hardwired, fail-safe, high temperature trip of the Centrifuge Test Facility feed/take-off vessel heat trace. Setpoint conservative with respect to assuring feed/take-off vessel integrity.	-2	N/A

2.1.1.3 Fires Propagating Between Areas

The TSB, Cascade Halls, CRDB, Blending and Liquid Sampling Area, and the UF_6 Handling Area have been identified as the only areas within the NEF where an uncontrolled fire propagating into these areas could result in a release of the UF_6 or uranium inventory.

For the controlled accident sequence, the mitigating measures are fire barriers which prevent propagation of fire in/out of areas containing uranic material.

2.1.1.4 Fires Involving Excessive Transient Combustibles

The TSB, Cascade Halls, CRDB, Centrifuge Test Facility, Blending and Liquid Sampling Area, UF_6 Handling Area, UBC Storage Pad and UBC Transporter have been identified as the only areas within the NEF where an uncontrolled fire involving excessive combustibles could result in a release of UF_6 or uranium inventory.

For the controlled accident sequence, the mitigating measures are administrative controls through the use of procedures and training associated with preventing severe fire exposure to systems or components of concern.

2.1.1.5 Heater Controller Failure

The initiating event is failure of a heater controller that causes either the Solid Feed Station heater or defrost heaters in Low Temperature Take-off Stations or the Blending Donor Station or Receiver Station heater or defrost heater to remain energized.

For the uncontrolled accident sequence, the cylinder over heats and the cylinder hydraulically ruptures due to the expansion of the UF_6. Upon cylinder rupture, the cylinder contents of UF_6 are released, locally exposing workers, and the UF_6 is subsequently released outside the UF_6 Handling Area or Blending and Liquid Sampling Area to the site boundary.

For the controlled accident sequence, the preventive measures are (1) fail-safe hard-wired high temperature heater trip, and (2) redundant independent fail-safe ~~capillary~~ high temperature heater trip.

RTD

Thermocouple

2.1.1.6 Over-Filled Cylinder Heated to Ambient

The event is initiated by overfilling a cylinder located in the UF_6 Handling Area or the Blending and Liquid Sampling Area.

For the uncontrolled accident sequence (secondary containment not credited), the over-filled cylinder is heated to ambient temperature with subsequent cylinder rupture. Upon cylinder rupture, the cylinder contents of UF_6 are released within the facility locally exposing workers and the UF_6 is subsequently released outside the building to the site boundary.

For the controlled accident sequence, the preventive measure for preventing overfilling is cylinder over-fill administrative control (cylinder over-fill prevented by verification of cylinder fill conditions once per shift).

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0189	**Revision:** 0
Title (if applicable): Changes to IROFS Temperature Sensor	
Reviewer: Darrell Cooksey	**Organization/Mail Stop/Telephone No./E-mail** LES / Cherry Hill / 856.663.3460 ext 108 / dcooksey@nefnm.com
Functional Area: Design Management - I&C	**Date Due:** 09/21/2007

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

The CC-EG-2007-0189 was reviewed for impact on the Instrument & Controls functional area. The documents used to perform this review included:

Facility Changes per 10CFR70.72

Safety Analysis Report, Rev. 13

ISA Summary, Rev 5, Sections 3.4.2.6, 3.4.4.7, 3.4.5.7, 3.4.6.7, 3.4.10.1 and Table 3.8-1

Emergency Plan, Rev. 5, Sections 2.1.1 and 2.2.3

Fundamental Nuclear Material Control Plan, Rev 5.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

None.

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

No change to IROFS functionality. A monitor circuit with a thermocouple could be more responsive due to the relatively slow rate of change in capillary temperature sensors. This could increase the margin of safety for these IROFS.

Interdisciplinary Review Form

Configuration Change Number: CC-EG-2007-0189 **Revision:** 0

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

None.

Darrell W. Cooksey — Sept 14th 2007

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM

Configuration Change Number: CC-EG-2007-0189 **Revision:** 0

Title (if applicable): Changes to IROFS Temperature Sensor

Reviewer: Timothy Harney	**Organization/Mail Stop/Telephone No./E-mail** Licensing / Cherry Hill / 856-663-3460 x111 / tharney@nefnm.com

Functional Area: Licensing **Date Due:** 9/21/07

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Documents reviewed: Emergency Plan, Environmental Report, FNMCP, IN-06-00038, IN-06-00071, IN-06-00038-DOE, IN-06-00107, IN-06-00112, ISA Summary, Material License as amended May 2, 2007, NEF-05-00034a-NRC, QAPD, SAR, and SER (NUREG 1827).

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:
None

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

The change does not affect the functionality of the affected IROFS (IROFS2, IROFS5, or IROFSC15).

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:
None

Tim Harney _____ 9/18/07
Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

Basilia Malara (CTR)

From: Basilia Malara (CTR)
Sent: Monday, December 03, 2007 1:44 PM
To: Stacey Lowe (LES)
Cc: Terry Fletcher (CTR); Clark Tracy (CTR)
Subject: Request for SRC Review of 70.72 No. 2007-0244 (CC-EG-2007-0189 Rev. 0)

Tracking:

Recipient	Read
Stacey Lowe (LES)	
Terry Fletcher (CTR)	Read: 12/3/2007 1:49 PM
Clark Tracy (CTR)	Read: 11/29/2007 10:23 AM

Good afternoon Stacey,

Please list the 70.72 No. 2007-0244 (CC-EG-2007-0189 Rev. 0) for the next SRC review. The presenter will be Terry Fletcher. Please provide him and myself with the call-in information, date and time of the SRC meeting. Thank you for your assistance in this matter.

Basilia Malara
LES Engineering Design
Config. Mngmt. Admin. Assistant
Records Custodian
3 Executive Campus
Suite 140
Cherry Hill, NJ 08002
(856) 663-3460 ext. 215
(856) 663-3215 fax

NATIONAL ENRICHMENT FACILITY

Please consider the environment before printing this email.

12/3/2007

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: 2007-0244 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0189 **Revision Number:** 0

I. Description of Change:

The first change modifies LBDs to specify that a RTD sensor will be used to measure the necessary temperatures for IROFS 1, 4, and C16. Originally, the LBDs specified a temperature sensor would be used, but did not specify a specific type of temperature sensor.

The second change modifies LBDs to specify that a thermocouple will be used to measure the necessary temperatures associated with IROFS 2, 5, and C15 in place of the capillary sensor that was initially specified.

These changes are being made to support procurement of QL 1 temperature sensors and still maintain a 'diverse' set of temperature sensors.

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer:

Accident sequences are identified in ISAS Table 3.7-1 and described in ISAS Table 3.7-2. No new accident sequences are created by specifying the use of RTDs or Thermocouples for the temperature sensors used in IROFS 1, 2, 4, 5, C15 and C16. Both temperature sensors are constructed of relatively inert materials and involve low voltages that will not create any new accident sequences in their environment.

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer:

The change contains design information related to typical commercial technologies. Technology in RTDs and Thermocouples is at a level of detail that is relevant to general commercial practice and is not specific to the enrichment process. Therefore, use of RTDs and Thermocouples does not result in the use of the new process technologies, new process control systems, or new processes for which the License takes credit for LES (or Urenco) operational experience.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

Basis for answer:

ISA Summary Table 3.8-1 identifies all of the IROFS used at the NEF. IROFS 1, 2, 4, 5, C15, and C16 are impacted by this change. The change does not eliminate 'automatic, hardwired, fail-safe' temperature sensors. Furthermore, as noted in the resolution to S. SU's IDR response, the change does not affect the functionality of the IROFS or their failure indices.

Therefore, this change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: 2007-0244 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0189 **Revision Number:** 0

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer:

ISA Summary Table 3.8-2 identifies all of the sole IROFS used at the NEF. None of the impacted IROFS are sole IROFS.

Therefore, this change does not alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer:

There are no prohibitive statements specified in 10 CFR 70.72. The Material License contains specific prohibitive statements concerning the use of certain types of controllers, initial introduction of UF6 to the facility, and the depleted UF6 deconversion process. It also contains limits on the types and quantities of material allowed to be on site. NRC issued orders for the NEF concern Additional Security Measures, Protection of Safeguards Information, and Fingerprinting and Criminal Background checks. None of these issues are applicable to the described change. Therefore, this change is not prohibited by 10 CFR 70.72, license condition, or order.

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: 2007-0244 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2007-0189 **Revision Number:** 0

IV. References used to perform the evaluation (if not provided in the response to each question).

V. Review and Approval:

10 CFR 70.72(c) Evaluator: Scott Eisele (Printed Name) _____ (Signature) Date: 11 / 13 / 2007

10 CFR 70.72(c) Reviewer: Clark Tracy (Printed Name) _____ (Signature) Date: 11 / 13 / 2007

SRC Review Required: (Yes) No (Circle one) If No, provide basis:

David J. Vondrasek (Printed Name) SRC Chairman _____ (Signature) Date: 12/6/7

2007-53
SRC Meeting Number

LBDCR Form

LBDCR No: 07-0056 Configuration Change No: CC-EG-2007-0189

LBDCR Package Preparer: Terry Fletcher / Terry Fletcher LBDCR Initiation Date: 12 / 12 / 07
(Print Name/Signature) *mm/dd/yy*

1) Proposed License Basis Document Change(s) Brief Description

(What is being changed and why?)

Change clarifies the types of temperature elements to be used in IROFS 1,2,4,5, C15 & C16.

2) License Basis Document Change(s) Approval

☒ The LBDCR is a proposed Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections 3, **Error! Reference source not found.**4, and 5 of this Form are Not Applicable (N/A).

☐ The LBDCR is NOT a proposed Configuration Change. The review process defined below shall be utilized. Complete Sections **Error! Reference source not found.Error! Reference source not found.**3, 4, and 5 of this Form.

3) *Document(s) Affected By Proposed Change(s) N/A*

Document	Review Information
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-102, Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Nuclear Criticality Safety Validation Report (i.e., MONK 8A Validation and Verification report)	NRC approval required before implementation
☐ ISA Summary	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ SAR	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ Environmental Report	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EN-103, Environmental Review and Evaluation.
☐ QAPD	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-400, Quality Assurance Program Description Changes
☐ Emergency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-120, 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☐ FNMCP (non-classified matter)	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-120, 10 CFR 70.32(c)(1)(iii) Change Evaluation.
☐ Physical Security Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.

Continued next page.

LBDCR Form

LBDCR No: 07-0056 Configuration Change No: CC-EG-2007-0189

Document	Review Information
☐ Safeguards Contingency Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Guardforce Training Plan	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-120, 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ SPPP for the Protection of Classified Matter	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.
☐ SPPP for the Protection of Classified Matter for the CSF	Assess in accordance with: • LS-104, 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-130, 10 CFR 95.19 Change Evaluation.

4) LBDCR Implementation Activities N/A

[e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking No.
~ /J		

5) LBDCR Review and Approval N/A

Reviewer: _____ / _____ Date: _____
(Print/Sign)

FAM: _____ / _____ Date: _____
(Print/Sign) (N/A if NOT applicable.)

HS&E Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign)*

LBDCR Form

LBDCR No: 07-0056 Configuration Change No: CC-EG-2007-0189

6) LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☒ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

☒ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-101, Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.
RM-3-3000-01-F-3 01-30-08	ISAS	6
RM-3-3000-01-F-3-01-30-08	EP	6

7) LBDCR Approval

Licensing Director: Vince Hill for Stoolmon / [signature] (Print/Sign) (N/A if NOT applicable.) Date: 2/4/08
(or designee)

Support Services Director: / (Print/Sign) (N/A if NOT applicable.) Date:
(or designee)

Vice President of Engineering: / (Print/Sign) (N/A if NOT applicable.) Date:
(or designee)

Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

1 of 5 JCD 10/23/07

Configuration Change Form

Configuration Change Number: CC-EG-2007-0226 **Revision** 0

Configuration Change Title: QA Level 2 Definition and QA Level 1 Clarification

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☐ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. *List the document(s) that this CC applies to and attach any marked up or new documents to this form.*
QAPD, Revision 13a

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

1. Revise references to QA Level 1 conditions to read "items required to satisfy regulatory requirements for which QA Level 1 requirements are applied."
2. Section 20, Quality Assurance Program for QA Level 2 Activities, of the QAPD is being revised to establish bounding criteria for QA Level 2 activities and QA Level 2 structures, systems, components, and activities (SCCs).
3. ~~Eliminate the phrase "provide support of normal operations of the facility" from the 4th paragraph of the introduction that describes the QA Level 2 program.~~ WP See LBDCR 07-0027 for more detail

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

1. Application of QA Level 1 will be consistent throughout the QAPD.
2. Establishing QA Level 2 criteria will efficiently apply quality assurance protocols based on a graded approach and will minimize the risk of rework for those QA Level 2 SSCs currently designated QA Level 3.
3. ~~The phrase "provide support of normal operations of the facility," is ambiguous and is being eliminated from the 4th paragraph of the introduction that describes the QA Level 2 program.~~ WP See LBDCR 07-0027 for more detail

C. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

The proposed changes will impact the QAPD, a License Basis Document. As process and SSCs are evaluated according to the QA Level 2 criteria, some QA Level 3 SCCs may be reclassified as QA Level 2.

Preparer (Print Name/Signature):		Date:
CC FAM(1)	Signature:	Date: 10/2/07

(1) The CM Coordinator may sign for the CC FAM for Owner Acceptance Review of Design Deliverables from

2 of 4 GLD 10/23/07
2 of 5

Configuration Change Form

Configuration Change Number: CC-EG-2007-0226 **Revision** 0

Configuration Change Title: QA Level 2 Definition and QA Level 1 Clarification

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☐ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.
QAPD, Revision 13a

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

1. Revise references to QA Level 1 conditions to read "items required to satisfy regulatory requirements for which QA Level 1 requirements are applied."
2. Section 20, Quality Assurance Program for QA Level 2 Activities, of the QAPD is being revised to establish bounding criteria for QA Level 2 activities and QA Level 2 structures, systems, components, and activities (SCCs).
3. Eliminate the phrase "provide support of normal operations of the facility" from the 4th paragraph of the introduction that describes the QA Level 2 program.

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

1. Application of QA Level 1 will be consistent throughout the QAPD.
2. Establishing QA Level 2 criteria will efficiently apply quality assurance protocols based on a graded approach and will minimize the risk of rework for those QA Level 2 SSCs currently designated QA Level 3.
3. The phrase "provide support of normal operations of the facility," is ambiguous and is being eliminated from the 4th paragraph of the Introduction that describes the QA Level 2 program.

C. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

The proposed changes will impact the QAPD, a License Basis Document. As process and SSCs are evaluated according to the QA Level 2 criteria, some QA Level 3 SCCs may be reclassified as QA Level 2.

Preparer (Print Name/Signature):		Date:
CC FAM(1)	Signature: Don R Coons	Date: 10/2/07

(1) The CM Coordinator may sign for the CC FAM for Owner Acceptance Review of Design Deliverables from

~~394~~ 385
JLD 10/23/07

Configuration Change Form

Configuration Change Number: CC-EG-2007-0226 **Revision** 0

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

B. Interdisciplinary reviews required (Preparer/FAM - check all that apply). Route Configuration Change to :

- ☐ Construction Management
- ☒ Design Management K e Prasad
- ☐ HS&E
- ☒ Licensing
- ☐ Production
- ☒ Quality Assurance
- ☐ Support Services
- ☐ Chief Financial Officer
- ☐ Technical Services (Mandatory for CC's related to FCR's or to NCR's with disposition of "Repair" or "Use-As-Is")

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and completed Configuration Change documentation to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change may be a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

CM Coordinator (Print Name/Signature):	**Date**
Clerk Tracy / Clerk Tracy	10/8/07

Section 3: Disposition of Interdisciplinary Reviews

☒ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR) actions. Identify CR actions in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	**Signature:** WYATT RADGETT for R. McCausland	**Date:** 10-11-07
CC FAM(2)	**Signature:**	**Date:** 10/11/07

(2) May be signed by Building Lead, Discipline Lead or System Lead for Owner Acceptance Reviews of Design Deliverables from Design Agencies.

~~4 of 4~~ 10/23/07
4 of 5 JCD

Configuration Change Form

Configuration Change Number: CC-EG-2007-0226	Revision 0

Section 4: Disposition of ISA Review

☐ ~~No~~ ISA Impact and No ISA Team Review Required OR

☐ Possible ISA Impact. Complete review per EG-104 and attach result. List any outstanding CR actions identified in Section 5 Comments below.

Comments (basis):

Preparer: [illegible] or ISA Member:	Date: 10-11-07

Section 5: Disposition of RIR or 70.72(c) Evaluation

☐ Partial Release, RIR attached and CR action noted in comments below OR

☐ Ready for implementation, 70.72(c) Evaluation Complete and SRC Review not required OR

☒ ~~Ready for implementation, 70.72(c) Evaluation Complete and SRC Review Complete.~~
☒ ~~Comments resolved or none.~~

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to implementation are to be tracked by CRs. Identify CR action(s) in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	Signature: [illegible] for P McCaslin	Date: 10-12-07
CC FAM	Signature: [illegible]	Date: 10/12/07

JCD 10/23/07

Configuration Change Form

Configuration Change Number: CC-EG-2007-0226	Revision 0

Section 6: Release or Implementation

☒ CC Authorized for Implementation as described. Any outstanding issues that do not impact the 70.72(c) evaluation are tracked as noted.

☐ CC Authorized for Partial Release. Outstanding issues required prior to implementation are tracked by CR actions as noted below or in Section 5. EG-101-101 evaluation approved and attached to the CC.

☐ CC is not acceptable, CANCEL **or** HOLD CC as noted.

Comments (Basis):

CC FAM	Signature: Stephen R Cowgill	Date: 10/16/07

Section 7: Configuration Change Closeout

☒ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. NOTE: Partial release CCs cannot be closed out until all CR actions are closed and the 70.72(c) evaluation per LS-104 is complete as required.

☐ B. The Configuration Change has not been implemented. The basis for this decision is described below.

Comments (as applicable):

SAR Revision 14a, QAPD revision 14a issued 10-15-07
Procedures EG-101-104 revision 2, EG-102 Revision 4, IT-121 Revision 1, & PR-101 Revision 3 issued 10-19-07.

Preparer	Signature:	Date: 10-19-07
CM Coordinator	Signature: Clark Tracy	Date: 10/22/07

Forward to Records Management (CM Coordinator).

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM

Configuration Change Number: CC-EG-2007-0226 **Revision: 0**

Title (if applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)

Reviewer:	**Organization/Mail Stop/Telephone No./E-mail**
C. W. (Bill) Wood	Q.A. / SITE-TRAILER 2-8 / 505-394-5231 / bwood@enetnm.com

Functional Area: **Date Due: 10/15/2007**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

NRC Safety Evaluation Report, "Louisiana Energy Services Quality Assurance Program Description for the National Enrichment Facility," Dated April 9, 2004 (NUREG 1827)

NUREG 1520

NQA-1-1994/1995

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments:

See attached QA-400 evaluation for a listing of known affected procedures.

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

There are no identified impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments of QAPD level of commitment. These changes are editorial to correct typographical errors and to provide clarification for Quality Level 1 and Quality Level 2 requirements.

Interdisciplinary Review Form

Configuration Change Number: CC-EG-2007-0226	**Revision: 0**

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Comments have been submitted and resolved (see attached comment sheet). Changes requested were in order to assure that the change did not result in a QAPD reduction in commitment.

C. W. (Bill) Wood — 12/11/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

QA-400 Review for LBDCR 07-0027) Clarification of Quality Levels.

ATTACHMENT 1
Evaluation Of Proposed Change To Quality Assurance Program Description
Page 1 of 2

The QAPD Section 19 criteria for QAPD changes that require prior NRC approval is the same as that identified in 10 CFR 50.54(a)(3), i.e., changes involving reduction in commitments. According to 10 CFR 50.54(a)(3), a proposed change to a previously accepted quality assurance program description included or referenced in the Safety Analysis Report can be made without prior NRC approval, provided the change does not reduce the commitments in the program description as accepted by the NRC. As such, the criteria specified in 10 CFR 50.54(a)(3) for changes that are not considered to involve a reduction in commitment shall be used in this evaluation. Refer to NRC Final Rule (64FR9029), dated February 17, 1999, for additional information regarding the criteria presented below.

Review the pertinent licensing correspondence and NRC Safety Evaluation Reports to determine the basis for the portion of the QAPD proposed to be changed. Then, answer the following questions. If the response to any of the following questions is "yes," the proposed change is not considered a reduction in commitment and can be made without prior NRC approval. If the response to all of the questions is "no," then the change is considered to be a reduction in commitment requiring NRC approval.

These questions must be applied for each individual change to the QAPD. The preparer will briefly describe each change evaluated using this checklist in the Description of Changes portion of the checklist. In those instances where significant and/or broad-based changes are being made the preparer does not need to itemize each individual change on this checklist.

1. ☒ Yes ☐ No Does the proposed change involve administrative improvements and clarifications, spelling corrections, punctuation, or editorial items?

   Explain rationale. There are changes on page A-9 that are relative to the correction of wrong spelling and provide editorial clarification of Quality Level 1 and Quality Level 2 classification criteria within the parameters found in the April 9, 2004 NRC SER, "Louisiana Energy Services Quality Assurance Program Description for the National Enrichment Facility."

2. ☐ Yes ☒ No Does the proposed change involve the use of a QA standard approved by the NRC which is more recent than the QA standard in the licensee's current QA program at the time of the change?

   Explain rationale. The NRC SER (Referenced in Question 1, above) utilized NUREG 1520 dated March 2002, to which, there has been no deviation.

3. Yes ☒ No Does the proposed change involve the use of a quality assurance alternative or exception approved by an NRC safety evaluation, provided that the bases of the NRC approval are applicable to the licensee's facility?

   Explain rationale. There are no alternatives or exceptions involved with this change. This change involves editorial changes to further clarify the criteria for classification of Quality Level 1 and Quality Level 2 Systems, Structures, Components (SSCs) and activities and corrects spelling errors.

4. Yes ☒ No Does the proposed change involve the use of generic organizational position titles that clearly denote the position function, supplemented as necessary by descriptive text, rather than specific titles?

   Explain rationale. There is no use of generic organizational position titles associated with this change.

5. Yes ☒ No Does the proposed change involve the use of generic organizational charts to indicate functional relationships, authorities, and responsibilities, or, alternately, the use of descriptive text?

   Explain rationale. There is no use of generic organizational charts required.

6. Yes ☒ No Does the proposed change involve the elimination of quality assurance program information that duplicates language in quality assurance regulatory guides and quality assurance standards to which the licensee is committed?

   Explain rationale. There is no elimination of quality assurance program information or commitments to standards. This change involves editorial changes to further clarify the criteria for classification of Quality Level 1 and Quality Level 2 Systems, Structures, Components (SSCs) and activities and corrects spelling errors.

7. Yes ☒ No Does the proposed change involve organizational revisions that ensure that persons and organizations performing quality assurance functions continue to have the requisite authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations?

   Explain rationale. There are no organizational revisions included in this change.

Description of Changes: Two (2) editorial changes on page A-9 re:nonconformances and requirements

Clarification is provided to QA Level 1 classification criteria as the current phraseology is too broad-based and ambiguous.

Clarification is provided to QA Level 2 classification criteria as the current phraseology is too broad-based and ambiguous.

☒ Change does not need prior NRC approval prior to implementation

☐ Change requires NRC approval prior to implementation

Preparer: Ernest R. Klossin Ernest R. Klossin Date: 10/12/2007

Reviewer: *Joe Bourassa Joseph Bourassa Date: 10/12/07

(Yankee Atomic Electric Company - Licensing and Regulatory Affairs)

QA Director: ** Date: 10/12/07

* See Attached Evaluation and Conclusion

** See Attached Summary - page 1 of 1

Evaluation and conclusion for Joe Bourassa

Purpose

The purpose of this evaluation is independently review the changes being made to the Quality Assurance Program Description (QAPD) proposed in Revision 13a and the resulting determination provided within this Procedure QA-400 50.54.a Evaluation.

Method of Evaluation

A review of the proposed QAPD change, 50.54.a Evaluation, applicable sections of the April 9, 2004 NRC Safety Evaluation Report for the Louisiana Energy Services Quality Assurance Program Description for the National Enrichment Facility and the applicable sections of NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" was performed to determine if the changes being made impacted commitments previous commitments within the QAPD.

Proposed Changes

Changes to several sections of the QAPD are being proposed with the primary focus on clarifying the description of Quality Assurance (QA) Level 1 and 2 and the associated requirements to ensure consistency throughout the document and to enable a more consistent understanding of implementation requirements. The additional information added to the QAPD provides clarifying guidance to individuals utilizing this document. Several additional minor editorial and typographical edits were also made within the QAPD. The primary changes were made on pages A-1, A-2, A-9, A-10 and A-58.

Conclusion

As identified in this 50.54.a Evaluation, the proposed changes involve administrative improvements and clarifications, spelling corrections, punctuation or editorial items and thus the change can be implemented prior to NRC approval.

The changes being made to the QAPD add additional clarifying information which does not impact previous commitments that have been accepted by the NRC as describing in the April 9th, 2004 Safety Evaluation Report. This clarifying information continues to ensure that the intent of the approved QAPD will continue to be satisfied with regard to classifying structures, systems and components (SSCs) as QA Class 1, 2 or 3. The improved guidance and enhanced consistency being proposed within the QAPD satisfies the criteria within 50.54.a to allow the change to be made prior to NRC approval

QA 400 Package Page 5 of 5

Attachment Supporting the LES QA Director Review Page 1 of 1

Summary of Quality Assurance Conclusions related to LBDCR07-0027

The changes proposed in the attached mark-up represent clarifications to existing wording in the LES Quality Assurance Program Description. The clarifications do not represent implementation of new Quality Standards, new positions or alternatives to existing safety evaluations, or the elimination of Quality Assurance Program Requirements. A portion of the changes are purely editorial correcting spelling and grammar errors.

The changes which are substantial in this proposed change do not represent changes which lessen commitments in the QA Program. Their nature is that of a clarification necessary to reduce ambiguity in the application of the QAPD requirements. While I believe this is apparent, in accordance with procedure guidance in section 3.3.1 a reviewer from outside the LES organization was contracted to review this change also and provide independent assessment of the proposed change impact. That reviewer also concluded that the changes do not represent reductions in commitments for the LES program.

Based on the preparer's review, the review by an independent consultant and my personal review I concur that these changes do not represent changes which require prior NRC approval before implementation.

James Gearhart – LES Quality Assurance Director

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0226	**Revision: 0**
Title (if applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)	
Reviewer: **Vernon Hull**	**Organization/Mail Stop/Telephone No./E-mail** **Licensing/Eunice EOB/505-394-5258/vhull@nefnm.com**
Functional Area:	**Date Due: 10/15/2007**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

The proposed change was reviewed against the current Licensing Basis Documents and correspondence.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

There are no obvious negative impacts. The proposed change to the QAPD clarifies the definitions of Quality Level 1 and Quality Level 2 and makes the definitions consistent throughout the document.

Interdisciplinary Review Form

Configuration Change Number: CC-EG-2007-0226 **Revision: 0**

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

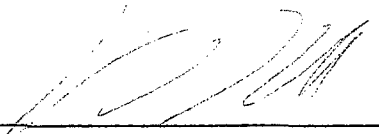
OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:



10/10/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

Interdisciplinary Review Form

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2007-0226	**Revision: 0**
Title (if applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)	
Reviewer: K. C. Prasad	**Organization/Mail Stop/Telephone No./E-mail** **Design Management/ Cherry Hill/734-678-3722 (cell)/kprasad@nefnm.com**
Functional Area:	**Date Due: 10/15/2007**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, License Basis Documents, NQA-1, design guidance, etc.):

Regulatory Requirements

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

C. Identify impacts to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Impacts:

The QAPD changes does not address attributes for Seismic II/I components that may impact IROFS or safe by design components

Interdisciplinary Review Form

Configuration Change Number: CC-EG-2007-0226 **Revision: 0**

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with Configuration Change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

K. C. Rad. October 10, 2007

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0226 | **Revision: 0**

Title (If applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)

Reviewer C.W. (Bill) Wood				Preparer	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	Pages A-1, A-9	Reinsert "provides support to normal operations of the facility". Add: "The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures, other administrative procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality."	Y	Changes made	Y
2	Page A-10, under heading "QA Level 2 Requirements"	Add "The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures, other administrative procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality."	Y	Changes made	Y
3	Page a-58	Definitions should be eliminated. All of the proposed definitions are found in regulatory documents already, provide no specific enhancement value to the QAPD and are more suited to inclusion into implementation procedures.	Y	Changes made	Y
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) C.W. (Bill) Wood C.W. (Bill) Wood			Date: 10/11/07	Resolved by: Wyatt Padgett/Licensing	Date: 10-11-07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date: 10/11/07		

Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0226 | **Revision: 0**

Title (If applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)

Reviewer C.W. (Bill) Wood				Preparer	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	Pages A-1, A-9	Reinsert "provides support to normal operations of the facility". Add: "The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures, other administrative procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality."	Y	Changes made	Y
2	Page A-10, under heading "QA Level 2 Requirements"	Add "The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures, other administrative procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality."	Y	Changes made	Y
3	Page a-58	Definitions should be eliminated. All of the proposed definitions are found in regulatory documents already, provide no specific enhancement value to the QAPD and are more suited to inclusion into implementation procedures.	Y	Changes made	Y
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) C.W. (Bill) Wood C.W. (Bill) Wood			Date: 10/11/07	Resolved by: Wyatt Padgett/Licensing	Date: 10-11-07
Disposition(s) Acceptable: Gene Sept Reviewed by: (Print Name/Signature)			Date: 10/11/07		

Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2007-0226 **Title (if applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)**				**Revision: 0**	
Reviewer				**Preparer**	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
		No Comments			
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) [illegible]			Date: 10/16/07	Resolved by:	Date:
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date:		

Configuration Change Review Comment Sheet

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2007-0226 | **Revision: 0**

Title (if applicable): QA Level 2 Definition and QA Level 1 Clarification (LBDCR 07-0027)

Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Pages A-2 and A-10	Suggest revising the last sentence of QA level 2 requirements to read "An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD or its equivalent is reviewed and accepted by the LES QA Director." Adding the suggested qualifier for second QAPD in this sentence provides better clarity.	N	Added the word "contractor's", as suggested Adding the words "or its equivalent" would conflict with the phrase just before it "complies with applicable LES QAPD requirements" as it would open a door for other programs such ASME NQA-1, etc.	Y
2	Page A-58	Specific attributes and characteristics of a QA level 2 system should include Seismic II/I systems and "Safe by Design" Components. Regulatory Guide 1.29 defines II/I components. Nuclear Industry applied special QA requirements to these components. Since QAPD is identifying the specific characteristics of QA Level 2 program II/I attributes and safe-by-Design attributes should be included.	Y	We do not want to put specific systems in the QAPD. Neither does the QA Director. The third bullet in Section 20 allows management to pick this activity if needed. The implementing procedure that Design is writing is the appropriate place to put your idea.	N

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) K. C. Prasad/ Design Management K. C. Prasad			Date: October 10, 07	Resolved by: Wyatt Padgett/Licensing	Date: 10/10/07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) K. C. Prasad			Date: 10/11/07		

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: ~~CC-EG-2007-0027~~ 2007-0208 10/15/07 **Rev. Number:** 0

Facility Change/Document/Program Number: ~~QAPD~~ CC-EG-2007-0226 **Revision Number:** 13a

I. Description of Change:

The LES Quality Assurance Program Description (QAPD) is being revised for the following reasons:

- Editorial Changes – Two incorrect spellings were fixed.
- QA Level 1 definition clarification, currently the definition is inconsistent throughout the document
- QA Level 2 definition clarification, added the statement "The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality".
- QA Level 2 definition clarifications, in section 20 the addition of three criteria were added to clarify what QL-2 requirements should be applied to. Meeting any of the following criteria would necessitate inclusion into QL-2 requirements:

1. To minimize the adverse consequences of radiation to the worker, public and the environment after initiation of accidents involving licensed material or their byproducts.
2. To minimize the adverse consequences of hazardous chemicals produced from licensed material, such as UF6, to the worker, public and the environment after initiation of releases or accidents.
3. Other items/processes that management decides are a good practice.

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer:

This is strictly a clarification change and does not remove or add any quality requirements. The change does not change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary?

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer:

This is strictly a clarification change and does not remove or add any quality requirements. The change does not use new processes, technologies or control systems for which the licensee has no prior experience.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

Basis for answer:

This is strictly a clarification change and does not remove or add any quality requirements. This change

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: ~~CC-EG-2007-0027~~ 2007-0208 TRM 10/15/07 **Rev. Number:** 0

Facility Change/Document/Program Number: ~~QAPD~~ TRM CC-EG-2007-0226 **Revision Number:** 13a

does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61.

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer:

This is strictly a clarification change and does not remove or add any quality requirements. This change does not alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer:

This is strictly a clarification change and does not remove or add any quality requirements. This change is not prohibited by 10 CFR 70.72, license condition, or order.

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form

70.72(c) Evaluation Number: 2007-0208 ~~CC-EG-2007-0027~~ 10/15/07 Rev. Number: 0

Facility Change/Document/Program Number: ~~GAPD~~ CC-EG-2007-0226 Revision Number: 13a

IV. References used to perform the evaluation (if not provided in the response to each question).

V. Review and Approval:

10 CFR 70.72(c) Evaluator: Wyatt Padgett (Printed Name) _____ (Signature) Date: 10/11/07

10 CFR 70.72(c) Reviewer: Tim Harney (Printed Name) _____ (Signature) Date: 10/11/07

SRC Review Required: (Yes) No (Circle one) If No, provide basis: FULL SRC REVIEW NOT REQUIRED PER COMPLETED AD-106 ATTACHMENT 3

CARL R MARKERT SRC Chairman (Printed Name) _____ (Signature) Date: 10/12/2007

N/A SRC Meeting Number

Revision 13a

NATIONAL ENRICHMENT FACILITY

SAFETY ANALYSIS REPORT APPENDIX A

QUALITY ASSURANCE PROGRAM DESCRIPTION

CC-PG-2007-0226
Attachment 02
Page 2 of 7

Table of Contents

CC-E6-2001-0226
Attachment 02
Page 3 of 7

INTRODUCTION

Louisiana Energy Services (LES) maintains full responsibility for ensuring that the enrichment facility is designed, constructed, operated, and decommissioned in conformance with applicable regulatory requirements, specified design requirements, applicable industry standards and good engineering practices in a manner to protect the health and safety of the employees and the public. To this end, the LES Quality Assurance Program conforms to the criteria established in Title 10 of the Code of Federal Regulations 10 CFR 50, Appendix B, Quality Assurance Criteria ~~For~~for Nuclear Power Plants and Fuel Reprocessing Plants. The criteria in 10 CFR 50, Appendix B, are met by LES's commitment to follow the guidelines of the American Society of Mechanical Engineers (ASME) Quality Assurance (QA) standard NQA-1-1994, Quality Assurance Program Requirements for Nuclear Facilities, including supplements as revised by the ASME NQA-1a-1995 Addenda.

The LES QA Program described herein covers design, construction (including pre-operational testing), operation (including testing), maintenance and modification, and decommissioning of the facility. This Quality Assurance Program Description (QAPD) describes the requirements to be applied to those structures, systems and components, and activities that have been designated Quality Assurance (QA) Level 1.

QA Level 1 is applied exclusively to items relied on for safety (IROFS), any items which are determined to affect the function of the IROFS, and~~, in general,~~ to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. The development of the IROFS list is a product of the Integrated Safety Analysis (ISA) process. The Integrated Safety Analysis provides the methodology utilized to establish the IROFS list. IROFS are comprised of specific structures, systems and components (SSC) and administrative controls. All sections of this QAPD are applied to IROFS, any SSC and administrative controls which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. Application of the QAPD requirements is part of the configuration management system and will be performed in accordance with documented procedures. The LES QA organization reviews and concurs with the selection of the IROFS and the application of QA requirements to the IROFS, any items which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied.

The QA Level 2 program description is provided in Section 20, Quality Assurance Program for QA Level 2 ~~Activities~~ of this QAPD. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures. ~~The Owner~~LES defined QA Level 2 SSCs and their associated activities i.e., those SSCs that are not IROFS~~,~~ provide support of normal operations of the facility, and do not affect the functions of the IROFS ~~(e.g., occupational exposure, radioactive waste management)~~ and SSCs that minimize public, worker, and environmental risks ~~(e.g., physical interaction protection, certain radiation monitors and criticality alarms)~~ are evaluated against the requirements in Section 20, of this QAPD. This evaluation identifies which QA controls are needed to ensure these SSCs meet their intended functions and do not affect the functions of the IROFS. This evaluation may also include nuclear industry precedent in the application of augmented QA requirements. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality.

Three QA Levels have been established and apply throughout the life of the facility from licensing and siting through design, construction, operation, and decommissioning. The three levels are defined as follows.

QA LEVEL 1 REQUIREMENTS

The QA Level 1 Program shall conform to the criteria established in 10 CFR 50, Appendix B. These criteria shall be met by commitments to follow the guidelines of ASME NQA-1-1994, including supplements as revised by the ASME NQA-1a-1995 Addenda. The QA Level 1 QA program shall be applied to those structures, systems, components, and administrative controls that have been determined to be IROFS, items that affect the functions of the IROFS, and~~, in general,~~ to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied.

QA LEVEL 2 REQUIREMENTS

The QA Level 2 program is an owner defined QA program that uses the ASME NQA 1 standard as guidance to identify and manage SSCs and activities that do not meet the requirements for inclusion in the QA Level 1 program, but have attributes or characteristics that warrant control under a quality program more detailed than the QA Level 3 program. General QA Level 2 requirements are described in Section 20, Quality Assurance Program for QA Level 2 ~~Activities~~. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES. The QA Level 2 program shall be applied to Owner designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD is reviewed and accepted by the LES QA Director.

QA LEVEL 3 REQUIREMENTS

The QA Level 3 program is defined as standard commercial practice. A documented QA Level 3 program is not required. QA Level 3 governs all activities not designated as QA Level 1 or QA Level 2.

As described in Section 19, Provisions for Change, subsequent changes to the LES QA Program shall be incorporated in this QAPD. Any changes that reduce the commitments in the approved QAPD will be submitted to the Nuclear Regulatory Commission (NRC) for review and approval prior to implementation.

contracted. Determination of the specific QA requirements, supplier evaluations, and proposal/bid evaluations are in accordance with the requirements of Section 4, Procurement Document Control, and Section 7, Control of Purchased Material, Equipment and Services, of this document. Applicable QA Program elements required for the particular scope of work are identified in procurement documents. Potential contractors/suppliers are required to submit their QA Programs to the LES QA organization for review in accordance with the request for proposal/procurement specification. The LES QA organization performs an audit at the contractor's/supplier's facility of their QA program and its implementation verifying that the contractor's/supplier's QA program meets the requirements established in the request for proposal/procurement specification. If the audit is acceptable then the contractor/supplier is added to the LES ASL and a contract between LES and the contractor/supplier may be issued. For procured items, LES may also require that the LES QA organization perform source inspections or witness tests at the supplier's facility prior to shipment if the equipment/component warrants inspection due to its safety significance and/or complexity. Such requirements are also identified in the procurement documents and/or contract.

Construction contractors for LES QA Program controlled construction activities are required to be placed on the ASL prior to contract award. Construction contractors are required to perform the QA activities required by their QA program including audits of their own activities as well as any required quality control (QC) inspections. The LES QA organization will provide oversight of these contractors in the form of audits and surveillances verifying that each contractor is properly implementing its QA program as approved by LES QA. Contractually contractors will be required to promptly correct LES identified deficiencies and ~~noncomformances~~nonconformances.

IDENTIFICATION AND APPLICATION OF QA CONTROLS

QA Level 1 is applied exclusively to IROFS, any items which are determined to affect the function of the IROFS, and~~, in general,~~ to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. Since the development of the IROFS list is a product of the ISA process, the applicable QA Level 1 requirements are also applied to this process. The Integrated Safety Analysis provides the methodology utilized to establish the IROFS list. IROFS are comprised of specific structures, systems and components (SSC) and administrative controls. All applicable sections of this QAPD are applied to IROFS, any SSC and administrative controls which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. Application of the QAPD requirements is part of the configuration management program used to verify and maintain the facility design basis and will be performed in accordance with documented procedures. Accordingly, as described in Section 1, Organization, the QA organization is responsible for selected reviews and oversight of these processes and programs. In particular, the LES QA organization reviews and concurs with the selection of the IROFS and the application of QA requirements to the IROFS, any items which are determined to affect the functions of the IROFS and items required to satisfy regulatory ~~reqirements~~requirements for which QA Level 1 requirements are applied.

The QA Level 2 program description is provided in Section 20, Quality Assurance Program for QA Level 2 ~~Activities~~ of this QAPD. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures. The Owner defined QA Level 2 SSCs and their associated activities i.e., those SSCs that are not IROFS, provide support of normal operations of the facility, and do not affect the functions of the IROFS ~~(e.g.,~~

~~occupational exposure, radioactive waste management)~~ and SSCs that minimize public, worker, and environmental risks ~~(e.g., physical interaction protection, certain radiation monitors and criticality alarms)~~ are evaluated against the requirements in Section 20, of this QAPD. This evaluation identifies which QA controls are needed to ensure these SSCs meet their intended functions and do not affect the functions of the IROFS. This evaluation may also include nuclear industry precedent in the application of augmented QA requirements. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality.

Three QA Levels have been established and apply throughout the life of the facility from licensing and siting through design, construction, testing, startup, operation, maintenance, modification, and decommissioning. The three levels are defined as follows.

QA LEVEL 1 REQUIREMENTS

The QA Level 1 Program shall conform to the criteria established in 10 CFR 50, Appendix B. These criteria shall be met by commitments to follow the guidelines of ASME NQA-1-1994, including supplements as revised by the ASME NQA-1a-1995 Addenda. The QA Level 1 QA program shall be applied to those structures, systems, components, and administrative controls that have been determined to be IROFS, items that affect the functions of the IROFS, and~~, in general,~~ to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied.

QA LEVEL 2 REQUIREMENTS

The QA Level 2 program is an LES defined QA program that uses the ASME NQA 1 standard as guidance to identify and manage activities that do not meet the requirements for inclusion in the QA Level 1 program, but have attributes or characteristics that warrant control under a quality program more detailed than the QA Level 3 program. General QA Level 2 requirements are described in Section 20, Quality Assurance Program for QA Level 2. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES. The QA Level 2 program shall be applied to LES designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD is reviewed and accepted by the LES QA Director. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality.

~~The QA Level 2 program is an owner defined QA program that uses the ASME NQA 1 standard as guidance. General QA Level 2 requirements are described in Section 20, Quality Assurance Program for QA Level 2 Activities. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES. The QA Level 2 program shall be applied to Owner designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with LES QAPD requirements and the QAPD is reviewed and accepted by the LES QA Director.~~

JLD 6/23/07

SECTION 20 QUALITY ASSURANCE PROGRAM FOR QA LEVEL 2 ~~ACTIVITIES~~

This section outlines ~~the owner~~LES defined Quality Assurance Program for QA Level 2 ~~activities~~requirements. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES.

~~The QA Level 2 program shall be applied to owner designated structures, systems, components, and activities.~~ An International Organization for Standardization (ISO) 9000 series QA program is acceptable for QA Level 2 applications provided it complies with LES QAPD requirements and the ISO program is reviewed and approved by the LES QA Director. ~~Requirements for QA Level 2 are defined below. QA Level 2 requirements shall not be applied to IROFS or items that may affect the functions of the IROFS.~~QA Level 2 program activities are those activities that do not meet the requirements for inclusion in the QA Level 1 program, but have attributes or characteristics that warrant control under a quality program more detailed than the QA Level 3 program. QA Level 2 requirements are applied to activities and SSCs for the following reasons:

- To minimize the adverse consequences of radiation to the worker, public and the environment after initiation of accidents involving licensed material or their byproducts.
- To minimize the adverse consequences of hazardous chemicals produced from licensed material, such as UF_6, to the worker, public and the environment after initiation of releases or accidents.
- Other items/processes that management decides are a good practice.

ORGANIZATION

The organization, lines of responsibility and authority are clearly established and documented.

PERSONNEL QUALIFICATIONS

Measures are established to provide for indoctrination and training of personnel to ensure suitable proficiency is achieved and maintained. Where specific qualifications are required by codes and standards, measures shall be taken to document the qualifications.

PROCEDURES

Work activities are performed in accordance with written procedures. Procedures shall contain the appropriate criteria for determining that prescribed activities have been satisfactorily accomplished.

DOCUMENT CONTROL

Procedures are established to ensure that appropriate documents are properly initiated, changed, and controlled to prevent use of incorrect or superseded documents.

DESIGN CONTROL

The design shall be defined, controlled, and verified. Applicable design inputs shall be appropriately specified on a timely basis and correctly translated into design documents. Design interfaces are identified and controlled. Design adequacy is verified by persons

NATIONAL ENRICHMENT FACILITY

License Basis Document Change Request

Configuration Change # CC-EG-2007-0226 LBDCR # 07-0027

Preparer Wyatt Padgett (Print and Sign) Initiation Date 10/11/07

A. Brief Description of Proposed Change [What is being changed and why?]

The LES Quality Assurance Program Description (QAPD) is being revised for the following reasons:

- Editorial Changes – Two incorrect spellings were fixed.
- QA Level 1 definition clarification, currently the definition is inconsistent throughout the document
- QA Level 2 definition clarification, added the statement "The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality".
- QA Level 2 definition clarifications, in section 20 the addition of three criteria were added to clarify what QL-2 requirements should be applied to. Meeting any of the following criteria would necessitate inclusion into QL-2 requirements:

1. To minimize the adverse consequences of radiation to the worker, public and the environment after initiation of accidents involving licensed material or their byproducts.
2. To minimize the adverse consequences of hazardous chemicals produced from licensed material, such as UF6, to the worker, public and the environment after initiation of releases or accidents.
3. Other items/processes that management decides are a good practice.

B. Change Approval

☒ The LBDCR is a Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-101, Configuration Change. Sections C, D, and E of this form are Not Applicable (N/A).

☐ The LBDCR is not a configuration change. The review process defined below shall be utilized. Complete Sections C, D, and E of this form.

C. Denote the License Basis Documents Affected By the Proposed Change

[Attach Marked-Up Pages of Affected License Basis Document(s)]

LICENSE BASIS DOCUMENT	REVIEW INFORMATION
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with LS-102. NRC approval required before implementation.

License Basis Document Change Request

Configuration Change # CC-EG-2007-0226 LBDCR # 07-0027

☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with LS-102. NRC approval required before implementation.
☐ Integrated Safety Analysis Summary	Assess in accordance with LS-104.
☐ Safety Analysis Report	Assess in accordance with LS-104.
☐ Environmental Report	Assess in accordance with LS-104 and EN-103.
☐ Quality Assurance Program Document	Assess in accordance with LS-104 and QA-400.
☐ Emergency Plan	Assess in accordance with LS-104 and EP-120.
☐ Fundamental Nuclear Material Control Plan (non-classified matter)	Assess in accordance with LS-104 and MC-120.

NATIONAL ENRICHMENT FACILITY

License Basis Document Change Request

Configuration Change # CC-EG-2007-0226 LBDCR # 07-0027

D. Identify Implementation Activities [e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking #
	Kevin Neal	NA

E. Review and Approval

Licensing Reviewer: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

FAM: _____ Date: _____
(Print and Sign)

Licensing Manager: _____ Date: _____
(or designee) (Print and Sign)

F. LBDCR Implementation [Completed by Licensing Manager (or designee)]

☐ Supporting Regulatory Assessment(s) determined that regulatory approval is not required prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached to the LBDCR.

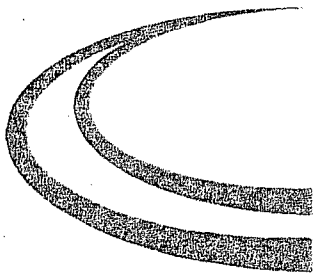
☐ Regulatory approval **IS REQUIRED** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and permit) is attached. If applicable, a copy of the completed supporting Regulatory Assessment(s) is attached to the LBDCR.

☒ LBDCR implemented by incorporation into copy of License Basis Document(s) maintained by Records Management and electronic copy of the License Basis Document maintained on the public drive.

License Basis Document	Revision #	Implementation Date
QAPD	14a	10/17/07
SAR		

Licensing Manager: Stephen R. Cowne Stephen R Cowne Date: 10/17/07
(or designee) (Print and Sign)

Revision 14a



NATIONAL ENRICHMENT FACILITY

SAFETY ANALYSIS REPORT APPENDIX A

QUALITY ASSURANCE PROGRAM DESCRIPTION

Summary of Changes for Revision 14		
Issue / Date	**Change**	**Description of Change**
14a 10/17/07	LBDCR-07-0027 10/12/07	Per CC-EG-2007-0026, clarify the definitions of Quality Level 1 and Quality Level 2.

Table of Contents

INTRODUCTION

Louisiana Energy Services (LES) maintains full responsibility for ensuring that the enrichment facility is designed, constructed, operated, and decommissioned in conformance with applicable regulatory requirements, specified design requirements, applicable industry standards and good engineering practices in a manner to protect the health and safety of the employees and the public. To this end, the LES Quality Assurance Program conforms to the criteria established in Title 10 of the Code of Federal Regulations 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants. The criteria in 10 CFR 50, Appendix B, are met by LES's commitment to follow the guidelines of the American Society of Mechanical Engineers (ASME) Quality Assurance (QA) standard NQA-1-1994, Quality Assurance Program Requirements for Nuclear Facilities, including supplements as revised by the ASME NQA-1a-1995 Addenda. LBDCR-07-0027

The LES QA Program described herein covers design, construction (including pre-operational testing), operation (including testing), maintenance and modification, and decommissioning of the facility. This Quality Assurance Program Description (QAPD) describes the requirements to be applied to those structures, systems and components, and activities that have been designated Quality Assurance (QA) Level 1.

QA Level 1 is applied exclusively to items relied on for safety (IROFS), any items which are determined to affect the function of the IROFS, and to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. The development of the IROFS list is a product of the Integrated Safety Analysis (ISA) process. The Integrated Safety Analysis provides the methodology utilized to establish the IROFS list. IROFS are comprised of specific structures, systems and components (SSC) and administrative controls. All sections of this QAPD are applied to IROFS, any SSC and administrative controls which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. Application of the QAPD requirements is part of the configuration management system and will be performed in accordance with documented procedures. The LES QA organization reviews and concurs with the selection of the IROFS and the application of QA requirements to the IROFS, any items which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. LBDCR-07-0027

The QA Level 2 program description is provided in Section 20, Quality Assurance Program for QA Level 2 of this QAPD. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures. LES defined QA Level 2 SSCs and their associated activities i.e., those SSCs that are not IROFS provide support of normal operations of the facility, and do not affect the functions of the IROFS and SSCs that minimize public, worker, and environmental risks are evaluated against the requirements in Section 20, of this QAPD. This evaluation identifies which QA controls are needed to ensure these SSCs meet their intended functions and do not affect the functions of the IROFS. This evaluation may also include nuclear industry precedent in the application of augmented QA requirements. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality. LBDCR-07-0027 LBDCR-07-0027

Introduction

Three QA Levels have been established and apply throughout the life of the facility from licensing and siting through design, construction, operation, and decommissioning. The three levels are defined as follows.

QA LEVEL 1 REQUIREMENTS

The QA Level 1 Program shall conform to the criteria established in 10 CFR 50, Appendix B. These criteria shall be met by commitments to follow the guidelines of ASME NQA-1-1994, including supplements as revised by the ASME NQA-1a-1995 Addenda. The QA Level 1 QA program shall be applied to those structures, systems, components, and administrative controls that have been determined to be IROFS, items that affect the functions of the IROFS, and to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. LBDCR-07-0027

QA LEVEL 2 REQUIREMENTS

The QA Level 2 program is an owner defined QA program that uses the ASME NQA 1 standard as guidance to identify and manage SSCs and activities that do not meet the requirements for inclusion in the QA Level 1 program, but have attributes or characteristics that warrant control under a quality program more detailed than the QA Level 3 program. General QA Level 2 requirements are described in Section 20, Quality Assurance Program for QA Level 2. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES. The QA Level 2 program shall be applied to Owner designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD is reviewed and accepted by the LES QA Director. LBDCR-07-0027 LBDCR-07-0027

QA LEVEL 3 REQUIREMENTS

The QA Level 3 program is defined as standard commercial practice. A documented QA Level 3 program is not required. QA Level 3 governs all activities not designated as QA Level 1 or QA Level 2.

As described in Section 19, Provisions for Change, subsequent changes to the LES QA Program shall be incorporated in this QAPD. Any changes that reduce the commitments in the approved QAPD will be submitted to the Nuclear Regulatory Commission (NRC) for review and approval prior to implementation.

SECTION 1 ORGANIZATION

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 1, Organization, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 1 and Supplement 1S-1 of NQA-1-1994.

LES employees and contractor employees representing LES have full responsibility to ensure that the facility is designed, constructed, operated, and decommissioned in a manner to protect the health and safety of the public. This responsibility begins with initial design and continues throughout the life of the facility. The LES QA Program is designed to ensure that the necessary quality requirements for structures, systems, components and work activities are met. This objective is attained by ensuring that the organizational structure and the responsibility assignments are such that (a) quality is achieved and maintained by those who have been assigned responsibility for performing work and, (b) quality achievement is verified by persons or organizations not directly responsible for performing the work.

CORPORATE ORGANIZATION AND FUNCTIONS

LES is the owner and operator of the enrichment facility. LES is a registered limited partnership formed to provide uranium enrichment services for commercial nuclear power plants. LES is responsible for the design, construction, operation and decommissioning of the enrichment facility in accordance with its QA Program. The President of LES reports to the LES Management Committee. The committee is composed of representatives from the general partners of LES.

The LES President establishes the basic policies of the QA Program. These policies are described in this QA Program, are transmitted to all levels of management, and are implemented through approved procedures. The LES QA Director has overall responsibility for development, management and implementation of the LES QA Program during all phases of the enrichment facility. As part of this responsibility, the QA Director is responsible for ensuring that contractor QA Programs meet all applicable requirements of the LES QA Program. LES management is continually involved in activities affecting quality and QA requirements.

DESIGN AND CONSTRUCTION ORGANIZATION AND FUNCTIONS

LES has contracted Urenco, the owner of the enrichment technology and operator of enrichment facilities in Europe, to prepare the reference design for the facility. An architect/engineering (A/E) firm was contracted and is under the responsibility of the Vice President - Project Management or President to further specify structures and systems of the facility, and ensure the reference design meets all applicable U.S. codes and standards. A contractor specializing in site evaluations was contracted to perform the site selection evaluation. A nuclear consulting company was contracted to conduct the site characterization, perform the Integrated Safety Analysis and to support development of the license application including the Environmental Report.

During the design and construction phases, preparation of design and construction documents and construction itself are contracted to qualified contractors. The Vice President - Project Management is responsible for managing the associated activities as described in Section 2.1.2, *Design and Construction Organization*, of the SAR. Figure 2.1-1 of the SAR, shows that the Vice President – Project Management is responsible for managing the work and contracts.

Contractor QA Programs will be reviewed by the LES QA organization and must be approved by the LES QA Director before work can start as described in Section 4, Procurement Document Control, and Section 7, Control of Purchased Material, Equipment and Services. Urenco will design, manufacture and deliver to the site the centrifuges necessary for the facility under a QA Program approved by the LES QA Director or under the LES QA Program. In addition, Urenco is supplying the technical assistance and consultation for the facility in accordance with the applicable requirements of the LES QA Program.

QA Procedures will be developed by the Project Management organization to implement this QAPD in the Project Management area.

OPERATING ORGANIZATION AND FUNCTIONS

- The operating organization is shown in Figure 2.1-2 of the SAR, LES National Enrichment Facility Operating Organization. The Plant Manager is responsible for ensuring the facility complies with all applicable regulatory requirements including the requirements of this QAPD. Section 2.1.3, Operating Organization, of the SAR describes the reporting chain, responsibilities and activities directed by the Plant Manager.

Procedures will be developed by the respective operations organizations to implement the requirements of this QAPD. Specific details of organizational responsibilities and job descriptions are provided in the National Enrichment Facility (NEF) Safety Analysis Report.

QA ORGANIZATION AND FUNCTIONS

The LES QA organization during the design, construction, operations, and decommissioning phases will be headed by the LES QA Director. The LES QA Director reports to the Chief Operating Officer & Chief Nuclear Officer for day to day activities but has a direct reporting relationship with the LES President and is vested with the authority, access to work areas, and organizational independence to ensure that the requirements of this QAPD are properly implemented.

The LES QA Director is responsible for managing the LES QA Program that includes the following activities:

- QA Technical Support
  - Maintain the LES QAPD
  - Maintain QA procedures
  - QA technical reviews of procurement documents
  - Review and concurrence of changes to the identified IROFS, items that could affect the functions of IROFS, and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied
  - Oversight of the Corrective Action and Nonconformance Processes
  - Maintain the LES Approved Suppliers List (ASL)
  - Administer the Auditor and Lead Auditor Certification Process
  - QA reviews of project documents

- Approval of contractor QA Programs
- Oversight of contractor QA Programs Implementation
- Oversight of the quality of design and construction, including but not limited to the ISA process and the resultant selection of IROFS
- Oversight of document and records control

- QA Verification
  - Audits, surveillances and assessments
  - Contractor/supplier evaluations
  - Contractor nonconformances
  - Equipment/Vendor Shop Inspections
  - Witness vendor acceptance testing

The following additional QA Director responsibilities are included for start up testing and operations:

- QA Technical Support
  - Quality Engineering support of startup organization
  - Oversight of startup activities
  - QA selected reviews and oversight of programs developed for operations, including but not limited to the ISA process, the identification of IROFS and items that affect the performance of IROFS and any changes thereto, the controls for assuring IROFS performance and verifying and maintaining the facility design basis.
  - QA selected reviews and oversight of operations including maintenance and testing and modification procedures
  - Review and concurrence of changes to the identified IROFS, items that could affect the functions of IROFS, and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied
  - QA Oversight of operations procedure implementation
  - Quality Control (QC) Inspection certification process
- QC Inspections
  - Receipt Inspections of QA Level 1 items
  - Applicable discipline inspections of modifications to QA Level 1 components

Accordingly, during the transition from construction to operations, the operations phase, and the decommissioning phase, the management of the QA organization and the QA staff have the responsibility to make quality assurance decisions and have sufficient authority, access to work areas, and organizational freedom to:

- Identify quality problems
- Initiate and recommend solutions to quality problems through designated channels

- Verify implementation of solutions
- Assure that further processing, delivery, installation, or use of items is controlled until proper disposition of nonconformances, deficiencies or unsatisfactory conditions has occurred
- Have direct access to highest levels of management
- Be sufficiently independent from cost and schedule considerations and have stop-work authority.

ORGANIZATIONAL INTERFACES

The organizational interfaces between LES, contractors, and project applicable regulatory agencies are identified in the appropriate plans, contracts and implementing procedures. These documents contain the appropriate protocols, applicable roles, responsibilities and approval authorities for the specific topics for which they apply. LES design interfaces shall be identified and procedurally controlled. Design efforts shall be coordinated among interfacing organizations as detailed in LES procedures. Interface controls shall include the assignment of responsibility and the establishment of implementing documents among interfacing design organizations for the review, approval, release, distribution and revision of documents involving design interfaces. LES design information transmitted across interfaces shall be documented and procedurally controlled. LES transmittals of design information and/or documents shall reflect the status of the transmitted information and documents. Incomplete designs that require further evaluation, review or approval shall be identified. When it is necessary to initially transmit the design information orally or by other informal means, design information shall be promptly confirmed through a controlled implementing document.

DELEGATION OF WORK

The delegation of work between LES and contractors is identified in applicable plans, contracts and implementing procedures. In all cases of delegation, LES retains the overall responsibility for all work performed under the direction of LES. All LES QA Level 1 work activities shall meet the requirements of this QAPD. Responsible managers have the authority to delegate tasks to another qualified individual within their organization provided the designated individual possesses the required qualifications and these qualifications are documented. All delegations shall be in writing. The responsible manager retains the ultimate responsibility and accountability for implementing the applicable requirements.

RESOLUTION OF DISPUTES

Disputes involving differences of opinion on quality matters or issues are brought to the attention of line management, and if not resolved by the individual's manager, are elevated progressively to the QA Director. If satisfactory resolution cannot be obtained at that level, the matter is then elevated to the LES President for final resolution.

WORKER RESPONSIBILITIES

Each employee has an obligation to identify concerns using the corrective action process with respect to work within their scope of responsibility whenever the health and safety of our workers, the public, or the environment is involved or when continued work will produce results that are not in compliance with the LES QA Program. This process is controlled by an LES

procedure, which applies across the entire project/facility. The authorities and responsibilities for stopping work, the criteria and documentation required to process the stop work and the actions required before work may resume are detailed in an LES procedure. This process ensures that safety related activities are controlled until the deficiency, or unsatisfactory condition, has been resolved. Worker responsibilities are further discussed in Section 16, Corrective Action.

