



Permit process



Environmental Stewardship Division (ENV-DO)
Water Quality & Hydrology Group (ENV-WQH)
P.O. Box 1663, Mail Stop K497
Los Alamos, New Mexico 87545
(505) 665-1859/FAX: (505) 665-9344

Date: March 30, 2006
Refer To: ENV-WQH: 06-059
LA-UR: 06-2193

Ms. Diane Smith
U.S. Environmental Protection Agency
Region 6 (6WQ-NP)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

**SUBJECT: LOS ALAMOS NATIONAL LABORATORY
NPDES PERMIT NO. NM0028355
COMMENTS ON DRAFT PERMIT**

Dear Ms. Smith:

Enclosed are comments submitted by the University of California (the Laboratory) and the Department of Energy (DOE), Los Alamos Site Office, regarding the new draft National Pollutant Discharge Elimination System (NPDES) Permit for the wastewater treatment facilities at Los Alamos National Laboratory. The Laboratory and DOE wish to acknowledge the efforts of the EPA staff, specifically Isaac Chen, who prepared the new draft permit and documentation package.

Please enter this letter and the enclosed comments into the record of proceedings for NPDES Permit No. NM0028355. The Laboratory respectfully requests that EPA consider these comments and include the proposed revisions in the final permit. Please be assured that the Laboratory is fully committed to comply with all requirements set forth in the final NPDES Permit.

Please contact Mike Saladen (505) 665-6085 of the Laboratory's Water Quality and Hydrology Group (ENV-WQH) or Gene Turner (505) 667-5794 of the DOE Los Alamos Site Office if you have questions concerning the enclosed comments or if additional information would be helpful.

Sincerely,

A handwritten signature in black ink, appearing to read 'Steven Rae'.

Steven Rae
Group Leader
Water Quality & Hydrology Group

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APR 06 2006
SURFACE WATER
QUALITY BUREAU

SV:MS/lm

Enclosure: a/s

Cy: Willie Lane, USEPA, Region 6, Dallas, TX, w/enc.
Isaac Chen, USEPA, Region 6, Dallas, TX, w/enc.
Marcy Leavitt, NMED/SWQB, Santa Fe, NM, w/enc.
Steve Yanicak, NMED/DOE/OB, w/enc., MS J993
Gene Turner, NNSA/LASO, w/enc., MS A316
Ken Hargis, ENV-DO, w/enc., MS J591
Doug Stavert, ENV-DO, w/enc., MS J591
Tori George, ENV-ES, w/enc., MS J591
Tina Sandoval, ENV-WQH, w/enc., MS K497
Mike Saladen, ENV-WQH, w/enc., MS K497
Marc Bailey, ENV-WQH, w/enc., MS K497
Phil Wardwell, LC-ESH, w/enc., MS A187
ENV-WQH File, w/enc., MS K497
IM-9, w/enc., MS A150

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General Comments:

1. EPA should not include effluent limits in the permit based on the water quality standards (WQS) approved by the New Mexico Water Quality Control Commission (WQCC) in 2005. To date, the WQS have not been approved by EPA. They have been challenged in a pending appeal to the New Mexico Court of Appeals, *New Mexico Mining Association et al. v. Water Quality Control Commission*, filed June 22, 2005. Also, please note that, pursuant to section 303 of the federal Clean Water Act, 33 USC 1313(c), revised water quality standards adopted by a state pursuant to the triennial review requirement must be submitted to the EPA Administrator (delegated to the EPA Regional Director) for review and approval. Section 303(c)(3) provides that if the Administrator determines that the revised standards "meet the requirements of this chapter, such standard shall *thereafter be* the water quality standard for the applicable waters of that State." (Emphasis added