SECTION 2 QUALITY ASSURANCE PROGRAM

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 2, Quality Assurance Program, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 2 and Supplements 2S-1, 2S-2, 2S-3 and 2S-4 of NQA-1-1994 Part I as revised by NQA-1a-1995 Addenda of NQA-1-1994.

PROGRAM BASIS

The LES Quality Assurance Program complies with 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, and applies to all levels of the organization, including contractors, who perform QA Level 1 activities. Part I and selected sections of Part II of ASME NQA-1-1994, Quality Assurance Requirements for Nuclear Facility Applications, as revised by NQA-1a-1995 Addenda are used in conjunction with 10 CFR 50, Appendix B and provide additional detailed quality assurance guidelines which are committed to in this QAPD. The LES QAPD describes LES's overall compliance with 10 CFR 50, Appendix B and commitments to ASME NQA 1. This document states LES policies, assigns responsibilities and specifies requirements governing implementation of the QA Program to the design, construction, operation and decommissioning of the LES enrichment facility. All 18 criteria of 10 CFR 50, Appendix B have been addressed to identify the scope of QA Program applied to the LES enrichment facility. QA requirements will also apply to contractors as delineated in procurement documents controlled under Section 4, Procurement Document Control, of this QAPD. The necessary management measures to control the quality of subcontracted activities for the LES design, procurement, and installation and testing of QA Level 1 components and activities have been established in this QAPD. The QAPD will be reviewed for needed revisions as described in Section 19, Provisions For Change.

Specific processes and controls, which implement the provisions of 10 CFR 50, Appendix B and the commitment to ASME NQA-1-1994, as specified in this QAPD are delineated in procedures. Development, review, approval and training on procedures shall be performed prior to performance of the activities controlled by the procedures.

The QA Program provides for the planning and accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied. The LES QA Program provides for special controls, processes, test equipment, tools and skills to attain the required quality and verification of quality. QA requirements contained in this QAPD are also invoked on LES contractors for their contracted scope of work.

When work cannot be accomplished as specified in implementing QA procedures, or accomplishment of such work would result in an adverse condition, work is stopped until proper corrective action is taken. If procedures cannot be used as written, then work is stopped until the procedures are changed. Requirements for stop work are further discussed in Section 16, Corrective Action.

Flowdown of QA Requirements to Contractors and Suppliers

QA requirements for QA Level 1 activities are imposed on LES contractors and suppliers through the respective procurement documents for the particular scope of work being

contracted. Determination of the specific QA requirements, supplier evaluations, and proposal/bid evaluations are in accordance with the requirements of Section 4, Procurement Document Control, and Section 7, Control of Purchased Material, Equipment and Services, of this document. Applicable QA Program elements required for the particular scope of work are identified in procurement documents. Potential contractors/suppliers are required to submit their QA Programs to the LES QA organization for review in accordance with the request for proposal/procurement specification. The LES QA organization performs an audit at the contractor's/supplier's facility of their QA program and its implementation verifying that the contractor's/supplier's QA program meets the requirements established in the request for proposal/procurement specification. If the audit is acceptable then the contractor/supplier is added to the LES ASL and a contract between LES and the contractor/supplier may be issued. For procured items, LES may also require that the LES QA organization perform source inspections or witness tests at the supplier's facility prior to shipment if the equipment/component warrants inspection due to its safety significance and/or complexity. Such requirements are also identified in the procurement documents and/or contract.

Construction contractors for LES QA Program controlled construction activities are required to be placed on the ASL prior to contract award. Construction contractors are required to perform the QA activities required by their QA program including audits of their own activities as well as any required quality control (QC) inspections. The LES QA organization will provide oversight of these contractors in the form of audits and surveillances verifying that each contractor is properly implementing its QA program as approved by LES QA. Contractually contractors will be required to promptly correct LES identified deficiencies and nonconformances. LBDCR-07-0027

IDENTIFICATION AND APPLICATION OF QA CONTROLS

QA Level 1 is applied exclusively to IROFS, any items which are determined to affect the function of the IROFS, and to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. LBDCR-07-0027 Since the development of the IROFS list is a product of the ISA process, the applicable QA Level 1 requirements are also applied to this process. The Integrated Safety Analysis provides the methodology utilized to establish the IROFS list. IROFS are comprised of specific structures, systems and components (SSC) and administrative controls. All applicable sections of this QAPD are applied to IROFS, any SSC and administrative controls which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. Application of the QAPD requirements is part of the configuration management program used to verify and maintain the facility design basis and will be performed in accordance with documented procedures. Accordingly, as described in Section 1, Organization, the QA organization is responsible for selected reviews and oversight of these processes and programs. In particular, the LES QA organization reviews and concurs with the selection of the IROFS and the application of QA requirements to the IROFS, any items which are determined to affect the functions of the IROFS and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. LBDCR-07-0027

The QA Level 2 program description is provided in Section 20, Quality Assurance Program for QA Level 2 of this QAPD. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures. LBDCR-07-0027 The Owner defined QA Level 2 SSCs and their associated activities i.e., those SSCs that are not IROFS, provide support of normal operations of the facility, and do not affect the functions of the IROFS and SSCs that minimize public, worker, and environmental risks are evaluated against the requirements in LBDCR-07-0027

Section 20, of this QAPD. This evaluation identifies which QA controls are needed to ensure these SSCs meet their intended functions and do not affect the functions of the IROFS. This evaluation may also include nuclear industry precedent in the application of augmented QA requirements. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality. LBDCR-07-0027

Three QA Levels have been established and apply throughout the life of the facility from licensing and siting through design, construction, testing, startup, operation, maintenance, modification, and decommissioning. The three levels are defined as follows.

QA LEVEL 1 REQUIREMENTS

The QA Level 1 Program shall conform to the criteria established in 10 CFR 50, Appendix B. These criteria shall be met by commitments to follow the guidelines of ASME NQA-1-1994, including supplements as revised by the ASME NQA-1a-1995 Addenda. The QA Level 1 QA program shall be applied to those structures, systems, components, and administrative controls that have been determined to be IROFS, items that affect the functions of the IROFS, and to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied. LBDCR-07-0027

QA LEVEL 2 REQUIREMENTS

The QA Level 2 program is an LES defined QA program that uses the ASME NQA 1 standard as guidance to identify and manage activities that do not meet the requirements for inclusion in the QA Level 1 program, but have attributes or characteristics that warrant control under a quality program more detailed than the QA Level 3 program. General QA Level 2 requirements are described in Section 20, Quality Assurance Program for QA Level 2. For contractors, the QA Level 2 program shall be applied to LES designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD is reviewed and accepted by the LES QA Director. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality. LBDCR-07-0027

QA LEVEL 3 REQUIREMENTS

The QA Level 3 program is defined as standard commercial practice. A documented QA Level 3 program is not required. QA Level 3 governs all activities not designated as QA Level 1 or QA Level 2.

QUALITY ASSURANCE TRAINING

LES employees who perform QA Level 1 activities receive LES QA Indoctrination Training. This training includes general criteria, including introduction to applicable codes, standards, QA Procedures, QA Program elements and job responsibilities and authorities. LES personnel assigned to perform QA Level 1 activities are also required to complete training in the specific LES QA procedures needed to perform their job roles and responsibilities as assigned by their

supervisor. Detailed QA training is provided on the LES QA Program and job specific QA procedures prior to an employee beginning QA Level 1 work. Supervision is responsible for ensuring that personnel performing work under their supervision are appropriately trained. LES will also include a version of QA Indoctrination Training as part of the general employee training given to all full-time employees.

The Training Manager is responsible for coordinating QA training activities for LES. Support Services serves as a centralized training support service for supervision in coordinating training and maintaining QA training records. This responsibility is carried out as support for line management. LES supervisory personnel are responsible for determining the

type and extent of the training to be provided to an individual, and ensuring that the training is properly documented for personnel performing QA Level 1 activities. Retraining, when applicable, shall occur in order to maintain proficiency or when changes to work methods, technology, or job responsibilities occur. Such retraining is also documented.

MANAGEMENT ASSESSMENTS

The LES President is responsibility for ensuring that management assessments are conducted annually to determine if the LES QA Program is effective. Recommendations are provided to the LES President for action. Functional Managers and the QA Director conduct assessments annually of QA activities under their control. The managers report the results to the LES President for review. The results of these assessments are reviewed by senior management to determine the adequacy of implementation of the LES QA Program and to direct any needed changes for program improvements.

QUALIFICATION/CERTIFICATION OF INSPECTION AND TEST PERSONNEL

Inspection and test personnel performing QA Level 1 activities shall be certified in accordance with NQA-1-1994 Part I Supplement 2S-1, Supplementary Requirements for the Qualification of Inspection and Test Personnel.

QUALIFICATION/CERTIFICATION OF NONDESTRUCTIVE EXAMINATION (NDE) PERSONNEL

Nondestructive Examination (NDE) personnel performing QA Level 1 activities shall be certified in accordance with NQA-1a-1995 Part 1 Supplement 2S-2, Supplementary Requirements for the Qualification of Nondestructive Examination Personnel and American Society of Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing, December 1988 Edition. Qualification/certification records meeting the requirements of Supplement 2S-2 shall be established and maintained as QA records.

QUALITY ASSURANCE AUDIT PERSONNEL

Audit personnel performing QA Level 1 activities shall be certified in accordance with NQA-1a-1995 Part 1 Supplement 2S-3 Supplemental Requirements for the Qualification of Quality Assurance Program Audit Personnel.

QUALITY ASSURANCE PROGRAM STATUS REPORTING TO MANAGEMENT

Management is regularly informed by the LES QA organization of adverse trends and lessons learned as a result of reviews conducted on audit reports, surveillance reports, corrective action reports, management assessments, etc. Corrective action is initiated as necessary.

SECTION 3 DESIGN CONTROL

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 3, Design Control, of 10 CFR 50, Appendix B, and the commitment to Basic Requirements 3 and Supplement 3S-1 of NQA-1-1994 Part I as revised by NQA-1a-1995 Addenda of NQA-1-1994. The LES QA Program also implements the commitment to Part II of NQA-1-1994 Subpart Part 2.7, Quality Assurance Requirements of Computer Software for Nuclear Facility Applications, as revised by NQA-1a-1995 Addenda of NQA-1-1994. These commitments also apply to computer software that is used to produce or manipulate data that is used directly in the design, analysis and operation of structures, systems and components relied on for safety. Part I, Supplement 11S-2, Supplementary Requirements for Computer Program Testing, requirements for computer software qualification and use are also implemented by the LES QA Program.

Measures are established in procedures to assure that applicable requirements are correctly translated into design documents. Design inputs are specified on a timely basis to support LES milestones. Controls are established for the selection and suitability of application of materials, parts, equipment and processes that are essential to the functions of structures, systems and components. Design interfaces to ensure completeness and efficiency of design are established in applicable procedures. Procedures detail the controls for design input, design process, design verification, design changes and approval. These procedures include appropriate quantitative and/or qualitative acceptance criteria for determining that activities have been satisfactorily accomplished. LES design documents are prepared, reviewed, and approved by qualified individuals. Design is verified by one or more of the following verification methods: design reviews, alternate calculations or qualification tests. Design changes are governed by control measures commensurate with those applied to the original design. The design process and design verification practices and procedures shall be reviewed and modified, as necessary, when a significant design change is required because of an incorrect design. These and any other design deficiencies discovered during the design process on subsequent design related activities that affect the design of SSC shall be entered into the Corrective Action Program (CAP) according to Section 16, Corrective Action. If these deficiencies cause constructed or partially constructed items (systems, structures or components) to be deficient, the affected items shall be controlled in accordance with Section 15, Nonconforming Items. Configuration management is maintained in accordance with the applicable procedure and the applicable procedures controlling changes to the various types of design documents.

DESIGN INPUT CONTROL

Applicable design inputs (such as design basis, conceptual design reports, performance requirements, regulatory requirements, codes and standards) shall be controlled by the LES Vice President - Project Management according to the following requirements:

- Design inputs shall be identified and documented, and their selection reviewed and approved.
- Design inputs shall be specified and approved in a manner to support the schedule. Design inputs shall provide the necessary details to permit design to be carried out in a manner that provides a consistent basis for making design decisions, accomplishing design verification and evaluating design changes.

- Changes from approved design inputs and reasons for the changes shall be identified, approved, documented and controlled.
- Design inputs based on assumptions that require re-verification shall be identified and controlled by the appropriate procedures.

DESIGN PROCESS

The LES design process shall be controlled by the Vice President - Project Management according to the following requirements:

- LES design work shall be prescribed and documented on a timely basis and to the level of detail necessary to permit the design process to be carried out in a correct manner and to permit verification that the design meets requirements.
- Design documents shall be adequate to support design, construction and operation.
- Appropriate quality standards shall be identified and documented, and their selection reviewed and approved.
- Changes from specified standards, including the reasons for the change, shall be identified, approved, documented and controlled.
- Design methods, materials, parts, equipment and processes that are essential to the function of the structure, system, or component shall be selected and reviewed for and suitability of application.
- Applicable information derived from experience as set forth in reports or other documentation, shall be made available to cognizant design personnel.
- Final design documents (i.e., approved design output documents and approved changes thereto) shall be sufficiently detailed as to purpose, method, assumptions, design input, references and units such that a person technically qualified in the subject/engineering discipline can understand the documents and verify their adequacy without recourse to the originator of the design document.
- Procedural controls for identifying sub-assemblies or components on final design documents that are part of the item being designed shall be established. When a commercial grade item is modified and/or tested to new requirements that are different from the supplier's published product description, the component part shall be traceable to documentation noting that it is different from the originally approved commercial grade item.
- LES design drawings, specifications or other design output documents shall contain appropriate inspection, examination and testing acceptance criteria.

DESIGN ANALYSIS

LES design analyses shall be planned, controlled and documented. Design analysis documents shall be legible, in a form suitable for reproduction, filing and retrieval, and under configuration management control. LES design calculations shall be identifiable by subject (including structure, system or component to which the calculation applies), originator, reviewer and date, or by other designators in order that approved calculations are retrievable.

Computer software used to perform design analyses shall be developed and/or qualified, and used according to the provisions of ASME NQA-1-1994, Part II, Subpart 2.7 as revised by NQA-1a-1995 Addenda and Supplement 11S-2. Computer software developed and/or qualified under the LES or its contractor QA programs may also be used to perform design analyses for LES, provided that the LES QA organization confirms these contractor QA programs meet the provisions NQA-1-1994, Part I, Supplement 11S-2 and NQA-1-1994 Part II, Subpart 2.7 as revised by NQA-1a-1995 addenda.

Computer programs may be utilized for design analysis without individual verification of the program for each application provided:

- The computer program has been verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed; and
- The encoded mathematical model has been shown to produce a valid solution to the physical problem associated with the particular application.

Computer programs shall be controlled to assure that changes are documented and approved by authorized personnel. Where changes to previously verified computer programs are made, verification shall be required for the change, including evaluation of the effects of these changes on the above.

LES design analyses documentation shall include:

- Definition of the objective of the analyses,
- Definition of design inputs and their sources,
- Results of literature searches or other applicable background data,
- Identification of assumptions and designation of those that must be verified as the design proceeds,
- Identification of any computer calculation, including computer type, computer program (e.g., name), revision identification, inputs, outputs, evidence of reference to computer program verification and the bases (or reference thereto) supporting application of the computer program to the specific physical problem,
- Review and approval.

DESIGN VERIFICATION

The following design control requirements shall be applied to verify the adequacy of LES design:

- LES design verification is required for design documents, and shall be performed using one or a combination of the design review, alternate calculations and/or qualification testing methods.
- The particular design verification method used shall be documented.
- Results of design verification shall be documented and shall include the identification of the verifier(s).

- Competent individuals or groups, other than those, who performed the original design (but may be from the same organization), shall perform design verification. If necessary, this verification may be performed by the originator's supervisor provided that the engineering supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or the supervisor is the only individual in the organization competent to perform the verification.

LES design verification shall be performed in a timely manner at appropriate times during the design process. Verification shall be performed before release for procurement, manufacture or construction, or release to another organization for use in other design work. In some cases (such as when insufficient data exists) it may be necessary to release unverified designs to other engineering organizations or disciplines to support schedule requirements. Unverified portions of the design shall be clearly identified and procedurally controlled. In all cases, design verification shall be completed before relying on the item or computer program to perform its function. The extent of design verification required shall be a function of the importance to safety, complexity of design, degree of standardization, state of the art and similarity with previously proven designs.

LES use of previously standardized designs shall be controlled according to the following requirements:

- The applicability of standardized or previously proven designs shall be verified with respect to meeting pertinent design inputs for each application.
- Known problems affecting standard or previously proven designs and their effects on other features shall be considered.
- The "Americanization" of previously proven European designs shall be documented in accordance with the applicable QA procedure.
- The original design and associated verification measures shall be adequately documented and referenced in the files for subsequent application of the design.
- Changes in previously verified designs shall require re-verification. Such verifications shall include the evaluation of the effects of those changes on the overall previously verified design and on any design analyses upon which the design is based.

DESIGN VERIFICATION METHODS

Acceptable verification methods include, but are not limited to, any one of the following or a combination of the following:

- Design Reviews
- Alternate Calculations
- Qualification Testing

DESIGN REVIEWS

Design reviews are critical reviews to provide assurance that the final design is correct and satisfactory. The following items shall be addressed, as applicable during the review:

- Were the design inputs correctly selected and incorporated into the design?
- Are assumptions necessary to perform the design activity adequately described, reasonable and, where necessary, re-verified?
- Was an appropriate design method used?
- Is the design output reasonable compared to the applicable design inputs?
- Are the necessary design input and verification requirements for interfacing organizations specified in the design documents or in supporting procedures and instructions?

ALTERNATE CALCULATIONS

The appropriateness of assumptions, input data, and the computer program or other calculation methods used, shall be evaluated and the results shall be checked through the use of alternate calculation methods to verify the correctness of the original calculations or analyses.

QUALIFICATION TESTS

If design adequacy is to be verified by qualification testing, the tests shall be identified, procedurally controlled and documented according to the following:

- The test configuration shall be defined and documented.
- Testing shall demonstrate the adequacy of performance under conditions that simulate the most adverse design conditions. Operating modes and environmental conditions in which the item must perform satisfactorily shall be considered in determining the most adverse design conditions.
- If the tests verify only specific design features, then the other features of the design shall be verified by other means.
- Test results shall be documented and evaluated to ensure that test requirements have been met.
- If qualification testing indicates that a modification to an item is necessary to obtain acceptable performance, then the modification shall be documented and the item modified and re-tested or otherwise verified to ensure satisfactory performance.
- Scaling laws shall be established, verified and documented when tests are being performed on models or mockups.
- The results of model test work shall be subject to error analysis, where applicable, before using the results in final design work.

DESIGN CHANGE CONTROL

Design changes during the initial design phase and the operational phase shall be controlled according to the following requirements:

- Changes to final designs, field changes, modifications to the operating facility and nonconforming items dispositioned as "use-as-is" or "repair," as described in Section 15, Nonconforming Items, and shall have documented justification for use and are subject to the same design control measures and reviews as those applied to the original design.

- Design control measures for changes shall include provisions to ensure that the design analyses for the item are still valid.
- Changes shall be reviewed and approved by the affected groups or organizations that reviewed and approved the original design documents, with the following clarifications:
  - If the organization that originally was responsible for approving a particular design document is no longer responsible, then a new responsible organization shall be designated.
  - The designated organization shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design
- The interface between the design organization responsible for finalizing a design change and other organizations either involved in the review of the change, such as the QA and configuration management organizations, and those affected by the change, such as the operations and maintenance organizations, described in the next subsection, Design Interface Control, shall be maintained.
- The design process and design verification practices and procedures shall be reviewed and modified, as necessary, when a significant design change is required because of an incorrect design. These design deficiencies shall be documented according to Section 16.0, Corrective Actions. If these deficiencies cause constructed or partially constructed items (systems, structures or components) to be deficient, the affected items shall be controlled in accordance with Section 15, Nonconforming Items.
- When a design change is approved other than revision to the affected design documents, field changes shall be incorporated into affected design documents when such incorporation is appropriate.

DESIGN INTERFACE CONTROL

LES design interfaces shall be identified and procedurally controlled. Design efforts shall be coordinated among interfacing organizations as detailed in LES procedures. Interface controls shall include the assignment of responsibility and the establishment of procedures among interfacing design organizations for the review, approval, release, distribution and revision of documents involving design interfaces. LES design information transmitted across interfaces shall be documented and procedurally controlled. LES transmittals of design information and/or documents shall reflect the status of the transmitted information and documents. Incomplete designs that require further evaluation, review or approval shall be identified. When it is necessary to initially transmit the design information orally or by other informal means, design information shall be promptly confirmed through a controlled document.

During the operational phase, the Plant Manager is responsible for ensuring the facility complies with all applicable regulatory requirements including the requirements of this QA Program. In the discharge of these responsibilities, the Plant Manager directs the activities of Health, Safety & Environment, Production, Technical Services, Support Services, Performance Assessment and Feedback, and Construction Projects. Procedures for controlling the interfaces and configuration management ensure that changes and modifications are properly managed and disseminated to those responsible personnel or organizations whose duties may be affected by the design change or modification and do not adversely impact the safe operation of the plant.

COMPUTER SOFTWARE CONTROLS

If LES uses software to produce or manipulate data that is used directly in the design, analysis and operation of structures, systems, and components relied on for safety, the provisions provided in Part II ASME NQA-1-1994 Subpart Part 2.7, Quality Assurance Requirements of Computer Software for Nuclear Facility Applications, as revised by NQA-1a-1995 Addenda of NQA-1-1994 and ASME NQA-1-1994, Part I, Supplement 11S-2, Supplementary Requirements for Computer Program Testing shall apply. Procedures will be developed to implement of these provisions as applicable.

DOCUMENTATION AND RECORDS

Design documentation which provide evidence that the design and design verification were performed in accordance with this QAPD shall be collected and maintained in accordance with the requirements of Section 17 Quality Assurance Records. The documentation shall include not only final design documents such as drawings, specifications and revision thereto but also documentation which identifies the important steps, including sources of design inputs that support the final design.

SECTION 4 PROCUREMENT DOCUMENT CONTROL

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 4, Procurement Document Control, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 4 and Supplement 4S-1 of NQA-1-1994.

LES procurements shall be issued only to those suppliers that have been evaluated and qualified as acceptable for the particular scope of material, equipment and services to be procured. The material, equipment and services shall be procured from approved suppliers by procurement documents, approved by the LES President and QA Director or their qualified designees. Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services. Procurement documents shall require suppliers to have a quality assurance program consistent with the applicable requirements of 10 CFR 50 Appendix B and this QAPD. The requirements of 10 CFR 21, Reporting of Defects and Noncompliance, are invoked during design, construction, testing and operations of QA Level 1 procurement or dedication of items and services including the dedication of items or services used to satisfy the requirements of 10 CFR 50, Appendix B or 10 CFR 70, Domestic Licensing of Special Nuclear Material. LES will also apply the requirements of 10 CFR 21 where appropriate, regardless of QA level.

Procurement Document Content

LES procurement documents issued for QA Level 1 items or services shall include the following provisions, as applicable to the procured material, equipment or service:

- Statement of the scope of work to be performed by the supplier.
- Technical requirements including:
  - Design bases, identified or referenced in the procurement documents.
  - Specific documents (such as drawings, codes, standards, regulations, procedures or instructions) describing the technical requirements of the material, equipment or services to be furnished, shall be specified along with their revision level or change status.
  - Tests, inspections or acceptance requirements that LES will use to monitor and evaluate the performance of the supplier shall be specified.
- Quality Assurance Program requirements including:
  - A requirement for the supplier to have a documented quality assurance program that implements applicable requirements of 10 CFR 50, Appendix B and this QAPD in place before the initiation of work. The extent of the quality assurance program shall depend on the scope, nature or complexity of the material, equipment or service to be procured. The supplier shall also incorporate the appropriate requirements into any subtier supplier issued procurement documents.
  - A requirement invoking NRC reporting requirements of 10 CFR 21 for QA Level 1 procurements.
- Right of access to supplier, including subtier, facilities and records for inspection or audit by LES, or other designee authorized by LES.

- Provisions for establishing witness/inspection hold points beyond which work cannot proceed by the supplier without LES QA Director authorization. The Vice President - Project Management may also establish hold points indicating work that cannot proceed without authorization by the Vice President - Project Management.
- Documentation required to be submitted to LES for information, review or acceptance shall be identified along with a document submittal schedule. Record retention times, disposition requirements and record maintenance responsibilities shall be identified for documentation that will become quality assurance records.
- Requirements for the supplier to report to LES in writing adverse quality conditions resulting in work stoppages and nonconformances. LES approval of partial and full work releases and disposition of nonconformances is required.
- Identification of any spare and replacement parts or assemblies and the appropriate delineation of technical and quality assurance data required for ordering these parts or assemblies. Commercial Grade procurements shall also be identified in procurement documents.

Procurement Document Review and Approval

Procurement document reviews shall be performed and documented before issuing the procurement documents to the supplier. A review of the procurement documents and any changes thereto shall be made to verify that documents include all applicable requirements specified under Section 4, Procurement Document Content, above and contain appropriate provisions to ensure that material, equipment or services will meet the governing requirements. Reviews shall be performed and documented to provide objective evidence of satisfactory accomplishment of such review prior to contract award. Changes made as a result of the bid evaluation or precontract negotiations shall be incorporated into the procurement documents. The review of such changes and their effects shall be completed prior to contract award. This review shall include the following considerations: 1) appropriate requirements specified in Procurement Document Content above, 2) a determination of any additional or modified design criteria, and 3) an analysis of exceptions or changes requested by the supplier and a determination on the impacts such changes may have on the intent of the procurement documents or quality of the item or service to be provided shall be performed by the LES organization initiating the procurement. Personnel who have access to pertinent information and have an adequate understanding of the requirements and scope of the procurement shall perform reviews of the procurement documents. Reviewers shall include representatives from the Project Management and QA organizations. The QA review shall assure compliance to quality assurance requirements.

Procurement Document Change

Changes to the scope of work, technical requirements, quality assurance program requirements, right of access, documentation requirements, work stoppage and nonconformance, hold points and lists of spare and replacement parts delineated in procurement documents, shall be subject to the same degree of control as used in the preparation of the original procurement document.

SECTION 5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 5, Instructions, Procedures, and Drawings, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 5 of NQA-1-1994 Part I.

Activities affecting quality shall be prescribed by and conducted in accordance with approved procedures and other implementing documents (drawings, specifications, etc.) appropriate to the circumstances. Generally, four types of procedures are used by LES to ensure that activities are carried out in compliance with the requirements of this QAPD and in a safe manner. These include administrative, operating, maintenance and emergency procedures. Administrative procedures would include areas such as engineering procurement, etc. Administrative procedures are the higher level procedures that prescribe the implementation of the requirements provided in this QAPD. Operating and maintenance procedures are utilized to implement the QA program during the start up, operation, and testing of the facility. During the design and construction phases, procedures are reviewed and approved by the affected organizations with review and oversight by the QA organization. Those procedures that delineate the responsibilities and functions of the QA organization, the QA procedures, are approved by the LES QA Director to ensure compliance with QAPD. During operations, the LES QA Director and Plant Manager have responsibility to review and approve the procedures that cover activities under their organizational purview that relate to the QAPD and the safe operation of the plant. Procedures approved by the Plant Manager will be subject to selected review and oversight by the QA organization.

TYPES OF DOCUMENTS

The type of document to be used to perform work shall be appropriate to the nature and circumstances of the work being performed. Documents include procedures, drawings and specifications. Work controlling procedures may also utilize approved checklists, travelers or other means to assure process requirements are met including prerequisite requirements prior to starting work. Procedures provide a consistent method for process performance and documentation of completion as well as ensure specified safety and environmental conditions are maintained.

CONTENT OF DOCUMENTS

Documents shall include or reference the following information as appropriate to the work to be performed:

- Responsibilities of the organizations affected by the document,
- Quality, technical and regulatory requirements,
- A sequential description of the work to be performed including controls for altering the sequence of required inspections, tests and other operations,
- Quantitative or qualitative acceptance criteria sufficient for determining that prescribed activities have been satisfactorily accomplished,
- Prerequisites, limits, precautions, process parameters and environmental conditions,
- Quality verification points and hold points

- Methods for demonstrating that the work was performed as required,
- Identification of the lifetime or nonpermanent quality assurance records generated by the implementing document, and
- Identification of associated QA Levels as appropriate.

REVIEW, APPROVAL, AND CONTROL OF DOCUMENTS

Procedures and implementing documents shall be controlled according to the requirements of Section 6, Document Control of this document. Procedures and implementing documents shall be reviewed and approved as described in this section and in Section 6.

SECTION 6 DOCUMENT CONTROL

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 6, Document Control, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 6 and Supplement 6S-1 of NQA-1-1994.

Procedures are established which control the preparation, issuance and changes of documents that specify quality requirements or prescribe activities affecting quality. Measures are established to ensure that documents, including revisions are adequately reviewed, approved, and released for use by authorized personnel. Controlled documents are transmitted to the appropriate locations where the prescribed activity is being performed. Superceded documents are destroyed or retained only when they have been properly marked.

TYPES OF DOCUMENTS

QA procedures, other administrative procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality shall be controlled in accordance with this section. LES documents controlled under the LES QA Program will be specified by procedures and include, but are not limited to, procedures, design requirements document, design basis documents, engineering specifications, instructions, drawings, calculations, procurement documents, and documents that need to be controlled due to being input to other LES design documents or used for construction and operations affecting quality.

PREPARING AND REVIEWING DOCUMENTS

The document control system shall ensure that the identification of documents to be controlled and their specified distribution are preceduralized. The system shall further ensure that the responsibility for preparing, reviewing, approving and issuing documents shall be assigned by procedure to the appropriate LES functional area manager. Implementing documents and documents specifying quality requirements or prescribing activities affecting quality, shall be reviewed in accordance with applicable procedures for adequacy, correctness and completeness and by the QA organization as specified by procedure, prior to approval and issuance. The organizational position(s) responsible for approving the document(s) for release shall be identified in the applicable procedures.

CONTROLLING THE DISTRIBUTION AND USE OF DOCUMENTS

Documents needing to be placed under the document control system are transmitted to the Document Control organization with the distribution list for document holders. The Document Control organization shall enter the document into the Document Control electronic database and master list of controlled documents, assign document control numbers, complete transmittal forms and distribute the documents and transmittal form to the document holders. Document holders shall acknowledge receipt on the transmittal and send the acknowledgement to the Document Control organization. The up-to-date master listing of controlled documents will be made continuously available to document holders to verify that they have the current revisions. The document control process will be audited in accordance with the requirements of Section 18, QA Audits, to verify implementation effectiveness.

CHANGES TO DOCUMENTS

Changes to documents other than minor changes shall be reviewed for adequacy, correctness and completeness, prior to approval and issuance. Major changes shall be reviewed and approved by the same organization that performed the original review and approval unless other organizations are specifically designated. The reviewing organization shall have access to the applicable background data or information upon which to base their approval. A temporary procedure change that does not change the intent of the procedure may be made at the work location by responsible management. The applicable procedure shall control the process, documentation and approval of the temporary changes.

MINOR CHANGES

Minor changes such as inconsequential editorial corrections may be made to documents without being subject to the review and approval of the requirements specified above. The applicable procedure shall define the organizational positions authorized and criteria acceptable for making minor changes.

SECTION 7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 7, Control of Purchased Material, Equipment and Services, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 7 and Supplement 7S-1 of NQA-1-1994 Part I as revised by NQA-1a-1995 Addenda of NQA-1-1994.

LES procurement of material, equipment and services is controlled to assure conformance with specified requirements. These controls include requirements for pre-award evaluations of suppliers' QA programs, annual evaluations, periodic audits/source inspections and surveillance. Suppliers with a LES approved QA program are placed on the LES ASL prior to award of contract. Source inspections and surveillances, evaluation of objective evidence of quality furnished by the supplier, maintaining the ASL, as well as, examination of received items and services are the responsibility of LES QA organization and are performed, as necessary, upon delivery or completion to ensure requirements specified in procurement documents are met. Supplier evaluations, annual evaluations, audits, surveillances, source inspections and receipt inspections shall be documented.

PROCUREMENT PLANNING

LES procurements shall be planned and documented to ensure a systematic approach to the procurement process exists and supports the schedule. Procurement planning shall:

- Identify procurement methods and organizational responsibilities, including what is to be accomplished, who is to accomplish it, how it is to be accomplished, and when it is to be accomplished.
- Identify and document the sequence of actions and milestones needed to effectively complete the procurement.
- Provide for the integration of the following activities:
  - Procurement document preparation, review and change control according to the requirements of Section 4, Procurement Document Control
  - Selection of procurement sources, proposal/bid evaluation and award
  - LES evaluation of supplier performance
  - LES verifications including any hold and witness point notifications
  - Control of nonconformances
  - Corrective action
  - Acceptance of the material, equipment or service
  - Identification of quality assurance records to be provided to LES.
- Be accomplished as early as possible, and no later than at the start of those procurement activities that are required to be controlled to assure interface compatibility and a uniform approach to the procurement process.
- Be performed relative to the level of importance, complexity and quantity of the item or service being procured and the supplier's quality performance.

- Include the involvement of the LES QA organization to ensure that the QA requirements have been properly identified.

SOURCE EVALUATION AND SELECTION

Supplier selection shall be based on an evaluation, performed before the contract and/or purchase order is awarded, of the supplier's capability to provide items or services in accordance with procurement document (technical and quality) requirements. The functional area needing the procurement shall request that the LES QA organization evaluate the potential supplier for placement on the LES ASL. Responsibilities and measures for evaluating and selecting procurement sources are detailed in the applicable QA procedure and include one or more of the following methods for evaluating potential suppliers:

- Evaluation of the supplier's history for providing an identical or similar product that performs satisfactorily in actual use. The supplier's history shall reflect current capability.
- Evaluation of supplier's current quality assurance records supported by any documented qualitative and quantitative information which can be objectively evaluated.
- Evaluation of the supplier's technical and quality capability based on an evaluation of supplier facilities, personnel and quality assurance program implementation.

The results of procurement source evaluation and selection shall be documented in accordance with the applicable QA procedure.

PROPOSAL/BID EVALUATION

For proposals and bids, technically qualified personnel from the QA and Project Management or other affected/involved organizations shall perform an evaluation to determine if the proposal/bid meets procurement document requirements. As a minimum, this evaluation shall review the following subjects consistent with the importance, complexity and quantity of items or services being procured:

- Technical considerations
- QA program requirements
- Supplier personnel qualifications
- Supplier production capability and past performance
- Alternatives and exceptions

Before the contract is awarded, the LES QA Director or Vice President - Project Management, or other affected/involved organization manager shall resolve, or obtain commitments to resolve, unacceptable quality conditions identified during the proposal/bid evaluation. Supplier quality assurance programs shall be evaluated by the QA organization before contract placement, and any deficiencies that would affect quality shall be corrected before starting work subject to these requirements. Supplier QA programs shall be accepted by the LES QA Director before the supplier starts work.

SUPPLIER PERFORMANCE EVALUATION

The LES Vice President - Project Management in coordination with the QA Director shall establish measures to routinely interface with the supplier and to verify supplier performance. The measures shall include:

- Establishing an understanding between LES and the supplier of the requirements and specifications identified in procurement documents.
- Requiring the supplier to identify planning techniques and processes to be used in fulfilling procurement document requirements.
- Reviewing supplier documents that are prepared or processed during work performed to fulfill procurement requirements.
- Identifying and processing necessary change information.
- Establishing the method to be used to document information exchanges between LES and supplier.
- Establishing the extent of source surveillance and inspection.

The extent of LES verifications shall be a function of the relative importance, complexity/quantity of items or services being procured and the supplier's quality performance. Verification activities shall be accomplished by qualified personnel assigned to check, inspect, audit, or witness the activities of the suppliers. LES verifications shall be conducted as early as practical and shall not relieve the supplier of the responsibility for the verification of quality achievement. Verifications shall include supplier audits, surveillances or source inspections (or combinations) used as a method of evaluating the supplier's performance, and evaluation of purchaser's documentation to aid in the determination of the effectiveness of the supplier's quality assurance program. Records, including source surveillances and inspections, audits, receiving inspections, nonconformances, dispositions, waivers, and corrective actions shall be maintained in accordance with the requirements of Section 17, Quality Assurance Records.

CONTROL OF SUPPLIER GENERATED DOCUMENTS

Supplier generated documents shall be controlled, processed and accepted by LES in accordance with the requirements established in the applicable QA procedures. Measures shall be implemented to ensure that the submittal of supplier generated documents is accomplished in accordance with the procurement document requirements. These measures shall also provide for the acquisition, processing and recorded evaluation of technical, inspection and test data compared against the acceptance criteria.

CONTROL OF CHANGES IN ITEMS OR SERVICES

LES shall establish contractual controls with suppliers to ensure that changes in procurement documents are controlled and documented in accordance with this QAPD.

ACCEPTANCE OF ITEMS OR SERVICES

Methods for accepting supplier furnished material, equipment or services shall include one or more of the following, as appropriate to the items or services being procured:

- Evaluating the supplier certificate of conformance,
- Performing one or a combination of source verification, receiving inspection or post-installation test,
- Technical verification of the data produced (services only),
- Surveillance or audit of the activities (services only),
- Review of objective evidence for conformance to procurement requirements (services only).

The supplier shall verify that furnished material, equipment or services comply with LES's procurement requirements before offering the material, equipment or services for acceptance and shall provide to LES objective evidence that material, equipment or services conform to procurement documents. Where required by code, regulations or contract provisions, documentary evidence that items conform to procurement documents shall be available at the site prior to installation or use.

CERTIFICATE OF CONFORMANCE

When a certificate of conformance is used to accept material, equipment or service:

- The certificate shall identify the purchased material, equipment or service to the specific procurement document.
- The certificate shall identify the specific procurement requirements met by the purchased material, equipment or service. The procurement requirements identified shall include any approved changes, waivers or deviations applicable to the material, equipment or service.
- The certificate shall identify any procurement requirements that have not been met together with an explanation and the means for resolving nonconformances.
- The certificate shall be signed and dated or otherwise authenticated by an individual who is responsible for the supplier's quality assurance function and whose responsibilities and position are described in the supplier's quality assurance program.
- The certification process, including the implementing documents to be followed in filling out a certificate and the administrative implementing documents for review and approval of the certificates, shall be described in the supplier's quality assurance program.
- Measures shall be identified to verify the validity of supplier certificates and the effectiveness of the certification process (such as by audit of the supplier or by an independent inspection or test of the item). Verifications shall be conducted by LES at intervals commensurate with the past quality performance of the supplier.

SOURCE VERIFICATION

LES may accept material, equipment or service by monitoring, witnessing or observing activities performed by the supplier. This method of acceptance is called source verification. Source

verification shall be implemented consistent with the supplier's planned inspections, examinations or tests at predetermined points and performed at intervals consistent with the importance and complexity of the item. Documented evidence of acceptance of source verified material, equipment or services shall be furnished to the receiving destination of the item, to LES, and to the supplier. Personnel qualified in accordance with the applicable requirements for the material, equipment or service being procured shall perform source verification.

RECEIVING INSPECTION

When receiving inspection is used to accept an item:

- The inspection shall consider any source verifications/audits and the demonstrated quality performance of the supplier.
- The inspection shall be performed in accordance with established inspection procedures.
- The inspection shall verify, as applicable, proper configuration; identification; dimensional, physical and other characteristics; freedom from shipping damage; and cleanliness.
- The inspection shall be planned and executed according to the requirements of Section 10 Inspection.
- Receiving inspection shall be coordinated with a review for adequacy and completeness of any required supplier documentation submittals.

POST-INSTALLATION TESTING

When post-installation testing is used as a method of acceptance, the LES Vice President - Project Management or the affected/involved LES organization manager and the supplier, when possible, shall mutually establish test requirements and acceptance documentation. The LES Vice President - Project Management is ultimately responsible for ensuring appropriate test requirements and acceptance documentation are established.

CONTROL OF SUPPLIER NONCONFORMANCES

The LES Project Management organization and the supplier shall establish and document the process for disposition of items that do not meet procurement document requirements. The supplier shall evaluate nonconforming items according to the applicable requirements of Section 15, Nonconforming Items and submit a report of nonconformance to LES Project Management organization including supplier recommended disposition (for example, use-as-is or repair) and technical justification. Reports of nonconformances to procurement document requirements, or documents approved by LES, shall be submitted to LES Project Management organization for approval of the recommended disposition whenever one of the following conditions exists:

- Technical or material requirements are violated.
- A requirement in supplier documents, which have been approved by LES, is violated.
- The nonconformance cannot be corrected by continuation of the original manufacturing process or by re-work.
- The item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired.

LES Project Management organization shall disposition the supplier's recommendation and verify implementation of the disposition. LES will maintain records of the supplier-submitted nonconformances.

COMMERCIAL GRADE ITEMS

Where the design utilizes commercial grade material and/or equipment, the following requirements are an acceptable alternate to other requirements of this Section:

- The commercial grade material/equipment is identified in an approved design output document. An alternate commercial grade material/equipment may be applied, provided there is verification that the alternate commercial grade material/equipment will perform the intended function and will meet design requirements applicable to both the replaced material/equipment and its application.
- Supplier evaluation and selection, where determined necessary by the LES based on complexity and importance to safety, shall be in accordance with Source Evaluation and Selection section of this document.
- Commercial grade items shall be identified in the purchase order by the manufacturer's published product description (e.g., catalog number).
- One or a combination of the following methods shall be utilized to provide reasonable assurance that the item meets the acceptance criteria for the characteristics identified to be verified for acceptance:
  - special test(s) or inspection (s) or both;
  - commercial grade survey of the supplier;
  - source verification;
  - acceptable supplier/item performance records.
- Prior to acceptance of a commercial grade item, LES QA organization shall determine that:
  - damage was not sustained during shipment;
  - the item received has satisfied the specified acceptance criteria;
  - inspection and/or testing is accomplished, as required, to assure conformance with critical characteristics; and
  - documentation, as applicable to the item, was received and is acceptable.

APPROVED SUPPLIER LIST

The LES Quality Assurance Director is responsible for the development and maintenance of the LES ASL. The ASL contains those suppliers with acceptable QA Programs that have been evaluated and accepted by the LES QA in accordance with approved procedures. The LES QA organization shall perform and document an evaluation of each supplier every 12 months. Satisfactory results will allow the supplier to remain on the ASL. Additionally, suppliers will be evaluated by means of an audit at least triennially, if initial approval was by audit or survey. Suppliers that have unacceptable evaluations or that have not had a procurement placed with them in three years will be removed from the ASL.

SECTION 8 IDENTIFICATION AND CONTROL MATERIALS, PARTS AND COMPONENTS

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 8, Identification and Control of Materials, Parts and Components, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 8 and Supplement 8S-1 of NQA-1-1994 Part I as revised by NQA-1a-1995 Addenda.

The controls necessary to ensure that only correct and accepted items are used or installed will be required by the appropriate QA procedure. Identification requirements for materials, parts and components are stated in design specifications, drawings, and procurement documents. Specific identification requirements are as follows.

- Identification markings, when used shall be applied using materials and methods which provide a clear and legible identification and do not detrimentally affect the function or service life of the item. Markings shall be transferred to each part of an item when subdivided and shall not be obliterated or hidden by surface treatments or coatings unless other means of identification are substituted.
- When required by specifications or codes and standards, identification of material or equipment with traceability to the corresponding mill test reports, certifications and other required documentation is maintained throughout fabrication, erection, installation, or use.
- Sufficient precautions shall be taken to preclude identifying materials in a manner that degrades the function or quality of the item being identified.

Control of material, parts and components is governed by approved procedures. Specific control requirements include the following.

- Identification of nonconforming or rejected materials, parts or components to ensure that they are not inadvertently used.
- Verification of correct identification of materials (including consumable materials or items with a limited shelf life), parts, and components shall be required to prevent the use of incorrect or defective items.
- Receipt inspection to ensure that materials, parts or components are properly identified and that supporting documentation is available as required by procurement specifications.
- Maintaining and replacement of markings and identification records due to damage during handling, aging or environmental exposure.

SECTION 9 CONTROL OF SPECIAL PROCESSES

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 9, Control of Special Processes, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 9 and Supplement 9S-1 of NQA-1994 Part I.

Processes affecting the quality of items or services shall be controlled by written procedures using drawings, checklists, travelers or other appropriate means. These means shall ensure that the process parameters are controlled and that specified environmental conditions are maintained. Special processes that control or verify quality, such as those used in welding, heat treating, and nondestructive examination, shall be performed by qualified personnel using qualified procedures in accordance with specified requirements.

SPECIAL PROCESSES

Special processes that control or verify quality shall be controlled according to the requirements of this section whether or not they are covered by existing codes and standards, or whether or not the quality requirements specified for an item exceed those of existing codes or standards.

PERSONNEL, IMPLEMENTING DOCUMENTS, AND EQUIPMENT QUALIFICATIONS

Implementing LES documents shall be used to ensure that process parameters are controlled and that the specified environmental conditions are maintained. Each special process shall be performed in accordance with appropriate implementing documents and these implementing documents shall include or reference:

- The responsibility of the organization performing the special process to adhere to the approved procedures and processes,
- Qualification requirements for personnel, implementing documents and equipment,
- Conditions necessary for accomplishment of the special process. These conditions shall include proper equipment, controlled parameters of the process and calibration requirements, and/or
- Requirements of applicable codes and standards, including acceptance criteria for the special process.

QUALIFICATION OF NONDESTRUCTIVE EXAMINATION PERSONNEL

Personnel who have been qualified and certified in accordance with Section 2.0, QA Program, of this QAPD shall perform nondestructive examinations required for the LES work activities.

DOCUMENTATION

Records shall be maintained as appropriate in accordance with Section 17, Quality Assurance Records, for currently qualified personnel, processes and equipment of each special process.

SECTION 10 INSPECTION

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 10, Inspection, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 10 and Supplement 10S-1 of NQA-1-1994 Part I.

Inspections required to verify conformance of an item or activity to specified requirements are planned and executed. Characteristics to be inspected and inspection methods to be employed are specified in procedures. Inspection results are documented. Persons other than those who performed or directly supervised the work being inspected shall perform inspection for acceptance. Inspection requirements and acceptance criteria shall include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization. Inspection activities are documented and controlled by instructions, procedures, drawings, checklists, travelers or other appropriate means.

INSPECTION PLANNING

Inspection planning shall be performed, documented and include:

- Identification of each work operation where inspection is necessary to ensure quality and implementing documents that shall be used to perform the inspections;
- Identification of the characteristics to be inspected and the identification of when, during the work process, inspections are to be performed;
- Identification of inspection or process monitoring methods to be employed;
- The final inspection shall be planned to arrive at a conclusion regarding conformance of the item to specified requirements;
- Identification of the functional qualification level (category or class) of personnel performing inspections;
- Identification of acceptance criteria;
- Methods to record objective evidence of inspection results; and
- Selection and identification of the measuring and test equipment to be used to perform the inspection.

SELECTING INSPECTION PERSONNEL TO PERFORM INSPECTION

The individual who performs an inspection to verify conformance of an item to specified acceptance criteria shall be qualified to perform the assigned inspection tasks in accordance with the requirements of Section 2, QA Program. Data recorders, equipment operators or other inspection team members who are supervised by a qualified inspector shall not be required to be a qualified inspector. Verification of conformance shall be by a qualified person. Inspections shall be performed by personnel other than those who performed or directly supervised the work being inspected. Inspection personnel shall not report directly to the immediate supervisors who are responsible for performing the work being inspected.

INSPECTION HOLD POINTS

When mandatory hold points are used to control work that shall not proceed without the specific consent of the organization placing the hold point, the specific hold points shall be indicated in implementing documents. Consent to waive specified hold points shall be documented and approved before continuing work beyond the designated hold point.

STATISTICAL SAMPLING

When statistical sampling is used to verify the acceptability of a group of items, the statistical sampling method used shall be based on recognized standard practices and these practices shall be implemented through applicable approved procedures.

IN-PROCESS INSPECTIONS AND MONITORING

Items shall be inspected when necessary to verify quality. If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of processing methods, equipment and personnel shall be provided. Inspection and process monitoring shall be conducted when control is inadequate with only one method. A combination of inspection and process monitoring methods, when used, shall be performed in a systematic manner to ensure that the specified requirements for control of the process and the quality of the item are met throughout the duration of the process. Controls shall be established and documented for the coordination and sequencing of inspections and monitoring at established inspection points during successive stages of the process or construction.

FINAL INSPECTION

Finished items shall be inspected for completeness, markings, calibration, adjustments, protection from damage or other characteristics as required in order to verify the quality and conformance of the item to specified requirements. Documentation not previously examined shall be examined for adequacy and completeness. The final inspection shall be planned to arrive at a conclusion regarding conformance of the item to specified requirements. Final inspections shall include a review of the results and resolution of any nonconformances identified by earlier inspections. Modifications, repairs or replacements of items performed subsequent to final inspection shall require re-inspection or retest, as appropriate, to verify acceptability.

ACCEPTING ITEMS

The acceptance of an item shall be documented and approved by qualified and authorized personnel. The inspection status of an item shall be identified according to Section 14, Inspection, Test and Operating Status.

INSERVICE INSPECTION

Inservice inspection or surveillance of structures, systems, or components shall be planned and implemented by or for the LES Operating organization. Procedures shall control the inspections to verify that the characteristics of the item remain with the specified limits. The inspection procedure shall include the following, as appropriate:

- Evaluations of performance capabilities of essential emergency and safety systems and equipment,
- Verification of calibration and integrity of instruments and instrument systems, and
- Verification of maintenance.

INSPECTION DOCUMENTATION

Inspection documentation shall identify:

- The item inspected, date of inspection, the name of the inspector who documented, evaluated and determined acceptability;
- Name of data recorder, as applicable and type of observation or method of inspection;
- The inspection criteria, sampling plan or reference documents (including revision levels) used to determine acceptance;
- Results or acceptability of characteristics inspected;
- Measuring and test equipment used during the inspection including the identification number and the most recent calibration date; and
- Reference to information on actions taken in connection with nonconformances, as applicable.

SECTION 11 TEST CONTROL

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 11, Test Control, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 11 and Supplement 11S-1 of NQA-1-1994 Part I. The commitment to the provisions in Supplement 11S-2, Supplementary Requirements for Computer Program Testing is addressed in Section 3, Design Control.

Tests required to verify conformance of an item or computer program to specified requirements and to demonstrate satisfactory performance for service are planned and executed. Characteristics to be tested and test methods to be employed are specified. Test results are documented and their conformance with acceptance criteria is evaluated. Tests required to collect data, such as for siting or design input, shall be planned, executed, documented and evaluated.

TEST REQUIREMENTS

Test requirements and acceptance criteria shall be provided or approved by the organization responsible for the design of the item to be tested unless otherwise designated. Required tests, including, as appropriate, prototype qualification tests, production tests, proof tests prior to installation, construction tests, pre-operational tests, and operational tests are controlled. Test requirements and acceptance criteria are based upon specified requirements contained in applicable design or other pertinent technical documents.

TEST PROCEDURES

Test procedures shall include:

- Test objectives and the identification of any implementing documents to be developed to control and perform tests as appropriate;
- Identification of items to be tested, test requirements and acceptance limits, including required levels of precision and accuracy;
- Identification of test methods to be employed and instructions for performing the test;
- Test prerequisites that address calibrated instrumentation, appropriate and adequate test equipment/instrumentation, trained personnel, condition of test equipment and the item to be tested, suitably controlled environmental conditions and provisions for data acquisition;
- Mandatory hold points and methods to record data and results;
- Provisions for ensuring that prerequisites for the given test have been met;
- Selection and identification of the measuring and test equipment to be used to perform the test to ensure that the equipment is of the proper type, range, accuracy, and tolerance to accomplish the intended function; and
- Identification of the functional qualification level of personnel performing tests.

PERFORMING TESTS

Tests shall be performed in accordance with procedures that address the following requirements as applicable:

- Provisions for determining when a test is required, describing how tests are performed, and ensuring that testing is conducted by trained and appropriately qualified personnel.
- Include or reference test objectives and provisions for ensuring that prerequisites for the given test have been met, adequate calibrated instrumentation is available and used, necessary monitoring is performed and suitable environmental conditions are maintained.
- Test requirements and acceptance criteria provided or approved by the organization responsible for the design of the item to be tested, unless otherwise designated.
- Test requirements and acceptance criteria based upon specified requirements contained in applicable design or other pertinent technical documents.
- Potential sources of uncertainty and error. Test parameters affected by potential sources of uncertainty and error shall be identified and controlled.

MONITORING AND OVERSIGHT OF SUPPLIER TEST

The LES Vice President - Project Management in coordination with the QA Director shall establish measures to routinely interface with the supplier and to verify supplier performance. LES may accept material, equipment or service by monitoring, witnessing or observing activities performed by the supplier. This method of acceptance is called source verification. Source verification shall be implemented consistent with the supplier's planned inspections, examinations or tests at predetermined points and performed at intervals consistent with the importance and complexity of the item. Documented evidence of acceptance of source verified material, equipment or services shall be furnished to the receiving destination of the item, to LES, and to the supplier. Personnel qualified in accordance with the applicable requirements for the material, equipment or service being procured shall perform source verification.

USE OF OTHER TESTING DOCUMENTS

Other testing documents (e.g., American Society for Testing and Materials (ASTM)) specifications, supplier manuals or other related documents containing acceptance criteria may be used instead of preparing special test procedures. If used, the information shall be incorporated by reference in the approved test procedure. Implementing documents shall include adequate supplemental instructions as required to ensure the required quality of the testing work.

TEST RESULTS

Test results shall be documented and their conformance with acceptance criteria shall be evaluated by a qualified individual within the responsible organization to ensure that test requirements have been satisfied.

TEST DOCUMENTATION

Test documentation shall include:

- Item or work product tested, date of test, names of tester and data recorders, type of observation and method of testing;
- Identification of test criteria or reference documents used to determine acceptance;
- Results and acceptability of the test;
- Actions taken in connection with any nonconformances or deviations noted;
- Name of the person evaluating the test results; and
- Identification of the measuring and test equipment (M&TE) used during the test.

SECTION 12 CONTROL OF MEASURING AND TEST EQUIPMENT

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 12, Control of Measuring and Test Equipment, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 12 and Supplement 12S-1 of NQA-1-1994 Part I.

This section establishes LES control for tools, gages, instruments and other measuring and test equipment (M&TE) used for activities affecting quality, including design activities where applicable, construction, operation and decommissioning. M&TE is controlled and at specified periods calibrated and adjusted to maintain accuracy within necessary limits. Selection of M&TE shall be controlled to ensure that such items are of proper type, range, accuracy, and tolerance to accomplish the functions of determining conformance to specified requirements.

CALIBRATION

M&TE shall be calibrated, adjusted and maintained at prescribed intervals or, prior to use, against reference calibration standards having traceability to nationally recognized standards. If no nationally recognized standards or physical constants exist, the basis for calibration shall be documented. Calibration standards shall have a greater accuracy than the required accuracy of the M&TE being calibrated. If calibration standards with a greater accuracy than required of the M&TE being calibrated do not exist or are unavailable, calibration standards with accuracy equal to the required calibration accuracy may be used, provided they are shown to be adequate for the requirements. The basis for the calibration acceptance shall be documented and authorized by responsible management as defined in applicable procedures. The level of management authorized to perform this function shall be identified. The method and interval of calibration for each device shall be defined, based on the type of equipment, stability characteristics, required accuracy, intended use and other conditions affecting measurement control. For M&TE used in one- time-only applications, the calibration shall be performed both before and after use. A calibration shall be performed when the accuracy of calibrated M&TE is suspect. Calibrated M&TE shall be labeled, tagged, or otherwise suitably marked or documented to indicate due date or interval of the next calibration and uniquely identified to provide traceability to its calibration data.

DOCUMENTING THE USE OF M&TE

The use of M&TE shall be documented. As appropriate to equipment use and its calibration schedule, the documentation shall identify the processes monitored, data collected or items inspected or tested since the last calibration.

OUT OF CALIBRATION M&TE

M&TE shall be considered to be out-of-calibration and not be used until calibrated if any of the following conditions exist:

- The calibration due date or interval has passed without re-calibration.
- The device produces results known or suspected to be in error.

- Out-of-Calibration M&TE shall be controlled. The controls shall include the following requirements:
    - Out-of-Calibration M&TE shall be tagged, segregated or otherwise controlled to prevent use until they have been recalibrated.

When M&TE is found out-of-calibration, the validity of results obtained using that equipment since its last valid calibration shall be evaluated to verify the acceptability of previously collected data, processes monitored, or items previously inspected or tested. The evaluation shall be documented.

If any M&TE is consistently found out-of-calibration during the re-calibration process, it shall be repaired or replaced.

LOST M&TE

When M&TE is lost, the validity of results obtained using that equipment since its last valid calibration shall be evaluated to determine acceptability of previously collected data, processes monitored or items previously inspected or tested. The evaluation shall be documented.

HANDLING AND STORAGE

M&TE shall be properly handled and stored to maintain accuracy.

COMMERCIAL DEVICES

Calibration and control shall not be required for rulers, tape measures, levels and other normal commercial equipment that provides adequate accuracy.

M&TE DOCUMENTATION

M&TE calibration documentation shall include the following information:

- Identification of the measuring or test equipment calibrated;
- Traceability to the calibration standard used for calibration;
- Calibration data;
- Identification of the individual performing the calibration;
- Identification of the date of calibration and the re-calibration due date or interval, as appropriate;
- Results of the calibration and statement of acceptability;
- Reference to any actions taken in connection with out-of-calibration or nonconforming M&TE including evaluation results, as appropriate; and
- Identification of the implementing document used in performing the calibration.

SECTION 13 HANDLING, STORAGE, AND SHIPPING

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 13, Handling, Storage and Shipping, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 13 and Supplement 13S-1 of NQA-1-1994 Part I.

Handling, storage, cleaning, packaging, shipping and preservation of items are controlled in accordance with requirements of this section to prevent damage or loss and to minimize deterioration.

CONTROLS

Handling, storage, cleaning, packaging, shipping and preservation of items shall be conducted in accordance with established work and inspection implementing procedures, shipping instructions or other specified documents. For critical, sensitive, perishable or high-value articles, specific instructions for handling, storage, cleaning, packaging, shipping and preservation shall be prepared and used.

SPECIAL EQUIPMENT, TOOLS AND ENVIRONMENTS

If required for particular items, special equipment (i.e., containers, shock absorbers and accelerometers) and special protective environments (i.e., inert gas and specific moisture/temperature levels) shall be specified and provided. If special equipment and environments are used, provisions shall be made for their verification. Special handling tools and equipment shall be used and controlled as necessary to ensure safe and adequate handling. Special handling tools and equipment shall be inspected and tested at specified time intervals and in accordance with procedures to verify that the tools and equipment are adequately maintained. Operators of special handling and lifting equipment shall be experienced or trained in the use the equipment.

MARKING AND LABELING

Measures shall be established for marking and labeling for the packaging, shipping, handling and storage of items as necessary to adequately identify, maintain and preserve the item. Markings and labels shall indicate the presence of special environments or the need for special controls if necessary.

SECTION 14 INSPECTION, TEST, AND OPERATING STATUS

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 14, Inspection, Test and Operating Status, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 14 of NQA-1-1994 Part I.

This section establishes requirements for LES to identify the status of inspection and test activities. Status is indicated either on the items or in documents traceable to the items where it is necessary to assure that required inspections and tests are performed and to assure that items which have not passed the required inspections and tests are not inadvertently installed, used or operated. Status is maintained through indicators (i.e., physical location and tags, markings, shop travelers, stamps, inspection records or other suitable means). The authority for application and removal of tags, markings, labels and stamps are specified. Status indicators shall also provide for indicating the operating status of systems and components of the nuclear facility (i.e., tagging valves and switches) to prevent inadvertent operation.

Process control procedures, test and inspection procedures, nonconforming item control procedures, installation records, and checklists are used as applicable to control the installation of structures, system and components. These documents contain hold points, activity checklists, and in many cases, step-by-step signoffs which indicate the status of fabrication, installation, inspections, and test. This system is used to prevent inadvertent use of nonconforming items or bypassing of inspections and tests and prevent inadvertent operation.

During operation, in order to ensure that equipment status is clearly evident, and to prevent inadvertent operation, the LES QA Program requires structures, systems and components that are inoperable to be identified as such. This identification may be by means of tags, labels, stamps or other suitable methods. When tags, labels, or stamps are utilized for the identification of equipment status, the issuance and removal thereof is documented to ensure proper control of such identification measures. Also, procedures require that the operability of an item removed from operation for maintenance or testing be verified prior to returning the item to normal service.

Measures taken by QA personnel, during the performance of required inspection and quality control activities, to identify equipment status are controlled by the QA organization independent of measures taken to identify and control equipment status by LES.

Changing the sequence of inspections, tests, and other activities involving safety requires the same controls as the original review and approval.

SECTION 15 NONCONFORMING ITEMS

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 15, Nonconforming Items, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 15 and Supplement 15S-1 of NQA-1-1994 Part 1.

This section provides the process for controlling items that do not conform to specified requirements. For the purposes of this QAPD, items referenced to in this section means materials, parts, or components. The control of nonconforming activities and services is described in Section 16, Corrective Action. These items are controlled to prevent inadvertent installation or use. The controls provide for identification, documentation, evaluation, segregation when practical, disposition of nonconforming items and for notification to affected organizations.

DOCUMENTING AND EVALUATING NONCONFORMING ITEMS

Nonconformance documentation shall clearly identify and describe the characteristics that do not conform to specified criteria. Nonconformance documentation shall be reviewed by the responsible affected organization and recommended dispositions of nonconforming items shall be proposed in accordance with procedures. The review shall include determining the need for additional corrective actions according to the requirements of Section 16, Corrective Action. In addition, organizations affected by the nonconformance shall be notified. Recommended dispositions shall be evaluated and approved in accordance with procedures. Personnel performing evaluations of recommended dispositions shall have demonstrated competence in the specific area they are evaluating, an adequate understanding of the requirements and access to pertinent background information. The responsibility and authority for reviewing, evaluating, approving the disposition and closing nonconformances shall be specified in procedures. QA can initiate, recommend, or provide solutions via designated channels. QA will verify the implementation of the corrective actions and QA will assure that procedures are in place to control the installation and use of nonconformances until an acceptable solution has been provided. Further processing, delivery, installation or use of a nonconforming item shall be controlled pending the evaluation and approval of the disposition by authorized personnel.

IDENTIFYING NONCONFORMING ITEMS

Employees of LES and LES contractors have a procedural obligation to identify and document nonconformances. Nonconforming items shall be identified by marking, tagging or other methods that do not adversely affect their end use. The identification shall be legible and easily recognizable. If the identification of a nonconforming item is not practical, the container, package or segregated storage area, as appropriate, shall be identified.

SEGREGATING NONCONFORMING ITEMS

Nonconforming items shall be segregated, when practical, by placing them in a clearly identified and designated hold area until properly dispositioned. If segregation is impractical or impossible due to physical conditions, then other precautions shall be employed to preclude inadvertent use.

DISPOSITION OF NONCONFORMING ITEMS

The disposition, such as "use-as-is," "reject," "repair," or "rework," of nonconforming items shall be identified and documented. The technical justification for the acceptability of a nonconforming item that has been dispositioned "repair" or "use-as-is" shall be documented.

Items that do not meet original design requirements that are dispositioned "use-as-is" or "repair" shall be subject to design control measures commensurate with those applied to the original design. If changes to the specifying document are required to reflect the as-built condition, the disposition shall require action to change the specifying document to reflect the accepted nonconformance. Any document or record change required by the disposition of the nonconformance shall be identified in the nonconformance documentation; and, when each document or record is changed, the justification for the change shall identify the nonconformance documentation. The disposition of an item to be reworked, or repaired shall contain a requirement to reexamine (inspect, test, or nondestructive examination) the item to verify acceptability. Repaired or reworked items shall be reexamined in accordance with applicable procedures using the original process and acceptance criteria unless the nonconforming item disposition has established alternate acceptance criteria.

TRENDING

Nonconformance documentation shall be periodically analyzed by the LES QA organization to identify adverse quality trends in accordance with Section 16, Corrective Action.

SECTION 16 CORRECTIVE ACTION

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 16, Corrective Action, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 16 of NQA-1-1994 Part 1.

Conditions adverse to quality including activities and services shall be identified promptly and corrected as soon as practical. For significant conditions adverse to quality, the cause of the condition shall be determined and corrective action taken to preclude recurrence. The identification, cause, and corrective action for significant conditions adverse to quality shall be documented and reported to appropriate levels of management. Follow-up action shall be taken to verify implementation of the corrective action. Significant conditions adverse to quality shall be tracked and evaluated so that adverse trends can be identified and appropriate corrective action can be taken.

Procedure(s) shall be issued to establish the CAP which includes the following processes, including closure:

- Prompt identification and correction of conditions adverse to quality;
- Evaluating significant conditions adverse to quality for reportability to the NRC (when required) under 10 CFR 21, Reporting of Defects and Noncompliance, or other applicable reporting requirements and reporting such conditions when warranted;
- Stopping work, if applicable;
- Determining root cause and corrective actions to preclude recurrence for significant conditions adverse to quality; and
- Follow-up actions to verify implementation of corrective actions taken for significant conditions adverse to quality.

IDENTIFYING AND CLASSIFYING CONDITIONS ADVERSE TO QUALITY

Conditions adverse to quality shall be classified in one of two categories in regard to their significance, and corrective actions shall be taken accordingly. The two categories of significance include:

- Conditions adverse to quality
- Significant conditions adverse to quality

Conditions adverse to quality are defined as failures, malfunctions, deficiencies, deviations, defective material and equipment and nonconformances. Conditions adverse to quality shall be documented and reported to the appropriate levels of management.

Responsible management shall investigate and fully identify the condition and document the results. Responsible management shall then utilize investigation results to determine and document corrective action (including remedial action and if appropriate, actions to prevent recurrence). Responsible management shall complete remedial action and document completion of actions in a timely manner.

Significant conditions adverse to quality are defined as:

- A deficiency that would seriously impact an item, activity or service from meeting or performing its intended function or output of assuring public health and safety;
- A deficiency in design that has been approved for fabrication or construction where the design deviates extensively from design criteria and bases;
- A deficiency in the fabrication or construction of, or significant damage to, structures, systems or components that require extensive evaluation, re-design or repair in order to establish the adequacy of the structure, system or component to perform its intended function of assuring public health and safety;
- A deviation from performance specifications that shall require extensive evaluation, re-design, or repair to establish the adequacy of the structure, system or component to perform its intended function;
- A significant error in a computer program used to support activities affecting quality after it has been released for use;
- A deficiency, repetitive in nature, related to an activity or item subject to the LES QA Program; and
- A condition that, if left uncorrected, has the potential to have a serious negative impact on activities or items subject to the LES QA Program controls.

If a supplier or subtier supplier discovers a defect or noncompliance which the supplier evaluates as a substantial safety hazard, then the supplier shall be required to report the item under 10 CFR 21, Reporting of Defects and Noncompliance, and notify the LES in writing. If the supplier or subtier supplier is unable to determine if the defect/non compliance is a substantial safety hazard then the supplier or subtier supplier is required to report the item to LES for determination of reportability.

Significant conditions adverse to quality shall be evaluated for a stop work condition to determine if stopping work is warranted. If a stop work condition is identified, management shall issue stop work in accordance with the applicable procedure. Upon resolution of the related significant condition adverse to quality, management shall take appropriate action to lift and close (in part or total) the stop work order.

FOLLOW-UP ACTION

The procedure(s) establishing the Corrective Action Program shall include a requirement for management to take follow-up action to verify implementation of corrective action taken to address significant conditions adverse to quality. The QA organization shall be responsible for conducting periodic assessments of these follow-up actions.

TRENDING

The procedure(s) establishing the CAP shall assign organizational responsibility for trending significant conditions adverse to quality and the criteria for determining trends. Reports of significant conditions adverse to quality shall be evaluated to identify adverse quality trends and help identify root causes. Trend evaluation shall be performed in a manner and at a frequency that provides for prompt identification of adverse quality trends. Identified adverse trends shall be handled in accordance with the CAP described here and reported to the appropriate management.

SECTION 17 QUALITY ASSURANCE RECORDS

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 17, Quality Assurance Records, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 17 and Supplement 17S-1 of NQA-1-1994 Part I.

A QA record is any completed record that furnishes documentary evidence of the quality of items and/or activities affecting quality. Records may include specially processed records such as radiographs, photographs, negatives, microforms and magnetic/electronic media. LES completed QA records that furnish documentary evidence of quality shall be specified, prepared and maintained in accordance with applicable regulatory requirements and applicable procedures. QA Records shall be legible, identifiable, retrievable, and shall be protected against damage, deterioration and loss. Requirements and responsibilities for record transmittal, distribution, retention, maintenance and disposition shall be established and documented in procedures. Retention periods for the various types of records generated under the LES QA Program shall be specified as Lifetime or Nonpermanent according to the criteria provided in this Section. The term "records" used throughout this section is to be interpreted as "Quality Assurance Record," unless otherwise specified.

RECORD MANAGEMENT SYSTEM

LES shall establish a record management system and LES Records Center at the earliest practicable time consistent with the schedule for accomplishing work activities and in compliance with the requirements of this QAPD. The QA records management system shall be defined, implemented and enforced in accordance with written procedures, instructions or other documentation. Records shall be distributed, handled, and controlled in accordance with written procedures.

GENERATION, CLASSIFICATION AND RETENTION OF QA RECORDS

Applicable LES design specifications, procurement documents, test procedures, operational procedures or other documents and procedures shall specify the records to be generated, supplied or maintained. Documents that are designated to become records shall be legible, accurate and completed appropriate to the work accomplished. LES records shall be classified for retention purposes as lifetime records or nonpermanent records in accordance with the criteria provided below.

- Lifetime records are those that meet one or more of the following criteria:
  - Those which would be of significant value in demonstrating capability for safe operation;
  - Those which would be of significant value in maintaining, reworking, repairing, replacing or modifying an item;
  - Those which would be of significant value in determining the cause of an accident or malfunction of an item; and/or
  - Those which provide required baseline data for in-service inspections.

Lifetime records are required to be maintained for the life of the particular item while it is installed in the facility or stored for future use.

Nonpermanent records are those required to show evidence that an activity was performed in accordance with the applicable requirements of the LES QA Program but need not be retained for the life of the item because they do not meet the criteria for lifetime records. The retention period for nonpermanent records shall be documented in the applicable procedure.

Procedures shall identify those documents that will become QA records. The individual using the procedure is responsible for ensuring the QA records required by the procedure are submitted to the LES Records Center. Documents that may become records shall be maintained and processed in a prudent manner to avoid unnecessary delay and/or expense in retrieving the record when the record is needed to support other work.

Individuals creating records shall ensure the records are legible, accurate and complete, and shall protect them from damage, deterioration or loss during the time the records are in their possession.

Documents shall be considered valid records only if authenticated (i.e., stamped, initialed or signed and dated complete by authorized personnel). If the nature of the record precludes stamping or signing, then other means of authentication by authorized personnel is permitted. This may take the form of a statement by the responsible individual or organization. Handwritten signatures are not required if the document is clearly identified as a statement by the reporting individual or organization. QA records may be originals or copies. LES contractors shall submit to the LES Records Center those records being temporarily stored by them in accordance with contractual requirements. The timing of the submittal shall be as records become completed, or as items are released for shipment, or as prescribed by QA procedures and procurement documents. Records shall be controlled and submitted to the records management system in accordance with implementing procedures.

RECEIVING QA RECORDS

Each organization responsible for receiving records shall provide protection from damage or loss during the time that the records are in their possession. A receipt control system shall be established by the organization to include the following:

- A method for designating the required records;
- A method for identifying records received;
- Procedures for receipt and inspection of incoming records; and
- A method for submittal of completed records to the storage facility without unnecessary delay; and
- Capability to provide current and accurate status of records during the receipt process.

Records shall be indexed to ensure retrievability. Records and/or indexing systems shall provide sufficient information to permit identification between the record and the item or activity to which it applies. The indexing system shall include:

- The location of the records within the records management system;
- Identification of the item or related activity to which the records pertain; and
- The retention classification of the record.

STORING, SAFEKEEPING, AND PRESERVING QA RECORDS

Records shall be stored and preserved in the LES Records Center in accordance with a procedure that includes the following:

- Assignment of responsibility for enforcing the requirements of the procedure;
- A description of the storage facility;
- A description of the filing system to be used;
- A method for verifying that the records received are in agreement with the transmittal document;
- A method for verifying that the records are those designated and the records are legible and complete;
- A description of rules governing control of the records, including access, retrieval and removal;
- A method for maintaining control of and accountability for records removed from the storage facility;
- A method for filing supplemental information and disposition of superseded records;
- A method for precluding entry of unauthorized personnel into the storage area to guard against larceny and vandalism; and
- A method for providing for replacement, restoration or substitution of lost or damaged records.

Storage methods shall be approved by the organization responsible for storage to preclude deterioration of records in accordance with the following:

- Provisions shall be made in the storage arrangement to prevent damage from moisture, temperature and pressure.
- Approved filing methods shall require records to be firmly attached in binders, or placed in folders or envelopes, for storage in steel file cabinets or on shelving in containers appropriate for the record medium being stored.
- The storage arrangement shall provide adequate protection of special processed records (e.g., radiographs, photographs, negatives, microform and magnetic media) to prevent damage from humidity, temperature, excessive light, electromagnetic fields or stacking, consistent with the type of record being stored.

LES RECORDS CENTERS

Originating organizations shall store records in temporary storage while active and required for use; subsequently the records shall be transmitted for permanent storage in accordance with the requirements of this Section and associated procedures.

LES organizations shall provide for temporary storage of records during processing, review or use, until turnover to the LES Records Center for disposition, according to implementing procedures and the following requirements:

- Records shall be temporarily stored in a container or facility with a fire rating of one (1) hour. The temporary storage container or facility shall bear an Underwriters' Laboratories label (UL) (or equivalent) certifying one (1) hour fire protection, or be certified by a person competent in the technical field of fire protection.
- The maximum time limit for keeping records in temporary storage shall be specified by implementing procedures consistent with the nature or scope of work.

LES QA records permanent storage shall either invoke the alternate single storage facility provision of Section 4.4.2 and/or the dual facilities provision of Section 4.4.4 of Supplement 17S-1 of NQA-1-1994. With either provision used, the LES Records Center shall be constructed and maintained in a manner that minimizes the risk of damage or destruction from the following:

- Natural disasters (i.e., winds, floods or fires);
- Environmental conditions (i.e., high and low temperatures and humidity); and
- Infestation of insects, mold or rodents.

If the alternate single storage facility provision is used, then LES records shall be stored in the LES Records Center in two (2) hour fire rated Class B file containers meeting the requirements of National Fire Protection Association (NFPA) 232-1986 or NFPA 232AM-1986 or both.

If the dual storage facility provision is used for hard copies, then LES records shall be stored with one copy in the LES Records Center and the second copy stored in facility that is sufficiently remote from the Records Center to eliminate the chance of exposure to a simultaneous hazard. If the dual storage facilities provision is used via scanned documents into an electronic records management system, then a back-up tape shall be periodically made of the electronic records management system and its contents and the tape shall be stored in atemporary storage devise in a fire-proof safe. This process invokes the dual storage provision as one copy resides on the records management system computer and a second copy of the total records system resides in a remote location with temporary storage being used for records entered in the interim.

RETRIEVING AND DISPOSITIONING QA RECORDS

The records management system shall provide for retrieval of records in accordance with planned retrieval times based upon the designated record type. Access to records storage facilities shall be controlled. A list shall be maintained designating personnel who are permitted access to the records at the LES Records Center.

Records maintained by a supplier at its facility or other location shall be accessible to the purchaser or designated alternate. The supplier's records shall not be disposed of until contractual requirements are satisfied.

Records accumulated at various locations prior to transfer shall be made accessible to LES directly or through the procuring organization. The record-keeper shall inventory the submittals, acknowledge receipt and process these records in accordance with this QAPD. Various regulatory agencies have requirements concerning records that are within the scope of this Section. The most stringent requirements should be used in determining the final disposition.

The supplier's nonpermanent records shall not be disposed of until the applicable conditions listed below are satisfied.

- Items are released for shipment, a Code Data Report is signed, or a Code Symbol stamp is affixed.
- Regulatory requirements are satisfied.
- Operational status permits.
- Warranty consideration is satisfied.
- Purchaser's requirements are satisfied.

RETENTION OF QA RECORDS

Lifetime records shall be retained and preserved for the operating life of the particular item while it is installed in the plant or stored for future use. Nonpermanent records shall not be disposed of until the following conditions are met:

- Regulatory requirements are satisfied;
- Facility status allows document disposal; and
- LES QAPD requirements are satisfied

CORRECTING INFORMATION IN QA RECORDS

Corrections shall include the identification of the person authorized to make the correction and the date the correction was made. Corrections to records shall be performed in accordance with implementing procedures, which provide for appropriate review or approval of the corrections, by the originating organization.

REPLACING LOST OR DAMAGED QA RECORDS

Replacement, restoration or substitution of lost or damaged records shall be performed in accordance with implementing procedures, which provide for appropriate review or approval by the originating organization and any additional information associated with the replacement.

SECTION 18 AUDITS

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 18, Audits, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 18 and Supplement 18S-1 of NQA-1-1994 Part 1.

In accordance with the description of the QA organization during the various phases of design, construction, and operation provided in Section 1, Organization, the LES QA Director shall verify LES compliance with all aspects of the LES QA Program and determine QA Program effectiveness by ensuring that planned and scheduled audits are conducted. Elements that have been selected for audit shall be evaluated against specified requirements. An auditing function reports to the LES QA Director and has the organizational independence and authority to execute an effective audit process to meet all requirements of the QA Program. Objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively. LES audits are performed in accordance with written procedures or checklists by appropriately trained and qualified personnel who do not have direct responsibility for performing the activities being audited. Audit results are documented and provided to the appropriate management for review and corrective action as applicable. Follow-up actions are taken where indicated.

AUDIT SCHEDULES

Internal or external audits shall be scheduled in a manner to provide coverage, consistency and coordination with ongoing work, and at a frequency commensurate with the status and importance of the work. Internal or external audits shall be scheduled to begin as early in the life of the work as practical and shall be scheduled to continue at intervals consistent with the schedule for accomplishing the work. As a minimum, internal audits of LES QA Level 1 activities shall be at least once per year or at least once during the life of the activity, whichever is shorter. Regularly scheduled internal audits shall be supplemented by additional audits of specific subjects when necessary to provide an adequate assessment of compliance or effectiveness. Internal audits to determine quality assurance program effectiveness shall be performed on selected work products. The audit schedule shall be developed annually and revised as necessary to ensure that coverage is maintained current. Frequency of audits should be based upon evaluation of all applicable and active elements of the LES QAPD applicable to LES workscope. These evaluations should include an assessment of the effectiveness of the applicable and active elements of the LES QAPD based upon previous audit results and corrective actions, nonconformance reports, identified trends, and significant organizational changes.

AUDIT PLANS

A documented audit plan shall be developed for each audit. This plan shall identify the audit scope, requirements for performing the audit, type of audit personnel needed, work to be audited, organizations to be notified, applicable documents, audit schedule, and implementing documents or checklists to be used.

AUDIT TEAMS

The LES QA Director shall select and assign auditors who are independent of any direct responsibility for performing the work being audited. Audit personnel shall have sufficient

authority and organizational freedom to make the audit process meaningful and effective. The audit team shall include one or more auditors comprised of representatives from the LES QA organization and any applicable technical organizations. A lead auditor shall be appointed to supervise the team, organize and direct the audit, prepare and coordinate issuance of the audit report and evaluate responses. Technical specialists may be used to assist in assessing the adequacy of technical processes. Before commencing the audit, the lead auditor shall ensure the personnel assigned to the audit team are prepared and collectively have experience and/or training commensurate with the scope, complexity or special nature of the work to be audited. Lead auditors, auditors and technical specialists shall be trained and qualified according to the requirements of Section 2, Quality Assurance Program.

PERFORMING AUDITS

The LES QA Director shall provide written notification of a planned audit to the affected organizations at a reasonable time before the audit is to be performed. The notification should include all relevant information pertaining to the audit, such as schedule, scope and names of audit lead and team members, if known. In addition, the audit team leader shall ensure the following is performed.

- The audit team shall be adequately prepared before starting the audit.
- Audits shall be performed in accordance with written procedures or checklists.
- Elements that have been selected for the audit shall be evaluated against specified requirements.
- Objective evidence shall be examined to the depth necessary to determine if the selected elements are being implemented effectively.
- Audit results shall be documented by auditing personnel, and reported to/reviewed by management having responsibility for the area audited. Conditions requiring prompt corrective action shall be reported immediately to management of the audited organization.
- Identified audit findings shall be documented and the audited organization shall correct the findings according to the requirements of Section 16, Corrective Action. Minor audit findings can be corrected during the conduct of the audit.

REPORTING AUDIT RESULTS

The audit report shall be prepared and signed by the audit team leader and issued to the management of the audited organization in a timely manner after completion of the audit.

The audit report shall include the following information:

- A description of the audit scope.
- Identification of the auditors.
- Identification of persons contacted during the audit.
- A summary of audit results and the documents reviewed, persons interviewed and the specific results of the reviews and interviews (i.e., a summary of the checklist contents).

- Statement as to the effectiveness of the implementation of the QA Program elements audited.
- A description of each reported adverse audit finding in sufficient detail to enable corrective action to be taken by the audited organization.
- A requested date for response by the audited organization.

RESPONDING TO AUDITS

Management of the audited organization or activity shall:

- Investigate adverse audit findings in a timely manner;
- Determine and schedule corrective action, including measures to prevent recurrence;
- Prior to or by the requested response date, notify the LES QA Director in writing of the actions taken or scheduled, according to the requirements of Section 16 Corrective Action.

EVALUATING AUDIT RESPONSES

The LES QA Director is responsible for evaluating audit responses.

FOLLOW-UP ACTION

Follow-up action shall be taken by the LES QA Director to verify that:

- Corrective actions are completed as scheduled according to the requirements of Section 16 Corrective Action.

RECORDS

- Audit records include audit plans and audit reports.
- Written replies and the record of completion of any required corrective actions.

These documents are QA records and shall be submitted to the LES Records Center for retention according to the requirements of Section 17, Quality Assurance Records.

NON-LES AUDITOR QUALIFICATIONS

Non-LES certified auditors may be used to perform audits and surveillances provided the LES QA Director confirms and documents applicable QAPD requirements have been met and the individual has been certified in accordance with the QA procedure on auditor qualification and certification.

SECTION 19 PROVISIONS FOR CHANGE

This QAPD is reviewed and revised as necessary to reflect any changes that occur during the design, construction, operation, including maintenance and modifications, and decommissioning phases. In addition, this QAPD is revised when corrective actions, regulatory, organizational, or work scope changes warrant changes to the LES QA Program. The LES QAPD is maintained current through design, construction, operation and decommissioning of the facility. The LES QAPD is kept current as the design, construction, operation, and decommissioning activities progress, and appropriate changes are made based on any of the following:

- Lessons learned from audit and assessment findings,
- Program improvements identified from analysis of trends, and
- Changes due to regulations, commitments, reorganizations, revised project schedule, or program improvements from continuous review of assessment results and process improvement initiatives.

Changes to the LES QA Program shall be incorporated in this QAPD and submitted to the NRC within 30 days of implementation prior to and after NRC issuance of the License. Any changes that reduce commitments in the approved QAPD, including those commitments that address the safety program and integrated safety analysis regulatory requirements, as well as the QA Level requirements in this QAPD, will be submitted to the NRC for review and approval prior to implementation.

SECTION 20 QUALITY ASSURANCE PROGRAM FOR QA LEVEL 2

LBDCR-07-0027

This section outlines LESdefined Quality Assurance Program for QA Level 2 requirements. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES.

LBDCR-07-0027

An International Organization for Standardization (ISO) 9000 series QA program is acceptable for QA Level 2 applications provided it complies with LES QAPD requirements and the ISO program is reviewed and approved by the LES QA Director.

QA Level 2 program activities are those activities that do not meet the requirements for inclusion in the QA Level 1 program, but have attributes or characteristics that warrant control under a quality program more detailed than the QA Level 3 program. QA Level 2 requirements are applied to activities and SSCs for the following reasons:

- To minimize the adverse consequences of radiation to the worker, public and the environment after initiation of accidents involving licensed material or their byproducts.
- To minimize the adverse consequences of hazardous chemicals produced from licensed material, such as UF_6, to the worker, public and the environment after initiation of releases or accidents.
- Other items/processes that management decides are a good practice.

LBDCR-07-0027

ORGANIZATION

The organization, lines of responsibility and authority are clearly established and documented.

PERSONNEL QUALIFICATIONS

Measures are established to provide for indoctrination and training of personnel to ensure suitable proficiency is achieved and maintained. Where specific qualifications are required by codes and standards, measures shall be taken to document the qualifications.

PROCEDURES

Work activities are performed in accordance with written procedures. Procedures shall contain the appropriate criteria for determining that prescribed activities have been satisfactorily accomplished.

DOCUMENT CONTROL

Procedures are established to ensure that appropriate documents are properly initiated, changed, and controlled to prevent use of incorrect or superseded documents.

DESIGN CONTROL

The design shall be defined, controlled, and verified. Applicable design inputs shall be appropriately specified on a timely basis and correctly translated into design documents. Design interfaces are identified and controlled. Design adequacy is verified by persons independent of those who performed the design. Design changes are governed by control measures commensurate with those applied to the original design. Design of systems,

structures or components may be verified by the development and service testing of hardware similar to the equipment to be used in the facility. Installation and use of this type of equipment requires approval of LES management.

CONTROL OF PURCHASED ITEMS AND SERVICES

Measures are established to ensure conformance with the specified requirements. Measures are established to ensure suppliers of materials, equipment, or services are capable of supplying these items to the quality specified in the procurement documents. This may be done by evaluation and approval of the supplier's products and facilities or audits of the supplier's quality program.

CONTROL OF PROCESSES, MEASURING AND TEST EQUIPMENT

Processes affecting quality of items or services are controlled. Special processes such as welding, heat treating, and nondestructive examination shall be performed by certified personnel using certified procedures in accordance with specified requirements. To maintain accuracy within specified limits, the LES QA Program requires that devices (e.g., tools, gauges, instruments), and measuring and test equipment including process-related instrumentation and controls that are used in activities affecting the quality of items, are properly controlled, calibrated, and adjusted at specified periods in accordance with written procedures.

INSPECTIONS

Inspections required to verify conformance of an item or activity to specified requirements are planned and executed. Characteristics to be inspected and inspection methods to be employed are specified. Inspection results are documented. Inspections for acceptance are performed by persons other than those who performed the work being inspected.

NONCONFORMANCES AND CORRECTIVE ACTION

Measures are established so conditions adverse to required quality are promptly identified and corrected. Controls are established to prevent inadvertent installation or use of items that do not conform to specified requirements.

RECORDS

Records that furnish documentary evidence of quality are specified, prepared, and maintained. Records shall be legible, identifiable, and retrievable. Records are protected against damage, deterioration, and loss. Requirements and responsibilities for record transmittal, distribution, retention, maintenance, and disposition are established and documented.

AUDITS AND ASSESSMENTS

Measures are established to verify compliance with the LES QA Program and to determine its effectiveness. The results are documented and reported to and reviewed by responsible management. Follow-up action shall be taken where indicated.

CC-EG-2001-0226
Attachment 05
Page 1 of 1

Clark Tracy (CTR)

From: Matthew Villalobos (LES)
Sent: Friday, October 19, 2007 6:17 PM
To: All-WGI; All-CTR; All-ETUS; All-LES; All-TSS; All-NTS
Subject: New Approved Procedures

Please note the following approved procedures have been uploaded into Documentum and are available for use.

1. Index Revision 76
2. EG-101-104 Revision 2 – Commercial Grade Dedication Process
3. EG-102 Revision 4 – Design Change Request
4. IT-121 Revision 1 – Software Qualification
5. IT-123 Revision 0 – Software License Compliance
6. OP-103 Revision 0 – Lockout and Tagout
7. PR-101 Revision 3 – LES Control of Procurement

Matthew Villalobos
Document Control Clerk
Louisiana Energy Services
275 Highway 176
Eunice, NM 88231
Tel: +1 505 394 5264
Email: mvillalobos@nefnm.com
Web: www.nefnm.com

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Request for Additional Information

Facility Change Packages Requested for LES National Enrichment Facility

Facility Change Package ID	Description
2006-0069	Evaluate Design Change CC-EG-2006-0033, for the interruptible power supply and backup generator.
2007-0075	Evaluate Design Change CC-EG-2007-0061, which removes the Product Take-Off System and the Blending System heat trace from the diesel powered backed power supply.
2007-0077	Evaluate Design Change CC-EG-2007-0056, which provides for additional security doors for SBM-1001.
2007-0104	Evaluate Design Change CC-EG-2007-0085, which changes the water supply to the site to Eunice.
2007-0195	Evaluate Design Change CC-EG-2006-0073, which revised the HVAC system in the CAB.
2007-0208	Evaluate Design Change CC-EG-2007-0226, which revises the Quality Assurance Program Description to clarify the definitions of Quality Level 1 and Quality Level 2.
2007-0244	Evaluate Design Change CC-EG-2007-0189, which specifies the types of temperatures sensors that will be used.
2007-0273	Evaluate Design Change CC-EG-2007-0232, which involves Calculation 114489-M-0006-02, Water Balance.

Configuration Change Number: CC-EG-2006-0073 **Revision:** 0

Configuration Change Title: HVAC Design Changes for Centrifuge Assembly Building (CAB)

Section 1: Configuration Change (CC) Initiation

Type of Configuration Documents to be Issued or Revised (Refer to Attachment 1 of EG-101)
☐ None ☐ Urenco ☐ NTS ☐ AREVA ☒ LES ☐ Other (specify) _____

A. List the document(s) that this CC applies to and attach any marked up or new documents to this form.

ISAS Sections 3.3.1.4.2.4, 3.4.10.3, 3.5.1.1.9, 3.5.4.4.1, ER Section 2.1.2.3.5, 3.12.1.2, 4.6.2.2, EP Section 1.2.1. (Markups attached)

The following drawings are affected by the proposed change:

- ISAS Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System.
- ISAS Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System.
- ISAS Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System.
- ISAS Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.
- ISAS Figure 3.5-23, Process Flow Diagram Boilers and Hot Water Distribution System.
- ISAS Figure 3.4-19, Process Flow Diagram Centrifuge Test and Post Mortem Facilities Exhaust Filtration System
- SAR Figure 1.1-11, Centrifuge Assembly Building First Floor

See attachment for additional information.

B. Description of Change: (Provide a brief concise description of the proposed change that affects the document(s) identified in item A above.)

DCC NEF-2005-0045 proposed to revise the design of HVAC systems serving the CAB to bring the system into line with the Urenco requirements for cooling, redundancy and design temperatures per TTP UPD/0200548B.

DCC NEF-2006-0060 amends the requirements of TTP UPD/0200548B for design of the HVAC systems serving the CAB.

C. Purpose/Reason for Change: (Describe the technical basis for the change and why it is being proposed, i.e., to support Release for Construction, issuance of new or revised Configuration Document, etc.)

DCC NEF-2005-0045: The proposed changes will correct the conceptual HVAC design by aligning the systems to meet the required redundancies, cooling loads, and the Technology Transfer Package (TTP) design temperatures. The design provides stand-alone HVAC systems to support building operation prior to commissioning of other buildings.

DCC NEF-2006-0060: The HVAC requirements from the TTP are amended to fit with the latest ETC centrifuge assembly practice.

D. Impact of Change: (Describe any known or anticipated impacts on the Safety Program, HS&E Programs, Support Services Programs, or License Basis Configuration Documents. Refer to Attachment 2 of EG-101 for additional guidance.)

The following Licensing Basis Document revisions are required as a result of the changes proposed by DCC NEF-2005-0045:

- ISAS Section 3.5.1, Building Ventilation, subsection 3.5.1.1.9 is impacted by the change in design of the HVAC system for the CAB. The CAB HVAC System description will be revised per the attached markup.
- ISAS Section 3.5.4, Water Supply, subsection 3.5.4.4.1, Hot Water System, is impacted as the changes to the CAB HVAC replaces hot water heating with electric heating. This subsection will be revised per the attached markup.
- ER Sections 3.12.1.2 and 4.6.2.2 are impacted by changes in the Centrifuge Test Facility Exhaust Filtration System. The description will be revised per the attached markup.
- Emergency Plan Section 1.2.1, Gaseous Effluent Vent System, is impacted by changes in the Centrifuge Test Facility Exhaust Filtration System. The description will be revised per the attached markup.
- Revise the following diagrams to reflect the proposed changes to the CAB HVAC Systems (Action Item AI-07-000002):

Configuration Change Number: CC-EG-2006-0073 **Revision:** 0

- ISAS Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System.
- ISAS Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System.
- ISAS Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System.
- ISAS Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.
- ISAS Figure 3.5-23, Process Flow Diagram Boilers and Hot Water Distribution System.

Revise the following tables to reflect the use of a refrigerant in the CAB HVAC Systems (Action item AI-07-000024):

- ER Table 2.1-1 Chemicals and Their Properties
- ER Table 2.1-3 Chemicals – Centrifuge Assembly Building (CAB)
- SAR Table 6.1-1 Chemicals – Hazardous Properties
- SAR Table 6.1-3 Chemicals – Centrifuge Assembly Building

The following Licensing Basis Document revisions are required as a result of the changes proposed by DCC NEF-2006-0060:

- Revise ISAS Sections 3.3.1.4.2.4 and 3.5.1.1.9 to reflect addition of Computer Server Room HVAC system.
- Revise ER section 2.1.2.3.5 to reflect addition of the Computer Server Room to the Building Office Area.
- Prepare a new flow diagram or modify one of the existing diagrams to reflect the addition of the proposed Computer Server Room HVAC System. (Action Item AI-07-000005)
- Revise SAR Figure 1.1-11, Centrifuge Assembly Building First Floor, to show computer server room location as indicated on drawing 114489-1300-C-ARC-002-01-1(Action Item AI-07-000023)

Preparer (Print Name/Signature): J. P. LOGATTO /	**Organization/Mail Stop/Telephone No./E-mail** Design Engineering/Cherry Hill/856-482-3092/jlogatto@nefnm.com	
FAM	Signature: Mark A. Scanlan	Date: 07 MAR 2007

Section 2: Disposition of Configuration Change Request

☒ A. Section 1 is complete and acceptable.

☒ B. Interdisciplinary reviews required (Preparer/FAM check all that apply). Route Configuration Change to :

- ☒ HS&E
- ☒ Licensing
- ☐ Production
- ☐ Quality Assurance
- ☒ Support Services
- ☒ Technical Services

C. Configuration Change Applicability:

☐ Proposed change does not constitute a Configuration Change and is rejected (provide basis below). Route copy to preparer and original to Records Management. NA all remaining sections of the CC Form.

☒ Proposed change is a Configuration Change and identified Interdisciplinary Reviews are correct. (If additional reviews are needed, check applicable box(es) and note reason for addition in Comments.)

Comments (basis):

Configuration Change Number: CC-EG-2006-0073	Revision: 0
CM Coordinator (Print Name/Signature): CLARK TRACY / Clark Tracy 3/13/07	Organization/Mail Stop/Telephone No./E-mail: Technical Support / Cherry Hill / 856 482 3084 / ctracy@nefsm.com

Section 3: Disposition of Interdisciplinary Reviews

☑ Comments resolved or none.

☐ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Preparer	Signature: P Logout / [signature]	Date: 3/13/07
FAM	Signature: Mark A. Scanlan	Date: 13MAR2007

Section 4: Disposition of 70.72(c) Evaluation and SRC Review

☐ 70.72(c) Evaluation and SRC Review not required (Change does not impact Licensing Basis) OR

☐ 70.72(c) Evaluation Complete and SRC Review not required OR

☒ 70.72(c) Evaluation Complete and SRC Review Complete. CNF 12/19/07 Paul E Ferrari 12/19/07 delegate for 12/19/07 RW Schrader

☒ Comments resolved or none. PEF 7/29/08

☒ Comments partially resolved, proceed as described. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below.

☐ CC is not acceptable, cancel CC.

Comments (basis):

Outstanding Issues Tracked by CR-07-0265*

*CR-07-0265 is closed. PEF 7/29/08

Paul E Ferrari 7/29/08

Preparer	Signature: Paul E Ferrari	Date: 28 Sep. 07
FAM	Signature: Mark A Scanlan for R W Schrader per delegation	Date: 28-SEP-2007

Mark A. Scanlan 29 JUL 2008

Configuration Change Number: CC-EG-2006-0073		**Revision:** 0
Section 5: Release for Implementation		
NRC (or other regulatory approval) ☐ Required ☐ **NOT** Required prior to implementation. ☒ CC Released for Full Implementation as described: Any outstanding issues tracked as noted. ☒ CC Released for Partial Implementation. Outstanding issues required prior to full implementation are to be tracked by Condition Report (CR). Identify CR number in Comments below. MAS 7/29/08 ☐ CC is not acceptable, CANCEL or HOLD CC as noted. Comments (Basis): CR-07-0265 TRACKS THE OPEN ITEMS. PER NOTE IN SECT 4, THIS CR IS CLOSED.		
FAM	Signature: Mark A. Scanlan	Date: 29 JUL 2008
Section 6: Configuration Change Closeout		
☒ A. The Configuration Change has been satisfactorily implemented. Evidence demonstrating Configuration Documents have been revised is attached or issued as noted. ☐ B. The Configuration Change has not been implemented. The basis for this decision is described below. Comments (as applicable): Memo from Licensing states Implemented Pending Figures. Figures Provided. CAT		
Preparer	Signature: Clark Tracy for Joe Lagotto (No longer with Project)	Date: 8/1/2008
CM Coordinator	Signature: Clark Tracy	Date: 8/1/2008
Forward to Records Management (CM Coordinator).		

DCC NEF-2005-0045

Scope/Description

NTS proposes to revise the design of the HVAC systems serving the CAB.

The proposed changes will correct the conceptual HVAC design by aligning the systems to meet required redundancies, cooling loads and Technology Transfer Package (TTP UPD/0200548B) design temperatures. This design provides a stand-alone HVAC system to support building operation prior to commissioning of other buildings including the CUB.

Impact Assessment

ISAS Section 3.4.10 Centrifuge Test and Post Mortem Facilities, subsection 3.4.10.3.2, Major Components is impacted by the changes in the Exhaust Filtration System.

ISAS Section 3.5.1, Building Ventilation, subsection 3.5.1.1.9 is impacted by the change in design of the HVAC system for the CAB. The CAB HVAC System description, system interfaces, operation and safety considerations will be revised.

ISAS Section 3.5.4, Water Supply, subsection 3.5.4.4.1, Hot Water System, is impacted as the changes to the CAB HVAC replaces hot water heating with electric heating.

ISAS Section 3.5.5, Cooling Water Systems, subsection 3.5.5.1, HVAC Cooling Water System, is not impacted by the new design since the section does not include details of the CAB HVAC system. No revisions to this section are required as a result of this change.

Emergency Plan Section 1.2.1, Gaseous Effluent Vent System, is impacted by changes in the Centrifuge Test Facility Exhaust Filtration System.

The following drawings are affected by the proposed change: ***(Action Item AI-07-000002)***

- ISA Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System.
- ISA Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System.
- ISA Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System.
- ISA Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.
- ISA Figure 3.5-23, Process Flow Diagram Boilers and Hot Water Distribution System.
- ISAS Figure 3.4-19, Process Flow Diagram Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

The following tables are affected by the proposed change to use of refrigerant in the CAB HVAC units: ***(Action Item AI-07-0000024)***

- ER Table 2.1-1 Chemicals and Their Properties
- ER Table 2.1-3 Chemicals – Centrifuge Assembly Building (CAB)
- SAR Table 6.1-1 Chemicals – Hazardous Properties
- SAR Table 6.1-3 Chemicals – Centrifuge Assembly Building

Design Change Control

Project:	National Enrichment Facility	ID Number	NEF-2005-0045
Originator:	Mansour Mojibian	Date:	Jan / 04 / 06
Supervision:	S Wright	Date:	1/5/06
Project Management:	C Cronan, NTS	Date:	1/10/06
Proposed Change Title:	Develop HVAC Design Changes for Centrifuge Assembly Building (CAB)		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☒ QA Level 2 ☐ QA Level 3 ☒

Description:

NTS proposes to revise Lockwood Greene design of HVAC systems serving the CAB in accordance with the attached sheets. The proposed changes were previously reviewed by Phil Hale and Dan Green.

Reason for change:

The proposed changes will correct the present conceptual HVAC design by aligning the systems to meet required redundancies, required cooling loads and, TTP design temperatures. This design provides stand-alone HVAC system to support building operation prior to commissioning of other buildings including the CUB..

Safety / Environment	☐
Correction	☒
Improvement	☐

Drawings/Documents Affected (including License Application and ISA Summary):

Section 3.5.1.1.9 of the Integrated Safety Analysis Summary describes HVAC system for the CAB. Section 3.5.1.3 describes system interfaces. Section 3.5.1.4 describes Operation Characteristics. Section 3.5.1.5 describes Safety Considerations. Section 3.5.5.1, HVAC Cooling Water System describes the chilled water system for the HVAC cooling coils. Section 3.5.4.4 Hot Water System describes the hot water generation and distribution of hot water.

The following figures may be affected by the proposed changes.

- Flow Diagram, Centrifuge Component Storage Area HVAC System, Dwg No 1300-H-1000 (ISA Figure 3.5-12)
- Flow Diagram, Offices & Miscellaneous Rooms HVAC System, Dwg No 1300-H-1001 (ISA Figure 3.5-14)
- Flow Diagram, Centrifuge Assembly Building HVAC System, Dwg No 1300-H-1002 (ISA Figure 3.5-15)
- Flow Diagram, Centrifuge Storage & Misc Areas HVAC System, Dwg No 1300-H-1003 (ISA Figure 3.5-13)

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*
Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

THE ATTACHED SCHEME HAS BEEN AGREED BY B LOWNIE & PHALE AND ACCEPTED FOR FUTURE DEVELOPMENT. THE DEVELOPED DESIGN OUTPUT WILL NEED TO BE CHECKED AGAINST THE CORE PLANT / ETC DESIGN.

Name	P HALE	Position	MECH / PROCESS LEAD ENG	Signature		Date	11/1/06 (+5)

Part 3 – Disposition

Disposition (check appropriate) **Approved ☐ Rejected ☐**

	Name	Position	Signature	Date
LES				(+6)
Urenco				(+6)
Disposition Approved:		LES Vice President – Project Management		(+7)

Part 4 - Implementation

Implementation by:		LES	☐
		NTS	☐
		Urenco	☐
Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

pproved:	Name		Signature		Date	(+10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*

Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

ISA Impact – None

Name	David M Pope	Position	ISA Scribe	Signature		Date	1/11/06 (+5)

Part 3 – Disposition

Disposition (check appropriate) **Approved** ☒ **Rejected** ☐

	Name	Position	Signature	Date
LES	Dan Green	Licensing		1/11/06 (+6)
Urenco	P MALE	DESIGN	FOR A BEDNAR	1/11/06 (+6)
Disposition Approved:	M Lynch	LES Vice President – Project Management		1/11/06 (+7)

Part 4 - Implementation

Implementation by:		
	LES	☐
	NTS	☒
	Urenco	☐

Implementation Schedule:			
	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☒
	b.	Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.	☐
	c.	Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.	☐

Approved:	Name	R M Krich	Signature		Date	1/23/06 (+10)

LES Vice President – Licensing, Safety, and Nuclear Engineering

Part 5 – Distribution (with Part 2 Assessments attached)

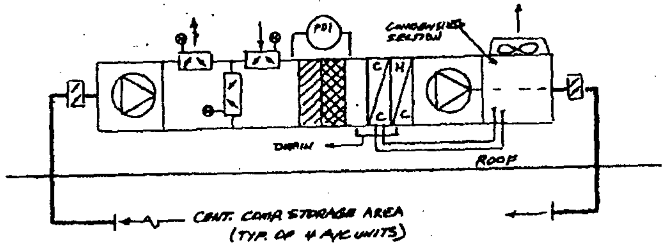
(Include originator, Assessors, Approvers, and File)

(+x) – Elapsed Time Goal in Calendar Days

CAB

Mansour Mojibian 10/30/05
R Sh... 11/3/05

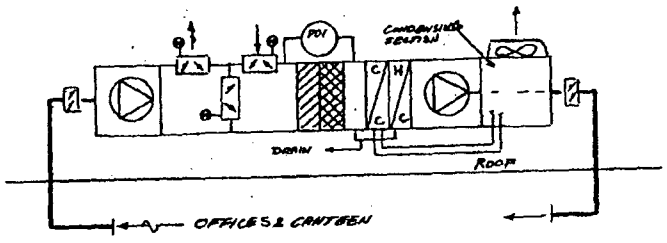
CAB (2- 8's Cascades)				
Centrifuge Component Storage Area				
Design Features	Design Basis	Recommended by LES- June, 05	URENCO TTP	Proposed -Septembe,05 and beyond
Temperature (max)	95°F(35°C)		18-35°C(65-95°F)	95°F(35°C)- This is based on outdoor max temperature of 101°F(38.3°C) which is ASHRAE 1% value and the maximum estimated heat loads for equipment.The space thermostat that controls the A/C units will be set at 75°F to 80°F. Majority of times these area will be maintained between 75°F and 80°F.
Temperature (min)	65°F(18°C)		65°F(18°C)	65°F(18°C)
Relative Humidity	40% Design Point		70% RH max (above items are from UPD02005468)	70%RH max
No. of Units	2 - 50% units			4 - 25% units
Capacity of each unit	10,750 cfm			4,000 cfm (Estimated, to be confirmed)
Required Cooling	17.5 tons			10 tons
Required Heating	90.4 kw			30kw (Estimated, to be confirmed)
Cooling Load (total)	35 tons			40 tons (Estimated, to be confirmed).
Heating Load (total)	180.8 kw			120kw (Estimated, to be confirmed)
System description	The HVAC System for the Centrifuge Component Storage Area consists of two 50% capacity A/C units and two 50% return/exhaust fans with ductwork, dampers and controls. Each A/C unit consists of pre-filters, medium efficiency and high efficiency filters, chilled water cooling coils, hot water heating coils, water spray humidifier, and a supply fan. This area is maintained at atmospheric pressure by balancing the supply flow with the leakage, exhaust and recirculated airflow rates.			The proposed HVAC system for this area consists of 4-25% capacity A/C units each designed with30% and 80% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Each unit will be ducted for distribution. Minimum outside air will be provided for ventilation.
Redundancy	Not provided			4-25% units
Economizer Section	Economizer capability is provided for each unit to provide 100% outside air when needed.			Economizer is Provided to utilize cooling by outside air during mild outdoor conditions.
IROFS	None			None
Temp / Humidity Control				Each A/C unit will have its dedicated temperature controller located in the representative area.
Heating Source	Hot water			Electric
Cooling Source	Chilled water			D/X - Roof mounted condensing units.
Condensate Drain	Not provided			Discharged on the roof.
Occupancy	24			6 (Estimated, to be confirmed)
Air Change	4			0.05cfm/ft² - This is approximately 2,200 cfm (Estimated, to be confirmed)
Constructability	Not provided			Access to roof is available
Maintainability	Not provided			Access to roof is available
2-12's Cascades				No impact



NEF-2005-0045

Mansour Mojibian 10/3/05
R. S. Burke 11/3/05

Office, Canteen, Change Area & Entrance Areas				
Design Features	Design Basis	Recommended by LES- June, 05	URENCO TTP	Proposed -Septembe,05 and beyond
Temperature (max)	72°F±3.6°(22°C±2°C)			77°F(25°C)- This is based on outdoor max temperature of 101°F(38.3°C) which is ASHRAE 1% value and the maximum estimated heat loads for equipment and transmission. The space thermostat that controls the A/C units will be set at 72 to 75°F.
Temperature (min)	72°F±3.6°(22°C±2°C)			65°F(18°C)
Relative Humidity	40% Design Point			RH not controlled
No. of Units	1			1
Capacity of each unit	9,200 cfm			10,000 cfm (Estimated, to be confirmed)
Required Cooling	23 tons			31 tons (Estimated, to be confirmed)
Required Heating	16.7 kw			21kw (Estimated, to be confirmed)
Cooling Load (total)	23 tons			31 tons (Estimated, to be confirmed)
Heating Load (total)	16.7 kw			21kw (Estimated, to be confirmed)
System description	The Office Area HVAC System consists of one 100% capacity A/C unit with two 50% capacity supply fans and two 50% capacity return/exhaust fans with ductwork, dampers and controls. The A/C unit consists of pre-filters, medium efficiency and high efficiency filters, chilled water cooling coils, hot water heating coils, water spray humidifier, and a supply fan with ductwork, dampers and controls.			The proposed HVAC system for this area consists of one 100% capacity A/C units each designed with30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Minimum outside air will be provided for ventilation.
Redundancy	Two 100% supply and return/exhaust fans provided.			one 100% A/C units
Economizer Section	Economizer capability is provided for each unit to provide 100% outside air when needed.			Economizer is Provided to utilize cooling by outside air during mild outdoor conditions.
IROFS	None			None
Temp / Humidity Control				Temperature controller located in the representative area will be provided to control operation of the A/C units.
Heating Source	Hot water			Electric
Cooling Source	Chilled water			D/X - Roof mounted condensing units.
Condensate Drain	Not provided			Discharged on the roof.
Occupancy	24			24 (Estimated, to be confirmed)
Air Change	4			0.1cfm/ft² - This is approximately1,500 cfm (Estimated, to be confirmed)
Constructability	Not provided			Access to roof is available
Maintainability	Not provided			Access to roof is available
2-12's Cascades				No impact



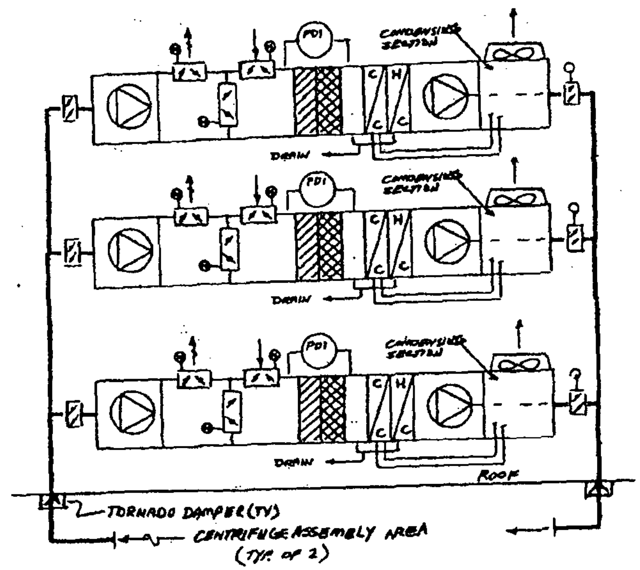
NEF-2005-0045

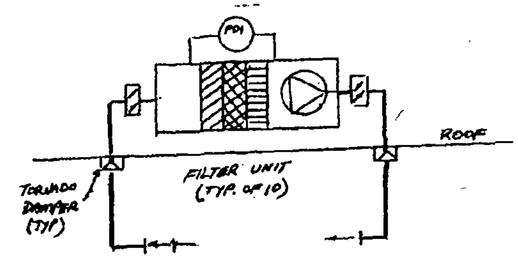
Comparison of Design Basis

CAB

Centrifuge Assembly Area				
Design Features	Design Basis	Recommended by LES- June, 05	URENCO TTP	Proposed -Septembe,05 and beyond
Temperature (max)	77°F(25°C)		18-25°C, variation 2°C per hour	77°F(25°C)
Temperature (min)	65°F(18°C)			65°F(18°C)
Relative Humidity	40% Design Point		55% RH max , Positive Pressure, Class 100,000 cleanliness (above items are from UPD0200548B)	55% max RH Positive Pressure Class 100,000 cleanliness
No. of Units	4 -25% A/C units	4 - 33% units		6 - 25% capacity A/C units. 10 - 10% capacity Filter Train
Capacity of each unit	26,205 cfm			28,000 cfm A/C units, 25000 cfm filter units(Estimated, to be confirmed)
Required Cooling	68 tons			65 tons (Estimated, to be confirmed)
Required Heating	33.1 kw			30kw (Estimated, to be confirmed)
Cooling Load (total)	272 tons			280 tons (Estimated, to be confirmed)
Heating Load (total)	132.4 kw			120kw (Estimated, to be confirmed)
System description	The Centrifuge Assembly Area HVAC System consists of four 25% capacity A/C units, twelve recirculation filter train to provide a Class 100,000 Clean Room environment, and four 25% return/exhaust fans with ductwork, dampers and controls. Each A/C unit consists of pre-filters, medium efficiency and high efficiency filters, chilled water cooling coils, hot water heating coils, water spray humidifier, and a supply fan. Each filter train consists of pre filters, medium efficiency filters, HEPA filters and a fan. A majority of the ventilation air is recirculated, and the remaining air is discharged to the outdoors. The Centrifuge Assembly Area is maintained at positive pressure.			The proposed HVAC system for this area consists of 6-25% capacity A/C units each designed with30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Minimum outside air will be provided for ventilation. Area will be maintained at positive pressure.Recirculating filter units consist of pre filters, medium efficiency filters, HEPA filters, and fans will be provided to continuously filter the Assembly Area air to ensure cleanliness level of 100,000.
Redundancy	Not provided			6-25% units proposed
Economizer Section	Economizer capability is provided for each unit to provide 100% outside air when needed.			No economizer. Adequate ventilation for the space will be provided by the selected A/C units. Since this area is a clean room, minimum outdoor air is provided.
IROFS	None			None
Temp / Humidity Control				Each A/C unit will have its dedicated temperature controller located in the representative area.
Heating Source	Hot water			Electric
Cooling Source	Chilled water			D/X - Roof mounted condensing units.
Condensate Drain	Not provided			Discharged on the roof.
Occupancy	12			12 (Estimated, to be confirmed)
Air Change	24			0.05cfm/ft² - This is approximately 2,000 cfm. This is for ventilation purpose. Air change for the cleanliness is 8 per hour as per ASHRAE 2003 Application Handbook for class 100,000 for building. This equals to 249,936 cfm approximately (25,000 cfm each filter train, proposed 10 units). (Estimated, to be confirmed)
Constructability	Not provided			Access to roof is available
Maintainability	Not provided			Access to roof is available
2-12's Cascades	No Change			No Impact

11/3/05





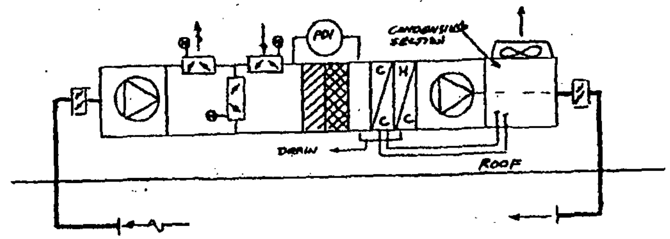
NEF-2005-0045

Comparison of Design Basis

CAB

Assembled Centrifuge Storage Area				
Design Features	Design Basis	Recommended by LES- June, 05	URENCO TTP	Proposed -Septembe,05 and beyond
Temperature (max)	77°F(25°C)	95°F (35°C)	18-35°C(65-95°F) for Assembled Cent. Storage.	18-35°C(65-95°F) for Assembled Cent. Storage.
Temperature (min)	65°F(18°C)			65°F(18°C)
Relative Humidity	40% Design Point		70% RH max for the Assembled Cent. Storage 55% max for Test Area 70%RH max for Post Mortem Area (above items are from UPD0200548B)	70% RH max for the Assembled Cent. Storage
No. of Units	2- 50% units			one- 100% units
Capacity of each unit	20,550 cfm			10,000 cfm (Estimated, to be confirmed) for storage area only
Required Cooling	30 tons			35 tons (Estimated, to be confirmed)
Required Heating	77.2 kw			75kw (Estimated, to be confirmed)
Cooling Load (total)	60 tons			35 tons (Estimated, to be confirmed)
Heating Load (total)	154.4 kw			75kw (Estimated, to be confirmed)
System description	The HVAC System for the Assembled Cent. Sto. area, Cen. Test and Post Mortem Areas consists of two 50% capacity A/C units and two 50% return/exhaust fans with ductwork, dampers and controls. This system serves the Assembled Cent. Sto. Area, Electrical Battery Charger Area, and the Centrifuge Test and Post Mortem Areas. Each A/C unit consists of pre-filters, medium efficiency and high efficiency filters, chilled water cooling coils, hot water heating coils, water spray humidifier, and a supply fan. The Centrifuge Post Mortem ventilation incorporates a filter train consisting of high efficiency filters, activated carbon filters, HEPA Bag In/Bag Out filters with redundant fans that continuously filters exhaust air and discharges to outdoors. The exhaust air is continually monitored through an alpha and Hydrogen Fluoride monitors. The Post Mortem area is maintained at a negative pressure. The remaining areas are maintained at atmospheric pressure. A Battery Room exhaust fan ventilates the electrical vehicle battery charger area.			The proposed HVAC system for this area consists of 4-25% capacity A/C units each designed with30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Supply side of each unit will be ducted for distribution. Minimum outside air will be provided for ventilation.This system serves the Assembled Centrifuge Storage Area only. This area is maintained at atmospheric pressure.
Redundancy	Not provided			one-100% A/C units
Economizer Section	Economizer capability is provided for each unit to provide 100% outside air when needed.			Economizer is Provided to utilize cooling by outside air during mild outdoor conditions.
IROFS	None for HVAC			None
Temp / Humidity Control				Each A/C unit will have its dedicated temperature controller located in the representative area.
Heating Source	Hot water			Electric
Cooling Source	Chilled water			D/X - Roof mounted condensing units.
Condensate Drain	Not provided			Discharged on the roof.
Occupancy	24			24 (Estimated, to be confirmed)
Air Change	4			0.05cfm/ft² - This is approximately 2,200 cfm (Estimated, to be confirmed)
Constructability	Not provided			To be determined later.
Maintainability	Not provided			To be determined later.
2-12's Cascades				No impact

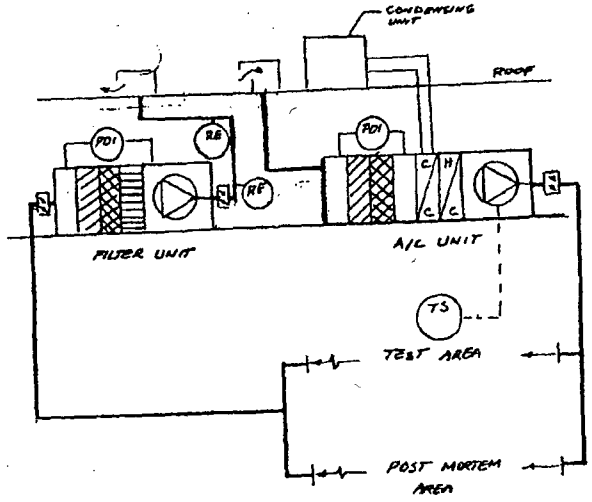
10/30/05
11/3/05



NEF-2005-0045

Maurice Mojibi 10/26/05
R. J. [illegible] 11/3/05

Post Mortem Area and Centrifuge Test area				
Design Features	Design Basis	Recommended by LES- June, 05	URENCO TTP	Proposed -Septembe,05 and beyond
Temperature (max)	77°F(25°C)		18-25°C for Test Area and Post Mortem Ambient Pressure for Test Area Negative Pressure for Post Mortem	18-25°C(65-77°F) for Test Area and Post Mortem
Temperature (min)	65°F(18°C)			65°F(18°C)
Relative Humidity	40% Design Point		55% max for Test Area 70%RH max for Post Mortem Area (above items are from UPD02005488)	55% max for Test Area 70%RH max for Post Mortem Area
No. of Units	2- 50% units	2 - 100%		one- 100% units
Capacity of each unit	20,550 cfm			5,000 cfm (Estimated, to be confirmed)
Required Cooling	30 tons			10 tons (Estimated, to be confirmed)
Required Heating	77.2 kw			7.5kw (Estimated, to be confirmed)
Cooling Load (total)	60 tons			10 tons (Estimated, to be confirmed)
Heating Load (total)	154.4 kw			7.5kw (Estimated, to be confirmed)
System description	See Assembled Centrifuge Storage Area System Description.			The proposed HVAC system for this area consists of one 100% capacity A/C units designed with30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. This system serves the Centrifuge Test and Post Mortem Areas.The Centrifuge Post Mortem and Test area exhaust filtration system incorporates a filter train consisting of high efficiency filters, activated carbon filters, HEPA Bag In/Bag Out filters with one fan that will filter the room air before it is discharged to outdoors. This subsystem is designed to operate in a once through configuration. The exhaust air is continually monitored through an alpha and Hydrogen Fluoride monitors. The Post Mortem area is maintained at a negative pressure. The test area will be maintained at atmospheric pressure. Ventilation for the Battery Area will be investigated and designed to comply with NEF commitments.
Redundancy	Not provided			one-100% A/C units
Economizer Section	Economizer capability is provided for each unit to provide 100% outside air when needed.			Constnat supply air is needed since there will be constant exhaust air through the filter unit.
IROFS	None for HVAC			None
Temp / Humidity Control				The A/C unit will have its dedicated temperature controller located in the representative area.
Heating Source	Hot water			Electric
Cooling Source	Chilled water			D/X - Roof mounted condensing units.
Condensate Drain	Not provided			Discharges outdoors.
Occupancy	24			2 (Estimated, to be confirmed)
Air Change	4			Since this area is not in use majority of times, no outside air is provided directly, Air will be infiltrated in this area since it will be at a lower pressure than the surrounding areas.
Constructability	Not provided			Access to this area is available
Maintainability	Not provided			Access to this area is available
2-12's Cascades				No Impact



NEF-2005-0045

DCC NEF-2006-0060

Scope/Description

The HVAC requirements from the Technology Transfer Package (UPD/0200548B) have been amended to fit with the latest ETC centrifuge assembly practice. A summary of these changes combined with additional detailed information to be used as HVAC design input is given below:

1. Centrifuge Assembly Area

   1.1 The area shall be controlled between 18 deg C and 22 deg C with a maximum temperature change of 1 deg C per hour. The previous requirement recorded in UPD/0200548B was 18 to 25 with no temperature change limitation.

   1.2 The minimum humidity level is 25% with a set point of 40%. The maximum shall be 55%. The previous requirement recorded in UPD/0200548B had no minimum limitation and no specified set point.

   1.3 The maximum heat load has been increased from 35kW to 61kW per assembly area. Table 1 & 2 of the calculations (attached to the DCC) combined with ETC layout drawing 1355-201-001 F shows the position of all the relevant heat loads. Note that the degas cell cooling can be combined in a manifold to reduce the number of roof penetrations according the NTS illustration attached. It must be noted that the duct capacity must be sufficient to allow two degas cells to vent simultaneously.

   1.4 Between NTS and ETC it was decided to revision the supply and return ventilation air to provide directional air flow from top to bottom. The return air will be drawn off as low as possible along both long sides of room 121 and 122. A false ceiling just below the trusses will be introduced to facilitate a controlled down flow of conditioned air. Ceiling panels typically could be 300x1 800mm perforated steel plate (diam. 2mm, 21% perforation), acoustic 100% close sealed isolation (thickness 30 mm) (see www.chicagometallic.com)
   Remark: when degas cells are vented an extra amount of 5000m^3/h up to 1 0000m^3/h (2 cells) will be exhausted. Therefore extra air should be supplied to maintain pressure in the rooms.

   1.5 Re-position the HVAC duct to account for the latest layout of the CAB equipment shown on ETC drawing 1355-201 - 001 F. The degas cells, will be positioned such that there will be a space of six inches left between them. The HVAC contractor will be responsible for connecting the building HVAC ductwork up to the degas cells and then between the degas cells in such a way as to ensure correct circulation of the HVAC air.

   1.6 The function of the south side assembly area (121) has been changed to allow cascade piping assembly modules to be welded before they are installed in the separation building modules. For design purposes, a heat load of 61 kW (similar to 122) with the same temperature and humidity control requirements shall be used for this area HVAC design. However, it is proposed to use the same HVAC units as the north side of the area but the clean room filter units can be blanked or omitted during the assembly of piping. The filter units can be commissioned at a later date if the south side assembly area is utilized for centrifuge assembly.

   1.7 A server room is needed because ETC requires a restricted network. The HVAC and other requirements are specified in functional specification ETC4037562.

2. Centrifuge Transport Corridor

   2.1 This area will not normally be used to store finished centrifuges. When the area is used as a temporary buffer, the temperature shall be controlled to a maximum temperature of 35 deg C with a minimum of 18 deg C. The air changes can be kept to a minimum arid it is acceptable to provide heating/cooling with no redundancy.

Note that the corridor shall have normal operational lighting levels (NTS to advise). This area does not require special clean room conditions similar to the assembly area of the CAB. Filtration similar to other areas of the separations plant can be used as a design basis

Impact Assessment

The design parameters for the Centrifuge Assembly Area (ISAS Section 3.5.1.1.9) are impacted by the additional requirements imposed by DCC NEF-2006-0060, items 1.1 & 1.2. Specifically, the temperature and relative humidity limits are changed.

The addition of a Computer Server Room and required HVAC (item 1.7) will require revision of ISAS sections 3.3.1.4.2.4, 3.5.1.1.9, and ER Section 2.1.2.3.5. A new flow diagram or modification one of the existing diagrams will be required to reflect the addition of the proposed Computer Server Room HVAC System. ***(Action Item AI-07-000005).***

SAR figure 1.1-11 will be revised to indicate location of the server *room* ***(Action Item AI-07-000023)***

The HVAC System proposed for the Centrifuge Transport Corridor (item 2.1) is part of the CRDB HVAC and does not impact the CAB HVAC system.

Attachment 1
Design Change Control Form
Page 1 of 2

LES Design Change Control

Project:	National Enrichment Facility	ID Number	NEF- 2006-0060
Originator:	A. Bakker (ETC) per telecon with Allan Brown PDonnell 11/20/06	Date:	11/14/06 (+0)
Supervision:	K. Dreves (ETC) per telecon with Allan Brown PDonnell 11/20/06	Date:	11/14/06 (+1)
Project Management:	N/A per telecon with Allan Brown PDonnell 11/20/06	Date:	(+1)
Proposed Change Title:	Revision of HVAC systems		

Part 1 – Proposal
Detail proposed change:

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

The HVAC requirements from the Technology Transfer Package (UPD/0200548B) have been amended to fit with the latest ETC centrifuge assembly practice. A summary of these changes combined with additional detailed information to be used as HVAC design input is given below;

1. Centrifuge Assembly Area
1.1 The area shall be controlled between 18 degC and 22 degC with a maximum temperature change of 1 degC per hour. The previous requirement recorded in UPD/0200548B was 18 to 25 with no temperature change limitation.
1.2 The minimum humidity level is 25% with a set point of 40%. The maximum shall be 55%. The previous requirement recorded in UPD/0200548B had no minimum limitation and no specified set point.
1.3 The maximum heat load has been increased from 35kW to 61kW per assembly area. Table 1 & 2 of attached calculations combined with ETC layout drawing 1355-201-001 F shows the position of all the relevant heat loads. Note that the degas cell cooling can be combined in a 'manifold' to reduce the number of roof penetrations according the NTS illustration attached. It must be noted that the duct capacity must be sufficient to allow two degas cells to vent simultaneously.
1.4 Between NTS and ETC it was decided to revision the supply and return ventilation air to provide directional air flow from top to bottom. The return air will be drawn off as low as possible along both long sides of room 121 and 122. A false ceiling just below the trusses will be introduced to facilitate a controlled down flow of conditioned air. Ceiling panels typically could be 300x1800 mm perforated steel plate (diam. 2mm, 21% perforation), acoustic 100% close sealed isolation (thickness 30 mm) (see www.chicagometallic.com)
Remark: when degas cells are vented an extra amount of 5000m3/h up to 10000m3/h (2 cells) will be exhausted. Therefore extra air should be supplied to maintain pressure in the rooms.
1.5 Re-position the HVAC duct to account for the latest layout of the CAB equipment shown on ETC drawing 1355-201-001 F. The degas cells, will be positioned such that there will be a space of six inches left between them. The HVAC contractor will be responsible for connecting the building HVAC ductwork up to the degas cells and then between the degas cells in such a way as to ensure correct circulation of the HVAC air.
1.6 The function of the south side assembly area (121) has been changed to allow cascade piping assembly modules to be welded before they are installed in the separation building modules. For design purposes, a heat load of 61 kW (similar to 122) with the same temperature and humidity control requirements shall be used for this area HVAC design. However, it is proposed to use the same HVAC units as the north side of the area but the clean room filter units can be blanked or omitted during the assembly of piping. The filter units can be commissioned at a later date if the south side assembly area is utilized for centrifuge assembly.
1.7 A serverroom is needed because ETC requires a restricted network. The HVAC and other requirements are specified in functional specification ETC4037562.
2. Centrifuge Transport Corridor

Part of CADB HVAC

2.1 This area will not normally be used to store finished centrifuges. When the area is used as a temporary buffer, the temperature shall be controlled to a maximum temperature of 35 degC with a minimum of 18 degC. The air changes can be kept to a minimum and it is acceptable to provide heating/cooling with no redundancy. Note that the corridor shall have normal operational lighting levels (NTS to advise). This area does not require special clean room conditions similar to the assembly area of the CAB. Filtration similar to other areas of the separations plant can be used as a design basis.

Reason for change:

1.1 When the operating temperature is kept within the range of 18 degC and 22 degC with a maximum temperature change of 1 degC per hour, the critical assembly processes can be performed in a controlled way without continuously changing parameter settings.
1.2 With a humidity level below 25% static electricity problems are to be expected. A very low humidity level can also cause health problems for operators.
1.3 In UPD/0200548B only the heat load of the degas cells (centrifuge commissioning equipment) is mentioned. For the other centrifuge assembly equipment nothing was specified. In the meantime the details are worked out and result in a heat load of 61kW
1.4 The original design requires high air speeds to circulate the cool air through the area. This has a number of disadvantages, among others: dust recirculation, cold temperature spots in front of ductwork, draught. It will be difficult to meet the temperature specification according 1.1.
The proposed design allows the cooler conditioned air to come down like a blanket and gradually mix with the warmer air below. Present dust will be forced to the floor where it can be drawn off via the ductwork.
1.5 Due to the large dimensions and the planned positions of the degas cells, the original planned positions of the ductwork can not be maintained.
1.6 Assembly areas 121 and 122 are designated for centrifuge assembly. However with the current centrifuge assembly scenarios, immediate use of the south part of the centrifuge assembly area is not needed. Therefore this area is temporarily assigned for pipe work assembly. Pipework assembly does not require clean room conditions.
1.7 The need for a ETC server room was only recently recognized and it is required to support a restricted network.
2.1 In the current design the corridor is not provided with a HVAC system. Extreme temperatures are to be expected.

Safety / Environment ☐
Correction ☒
Improvement ☐

Drawings/Documents Affected (Including License Application and ISA Summary):

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*

Add comments and return to individuals in Part 1 Distribution by: *(Date)* (+5)

AREVA ISA SME - No ISA impacts. — ISA Summary would be impacted, as example – Section 3.5.1.1.9, Centrifuge Assembly Building HVAC System.

Name	David M Pope	Position	ISA Scribe	Signature	David M Pope	Date	12/4/06 (+5)

2.1 This area will not normally be used to store finished centrifuges. When the area is used as a temporary buffer, the temperature shall be controlled to a maximum temperature of 35 degC with a minimum of 18 degC. The air changes can be kept to a minimum and it is acceptable to provide heating/cooling with no redundancy. Note that the corridor shall have normal operational lighting levels (NTS to advise). This area does not require special clean room conditions similar to the assembly area of the CAB. Filtration similar to other areas of the separations plant can be used as a design basis.

Reason for change:

1.1 When the operating temperature is kept within the range of 18 degC and 22 degC with a maximum temperature change of 1 degC per hour, the critical assembly processes can be performed in a controlled way without continuously changing parameter settings.
1.2 With a humidity level below 25% static electricity problems are to be expected. A very low humidity level can also cause health problems for operators.
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1.4 The original design requires high air speeds to circulate the cool air through the area. This has a number of disadvantages, among others: dust recirculation, cold temperature spots in front of ductwork, draught. It will be difficult to meet the temperature specification according 1.1.
The proposed design allows the cooler conditioned air to come down like a blanket and gradually mix with the warmer air below. Present dust will be forced to the floor where it can be drawn off via the ductwork.
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1.7 The need for a ETC server room was only recently recognized and it is required to support a restricted network.
2.1 In the current design the corridor is not provided with a HVAC system. Extreme temperatures are to be expected.

Safety / Environment ☐
Correction ☒
Improvement ☐

Drawings/Documents Affected (including License Application and ISA Summary):

Distribution: LES (D. Green), Urenco (A. Brown)

Part 2 – Assessment *(By Urenco Subject Matter Expert (SME), NTS SME, and AREVA ISA SME, as required. Also includes ETC review to ensure core technology is not compromised.)*

Add comments and return to individuals in Part 1 Distribution by: (Date) (+5)

HVAC Design needs to meet NFPA 90A per SAR Section 9.3.5. Gaseous Fire suppression system needs to meet NFPA 2001, latest edition per NM Fire Code

Name	SCOTT TYLER	Position	FIRE/CODE ENGINEER	Signature	S. M. Tyler	Date	12/22/06 (+5)

Attachment 1
Design Change Control Form
Page 2 of 2

Part 3 – Disposition				*Disposition (check appropriate)* Approved ☒ Rejected ☐
	Name	Position	Signature	Date
LES	David E. Lashley TDHarney	Technical Services Director Licensing		12/4/06 (+5) 12/13/06
Urenco				(+5)
Disposition Approved:	DICK FRAZAR	LES Vice President – Project Management		12/4/06 (+7)

Part 4 - Implementation			
Implementation by:		LES For Licensing Reviews	☒
		NTS For Design	☒
		Urenco	☐
Implementation Schedule:	a.	Implement change before issuance of License (submit change to NRC prior to issuance of License).	☐
	b.	~~Hold change until after issuance of License (design documents must match the License Application and ISA Summary) and the License Application and ISA Summary are revised.~~	☐
	c.	~~Provide design documents for both designs (current license basis design and proposed design) until after issuance of License and the License Application and ISA Summary are revised.~~	☐

Approved: ✓	Name John Stobaugh	Signature	Date	(+10) 12/4/06
LES Vice President – Licensing, Safety, and Nuclear Engineering				

Part 5 – Distribution (with Part 2 Assessments attached)

(Include originator, Assessors, Approvers, and File)

Note: (+x) – Elapsed Time Goal in Calendar Days

ATTACHMENT A1-2
TABLE 1 DCC - 2006 - 0060

Heating Ventilation and Air Conditioning Additional Information
Centrifuge Assembly Building

1. Starting Points/Assumptions

- The building is in operation for 16 hours (2 shifts of 8 hours each). This will apply to equipment marked 16 hours continuous. Other equipment will be loaded for 24 hours.
- The building occupancy is 20.
- See drawing 1355-201-001 for equipment position.
- The total value is a conservative estimate based on the assumption that the peak load will occur at the peak highest daily temperature.
- Loads given are for equipment only. Additional loads should be added for lighting, sensible heat gains, solar gain and fresh air load for the operators.

Item	Load Description	Qty	16 or 24 hour operation	% operation	Load/item (kW)	Total Load (kW)
1	Welding process (item 4 on ref drg)	2	16	40%	12.1	9.7
2	Welding fume extract system (item 4 on ref drg).	1	16	80%	5.5	4.5
3	Fit spider (item 5 on ref drg) - vacuum pump extract system 3 vacuum pumps from 4 running	3	24	100%	2	6
4	Degas cell (closed - item6 on ref drg)	6	24	100%	Calc 1	13.5
5	Degas cell (open - item 6 on ref drg)	1	24	100%	Calc 2	
6	X ray (item 7 on ref drg)	2	16	4 per hr pulse for 3mins	20	8
7	X ray leak test & vacuum pump (item 7 on ref drg)	2	24	100%	4	8
8	Fill btm bearing leak test & vacuum pump (item 7 on ref drg)	6	24	100%	2	12
					Total Load (kW)	**61 + Note 1**

Note the total load is 61 kW plus the fresh air load from calculation 2.

Calculation 1 - A heat load estimate for item 4

Assumptions;

- Wall of load cells have a total of 700m^2
- Cell wall temperature is 2 to 4 deg C greater than surrounds and there is an assumption that an infinite heat source exists to maintain this delta.
- Heat to the room is by natural convection at a surface velocity of 0.5 m/s

Metaflex calculation for heat loss from 4th cell in B258 is 2.24 kW
6 degas cells = 13.5 kW
Reference ETC4024071

ATTACHMENT A2-2

TABLE 2

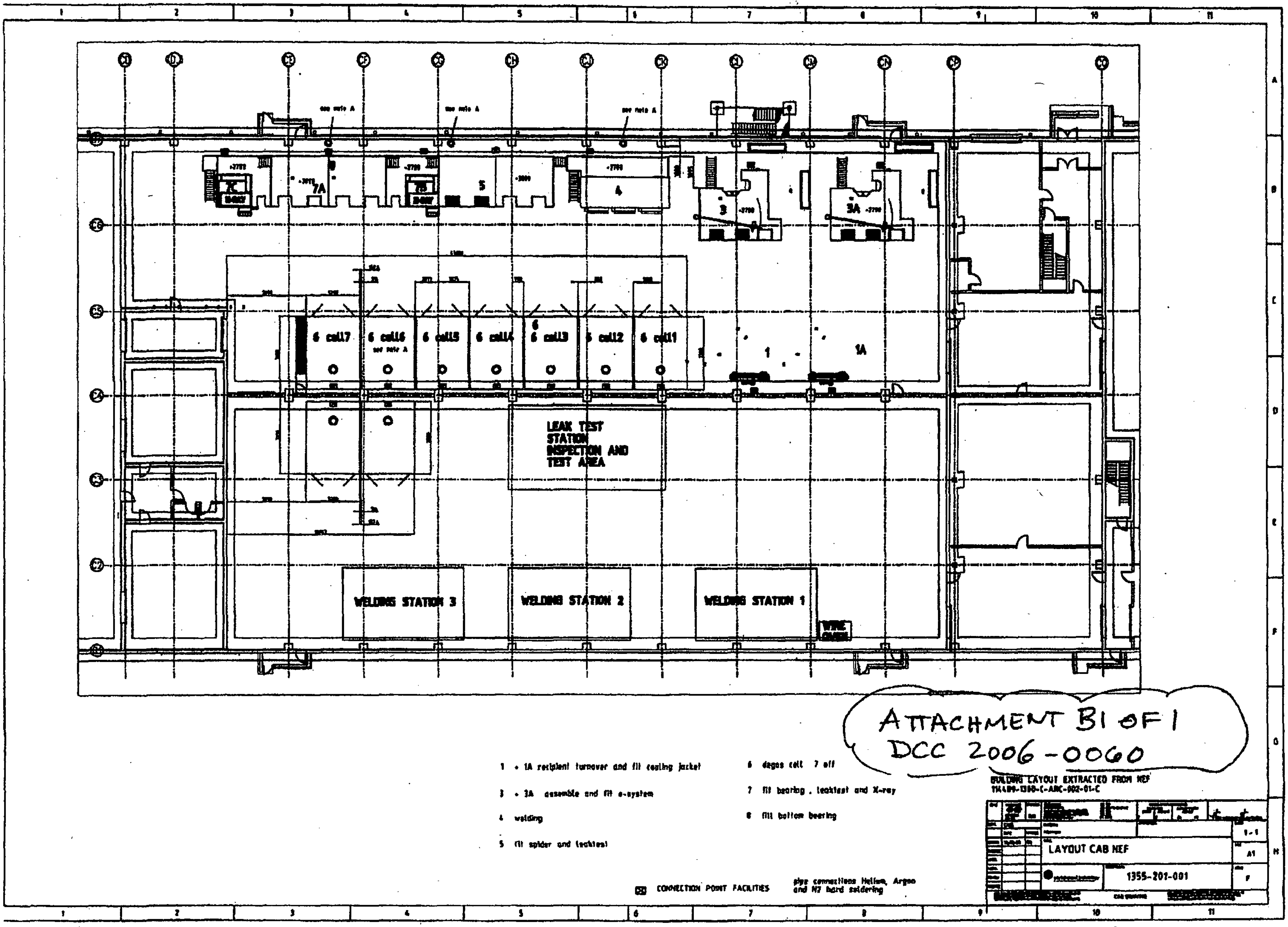
DCC-2006-00060

Calculation 2 - Degas cell heat load

Sensible heat release into CAB HVAC when degas cell doors are opened
Cell is first vented # through roof to outside of CAB until cell air temp falls to 30C
Machines are let up with nitrogen and doors opened.
Assume cell contents are still slightly warmer than the air ie at ca 35C
For one cell only

CAB is at 20C therefore temperature drop	C	15	
Machines weight -assume all aluminium	kg	15000	
Vacuum pipe work aluminium	kg	150	(estimate)
Steel pallets (10 off) total weight	kg	2810	
Steelwork, access platform, heater/fans weight	kg	2000	(estimate)
Specific heat of Aluminium	Joules/kgK	965	
Specific heat of steel	Joules/kgK	450	
Heat content of aluminium	Joules	219296250	
Heat content of steel work	Joules	32467500	
Total release due to contents cooling to 20C	Joules	251763750	
Total release per degas cell	**kWh**	**70**	

Note that the 70 kWh heat load is released from the building using a Degas cell vent fan rated at a maximum of 7500 m^3/hour. This amount of air will be required as 'make-up' air from the main ventilation system.


see note A
7C
7A
7B
5
4
3
3A
6 cell7
6 cell6
6 cell5
6 cell4
6 cell3
6 cell2
6 cell1
1
1A
LEAK TEST STATION INSPECTION AND TEST AREA
WELDING STATION 3
WELDING STATION 2
WELDING STATION 1
WIRE
1 + 1A recipient turnover and fit cooling jacket
3 + 3A assemble and fit e-system
4 welding
5 fit spider and leaktest
6 degas cell 7 off
7 fit bearing, leaktest and X-ray
8 fit bottom bearing
CONNECTION POINT FACILITIES
pipe connections Helium, Argon and N2 hard soldering
ATTACHMENT B1 OF 1
DCC 2006-0060
BUILDING LAYOUT EXTRACTED FROM NEF
LAYOUT CAB NEF
1355-201-001
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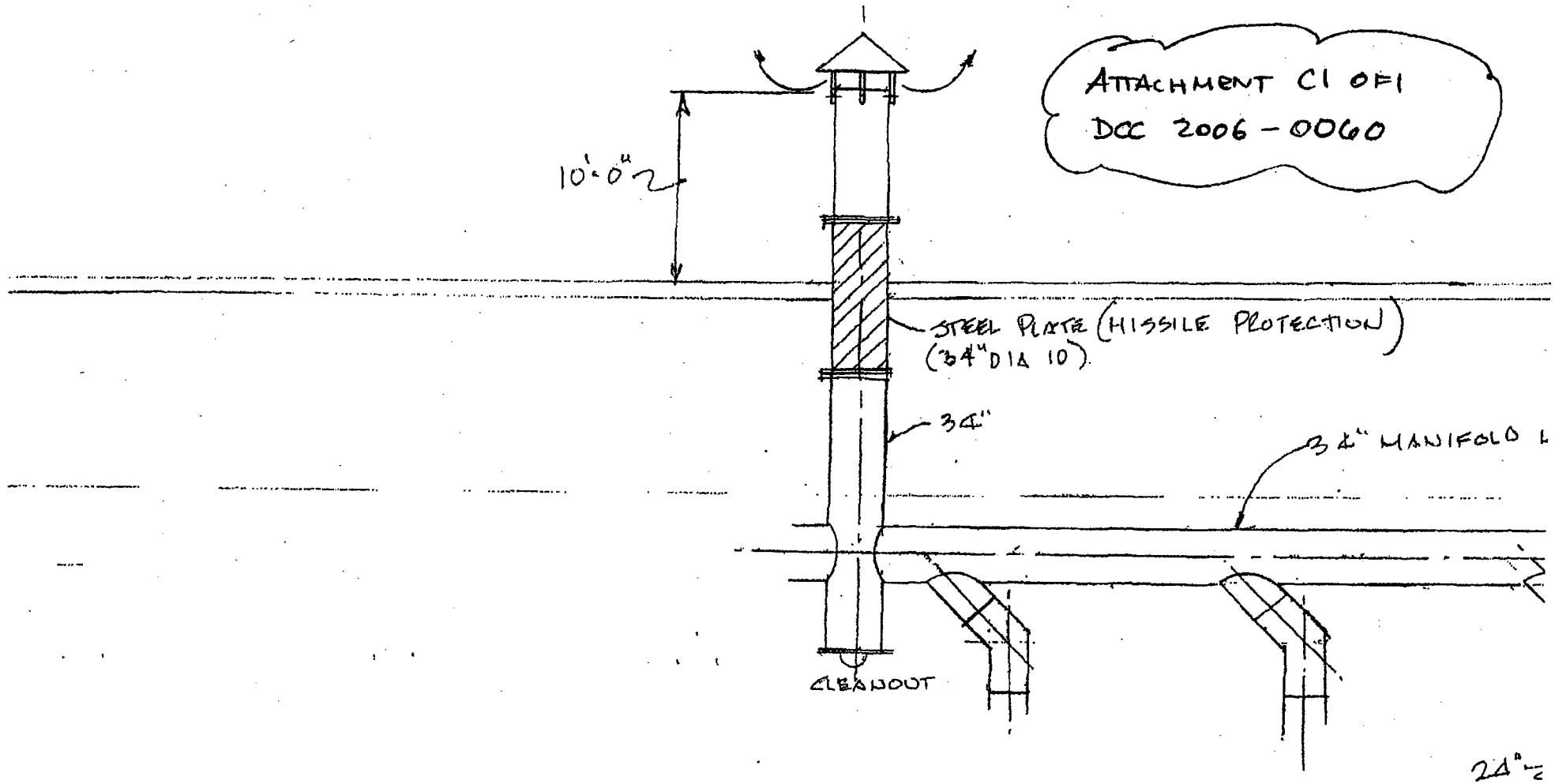
A1
F


ATTACHMENT C1 OF1
DCC 2006-0060
10'-0"±
STEEL PLATE (MISSILE PROTECTION)
(34" DIA 10)
34"
3 4" MANIFOLD
CLEANOUT
24"±

ATTACHMENT D1-4
DCC 2006-0060

Server Room Specification NEF

	Prepared/Date	Checked/Date	Approved/Date
Name/Sign:	W. Ollerhead	W. Ollerhead	S. Kirchhoff

ATTACHMENT D2-4
DCC 2006-0060

ATTACHMENT D3-4
DCC 2006-0060

1.1 Scope

This specification covers the general requirements for a computer server room for the NEF project and should be used as a reference document.

1.2 Infrastructure - Defines the basic building structure of the room.

Size : The average size should be 3M x 4Metres, No external windows. The access door to the room should be of solid secure construction with small anti break glass panels.
Construction : Brick built, plastered to a smooth finish, plain emulsion.
Floor: Sunken 100mm computer floor with access panels which shall be of an average size to facilitate easy access. Large panels will inhibit general access.
Floor Covering: Short pile, low fibre loss, low static.
Materials: The room must have the bare minimum of flammable materials and coatings.
Containment: The room will be sealed to a suitable level to ensure the easy installation of a gas based fire suppression system.
General: The room should have no water supplies or drains within the room. Every possible precaution should be taken to ensure that the room cannot be flooded by adjacent supplies or pipes run through ceiling voids, second floor rooms or external sources.
The room should not be subject to extreme vibration or mechanical interference. The room should not be adjacent to major power supplies or any device producing excessive electro magnetic disturbance, such as X-Ray machines or Welding machines.

1.3 Air Conditioning – Defines the temperature control of the server room.

Units: Separate to main facility.
No. Of Units: Two, separated in room to maximise volume control and circulation.
Configuration: The air conditioning units should both be operational at 50% with alarm for unit failure and auto changeover to secondary unit for 100% supply.
Temperature: The room should be maintained at 21 deg. Centigrade. The devices should be sized to cater for local weather extremes. An environmental protection device with Email facility would be ideal (e.g. Sensatronic systems)
Humidity: The humidity will be 30% at 21 deg C. The range will be 30%-50% Maximum.
Fire: The units will be compatible with latest fire regulations and operate in conjunction with a fire suppression system.
Plant Interface: A standard alarm will activate in normal site controllers office if system out of bounds.

1.4 IT Cabling – Computer communication cables.

Panels: The cabling in the server room shall be terminated to rack mounted patch panels.
Conduit: All conduit and cable runs will be separate for network cables and no power cables will be run in communications system conduit. The cables should be run so as to minimise proximity of high power or electro-magnetic interference devices.

ATTACHMENT D4-4
DCC 2006-0060

Standard: All cables will be individually connected to each socket and terminated in the server room. The terminations will be to a minimum of CAT 6.

1.5 Power – Main power configuration for server room

Distribution: The power shall be configured so as to provide a clean 'A' and 'B' Supply.
UPS: Each individual server rack will have a UPS system in the base, which will be connected to the main supplies.
Rating: The server and computer loading will be 32A therefore a safe margin in compliance with US electrical systems will be required. The air conditioning and any ancillary devices are not calculated in the 32A.
Connection: The systems will be connected to separate 'A' and 'B' panels in the server room
Indicators: Clear indication of healthy power supplies will be visible in the Server Room.
Outlets: Computer outlets will be clearly marked and controlled for computer equipment only. A further 8 sockets will be required in the room for general power.
Lighting: The room should have adequate lighting suitable for computing.

1.6 Fire Suppression – The server room fire control system

System: The Server room will have its own fire suppression system which will be based upon a gas based system. The fire suppression system must match local and National fire rules. (Existing UK systems utilise Argonite gas systems by Chubb.)

1.7 Communication – General telephones and public address systems.

Phone: Handset connection to the central system.
Tannoy: Speaker to provide adequate notification of building messages.

1.8 Access Control – Security access control for the server room

Access: Access to the room will be controlled using the standard pass activated system.
Authority: Only IT Staff will be allowed access to the room for normal duties. The emergency services must have access in a controlled but timely method. It should be noted that in the UK all emergency personnel are security cleared.

Condition Report

CR No. 07-0265

Originator

Title: CAB HVAC Design Change Action Items

Description of the Adverse Condition: This is a **Tracking Item CR** to assure completion of open items identified during EG-101 reviews for CC-EG-2007-0073. Interdisciplinary review identified the issues detailed below that require a follow-up verification.

This Condition Report is not written to resolve any adverse condition.

IDR reviews and additional reviews provided the following comments that require tracking action items:

1. The ventilation systems for the CAB are changing from cooling/heating water exchangers to DX units that utilize refrigerant. Also due to different heat/cooling requirements design flows will be changing. Humidity requirements have changed and a basis needs to be documented for the humidity in the various areas of the CAB. ISA figures 3.4-19, 3.5-12, 3.5-13, 3.5-14, 3.5-15, & 3.5-23 (this figure will be changed by boiler removal CC-EG-2007-0075) will be required to be changed to depict the new configurations and design basis flow requirements.

2. Refrigerant will now be on site for the new DX units. This needs to be accounted for in the SAR and the Environmental Report (ER). SAR Tables 6.1-1 and 6.1-3 will be affected. ER Tables 2.1-1 and 2.1-3 will be affected.

3. It has been determined that a Computer Server Room will be added to the CAB. Thus additional ventilation will be required. This will require additional HVAC and will need to be depicted on either an existing figure or an additional figure added.

Location (Building, Room): NA	Equipment Tag No.: NA
Procedure/Criteria Violated: None – this CR is generated to track open issues only	
Immediate Actions Taken: Initiated tracking CR	
Suggested Corrective Actions: Implement Tracking Item actions	

Originator: E. Dale Pruitt E Dale Pruitt	Date/Time: 9/12/07	Originator's Organization: Design Management

CR Approving Supervisor

Comments:

Adverse Condition? ☐ Yes ☒ No (If No, document basis in comment section and review with Originator.)
Stop Work needed? ☐ Yes ☒ No
Interim Actions? ☐ Yes ☒ No (If yes, document in comment section.)

CR Approving Supervisor: Mark Scanlan Mark A. Scanlan	Organization: DMO	Date: 9/12/07

Licensing

Reportable ☐ Yes ☒ No

CR07-0265

Basis for determination: see attached reportability determination	
Reportability Evaluation Completed by: McCasland per email	Date: 09/12/07

CAPSC

Classification:	Significant Condition Adverse to Quality (Level 1)	☐
	Adverse Condition (Level 2)	☐
	Adverse Condition (Level 3)	☐
	Improvement/Tracking Item (Level 4)	☒
Evaluation Method:	☐ Root Cause ☐ Apparent Cause ☐ Fix ☐ Trend	
Comments: CAPSC 09/13/07		
Responsible FAM: Schrander Design Mgmt		

(Attach additional pages as necessary)

CR 07-0265

Condition Report

(Attach additional pages as necessary)

Condition Report Evaluator (CRE)

Assigned CRE: E. Dale Pruitt E Dale Pruitt 9/12/07	Due Date NA
Evaluation Results (Level 1-4): **Creating actions for Tracking Item CR.**	
Safety Significance (Level 1): **N/A**	
Extent of Condition (Level 1): **N/A**	
Generic Implications (Level 1): **N/A**	

Corrective Actions (including preventive actions for Level 1)	Assigned to:	Due Date
Action Item 1 Provide engineering basis documentation to support humidity control and air flow basis for the new design for the CAB DX units. Also provide updated figures with the new configurations for the new DX units for the following: ISA Figure 3.4-19, Process Flow Diagram Centrifuge Test &d Post Mortem Facilities Exhaust Filtration System. ISA Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System. ISA Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System. ISA Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System. ISA Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.	Design Management Dale Pruitt	11/15/09
Action Item 2 Provide updated tables for the figures below to include the refrigerant for the new HVAC systems for the CAB: ER Table 2.1-1, Chemicals and Their Properties ER Table 2.1-3, Chemicals – Centrifuge Assembly Building (CAB) SAR Table 6.1-1 Chemicals – Hazardous Properties SAR Table 6.1-3 Chemicals – Centrifuge Assembly Building	Design Management Dale Pruitt	11/15/09

CR 07-0265

Action Item 3 Provide engineering documentation to support humidity control and air flow basis for the newly added Computer Server Room. Also provide an updated figure depicting the Computer Server Room HVAC System:	Design Management Dale Pruitt	11/15/09

Trend codes

Trend Codes (CAP Coordinator)

Evaluation results and proposed actions

Concurrence (Responsible FAM): Dan Poole Electronic for RW Schroeder	DMO	9/12/07
Concurrence (QAD for QA-Generated CRs only):		

Closure

Approval (Responsible FAM):	Date:
Approval (QAD for QA-Generated CRs only):	Date:
Package Review Complete (Cap Coordinator):	Date:

Mary James (LES)

From: Pat McCasland (LES)

Sent: Wednesday, September 12, 2007 1:43 PM

To: Mary James (LES)

Cc: Marlena Ronne (CTR); Greg Tidd (CTR); Jana McNabb (LES); Jim Freels (LES); Lesley Chism (LES); Michael Bogre (LES); Pat Harney (CTR); Pat McCasland (LES); Stephen Cowne (LES); Tim Harney (CTR); Vern Hull (CTR); Wyatt Padgett (LES)

Subject: CR 07-0265 Reportability Review

Licensing Group Reportability Review

CONDITION REPORT (CR): 07-0265
Date/Time of Event, Occurrence or Condition: 09-12-07 @ **** hours

Description of Potentially Reportable Event, Occurrence or Condition:

Tracking CAB HVAC Design Change Action Items identified during EG-101 reviews for CC-EG-2007-0073 dealing with heating and cooling issues, i.e., figures for the new DX refrigeration units rather than water exchangers and HVAC increases for the Computer Server Room.

Initiator: E. Dale Pruitt (Design Management) **Date/Time:** 09-12-07 @ **** hours

Licensing Notification: Pat McCasland **Date/Time:** 09-12-07 @ 1323 hours

Evaluation: Identify the reporting criteria considered and the basis for reporting or not reporting under each criterion.
10 CFR 70.9 (Completeness and accuracy of information) – na
10 CFR 20.2201-2206 (Radiation release/exposure) – na
10 CFR 21.21 (Defects) – na
10 CFR 30.50 (Byproduct Radiation release/exposure) – na
10 CFR 40.60 (Source Material radiation release/exposure) – na
10 CFR 70.50 (Special Nuclear Material (SNM) radiation release/exposure) – na
10 CFR 70 Appendix A - (Reportable Safety Events) – na
10 CFR 70.74 (Additional Reporting Requirements) – na
10 CFR 73 (Physical Protection of SNM or spent fuel) – na
10 CFR 95.57 (Classified information) – na
10 CFR 810 (Assistance to Foreign Atomic Energy Activities) - na
NRC Order EA-06-193 (Requirements for Protecting Certain Safeguards Information) – na
NRC Order EA-06-230 (Additional Security Measures) – na
NRC Order EA-06-264 (Requirements For Access To Safeguards Information) – na
NRC Order EA-07-086 (Requirements For Unescorted Access) - na
Other –

Evaluator: Pat McCasland **Date/Time:** 09-12-07 @ 1350 hours
Reportability Determination: **NOT REPORTABLE**

Pat McCasland
Licensing Specialist

LES
P.O. Box 1789
Eunice, NM 88231

Tel: +01 505 394 5254 ext. 375
Mob: +01 505 631 1667
FAX: +01 505 394 4700
Email: pmccasland@nefnm.com
Web: www.nefnm.com

9/12/2007

NATIONAL REFRIGERANTS

Material Safety Data Sheet

R-407C

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: R-407C
DISTRIBUTOR: National Refrigerants, Inc.
661 Kenyon Avenue
Bridgeton, New Jersey 08302

FOR MORE INFORMATION CALL:
(Monday-Friday, 8:00am-5:00pm)
1-800-262-0012

IN CASE OF EMERGENCY CALL:
CHEMTREC: 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
Difluoromethane (HFC-32)	75-10-5	23
Pentafluoroethane (HFC-125)	354-33-6	25
1,1,1,2-Tetrafluoroethane (HFC-134a)	811-97-2	52

Trace impurities and additional material names not listed above may also appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

POTENTIAL HEALTH HAZARDS

SKIN: Irritation would result from a defatting action on tissue. Liquid contact could cause frostbite.

EYES: Liquid contact can cause severe irritation and frostbite. Mist may irritate.

INHALATION: R-407C is low in acute toxicity in animals. When oxygen levels in air are reduced to 12-14% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur. At high levels, cardiac arrhythmia may occur.

INGESTION: Ingestion is unlikely because of the low boiling point of the material. Should it occur, discomfort in the gastrointestinal tract from rapid evaporation of the material and consequent evolution of gas would result. Some effects of inhalation and skin exposure would be expected.

DELAYED EFFECTS: None known.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

INGREDIENT NAME	NTP STATUS	IARC STATUS	OSHA LIST
No ingredients listed in this section			

4. FIRST AID MEASURES

SKIN: Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. Get medical attention if symptoms persist.

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes (in case of frostbite water should be lukewarm, not hot) lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.

INHALATION: Immediately remove to fresh air. If breathing has stopped, give artificial respiration. Use oxygen as required, provided a qualified operator is available. Get medical attention. Do not give epinephrine (adrenaline).

INGESTION: Ingestion is unlikely because of the physical properties and is not expected to be hazardous. Do not induce vomiting unless instructed to do so by a physician.

ADVICE TO PHYSICIAN: Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	Gas, not applicable per DOT regulations
FLASH POINT METHOD:	Not applicable
AUTOIGNITION TEMPERATURE:	Unknown for mixture
UPPER FLAME LIMIT (volume % in air):	None*
LOWER FLAME LIMIT (volume % in air):	None*
	*Based on ASHRAE Standard 34 with match ignition
FLAME PROPAGATION RATE (solids):	Not applicable
OSHA FLAMMABILITY CLASS:	Not applicable

EXTINGUISHING MEDIA:

Use any standard agent – choose the one most appropriate for type of surrounding fire (material itself is not flammable)

UNUSUAL FIRE AND EXPLOSION HAZARDS:

R-407C is not flammable at ambient temperatures and atmospheric pressure. However, this material will become combustible when mixed with air under pressure and exposed to strong ignition sources.
Contact with certain reactive metals may result in formation of explosive or exothermic reactions under specific conditions (e.g. very high temperatures and/or appropriate pressures).

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

Evacuate unprotected personnel. Protected personnel should remove ignition sources and shut off leak, if without risk, and provide ventilation. Unprotected personnel should not return until air has been tested and determined safe, including low-lying areas.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Avoid breathing vapors and liquid contact with eyes, skin or clothing. Do not puncture or drop cylinders, expose them to open flame or excessive heat. Use authorized cylinders only. Follow standard safety precautions for handling and use of compressed gas cylinders.

R-407C should not be mixed with air above atmospheric pressure for leak testing or any other purpose.

STORAGE RECOMMENDATIONS:

Store in a cool, well-ventilated area of low fire risk and out of direct sunlight. Protect cylinder and its fittings from physical damage. Storage in subsurface locations should be avoided. Close valve tightly after use and when empty.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide local ventilation at filling zones and areas where leakage is probable. Mechanical (general) ventilation may be adequate for other operating and storage areas.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Skin contact with refrigerant may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly removed and washed before reuse.

EYE PROTECTION:

For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear chemical safety goggles.

RESPIRATORY PROTECTION:

None generally required for adequately ventilated work situations. For accidental release or non-ventilated situations, or release into confined space, where the concentration may be above the PEL of 1,000 ppm, use a self-contained, NIOSH-approved breathing apparatus or supplied air respirator. For escape: use the former or a NIOSH-approved gas mask with organic vapor canister.

ADDITIONAL RECOMMENDATIONS:

Where contact with liquid is likely, such as in a spill or leak, impervious boots and clothing should be worn. High dose-level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quick-drench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT
Difluoromethane	None	None	**1000 ppm TWA (8hr)
Pentafluoroethane	None	None	**1000 ppm TWA (8hr)
1,1,1,2-Tetrafluoroethane	None	None	**1000 ppm TWA (8hr)

* = Limit established by National Refrigerants, Inc.
** = Workplace Environmental Exposure Level (AIHA)
*** = Biological Exposure Index (ACGIH)

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

Hydrogen Fluoride: ACGIH TLV: 3 ppm ceiling

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear, colorless liquid and vapor
PHYSICAL STATE:	Gas at ambient temperatures
MOLECULAR WEIGHT:	86.2
CHEMICAL FORMULA:	CH_2F_2, CF_3CHF_2, CH_2FCF_3
ODOR:	Faint ethereal odor
SPECIFIC GRAVITY (water = 1.0):	1.16 @ 21.1°C (70°F)
SOLUBILITY IN WATER (weight %):	Unknown
pH:	Neutral
BOILING POINT:	-43°C (-45.4°F)
FREEZING POINT:	Not determined
VAPOR PRESSURE:	156.2 psia @ 70°F 356.7 psia @ 130°F
VAPOR DENSITY (air = 1.0):	3.0
EVAPORATION RATE:	>1 **COMPARED TO:** CCl_4 = 1
% VOLATILES:	100
FLASH POINT:	Not applicable

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

The product is stable.

Do not mix with oxygen or air above atmospheric pressure. Any source of high temperature, such as lighted cigarettes, flames, hot spots or welding may yield toxic and/or corrosive decomposition products.

INCOMPATIBILITIES:

(Under specific conditions: e.g. very high temperatures and/or appropriate pressures) – Freshly abraded aluminum surfaces (may cause strong exothermic reaction). Chemically active metals: potassium, calcium, powdered aluminum, magnesium and zinc.

HAZARDOUS DECOMPOSITION PRODUCTS:

Halogens, halogen acids and possibly carbonyl halides.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

HFC-32:	LC_{50} : 4 hr. (rat) - 520,000 ppm / Cardiac Sensitization threshold (dog) 350,000 ppm
HFC-125:	LC_{50} : 4 hr. (rat) - > 800,000 ppm / Cardiac Sensitization threshold (dog) 75,000 ppm
HFC-134a:	LC_{50}: 4 hr. (rat) - > 500,000 ppm / Cardiac Sensitization threshold (dog) > 80,000 ppm

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

HFC-32:	Teratogenic NOEL (rat and rabbit) – 50,000 ppm
	Subchronic inhalation (rat) NOEL – 50,000 ppm
HFC-125:	Teratogenic NOEL (rat and rabbit) – 50,000 ppm
	Subchronic inhalation (rat) NOEL - ≥ 50,000 ppm
	Chronic NOEL – 10,000 ppm
HFC-134a:	Teratogenic NOEL (rat and rabbit) – 40,000 ppm
	Subchronic inhalation (rat) NOEL – 50,000 ppm
	Chronic NOEL – 10,000 ppm

OTHER DATA:

HFC-32, HFC-125, HFC-134a: Not active in four genetic studies

12. ECOLOGICAL INFORMATION

Degradability (BOD): R-407C is a gas at room temperature; therefore, it is unlikely to remain in water.

Octanol Water Partition Coefficient: Unknown for mixture

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded?	Not a hazardous waste.
If yes, the RCRA ID number is:	Not applicable.

OTHER DISPOSAL CONSIDERATIONS:

Disposal must comply with federal, state, and local disposal or discharge laws. R-407C is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT PROPER SHIPPING NAME:	Refrigerant gas R 407C
US DOT HAZARD CLASS:	2.2
US DOT PACKING GROUP:	Not applicable
US DOT ID NUMBER:	UN3340

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS:	Components listed on the TSCA inventory
OTHER TSCA ISSUES:	None

SARA TITLE III / CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

INGREDIENT NAME	SARA / CERCLA RQ (lb.)	SARA EHS TPQ (lb.)
No ingredients listed in this section		

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: IMMEDIATE PRESSURE

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

INGREDIENT NAME	COMMENT
No ingredients listed in this section	

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME	WEIGHT %	COMMENT
No ingredients listed in this section		

ADDITIONAL REGULATORY INFORMATION:

R-407C is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82.

WARNING: Do not vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered. **Contains Pentafluoroethane (HFC-125), Difluoromethane (HFC-32), and Tetrafluoroethane (HFC-134a)**, greenhouse gases which may contribute to global warming.

WHMIS CLASSIFICATION (CANADA):

This product has been evaluated in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

FOREIGN INVENTORY STATUS:

EU – EINECS # 2065578 – HFC-125
2008394 – HFC-32
223770 – HFC-134a

16. OTHER INFORMATION

CURRENT ISSUE DATE: August, 2007
PREVIOUS ISSUE DATE: October, 2006

OTHER INFORMATION:

HMIS Classification: Health – 1, Flammability – 1, Reactivity – 0
NFPA Classification: Health – 2, Flammability – 1, Reactivity – 0
ANSI / ASHRAE 34 Safety Group – A1

Regulatory Standards:
1. OSHA regulations for compressed gases: 29 CFR 1910.101
2. DOT classification per 49 CFR 172.101

Toxicity information per PAFT Testing

17. DISCLAIMER

National Refrigerants, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other methods or use of the product and of the information referred to herein are beyond the control of National Refrigerants. National Refrigerants expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

Material Safety Data Sheet

Genetron® AZ-20 (R-410A)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Genetron® AZ-20 (R-410A)
OTHER/GENERIC NAMES: R-410A
PRODUCT USE: Refrigerant
MANUFACTURER: Honeywell
101 Columbia Road
Box 1053
Morristown, New Jersey 07962-1053

FOR MORE INFORMATION CALL:
(Monday-Friday, 9:00am-5:00pm)
1-800-522-8001

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)
1-800-707-4555 or
Chemtrec- 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
Difluoromethane	75-10-5	50
Pentafluoroethane	354-33-6	50

Trace impurities and additional material names not listed above may also appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250° C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides

POTENTIAL HEALTH HAZARDS

SKIN: Irritation would result from a defatting action on tissue. Liquid contact could cause frostbite.

EYES: Liquid contact can cause severe irritation and frostbite. Mist may irritate.

INHALATION: Genetron AZ-20 (R-410A) is low in acute toxicity in animals. When oxygen levels in air are reduced to 12–14% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur. At high levels, cardiac arrhythmia may occur.

INGESTION: Ingestion is unlikely because of the low boiling point of the material. Should it occur, discomfort in the gastrointestinal tract from rapid evaporation of the material and consequent evolution of gas would result. Some effects of inhalation and skin exposure would be expected.

DELAYED EFFECTS: None known

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

INGREDIENT NAME	NTP STATUS	IARC STATUS	OSHA LIST
No ingredients listed in this section			

4. FIRST AID MEASURES

SKIN: Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. Get medical attention if symptoms persist.

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes (in case of frostbite water should be lukewarm, not hot) lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.

INHALATION: Immediately remove to fresh air. If breathing has stopped, give artificial respiration. Use oxygen as required, provided a qualified operator is available. Get medical attention. Do not give epinephrine (adrenaline).

INGESTION: Ingestion is unlikely because of the physical properties and is not expected to be hazardous. Do not induce vomiting unless instructed to do so by a physician.

ADVICE TO PHYSICIAN: Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: Gas, not applicable per DOT regulations
FLASH POINT METHOD: Not applicable
AUTOIGNITION TEMPERATURE: >750° C
UPPER FLAME LIMIT (volume % in air): None by ASTM D-56-82
LOWER FLAME LIMIT (volume % in air): None by ASTM E-681
FLAME PROPAGATION RATE (solids): Not applicable
OSHA FLAMMABILITY CLASS: Not applicable

EXTINGUISHING MEDIA:
Use any standard agent – choose the one most appropriate for type of surrounding fire (material itself is not flammable)

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Genetron AZ-20 (R-410A) is not flammable at ambient temperatures and atmospheric pressure. However, this material will become combustible when mixed with air under pressure and exposed to strong ignition sources.

Contact with certain reactive metals may result in formation of explosive or exothermic reactions under specific conditions (e.g. very high temperatures and/or appropriate pressures).

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

Evacuate unprotected personnel. Protected personnel should remove ignition sources and shut off leak, if without risk, and provide ventilation. Unprotected personnel should not return until air has been tested and determined safe, including low-lying areas.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Avoid breathing vapors and liquid contact with eyes, skin or clothing. Do not puncture or drop cylinders, expose them to open flame or excessive heat. Use authorized cylinders only. Follow standard safety precautions for handling and use of compressed gas cylinders.

Genetron AZ-20 (R-410A) should not be mixed with air above atmospheric pressure for leak testing or any other purpose.

STORAGE RECOMMENDATIONS:

Store in a cool, well-ventilated area of low fire risk and out of direct sunlight. Protect cylinder and its fittings from physical damage. Storage in subsurface locations should be avoided. Close valve tightly after use and when empty.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide local ventilation at filling zones and areas where leakage is probable. Mechanical (general) ventilation may be adequate for other operating and storage areas.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Skin contact with refrigerant may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly removed and washed before reuse.

EYE PROTECTION:
For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear chemical safety goggles.

RESPIRATORY PROTECTION:
None generally required for adequately ventilated work situations. For accidental release or non-ventilated situations, or release into confined space, where the concentration may be above the PEL of 1,000 ppm, use a self-contained, NIOSH - approved breathing apparatus or supplied air respirator. For escape: use the former or a NIOSH-approved gas mask with organic vapor canister.

ADDITIONAL RECOMMENDATIONS:
Where contact with liquid is likely, such as in a spill or leak, impervious boots and clothing should be worn. High dose-level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quick-drench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT
Difluoromethane	None	None	*1000 ppm TWA (8hr)
Pentafluoroethane	None	None	**1000 ppm TWA (8hr)

* = Limit established by Honeywell.
** = Workplace Environmental Exposure Level (AIHA).
*** = Biological Exposure Index (ACGIH).

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:
Hydrogen Fluoride: ACGIH TLV: 3 ppm ceiling

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear, colorless liquid and vapor
PHYSICAL STATE: Gas at ambient temperatures
MOLECULAR WEIGHT: 72.6
CHEMICAL FORMULA: CH_2F_2
CHF_2CF_3
ODOR: Faint ethereal odor
SPECIFIC GRAVITY (water = 1.0): 1.08 @ 21.1° C (70° F)
SOLUBILITY IN WATER (weight %): Unknown
pH: Neutral
BOILING POINT: -48.5° C (-55.4° F)
FREEZING POINT: Not Determined
VAPOR PRESSURE: 215.3 psia @ 70° F
490.2 psia @ 130° F
VAPOR DENSITY (air = 1.0): 3.0

EVAPORATION RATE: >1 **COMPARED TO:** CCl_4 = 1
% VOLATILES: 100
FLASH POINT: Not applicable
(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):
The product is stable.
Do not mix with oxygen or air above atmospheric pressure. Any source of high temperature, such as lighted cigarettes, flames, hot spots or welding may yield toxic and/or corrosive decomposition products.

INCOMPATIBILITIES:
(Under specific conditions: e.g. very high temperatures and/or appropriate pressures) – Freshly abraded aluminum surfaces (may cause strong exothermic reaction). Chemically active metals: potassium, calcium, powdered aluminum, magnesium and zinc.

HAZARDOUS DECOMPOSITION PRODUCTS:
Halogens, halogen acids and possibly carbonyl halides.

HAZARDOUS POLYMERIZATION:
Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:
LC_{50} : 4 hr. (rat) - ≥ 520,000 ppm (difluoromethane)
Cardiac Sensitization threshold (dog) ≥ 100,000 ppm (pentafluoroethane)

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:
Teratology - negative
Subchronic inhalation (rat) NOEL - 50,000 ppm

OTHER DATA:
Not active in four genetic studies

12. ECOLOGICAL INFORMATION

Degradability (BOD): Genetron AZ-20 (R-410A) is a gas at room temperature; therefore, it is unlikely to remain in water.
Octanol Water Partition Coefficient: Log P_{ow} = 1.48 (pentafluoroethane), 0.21 (difluoromethane)

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Not a hazardous waste
If yes, the RCRA ID number is: Not applicable

OTHER DISPOSAL CONSIDERATIONS:
Disposal must comply with federal, state, and local disposal or discharge laws. Genetron AZ-20 (R-410A) is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: US DOT PROPER SHIPPING NAME: Liquified gas, n.o.s. (Pentafluoroethane, Difluoromethane)
US DOT HAZARD CLASS: 2.2
US DOT PACKING GROUP: Not applicable

US DOT ID NUMBER: UN3163

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Components listed on the TSCA inventory

OTHER TSCA ISSUES: None

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

INGREDIENT NAME	SARA/CERCLA RQ (lb.)	SARA EHS TPQ (lb.)
No ingredients listed in this section		

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: IMMEDIATE
PRESSURE

SARA 313 TOXIC CHEMICALS:
The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

INGREDIENT NAME	COMMENT
No ingredients listed in this section	

MATERIAL SAFETY DATA SHEET
Genetron® AZ-20 (R-410A)

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME	WEIGHT %	COMMENT
No ingredients listed in this section		

ADDITIONAL REGULATORY INFORMATION:

Genetron AZ-20 (R-410A) is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82.

WARNING: Contains pentafluoroethane (HFC-125) and difluoromethane (HFC-32), greenhouse gases which may contribute to global warming

Do Not vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

WHMIS CLASSIFICATION (CANADA):

This product has been evaluated in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

FOREIGN INVENTORY STATUS:

EU – EINECS # 2065578 (HFC-125)

16. OTHER INFORMATION

CURRENT ISSUE DATE: February, 2003
PREVIOUS ISSUE DATE: January, 2000
CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:
Section 1: Updated contact information

OTHER INFORMATION: HMIS Classification: Health – 1, Flammability – 1, Reactivity – 0
NFPA Classification: Health – 2, Flammability – 1, Reactivity – 0
ANSI/ASHRAE 34 Safety Group – A1

Regulatory Standards:
1. OSHA regulations for compressed gases: 29 CFR 1910.101
2. DOT classification per 49 CFR 172.101

Toxicity information per PAFT Testing

INTERDISCIPLINARY REVIEW FORM

Configuration Change Number: CC-EG-2006-0073 **Revision:** 0

Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)

Reviewer: Scott Tyler	**Organization/Mail Stop/Telephone No./E-mail** **AREVA / 630.778.4439 / scott.tyler@areva.com**
Functional Area: HS&E	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

The following criteria and documents were used to review this configuration change for potential impact on Health & Safety and Fire Protection attributes: NEF ISA (ISA Summary and SAR Chapter 3, Sections 3.1 through 3.8 and supporting documentation – EIRs and calculations re Fire Risk, Evacuation); SAR Chapter 4, 5, 6 and 7; Preliminary Fire Hazards Analysis; NEF Environmental Report and Final Environmental Impact Statement. Package was reviewed (cursory) for potential State of NM Building & Fire Code issues

This package proposes changes to the ventilation arrangement and capacity in the Centrifuge Assembly Building by converting the HVAC units to integral package units (e.g., with electric heaters and closed loop refrigerant) rather than being interconnected to hot and cold water supplies for heat exchange.

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments:

This CC package requires a change to the ISAS, SAR, ER and E Plan. An EN-103 form is attached.

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

The modifications proposed to the CAB Room Ventilation Systems does not impact any IROFS, IROFS functionality, any margin of safety for nuclear criticality, radiological safety, chemical safety or fire safety. This change does not impact program effectiveness from other regulatory assessments nor does it impact QAPD level of commitment.

The change is modifying the size and arrangement of the ventilation systems serving areas within the CAB and changes the individual units to package type (with integral refrigerant cooling and electric heaters in place of cold and hot water connections). The only area in the CAB that will contain UF6 is the Centrifuge Test Facility. The CC package removes one of the two exhaust fans shown in the conceptual design for the Centrifuge Test Facility, however, this system was always shown with only one set of filters for discharge from these rooms, therefore, a second set of filters was not present or relied upon to reduce any atmospheric discharge of radiological particulate. The arrangement continues to be shown with the appropriate alpha and HF monitoring required for discharge from the building stack.

None of the CAB exhaust ventilation systems are credited to mitigate radiological/chemical release rates in the 70.61 consequence calculations, so this modification does not impact the release scenarios.

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

See Attachment 5 for comments.

Reviewer Signature	**Date**
SCOTT TYLER / HS&E For Scott Tyler per Telcon 2/13/07	02/27/07

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2006-0073 Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)				Revision: 0	
Reviewer				Preparer	
Comment Number	Affected Document or Page (or attach Markup)	Comment	Resolution Required? (Y/N)	Resolution	Change Made? (Y/N)
1	Documents: ER Section 3.12.1.2, 4.6.2.2 ISAS Section 3.4.10.3, Figure 3.4.19 E Plan Section 1.2 ER Tables 2.1-1 and 2.1-3 and SAR Tables 6.1-1 and 6.1-3 (addition of refrigerant)	Comment: This CC modifies the HVAC arrangement for the CAB by adding a refrigerant for all HVAC units and deleting hot/cold water piping supplies. It also removes one of two fans in the Centrifuge Test & Post-Mortem exhaust stream. Impact: No IROFS/safety margin impact. No license basis / code commitment impact. Recommendation: Create an ACTION ITEM that requires the following: • Revision of the sections of the ISAS, SAR, ER, and EP sections for new configuration including revised fan rates if applicable. • Confirm that the final selected refrigerant does not impact air quality/air permit requirements.	Yes	Following comments accepted: ▪ Revisions made to affected sections to reflect changes in HVAC System ▪ Action Item AI-07-000024 issued to include selected refrigerant in ER and SAR Tables. Following comment rejected: ▪ Revised fan rates not added since the LBD text indicates that rates are subject to change during design evolution.	Y N
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) SCOTT TYLER / AREVA / 630.778.4439 / H&S Fire Protection			Date: 02/28/07	Resolved by: J. P. Logatto/Edercon/Design Management/973-601-0512	Date: 03/01/07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) Scott M. Tyler			Date: 03/02/07		

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 1 of 6)

Document Title: HVAC Design Changes for CAB Review No.:

Document No.: CC-EG-2006-0073 Revision: 0

PART 1 ENVIRONMENTAL REVIEW

Does the proposed change:

YES	NO	ITEM
☐	☒	1. Increase environmental impacts from noise levels at the site boundary or generation of regulated air pollutants (e.g., dusts, vapors, asbestos), hazardous waste, solid waste, or wastewater?
☐	☒	2. Increase the potential to release any chemical (e.g., gas, oil, PCB, hydraulic fluid, anti-freeze, etc.) to the environment or introduce new chemicals to the site?
☐	☒	3. Disturb land, streams or wetlands or modify stormwater drainage systems that would change site stormwater runoff or increase the sediment loading of stormwater runoff?
☐	☒	4. Affect the existing capability to control, treat, or monitor releases to the environment?
☐	☒	5. Result in a physical or chemical change in the characteristics of discharges, effluents, emissions, or withdrawals?
☐	☒	6. Result in permanent or temporary storage (for re-use, disposal, or offsite transfer) of a hazardous or regulated chemical or waste outside of established handling facilities; or reduce the margin of control or containment (i.e., increase the potential of a release to the environment)?
☐	☒	7. Result in an alteration to a plant system or component, (e.g., wastewater treatment operation, air emission filters) regulated by an environmental permit (e.g., air emission permit, groundwater discharge permit) or require a modification to an environmental permit?
☐	☒	8. Alter the drinking water treatment system or cause the drinking water distribution system to be opened?
☒	☐	9. Require a change to the NEF Environmental Report and/or the Final Environmental Impact Statement by the NRC?

Complete Part 2.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 2 of 6)

Document Title: HVAC Design Changes for CAB Review No.:

Document No.: CC-EG-2006-0073 Revision: 0

PART 2: ASSESSMENT OF IMPACT

☐ All items in Part 1 answered "No."

This proposed change **DOES NOT** involve the potential to adversely impact the environment and the proposed change is within the scope of environmental impacts assessed by the Environmental Report (ER) and/or the Final Environmental Impact Statement (FEIS, NUREG-1790).

1. No further review and evaluation is required.

2. Documentation of the summary of changes is attached as pages _____ to this evaluation.

OR

☒ Item(s) listed in Part 1 are answered "Yes."

This proposed change **DOES** involve the potential to impact the environment in a manner beyond that assessed in the ER and/or FEIS or **DOES** require a modification to an environmental permit.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.

2. Documentation of the affect of the proposed changes impacting the environment is attached as pages 5 and 6 to this evaluation.

3. Complete Part 3 of this review.

Preparer: Scott Tyler Date: 02/27/07

Reviewer: Mark Strum Date: 03/03/07

Environmental Compliance Manager: Laurie Wetherell Date: 03/06/07

approved per telecon 3/13/07

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 3 of 6)

Document Title: HVAC Design Changes for CAB Review No.:

Document No.: CC-EG-2006-0073 Revision: 0

PART 3 ENVIRONMENTAL EVALUATION

A.1 Does the proposed activity result in a change that is not administrative, organizational or procedural in nature?

☒ **YES** ☐ **NO** (provide justification)

Justification:

The CC package modifies the HVAC Systems for the Centrifuge Assembly Building.

A.2 Does the proposed activity result in a significant change in the types of any effluent that may be release offsite?

☐ **YES** ☒ **NO** (provide justification)

Justification:

The proposed changes are to convert the individual CAB HVAC units to stand-alone package units and to remove the need for hot/cold water piping. The cold water supply is replaced by an integral refrigerant loop for cooling and the hot water supply is being replaced by electric heaters. The proposed refrigerant is not defined. This review has ASSUMED that the selected refrigerant will EPA approved for commercial use and that there will be no air quality/air permit impact. This is not a significant change in that the NEF has other package air conditioning units containing refrigerant gases. These gases are contained in closed loop systems and are not expected to be released.

A.3 Does the proposed activity result in a significant increase in the amounts of any effluent that may be release offsite?

☐ **YES** ☒ **NO** (provide justification)

Justification:

The proposed changes are to convert the individual CAB HVAC units to stand-alone package units and to remove the need for hot/cold water piping. The cold water supply is replaced by an integral refrigerant loop for cooling and the hot water supply is being replaced by electric heaters. The proposed refrigerant is not defined. This review has ASSUMED that the selected refrigerant will EPA approved for commercial use and that there will be no air quality/air permit impact. This is not a significant change in that the NEF has other package air conditioning units containing refrigerant gases. These gases are contained in closed loop systems and are not expected to be released.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 4 of 6)

Document Title: HVAC Design Changes for CAB Review No.:

Document No.: CC-EG-2006-0073 Revision: 0

A.4 Does the proposed activity result in a significant increase in individual or cumulative radiological or chemical occupational exposure?

☐ **YES** ☒ **NO** (provide justification)

Justification:

This analysis does not modify or impact any chemical or radiological system or any component or system relied upon for chemical or radiological material release prevention or mitigation. The CC proposes the deletion of one of two fans in the Centrifuge Test and Post Mortem Exhaust System, however that system did not have a redundant filter train associated with the second fan, therefore, the filtering arrangement is similar to the original conceptual design.

A.5 Does the proposed activity result in a significant construction impact?

☐ **YES** ☒ **NO** (provide justification)

Justification:

The revision to the HVAC units to be self-contained has no significant construction impact (reduces hot and cold water piping that will need to be routed).

A.6 Does the proposed activity result in a significant increase in the potential for or consequences from radiological accidents?

☐ **YES** ☒ **NO** (provide justification)

Justification:

This analysis does not modify or impact any chemical or radiological system or any component or system relied upon for chemical or radiological material release prevention or mitigation. The CC proposes the deletion of one of two fans in the Centrifuge Test and Post Mortem Exhaust System, however that system did not have a redundant filter train associated with the second fan, therefore, the filtering arrangement is similar to the original conceptual design.

If 'YES' is checked for question A.1 and any of the questions A.2 through A.6, the change requires NRC approval prior to implementation.

If 'YES' is checked for question A.1 and 'NO' is checked for each of the questions A.2 through A.6, then prior NRC approval of the change is not required.

If 'NO' is checked for each of the questions A.1 through A.6, then prior NRC approval of the change is not required.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 5 of 6)

Document Title: HVAC Design Changes for CAB Review No.:

Document No.: CC-EG-2006-0073 Revision: 0

A.7 Does the proposed activity require a modification to an existing environmental permit?

☐ **YES** ☒ **NO** (provide justification)

Justification:

The proposed changes are to convert the individual CAB HVAC units to stand-alone package units and to remove the need for hot/cold water piping. The cold water supply is replaced by an integral refrigerant loop for cooling and the hot water supply is being replaced by electric heaters. The proposed refrigerant is not defined. This review has ASSUMED that the selected refrigerant will EPA approved for commercial use and that there will be no air quality/air permit impact.

If 'YES' is checked for questions A.7, then a permit revision must be submitted to the applicable permitting agency, and NRC notification may be required, prior to implementation of the change. If 'NO' is checked for questions A.7, then prior permitting agency approval of the change is not required.

ATTACHMENT 1
ENVIRONMENTAL REVIEW AND EVALUATION
(Sheet 6 of 6)

Document Title: HVAC Design Changes for CAB Review No.:

Document No.: CC-EG-2006-0073 Revision: 0

B. Based on this evaluation, the proposed change ☐ **DOES** ☒ **DOES NOT** require NRC and/or permitting agency approval prior implementation.

Preparer: Scott Tyler Date: 2/27/07

Reviewer: Mark Strum Date: 03/03/07

Environmental Compliance Manager: Laurie Wetherell Date: 03/06/07

Summary Of Changes

The proposed changes are to convert the individual CAB HVAC units to stand-alone package units and to remove the need for hot/cold water piping. The cold water supply is replaced by an integral refrigerant loop for cooling and the hot water supply is being replaced by electric heaters. The proposed refrigerant is not defined. This review has ASSUMED that the selected refrigerant will EPA approved for commercial use and that there will be no air quality/air permit impact.

This modification also removes one of two fans in the Centrifuge Test and Post Mortem Exhaust System, however that system did not have a redundant filter train associated with the second fan, therefore, the filtering arrangement is similar to the original conceptual design. The SAR states that if the Centrifuge Test and Post Mortem Exhaust System is inoperable, operations for which the system is needed will be postponed. The exhaust system is not an IROFS and is not relied upon for worker or public protection from radiological or chemical exposure for any accident sequence.

Changes are required to the Emergency Plan, Environmental Report, and Safety Analysis Report to detail this change (see EG-101 review).

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0073 **Revision:** 0 **Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)**	
Reviewer: Mike Plunkett	**Organization/Mail Stop/Telephone No./E-mail** **NEF/ 856-482-3090/ mplunkett@nefnm.com**
Functional Area: Mechanical:	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

- DCC-NEF-2005-0045
- DCC-NEF-2006-0060

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments:

DCC-NEF-2006-0060, Item 1.6 added a welding area on the south side assembly area. Confirmed that the heat source was considered in the heat load analysis.

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

Mike Plunkett

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

Reviewer Signature

4/27/07
Date

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2006-0073 **Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)**				**Revision: 0**	
Reviewer				**Preparer**	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
		No comments			
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Mike Plunkett			Date: 2/27/07	Resolved by:	Date:
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)			Date:		

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0073 **Revision:** 0 **Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)**	
Reviewer: Wyatt Padgett	**Organization/Mail Stop/Telephone No./E-mail** **Licensing/Eunice, NM/505.394.5257/wpadgett@nefnm.com**
Functional Area: Licensing	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

License Basis Documents reviewed: Emergency Plan, Environmental Report, FNMCP, Material License, ISA Summary, QAPD, and SAR

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☐ Other LES procedure reviews required (forms completed and attached) OR:

☒ No additional LES procedure review requirements for this Functional Area.

Comments:

No Comments

C. Check applicable box:

NRC approval ☒ may *or* ☐ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

This determination is made following the performance of the 10 CFR 70.72 review.

Recommended Disposition:

☒ Configuration Change acceptably addresses the requirements of this Functional Area.

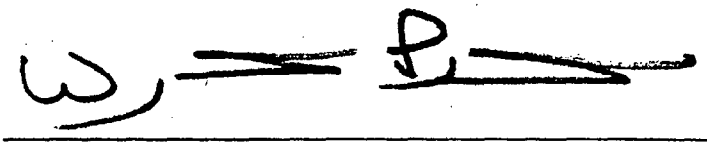
OR

☐ Configuration Change is not acceptable

☐ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:



2/26/07

Reviewer Signature **Date**

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

CONFIGURATION CHANGE REVIEW COMMENT SHEET

Configuration Change Number: CC-EG-2006-0073 | **Revision: 0**

Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)

Reviewer				Preparer	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	SAR	Figure 1.1-11 or figure 1.1-12, (depending on which floor the computer room is) of the SAR needs to be revised to show the location of the computer room.	Y	Comment noted; SAR Figure 1.1-11 will be revised to indicate location of the server room (AI-07-000023)	Y
2	Environmental Report	In Section 2.1.2.3.5, even the break room is listed as being a room in the CAB facility. Should the computer room be listed as well?	N	Comment accepted; section mark-up revised to include listing the server room.	Y
3	Environmental Report	Table 3.12-5 and Table 7.2-2 list the commodities utilized at the NEF. It states that there are 109 HVAC units at the site. These numbers were utilized to determine the amount of yearly waste generated from the site during construction; this includes effluent and solid waste.	Y	Comment rejected; the changes to the CAB HVAC should not impact the number of units nor the amount of waste generated during construction.	N
4	ISA Summary	In Section 3.5.1.1.9 the computer server room HVAC system was added with no design information. Section 3.5.1.1 states that specific design information is provided. If level of detail provided is to be less than that of the other systems, provide justification.	Y	Comment accepted; additional detail added to section reflecting design of server room HVAC subsystem. Additional information will be provided as design progresses.	Y
5	ISA Summary	In Section 3.3.1.4.1, the distinct area of this building is described and discussed, please add the computer room.	Y	Comment accepted; computer server room added to list of areas within the Building Office Area (section 3.3.1.4.2.4)	Y

Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Wyatt Padgett / Licensing	Date: 2/12/07	Resolved by: J. P. Logatto (Enercon)/Design Management/856-482-3092	Date: 02/23/07
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature) WYATT PADGETT	Date: 2/26/07		

NATIONAL ENRICHMENT FACILITY

P O Box 1789
Eunice, NM 88231

Tel: 505.394.4646
Fax: 505.394.4747

Subject: **CC-EG-2006-0073**

To: **Joe Logatto**

From: **John Streeter**

Cc: **Clark Tracy; Jamie Gorman**

Date: **February 23, 2007**

Attached is the completed EG-101 Attachment 4 form and supporting documentation for the following:

Support Services review of CC-EG-2006-073

The originals of this document will be sent to you via Jamie Gorman by mail.

Any questions please contact John Streeter at 505-394-1801 or his cell 505-818-8058.

urenco

INTERDISCIPLINARY REVIEW FORM	
Configuration Change Number: CC-EG-2006-0073 **Revision:** 0 **Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)**	
Reviewer: Ryan Whitford **Dennis Swain**	**Organization/Mail Stop/Telephone No./E-mail** Security/Eunice/505.394.5447/rwhitford@nefnm.com Procedures/Eunice/505.394.1806/dswain@nefnm.com
Functional Area: Support Services	**Date Due:**

A. Identify the review criteria and reference documents used to evaluate the proposed Configuration Change (codes, standards, Licensing Basis Configuration Documents, NQA-1, design guidance, etc.):

Security:

Physical Security Plan

Guardforce Training and Qualification Plan

Safeguards Contingency Plan

Standard Practice Procedures Plan for the Protection of Classified Matter

Emergency Preparedness:

Emergency Plan

B. Identify any additional LES procedure review requirements (e.g., EP-120):

☒ Other LES procedure reviews required (forms completed and attached) OR:

☐ No additional LES procedure review requirements for this Functional Area.

Comments:

There is no impact to Security Plans identified in Section A from this change. This change does not represent a substantive change in the Security program or impact program effectiveness. Thus, SY-120, and SY-130 forms are not required.

The Emergency Plan is impacted by this change. EP-120 review is attached.

C. Check applicable box:

NRC approval ☐ may *or* ☒ may not be required prior to implementation for this Functional Area.

Identify the basis for this conclusion, i.e., impact to IROFS functionality, margin of safety to nuclear criticality, program effectiveness from other regulatory assessments, QAPD level of commitment, etc.

Basis:

See Section B and attached EP-120.

Recommended Disposition:

☐ Configuration Change acceptably addresses the requirements of this Functional Area.

OR

☒ Configuration Change is not acceptable

☒ Revise and re-submit OR ☐ do not proceed with configuration change.

Attach the Configuration Change Review Comment Sheets for any comments that required resolution.

Comments:

See attached email, and attached EG-101 Attachment 5.

Reviewer Signature

Ryan Whitford _____ Date 2/22/07 Dennis Swain _____ Date 2/22/07
Security EP

Return Form to Preparer with copy to CM Coordinator

ATTACHMENT 5
Configuration Change Review Comment Sheet
Page 1 of 1

EG-101
Revision 0

CONFIGURATION CHANGE REVIEW COMMENT SHEET					
Configuration Change Number: CC-EG-2006-0073 **Title (if applicable): HVAC Design Changes for Centrifuge Assembly Building (CAB)**				**Revision: 0**	
Reviewer				**Preparer**	
Comment Number	**Affected Document or Page (or attach Markup)**	**Comment**	**Resolution Required? (Y/N)**	**Resolution**	**Change Made? (Y/N)**
1	ISAS Pg. 3.5-8 NEF 2005-0045 Page 4 of 5	ISAS markup does not match change description on Comparison of Design Basis Page 4 of 5	Yes	The comparison description on sheet 4 of 5 is in error. The Assemble Centrifuge Storage Area will have one 100% A/C	N
2	ISAS markup Pg. 3	Section 3.5.1.1.9 needs review / clarification "one fan" EP 1.2.1 two separate 100% capacity fans.	Yes	Comment accepted; EP section 1.2.1 modified to clarify description of exhaust filtration.	Y
3	ISAS markup Page 3	Deleted filter percent efficient information – EP Table 1.2-1 has this specific filter information.	Yes	Comment accepted	Y
Reviewed by: (Print Name/Signature/Identify Organization/Identify Review Area) Dennis Swain: Dennis Swain			Date: 02/22/2007	Resolved by: J. P. Logatto (Fluor)/Design Management	Date: 02/27/200
Disposition(s) Acceptable: Reviewed by: (Print Name/Signature)		**APPROVED** *By Dennis Swain at 4:09 pm, Feb 27, 2007*			

John Streeter (LES)

From: Ryan Whitford (LES)
Sent: Thursday, February 22, 2007 11:56 AM
To: John Streeter (LES)
Subject: RE: CC-EG-2006-0021A

John:

I have reviewed the six CC's mentioned below, and I am certain that they do not impact the Physical Security Plan, Safeguards Contingency Plan, Guardforce Training and Qualification Plan, or the Standard Practice Procedure Plan for the Protection of Classified Information. Please sign the appropriate paperwork documenting this conclusion on my behalf.

Ryan Whitford

Security Supervisor
National Enrichment Facility

From: John Streeter (LES)
Sent: Sun 2/18/2007 4:12 PM
To: Ryan Whitford (LES)
Subject: FW: CC-EG-2006-0021A

Ryan:

This is the first of six CCs (0021A, 0062, 0063, 0064, 0069, and 0073) that I am sending you for review. Do not commence SY-120/SY-130 reviews until we talk and I need you to call me on my cell phone as soon as you can. I have a plan that may greatly simplify your effort, but I need your resume to put the plan into effect.

Regards, John Streeter

From: Clark Tracy (CTR)
Sent: Thursday, January 11, 2007 3:57 PM
To: Laurie Wetherell (LES); Karl Gross (LES); Vern Hull (CTR); Gary Sanford (LES); John Streeter (LES); Sushil Jain (CTR)
Cc: david.pepe@areva.com; Paul Damerell; pknittal@mpr.com; rosegardenview@msn.com
Subject: CC-EG-2006-0021A

Laurie, Karl, Vernon, Gary, John, and Sushil,

Attached is CC-EG-2006-0021A, Centrifuge Building Modifications - CAB Roof Height. I have determined that an Interdisciplinary Review (IDR) is required by your respective HS&E, Licensing, Support Services, and Technical Services organizations (see Section 2B of Attachment 3) .

To support your review, I have included the complete CC-EG-2006-0021A Attachment 3 package and the WORD files for EG-101, Attachments 4 and 5 to be completed during your review. When you have assigned IDRs from your organization to support the processing of this package, please inform Mr. Dick Skillman (rosegarden@msn.com) so that he knows who is representing your respective organizations in this review and when he can expect to receive comments from them. Otherwise, Mr. Skillman or our Administrative Assistant Jamie Gorman will be contacting you.

Please send your completed EG-101 Attachment 4 and 5 forms to Mr. Skillman (856.482.4008) by Friday, January 26, 2007.

I thank you in advance for your cooperation.

Clark Tracy
856.482.3084

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 1 of 4)

Document Title: CAB HVAC Design Changes Review No.: 069EP120

Document No.: CC-EG-2006-0073 Revision: 0

PART 1 PRELIMINARY SCREEN

Does the proposed change impact:

YES	NO	ITEM
☐	☒	1. Primary responsibilities of LES, offsite agencies or support organizations. OR The ability to respond initially or on a continuous basis.
☐	☒	2. The assignment of responsibilities of personnel. OR Minimum staffing or timely augmentation. OR The interface between onsite and offsite support response activities.
☐	☒	3. Arrangements for requesting and effectively using assistance or resources from offsite authorities. OR The accommodations for federal, state, and/or local staff at the EOC.
☐	☒	4. Emergency Action Levels, types of accidents, and classification of accidents.
☐	☒	5. Notification procedures to either the EO, local, state, or federal entities. OR The content of initial and follow-up messages.
☐	☒	6. Communications capability among principal response organizations to emergency personnel or the public.
☐	☒	7. Dissemination of coordinated information to the general or transient public including periodic information dissemination (brochures).
☐	☒	8. Provisions for or maintenance of emergency facilities and equipment. OR The periodicity of communications and emergency equipment tests.
☐	☒	9. Methods, systems and/or equipment for the detection, assessment, and monitoring of actual or potential onsite and offsite release consequences.
☐	☒	10. Protective Actions.
☐	☒	11. Means for controlling emergency worker radiation exposures consistent with the guidelines established by the EPA.
☐	☒	12. Arrangements for medical services for contaminated injured individuals.
☐	☒	13. Plans for plant reentry and/or recovery organization operations.
☐	☒	14. Periodicity of drills and/or exercises as well as deficiency resolution.
☐	☒	15. Training requirements for EO or local site support personnel.
☐	☒	16. Responsibilities for Emergency Plan development, maintenance, and review as well as training requirements for personnel maintaining the plan.
☐	☒	17. Implementation of other federal regulations and requirements or formal commitments related to the NEF Emergency Plan.
☒	☐	18. The facility description reflected in the NEF Emergency Plan.

Complete Part 2.

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 2 of 4)

Document Title: CAB HVAC Design Changes Review No.: 069EP120

Document No.: CC-EG-2006-0073 Revision: 0

PART 2: ASSESSMENT OF IMPACT

☐ All items in Part 1 **ARE NOT** impacted.

This proposed change **DOES NOT** involve the requirements of 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3) or additional commitments as described within the Emergency Plan.

1. No further review and evaluation is required.

2. Documentation of the summary of changes is attached as pages ___ to this evaluation.

OR

☒ Item(s) listed in Part 1 **ARE** impacted.

This proposed change **DOES** involve the requirements of 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3) or additional commitments as described within the Emergency Plan.

1. An evaluation of the change against the specific elements of applicable regulations, requirements, and commitments is required.

2. Documentation of the affect of the proposed changes impacting the Emergency Plan is attached as pages 4 of 4 to this evaluation.

   A. If the proposed changes ☐ **DO NOT** require a revision to the Emergency Plan, no further review and evaluation is required.

   OR

   B. If the proposed changes ☒ **DO** require a revision to the Emergency Plan, complete Part 3 of this review.

Preparer: _____ Date: _____

Reviewer: _____ Date: _____

Emergency Preparedness Manager: _____ Date: _____

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 3 of 4)

Document Title: CAB HVAC Design Changes Review No.: 069EP120

Document No.: CC-EG-2006-0073 Revision: 0

PART 3 EFFECTIVENESS REVIEW

A.1 Has the capability to perform the Emergency Planning function(s) been degraded or lost as a result of the proposed change?

☐ **YES** ☒ **NO** (provide justification)

Justification: _____

A.2 Have the time requirements of any affected Emergency Planning requirements been relaxed or lost as a result of the proposed change?

☐ **YES** ☒ **NO** (provide justification)

Justification: _____

If 'YES' is checked for either question A.1 or A.2, the change does decrease the effectiveness of the Emergency Plan. If 'NO' is checked for both questions A.1 and A.2, then the change does not decrease the effectiveness of the Emergency Plan.

Note: NRC approval is required prior to implementation if the proposed change decreases the effectiveness of the Emergency Plan.

B. Based on this evaluation the proposed change ☐ **DOES** ☒ **DOES NOT** decrease the effectiveness of the Emergency Plan.

C. The Emergency Plan ☒ **CONTINUES** ☐ **DOES NOT CONTINUE** to meet the requirements 10 CFR 70.22(i)(3), 10 CFR 40.31(j)(3), and all other applicable regulations, requirements, and commitments.

Preparer: Dennis Swain Dennis Swain Date: 02/22/07

Reviewer: Jim Sites J. M. Sites Date: 02/22/07

Emergency Preparedness Manager: David Vandewalle Date: 2/26/07

ATTACHMENT 1
10 CFR 70.32(i)/10 CFR 40.35(f) EVALUATION AND EFFECTIVENESS REVIEW
(Sheet 4 of 4)

Document Title: CAB HVAC Design Changes Review No.: 069EP120

Document No.: CC-EG-2006-0073 Revision: 0

Summary Of Changes

The design change DCC-NEF-2005-0045 proposes to revise the design of the HVAC systems serving the CAB to bring the system into line with the Urenco requirements for cooling, redundancy, & design temperatures per TTP UPD/0200548B.

Issue 1 -

The ISAS Markup for section 3.5.1.1.9 Centrifuge Assembly Bldg HVAC System needs to be reviewed and clarified concerning "one fan that filter the room air" to be in accordance with EP Section 1.2.1

The Emergency Plan section 1.2.1 Gaseous Effluent Vent Systems, has "two separate 100% capacity fans".

Issue 2 -

The ISAS Markup for section 3.5.1.1.9 deletes specific information concerning the type and percent efficient filters utilized in the exhaust filter train with less specific descriptions.

The Emergency Plan specifies the filters utilized in Table 1.2-1.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 1 of 5

70.72(c) Evaluation Number: 2007-0195 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2006-0073 **Revision Number:** 0

I. Description of Change:

CC-EG-2007-0073 evaluates the following changes to the design features of the CAB HVAC:

DCC NEF-2005-0045

(1) Modifies HVAC capacity and fan arrangement to add redundancies and adjustment for changed design data (e.g., heat/cold loads, temps, etc.).

(2) Removes humidification from the CAB HVAC systems.

(3) Changes from hot/cold water heat exchangers to DX (direct expansion/refrigerant) Units.

DCC NEF-2006-0060

Made changes to adjust the design of the CAB centrifuge assembly area HVAC to more closely reflect current operating requirements.

a. The area shall be controlled between 18 °C and 22 °C with a maximum temperature change of 1 deg C per hour. The previous requirement was 18 to 25 °C with no temperature change rate limitation.

b. Humidity shall be between 25 and 55 %. Previously there was no minimum value.

c. The maximum heat load has been increased form 35 kW to 61 kW per assembly area.

d. The supply and return have been configured to provide directional air flow from top to bottom. The return air will be drawn off as low as possible along both long sides of room 121 and 122. A false ceiling just below the trusses will be introduced to facilitate a controlled down flow of conditioned air. Ceiling panels type could be 300X1 800 mm perforated steel plate (dia. 2 mm, 21% perforated), acoustic 100% close sealed isolation (thickness 30 mm).

   Extra air will be required to the areas when 5000 M^3/h is being exhausted.

e. The south side is to also use the same ventilation as the north side allowing for more de-gas cells to be added in the future.

f. A computer server room is to be added and thus a new ventilation load is being added.

OPEN ITEMS:

CR 07-0265

Action Item 1

Provide engineering basis documentation to support humidity control and air flow basis for the new design for the CAB DX units. Also provide updated figures with the new configurations for DX units for the following:

ISA Figure 3.4-19, Process Flow Diagram Centrifuge Test & Post Mortem Facilities Exhaust Filtration Sys.
ISA Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System.
ISA Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System.
ISA Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System.
ISA Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 2 of 5

70.72(c) Evaluation Number: 2007-0195 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2006-0073 **Revision Number:** 0

Action Item 2

Provide updated tables for the figures below to include the refrigerant for the new HVAC systems for the CAB:

ER Table 2.1-1, Chemicals and Their Properties
ER Table 2.1-3, Chemicals – Centrifuge Assembly Building (CAB)
SAR Table 6.1-1 Chemicals – Hazardous Properties
SAR Table 6.1-3 Chemicals – Centrifuge Assembly Building

Action Item 3

Provide engineering basis documentation to support humidity control and air flow basis for the design for the newly added computer server room. Also provide an updated figure depicting the computer server room HVAC system:

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☒ NO

Basis for answer:

The design changes described above were prompted by design development in consideration of economical improvements and as required to meet the NEF design basis.

The significant considerations are basically the change from water temperature control to DX (direct refrigerant expansion) and ambient air parameters and associated air flow and conditioning.

Refrigerant 410a is to be utilized at the facility and was not previously considered. Per Reference 14, (Memorandum PEF-07-010), R410a is not known to be reactive with UF6 and that the reaction of water with UF6 is considered worse reaction, thus bounded by the existing analysis of water with UF6.

The air conditioning parameters are not changed enough to provide for an atmosphere to significantly affect the existing UF6 criticality considerations. The change in air flow amounts, directions, or configurations does not effect the criticality considerations for the reactions possible with UF6.

The configuration changes do not decrease the ability of any equipment or structure to mitigate radiological release rates therefore the consequences to the public will remain unchanged.

The physical location, type/size of equipment, additional water volumes and other features are designed to meet the required building codes and to be consistent with site specific design requirements. This assures that the design features such as seismic, fire protection, local flooding etc. of the structures are considered.

The change from hot water heat in the HVAC to electric heat adds an ignition source not previously present in the HVAC ductwork. The heaters require power cables, controls and possible fire barrier

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 3 of 5

70.72(c) Evaluation Number: 2007-0195 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2006-0073 **Revision Number:** 0

penetrations. The change has been evaluated for impact to the fire hazards analysis. No adverse conditions were found.

Action Item 1

New figures for the license bases documents to be updated are required. This tracks the updating of the licensing basis documentation. The design configuration was reviewed (See OAR CC-EG-2007-0023). The design configuration will not contribute to a new accident sequence. Thus this action item does not affect an accident sequence.

Action Item 2

DCC NEF-2005-0045 changes from chilled / hot water heat exchangers to DX (refrigerant) Units. The refrigerant, R410a and estimated amounts must be added to the applicable license basis document tables. Per Reference 14 (Memorandum PF-07-010) the refrigerant to be used does not react with UF6. At this time the amount of R410a is unknown, however, no matter the amount a new sequence would not be created since the refrigerant does not react with UF6.

Action Item 3

This action item was created to ensure the added computer server room was evaluated and added to license basis documents. A review of the accident sequences and external events in the ISA Summary indicates that the proposed revised design of the CAB HVAC system for the computer server room, which is outside a radiological area, won't create a new type of accident sequence that unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary.

Base on the above the proposed changes do not create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary?

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☒ NO

Basis for answer:

The proposed changes do not use a new process, technology or control system since the technical aspects are common for the construction of this type of facility. These are mainly air conditioning changes for which the technology and control systems are common in the industry.

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☒ NO

Basis for answer:

ISA Table 3.7-2 and 3.8-1 were reviewed. Accident Sequences TP8-1 and TP8-2 address Centrifuge Test Facility failures of heater controllers and carbon trap saturation. Neither the heater controllers, nor

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 4 of 5

70.72(c) Evaluation Number: 2007-0195 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2006-0073 **Revision Number:** 0

the process that might affect the carbon traps are affected.

In ISAS Table 3.8-1 IROFS35 addresses fire barrier doors. Accident sequence FF1-1 concerns the Centrifuge Test Facility. Fire doors are not affected by these changes.

In ISAS Table 3.8-1 IROFS36a addresses transient fire loads. Accident sequence FF1-2 concerns the Centrifuge Test Facility. These changes will not affect excessive transient combustibles.

No safety function of any of the listed IROFS is affected. Thus the proposed change does not involve removal, or alternation of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61.

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☒ NO

Basis for answer: ISA Table 3.8-2 identifies Sole IROFS.

In ISAS Table 3.8-2 IROFS35 addresses fire barrier doors. Accident sequence FF1-1 concerns the Centrifuge Test Facility. Fire doors are not affected by these changes.

In ISAS Table 3.8-2 IROFS36a addresses transient fire loads. Accident sequence FF1-2 concerns the Centrifuge Test Facility. These changes will not affect excessive transient combustibles.

A review of the Sole IROFS did not identify any that would be impacted by the minor interior structural changes. Thus the change does not alter any IROFS listed in the ISA summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.72.

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☒ NO

Basis for answer:

These changes are not prohibited by a 10 CFR 70.72 license condition or order. There are no prohibitive statements specified in 10CFR70.72. The material License contains specific prohibitive statements concerning the use of certain types of controllers, initial introduction of UF6 to the facility and the depleted UF6 de-conversion process. It also contains limits on the types and quantities of material allowed to be on site. The NRC issued orders for the NEF concern additional Security Measures, Protection of Safeguards Information, and Fingerprinting and Criminal Background checks. None of these issues are affected by these changes.

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☒ Implement the Change per plant procedures without obtaining a License Amendment.

☐ Request and receive a License Amendment prior to implementation.

ATTACHMENT 1
10 CFR 70.72(c) Evaluation Form
Page 5 of 5

70.72(c) Evaluation Number: 2007-0195 **Rev. Number:** 0

Facility Change/Document/Program Number: CC-EG-2006-0073 **Revision Number:** 0

IV. References used to perform the evaluation (if not provided in the response to each question).

1. ISA Section 3.3.1.4 Centrifuge Assembly Building
2. ISA Section 3.4.10, Centrifuge Test and Centrifuge Post Mortem Process
3. ISA Section 3.5.1.1.9, Centrifuge Assembly Building HVAC System
4. ISA Figure 3.4-19, Process Flow Diagram Centrifuge Test &d Post Mortem Facilities Exhaust Filtration Sys.
5. ISA Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System.
6. ISA Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System.
7. ISA Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System.
8. ISA Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.
9. ER Section 4.12, Radiological Impacts
10. ER Table 2.1-1, Chemicals and Their Properties
11. ER Table 2.1-3, Chemicals – Centrifuge Assembly Building (CAB)
12. SAR Table 6.1-1 Chemicals – Hazardous Properties
13. SAR Table 6.1-3 Chemicals – Centrifuge Assembly Building
14. Memorandum PEF-07-010, Work in Progress to Ensure Conformance to Revision 4 of EG-101 & Refrigerant R410a
15. Configuration Change CC-EG-2007-0023, OAR of the CAB Mechanical

NO ADDITIONAL REFERENCES BEYOND THOSE DISCUSSED IN THE EVALUATION.

V. Review and Approval:

10 CFR 70.72(c) Evaluator: Eugene Dale Pruitt (Printed Name) — E Dale Pruitt (Signature) Date: 10/3/07

10 CFR 70.72(c) Reviewer: Paul E. Ferrari (Printed Name) — Paul E Ferrari (Signature) Date: 10/3/07

SRC Review Required: (Yes) No (Circle one) If No, provide basis:

CARL R MACKERT (SRC Chairman, Printed Name) — Carl R Mackert (Signature) Date: 10/12/2007

2007-47
SRC Meeting Number

Procedure Title: **10 CFR 70.72 (c) Evaluations for Proposed Changes**	
LS-3-1000-04-F-1 **10 CFR 70.72(c) Screen/Evaluation** **70.72(c) Tracking Number: 2008-0260**	LS-3-1000-04 Rev. 2 Level 3 - Information Use Page 1 of 10

Part I – Applicability Determination

70.72(c) Tracking Number: 2008-0260 **Rev. Number:** 1

Facility Change/Document/Program Number: CC-EG-2006-0073 **Rev. Number:** 0

Document/Activity Information

Brief Description of the Activity (what is being changed and why): **OAR for CAB Mechanical**

This revision, 1, is being performed to document the acceptability of refrigerant 407c for use in the CAB. Revision 0 to this 70.72(c) was approved by the SRC on 10/12/2007. Addressing the additional 407c refrigerant (italicized) is the only change made in this revision. All other statements are unchanged from revision 0.

CC-EG-2007-0073 evaluates the following changes to the design features of the CAB HVAC:

DCC NEF-2005-0045

(1) Modifies HVAC capacity and fan arrangement to add redundancies and adjustment for changed design data (e.g., heat/cold loads, temps, etc.).

(2) Removes humidification from the CAB HVAC systems.

(3) Changes from hot/cold water heat exchangers to DX (direct expansion/refrigerant) Units.

DCC NEF-2006-0060

Made changes to adjust the design of the CAB centrifuge assembly area HVAC to more closely reflect current operating requirements.

a. The area shall be controlled between 18 °C and 22 °C with a maximum temperature change of 1 deg C per hour. The previous requirement was 18 to 25 °C with no temperature change rate limitation.

b. Humidity shall be between 25 and 55 %. Previously there was no minimum value.

c. The maximum heat load has been increased form 35 kW to 61 kW per assembly area.

d. The supply and return have been configured to provide directional air flow from top to bottom. The return air will be drawn off as low as possible along both long sides of room 121 and 122. A false ceiling just below the trusses will be introduced to facilitate a controlled down flow of conditioned air. Ceiling panels type could be 300X1 800 mm perforated steel plate (dia. 2 mm, 21% perforated), acoustic 100% close sealed isolation (thickness 30 mm).

   Extra air will be required to the areas when 5000 M^3/h is being exhausted.

e. The south side is to also use the same ventilation as the north side allowing for more de-gas cells to be added in the future.

f. A computer server room is to be added and thus a new ventilation load is being added.

Address the questions below for all aspects of the change. If the answer is YES for any portion of the change, then the identified Governing Process(es) applies to that portion of the change rather than 10 CFR 70.72(c).

Note: It is not unusual to have more than one process apply to a change.

I. Does the proposed activity involve a change to the following:	Governing Process	YES	NO
A. Quality Assurance Program Description (QAPD)? [see Item (xix) in SER on QAPD]	QA-3-2000-06 (QA-400)	☐	☒
B. Environmental Report (ER) or implementing procedure? [see 10 CFR 51.60(2)]	EN-3-1000-01 (EN-103)	☒	☐
C. Emergency Plan (EP) or implementing procedure? [see 10 CFR 70.32(i) & 10 CFR 40.35(f)]	EP-3-1000-02 (EP-120)	☐	☒
D. Fundamental Nuclear Material Control Plan (FNMCP) or implementing procedure? [see 10 CFR 70.32(c)(1)(iii)]	MC-3-1000-01 (MC-120)	☐	☒
E. Security Plan (SP) or implementing procedure? [see 10 CFR 70.32(e)]	SY-3-1000-10 (SY-120)	☐	☒
F. Safeguards Contingency Plan or implementing procedure? [see 10 CFR 70.32(g)]	SY-3-1000-10 (SY-120)	☐	☒
G. Guardforce Training Plan or implementing procedure?	SY-3-1000-10 (SY-120)	☐	☒
H. SPPP for Protection of Classified Matter or implementing procedure? [see 10 CFR 95.19]	SY-3-1000-11 (SY-130)	☐	☒
I. SPPP for Protection of Classified Matter at the ET-US location of the National Enrichment Facility or implementing procedure? [see 10 CFR 95.19]	SY-3-1000-11 (SY-130)	☐	☒
J. Regulatory commitment not covered by another regulation based change process?	LS-3-1000-02 (LS-102)	☐	☒

Part I – Applicability Determination

70.72(c) Tracking Number: 2008-0260 **Rev. Number:** 1

Facility Change/Document/Program Number: CC-EG-2006-0073 **Rev. Number:** 0

II. Does the proposed activity involve:	Governing Process	YES	NO
A. Maintenance that restores SSCs to their as-designed condition?	Maint Procedures	☐	☒

III. Does the proposed activity involve a change to a:	Governing Process	YES	NO
A. Administrative or managerial procedures that do not affect management measures or process safety information?	AD-3-1000-01 (AD-101)	☐	☒

IV. Does the proposed activity involve:	Governing Process	YES	NO
A. Previous 70.72(c) Screen, 70.72(c) Evaluation or NRC approval? **(70.72 - Revision 0, tracking # 2007-0195, approved by SRC on 10/12/2007)**	If YES, reference the previous 70.72(c) Tracking Number or NRC approval below.	☒	☐

NOTE

"ALL aspects of the change" indicates that all appropriate licensing and design bases documents that are considered to be applicable to the current change have been reviewed.
If applicable, the evaluator and reviewer have reviewed the previous 70.72(c) Screen or 70.72(c) Evaluation quality record to ensure it meets current program expectations.

☐ A prior 70.72(c) Review or prior NRC approval addresses ALL aspects of the activity; therefore, a 70.72(c) Review is **NOT** required. Enter the 70.72(c) Tracking Number and/or document number and title of the prior NRC approval that addresses the proposed activity. _____.

☐ One or more processes above control **ALL** aspects of the activity; thus a 70.72(c) Review is **NOT** required.

☒ **IF** ANY PORTION of the activity IS NOT controlled by one or more of the processes above, **THEN** a 70.72(c) Review IS required and should be initiated by completing the 70.72(c) Screen.

10CFR70.72(c) Evaluator: Paul E. Ferrari / Paul E Ferrari **Date:** 7/15/08

10CFR70.72(c) Reviewer: Gordon R. Stillman / Gordon R Stillman **Date:** 7/15/2008

Printed Name Signature

Part II – 10 CFR 70.72(c) Screen

70.72(c) Tracking Number: 2008-0260 Rev. Number: 1

Facility Change/Document/Program Number: CC-EG-2006-0073 Rev. Number: 0

I. Description of the Change: OAR for CAB Mechanical

This revision, 1, is being performed to document the acceptability of refrigerant 407c for use in the CAB. Revision 0 to this 70.72(c) was approved by the SRC on 10/12/2007. Addressing the additional 407c refrigerant (italicized) is the only change made in this revision. All other statements are unchanged from revision 0.

CC-EG-2007-0073 evaluates the following changes to the design features of the CAB HVAC:

DCC NEF-2005-0045

(1) Modifies HVAC capacity and fan arrangement to add redundancies and adjustment for changed design data (e.g., heat/cold loads, temps, etc.).

(2) Removes humidification from the CAB HVAC systems.

(3) Changes from hot/cold water heat exchangers to DX (direct expansion/refrigerant) Units.

DCC NEF-2006-0060

Made changes to adjust the design of the CAB centrifuge assembly area HVAC to more closely reflect current operating requirements.

g. The area shall be controlled between 18 °C and 22 °C with a maximum temperature change of 1 deg C per hour. The previous requirement was 18 to 25 °C with no temperature change rate limitation.

h. Humidity shall be between 25 and 55 %. Previously there was no minimum value.

i. The maximum heat load has been increased form 35 kW to 61 kW per assembly area.

j. The supply and return have been configured to provide directional air flow from top to bottom. The return air will be drawn off as low as possible along both long sides of room 121 and 122. A false ceiling just below the trusses will be introduced to facilitate a controlled down flow of conditioned air. Ceiling panels type could be 300X1 800 mm perforated steel plate (dia. 2 mm, 21% perforated), acoustic 100% close sealed isolation (thickness 30 mm).

Extra air will be required to the areas when 5000 M^3/h is being exhausted.

k. The south side is to also use the same ventilation as the north side allowing for more de-gas cells to be added in the future.

l. A computer server room is to be added and thus a new ventilation load is being added.

II. Applicability Determination

List other applicable processes and any relevant basis for identifying the process(es) made during completion of the Applicability Determination

III. 70.72(c) Screening Questions (Check correct response and provide basis for each answer)

A. Does the proposed change involve a change to the site, structures, processes, systems, equipment, components, computer programs, procedures or instructions that could impact worker or public health and safety? ☐ Yes ☒ No

Basis for answer:

The design changes described above were prompted by design development in consideration of economical improvements and as required to meet the NEF design basis.

The significant considerations are basically the change from water temperature control to DX (direct refrigerant expansion) and ambient air parameters and associated air flow and conditioning.

Refrigerant 410a and 407c are to be utilized at the facility and was not previously considered. Per Reference 14, (Memorandum PEF-07-010), R410a is not known to be reactive with UF6 and that the reaction of water with UF6 is considered worse reaction. Per email from Shiaw-Der Su, dated 6/10/08, *UF6 reactions with R407C for credible abnormal conditions [are] bounded by reactions with water or moisture in air*. Thus both 410a and 407c are bounded by the existing analysis of water with UF6.

The air conditioning parameters are not changed enough to provide for an atmosphere to significantly affect the existing UF6 criticality considerations. The change in air flow amounts, directions, or configurations does not effect the criticality considerations for the reactions possible with UF6.

The configuration changes do not decrease the ability of any equipment or structure to mitigate radiological release rates therefore the consequences to the public and workers will remain unchanged.

B. Does the proposed change involve a change to the site, structures, processes, systems, equipment, components, computer programs, procedures or instructions that could impact the control of licensed material? ☐ Yes ☒ No

Basis for answer:

The proposed changes do not use a new process, technology or control system since the technical aspects are common for the construction of this type of facility. These are mainly air conditioning changes for which the technology and control systems are common in the industry.

The physical location, type/size of equipment, additional water volumes and other features are designed to meet the required building codes and to be consistent with site specific design requirements. This assures that the design features such as seismic, fire protection, local flooding etc. of the structures are considered.

The change from hot water heat in the HVAC to electric heat adds an ignition source not previously present in the HVAC ductwork. The heaters require power cables, controls and possible fire barrier penetrations. The change has been evaluated for impact to the fire hazards analysis. No adverse conditions were found.

Therefore these changes do not impact the control of licensed material.

C. Does the proposed change involve a change to the ISA, ISA Summary, IROFS, items that affect the function of IROFS, or IROFS boundary definition? ☐ Yes ☒ No

Basis for answer:

ISA Table 3.7-2 and 3.8-1 were reviewed. Accident Sequences TP8-1 and TP8-2 address Centrifuge Test Facility failures of heater controllers and carbon trap saturation. Neither the heater controllers, nor the process that might affect the carbon traps are affected.

In ISAS Table 3.8-1 IROFS35 addresses fire barrier doors. Accident sequence FF1-1 concerns the Centrifuge Test Facility. Fire doors are not affected by these changes and IRFOS35 is no longer applicable to the CAB since Amendment 8 to the SNM license was approved.

In ISAS Table 3.8-1 IROFS36a addresses transient fire loads. Accident sequence FF1-2 concerns the Centrifuge Test Facility. These changes will not affect excessive transient combustibles and IRFOS36a is no longer applicable to the CAB since Amendment 8 to the SNM license was approved.

No safety function of any of the listed IROFS is affected. Thus the proposed change does not involve removal, or alternation of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61. Therefore the function of IROFS and IROFS boundary definitions are not affected.

D. Does the proposed change involve a change to the Process Safety information provided in the Safety Program? ☐ Yes ☒ No

Basis for answer:

A review of the Safety Program and particularly Chapter 6, Chemical Process Safety, of the Safety Analysis Report (SAR) and the discussion of the criteria and identification of the chemicals of concern at the NEF and has concluded that uranium hexafluoride (UF6) is the only direct chemical of concern that will be used at the facility. These HVAC changes and particularly the use of R410a and R407c refrigerants, as stated in section A, will not change the Process Safety information of the Safety Program.

E. Does the proposed change involve a change to the Management Measures provided in the Safety Program? ☐ Yes ☒ No

Basis for answer:

A review of the Management Measures in the Safety Program did not disclose any instances where these modifications, as delineated in the "Description of Change" above, would change the Management Measures or the Safety Program.

F. Does the proposed change involve a change that is prohibited by a License Condition or an Order? ☐ Yes ☒ No

Basis for answer:

These changes are not prohibited by a 10 CFR 70.72 license condition or order. There are no prohibitive statements specified in 10CFR70.72. The material License contains specific prohibitive statements concerning the use of certain types of controllers, initial introduction of UF6 to the facility and the depleted UF6 de-conversion process. It also contains limits on the types and quantities of material allowed to be on site. The NRC issued orders for the NEF concern additional Security Measures, Protection of Safeguards Information, and Fingerprinting and Criminal Background checks. None of these issues are affected by these changes.

Part II – 10 CFR 70.72(c) Screen

70.72(c) Tracking Number: 2008-0260 **Rev. Number:** 1

Facility Change/Document/Program Number: CC-EG-2006-0073 **Rev. Number:** 0

IV. Required Action (Check applicable condition):

☐ **IF** any of questions A, B, C, D, or E are answered YES and question F is answered NO, **THEN** initiate a 10 CFR 70.72(c) Evaluation.

☐ **IF** questions A, B, C, D, or E are answered NO and question F is answered YES, **THEN** DO NOT implement the activity until a License Amendment has been obtained from the NRC.

☒ **IF** all questions are answered NO, **THEN** implement the activity per the applicable plant procedure.

V. References used to perform the screen (if not provided in the response to each question).

1. ISA Section 3.3.1.4 Centrifuge Assembly Building
2. ISA Section 3.4.10, Centrifuge Test and Centrifuge Post Mortem Process
3. ISA Section 3.5.1.1.9, Centrifuge Assembly Building HVAC System
4. ISA Figure 3.4-19, Process Flow Diagram Centrifuge Test &d Post Mortem Facilities Exhaust Filtration Sys.
5. ISA Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System.
6. ISA Figure 3.5-13, Flow Diagram CAB Centrifuge Storage and Miscellaneous Areas HVAC System.
7. ISA Figure 3.5-14, Flow Diagram CAB Offices and Miscellaneous Rooms HVAC System.
8. ISA Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System.
9. ER Section 4.12, Radiological Impacts
10. ER Table 2.1-1, Chemicals and Their Properties
11. ER Table 2.1-3, Chemicals – Centrifuge Assembly Building (CAB)
12. SAR Table 6.1-1 Chemicals – Hazardous Properties
13. SAR Table 6.1-3 Chemicals – Centrifuge Assembly Building
14. Memorandum PEF-07-010, Work in Progress to Ensure Conformance to Revision 4 of EG-101 & Refrigerant R410a
15. Configuration Change CC-EG-2007-0023, OAR of the CAB Mechanical
16. E-mail from Shiaw-Der Su, dated 6/10/08, stating: *UF6 reactions with R407C for credible abnormal conditions [are] bounded by reactions with water or moisture in air.*

VI. Screen Signoffs

10 CFR 70.72(c) Evaluator: Paul E. Ferrari / Paul E Ferrari **Date:** 7/15/08
Printed Name Signature

Dept.: Design Management **Phone:** 423-842-0353

Part III – 10 CFR 70.72(c) Evaluation

70.72(c) Tracking Number: 2008-0260 **Rev. Number:** 1

Facility Change/Document/Program Number: CC-EG-2006-0073 **Rev. Number:** 0

I. Description of Change:

II. 10 CFR 70.72(c) Evaluation:

NOTES: Provide a written response providing the basis for the answer to each question below.

(c)(1)(i) Does the proposed change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary? ☐ YES ☐ NO

Basis for answer:

(c)(1)(ii) Does the proposed change use new processes, technologies or control systems for which the licensee has no prior experience? ☐ YES ☐ NO

Basis for answer:

(c)(2) Does the proposed change involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of § 70.61? ☐ YES ☐ NO

Basis for answer:

(c)(3) Does the proposed change alter any IROFS, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61? ☐ YES ☐ NO

Basis for answer:

(c)(4) Is the proposed change otherwise prohibited by 10 CFR 70.72, license condition, or order? ☐ YES ☐ NO

Basis for answer:

Part III – 10 CFR 70.72(c) Evaluation

70.72(c) Tracking Number: 2008-0260 **Rev. Number:** 1
Facility Change/Document/Program Number: CC-EG-2006-0073 **Rev. Number:** 0

III. Conclusion of 10 CFR 70.72(c) Evaluation:

Based upon the results of this Evaluation: (Select one of the following)

☐ If the answer to all the questions in Section II, are "NO", a License Amendment is not required, proceed with implementation using applicable processes.

☐ If the answer to any question in Section II. Is "Yes", **STOP,** and either revise the proposed activity and perform another 70.72(c) review **OR** contact Licensing to initiate a License Amendment Request as NRC approval of the change is required prior to implementation.

IV. References used to perform the evaluation (if not provided in the response to each question)..

V. Review and Approval:

10 CFR 70.72(c) Evaluator: _____ (Printed Name) _____ (Signature) **Date:** / /

10 CFR 70.72(c) Reviewer: _____ (Printed Name) _____ (Signature) **Date:** / /

10 CFR 70.72(c) Approver: _____ (Printed Name) _____ (Signature) **Date:** / /

LBDCR No: 08-00083 Configuration Change No: CC-EG-2006-0073

LBDCR Package Preparer: Paul Ferrari / Paul E Ferrari LBDCR Initiation Date: 07 / 29 /08
(Print Name/Signature) *mm/dd/yy*

1) Proposed License Basis Document Change(s) Brief Description

Revise the design of I-IVAC systems serving the CAB to bring the system into line with the Urenco requirements for cooling, redundancy and design temperatures.

2) License Basis Document Change(s) Approval

☐ The LBDCR is an editorial change as defined by LS-3-1000-06; Section 3, 4, 5 and 6 of this Form are Not Applicable (N/A).

☒ The LBDCR is NOT an editorial change and is a proposed Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-3-2100-01, Configuration Change. Sections 3, 4, and 5 of this Form are Not Applicable (N/A).

☐ The LBDCR is NOT an editorial change and is NOT a proposed Configuration Change. The review process defined below shall be utilized. Complete Sections 3, 4, and 5 of this Form.

3) Document(s) Affected By Proposed Change(s)

Document	Review Information
☒ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-3-1000-02 (LS-102), Communications with Regulatory Agencies. NRC approval required before implementation.
☒ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-3-1000-02 (LS-102), Communications with Regulatory Agencies. NRC approval required before implementation.
☒ Nuclear Criticality Safety Validation Report (i.e., MONK 8A Validation and Verification report)	NRC approval required before implementation
☒ ISA Summary	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes.
☒ SAR	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes.
☒ Environmental Report	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EN-3-1000-01 (EN-103), Environmental Review and Evaluation.
☒ QAPD	Assess in accordance with: • LS-3-1000-04 LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-3-2000-06 (QA-400), Quality Assurance Program Description Changes
☒ Emergency Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-3-1000-02 (EP-120), 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☒ FNMCP	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-3-1000-01 (MC-120), 10 CFR 70.32(c)(1)(iii) Change Evaluation.

Continued next page.

LBDCR No: 08-00083 Configuration Change No: CC-EG-2006-0073

Document	Review Information
☐ Physical Security Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-10 (SY-120), 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Safeguards Contingency Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-10 (SY-120), 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Guardforce Training Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-10 (SY-120), 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ SPPP for the Protection of Classified Matter	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-11 (SY-130), 10 CFR 95.19 Change Evaluation.
☐ SPPP for the Protection of Classified Matter at the ET-US location of the NEF	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-11 (SY-130), 10 CFR 95.19 Change Evaluation.

4) LBDCR Implementation Activities

[e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking No.

5) LBDCR Review and Approval

Reviewer: _____ / _____ Date: _____
(Print/Sign)

FAM: _____ / _____ Date: _____
(Print/Sign) (N/A if NOT applicable.)

HS&E Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

ET-US Compliance Manager: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign)*

LBDCR No: 08-00083 Configuration Change No: CC-EG-2006-0073

6) LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☐ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

Records incorporated into current revision of applicable documents by:

_____ / _____ Date: _____
Print/Sign

Records verified for accuracy by:

_____ / _____ Date: _____
Print/Sign

☐ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-3-2000-01 (RM-101), Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.

7) LBDCR Approval

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

ET-US Compliance Manager: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

1.2.1 Gaseous Effluent Vent Systems

The principal function of the Gaseous Effluent Vent Systems (GEVSs) is to protect both the operator during the connection/disconnection of uranium hexafluoride (UF_6) process equipment and the environment, by collecting and cleaning all potentially hazardous gaseous emissions from the facility prior to release to the atmosphere.

There are two GEVSs, both located in the TSB. One system services the Separations Building processes (called Separations Building GEVS) and the other services the TSB processes (called TSB GEVS). The Separations Building GEVS has two separate 100% capacity filtration trains; the TSB GEVS has one 100% train. A third system, located in the Centrifuge Assembly Building (CAB), also performs a GEVS function. This system, the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System, services the Centrifuge Test Facility and the Centrifuge Post Mortem Facility. The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System ~~has one 100% filtration train and two separate 100% capacity fans.~~ incorporates a filter train consisting of high efficiency filters, activated carbon filters, HEPA Bag In/Bag Out fitters with one fan that filters the room air before it is discharged to outdoors.

Instrumentation is s. Actions from ~~the in~~ systems into a saf Filtration System, ~~operator actions in response to alarm place the system into a safe condition~~.

The GEVSs and the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consist of filters, fans and a duct system that operates slightly below atmospheric pressure.

A fan in each GEVS pulls potentially contaminated gases from the areas through the duct system and through a set of filters in series (pre-filter, High Efficiency Particulate Air (HEPA) - filter, activated charcoal filter impregnated with potassium carbonate). Efficiency and filter types are shown in Table 1.2-1, Filter Types and Efficiency Specifications. The cleaned gases are discharged to the atmosphere via two 3.1 m (10 ft) high rooftop stacks located on the TSB (for GEVS) and one 3.1 m (10 ft) high rooftop stack located on the CAB (for the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System).

a

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consists of a duct network that serves the Centrifuge Test and Post Mortem Facilities and operates at negative pressure. The ductwork is connected to one filter station and vents through ~~either of two~~ 100% fan~~s~~. Both the filter station and ~~either of~~ the fan~~s~~ can handle 100% of the effluent. ~~One of the fans will normally be in standby.~~ Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down.

Gases from the associated areas pass through the 85% efficient prefilter which removes dust and protects downstream filters, then through the 99% efficient activated charcoal filter that captures HF. Remaining uranic particles, (mainly UO_2F_2) are treated by a 99.7% efficient HEPA filter. After filtration, the clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the monitored (alpha and HF) stack on the Centrifuge Assembly Building.

3.12.1.3 Liquid Effluent System

Quantities of radiologically contaminated, potentially radiologically contaminated, and nonradiologically contaminated aqueous liquid effluents are generated in a variety of operations and processes in the TSB and in the Separations Building. The majority of all potentially radiologically contaminated aqueous liquid effluents are generated in the TSB. All aqueous liquid effluents are collected in tanks that are located in the Liquid Effluent Collection and Treatment System in the TSB. The collected effluent is sampled and analyzed.

3.12.1.3.1 Effluent Sources and Generation Rates

Numerous types of aqueous and non-aqueous liquid wastes are generated in the plant. These effluents may be significantly radiologically contaminated, potentially contaminated with low amounts of contamination, or non-contaminated. Effluents include:

- Hydrolyzed uranium hexafluoride and aqueous laboratory effluent

These hydrolyzed uranium hexafluoride solutions and the aqueous effluents are generated during laboratory analysis operations and require further processing for uranium recovery.

- Degreaser Water

This is water, which has been used for degreasing contaminated pump and plant components coated in Fomblin oil. The oil, which is heavier than water will be separated from the water via gravity separation, and the suspended solids filtered, prior to routing for uranium recovery. Most of the soluble uranium components dissolve in the degreaser water.

- Citric Acid

Table 2.1-1 Chemicals and Their Properties

Form	Chemical	Chemical Formula	Corrosive	Flammable	Combustible	Oxidizer	Reactive	Toxic	Radioactive	Health Hazard	Irritant	Remarks
Liquid	uranium hexafluoride	UF_6	✓				✓	✓	✓			
	uranium compounds	UO_2F_2						✓	✓			Residual
	silicone oil	C_2H_6O			✓							
	ethanol	C_2H_5		✓								
	methylene chloride	CH_2Cl_2								✓		
	oil				✓							
	cutting oil				✓							
	paint				✓							
	degreaser solvent, SS25				✓							
	penetrating oil				✓							
	PFPE (Tyreno) oil											
	organic chemicals			✓	✓				✓			Note 2
	nitric acid (65%)	HNO_3	✓									
	peroxide	H_2O_2				✓						
	acetone	C_3H_6O		✓								
	toluene	C_7H_8		✓								
	petroleum ether			✓								
	sulfuric acid	H_2SO_4	✓									
	phosphoric acid	H_3PO_4	✓									
	sodium hydroxide (0.1N)	NaOH	✓									
	diesel fuel (outdoors)				✓							
	citric acid waste											Note 1
	precipitation sludge							✓	✓			
	evaporator/dryer sludge							✓	✓			
	hand wash / shower water											Note 1
	miscellaneous samples											Note 4
	R23 trifluoromethane											
	R404A fluoroethane blend											

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

Table 2.1-3 Chemicals – Centrifuge Assembly Building (CAB)

CHEMICAL/PRODUCT			INVENTORY BY LOCATION			REMARKS
NAME	FORMULA	PHYSICAL STATE	CENTRIFUGE ASSEMBLY AREA	CENTRIFUGE TEST FACILITY	CENTRIFUGE POST-MORTEM FACILITY	
ethanol	C_2H_6O	liquid	40 L (10.6 gal)			Note 1
methylene chloride	CH_2Cl_2	liquid	40 L (10.6 gal)			Note 1
uranium hexafluoride	UF_6	Gas/solid		50 kg (110 lb)		Notes 2 and 3
hydrogen fluoride, residual	HF	gas		inside pumps		
paper, wipes, gloves, etc.		solid			<1m^3 (<35.3 ft^3)	
oil		liquid			See Remark	Note 4
contaminated disposable clothing		solid			<1m^3 (<35.3 ft^3)	
helium	He	gas	440 m^3 (15,536 ft^3)			Gas volume is at Std. Conditions.
argon	Ar	gas	190 m^3 (6,709 ft^3)			Gas volume is at Std. Conditions.
gaseous nitrogen	N_2	gas	piping	piping		
liquid nitrogen	N_2	liquid		piping		
activated carbon	C	granules		10 kg (22.1 lb)		
aluminum oxide	Al_2O_3	granules		20 kg (44.1 lb)		
carbon fibers		solid			See Remark	Note 4
metals (aluminum)		solid			See Remark	Note 4

NOTES:

1. In the Centrifuge Assembly Area, ethanol and methylene chloride are used as cleaning agents. Total quantity of both solvents used in one year is 80 L (21.1 gal).
2. Centrifuges in the Centrifuge Post Mortem Facility are considered contaminated based on previous operation with UF_6. Once in the Centrifuge Post Mortem Facility, they will not contain significant amounts of UF_6.
3. In the Centrifuge Test Facility, 50 kg (110 lb) of UF_6 is contained in a feed vessel, test centrifuges, and a take-off vessel. Physical state will vary depending on testing in progress.
4. Quantity of materials is classified.

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

3.3.1.4.2.3 Assembled Centrifuge Storage Area

Assembled and conditioned centrifuges are stored in the Assembled Centrifuge Storage Area prior to installation.

During construction of the facility, a separate installation team will access this area and transfer the assembled and conditioned centrifuges to the Cascade Halls for deployment.

Centrifuges are routed via a covered corridor that links the Assembled Centrifuge Storage Area with the CRDB. The covered corridor has the same standard of floor as the Assembled Centrifuge Storage Area.

3.3.1.4.2.4 Building Office Area

A general office area is located adjacent to the Centrifuge Assembly Area. It contains the main personnel entrance to the building as well as entrances to the Centrifuge Component Storage Area and Centrifuge Assembly Area. It is a two-story area that includes the following:

- Offices
- ~~Change~~ Rooms - The ~~change~~ rooms provide space where employees can dress in protective clothing as required
- ~~Break Room~~
- Maintenance Area
- ~~Chemical Storage Area~~
- ~~Battery Charging Area~~

Locker
Locker
Canteen
Computer Server Room
Inspection and Test Laboratory
Air Locks

3.3.1.4.2.5 Centrifuge Test and Post Mortem Facilities

The Centrifuge Test Facility is designed to:

- Provide a means of functionally testing the performance of production centrifuges to ensure compliance with design parameters
- Investigate production and operational problems.

This area consists of two test positions. The Centrifuge Post Mortem Facility is designed for investigating problems with production centrifuges. Based on 30 years of European experience, the demand for centrifuge post mortems is infrequent.

The principal functions of the Centrifuge Post Mortem Facility are:

- To facilitate dismantling of contaminated centrifuges using equipment and processes, which minimize the potential to contaminate personnel or adjacent facilities
- To prepare potentially contaminated components and materials for transfer to the TSB prior to disposal.

Centrifuges are brought into the facility on a specially designed transport cart ~~via an airlock entry~~. The facility is also equipped with radiological monitoring devices, toilets and washing facilities, and hand, foot and clothing personnel monitors to detect surface contamination.

3.4.10.3.2 Major Components

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consists of the following major components.

- Duct system
- Prefilter
- Impregnated carbon filter (impregnated with potassium carbonate)
- High Efficiency Particulate Air Filter (HEPA)
- ~~Two exhaust filtration fans~~ ← One Exhaust Filtration Unit
- Exhaust stack
- Stack alpha monitor
- Stack HF monitor.

3.4.10.3.3 Design Description

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consists of a duct network that serves the Centrifuge Test and Post Mortem Facilities and operates at negative pressure. The ductwork is connected to one filter station and vents through either of two 100% fans. Both the filter station and either of the fans can handle 100% of the effluent. One of the fans will normally be in standby. Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down. The system capacity is estimated to be 9,345 m^3/hr (5,500 cfm).

Gases from the associated areas pass through the 85% efficient prefilter which removes dust and protects the carbon filter, then through the 99% efficient activated carbon (potassium carbonate impregnated) filter that captures HF. Remaining uranic particles (mainly UO_2F_2 particles) will be filtered by the 99.97% efficient HEPA filter. The remaining clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the stack on the Centrifuge Assembly Building.

A minimum velocity is maintained in the duct system in order to ensure that particulate contaminates are conveyed through the ductwork without settling. Each section also has a damper to balance the individual flows in the system. Flexible exhaust hoses are provided in both the Centrifuge Test Facility and the Centrifuge Post Mortem Facility. A hood is also provided in the Centrifuge Post Mortem Facility.

The materials of construction, corrosion allowances, and fabrication specifications for the equipment and ductwork used in the GEVS are compatible with UF_6 and HF and are noncombustible.

3.4.10.3.4 Design and Safety Features

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System is designed to protect plant personnel against uranium and HF exposure.

I. Truck Bay

Room Temperature	40°C (104°F) max/7°C (45°F) min
Relative Humidity	40% Design point

The confinement function of the HVAC in the TSB is designed to maintain the clean areas at positive room pressure and the potentially contaminated areas at slightly negative room pressure. The pressurization zones in the TSB are shown on Figure 3.5-11, Code and Area Classifications, Technical Services Building, HVAC Pressurization. This ensures that the airflow direction is from areas of little or no potential for contamination to areas of higher potential for contamination. Pressure zones are controlled by adjusting the filtered exhaust airflow rate and the supply airflow rate accordingly. Also, appropriate access controls are provided to maintain proper airflow patterns.

Exhaust flow from the potentially contaminated rooms (i.e., Ventilated Room, Cylinder Preparation Room and Decontamination Workshop) of the TSB is filtered by a pre-filter, activated carbon filter and HEPA filter and is then released through an exhaust stack. The exhaust stack flow is continuously monitored for alpha and HF. The stack exhaust is periodically sampled. The continuous monitoring and periodic sampling is in accordance with the guidance in Regulatory Guide 4.16. In addition to the confinement function provided by the HVAC system for these rooms, the TSB GEVS provides filtered exhaust for potentially hazardous contaminants via fume hoods and flexible connections for the following areas: Ventilated Room, Laundry, Decontamination Workshop, Chemical Laboratory, Mass Spectrometry Laboratory, Cylinder Preparation Room, Vacuum Pump Rebuild Room and Solid Waste Collection Room. The GEVS is described in more detail in Section 3.4.9, Gaseous Effluent Vent System.

The ventilation system for the Break Room and Office Areas is designed to maintain the Control Room and Offices at slightly positive pressure to minimize the infiltration of dust and other undesirable airborne materials. This is accomplished by adjusting the supply flow rate greater than the exhaust and recirculation airflow rates. Double door entrances and/or vestibules are incorporated to help maintain pressure control.

The ventilation system for the locker area will be design One 100% capacity AHU, duct heaters, exhaust filters and fan.
by maintaining exhaust airflow rate greater than ~~the sup~~

The remainder of the area is maintained at atmospheric pressure. No special design features are incorporated to attain pressure control in these areas.

3.5.1.1.9 Centrifuge Assembly Building HVAC System

The Centrifuge Assembly Building (CAB) HVAC System maintains room temperature in the Centrifuge Assembly Building.

The Centrifuge Component Storage Area HVAC System consists of ~~two, 50% capacity AHUs and two 50% exhaust/return fans~~. The system flow diagram is shown on Figure 3.5-12, Flow Diagram, CAB Centrifuge Component Storage Area, HVAC System.

~~HVAC System. In addition to the confinement function for the Centrifuge Post Mortem Facility, filtered exhaust from this room via a flexible connection and a fume hood is provided by the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System. This system also provides filtered exhaust from the Centrifuge Test Facility via two flexible connections.~~

The Office Area HVAC System consists of one, 100% capacity ~~AHU with two, 50% capacity supply air fans, and two, 50% capacity return/exhaust fans~~A/C unit designed with 30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Minimum outside air is provided for ventilation. The system serves the offices, canteen, change areas, and entrance areas. The system flow diagram is shown on Figure 3.5-14, Flow Diagram, CAB Offices and Miscellaneous Rooms, HVAC System.

The Centrifuge Assembly Area HVAC System consists of ~~four, 25% capacity AHUs and 12 recirculation AHUs to provide a Class 100,000 Clean Room environment. Ceiling mounted Terminal HEPA filters are provided. The return/exhaust system consists of four, 25% return/exhaust fans~~6-25% capacity A/C units each designed with 30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Minimum outside air will be provided for ventilation. Area is maintained at a positive pressure. Recirculating filter units consist of pre-filters, medium efficiency filters, HEPA filters, and fans provided to continuously filter the Assembly Area air to ensure cleanliness level of 100,000. The system flow diagram is shown on Figure 3.5-15, Flow Diagram, CAB Centrifuge Assembly Area, HVAC System.

The Computer Server Room HVAC consists of two, 100% capacity A/C units each designed with 30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. This subsystem is designed to operate in a recirculation configuration and is shown on Figure 3.5-{AI-07-000023}.

The environmental control design parameters for the CAB HVAC Systems are provided below:

A. Centrifuge Component Storage Area.

Room Temperature	~~33~~35°C (95°F) max, 18°C (65°F) min
Relative Humidity	~~40~~70% Design point

B. ~~Assembled Centrifuge Storage Area,~~ Centrifuge Test and Post Mortem Area.

Room Temperature	25°C (77°F) max, 18°C (65°F) min
Relative Humidity	~~40~~55% ~~Design point~~max for Test Area 70% max for Post Mortem Area

C. Centrifuge Assembly Area.

Room Temperature	22°C (72°F) max, 18°C (65°F) min
Relative Humidity	25% (Min), ~~40~~55% ~~Design point~~(Max) ~~RH~~

D. Canteen, Offices, Maintenance, Airlock, Change Area.

Room Temperature	~~Year Round 22°C ± 2°C (72°F ± 3.6°F)~~ 25°C (77°F) max, 18°C (65°F) min
Relative Humidity	~~40% Design point~~RH not controlled

E. Assembled Centrifuge Storage Area.

Room Temperature	35°C (95°F) max, 18°C (65°F) min
Relative Humidity	70% max

F. Computer Server Room

The Centrifuge Test and Post Mortem Areas HVAC System consists of ~~two, 50%~~ capacity AHUs and ~~two, 50%~~ capacity return/exhaust fans. The system serves the ~~Assembled Centrifuge Storage Area, Electrical Battery Charger Area, and the~~ Centrifuge Test and Post Mortem Areas. The Centrifuge Post Mortem area confinement ventilation function incorporates an 85% efficient prefilter, activated carbon filters, and a 99.97% efficient HEPA Bag In/Bag Out filtration subsystem that continuously filters exhaust air and discharges to the exhaust stack. This subsystem is designed to operate in a once-through configuration. The subsystem flow diagram is shown on Figure 3.5-13, Flow Diagram, CAB Centrifuge Storage and Miscellaneous Areas, HVAC System. In addition to the confinement function for the Centrifuge Post Mortem Facility, filtered exhaust from this room via a flexible connection and a fume hood is provided by the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System. This system also provides filtered exhaust from the Centrifuge Test Facility via two flexible connections. The description of this system is provided in Section 3.4.10.3, Centrifuge Test and Post Mortem Facilities Exhaust Filtration System.

The Office Area HVAC System consists of one, 100% capacity AHU with two, 50% capacity supply air fans, and two, 50% capacity return/exhaust fans. The system serves the offices, canteen, change areas, and entrance areas. The system flow diagram is shown on Figure 3.5-14, Flow Diagram, CAB Offices and Miscellaneous Rooms, HVAC System.

The Centrifuge Assembly Area HVAC System consists of four, 25% capacity AHUs and 12 recirculation AHUs to provide a Class 100,000 Clean Room environment. Ceiling mounted Terminal HEPA filters are provided. The return/exhaust system consists of four, 25% return/exhaust fans. The system flow diagram is shown on Figure 3.5-15, Flow Diagram, CAB Centrifuge Assembly Area, HVAC System.

The environmental control design parameters for the CAB HVAC Systems are provided below:

A. Centrifuge Component Storage Area.

Room Temperature	33°C (95°F) max, 18°C (65°F) min
Relative Humidity	40% Design point

B. Assembled Centrifuge Storage Area, Centrifuge Test and Post Mortem Area.

Room Temperature	25°C (77°F) max, 18°C (65°F) min
Relative Humidity	40% Design point

C. Centrifuge Assembly Area.

Room Temperature	25°C (77°F) max, 18°C (65°F) min
Relative Humidity	40% Design point

D. Canteen, Offices, Maintenance, Airlock, Change Area.

Room Temperature	Year Round 22°C ± 2°C (72°F ± 3.6°F)
Relative Humidity	40% Design point

3.5.1.1.10 Cylinder Receipt and Dispatch Building Heating and Ventilation System

The Cylinder Receipt and Dispatch Building (CRDB) Heating and Ventilating System maintains room temperature in the CRDB. The HVAC system consists of ten 10% capacity AHU's and ten 10% capacity return/exhaust fans. The system components are shown on Figure 3.5-16, Flow Diagram, Cylinder Receipt and Dispatch Building, HVAC System.

Room Temperature	21°C (year round)
Relative Humidity	30% (min), 50% (max)

3.5.1.1.10 Cylinder Receipt and Dispatch Building Heating and Ventilation System

The Cylinder Receipt and Dispatch Building (CRDB) Heating and Ventilating System maintains room temperature in the CRDB. The HVAC system consists of ten 10% capacity AHU's and ten 10% capacity return/exhaust fans. The system components are shown on Figure 3.5-16, Flow Diagram, Cylinder Receipt and Dispatch Building, HVAC System.

The environmental control design parameters for the CRDB HVAC System are provided below:

Room Temperature	35°C (95°F) max/18°C (65°F) min
Relative Humidity	40% Design point

A majority of the area ventilation air is recirculated, and the remaining air is discharged to the atmosphere. The CRDB is maintained at neutral pressure by balancing the supply flow rate with leakage, exhaust, and recirculation airflow rates.

3.5.4.4.1 System Description

The closed loop Hot Water System provides heating service for the HVAC systems in the CUB, UF_6 Handling Areas, Cascade Halls 1 through 6, TSB, Blending and Liquid Sampling Area, and CRDB~~, and the CAB~~.

The Hot Water System provides hot water to the HVAC AHUs. It only services the HVAC requirements for building heat. The Hot Water System consists of two, 100% capacity systems, with one system serving as redundant back up for the primary system. Each system consists of a hot water expansion bladder type tank, a natural gas fired hot water boiler with boiler circulation pump, a chemical feeder unit, dual primary hot water loop supply pumps, and the associated distribution piping, instrumentation, and controls. The Hot Water System is shown on Figure 3.5-23, Process Flow Diagram, Boilers and Hot Water Distribution System. The functional requirements of the Hot Water System are provided in Table 3.5-5, Hot Water System Design Parameters.

3.5.4.4.2 Major Components

The major components and design parameters are listed below.

A. Hot water expansion tank. The hot water expansion tank is sized to accommodate the thermal expansion of water in the hot water distribution system.

Type	Horizontal type with internal expansion bladder
Quantity	2 (1 per hot water boiler)
Capacity	3785 L (1000 gal)
Operating temperature	5.6°C – 82.2°C (42°F – 180°F)
Operating pressure	2.1 bar (30 psi).
Materials of construction	Carbon steel

B. Boiler circulation pumps. These pumps circulate hot water through the boilers from the hot water loop return and from the hot water expansion tank.

Type	Centrifugal
Quantity	2; 1 per hot water boiler
Design capacity	9.46 L/s (150 gpm)
Operating capacity	8.52 L/s (135 gpm)
Materials of construction	Cast iron with bronze impeller

C. Chemical feeder unit. The chemical feeder operates on a manual basis to add oxygen scavenger and corrosion inhibitor to the closed loop hot water boiler system.

Quantity	1
Vessel capacity	.6 L (2.0 gal)
Materials of construction	Carbon steel

D. Hot water boilers. These fire tube type boilers are designed to heat circulating hot water to 82.2°C (180°F).

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

6.6 CHAPTER 6 TABLES

Table 6.1-1 Chemicals – Hazardous Properties

Form	Chemical	Class	Chemical Formula	Corrosive	Flammable	Combustible	Oxidizer	Reactive	Toxic	Radioactive	Hazard	Irritant	Remarks
Liquid	uranium hexafluoride	1	UF_6	✓				✓	✓	✓			
	uranium compounds (residual)		UO_2F_2						✓	✓			Byproduct – no NEF class
	silicone oil	2				✓							
	ethanol	3	C_2H_5OH		✓								
	methylene chloride	3	CH_2Cl_2								✓		
	oil	3				✓							
	cutting oil	3				✓							
	paint	3				✓							
	degreaser solvent, SS25	3				✓							
	penetrating oil	3				✓							
	PFPE (Tyreno) oil	2											Note 3
	organic chemicals	3			✓								
	nitric acid (65%)	3	HNO_3	✓									
	hydrogen peroxide	3	H_2O_2				✓						
	acetone	3	C_3H_6O		✓								
	toluene	3	C_7H_8		✓								
	petroleum ether	3			✓								
	sulfuric acid	3	H_2SO_4	✓									
	phosphoric acid	3	H_3PO_4	✓									
	sodium hydroxide (0.1N)	3	NaOH	✓									
	diesel fuel (outdoor)	3				✓							
	laboratory effluent (aqueous)	2											Note 1
	citric acid waste	2											Note 1
	precipitation sludge	3											Note 1
	evaporator/dryer sludge	2											Note 1
	hand wash / shower water	3											Note 1
	miscellaneous samples	3											Note 1 & 2

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

Table 6.1-3 Chemicals – Centrifuge Assembly Building

CHEMICAL/PRODUCT			INVENTORY BY LOCATION			REMARKS
NAME	FORMULA	PHYSICAL STATE	CENTRIFUGE ASSEMBLY AREA	CENTRIFUGE TEST FACILITY	CENTRIFUGE POST MORTEM FACILITY	
ethanol	C_2H_6O	liquid	40 L (10.6 gal)			Note 1
methylene chloride	CH_2Cl_2	liquid	40 L (10.6 gal)			Note 1
uranium hexafluoride	UF_6	gas/solid		50kg (110 lb)	Residual	Notes 2 & 3
helium	He	gas	440 m^3 (15536 ft^3)			Gas volume is at Std. Conditions.
argon	Ar	gas	190 m^3 (6709 ft^3)			Gas volume is at Std. Conditions.
activated carbon	C	granules		10 kg (22.1 lb)		
aluminum oxide	Al_2O_3	granules		20 kg (44.1 lb)		

NOTES:

1. In the Centrifuge Assembly Area, ethanol and methylene chloride are used as cleaning agents. Total quantity of both solvents used in one year is 80 L (21.2 gal).

2. Centrifuges in the Centrifuge Post Mortem Facility are considered contaminated based on previous operation with UF_6. Once in the Centrifuge Post Mortem Facility they will not contain significant amounts of UF_6.

3. In the Centrifuge Test Facility 50 kg (110 lb) of UF_6 is contained in a feed vessel, test centrifuges, and a take-off vessel. Physical state will vary depending on testing in progress.

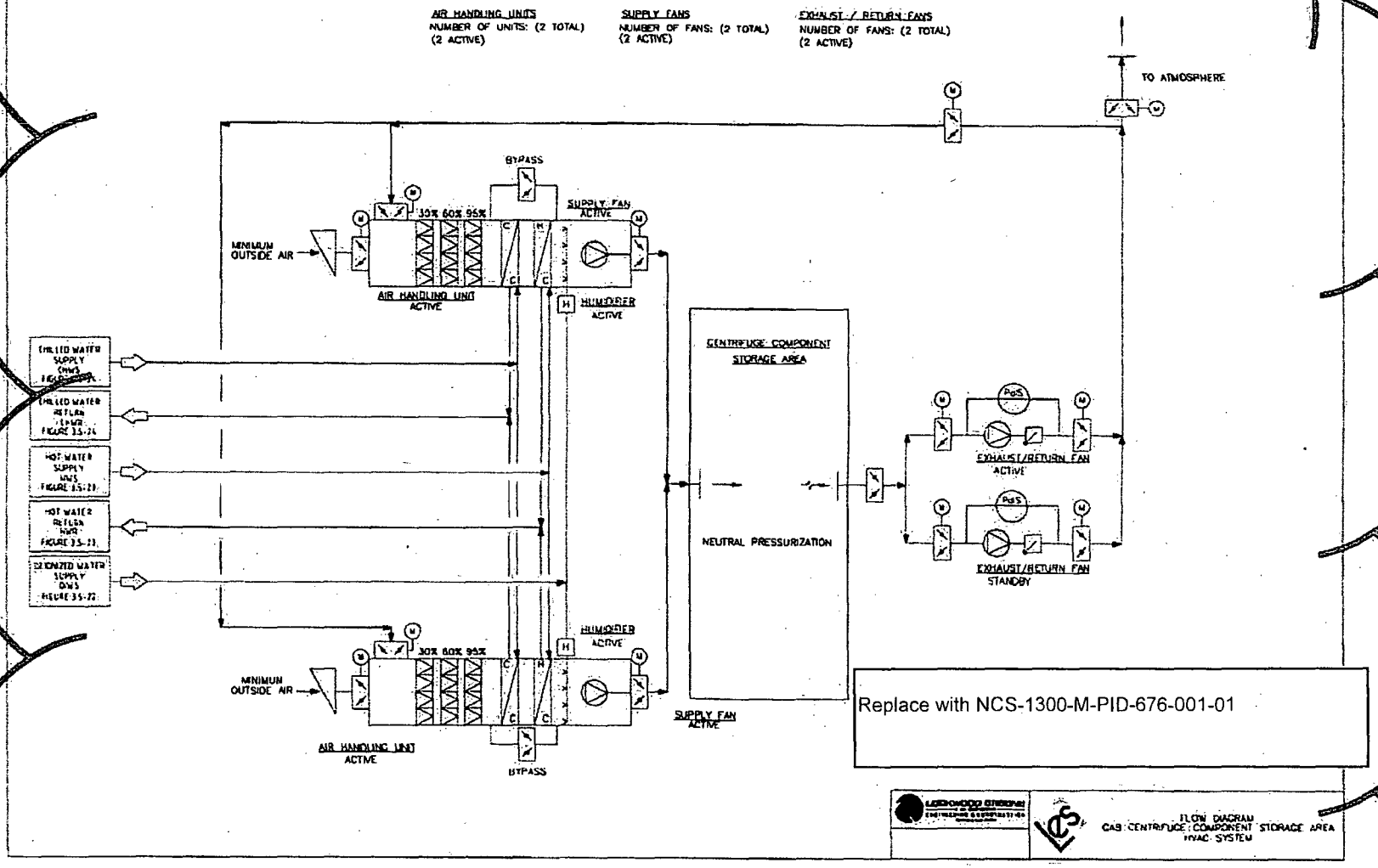
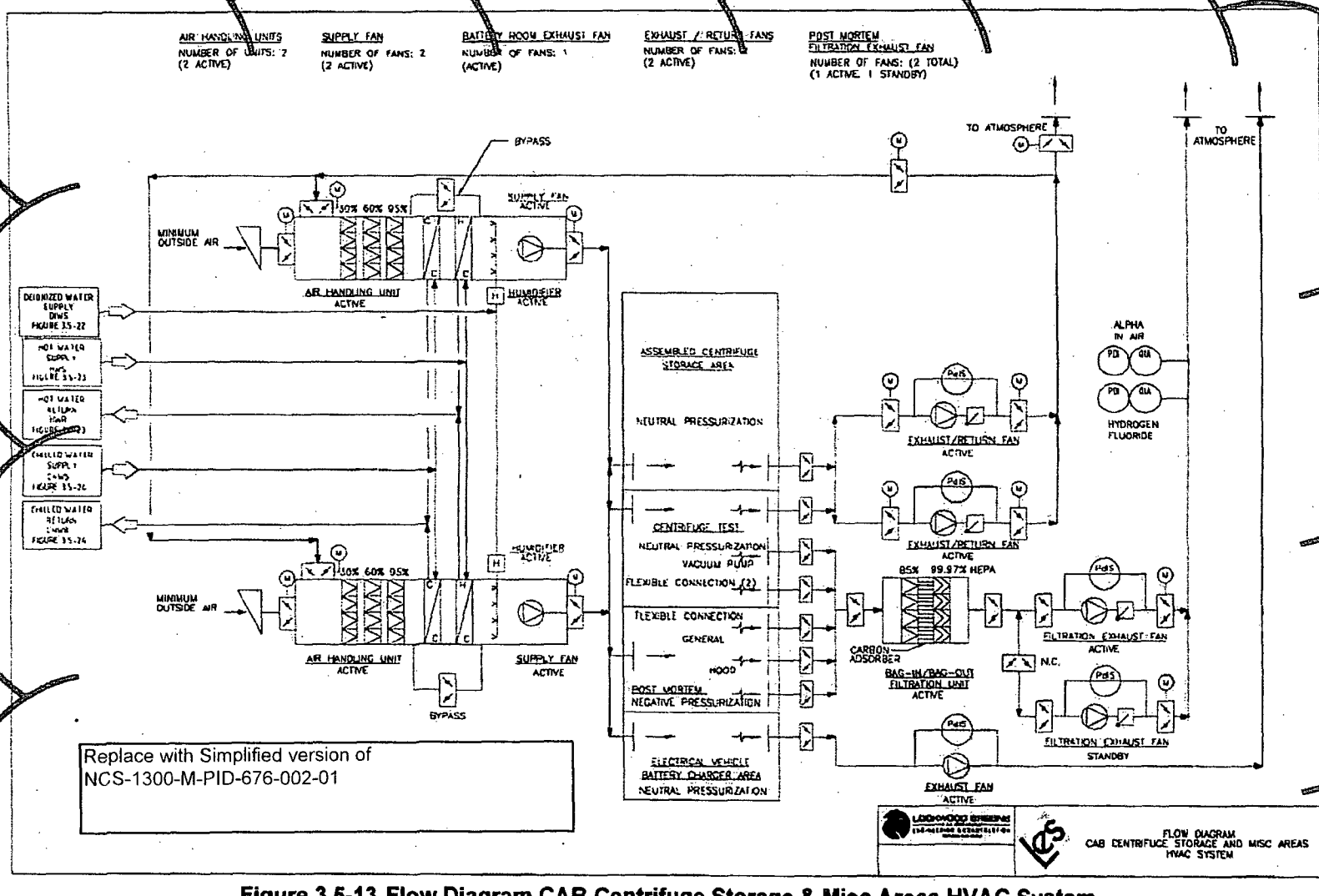


Figure 3.5-12 Flow Diagram CAB Centrifuge Component Storage Area HVAC System



Replace with Simplified version of
NCS-1300-M-PID-676-002-01

Figure 3.5-13 Flow Diagram CAB Centrifuge Storage & Misc Areas HVAC System

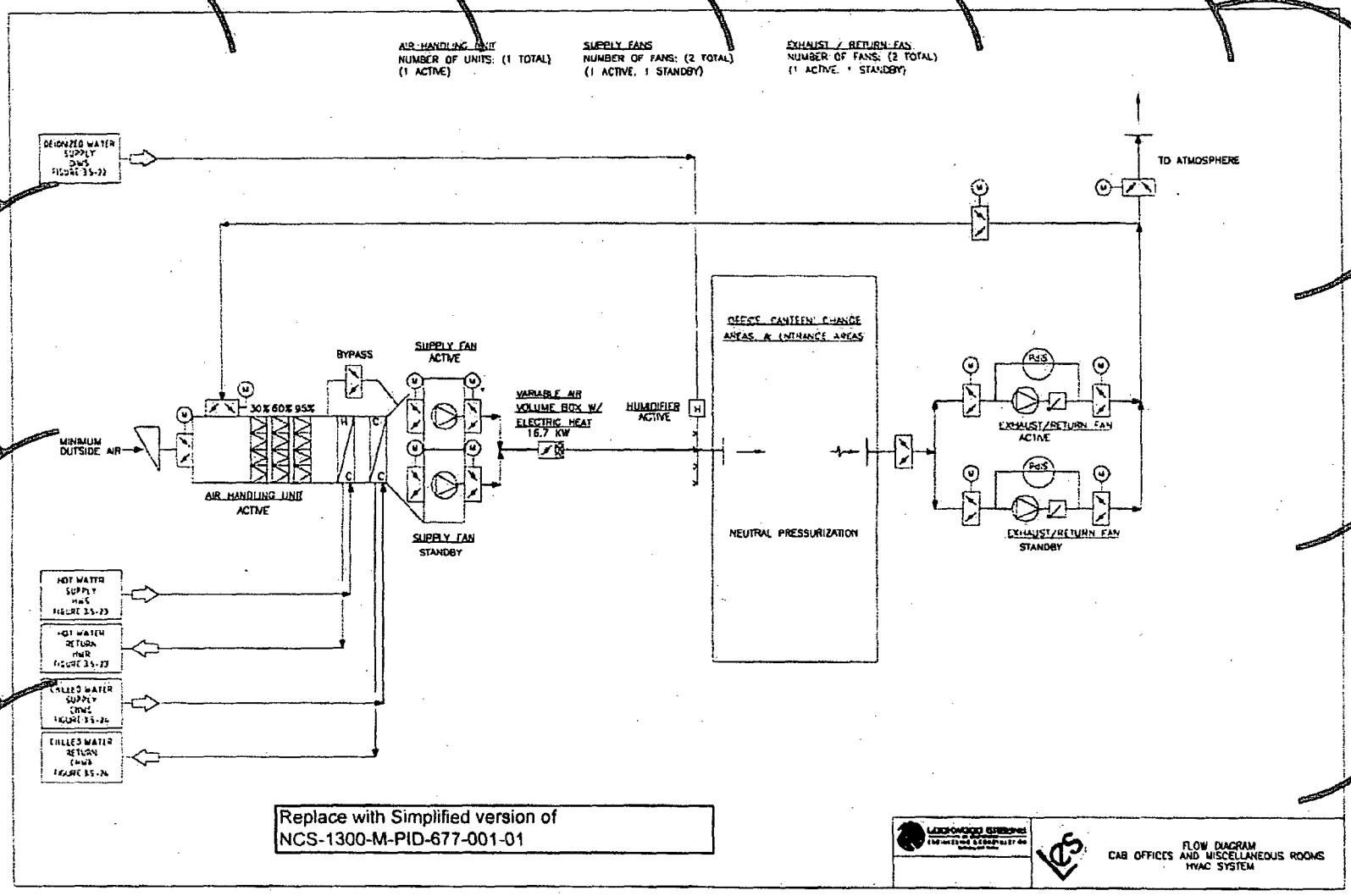


Figure 3.5-14 Flow Diagram CAB Offices & Miscellaneous Rooms HVAC System

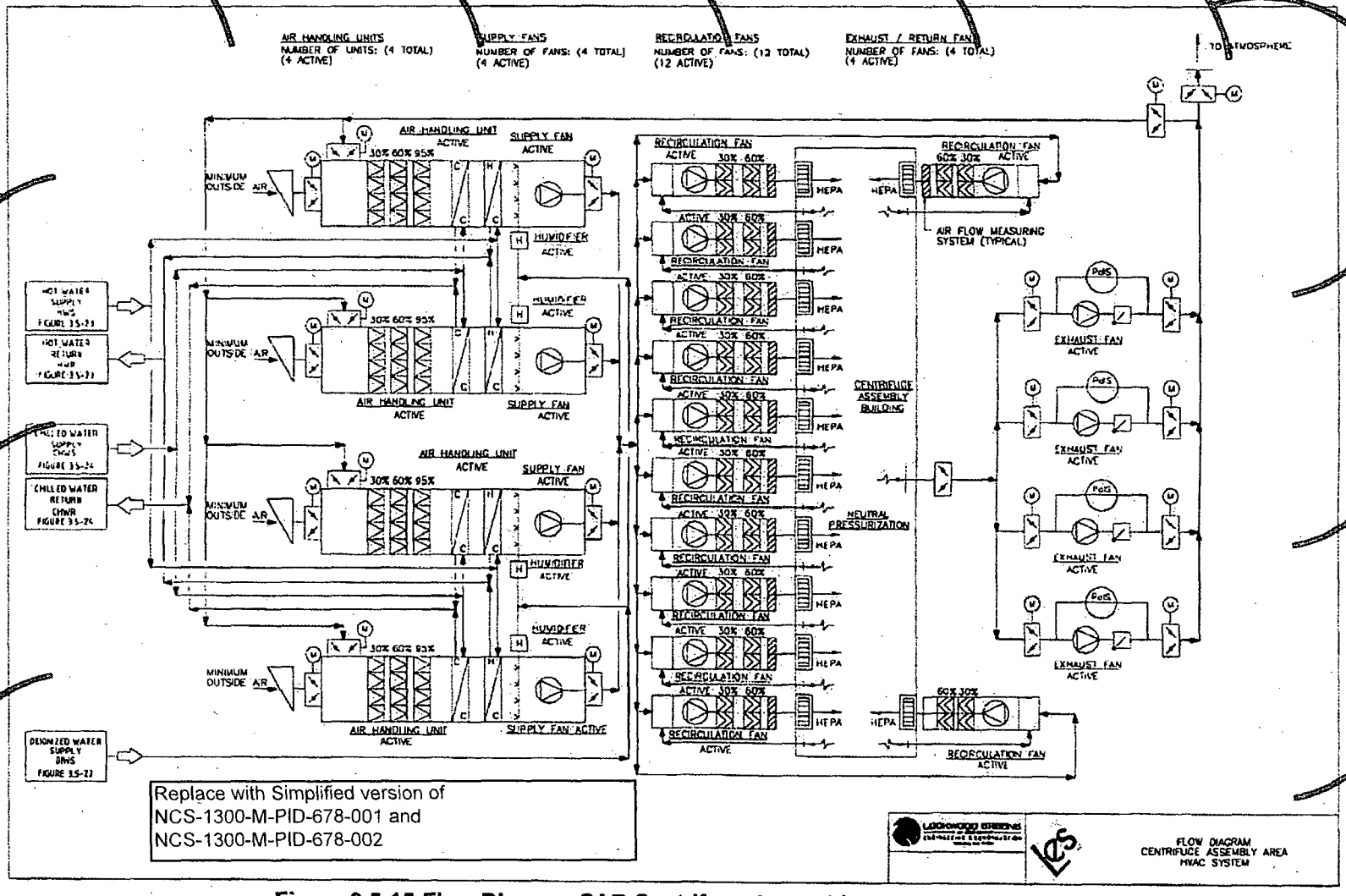


Figure 3.5-15 Flow Diagram CAB Centrifuge Assembly Area HVAC System

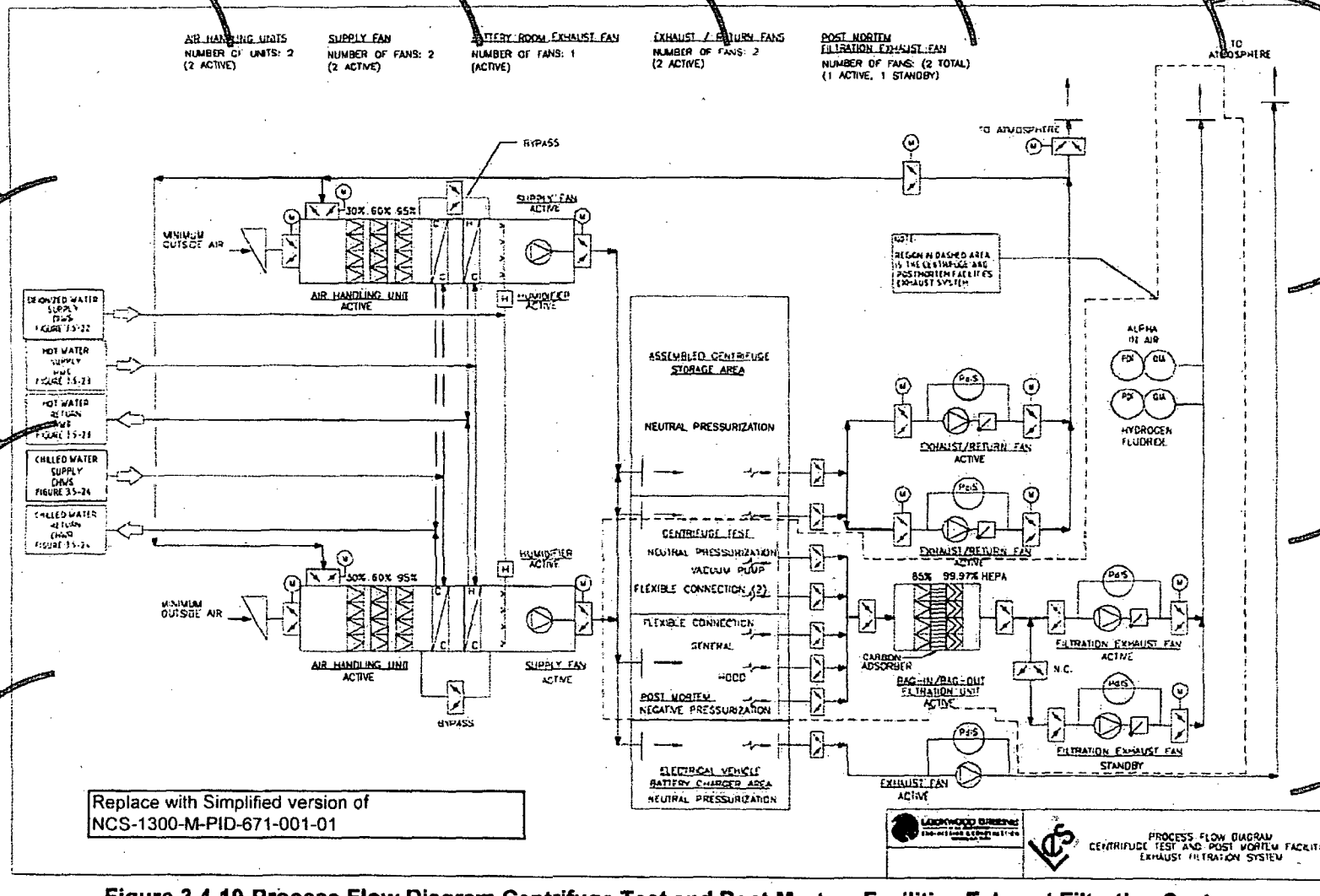


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Figure 3.4-19 Process Flow Diagram Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

SUPERSEDED by LBDCR 08-0083

LBDCR No: 07-0029 Configuration Change No: CC-EG-2006-0073

LBDCR Package Preparer: Paul Ferrari / Paul Ferrari (Print Name/Signature) LBDCR Initiation Date: 06 / 30 /08 mm/dd/yy

1) Proposed License Basis Document Change(s) Brief Description

(What is being changed and why?)

2) License Basis Document Change(s) Approval

☐ The LBDCR is an editorial change as defined by LS-3-1000-06; Section 3, 4, 5 and 6 of this Form are Not Applicable (N/A).

☒ The LBDCR is NOT an editorial change and is a proposed Configuration Change. The LBDCR will be reviewed and approved as part of the Configuration Change in accordance with the requirements of EG-3-2100-01, Configuration Change. Sections 3, **Error! Reference source not found.**4, and 5 of this Form are Not Applicable (N/A).

☐ The LBDCR is NOT an editorial change and is NOT a proposed Configuration Change. The review process defined below shall be utilized. Complete Sections **Error! Reference source not found.Error! Reference source not found.**3, 4, and 5 of this Form.

3) Document(s) Affected By Proposed Change(s)

Document	Review Information
☐ Materials License	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-3-1000-02 (LS-102), Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Exemption from 10 CFR	SRC review required. Review obtained during the review of the submittal conducted in accordance with: • LS-3-1000-02 (LS-102), Communications with Regulatory Agencies. NRC approval required before implementation.
☐ Nuclear Criticality Safety Validation Report (i.e., MONK 8A Validation and Verification report)	NRC approval required before implementation
☐ ISA Summary	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ SAR	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes.
☐ Environmental Report	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EN-3-1000-01 (EN-103), Environmental Review and Evaluation.
☐ QAPD	Assess in accordance with: • LS-3-1000-04 LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • QA-3-2000-06 (QA-400), Quality Assurance Program Description Changes
☐ Emergency Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • EP-3-1000-02 (EP-120), 10 CFR 70.32(i)/10 CFR 40.35(f) Change Evaluation.
☐ FNMCP	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • MC-3-1000-01 (MC-120), 10 CFR 70.32(c)(1)(iii) Change Evaluation.

Continued next page.

LBDCR No: _____ Configuration Change No: _____

Document	Review Information
☐ Physical Security Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-10 (SY-120), 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Safeguards Contingency Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-10 (SY-120), 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ Guardforce Training Plan	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-10 (SY-120), 10 CFR 70.32(d), (e), and (g) Change Evaluation.
☐ SPPP for the Protection of Classified Matter	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-11 (SY-130), 10 CFR 95.19 Change Evaluation.
☐ SPPP for the Protection of Classified Matter at the ET-US location of the NEF	Assess in accordance with: • LS-3-1000-04 (LS-104), 10 CFR 70.72(c) Evaluation for Proposed Changes, and • SY-3-1000-11 (SY-130), 10 CFR 95.19 Change Evaluation.

4) LBDCR Implementation Activities

[e.g., list plant documents (i.e., procedures, programs, plans, drawings) that must be changed, training that must be conducted, and commitments that may be closed.]

Implementation Activity Required to Implement LBDCR	Responsible FAM	Tracking No.

5) LBDCR Review and Approval

Reviewer: _____ / _____ Date: _____
(Print/Sign)

FAM: _____ / _____ Date: _____
(Print/Sign) (N/A if NOT applicable.)

HS&E Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

ET-US Compliance Manager: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign)*

LBDCR No: _____ Configuration Change No: _____

6) LBDCR Implementation

[Completed by Licensing Director, Support Services Director, Vice President of Engineering, or designees, as applicable.]

☐ Supporting Regulatory Assessment(s) determined that regulatory approval **is NOT required** prior to implementation. A copy of the completed supporting Regulatory Assessment(s) is attached.

☐ Regulatory approval **is required** prior to implementation. A copy of the Regulatory Approval (e.g., license amendment, exemption, and/or permit) is attached.

☐ Implementation activities identified in Section 4, LBDCR Implementation Activities have been completed and changes to the documents can be posted.

Records incorporated into current revision of applicable documents by:

_____ / _____ Date: _____
Print/Sign

Records verified for accuracy by:

_____ / _____ Date: _____
Print/Sign

☐ LBDCR completed by transmitting the following updated files to Records Management in accordance with the requirements of RM-3-2000-01 (RM-101), Records Management Program.

Record Transmittal Form No.	Record ID or Name	Revision No.

7) LBDCR Approval

Licensing Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

Support Services Director: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

ET-US Compliance Manager: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable)*

Vice President of Engineering: _____ / _____ Date: _____
(or designee) *(Print/Sign) (N/A if NOT applicable.)*

1.2.1 Gaseous Effluent Vent Systems

The principal function of the Gaseous Effluent Vent Systems (GEVSs) is to protect both the operator during the connection/disconnection of uranium hexafluoride (UF_6) process equipment and the environment, by collecting and cleaning all potentially hazardous gaseous emissions from the facility prior to release to the atmosphere.

There are two GEVSs, both located in the TSB. One system services the Separations Building processes (called Separations Building GEVS) and the other services the TSB processes (called TSB GEVS). The Separations Building GEVS has two separate 100% capacity filtration trains; the TSB GEVS has one 100% train. A third system, located in the Centrifuge Assembly Building (CAB), also performs a GEVS function. This system, the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System, services the Centrifuge Test Facility and the Centrifuge Post Mortem Facility. The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System ~~has one 100% filtration train and two separate 100% capacity fans.~~

incorporates a filter train consisting of high efficiency filters, activated carbon filters, HEPA Bag In/Bag Out fitters with one fan that filters the room air before it is discharged to outdoors.

Instrumentation is s. Actions from ~~the in~~ systems into a saf Filtration System, ~~operator actions in response to alarm place the system into a safe condition~~.

The GEVSs and the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consist of filters, fans and a duct system that operates slightly below atmospheric pressure.

A fan in each GEVS pulls potentially contaminated gases from the areas through the duct system and through a set of filters in series (pre-filter, High Efficiency Particulate Air (HEPA) - filter, activated charcoal filter impregnated with potassium carbonate). Efficiency and filter types are shown in Table 1.2-1, Filter Types and Efficiency Specifications. The cleaned gases are discharged to the atmosphere via two 3.1 m (10 ft) high rooftop stacks located on the TSB (for GEVS) and one 3.1 m (10 ft) high rooftop stack located on the CAB (for the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System).

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consists of a duct network that serves the Centrifuge Test and Post Mortem Facilities and operates at negative pressure. The ductwork is connected to one filter station and vents through ~~either of two~~ 100% fan~~s~~. Both the filter station and ~~either of~~ the fan~~s~~ can handle 100% of the effluent. ~~One of the fans will normally be in standby.~~ Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down.

Gases from the associated areas pass through the 85% efficient prefilter which removes dust and protects downstream filters, then through the 99% efficient activated charcoal filter that captures HF. Remaining uranic particles, (mainly UO_2F_2) are treated by a 99.7% efficient HEPA filter. After filtration, the clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the monitored (alpha and HF) stack on the Centrifuge Assembly Building.

3.12.1.3 Liquid Effluent System

Quantities of radiologically contaminated, potentially radiologically contaminated, and nonradiologically contaminated aqueous liquid effluents are generated in a variety of operations and processes in the TSB and in the Separations Building. The majority of all potentially radiologically contaminated aqueous liquid effluents are generated in the TSB. All aqueous liquid effluents are collected in tanks that are located in the Liquid Effluent Collection and Treatment System in the TSB. The collected effluent is sampled and analyzed.

3.12.1.3.1 Effluent Sources and Generation Rates

Numerous types of aqueous and non-aqueous liquid wastes are generated in the plant. These effluents may be significantly radiologically contaminated, potentially contaminated with low amounts of contamination, or non-contaminated. Effluents include:

- Hydrolyzed uranium hexafluoride and aqueous laboratory effluent

These hydrolyzed uranium hexafluoride solutions and the aqueous effluents are generated during laboratory analysis operations and require further processing for uranium recovery.

- Degreaser Water

This is water, which has been used for degreasing contaminated pump and plant components coated in Fomblin oil. The oil, which is heavier than water will be separated from the water via gravity separation, and the suspended solids filtered, prior to routing for uranium recovery. Most of the soluble uranium components dissolve in the degreaser water.

- Citric Acid

Table 2.1-1 Chemicals and Their Properties

Form	Chemical	Chemical Formula	Corrosive	Flammable	Combustible	Oxidizer	Reactive	Toxic	Radioactive	Health Hazard	Irritant	Remarks
Liquid	uranium hexafluoride	UF_6	✓				✓	✓	✓			
	uranium compounds	UO_2F_2						✓	✓			Residual
	silicone oil	C_2H_6O			✓							
	ethanol	C_2H_5		✓								
	methylene chloride	CH_2Cl_2								✓		
	oil				✓							
	cutting oil				✓							
	paint				✓							
	degreaser solvent, SS25				✓							
	penetrating oil				✓							
	PFPE (Tyreno) oil											
	organic chemicals			✓	✓				✓			Note 2
	nitric acid (65%)	HNO_3	✓									
	peroxide	H_2O_2				✓						
	acetone	C_3H_6O		✓								
	toluene	C_7H_8		✓								
	petroleum ether			✓								
	sulfuric acid	H_2SO_4	✓									
	phosphoric acid	H_3PO_4	✓									
	sodium hydroxide (0.1N)	NaOH	✓									
	diesel fuel (outdoors)				✓							
	citric acid waste											Note 1
	precipitation sludge							✓	✓			
	evaporator/dryer sludge							✓	✓			
	hand wash / shower water											Note 1
	miscellaneous samples											Note 4
	R23 trifluoromethane											
	R404A fluoroethane blend											

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

Table 2.1-3 Chemicals – Centrifuge Assembly Building (CAB)

CHEMICAL/PRODUCT			INVENTORY BY LOCATION			REMARKS
NAME	FORMULA	PHYSICAL STATE	CENTRIFUGE ASSEMBLY AREA	CENTRIFUGE TEST FACILITY	CENTRIFUGE POST MORTEM FACILITY	
ethanol	C_2H_6O	liquid	40 L (10.6 gal)			Note 1
methylene chloride	CH_2Cl_2	liquid	40 L (10.6 gal)			Note 1
uranium hexafluoride	UF_6	Gas/solid		50 kg (110 lb)		Notes 2 and 3
hydrogen fluoride, residual	HF	gas		inside pumps		
paper, wipes, gloves, etc.		solid			<1m^3 (<35.3 ft^3)	
oil		liquid			See Remark	Note 4
contaminated disposable clothing		solid			<1m^3 (<35.3 ft^3)	
helium	He	gas	440 m^3 (15,536 ft^3)			Gas volume is at Std. Conditions.
argon	Ar	gas	190 m^3 (6,709 ft^3)			Gas volume is at Std. Conditions.
gaseous nitrogen	N_2	gas	piping	piping		
liquid nitrogen	N_2	liquid		piping		
activated carbon	C	granules		10 kg (22.1 lb)		
aluminum oxide	Al_2O_3	granules		20 kg (44.1 lb)		
carbon fibers		solid			See Remark	Note 4
metals (aluminum)		solid			See Remark	Note 4

NOTES:

1. In the Centrifuge Assembly Area, ethanol and methylene chloride are used as cleaning agents. Total quantity of both solvents used in one year is 80 L (21.1 gal).
2. Centrifuges in the Centrifuge Post Mortem Facility are considered contaminated based on previous operation with UF_6. Once in the Centrifuge Post Mortem Facility, they will not contain significant amounts of UF_6.
3. In the Centrifuge Test Facility, 50 kg (110 lb) of UF_6 is contained in a feed vessel, test centrifuges, and a take-off vessel. Physical state will vary depending on testing in progress.
4. Quantity of materials is classified.

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

3.3.1.4.2.3 Assembled Centrifuge Storage Area

Assembled and conditioned centrifuges are stored in the Assembled Centrifuge Storage Area prior to installation.

During construction of the facility, a separate installation team will access this area and transfer the assembled and conditioned centrifuges to the Cascade Halls for deployment.

Centrifuges are routed via a covered corridor that links the Assembled Centrifuge Storage Area with the CRDB. The covered corridor has the same standard of floor as the Assembled Centrifuge Storage Area.

3.3.1.4.2.4 Building Office Area

A general office area is located adjacent to the Centrifuge Assembly Area. It contains the main personnel entrance to the building as well as entrances to the Centrifuge Component Storage Area and Centrifuge Assembly Area. It is a two-story area that includes the following:

- Offices
- ~~Change~~ Rooms - The ~~change~~ rooms provide space where employees can dress in protective clothing as required
- ~~Break Room~~
- Maintenance Area
- ~~Chemical Storage Area~~
- ~~Battery Charging Area~~

Locker
Locker
Canteen
Computer Server Room
Inspection and Test Laboratory
Air Locks

3.3.1.4.2.5 Centrifuge Test and Post Mortem Facilities

The Centrifuge Test Facility is designed to:

- Provide a means of functionally testing the performance of production centrifuges to ensure compliance with design parameters
- Investigate production and operational problems.

This area consists of two test positions. The Centrifuge Post Mortem Facility is designed for investigating problems with production centrifuges. Based on 30 years of European experience, the demand for centrifuge post mortems is infrequent.

The principal functions of the Centrifuge Post Mortem Facility are:

- To facilitate dismantling of contaminated centrifuges using equipment and processes, which minimize the potential to contaminate personnel or adjacent facilities
- To prepare potentially contaminated components and materials for transfer to the TSB prior to disposal.

Centrifuges are brought into the facility on a specially designed transport cart ~~via an airlock entry~~. The facility is also equipped with radiological monitoring devices, toilets and washing facilities, and hand, foot and clothing personnel monitors to detect surface contamination.

3.4.10.3.2 Major Components

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consists of the following major components.

- Duct system
- Prefilter
- Impregnated carbon filter (impregnated with potassium carbonate)
- High Efficiency Particulate Air Filter (HEPA)
- ~~Two exhaust filtration fans~~ ← One Exhaust Filtration Unit
- Exhaust stack
- Stack alpha monitor
- Stack HF monitor.

3.4.10.3.3 Design Description

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System consists of a duct network that serves the Centrifuge Test and Post Mortem Facilities and operates at negative pressure. The ductwork is connected to one filter station and vents through either of two 100% fans. Both the filter station and either of the fans can handle 100% of the effluent. One of the fans will normally be in standby. Operations that require the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System to be operational are manually shut down if the system shuts down. The system capacity is estimated to be 9,345 m^3/hr (5,500 cfm).

Gases from the associated areas pass through the 85% efficient prefilter which removes dust and protects the carbon filter, then through the 99% efficient activated carbon (potassium carbonate impregnated) filter that captures HF. Remaining uranic particles (mainly UO_2F_2 particles) will be filtered by the 99.97% efficient HEPA filter. The remaining clean gases pass through a fan, which maintains the negative pressure upstream of the filter station. The clean gases are then discharged through the stack on the Centrifuge Assembly Building.

A minimum velocity is maintained in the duct system in order to ensure that particulate contaminates are conveyed through the ductwork without settling. Each section also has a damper to balance the individual flows in the system. Flexible exhaust hoses are provided in both the Centrifuge Test Facility and the Centrifuge Post Mortem Facility. A hood is also provided in the Centrifuge Post Mortem Facility.

The materials of construction, corrosion allowances, and fabrication specifications for the equipment and ductwork used in the GEVS are compatible with UF_6 and HF and are noncombustible.

3.4.10.3.4 Design and Safety Features

The Centrifuge Test and Post Mortem Facilities Exhaust Filtration System is designed to protect plant personnel against uranium and HF exposure.

I. Truck Bay

Room Temperature	40°C (104°F) max/7°C (45°F) min
Relative Humidity	40% Design point

The confinement function of the HVAC in the TSB is designed to maintain the clean areas at positive room pressure and the potentially contaminated areas at slightly negative room pressure. The pressurization zones in the TSB are shown on Figure 3.5-11, Code and Area Classifications, Technical Services Building, HVAC Pressurization. This ensures that the airflow direction is from areas of little or no potential for contamination to areas of higher potential for contamination. Pressure zones are controlled by adjusting the filtered exhaust airflow rate and the supply airflow rate accordingly. Also, appropriate access controls are provided to maintain proper airflow patterns.

Exhaust flow from the potentially contaminated rooms (i.e., Ventilated Room, Cylinder Preparation Room and Decontamination Workshop) of the TSB is filtered by a pre-filter, activated carbon filter and HEPA filter and is then released through an exhaust stack. The exhaust stack flow is continuously monitored for alpha and HF. The stack exhaust is periodically sampled. The continuous monitoring and periodic sampling is in accordance with the guidance in Regulatory Guide 4.16. In addition to the confinement function provided by the HVAC system for these rooms, the TSB GEVS provides filtered exhaust for potentially hazardous contaminants via fume hoods and flexible connections for the following areas: Ventilated Room, Laundry, Decontamination Workshop, Chemical Laboratory, Mass Spectrometry Laboratory, Cylinder Preparation Room, Vacuum Pump Rebuild Room and Solid Waste Collection Room. The GEVS is described in more detail in Section 3.4.9, Gaseous Effluent Vent System.

The ventilation system for the Break Room and Office Areas is designed to maintain the Control Room and Offices at slightly positive pressure to minimize the infiltration of dust and other undesirable airborne materials. This is accomplished by adjusting the supply flow rate greater than the exhaust and recirculation airflow rates. Double door entrances and/or vestibules are incorporated to help maintain pressure control.

The ventilation system for the locker area will be design
by maintaining exhaust airflow rate greater than ~~the sup~~

One 100% capacity AHU, duct heaters, exhaust filters and fan.

The remainder of the area is maintained at atmospheric pressure. No special design features are incorporated to attain pressure control in these areas.

3.5.1.1.9 Centrifuge Assembly Building HVAC System

The Centrifuge Assembly Building (CAB) HVAC System maintains room temperature in the Centrifuge Assembly Building.

The Centrifuge Component Storage Area HVAC System consists of ~~two, 50% capacity AHUs and two 50% exhaust/return fans~~. The system flow diagram is shown on Figure 3.5-12, Flow Diagram, CAB Centrifuge Component Storage Area, HVAC System.

~~HVAC System. In addition to the confinement function for the Centrifuge Post Mortem Facility, filtered exhaust from this room via a flexible connection and a fume hood is provided by the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System. This system also provides filtered exhaust from the Centrifuge Test Facility via two flexible connections.~~

The Office Area HVAC System consists of one, 100% capacity ~~AHU with two, 50% capacity supply air fans, and two, 50% capacity return/exhaust fans~~A/C unit designed with 30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Minimum outside air is provided for ventilation. The system serves the offices, canteen, change areas, and entrance areas. The system flow diagram is shown on Figure 3.5-14, Flow Diagram, CAB Offices and Miscellaneous Rooms, HVAC System.

The Centrifuge Assembly Area HVAC System consists of ~~four, 25% capacity AHUs and 12 recirculation AHUs to provide a Class 100,000 Clean Room environment. Ceiling mounted Terminal HEPA filters are provided. The return/exhaust system consists of four, 25% return/exhaust fans~~6-25% capacity A/C units each designed with 30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. Minimum outside air will be provided for ventilation. Area is maintained at a positive pressure. Recirculating filter units consist of pre-filters, medium efficiency filters, HEPA filters, and fans provided to continuously filter the Assembly Area air to ensure cleanliness level of 100,000. The system flow diagram is shown on Figure 3.5-15, Flow Diagram, CAB Centrifuge Assembly Area, HVAC System.

The Computer Server Room HVAC consists of two, 100% capacity A/C units each designed with 30% and 60% efficiency filters, D/X cooling coils, electric heating coils, supply fans, ductwork, dampers and controls. This subsystem is designed to operate in a recirculation configuration and is shown on Figure 3.5-{AI-07-000023}.

The environmental control design parameters for the CAB HVAC Systems are provided below:

A. Centrifuge Component Storage Area.

Room Temperature	~~33~~35°C (95°F) max, 18°C (65°F) min
Relative Humidity	~~40~~70% Design point

B. ~~Assembled Centrifuge Storage Area,~~ Centrifuge Test and Post Mortem Area.

Room Temperature	25°C (77°F) max, 18°C (65°F) min
Relative Humidity	~~40~~55% ~~Design point~~max for Test Area
	70% max for Post Mortem Area

C. Centrifuge Assembly Area.

Room Temperature	22°C (72°F) max, 18°C (65°F) min
Relative Humidity	25% (Min), ~~40~~55% ~~Design point~~(Max) ~~RH~~

D. Canteen, Offices, Maintenance, Airlock, Change Area.

Room Temperature	~~Year Round 22°C ± 2°C (72°F ± 3.6°F)~~ 25°C (77°F) max, 18°C (65°F) min
Relative Humidity	~~40% Design point~~RH not controlled

E. Assembled Centrifuge Storage Area.

Room Temperature	35°C (95°F) max, 18°C (65°F) min
Relative Humidity	70% max

F. Computer Server Room

The Centrifuge Test and Post Mortem Areas HVAC System consists of ~~two, 50%~~ capacity AHUs and ~~two, 50%~~ capacity return/exhaust fans. The system serves the ~~Assembled Centrifuge Storage Area, Electrical Battery Charger Area, and the~~ Centrifuge Test and Post Mortem Areas. The Centrifuge Post Mortem area confinement ventilation function incorporates an 85% efficient prefilter, activated carbon filters, and a 99.97% efficient HEPA Bag In/Bag Out filtration subsystem that continuously filters exhaust air and discharges to the exhaust stack. This subsystem is designed to operate in a once-through configuration. The subsystem flow diagram is shown on Figure 3.5-13, Flow Diagram, CAB Centrifuge Storage and Miscellaneous Areas, HVAC System. In addition to the confinement function for the Centrifuge Post Mortem Facility, filtered exhaust from this room via a flexible connection and a fume hood is provided by the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System. This system also provides filtered exhaust from the Centrifuge Test Facility via two flexible connections. The description of this system is provided in Section 3.4.10.3, Centrifuge Test and Post Mortem Facilities Exhaust Filtration System.

The Office Area HVAC System consists of one, 100% capacity AHU with two, 50% capacity supply air fans, and two, 50% capacity return/exhaust fans. The system serves the offices, canteen, change areas, and entrance areas. The system flow diagram is shown on Figure 3.5-14, Flow Diagram, CAB Offices and Miscellaneous Rooms, HVAC System.

The Centrifuge Assembly Area HVAC System consists of four, 25% capacity AHUs and 12 recirculation AHUs to provide a Class 100,000 Clean Room environment. Ceiling mounted Terminal HEPA filters are provided. The return/exhaust system consists of four, 25% return/exhaust fans. The system flow diagram is shown on Figure 3.5-15, Flow Diagram, CAB Centrifuge Assembly Area, HVAC System.

The environmental control design parameters for the CAB HVAC Systems are provided below:

A. Centrifuge Component Storage Area.

Room Temperature	33°C (95°F) max, 18°C (65°F) min
Relative Humidity	40% Design point

B. Assembled Centrifuge Storage Area, Centrifuge Test and Post Mortem Area.

Room Temperature	25°C (77°F) max, 18°C (65°F) min
Relative Humidity	40% Design point

C. Centrifuge Assembly Area.

Room Temperature	25°C (77°F) max, 18°C (65°F) min
Relative Humidity	40% Design point

D. Canteen, Offices, Maintenance, Airlock, Change Area.

Room Temperature	Year Round 22°C ± 2°C (72°F ± 3.6°F)
Relative Humidity	40% Design point

3.5.1.1.10 Cylinder Receipt and Dispatch Building Heating and Ventilation System

The Cylinder Receipt and Dispatch Building (CRDB) Heating and Ventilating System maintains room temperature in the CRDB. The HVAC system consists of ten 10% capacity AHU's and ten 10% capacity return/exhaust fans. The system components are shown on Figure 3.5-16, Flow Diagram, Cylinder Receipt and Dispatch Building, HVAC System.

Room Temperature	21°C (year round)
Relative Humidity	30% (min), 50% (max)

3.5.1.1.10 Cylinder Receipt and Dispatch Building Heating and Ventilation System .

The Cylinder Receipt and Dispatch Building (CRDB) Heating and Ventilating System maintains room temperature in the CRDB. The HVAC system consists of ten 10% capacity AHU's and ten 10% capacity return/exhaust fans. The system components are shown on Figure 3.5-16, Flow Diagram, Cylinder Receipt and Dispatch Building, HVAC System.

The environmental control design parameters for the CRDB HVAC System are provided below:

Room Temperature	35°C (95°F) max/18°C (65°F) min
Relative Humidity	40% Design point

A majority of the area ventilation air is recirculated, and the remaining air is discharged to the atmosphere. The CRDB is maintained at neutral pressure by balancing the supply flow rate with leakage, exhaust, and recirculation airflow rates.

3.5.4.4.1 System Description

The closed loop Hot Water System provides heating service for the HVAC systems in the CUB, UF_6 Handling Areas, Cascade Halls 1 through 6, TSB, Blending and Liquid Sampling Area, and CRDB~~, and the CAB~~.

The Hot Water System provides hot water to the HVAC AHUs. It only services the HVAC requirements for building heat. The Hot Water System consists of two, 100% capacity systems, with one system serving as redundant back up for the primary system. Each system consists of a hot water expansion bladder type tank, a natural gas fired hot water boiler with boiler circulation pump, a chemical feeder unit, dual primary hot water loop supply pumps, and the associated distribution piping, instrumentation, and controls. The Hot Water System is shown on Figure 3.5-23, Process Flow Diagram, Boilers and Hot Water Distribution System. The functional requirements of the Hot Water System are provided in Table 3.5-5, Hot Water System Design Parameters.

3.5.4.4.2 Major Components

The major components and design parameters are listed below.

A. Hot water expansion tank. The hot water expansion tank is sized to accommodate the thermal expansion of water in the hot water distribution system.

Type	Horizontal type with internal expansion bladder
Quantity	2 (1 per hot water boiler)
Capacity	3785 L (1000 gal)
Operating temperature	5.6°C – 82.2°C (42°F – 180°F)
Operating pressure	2.1 bar (30 psi).
Materials of construction	Carbon steel

B. Boiler circulation pumps. These pumps circulate hot water through the boilers from the hot water loop return and from the hot water expansion tank.

Type	Centrifugal
Quantity	2; 1 per hot water boiler
Design capacity	9.46 L/s (150 gpm)
Operating capacity	8.52 L/s (135 gpm)
Materials of construction	Cast iron with bronze impeller

C. Chemical feeder unit. The chemical feeder operates on a manual basis to add oxygen scavenger and corrosion inhibitor to the closed loop hot water boiler system.

Quantity	1
Vessel capacity	.6 L (2.0 gal)
Materials of construction	Carbon steel

D. Hot water boilers. These fire tube type boilers are designed to heat circulating hot water to 82.2°C (180°F).

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

6.6 CHAPTER 6 TABLES

Table 6.1-1 Chemicals – Hazardous Properties

Form	Chemical	Class	Chemical Formula	Corrosive	Flammable	Combustible	Oxidizer	Reactive	Toxic	Radioactive	Hazard	Irritant	Remarks
Liquid	uranium hexafluoride	1	UF_6	✓				✓	✓	✓			
	uranium compounds (residual)		UO_2F_2						✓	✓			Byproduct – no NEF class
	silicone oil	2				✓							
	ethanol	3	C_2H_5OH		✓								
	methylene chloride	3	CH_2Cl_2								✓		
	oil	3				✓							
	cutting oil	3				✓							
	paint	3				✓							
	degreaser solvent, SS25	3				✓							
	penetrating oil	3				✓							
	PFPE (Tyreno) oil	2											Note 3
	organic chemicals	3			✓								
	nitric acid (65%)	3	HNO_3	✓									
	hydrogen peroxide	3	H_2O_2				✓						
	acetone	3	C_3H_6O		✓								
	toluene	3	C_7H_8		✓								
	petroleum ether	3			✓								
	sulfuric acid	3	H_2SO_4	✓									
	phosphoric acid	3	H_3PO_4	✓									
	sodium hydroxide (0.1N)	3	NaOH	✓									
	diesel fuel (outdoor)	3				✓							
	laboratory effluent (aqueous)	2											Note 1
	citric acid waste	2											Note 1
	precipitation sludge	3											Note 1
	evaporator/dryer sludge	2											Note 1
	hand wash / shower water	3											Note 1
	miscellaneous samples	3											Note 1 & 2

Add Refrigerants R410a and R407c to this table.
MSDS sheets attached.

CC-EG-2006-0073

Table 6.1-3 Chemicals – Centrifuge Assembly Building

CHEMICAL/PRODUCT			INVENTORY BY LOCATION			REMARKS
NAME	FORMULA	PHYSICAL STATE	CENTRIFUGE ASSEMBLY AREA	CENTRIFUGE TEST FACILITY	CENTRIFUGE POST MORTEM FACILITY	
ethanol	C_2H_6O	liquid	40 L (10.6 gal)			Note 1
methylene chloride	CH_2Cl_2	liquid	40 L (10.6 gal)			Note 1
uranium hexafluoride	UF_6	gas/solid		50kg (110 lb)	Residual	Notes 2 & 3
helium	He	gas	440 m^3 (15536 ft^3)			Gas volume is at Std. Conditions.
argon	Ar	gas	190 m^3 (6709 ft^3)			Gas volume is at Std. Conditions.
activated carbon	C	granules		10 kg (22.1 lb)		
aluminum oxide	Al_2O_3	granules		20 kg (44.1 lb)		

NOTES:

1. In the Centrifuge Assembly Area, ethanol and methylene chloride are used as cleaning agents. Total quantity of both solvents used in one year is 80 L (21.2 gal).

2. Centrifuges in the Centrifuge Post Mortem Facility are considered contaminated based on previous operation with UF_6. Once in the Centrifuge Post Mortem Facility they will not contain significant amounts of UF_6.

3. In the Centrifuge Test Facility 50 kg (110 lb) of UF_6 is contained in a feed vessel, test centrifuges, and a take-off vessel. Physical state will vary depending on testing in progress.

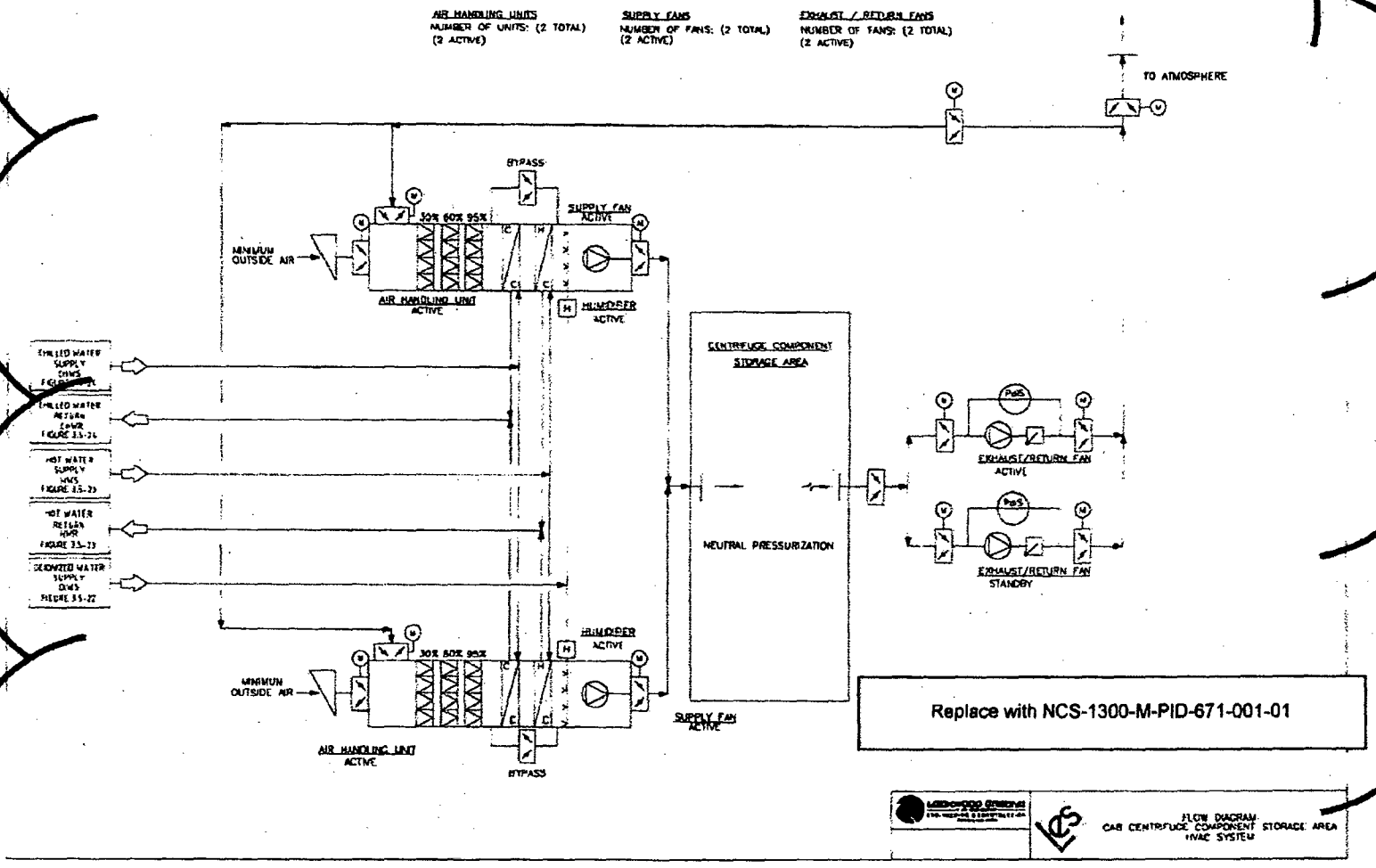
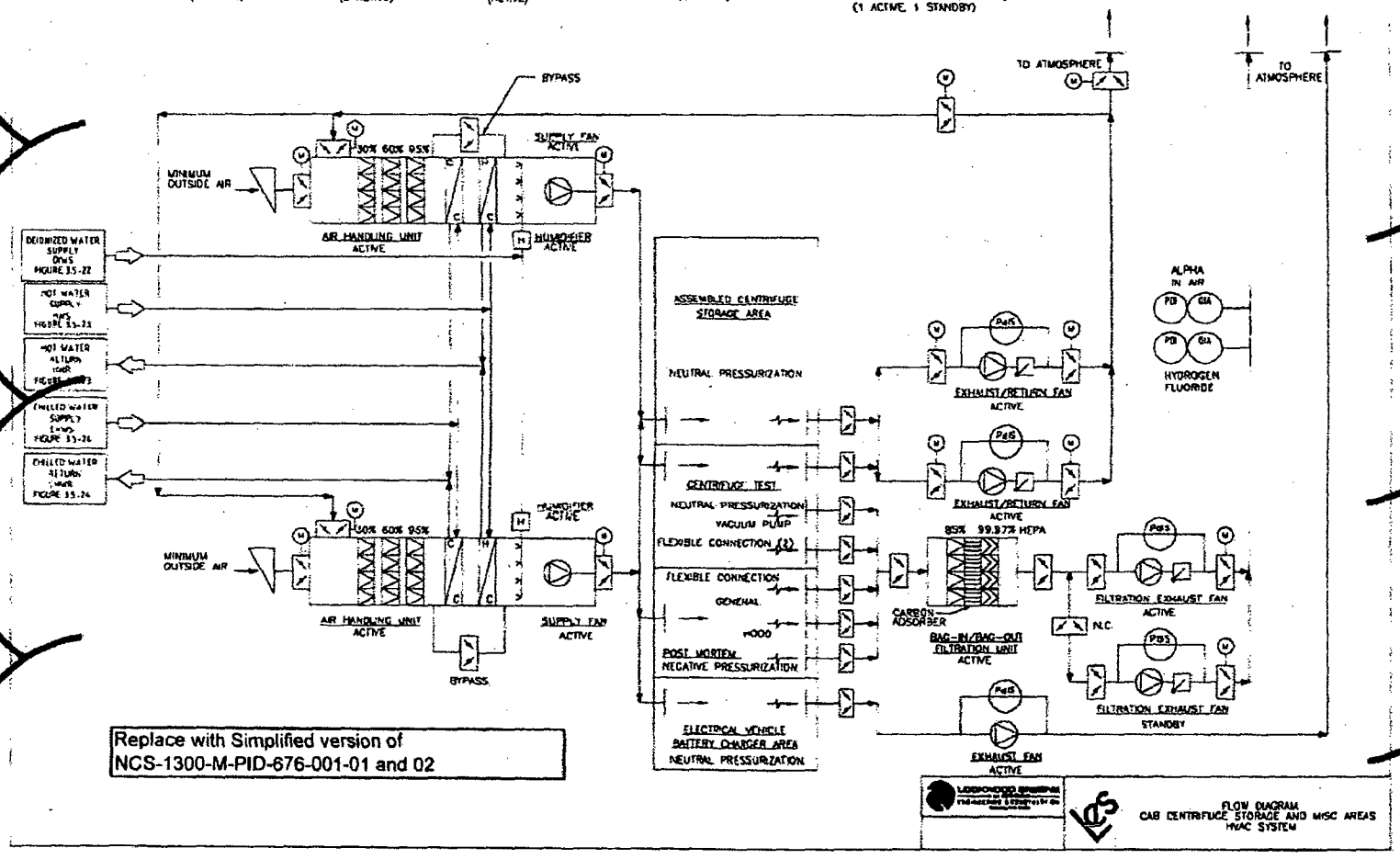
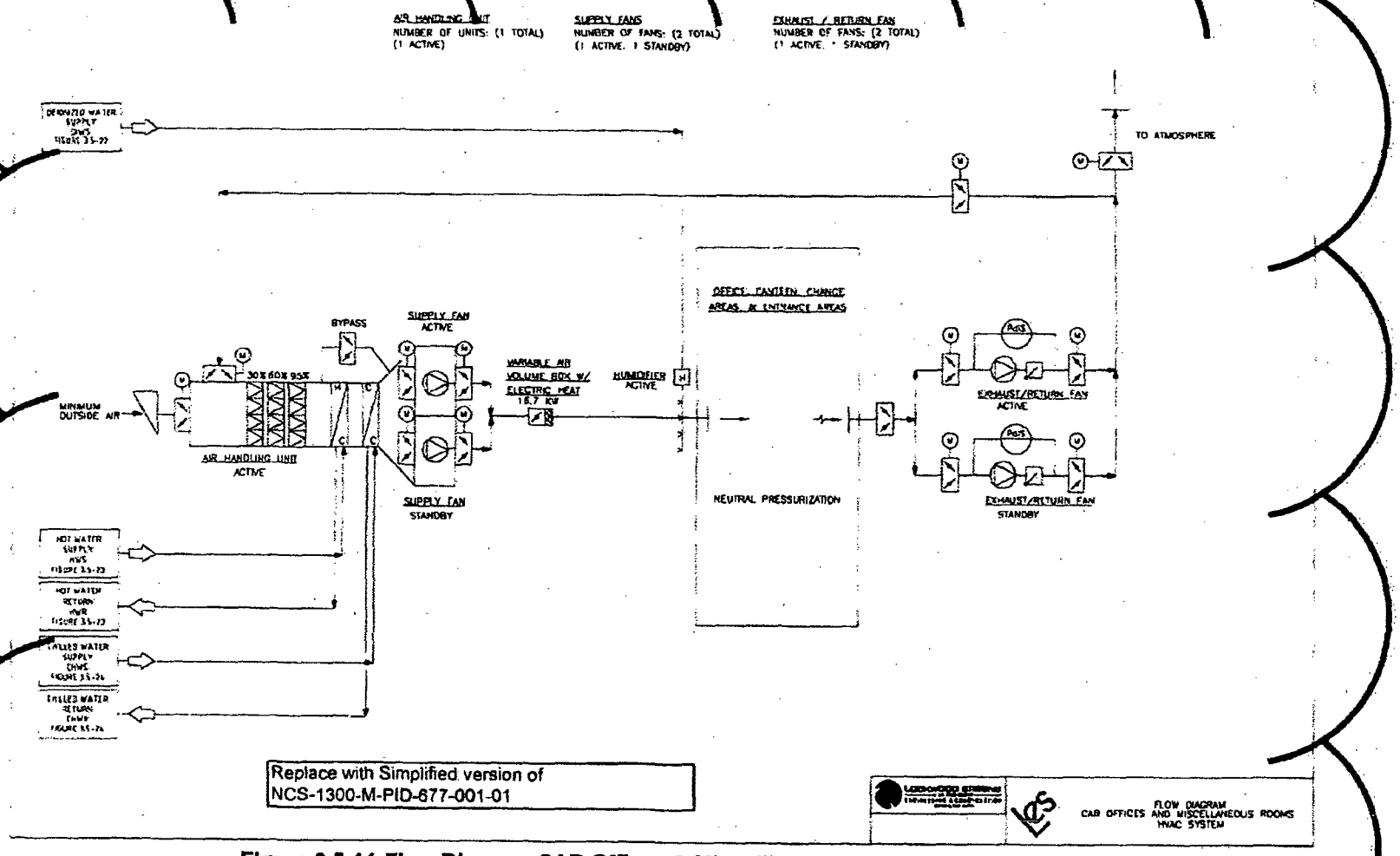


Figure 3.5-12 Flow Diagram CAB Centrifuge Component Storage Area HVAC System



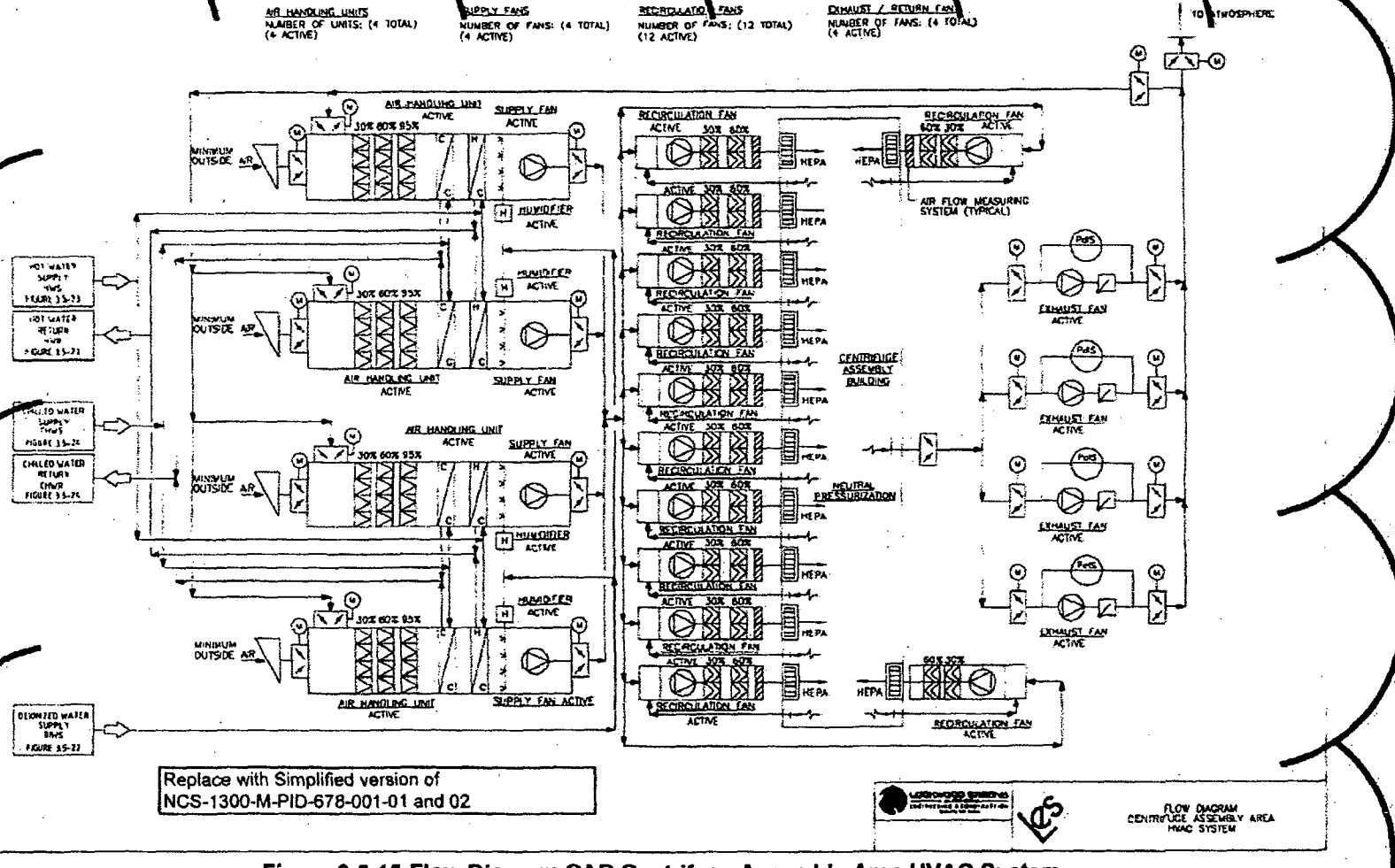
Replace with Simplified version of
NCS-1300-M-PID-676-001-01 and 02

Figure 3.5-13 Flow Diagram CAB Centrifuge Storage & Misc Areas HVAC System



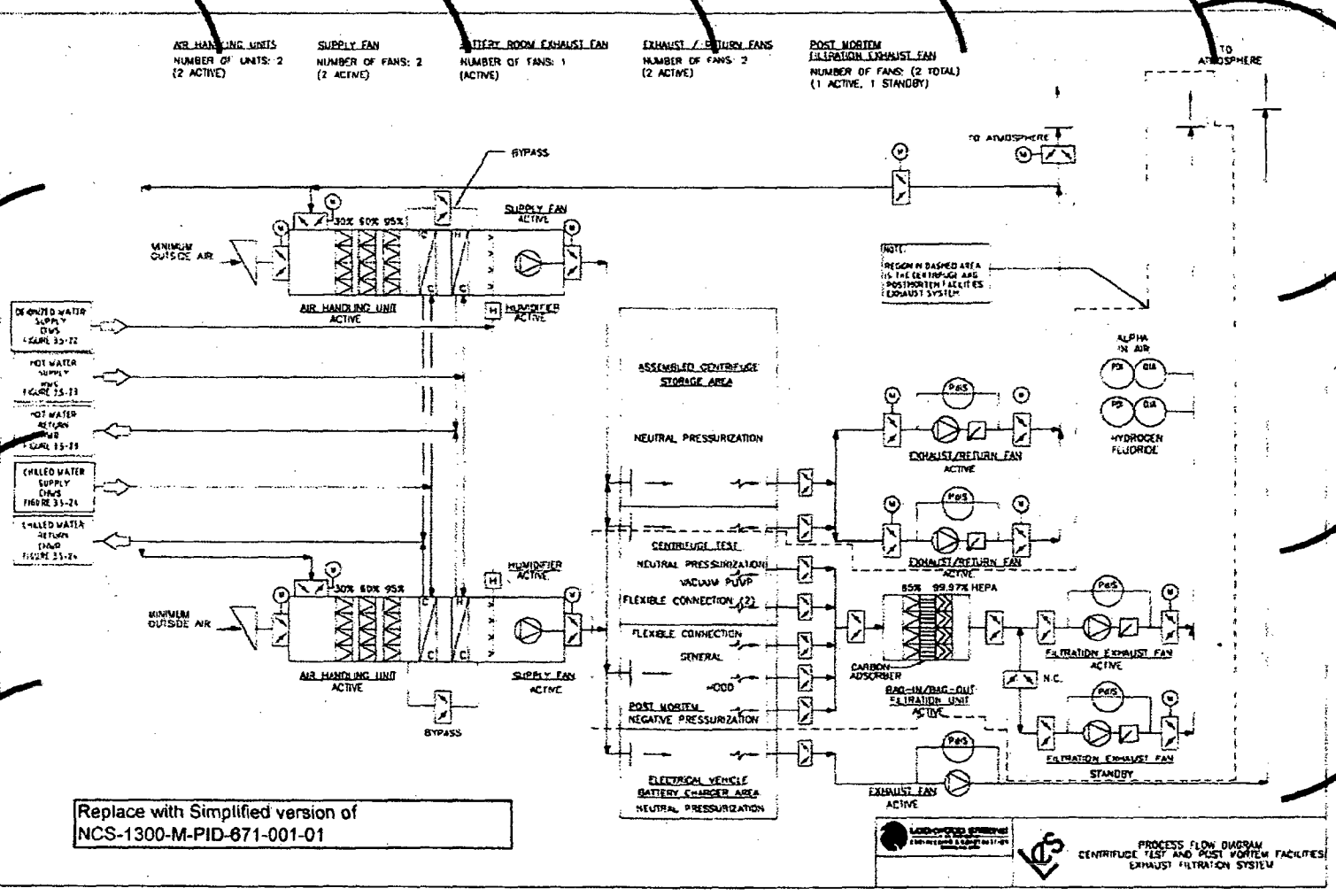
Replace with Simplified version of
NCS-1300-M-PID-677-001-01

Figure 3.5-14 Flow Diagram CAB Offices & Miscellaneous Rooms HVAC System



Replace with Simplified version of
NCS-1300-M-PID-678-001-01 and 02

Figure 3.5-15 Flow Diagram CAB Centrifuge Assembly Area HVAC System



Replace with Simplified version of
NCS-1300-M-PID-671-001-01

Figure 3.4-19 Process Flow Diagram Centrifuge Test and Post Mortem Facilities Exhaust Filtration System

1) Need Paul to look over markups and determine what changes need to be made due to design evolution & changed our minds.

2) Need to revise ~~Statistics~~. Figures if not done elsewhere.

Dick Skillman (CTR)

From: Paul Ferrari (CTR) **Sent:** Thu 4/24/2008 09:37
To: Dick Skillman (CTR)
Cc:
Subject: FW: ISA Input on Interaction Associated With R410a
Attachments: r410a.pdf(166KB) r407c.pdf(76KB)

Thanks.

Paul Ferrari

Design Management

856-663-3460 x212

First Floor

Cherry Hill, NJ

HOLDING FOR 70.72 Response on Refrigerant Change – R410a was originally selected and approved. In Retail use, R407C will be used. 4/24/2008

From: Mark Scanlan (CTR)
Sent: Thursday, April 10, 2008 5:38 PM
To: Douglas Neve (LES)
Cc: Paul Ferrari (CTR)
Subject: FW: ISA Input on Interaction Associated With R410a

Doug, FYI.

From: Paul Ferrari (CTR)
Sent: Thursday, April 10, 2008 12:56 PM
To: Shiaw-Der Su (LES)
Cc: Mark Scanlan (CTR); Ken Engan (LES)
Subject: FW: ISA Input on Interaction Associated With R410a

Steve,

We have been going on the assumption that the refrigerant that will be using in the HVAC units on site will be R-410a. For buildings other than the CAB this may be true for most buildings but for the CAB the majority of the units will use R-407c.

We would appreciate your assessment for R-407c if it should come into contact with UF6 or HF. I think it will be the same (as below) but we would still like to have your assessment. We need this to close the CC for the change in the CAB to use R-407c.

I have attached the MSDS for both 410a and 407c.

Let me know if you have any questions.

Thanks.

Paul Ferrari

Design Management

856-663-3460 x212

First Floor

Cherry Hill, NJ

From: Mark Scanlan (CTR)
Sent: Friday, September 28, 2007 10:39 AM
To: Dan Poole (CTR)
Cc: Paul Ferrari (CTR)
Subject: ISA Input on Interaction Associated With R410a

Dan, FYI. Mark

From: Shiaw-Der Su (LES)
Sent: Tuesday, June 12, 2007 8:54 PM
To: Mark Scanlan (CTR)
Cc: Markus Remmler (LES)
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Mark,

Please remove "Markus Remmler" from the following e-mail response, as R410a is a different type of refrigerant that Markus is unfamiliar with. I already apologized to Markus for the misquote.

Steve

From: Shiaw-Der Su (LES)
Sent: Tue 6/12/2007 5:33 PM
To: Mark Scanlan (CTR)
Cc: Thomas White (LES); Douglas Neve (LES); Steve Tsombaris (NTS); Derek Grant (LES); Mike Plunkett (LES); Robert Schrauder (CTR); Douglas Neve (LES); Thomas White (LES); Markus Remmler (LES); Richard Lehman (LES)
Subject: RE: DCC NEF-2007-0009, Removal of CUB Chillers

Mark,

This e-mail provides the response to the following three questions associated with the R410a refrigerant for the SBM DX units:

1. What chemical or radiological consequence would R410a have if it were to come in contact with UF6?
2. What chemical or radiological consequence would R410a have if it were to come in contact with HF?
3. If there is a chemical or radiological interaction, what other refrigerants could be used that do not have an interaction?

Answers to questions

R410a is a hydrofluorocarbon mixture of difluoromethane and pentafluoroethane. It is considered to be an azeotropic mixture, but the ratio is not listed. **Difluoromethane** (CH_2F_2) is known as HFC-32 or R-32. It is based on methane, but has two hydrogen atoms replaced by fluorine atoms. **Pentafluoroethane** (C_2HF_5) is known as HFC-125 or R-125.

1. Since there are no known chemical reactions of UF_6 and R410a, R410a should not have chemical or radiological consequences when in contact with UF_6. The reaction with water/ moisture is far worse.
2. HF is a product of the reaction of UF_6 and water. It should not have an impact with R410a.
3. No impact. R410a should work.

These answers were independently validated by personal communications with Tom White and Markus Remmler.

Please use the answers provided herein as supplemental information for completing Part 2 of the DCC form.

Steve

Shiaw-Der (Steve) Su

LES

505-391-1023 Office

505-602-0330 cell

P. S. – The other two questions unrelated to this DCC will be answered separately.

From: Mark Scanlan (CTR)
Sent: Thursday, June 07, 2007 5:54 AM
To: Shiaw-Der Su (LES)
Cc: Thomas White (LES); Douglas Neve (LES); Steve Tsombaris (NTS); Derek Grant (LES); Mike Plunkett (LES); Robert Schrauder (CTR)
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Steve Su,

Ref: email string below.

The refrigerant that is being planned for the SBM DX units is R410a.

Please use this for the assessment associated with the subject DCC.

Thank you in advance for your support.

Mark

From: Tsombaris, Stavros [mailto:stavros.tsombaris@shawgrp.com]
Sent: Thursday, June 07, 2007 7:00 AM
To: Mark Scanlan (CTR)
Cc: Mojibian, Mansour
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Mark, the refrigerant type we plan to specify is provided by Mansour, below

Stavros Tsombaris PE

Project Engineer

Shaw Stone & Webster

3 Executive Campus

Cherry Hill NJ 08002

(856)482-3083 (Direct)

(856)482-3039 (FAX)

stavros.tsombaris@shawgrp.com

From: Mojibian, Mansour
Sent: Wednesday, June 06, 2007 1:09 PM
To: Tsombaris, Stavros
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Steve,

Refrigerant that we will be using for SBM units is R410a.

To: Mojibian, Mansour; Dubrul, Stan
Cc: Visalli, Peter
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

FYI. Mark is trying to close the loose ends so that DCC -009 can be approved

Stavros Tsombaris PE

Project Engineer

Shaw Stone & Webster

3 Executive Campus

Cherry Hill NJ 08002

(856)482-3083 (Direct)

(856)482-3039 (FAX)

stavros.tsombaris@shawgrp.com

Paul Ferrari (CTR)

From: Clark Tracy (CTR)
Sent: Tuesday, June 10, 2008 9:17 AM
To: Paul Ferrari (CTR)
Subject: FW: SBM, CAB, and CUB Refrigerants

fyi

From: Shiaw-Der Su (LES)
Sent: Tuesday, June 10, 2008 9:04 AM
To: Clark Tracy (CTR); Douglas Neve (LES); Vernon Paul Law (LES)
Cc: Roland Gille (CTR)
Subject: RE: SBM, CAB, and CUB Refrigerants

Clark,

I spoke to Owen Parry here at ETUK this morning. The following arguments are proposed to justify that R407C is acceptable:

- A low reactivity of a similar refrigerant with liquid UF6 at elevated temperature (120 degree C) observed
- No liquid UF6 present at the NEF with the exception of the autoclaves where leak integrity is provided
- NEF operating and ambient temperatures well below 120 degree C
- No direct contact of R407C with UF6 under normal conditions
- UF6 reactions with R407C for credible abnormal conditions bounded by reactions with water or moisture in air

Let me know if additional information is required.

Steve

Shiaw-Der (Steve) Su
Plant Engineering/Program

LES
275 Hwy 176 Trailer 10-2
Eunice, NM 88231

TEL: +1 575 394 6109
MOB: +1 505 306 6687
Email: ssu@nefnm.com
Web: www.nefnm.com

From: Clark Tracy (CTR)
Sent: Mon 6/9/2008 6:54 AM
To: Shiaw-Der Su (LES); Douglas Neve (LES); Vernon Paul Law (LES)

NATIONAL ENRICHMENT FACILITY

P O Box 1789
Eunice, NM 88231

Tel: 505.394.4646
Fax: 505.394.4747

Subject: **Work in Progress to Ensure Conformance to Revision 4 of EG-101**

To: **CC-EG-2006-0073 File**

From: **Paul Ferrari**

Date: **September 28, 2007**

It was determined that an ISA review is not necessary for revising the design of the HVAC to meet URENCO requirements for cooling, redundancy and design temperatures in a QA-3 building. This is based upon the information in an email from Shiaw-Der Su to Mark Scanlan, dated 6/12/07; which states that the introduction of the HVAC coolant, R410a would not have negative chemical or radiological consequences if it were to come into contact with UF6 of HF. See Attachment A to this memo.

"This package has been reviewed against the Requirements of EG-101, R4 Although the forms used for documentation may be from past revisions of EG-101, this package meets all technical and regulatory commitments imposed by EG-101-R4."

Paul E Ferrari
Paul Ferrari

28 Sep. 07
Date

PEF-07-010

Paul Ferrari (CTR)

From: Mark Scanlan (CTR)
Sent: Friday, September 28, 2007 10:39 AM
To: Dan Poole (CTR)
Cc: Paul Ferrari (CTR)
Subject: ISA Input on Interaction Associated With R410a

Dan, FYI. Mark

From: Shiaw-Der Su (LES)
Sent: Tuesday, June 12, 2007 8:54 PM
To: Mark Scanlan (CTR)
Cc: Markus Remmler (LES)
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Mark,

Please remove "Markus Remmler" from the following e-mail response, as R410a is a different type of refrigerant that Markus is unfamiliar with. I already apologized to Markus for the misquote.

Steve

From: Shiaw-Der Su (LES)
Sent: Tue 6/12/2007 5:33 PM
To: Mark Scanlan (CTR)
Cc: Thomas White (LES); Douglas Neve (LES); Steve Tsombaris (NTS); Derek Grant (LES); Mike Plunkett (LES); Robert Schrauder (CTR); Douglas Neve (LES); Thomas White (LES); Markus Remmler (LES); Richard Lehman (LES)
Subject: RE: DCC NEF-2007-0009, Removal of CUB Chillers

Mark,

This e-mail provides the response to the following three questions associated with the R410a refrigerant for the SBM DX units:

1. What chemical or radiological consequence would R410a have if it were to come in contact with UF6?
2. What chemical or radiological consequence would R410a have if it were to come in contact with HF?
3. If there is a chemical or radiological interaction, what other refrigerants could be used that do not have an interaction?

Answers to questions

R410a is a hydrofluorocarbon mixture of difluoromethane and pentafluoroethane. It is considered to be an azeotropic mixture, but the ratio is not listed. **Difluoromethane** (CH_2F_2) is known as HFC-32 or R-32. It is based on methane, but has two hydrogen atoms replaced by fluorine atoms. **Pentafluoroethane** (C_2HF_5) is known as HFC-125 or R-125.

1. Since there are no known chemical reactions of UF_6 and R410a, R410a should not have chemical or radiological consequences when in contact with UF_6. The reaction with water/ moisture is far worse.
2. HF is a product of the reaction of UF_6 and water. It should not have an impact with R410a.

3. No impact R410a should work.

These answers were independently validated by personal communications with Tom White and Markus Remmler.

Please use the answers provided herein as supplemental information for completing Part 2 of the DCC form.

Steve

Shiaw-Der (Steve) Su
LES
505-391-1023 Office
505-602-0330 cell

P. S. – The other two questions unrelated to this DCC will be answered separately.

From: Mark Scanlan (CTR)
Sent: Thursday, June 07, 2007 5:54 AM
To: Shiaw-Der Su (LES)
Cc: Thomas White (LES); Douglas Neve (LES); Steve Tsombaris (NTS); Derek Grant (LES); Mike Plunkett (LES); Robert Schrauder (CTR)
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Steve Su,

Ref: email string below.

The refrigerant that is being planned for the SBM DX units is R410a.

Please use this for the assessment associated with the subject DCC.

Thank you in advance for your support.

Mark

From: Tsombaris, Stavros [mailto:stavros.tsombaris@shawgrp.com]
Sent: Thursday, June 07, 2007 7:00 AM
To: Mark Scanlan (CTR)
Cc: Mojibian, Mansour
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Mark, the refrigerant type we plan to specify is provided by Mansour, below

Stavros Tsombaris PE
Project Engineer
Shaw Stone & Webster
3 Executive Campus
Cherry Hill NJ 08002
(856)482-3083 (Direct)
(856)482-3039 (FAX)
stavros.tsombaris@shawgrp.com

From: Mojibian, Mansour

Sent: Wednesday, June 06, 2007 1:09 PM
To: Tsombaris, Stavros
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

Steve,

Refrigerant that we will be using for SBM units is R410a.

From: Tsombaris, Stavros
Sent: Wednesday, June 06, 2007 12:36 PM
To: Mojibian, Mansour; Dubrul, Stan
Cc: Visalli, Peter
Subject: FW: DCC NEF-2007-0009, Removal of CUB Chillers

FYI. Mark is trying to close the loose ends so that DCC -009 can be approved

Stavros Tsombaris PE
Project Engineer
Shaw Stone & Webster
3 Executive Campus
Cherry Hill NJ 08002
(856)482-3083 (Direct)
(856)482-3039 (FAX)
stavros.tsombaris@shawgrp.com

---

1. Memo Shaw-Der Su June 10, 2008 stated that "UF6 reactions with the R407C for credible abnormal conditions bounded by reactions with water or moisture in air. (Make Attachment)

2. Based on LAR, with less than 700gm U235 there is no criticality concern.
~~(Make Attachment~~
(make Reference)

3. There is an approved DCR that addresses humidity control for CTF, Server room and Clean rooms.

Clark Tracy (CTR)

From: Shiaw-Der Su (LES)
Sent: Tuesday, June 10, 2008 9:04 AM
To: Clark Tracy (CTR); Douglas Neve (LES); Vernon Paul Law (LES)
Cc: Roland Gille (CTR)
Subject: RE: SBM, CAB, and CUB Refrigerants

Clark,

I spoke to Owen Parry here at ETUK this morning. The following arguments are proposed to justify that R407C is acceptable:

- A low reactivity of a similar refrigerant with liquid UF6 at elevated temperature (120 degree C) observed
- No liquid UF6 present at the NEF with the exception of the autoclaves where leak integrity is provided
- NEF operating and ambient temperatures well below 120 degree C
- No direct contact of R407C with UF6 under normal conditions
- UF6 reactions with R407C for credible abnormal conditions bounded by reactions with water or moisture in air

Let me know if additional information is required.

Steve

Shiaw-Der (Steve) Su
Plant Engineering/Program

LES
275 Hwy 176 Trailer 10-2
Eunice, NM 88231

TEL: +1 575 394 6109
MOB: +1 505 306 6687
Email: ssu@nefnm.com
Web: www.nefnm.com

From: Clark Tracy (CTR)
Sent: Mon 6/9/2008 6:54 AM
To: Shiaw-Der Su (LES); Douglas Neve (LES); Vernon Paul Law (LES)
Subject: FW: SBM, CAB, and CUB Refrigerants

All
Has this been resolved?
Clark

From: Dan Poole (CTR)
Sent: Wednesday, April 30, 2008 1:48 PM
To: Paul Ferrari (CTR); Clark Tracy (CTR); Frank Kelly (CTR); Ken Engan (LES)
Subject: FW: SBM, CAB, and CUB Refrigerants

NATIONAL
ENRICHMENT
FACILITY

P O Box 1789
Eunice, NM 88231

Tel: 505.394.4646
Fax: 505.394.4747

memorandum

Subject: **Work in Progress to Ensure Conformance to Revision 3 of EG-3-2100-01**

To: **CC-EG-2006-0073 File**

From: **Paul Ferrari**

Date: **July 29, 2008**

This package has been reviewed against the Requirements of EG-3-2100-01, R3 Although the forms used for documentation may be from past revisions of EG-3-2100-01, this package meets all technical and regulatory commitments imposed by EG-3-2100-01-R3.

Based on the results of the ISA review for CC-EG-2008-0042 and CC-EG-2006-0070, and the 70.72(c) for this CC, there is "No ISA Impact or ISA Team Review Required".

Paul E Ferrari
Paul Ferrari

07/29/08
Date

PEF-08-006

urenco

NATIONAL
ENRICHMENT
FACILITY

P O Box 1789
Eunice, NM 88231

Tel: 505.394.4646
Fax: 505.394.4747

Subject: Approval of EG-DCR-2008-011, CAB Humidity Control

To: Ed Mussinan & Steve Daughtry

From: Mark A. Scanlan *Mark A. Scanlan*

Date: June 6, 2008

Re: EG-DCR-2008-011 (Attached)

EG-DCR-2008-011 has been **approved** in accordance with EG-3-4100-01 and is assigned to NC Sturgeon for design development.

<u>LES</u>	<u>LES</u>	<u>WGI</u>	<u>ETC</u>	<u>URENCO</u>	<u>NCS</u>
M. Scanlan	D. Sexton	S. Young	T. Latham	M. Buitelaar	C. Sturgeon
B. Robinson	B. Malara	M. Weaver			
D. Vandewalle	C. Tracy	G. Mansare			
J. Thalmann	D. Besada				
N. Wetherell	G. Stein				
D. Taylor	E. Calderon				
C. Markert	M. Lutz				
D. Forbis	B. Francis				
T. Fay	G. Patrissi				
R. Fish	J. Aeto				
S. Miltenberger	V. Law				
P. Klintworth	D. Neve				
D. Foti	K. Engan				

MAS-08-229

urenco

LES Design Change Request Form

Project:	National Enrichment Facility	DCR Tracking Number	EG-DCR- 2008-011
Originator:	Ken Engan Kenneth Engan	Date:	3/3/08
Supervisor:	Paul Law	Date:	03/04/08
Design Manager:	Robert Schrauder Rob Schrauder	Date:	3-4-08
DCR Title:	CAB Humidity Control	Expected Response Date:	3/11/08

Section 1: Proposed Design Change

Structures, Systems & Components Level (check appropriate)
QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

Add humidifiers to the CAB HVAC system so that entire building, with the exception of the Server Room, is controlled to a set point of 40% relative humidity, with a minimum relative humidity of 30% and a maximum relative humidity of 55%. The Server Room relative humidity shall not drop below 30% or exceed 50%. To mitigate required maintenance of the humidifiers, reverse osmosis (RO) or deionized water shall be used in the humidification process. The design agency shall evaluate the need to provide dehumidification and shall incorporate this into the design if it is shown to be necessary.

Reason for Design Change:

DCC NEF-2005-0045 removed humidity control from the CAB but provided no basis or justification. DCC NEF-2006-0060 restored humidity control to the Centrifuge Assembly Area and referred to functional specification ETC4037562 for the Server Room humidity control requirements. It is not apparent why humidity control was never restored to these areas. The changes specified in DCC NEF-2006-0060 were requested by ETC to meet the requirements of the process and to avoid static electricity and operator health problems. To avoid these problems ASHRAE (2004 ASHRAE Handbook) recommends maintaining relative humidity between 30% and 60%. Due to the quantity of heat generated by the degas cells in the Centrifuge Assembly Area, humidity requirements will likely not be met during certain parts of the year without active humidity control.

Regulatory Compliance	☐
Personnel/ Nuclear Safety	☐
Cost Savings/ Improvement	☒

Configuration Documents Affected (including possible ISA impacts if known):

The following sections and figures of the Integrated Safety Analysis Summary (Rev. 6a) are or may be affected by this DCR:

- Section 3.5.1.1.9 describes the CAB HVAC system.
- Section 3.5.1.3 describes HVAC system interfaces.
- Section 3.5.1.4 describes Operational Characteristics.
- Section 3.5.1.5 describes Safety Considerations.
- Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System
- Figure 3.5-13, Flow Diagram CAB Centrifuge Storage & Misc Areas HVAC System
- Figure 3.5-14, Flow Diagram CAB Offices & Miscellaneous Rooms HVAC System
- Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System

Section 2: Subject Matter Assessment(s)

Since the CAB will be an occupied building and will contain components sensitive to static electricity, it is appropriate to provide humidification.

It is recommended that humidification be accomplished using a DI water / service water mixture utilizing electric humidifiers. A DI water / service water mixture will be more economical that a straight DI water system.

Additionally, the humidifiers should have features that allow for automatic boiler section blowdown or provide for quick boiler section change out / cleaning capability. This approach will be consistent with the humidification systems that will be utilized in other buildings such as the SBM (standardization).

Adverse Impacts and Concerns:

1. The decision to abandon a centralized chill water system for air conditioning in the CAB has resulted in a highly "compartmentalized" duct design. As such, humidification for all areas of the CAB will likely result in the need to provide many, small humidifiers instead of larger, more centralized humidification units, with the associated complications of routing additional DI/service water piping and extra humidification controls. This will increase the construction costs (beyond the typical construction costs for installing more centralized humidification systems) and could also result in higher, long term maintenance costs.

2. Some relatively large areas of the CAB are designated simply as storage areas. It is not clear whether humidification requirements apply to these areas. Due to the layout of the CAB HVAC ductwork, a thorough review of all CAB areas should be performed to identify where humidification requirements actually apply. This will avoid installing humidification components where they are not needed.

Name	CLIFF MUNNS	Position	LES FIELD ENGINEERING MECHANICAL ENG LEAD	Signature	C.A. Munns	Date	3-11-08

Section 2: Subject Matter Assessment(s)

Summary

Estimated costs for the addition of humidification and annual operation are substantial with only marginal benefits provided. Initial reviews of environmental data indicate that the area is fairly moderate in temperature and humidity. The brief periods of low humidity do not justify the cost for this modification especially in the centrifuge storage areas of the building. It is not recommended that humidification be installed in the entire building at this time. Humidity controls should be installed only in the centrifuge test facility, the clean areas and the server room. A detailed analysis should be completed during the early operational phase, using local test data, to determine if humidity control (including dehumidifying) is needed in other areas. The basis for the IROFS specification regarding humidity should be reviewed for the actual equipment capability and not based on a condition that requires monitoring and regulation.

Estimated Cost

A steam aerosol is the recommended method of humidification based on the ability of the system to eliminate microbial contamination (OSHA Technical Manual Section III Chapter 7). The following table provides a rough estimate of the cost of installing and operating a steam aerosol system. The cost for demineralized water assumes use of site produced DI water and is estimated at 1/3 the cost of direct purchase. The cost of expanding the DI water system to include humidification requirements is not included in this estimate. Maintenance costs are likely to be much higher after the first year of operation.

CAB Humidification Approximate Costs (Steam System)

Equipment	175,000	Based on Allied Oversight Estimate
Design	25,000	Estimate for modification
Installation	100,000	Estimate for modification
Preventive Maintenance	5,000	Annual cost estimate
Corrective Maintenance	5,000	Annual cost estimate
Power Usage	17,000	Annual cost assuming $.05 per kW hour, 1000 hours/year usage, 1000 lbs. per hour moisture output
Drainage requirements	25,000	Pumps, piping, installation, design
DI water usage	250,000	Assuming 3 months/year usage at $.50/L from DI Plant (commercial cost $1.50/L)
TOTAL	$602,000.00	Installation and First Year Operating Cost
Annual Cost	$285,000.00	

Section 2: Subject Matter Assessment(s)

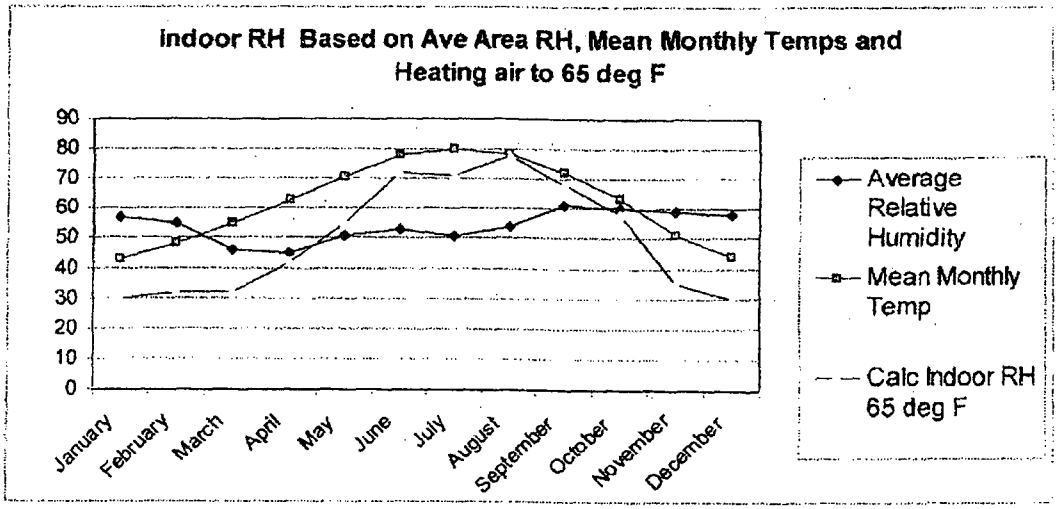
Environmental Data

Data from the Environmental Report Table 3.6-1A Hobbs, New Mexico, Temperature Data (1971-2000) and Table 3.6-3 Midland-Odessa, Texas, Relative Humidity Data indicate that the climate is typical of a semi-arid region, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Low humidity periods of short durations can be expected; however, the condition does not appear to be severe and would be mitigated by the averaging affect of the HVAC outside air exchange and the varying humidity that occurs during a daily cycle. Mean monthly temperatures in Midland-Odessa (NOAA, 2002a) range from 5.8°C (42.5°F) in January to 27.8°C (82.0°F) in July. The average relative humidity ranges approximately from 45% to 61%. Highest humidities occur mainly during the early morning hours (NOAA, 2002a). Roswell, NM, (northwest of the site) data indicates a lower average RH.

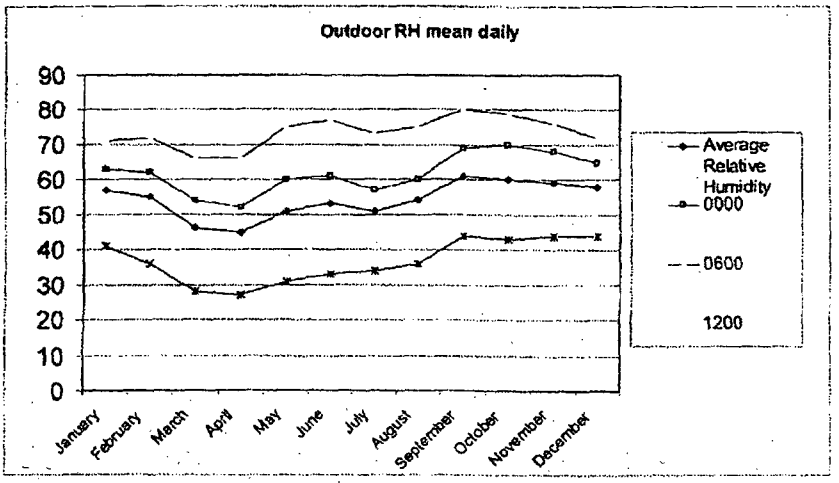
Environmental Report Table 3.6-3 Midland-Odessa, Texas, Relative Humidity Data

Relative Humidity (%)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average	57	55	46	45	51	53	51	54	61	60	59	58	54
00 LST	63	62	54	52	60	61	57	60	69	70	68	65	62
06 LST	71	72	66	66	75	77	73	75	80	79	76	72	74
12 LST	46	44	36	34	38	42	42	43	50	46	45	45	43
18 LST	41	36	28	27	31	33	34	36	44	43	44	44	37

Time of Day, 24-Hour Clock LST = Local Standard Time Source: (NOAA, 2002a)



Section 2: Subject Matter Assessment(s)



Humidity Affects on Health

ASHRAE recommends maintaining the relative humidity between 30% and 60% while the OSHA Technical Manual (OTM) recommends that the relative humidity be kept in the range of 20% - 60%. OSHA further identifies high humidity and humidifiers as sources for Microorganisms and other Biological Contaminants (Microbials) and identifies humidifier fever as an acute health affect. Any lapse in maintenance that allows growth of microbial contamination would quickly offset any positive effects of providing humidification for human comfort. It is extremely important to properly maintain and treat any humidification system installed. The air and any HVAC condensate drainage should be occasionally monitored to assure that biological contaminants remain at safe levels.

Humidity Affects on Equipment

For electronic equipment ASHRAE recommends an operating range of 35-55% relative humidity. The computer server functional specification provides the only equipment requirement of 30-50% RH range per the DCR. The Centrifuge Test Facility contains IROFS C15 and C16 which based on TEG-TQ-2007-018 require specification for equipment capable of operating in a range of 20% to 90% relative humidity. These specifications will require humidity controls in the CTF and server room. The basis for the lower humidity requirements is not apparent as a review of a typical IBM server specification indicates a humidity range of 8-80% RH. TEG-TQ-2007-018 establishes the range of 20-90% RH based on the stated humidity conditions in general plant areas; however, these hardwired IROFS should be able to function with a much lower relative humidity. The specification, in this case, should be based on equipment capability and not establish a condition that requires monitoring and regulation.

Section 2: Subject Matter Assessment(s)

References:

Environmental Report Revision 10
- Table 3.6-1A Hobbs, New Mexico, Temperature Data (1971-2000)
- Table 3.6-3 Midland-Odessa, Texas, Relative Humidity Data

OSHA Technical Manual – Section III Chapter 2, V. Recommendations for the Employer
ASHRAE Handbook Chapter 20 Humidifiers
EG-TQ-2007-018
Condition Report Evaluation 2008-216-CR
IBM Model 9406-800 and 9406-810 server specifications

Name	Frank Kelly	Position	Design Management Engineer	Signature		Date	3/24/08

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Level 3 – Information Use
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Technical Question Form

Technical Question Form	Technical Question Number/Revision **EG-TQ-2007-018**

Originator: TERRY FLETCHER / Terry Fletcher (Name/Signature) **Date:** 10/18/07

Supervisor: STEVE MILTENBERGER / Steve E Miltenberger (Name/Signature) **Date:** 10/18/07

Configuration Document(S) Affected (If applicable. Also see Attachment 1 of EG-101):

SAR Section 3.4.38 and ISA Summary 3.8.1

Question (Include references, attachments, etc. as applicable):

The SAR and ISA require all IROFS components and systems to be qualified using the applicable guidance of Standard " IEEE Std 323-1983 ". Environmental applications require that the normal and abnormal service conditions be properly specified and included in the equipment specification and that a Certificate of Compliance for non-seismic parameters be provided by the equipment supplier.

Establish Environmental limits and supporting documentation for such parameters as Temperature, Pressure, Humidity, Radiation, HF levels, to be incorporated into the IROFS1, 2, 4, 5, C15, & C16 purchase specifications.

Response (Include references, attachments, etc. as applicable):
The attached Environmental / Seismic Conditions for NEF Hard-Wired IROFS and its Section 8 references respond to this technical question. Note this Rev 0 version provides the required conditions for the first six IROFS to be procured. Future revisions will address other IROFS and include copies of the references as attachments.

Responder: David A Horvath / David A Horvath (Name/Signature) **Date:** 10-18-07

Reviewer: Michael J. Wylie / (Name/Signature) **Date:** 10/18/07

CM Coordinator: Check Box if NA, Initial and Date: ☑ **Initial:** CRT **Date:** 10/18/07
(Note: If response does not impact UF_6 core technology check NA, initial & proceed directly to approval.)

DM Core Technology: _____ / _____ (Name/Signature) **Date:** _____

Urenco (CTG): _____ / _____ (Name/Signature) **Date:** _____

LES Approval: R.W. Schneider / (Name/Signature) **Date:** 10-18-07

Environmental / Seismic Conditions for NEF Hard-Wired IROFS
Rev 0, dated October 18, 2007

1. Background and Objectives

Procurement of IROFS requires establishment of equipment qualification (EQ) requirements. The ISA Summary contains a commitment to IEEE Std 323-1983 (Standard for Qualifying Class 1E Equipment for Nuclear Generating Stations). Relevant aspects of this standard will need to be incorporated into IROFS procurement specifications. The requirements of this standard differ substantially depending on whether the item of equipment is required to function in a post-accident harsh environment or not.

The objective of this document will be to establish environmental and seismic conditions for purposes of procuring IROFS in a manner consistent with the requirements of IEEE Std 323-1983. The basis for the conditions and the approach for meeting IEEE Std 323-1983 will also be provided.

The initial issue of this document will serve the purpose of providing service conditions for:

- *The first Separations Building Module (SBM1) for IROFS 1, 2, 4, and 5*
- *Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building for IROFS C15 and C16.*

Subsequent revisions of this document will address other IROFS.

Harsh environment EQ aspects (extensive testing, analysis, documentation, margin, aging considerations, and rigorous maintenance) apply if environmental conditions change significantly from what would occur during normal operation or anticipated operational occurrences (anticipated events include a loss of power or loss of HVAC events that could cause high temperatures). If temperature or other environmental parameters change significantly (above an initial threshold) when an accident occurs the accident environment is considered harsh. Based on potential material degradation effect thresholds, the accident environment is also considered harsh, if the equipment radiation doses exceed:

- 1000 rads for sensitive electronic devices (such as microprocessors and MOSFET-based equipment) and fiber optics,
- 10,000 rads for other electronic devices, or
- 100,000 rads for other types of equipment,

At the NEF, the accident environment will not become harsh. This document will provide a basis for this conclusion.

Regardless of harsh environment requirements, mild environment and seismic qualification aspects of IEEE Std 323-1983 would still apply. Mild environment applications require that normal and abnormal service conditions be properly specified and included in equipment procurement specifications and that a certificate of compliance for non-seismic parameters is required to be provided by the equipment supplier. Seismic qualification requires that seismic response spectra be established and addressed in the form of a test report and/or analysis.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

To meet relevant EQ requirements of IEEE Std 323-1983, this document will:

- identify assumptions and design inputs relevant to determination of design basis accident scenarios,
- establish bounding accident scenarios,
- identify relevant IROFS and locations,
- establish environmental and seismic design basis event condition parameters for the IROFS locations for accidents, during which the IROFS are required to function and the bases for the parameters, and
- provide a conclusion that the environmental parameters are not harsh during postulated accidents.

2. Assumptions and Design Inputs

2.1. The plant is designed to prevent and mitigate both intermediate and high consequence events. Therefore, IROFS do not require environmental qualification for events that have effectively been prevented (such as all criticality events and associated radiation doses).

2.2. Any significant event during plant operation (seismic, tornado, fire, etc.) that would result in questioning the future capability of an IROFS would have to be addressed (by IROFS operational testing, analysis, etc.) prior to future reliance on the equipment (that is, prior to plant restart).

2.3. No more than minimal operator action is credited for mitigating any detrimental effects of postulated accidents and anticipated operational occurrences for at least 24 hours.

2.4. Many IROFS prevent slowly developing events and there is sufficient time to take action, if needed. For example, some IROFS temperature switches protect UF_6 cylinders from bursting due to temperature controller failure and overheating. This loss of integrity event takes several hours to develop.

2.5. Hard-wired IROFS are UPS backed and do not lose power immediately on a loss of off-site power (LOP). When these IROFS do eventually lose power, they fail to a safe state and seal-in.

2.6. On a LOP, although the cascade centrifuge arrays and HVAC systems will shutdown, many other systems that are Diesel Generator / UPS backed will continue to operate contributing to heat loads and rising ambient temperatures.

2.7. Although a limited number of piping systems have been analyzed to demonstrate no loss of integrity during a design basis seismic event, some piping systems and tanks have not. Therefore, it is assumed that a design basis seismic event could result in UF_6 and HF release.

2.8. The design life for the NEF is 30 years.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

2.9. Most areas containing IROFS are cooled by multiple trains of HVAC such that multiple failures would be required to lose all HVAC cooling to an IROFS. Multiple failures resulting in a complete loss of HVAC are much less likely than a single failure unless the failures are the result of a common cause. One example of a common cause failure is a loss of offsite power because the HVAC system is not diesel generator backed. Another example of a common cause failure is a design basis seismic event because the HVAC system is not seismically designed.

One exception to the "multiple train of HVAC" design approach is the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building, which contains IROFS C15 and C16. This area is cooled by a single train of HVAC. Note that these two IROFS are provided solely for operator (and not for offsite personnel) protection. In the event of a failure of temperature control circuit, these two IROFS diversely trip the Centrifuge Test Facility feed/take-off vessel heat tracing on high temperature to ensure feed/takeoff vessel integrity by preventing HF releases. The amount of potential release from the CAB that could occur during a postulated heater control failure resulting in a feed cylinder integrity failure from overheating is not large enough to endanger the public.

2.10. Postulated accident scenarios for purposes of establishing accident environmental conditions will only consider events resulting from design failure assumptions. Such scenarios will include initial and consequential failures related to the facility process systems or caused by fires and external events plus failures consistent with likelihood, consequence, and risk rating approaches described in the ISA Summary Section 3.7.

In general, the accident sequence risk assessments demonstrate that credible high-consequence events are highly unlikely ($<10^{-5}$) and credible intermediate-consequence events are unlikely (10^{-4} to 10^{-5}). IROFS necessary to prevent or mitigate event sequences that exceed 10 CFR 70.61 criteria have been identified. For this reason, it is not necessary to consider additional failures beyond design basis accident scenarios described in the ISA Summary Section 3.73. These "beyond design basis" scenarios were considered solely for purposes of development of the Emergency Plan.

2.11. A seismic event powerful enough to disable all trains of HVAC in any given area is also powerful enough to disable offsite power availability. This assumption is validated by consideration of the nature and design of offsite power and HVAC systems.

The availability of offsite power relies on one or two high voltage (HV) sources to supply a switchyard on site. The nature of HV is such that, it is necessary for the design of switches and support connections to be long and narrow to reduce leakage currents and to assure separation (isolation) when the switches are open. This design means long lever arms. Also transmission lines are high above the earth's surface (to reduce leakage to ground) and large spacial separation needs to exist between electrical phases to reduce phase to phase leakage currents. The design results in a significant number of long lever arms in HV systems. On the other hand, to reduce or prevent long term degradation effects from system inherent vibration, HVAC systems are designed ruggedly and mounted securely with short, if any, cantilevered supports.

The result is that during a seismic event, offsite power systems will be subject to much higher accelerations, velocities, and displacements than HVAC components.

In addition, offsite power system consists of a long series of weak points, any one of which will cause a loss of that power supply. The HVAC system has multiple trains operating in parallel. Therefore, a seismic event that is powerful enough to disable even one train (let alone all trains) of HVAC will in all likelihood also cause a loss of offsite power.

2.12. Because of no more than minimal, immediate operator actions to de-energize systems, prior to evacuation during certain limited events (such as an earthquake), there are no IROFS accident monitoring instruments to be qualified.

2.13. Hard-wired IROFS must be sealed against moisture intrusion, spray, and direct HF exposure effects.

3. Limiting Postulated Accident Scenarios

The following events are considered bounding design basis events (DBEs) for purposes of establishing DBE environmental conditions:

3.1 For the SBM, the design basis event for temperature and toxic chemical release within the building is a seismic event resulting in a loss of offsite power and a complete loss of HVAC. The toxic gas release is assumed to occur independent of whether the seismic event causes a loss of HVAC. This event assumes that diesel generator / UPS backed electrical loads will continue to function and release heat resulting in area temperatures increasing. This loss of HVAC includes both loss of fans and closure of isolation dampers. The seismic event could also result in loss of integrity of various systems containing UF_6 and the release of UF_6 and HF or this release could occur during a seismic event during which HVAC continues to operate with closed isolation dampers. [See Assumptions and Design Inputs 2.1, 2.5, 2.6, 2.7, 2.9, 2.10, and 2.11)

Note that for purposes of establishing a bounding high temperature case, the above design loss of HVAC envelops or is equivalent to other events such as one train down for maintenance followed by loss of other HVAC trains from some common cause event (such as failed electrical buses) because the end result (loss of all HVAC) is no worse. Also, such scenarios (involving a severe event occurring during a maintenance event) may be considered highly unlikely (less than 10^{-5} per year) because the severe common cause event would need to occur during the short window of time that one train is down for maintenance. For example, a maintenance event occurring two weeks per year is already 2/52 or ~ 0.04 or 4×10^{-2} combined with the most probable unlikely event (10^{-4}) would be 4×10^{-6} or highly unlikely. [ISAS Table 3.1-5]

3.2 For the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building, the design basis event for temperature is a loss of the single train of HVAC during normal operating process conditions. It is actually more severe to have this loss of HVAC to occur for a reason other than a seismic event or severe storm because

the IROFS in this area are for operator safety only and for a seismic event and severe storm the operators are required to evacuate the building. If a loss of HVAC occurs without other conditions requiring evacuation the operators may elect to continue to work. In such a case, the ambient temperatures will increase. If the loss of HVAC continues long enough for the ambient temperatures to reach 120°F, limitations on heat stress related stay times will require evacuation. (Design Input and Assumption 2.9)

3.3 Any break in a cooling water system or water-based fire suppression system, which allows water spray to hit a panel containing an IROFS or to cause internal flooding in an area containing an IROFS panel is the design basis event for spray. (Design Input and Assumption 2.13)

3.4 Severe weather causing external flooding on site is assumed to result in building flooding to the maximum calculated water level. This scenario takes no credit for external flood mitigation provisions.

3.5 No design basis accident scenarios will cause radiation levels to increase significantly above that which would be experienced during normal plant operation. Therefore, design basis accident doses are enveloped by worst case normal doses during the design life of the plant. The limiting normal dose is based on continuous proximity to an empty feed cylinder.

4. Applicable IROFS

Environmental conditions are needed to specify and procure hard-wired IROFS. High priority items for initial issue of this document are:

- IROFS 1, 2, 4, and 5, which are located in the first SBM (SBM1)
- IROFS C15 and C16, which are located in Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building

5. Plant Locations of Interest

IROFS will be located in the Separations Building Module (SBM), the Cylinder Receipt and Dispatch Building, and the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building.

6. Environmental Conditions and Bases

The following table summarizes the environmental conditions at the NEF. The bases for these parameters are discussed in the subsequent sections.

Table 6.1
Environmental Parameters

Parameter	Normal	Reference	Abnormal/Accident	Reference
Temperature	0°C-40°C	8.1	50°C	8.2 & Section 6.1

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

	(32°F-104°F)		(122°F)	
Pressure	896 millibars (13 psia)	Section 6.2	896 millibars (13 psia)	Section 6.2
Humidity	20% - 90% RH	Section 6.2	20% to 90% RH	Section 6.2
Internal Flooding	NA	NA	0.3m (12 inches)	8.3 & Section 6.3
External Flooding	NA	NA	0.5m (1.6 ft)	8.4 & Section 6.3
Spray	NA	NA	Yes, but would be external to equipment	Section 6.4
Radiation	<10,000 rads	Section 6.5	<1000 rads	Section 6.5
Seismic	NA	NA	Best available*	8.6 & Section 6.6
HF Levels	NA	NA	675 mg HF/m^3	8.7 & Section 6.7
Time	30 Years	Section 2.8	<24 hrs	Section 2.3

* Note: IROFS C15 and C16 do not require seismic qualification based on location in a non-seismic structure, operator actions to leave the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building at first indication of a seismic event, and need to retest these IROFS for operability after a seismic event. (Design Input and Assumption 2.2 and 2.3)

6.1 Temperature

The normal temperature range is based on conservatively enveloping the required ambient temperature process conditions from ETC of 18°C to 32°C as well as the NTS HVAC specified conditions (18°C to 35°C) from the Reference 8.1 calculation.

The accident temperature for the SPM is based on the conservative maximum ambient temperature that would result for the limiting loss of HVAC scenario of Section 3.1. An initial temperature of 32.2°C (90°F) in the room and an outside temperature of 43.3°C (110°F) for 24 hours are assumed. For additional assumptions, design inputs, and other details, see Reference 8.2.

This accident temperature also envelops the accident scenario of Section 3.2 for the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building because with a loss of HVAC increasing temperature condition, the operators will have evacuated before 50°C (122°F) is reached because of heat stress occupational stay time restrictions. Once the operators evacuate, the IROFS at this location will no longer have a safety function.

6.2 Pressure & Humidity

Pressure increases and abnormally high humidity levels (above 90%) are typically associated with the rupture of high energy lines or other large sources of hot water or steam and there are no such sources present in the SBM.

The pressure is 896 millibars or atmospheric pressure (13 psia) at 3415 ft elevation during normal operation and does not vary appreciably during postulated accident scenarios (Reference 8.2).

The humidity in the facility will fluctuate within normal ranges for the weather conditions at the NEF site. The humidity conditions in general plant areas are 20% to 90% Relative

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

Humidity (RH). Humidity is a mild environmental parameter for the NEF and procurement specifications should require equipment capable of operating in a range of 20% to 90% RH.

6.3 Flood Levels (External & Internal Flooding)

Internal flooding was calculated based on a failure of all fire suppression standpipes. The additional amount of water potentially available from the centrifuge cooling water systems, demineralized water system, and potable water system is minor by comparison and can be neglected. The result if dispersed evenly throughout the SBM is 0.22 m (8.6 inches). The result if the water is dispersed more locally in an area between the standpipe locations and the UF_6 area is 0.29 m (11.6 inches). [Reference 8.3] Rounding up to 0.3 m (12 inches) will more than account for water contributions from the smaller capacity systems.

Severe weather causing external flooding on site, may result in building flooding to the maximum calculated water level. This scenario takes no credit for external flood mitigation provisions

External flooding caused by severe weather is assumed to result in building flooding. The maximum calculated building flood level takes no credit for mitigation provisions, such as an external berm. The result is flooding to a level of 0.5 m (1.6 ft) inside the SBM [Reference 8.4]

With the exception of the seismic detector switch IROFS 26, other IROFS will be located above these flood levels and thus in a submergence-free mild environment. IROFS 26, which will be mounted on the floor of the SBM will perform its seismic detection function and seal-in prior to being flooded from seismic event created internal sources. Severe weather and a resulting external flood are not postulated concurrent with the need for the IROFS 26 essential function to isolate HVAC during a seismic event.

6.4 Spray

Postulated spray conditions are limited to the effects of small and low pressure water line breaks in the plant. Equipment that is sensitive to spray, (i.e., sensitive electrical and electronic equipment) is housed inside panels that are sealed against moisture intrusion, spray, and direct HF exposure effects and, therefore, will not be exposed to the effects of spray. Spray is potentially a harsh environmental parameter for the NEF. However, the enclosures make the condition not applicable for sensitive equipment. For IROFS which are not located inside spray resistant enclosures, purchase specifications should specify water spray conditions.

6.5 Radiation

The sources of the limiting normal radiation levels in the SBM, are empty feed cylinders. An empty feed cylinder contains radon and gamma emitting byproducts and lacks the self-shielding provided by a full feed, tails, or product cylinder.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

Considering this dose rate continuously over a 30 year period results in a normal dose of less than 10,000 rads [To be confirmed later by Reference 8.5. If Reference 5 later concludes a dose above 10,000 rads, shielding may be required if further dose refinement is not possible.] Consistent with 10 CFR 50.49, the normal dose is not a factor in determining whether an area is harsh or not.

The estimated SBM dose will envelop the maximum expected dose in the CAB because any feed cylinders that may be tested in the CAB will be limited in content to meet the license amendment requirements for downgrading the Cab from Level 1 to Level 3 status.

Based on Assumption and Design Input 2.1 and 2.10, criticality events are not design events. Therefore, no post-accident radiation doses are postulated.

6.6 Seismic

At the present issue of this document, design of the catwalk and other structures is not sufficiently complete to develop estimated response spectra for the various IROFS locations. Therefore, until this design is sufficiently finalized, IROFS should be ordered based on "best available". If at a future time, Reference 8.6 establishes a response spectrum in excess of procured qualification levels, it will be necessary to retest the equipment. If a representative test specimen fails the seismic test, it may be necessary to reinforce the support structures to achieve less restrictive seismic conditions.

Damping factors to be used for seismic qualification are established for the NEF as follows for hard wired IROFS. ISAS references ASCE/SEI 43-05 (Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities) for seismic design requirements. NRC Regulatory Guide 1.61, Rev 1 on Damping Values for Seismic Design is consistent with ASCE/SEI 43-05. Based on both of these documents, a damping value of 4% shall be used unless the IROFS contains a physical relay subject to chatter, in which case a more restrictive damping value of 3% shall be used.

6.7 HF Levels

The UF_6 piping and components at NEF do not have a specific seismic design, therefore it was assumed that at some level of earthquake shaking the piping and components could fail leading to a loss of UF_6 confinement. For seismic scenarios, released material (RM) includes the gaseous inventory within the UF_6 piping, UF_6 "pouring" from cylinders attached to the piping systems and the amount of UF_6 within the centrifuges. When UF_6 comes into contact with water, such as the water vapor in the air, the UF_6 and water react, forming hydrogen fluoride (HF) gas and a solid uranium-oxyfluoride compound (UO_2F_2), which is commonly referred to as uranyl fluoride.

Reference 8.7 provides the bounding accident hydrogen fluoride concentration in the National Enrichment Facility's Separation Building Module (SBM) and the Blending and Liquid Sampling Area during a release of UF_6 post seismic event. UF_6 cylinders are assumed to self seal after a one half hour of pouring time frame.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

The bounding HF release concentration was determined to be 672.25 mg HF/m^3 and this value is rounded up to 675 mg HF/m^3. Hard-wired IROFS will be located in metal enclosures, which will protect them from the corrosive environment of these HF concentrations.

7. Basis for Post-Accident Mild Environment

As a result of a review of post-accident environmental parameters in Table 6.1, it can be seen that these parameters have not changed significantly from pre-accident parameters. Therefore, these post-accident conditions can be classified as mild and the harsh environment aspects of IEEE Std. 323-1983 do not apply to the NEF.

8. References

8.1 NTS Calculation 114489-M-0009, Rev 0, "HVAC Design Temperatures"

8.2 NTS Calculation 114489-M-0040, Rev 0, "Separation Building Module 1001 Loss of HVAC"

8.3 NTS Calculation 114489-M-0073 "Maximum Water Accumulation in SBM 1001 Attributable to Draining Two Fire Water Tanks via Punctured Standpipe"

8.4 Areva Calculation 32-5064742-002, Rev 0 "Local Intense Precipitation Flood Study for the NEF Site" (Areva 2007-00216)

8.5 Areva Calculation [Later] of Normal Radiation Levels

8.6 Areva Seismic Response Spectra Report [Later]

8.7 Areva Calculation 32-9061878-000 "NEF Bounding Hydrogen Fluoride Concentration Post-Seismic SBM & B&L Sampling Area"

Section 2: Subject Matter Assessment(s)

1.0 Equipment	
Humidifiers	
Basic Equipment:	$140,000
Price includes Safety devices & standard controls	
Building Automation System:	$5,200
Links 13 units together and provides data logging	
Water Softener:	$6,500
From CAB potable water supply to units	
Subtotal	$151,700
15% contingency	$22,755
Total Equipment Cost	**$174,455**
2.0 Installation Labor	**N/A**
More time required to obtain installation labor	
3.0 Allied Design Costs	**N/A**
Allied required more time to estimate design cost	
4.0 Schedule	
Equipment - from order date	**4 weeks**
Allied Design Window	**2 weeks**

Approximate time required to complete design and update drawings. This time does NOT represent a basis for Allied Associates actual design time or cost of service.

Attachment 1: Humidification Design, Assumptions

Reference: Equipment cost and schedule provided by W.M. Carroll

Name	John McCallum	Position	ALLIED OVERSIGHT	Signature	John P. McC	Date	3/11/08

ATTACHMENT 1

NEF / Bldg 1300 --- Humidification Design

Unit Symbol	Unit CFM	O/A CFM	Load (lbs/hr)	Nom. Size (lbs/hr)	Electrical	Rated Amps
677-1U1	10000	2200	60.19	65	480/3/60	28.1
678-1U1	24000	5000	136.79	135	480/3/60	55.6
678-2U1	24000	5000	136.79	135	480/3/60	55.6
678-3U1	24000	5000	136.79	135	480/3/60	55.6
678-4U1	24000	5000	136.79	135	480/3/60	55.6
678-5U1	24000	5000	136.79	135	480/3/60	55.6
678-6U1	24000	5000	136.79	135	480/3/60	55.6
676-1U1	8000	600	16.42	20	480/1/60	16.8
676-2U1	8000	600	16.42	20	480/1/60	16.8
676-3U1	8000	600	16.42	20	480/1/60	16.8
676-4U1	8000	600	16.42	20	480/1/60	16.8
676-5U1	10000	1000	27.36	30	480/3/60	14.3
671-1U1	3500	3500	95.76	90	480/3/60	37.2
	Totals:	39100	1069.73	1075		

Assumptions:

1) Outside Air @ 13 db / 25% RH of Outside Air
2) Setpoint Humidity of 40%RH
3) Humidifiers Include: Duct Air Flow switch, ı Duct High Limit, Room Digital Stat
4) Distributors Include Stainless Steam Dispersion Grid, Condensate Pump
5) UNITS LOCATED ON ROOF

RO System: (Feed water temperature of 55)
Minimum Size of 5,520 Gallons per Day
Size Used: 6,600 GPD

EG-DCR-2008-011

Section 2: Subject Matter Assessment(s)

ETC/ET us recommends approval of this DCR, ~~Humidity~~ and recommends including humidity control throughout the building. ~~to ensure~~ This will insure appropriate human comfort is maintained in all areas and will insure all areas can be utilized as needed for planned operations.

Name	Donald R. Allen	Position	Proj Mgr ETLES	Signature		Date	17 Mar 2008

Section 2: Subject Matter Assessment(s)

CTG recommends to approve this DCR
Changes are needed to cope with centrifuge assembly specification and data sheet.

Name	J. Bukhaar	Position	Des Man UEC	Signature	[signature]	Date	03/06/08

LES Design Change Request Form

Section 3: Recommendation for Detailed Design Development			Disposition (check appropriate) Approved ☒ Rejected ☐
Name	Position	Signature	Date
Robert W. Schrauder	LES Design Manager	Robert Schrauder	5-27-08

Comments:

The proposed changes in Section 1 are to be implemented with the following exceptions and clarifications.

This change will be implemented to provide humidification only for the clean room, server room and Centrifuge Test areas of the CAB.

The basis for restricting the areas for humidification is the late date for the design change request (design complete, equipment already purchased and construction underway) and the high cost of initial installation, operation and maintenance upkeep with marginal benefit.

A modification will be considered in the future for the remaining portions of the building. A detailed analysis should be completed during the early operational phase, using local test data, to determine if humidity control (including dehumidifying) is needed in other areas.

Section 4: Approval for Detailed Design Development			
VPE or DVPE	Signature:	Date: 6/3/08	Disposition (check appropriate) Approved ☒ Rejected ☐
Comments: ~~SEE ATTACHMENT 1 FOR HF COMMENTS.~~ D.L. 6/4/08 See Section 3.0 Comments above for limiting scope of application.			
VPO	Signature:	Date: 6-3-08	Disposition (check appropriate) Approved ☒ Rejected ☐
Comments:			

Section 5: DCR Assignment for Design Development			
Assigned the DCR to: ☐ LES Engineering Manager ☒ Design Agency			
External Design Agency: NC STURGEON			
DM/TSD	Signature: Mark A. Scanlan for Steve Miltenberger per telecon	Date: 05 JUN 2008	*Assigned (check appropriate)* Yes ☒ No ☐

Section 5: Distribution

1. LES Design Manager.
2. LES Engineering Manager and Initiating Design Agency (as applicable)
3. LES Records Management

Attachment 1
VPE Comments for Section 4

Due to the humidifying process (electrode steam) of the system, reverse osmosis or deionized water is not necessary. The electrode steam process uses the minerals in the water to conduct electricity. It should not be used with pure reverse osmosis or deionized water since the conductivity is too low.

Designing the system with the capacity to limit humidity to certain levels, as well as installing separate monitoring systems, should be considered.

The need date for the system to be installed and operational is the end of August 2008.

Section 2: Subject Matter Assessment(s)

Since the CAB will be an occupied building and will contain components sensitive to static electricity, it is appropriate to provide humidification.

It is recommended that humidification be accomplished using a DI water / service water mixture utilizing electric humidifiers. A DI water / service water mixture will be more economical that a straight DI water system.

Additionally, the humidifiers should have features that allow for automatic boiler section blowdown or provide for quick boiler section change out / cleaning capability. This approach will be consistent with the humidification systems that will be utilized in other buildings such as the SBM (standardization).

Adverse Impacts and Concerns:

1. The decision to abandon a centralized chill water system for air conditioning in the CAB has resulted in a highly "compartmentalized" duct design. As such, humidification for all areas of the CAB will likely result in the need to provide many, small humidifiers instead of larger, more centralized humidification units, with the associated complications of routing additional DI/service water piping and extra humidification controls. This will increase the construction costs (beyond the typical construction costs for installing more centralized humidification systems) and could also result in higher, long term maintenance costs.

2. Some relatively large areas of the CAB are designated simply as storage areas. It is not clear whether humidification requirements apply to these areas. Due to the layout

Section 2: Subject Matter Assessment(s)

Summary
Estimated costs for the addition of humidification and annual operation are substantial with only marginal benefits provided. Initial reviews of environmental data indicate that the area is fairly moderate in temperature and humidity. The brief periods of low humidity do not justify the cost for this modification especially in the centrifuge storage areas of the building. It is not recommended that humidification be installed in the entire building at this time. Humidity controls should be installed only in the centrifuge test facility, the clean areas and the server room. A detailed analysis should be completed during the early operational phase, using local test data, to determine if humidity control (including dehumidifying) is needed in other areas. The basis for the IROFS specification regarding humidity should be reviewed for the actual equipment capability and not based on a condition that requires monitoring and regulation.

Estimated Cost

A steam aerosol is the recommended method of humidification based on the ability of the system to eliminate microbial contamination (OSHA Technical Manual Section III Chapter 7). The following table provides a rough estimate of the cost of installing and operating a steam aerosol system. The cost for demineralized water assumes use of site produced DI water and is estimated at 1/3 the cost of direct purchase. The cost of expanding the DI water system to include humidification requirements is not included in this estimate. Maintenance costs are likely to be much higher after the first year of operation.

CAB Humidification Approximate Costs (Steam System)

Equipment	175,000	Based on Allied Oversight Estimate
Design	25,000	Estimate for modification
Installation	100,000	Estimate for modification
Preventive Maintenance	5,000	Annual cost estimate
Corrective Maintenance	5,000	Annual cost estimate
Power Usage	17,000	Annual cost assuming $.05 per kW hour, 1000 hours/year usage, 1000 lbs. per hour moisture output
Drainage requirements	25,000	Pumps, piping, installation, design
DI water usage	250,000	Assuming 3 months/year usage at $.50/L from DI Plant (commercial cost $1.50/L)
TOTAL	$602,000.00	Installation and First Year Operating Cost
Annual Cost	$285,000.00	

Section 2: Subject Matter Assessment(s)

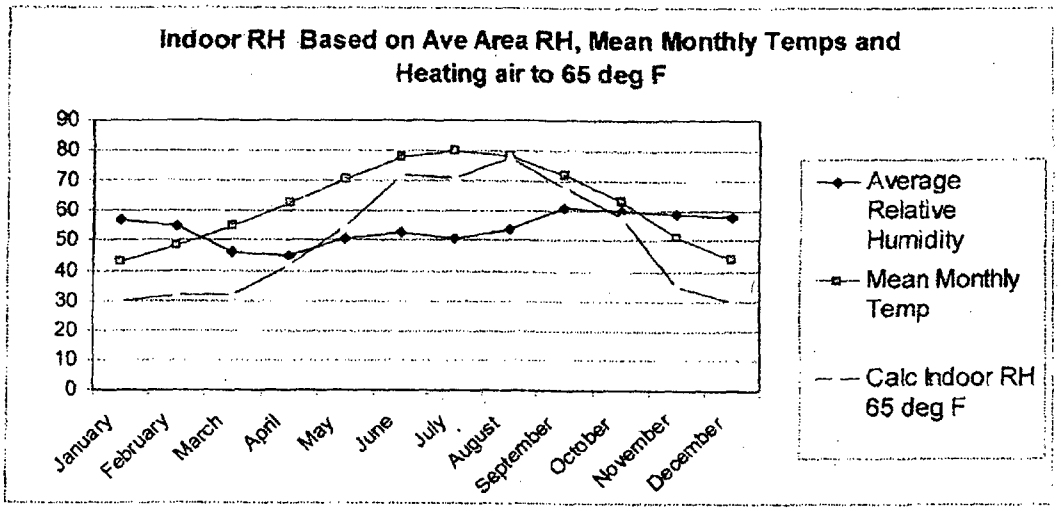
Environmental Data

Data from the Environmental Report Table 3.6-1A Hobbs, New Mexico, Temperature Data (1971-2000) and Table 3.6-3 Midland-Odessa, Texas, Relative Humidity Data indicate that the climate is typical of a semi-arid region, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Low humidity periods of short durations can be expected; however, the condition does not appear to be severe and would be mitigated by the averaging affect of the HVAC outside air exchange and the varying humidity that occurs during a daily cycle. Mean monthly temperatures in Midland-Odessa (NOAA, 2002a) range from 5.8°C (42.5°F) in January to 27.8°C (82.0°F) in July. The average relative humidity ranges approximately from 45% to 61%. Highest humidities occur mainly during the early morning hours (NOAA, 2002a). Roswell, NM, (northwest of the site) data indicates a lower average RH.

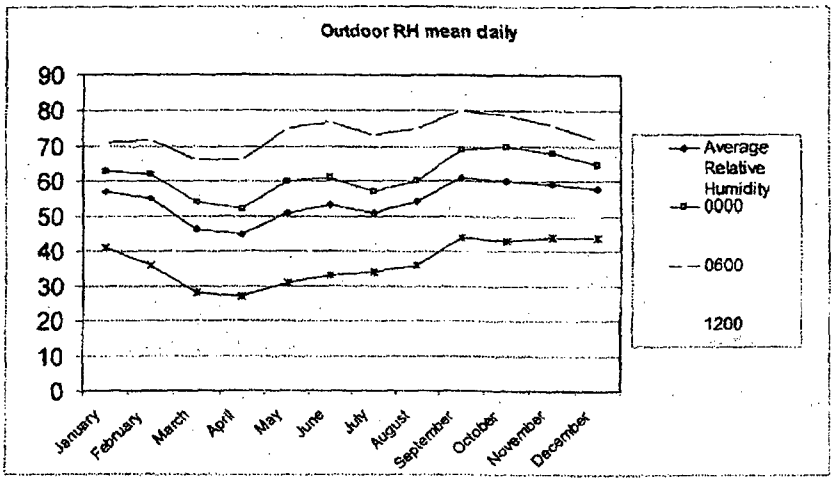
Environmental Report Table 3.6-3 Midland-Odessa, Texas, Relative Humidity Data

Relative Humidity (%)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average	57	55	46	45	51	53	51	54	61	60	59	58	54
00 LST	63	62	54	52	60	61	57	60	69	70	68	65	62
06 LST	71	72	66	66	75	77	73	75	80	79	76	72	74
12 LST	46	44	36	34	38	42	42	43	50	46	45	45	43
18 LST	41	36	28	27	31	33	34	36	44	43	44	44	37

Time of Day, 24-Hour Clock LST = Local Standard Time Source: (NOAA, 2002a)



Section 2: Subject Matter Assessment(s)



Humidity Affects on Health

ASHRAE recommends maintaining the relative humidity between 30% and 60% while the OSHA Technical Manual (OTM) recommends that the relative humidity be kept in the range of 20% - 60%. OSHA further identifies high humidity and humidifiers as sources for Microorganisms and other Biological Contaminants (Microbials) and identifies humidifier fever as an acute health affect. Any lapse in maintenance that allows growth of microbial contamination would quickly offset any positive effects of providing humidification for human comfort. It is extremely important to properly maintain and treat any humidification system installed. The air and any HVAC condensate drainage should be occasionally monitored to assure that biological contaminants remain at safe levels.

Humidity Affects on Equipment

For electronic equipment ASHRAE recommends an operating range of 35-55% relative humidity. The computer server functional specification provides the only equipment requirement of 30-50% RH range per the DCR. The Centrifuge Test Facility contains IROFS C15 and C16 which based on TEG-TQ-2007-018 require specification for equipment capable of operating in a range of 20% to 90% relative humidity. These specifications will require humidity controls in the CTF and server room. The basis for the lower humidity requirements is not apparent as a review of a typical IBM server specification indicates a humidity range of 8-80% RH. TEG-TQ-2007-018 establishes the range of 20-90% RH based on the stated humidity conditions in general plant areas; however, these hardwired IROFS should be able to function with a much lower relative humidity. The specification, in this case, should be based on equipment capability and not establish a condition that requires monitoring and regulation.

Section 2: Subject Matter Assessment(s)

References:

Environmental Report Revision 10
- Table 3.6-1A Hobbs, New Mexico, Temperature Data (1971-2000)
- Table 3.6-3 Midland-Odessa, Texas, Relative Humidity Data

OSHA Technical Manual – Section III Chapter 2, V. Recommendations for the Employer
ASHRAE Handbook Chapter 20 Humidifiers
EG-TQ-2007-018
Condition Report Evaluation 2008-216-CR
IBM Model 9406-800 and 9406-810 server specifications

Name	Frank Kelly	Position	Design Management Engineer	Signature		Date	3/24/08

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Technical Question Form

Technical Question Form	Technical Question Number/Revision **EG-TQ-2007-018**

Originator: TERRY FLETCHER / Terry Fletcher (Name/Signature) **Date:** 10/18/07

Supervisor: STEVE MILTENBERGER / Steve E Miltenberger (Name/Signature) **Date:** 10/18/07

Configuration Document(S) Affected (If applicable. Also see Attachment 1 of EG-101):

SAR Section 3.4.38 and ISA Summary 3.8.1

Question (Include references, attachments, etc. as applicable):

The SAR and ISA require all IROFS components and systems to be qualified using the applicable guidance of Standard " IEEE Std 323-1983 ". Environmental applications require that the normal and abnormal service conditions be properly specified and included in the equipment specification and that a Certificate of Compliance for non-seismic parameters be provided by the equipment supplier.

Establish Environmental limits and supporting documentation for such parameters as Temperature, Pressure, Humidity, Radiation, HF levels, to be incorporated into the IROFS1, 2, 4, 5, C15, & C16 purchase specifications.

Response (Include references, attachments, etc. as applicable):
The attached Environmental / Seismic Conditions for NEF Hard-Wired IROFS and its Section 8 references respond to this technical question. Note this Rev 0 version provides the required conditions for the first six IROFS to be procured. Future revisions will address other IROFS and include copies of the references as attachments.

Responder: David A Horvath / David A Horvath (Name/Signature) **Date:** 10-18-07

Reviewer: Michael J. Wylie / Michael J Wylie (Name/Signature) **Date:** 10/18/07

CM Coordinator: Check Box If NA, Initial and Date: ☑ **Initial:** CRT **Date:** 10/18/07
(Note: If response does not impact UF_6 core technology check NA, initial & proceed directly to approval.)

DM Core Technology: _____ / _____ (Name/Signature) **Date:** _____

Urenco (CTG): _____ / _____ (Name/Signature) **Date:** _____

LES Approval: R.W. Schmude / R W Schmude (Name/Signature) **Date:** 10-18-07

Environmental / Seismic Conditions for NEF Hard-Wired IROFS
Rev 0, dated October 18, 2007

1. Background and Objectives

Procurement of IROFS requires establishment of equipment qualification (EQ) requirements. The ISA Summary contains a commitment to IEEE Std 323-1983 (Standard for Qualifying Class 1E Equipment for Nuclear Generating Stations). Relevant aspects of this standard will need to be incorporated into IROFS procurement specifications. The requirements of this standard differ substantially depending on whether the item of equipment is required to function in a post-accident harsh environment or not.

The objective of this document will be to establish environmental and seismic conditions for purposes of procuring IROFS in a manner consistent with the requirements of IEEE Std 323-1983. The basis for the conditions and the approach for meeting IEEE Std 323-1983 will also be provided.

The initial issue of this document will serve the purpose of providing service conditions for:

- *The first Separations Building Module (SBM1) for IROFS 1, 2, 4, and 5*
- *Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building for IROFS C15 and C16.*

Subsequent revisions of this document will address other IROFS.

Harsh environment EQ aspects (extensive testing, analysis, documentation, margin, aging considerations, and rigorous maintenance) apply if environmental conditions change significantly from what would occur during normal operation or anticipated operational occurrences (anticipated events include a loss of power or loss of HVAC events that could cause high temperatures). If temperature or other environmental parameters change significantly (above an initial threshold) when an accident occurs the accident environment is considered harsh. Based on potential material degradation effect thresholds, the accident environment is also considered harsh, if the equipment radiation doses exceed:

- 1000 rads for sensitive electronic devices (such as microprocessors and MOSFET-based equipment) and fiber optics,
- 10,000 rads for other electronic devices, or
- 100,000 rads for other types of equipment,

At the NEF, the accident environment will not become harsh. This document will provide a basis for this conclusion.

Regardless of harsh environment requirements, mild environment and seismic qualification aspects of IEEE Std 323-1983 would still apply. Mild environment applications require that normal and abnormal service conditions be properly specified and included in equipment procurement specifications and that a certificate of compliance for non-seismic parameters is required to be provided by the equipment supplier. Seismic qualification requires that seismic response spectra be established and addressed in the form of a test report and/or analysis.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

To meet relevant EQ requirements of IEEE Std 323-1983, this document will:

- identify assumptions and design inputs relevant to determination of design basis accident scenarios,
- establish bounding accident scenarios,
- identify relevant IROFS and locations,
- establish environmental and seismic design basis event condition parameters for the IROFS locations for accidents, during which the IROFS are required to function and the bases for the parameters, and
- provide a conclusion that the environmental parameters are not harsh during postulated accidents.

2. Assumptions and Design Inputs

2.1. The plant is designed to prevent and mitigate both intermediate and high consequence events. Therefore, IROFS do not require environmental qualification for events that have effectively been prevented (such as all criticality events and associated radiation doses).

2.2. Any significant event during plant operation (seismic, tornado, fire, etc.) that would result in questioning the future capability of an IROFS would have to be addressed (by IROFS operational testing, analysis, etc.) prior to future reliance on the equipment (that is, prior to plant restart).

2.3. No more than minimal operator action is credited for mitigating any detrimental effects of postulated accidents and anticipated operational occurrences for at least 24 hours.

2.4. Many IROFS prevent slowly developing events and there is sufficient time to take action, if needed. For example, some IROFS temperature switches protect UF_6 cylinders from bursting due to temperature controller failure and overheating. This loss of integrity event takes several hours to develop.

2.5. Hard-wired IROFS are UPS backed and do not lose power immediately on a loss of off-site power (LOP). When these IROFS do eventually lose power, they fail to a safe state and seal-in.

2.6. On a LOP, although the cascade centrifuge arrays and HVAC systems will shutdown, many other systems that are Diesel Generator / UPS backed will continue to operate contributing to heat loads and rising ambient temperatures.

2.7. Although a limited number of piping systems have been analyzed to demonstrate no loss of integrity during a design basis seismic event, some piping systems and tanks have not. Therefore, it is assumed that a design basis seismic event could result in UF_6 and HF release.

2.8. The design life for the NEF is 30 years.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

2.9. Most areas containing IROFS are cooled by multiple trains of HVAC such that multiple failures would be required to lose all HVAC cooling to an IROFS. Multiple failures resulting in a complete loss of HVAC are much less likely than a single failure unless the failures are the result of a common cause. One example of a common cause failure is a loss of offsite power because the HVAC system is not diesel generator backed. Another example of a common cause failure is a design basis seismic event because the HVAC system is not seismically designed.

One exception to the "multiple train of HVAC" design approach is the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building, which contains IROFS C15 and C16. This area is cooled by a single train of HVAC. Note that these two IROFS are provided solely for operator (and not for offsite personnel) protection. In the event of a failure of temperature control circuit, these two IROFS diversely trip the Centrifuge Test Facility feed/take-off vessel heat tracing on high temperature to ensure feed/takeoff vessel integrity by preventing HF releases. The amount of potential release from the CAB that could occur during a postulated heater control failure resulting in a feed cylinder integrity failure from overheating is not large enough to endanger the public.

2.10. Postulated accident scenarios for purposes of establishing accident environmental conditions will only consider events resulting from design failure assumptions. Such scenarios will include initial and consequential failures related to the facility process systems or caused by fires and external events plus failures consistent with likelihood, consequence, and risk rating approaches described in the ISA Summary Section 3.7.

In general, the accident sequence risk assessments demonstrate that credible high-consequence events are highly unlikely ($<10^{-5}$) and credible intermediate-consequence events are unlikely (10^{-4} to 10^{-5}). IROFS necessary to prevent or mitigate event sequences that exceed 10 CFR 70.61 criteria have been identified. For this reason, it is not necessary to consider additional failures beyond design basis accident scenarios described in the ISA Summary Section 3.73. These "beyond design basis" scenarios were considered solely for purposes of development of the Emergency Plan.

2.11. A seismic event powerful enough to disable all trains of HVAC in any given area is also powerful enough to disable offsite power availability. This assumption is validated by consideration of the nature and design of offsite power and HVAC systems.

The availability of offsite power relies on one or two high voltage (HV) sources to supply a switchyard on site. The nature of HV is such that, it is necessary for the design of switches and support connections to be long and narrow to reduce leakage currents and to assure separation (isolation) when the switches are open. This design means long lever arms. Also transmission lines are high above the earth's surface (to reduce leakage to ground) and large spacial separation needs to exist between electrical phases to reduce phase to phase leakage currents. The design results in a significant number of long lever arms in HV systems. On the other hand, to reduce or prevent long term degradation effects from system inherent vibration, HVAC systems are designed ruggedly and mounted securely with short, if any, cantilevered supports.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

The result is that during a seismic event, offsite power systems will be subject to much higher accelerations, velocities, and displacements than HVAC components.

In addition, offsite power system consists of a long series of weak points, any one of which will cause a loss of that power supply. The HVAC system has multiple trains operating in parallel. Therefore, a seismic event that is powerful enough to disable even one train (let alone all trains) of HVAC will in all likelihood also cause a loss of offsite power.

2.12. Because of no more than minimal, immediate operator actions to de-energize systems, prior to evacuation during certain limited events (such as an earthquake), there are no IROFS accident monitoring instruments to be qualified.

2.13. Hard-wired IROFS must be sealed against moisture intrusion, spray, and direct HF exposure effects.

3. Limiting Postulated Accident Scenarios

The following events are considered bounding design basis events (DBEs) for purposes of establishing DBE environmental conditions:

3.1 For the SBM, the design basis event for temperature and toxic chemical release within the building is a seismic event resulting in a loss of offsite power and a complete loss of HVAC. The toxic gas release is assumed to occur independent of whether the seismic event causes a loss of HVAC. This event assumes that diesel generator / UPS backed electrical loads will continue to function and release heat resulting in area temperatures increasing. This loss of HVAC includes both loss of fans and closure of isolation dampers. The seismic event could also result in loss of integrity of various systems containing UF_6 and the release of UF_6 and HF or this release could occur during a seismic event during which HVAC continues to operate with closed isolation dampers. [See Assumptions and Design Inputs 2.1, 2.5, 2.6, 2.7, 2.9, 2.10, and 2.11)

Note that for purposes of establishing a bounding high temperature case, the above design loss of HVAC envelops or is equivalent to other events such as one train down for maintenance followed by loss of other HVAC trains from some common cause event (such as failed electrical buses) because the end result (loss of all HVAC) is no worse. Also, such scenarios (involving a severe event occurring during a maintenance event) may be considered highly unlikely (less than 10^{-5} per year) because the severe common cause event would need to occur during the short window of time that one train is down for maintenance. For example, a maintenance event occurring two weeks per year is already 2/52 or ~ 0.04 or 4×10^{-2} combined with the most probable unlikely event (10^{-4}) would be 4×10^{-6} or highly unlikely. [ISAS Table 3.1-5]

3.2 For the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building, the design basis event for temperature is a loss of the single train of HVAC during normal operating process conditions. It is actually more severe to have this loss of HVAC to occur for a reason other than a seismic event or severe storm because

the IROFS in this area are for operator safety only and for a seismic event and severe storm the operators are required to evacuate the building. If a loss of HVAC occurs without other conditions requiring evacuation the operators may elect to continue to work. In such a case, the ambient temperatures will increase. If the loss of HVAC continues long enough for the ambient temperatures to reach 120°F, limitations on heat stress related stay times will require evacuation. (Design Input and Assumption 2.9)

3.3 Any break in a cooling water system or water-based fire suppression system, which allows water spray to hit a panel containing an IROFS or to cause internal flooding in an area containing an IROFS panel is the design basis event for spray. (Design Input and Assumption 2.13)

3.4 Severe weather causing external flooding on site is assumed to result in building flooding to the maximum calculated water level. This scenario takes no credit for external flood mitigation provisions.

3.5 No design basis accident scenarios will cause radiation levels to increase significantly above that which would be experienced during normal plant operation. Therefore, design basis accident doses are enveloped by worst case normal doses during the design life of the plant. The limiting normal dose is based on continuous proximity to an empty feed cylinder.

4. Applicable IROFS

Environmental conditions are needed to specify and procure hard-wired IROFS. High priority items for initial issue of this document are:

- IROFS 1, 2, 4, and 5, which are located in the first SBM (SBM1)
- IROFS C15 and C16, which are located in Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building

5. Plant Locations of Interest

IROFS will be located in the Separations Building Module (SBM), the Cylinder Receipt and Dispatch Building, and the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building.

6. Environmental Conditions and Bases

The following table summarizes the environmental conditions at the NEF. The bases for these parameters are discussed in the subsequent sections.

Table 6.1
Environmental Parameters

Parameter	Normal	Reference	Abnormal/Accident	Reference
Temperature	0°C-40°C	8.1	50°C	8.2 & Section 6.1

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

	(32°F-104°F)		(122°F)	
Pressure	896 millibars (13 psia)	Section 6.2	896 millibars (13 psia)	Section 6.2
Humidity	20% - 90% RH	Section 6.2	20% to 90% RH	Section 6.2
Internal Flooding	NA	NA	0.3m (12 inches)	8.3 & Section 6.3
External Flooding	NA	NA	0.5m (1.6 ft)	8.4 & Section 6.3
Spray	NA	NA	Yes, but would be external to equipment	Section 6.4
Radiation	<10,000 rads	Section 6.5	<1000 rads	Section 6.5
Seismic	NA	NA	Best available*	8.6 & Section 6.6
HF Levels	NA	NA	675 mg HF/m^3	8.7 & Section 6.7
Time	30 Years	Section 2.8	<24 hrs	Section 2.3

* Note: IROFS C15 and C16 do not require seismic qualification based on location in a non-seismic structure, operator actions to leave the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building at first indication of a seismic event, and need to retest these IROFS for operability after a seismic event. (Design Input and Assumption 2.2 and 2.3)

6.1 Temperature

The normal temperature range is based on conservatively enveloping the required ambient temperature process conditions from ETC of 18°C to 32°C as well as the NTS HVAC specified conditions (18°C to 35°C) from the Reference 8.1 calculation.

The accident temperature for the SPM is based on the conservative maximum ambient temperature that would result for the limiting loss of HVAC scenario of Section 3.1. An initial temperature of 32.2°C (90°F) in the room and an outside temperature of 43.3°C (110°F) for 24 hours are assumed. For additional assumptions, design inputs, and other details, see Reference 8.2.

This accident temperature also envelops the accident scenario of Section 3.2 for the Centrifuge Hot Test and Post-Mortem Facility of the Centrifuge Assembly Building because with a loss of HVAC increasing temperature condition, the operators will have evacuated before 50°C (122°F) is reached because of heat stress occupational stay time restrictions. Once the operators evacuate, the IROFS at this location will no longer have a safety function.

6.2 Pressure & Humidity

Pressure increases and abnormally high humidity levels (above 90%) are typically associated with the rupture of high energy lines or other large sources of hot water or steam and there are no such sources present in the SBM.

The pressure is 896 millibars or atmospheric pressure (13 psia) at 3415 ft elevation during normal operation and does not vary appreciably during postulated accident scenarios (Reference 8.2).

The humidity in the facility will fluctuate within normal ranges for the weather conditions at the NEF site. The humidity conditions in general plant areas are 20% to 90% Relative

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

Humidity (RH). Humidity is a mild environmental parameter for the NEF and procurement specifications should require equipment capable of operating in a range of 20% to 90% RH.

6.3 Flood Levels (External & Internal Flooding)

Internal flooding was calculated based on a failure of all fire suppression standpipes. The additional amount of water potentially available from the centrifuge cooling water systems, demineralized water system, and potable water system is minor by comparison and can be neglected. The result if dispersed evenly throughout the SBM is 0.22 m (8.6 inches). The result if the water is dispersed more locally in an area between the standpipe locations and the UF_6 area is 0.29 m (11.6 inches). [Reference 8.3] Rounding up to 0.3 m (12 inches) will more than account for water contributions from the smaller capacity systems.

Severe weather causing external flooding on site, may result in building flooding to the maximum calculated water level. This scenario takes no credit for external flood mitigation provisions

External flooding caused by severe weather is assumed to result in building flooding. The maximum calculated building flood level takes no credit for mitigation provisions, such as an external berm. The result is flooding to a level of 0.5 m (1.6 ft) inside the SBM [Reference 8.4]

With the exception of the seismic detector switch IROFS 26, other IROFS will be located above these flood levels and thus in a submergence-free mild environment. IROFS 26, which will be mounted on the floor of the SBM will perform its seismic detection function and seal-in prior to being flooded from seismic event created internal sources. Severe weather and a resulting external flood are not postulated concurrent with the need for the IROFS 26 essential function to isolate HVAC during a seismic event.

6.4 Spray

Postulated spray conditions are limited to the effects of small and low pressure water line breaks in the plant. Equipment that is sensitive to spray, (i.e., sensitive electrical and electronic equipment) is housed inside panels that are sealed against moisture intrusion, spray, and direct HF exposure effects and, therefore, will not be exposed to the effects of spray. Spray is potentially a harsh environmental parameter for the NEF. However, the enclosures make the condition not applicable for sensitive equipment. For IROFS which are not located inside spray resistant enclosures, purchase specifications should specify water spray conditions.

6.5 Radiation

The sources of the limiting normal radiation levels in the SBM, are empty feed cylinders. An empty feed cylinder contains radon and gamma emitting byproducts and lacks the self-shielding provided by a full feed, tails, or product cylinder.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

Considering this dose rate continuously over a 30 year period results in a normal dose of less than 10,000 rads [To be confirmed later by Reference 8.5. If Reference 5 later concludes a dose above 10,000 rads, shielding may be required if further dose refinement is not possible.] Consistent with 10 CFR 50.49, the normal dose is not a factor in determining whether an area is harsh or not.

The estimated SBM dose will envelop the maximum expected dose in the CAB because any feed cylinders that may be tested in the CAB will be limited in content to meet the license amendment requirements for downgrading the Cab from Level 1 to Level 3 status.

Based on Assumption and Design Input 2.1 and 2.10, criticality events are not design events. Therefore, no post-accident radiation doses are postulated.

6.6 Seismic

At the present issue of this document, design of the catwalk and other structures is not sufficiently complete to develop estimated response spectra for the various IROFS locations. Therefore, until this design is sufficiently finalized, IROFS should be ordered based on "best available". If at a future time, Reference 8.6 establishes a response spectrum in excess of procured qualification levels, it will be necessary to retest the equipment. If a representative test specimen fails the seismic test, it may be necessary to reinforce the support structures to achieve less restrictive seismic conditions.

Damping factors to be used for seismic qualification are established for the NEF as follows for hard wired IROFS. ISAS references ASCE/SEI 43-05 (Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities) for seismic design requirements. NRC Regulatory Guide 1.61, Rev 1 on Damping Values for Seismic Design is consistent with ASCE/SEI 43-05. Based on both of these documents, a damping value of 4% shall be used unless the IROFS contains a physical relay subject to chatter, in which case a more restrictive damping value of 3% shall be used.

6.7 HF Levels

The UF_6 piping and components at NEF do not have a specific seismic design, therefore it was assumed that at some level of earthquake shaking the piping and components could fail leading to a loss of UF_6 confinement. For seismic scenarios, released material (RM) includes the gaseous inventory within the UF_6 piping, UF_6 "pouring" from cylinders attached to the piping systems and the amount of UF_6 within the centrifuges. When UF_6 comes into contact with water, such as the water vapor in the air, the UF_6 and water react, forming hydrogen fluoride (HF) gas and a solid uranium-oxyfluoride compound (UO_2F_2), which is commonly referred to as uranyl fluoride.

Reference 8.7 provides the bounding accident hydrogen fluoride concentration in the National Enrichment Facility's Separation Building Module (SBM) and the Blending and Liquid Sampling Area during a release of UF_6 post seismic event. UF_6 cylinders are assumed to self seal after a one half hour of pouring time frame.

Environmental / Seismic Conditions for NEF Hard-Wired IROFS

The bounding HF release concentration was determined to be 672.25 mg HF/m^3 and this value is rounded up to 675 mg HF/m^3. Hard-wired IROFS will be located in metal enclosures, which will protect them from the corrosive environment of these HF concentrations.

7. Basis for Post-Accident Mild Environment

As a result of a review of post-accident environmental parameters in Table 6.1, it can be seen that these parameters have not changed significantly from pre-accident parameters. Therefore, these post-accident conditions can be classified as mild and the harsh environment aspects of IEEE Std. 323-1983 do not apply to the NEF.

8. References

8.1 NTS Calculation 114489-M-0009, Rev 0, "HVAC Design Temperatures"

8.2 NTS Calculation 114489-M-0040, Rev 0, "Separation Building Module 1001 Loss of HVAC"

8.3 NTS Calculation 114489-M-0073 "Maximum Water Accumulation in SBM 1001 Attributable to Draining Two Fire Water Tanks via Punctured Standpipe"

8.4 Areva Calculation 32-5064742-002, Rev 0 "Local Intense Precipitation Flood Study for the NEF Site" (Areva 2007-00216)

8.5 Areva Calculation [Later] of Normal Radiation Levels

8.6 Areva Seismic Response Spectra Report [Later]

8.7 Areva Calculation 32-9061878-000 "NEF Bounding Hydrogen Fluoride Concentration Post-Seismic SBM & B&L Sampling Area"

Section 2: Subject Matter Assessment(s)

1.0 Equipment	
Humidifiers	
Basic Equipment:	$140,000
Price includes Safety devices & standard controls	
Building Automation System:	$5,200
Links 13 units together and provides data logging	
Water Softener:	$6,500
From CAB potable water supply to units	
Subtotal	$151,700
15% contingency	$22,755
Total Equipment Cost	**$174,455**
2.0 Installation Labor	**N/A**
More time required to obtain installation labor	
3.0 Allied Design Costs	**N/A**
Allied required more time to estimate design cost	
4.0 Schedule	
Equipment - from order date	**4 weeks**
Allied Design Window	**2 weeks**

Approximate time required to complete design and update drawings. This time does NOT represent a basis for Allied Associates actual design time or cost of service.

Attachment 1: Humidification Design, Assumptions

Reference: Equipment cost and schedule provided by W.M. Carroll

Name	John McCallum	Position	ALLIED OVERSIGHT	Signature	John P. McCallum	Date	3/11/08

ATTACHMENT 1

NEF / Bldg 1300 --- Humidification Design

Unit Symbol	Unit CFM	O/A CFM	Load (lbs/hr)	Nom. Size (lbs/hr)	Electrical	Rated Amps
677-1U1	10000	2200	60.19	65	480/3/60	28.1
678-1U1	24000	5000	136.79	135	480/3/60	55.6
678-2U1	24000	5000	136.79	135	480/3/60	55.6
678-3U1	24000	5000	136.79	135	480/3/60	55.6
678-4U1	24000	5000	136.79	135	480/3/60	55.6
678-5U1	24000	5000	136.79	135	480/3/60	55.6
678-6U1	24000	5000	136.79	135	480/3/60	55.6
676-1U1	8000	600	16.42	20	480/1/60	16.8
676-2U1	8000	600	16.42	20	480/1/60	16.8
676-3U1	8000	600	16.42	20	480/1/60	16.8
676-4U1	8000	600	16.42	20	480/1/60	16.8
676-5U1	10000	1000	27.36	30	480/3/60	14.3
671-1U1	3500	3500	95.76	90	480/3/60	37.2
	Totals:	39100	1069.73	1075		

Assumptions:

1) Outside Air @ 13 db / 25% RH of Outside Air
2) Setpoint Humidity of 40%RH
3) Humidifiers Include: Duct Air Flow switch, ı Duct High Limit, Room Digital Stat
4) Distributors Include Stainless Steam Dispersion Grid, Condensate Pump
5) UNITS LOCATED ON ROOF

RO System: (Feed water temperature of 55)
Minimum Size of 5,520 Gallons per Day
Size Used: 6,600 GPD

EG-DCR-2008-011

Section 2: Subject Matter Assessment(s)

ETC/ET ws recommends approval of this DCR, ~~Humidity~~ and recommends including humidity control throughout the building. ~~to ensure~~ This will insure appropriate human comfort is maintained in all areas and will insure all areas can be utilized as needed for planned operations.

Name	Donald R. Allen	Position	Prg Mgr ETWS	Signature		Date	17 Mar 2008

EG-DCR-2008-011

Section 2: Subject Matter Assessment(s)							
CTG recommends to approve this DCR Changes are needed to cope with centrifuge assembly specification and data sheet.							
Name	M. Bukhaar	Position	Des Man UEC	Signature	[signature]	Date	03/06/08

LES Design Change Request Form

Section 3: Recommendation for Detailed Design Development			Disposition (check appropriate) Approved ☒ Rejected ☐
Name	Position	Signature	Date
Robert W. Schrauder	LES Design Manager	Robert W. Schrauder	5-27-08

Comments:

The proposed changes in Section 1 are to be implemented with the following exceptions and clarifications.

This change will be implemented to provide humidification only for the clean room, server room and Centrifuge Test areas of the CAB.

The basis for restricting the areas for humidification is the late date for the design change request (design complete, equipment already purchased and construction underway) and the high cost of initial installation, operation and maintenance upkeep with marginal benefit.

A modification will be considered in the future for the remaining portions of the building. A detailed analysis should be completed during the early operational phase, using local test data, to determine if humidity control (including dehumidifying) is needed in other areas.

Section 4: Approval for Detailed Design Development			
VPE or DVPE	Signature:	Date: 6/3/08	Disposition (check appropriate) Approved ☒ Rejected ☐

Comments: ~~SEE ATTACHMENT 1 FOR VPE COMMENTS.~~ D.A. 6/3/08

See Section 3.0 comments above for limits of application.

VPO	Signature:	Date: 6-3-08	Disposition (check appropriate) Approved ☒ Rejected ☐

Comments:

Section 5: DCR Assignment for Design Development				
Assigned the DCR to: ☐ LES Engineering Manager ☒ Design Agency External Design Agency: NC STURGEON				
DM/TSD	Signature: Mark A. Scanlan for Steve Miltenberger per telecon	Date: 05 JUN 2008	*Assigned (check appropriate)* Yes ☒ No ☐	

Section 5: Distribution

1. LES Design Manager.
2. LES Engineering Manager and Initiating Design Agency (as applicable)
3. LES Records Management

Attachment 1
VPE Comments for Section 4

Due to the humidifying process (electrode steam) of the system, reverse osmosis or deionized water is not necessary. The electrode steam process uses the minerals in the water to conduct electricity. It should not be used with pure reverse osmosis or deionized water since the conductivity is too low.

Designing the system with the capacity to limit humidity to certain levels, as well as installing separate monitoring systems, should be considered.

The need date for the system to be installed and operational is the end of August 2008.

NATIONAL ENRICHMENT FACILITY

P O Box 1789
Eunice, NM 88231
Tel: 505.394.4646
Fax: 505.394.4747

Subject: EG-DCR-2008-011, CAB Humidity Control

To: **Koen Dreves, Marco Bultelaar, Cliff Munns, Frank Kelly & John McCallum**

From: Clark Tracy CRTracy

Date: March 5, 2008

The following individuals are requested to review the subject DCR for Technical Acceptability and License impacts in respective areas of expertise:

LES: **Cliff Munns**
Frank Kelly
John McCallum - Cost & Schedule

ETC: **Koen Dreves**

URENCO: **Marco Bultelaar**

Subject Matter Experts are required to respond by the Expected Response Date of Tuesday, March 11, 2008. ***Complete EG-102-F-1, Section 2 in accordance with EG-102 Paragraph 5.2.1.*** **which reads as follows:**

"DCR Review and Recommendation

Review the assigned DCR for technical adequacy and impacts to assigned areas of expertise. **[SME]**

a. Identify and document in Section 2 any potential benefits or adverse impacts of the proposed change, including known requirements satisfied by the proposed change.

b. Sign, date, and return the DCR to the CM Coordinator by the requested response date,

OR

c. Request an extension of the required response time, in writing, to the VPE or DVPE, with copy to the CM Coordinator.

Individuals that are copied on this distribution are not required to provide review. However, comments will be considered if received by the Expected Response Date.

Please address all comments to the Office of Configuration Management (Basilia Malara).

LES	LES	LES	NTS	ETC	URENCO
M. Scanlan	G. Sanford	M. Lutz	R. Rumbos	P. Hale	
B. Robinson	D. Sexton	B. Francis	S. Carr	T. Latham	
R. Schrauder	D. Neve	B. Malara	M. Bandeira	C. Corlett	
D. Vandewalle	V. Hull	D. Taylor	S. Tsombaris	D. Georgopoulos	
D. Copeland	J. Gearhart	K. Engan	T. Tondem	A. Waring	
J. Thalmann	D. Poole	R. Fish		W. Thomas	
L. Wetherell	E. Calderon				
P. Ferrari	C. Markert				

CRT-08-013

urenco

Section 2: Subject Matter Assessment(s)

1.0 Equipment

Humidifiers

Basic Equipment:	$140,000
Price includes Safety devices & standard controls	
Building Automation System:	$5,200
Links 13 units together and provides data logging	
Water Softener:	$6,500
From CAB potable water supply to units	
Subtotal	$151,700
15% contingency	$22,755
Total Equipment Cost	**$174,455**
2.0 Installation Labor	**N/A**
More time required to obtain installation labor	
3.0 Allied Design Costs	**N/A**
Allied required more time to estimate design cost	
4.0 Schedule	
Equipment - from order date	**4 weeks**
Allied Design Window	**2 weeks**

Approximate time required to complete design and update drawings. This time does **NOT** represent a basis for Allied Associates actual design time or cost of service.

Attachment 1: Humidification Design, Assumptions

Reference: Equipment cost and schedule provided by W.M. Carroll

Name	John McCallum	Position	ALLIED OVERSIGHT	Signature	John P. McCallum	Date	3/11/08

Section 2: Subject Matter Assessment(s)

Since the CAB will be an occupied building and will contain components sensitive to static electricity, it is appropriate to provide humidification.

It is recommended that humidification be accomplished using a DI water / service water mixture utilizing electric humidifiers. A DI water / service water mixture will be more economical that a straight DI water system.

Additionally, the humidifiers should have features that allow for automatic boiler section blowdown or provide for quick boiler section change out / cleaning capability. This approach will be consistent with the humidification systems that will be utilized in other buildings such as the SBM (standardization).

Adverse Impacts and Concerns:

1. The decision to abandon a centralized chill water system for air conditioning in the CAB has resulted in a highly "compartmentalized" duct design. As such, humidification for all areas of the CAB will likely result in the need to provide many, small humidifiers instead of larger, more centralized humidification units, with the associated complications of routing additional DI/service water piping and extra humidification controls. This will increase the construction costs (beyond the typical construction costs for installing more centralized humidification systems) and could also result in higher, long term maintenance costs.

2. Some relatively large areas of the CAB are designated simply as storage areas. It is not clear whether humidification requirements apply to these areas. Due to the layout of the CAB HVAC ductwork, a thorough review of all CAB areas should be performed to identify where humidification requirements actually apply. This will avoid installing humidification components where they are not needed.

Name	CLIFF MUNNS	Position	LES FIELD ENGINEERING MECHANICAL ENG LEAD	Signature	C.B. Munns	Date	3-11-08

LES Design Change Request Form

Project:	National Enrichment Facility	DCR Tracking Number	EG-DCR- 2008-011
Originator:	Ken Engan Kenneth Engan	Date:	3/3/08
Supervisor:	Paul Law	Date:	03/04/08
Design Manager:	Robert Schrauder Rob Schrauder	Date:	3-4-08
DCR Title:	CAB Humidity Control	Expected Response Date:	3/11/08

Section 1: Proposed Design Change

Structures, Systems & Components Level (check appropriate)

QA Level 1 ☐ QA Level 2 ☐ QA Level 3 ☒

Description:

Add humidifiers to the CAB HVAC system so that entire building, with the exception of the Server Room, is controlled to a set point of 40% relative humidity, with a minimum relative humidity of 30% and a maximum relative humidity of 55%. The Server Room relative humidity shall not drop below 30% or exceed 50%. To mitigate required maintenance of the humidifiers, reverse osmosis (RO) or deionized water shall be used in the humidification process. The design agency shall evaluate the need to provide dehumidification and shall incorporate this into the design if it is shown to be necessary.

Reason for Design Change:

DCC NEF-2005-0045 removed humidity control from the CAB but provided no basis or justification. DCC NEF-2006-0060 restored humidity control to the Centrifuge Assembly Area and referred to functional specification ETC4037562 for the Server Room humidity control requirements. It is not apparent why humidity control was never restored to these areas. The changes specified in DCC NEF-2006-0060 were requested by ETC to meet the requirements of the process and to avoid static electricity and operator health problems. To avoid these problems ASHRAE (2004 ASHRAE Handbook) recommends maintaining relative humidity between 30% and 60%. Due to the quantity of heat generated by the degas cells in the Centrifuge Assembly Area, humidity requirements will likely not be met during certain parts of the year without active humidity control.

Regulatory Compliance	☐
Personnel/ Nuclear Safety	☐
Cost Savings/ Improvement	☒

Configuration Documents Affected (including possible ISA impacts if known):

The following sections and figures of the Integrated Safety Analysis Summary (Rev. 6a) are or may be affected by this DCR:

- Section 3.5.1.1.9 describes the CAB HVAC system.
- Section 3.5.1.3 describes HVAC system interfaces.
- Section 3.5.1.4 describes Operational Characteristics.
- Section 3.5.1.5 describes Safety Considerations.
- Figure 3.5-12, Flow Diagram CAB Centrifuge Component Storage Area HVAC System
- Figure 3.5-13, Flow Diagram CAB Centrifuge Storage & Misc Areas HVAC System
- Figure 3.5-14, Flow Diagram CAB Offices & Miscellaneous Rooms HVAC System
- Figure 3.5-15, Flow Diagram CAB Centrifuge Assembly Area HVAC System

EG-DCR-2008-011

Section 2: Subject Matter Assessment(s)							
CTG recommends to approve this DCR Changes are needed to cope with centrifuge assembly specification and data sheet.							
Name	M. Burkhaar	Position	Des Man UEC	Signature	[signature]	Date	03/06/08

EG-DCR-2008-011

Section 2: Subject Matter Assessment(s)							
Name		Position		Signature		Date	

EG-DCR-2008-011

LES Design Change Request Form

Section 3: Recommendation for Detailed Design Development			*Disposition (check appropriate)* Approved ☐ Rejected ☐
Name	**Position**	**Signature**	**Date**
Comments:			
Section 4: Approval for Detailed Design Development			
VPE or DVPE	Signature:	Date:	*Disposition (check appropriate)* Approved ☐ Rejected ☐
Comments:			
VPO	Signature:	Date:	*Disposition (check appropriate)* Approved ☐ Rejected ☐
Comments:			
Section 5: DCR Assignment for Design Development			
Assigned the DCR to: ☐ LES Engineering Manager ☐ Design Agency External Design Agency: _____			
DM/TSD	Signature:	Date:	*Assigned (check appropriate)* Yes ☐ No ☐
Section 5: Distribution 1. LES Design Manager. 2. LES Engineering Manager and Initiating Design Agency (as applicable) 3. LES Records Management			

ATTACHMENT 1

NEF / Bldg 1300 --- Humidification Design

Unit Symbol	Unit CFM	O/A CFM	Load (lbs/hr)	Nom. Size (lbs/hr)	Electrical	Rated Amps
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678-5U1	24000	5000	136.79	135	480/3/60	55.6
678-6U1	24000	5000	136.79	135	480/3/60	55.6
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676-2U1	8000	600	16.42	20	480/1/60	16.8
676-3U1	8000	600	16.42	20	480/1/60	16.8
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RO System: (Feed water temperature of 55)
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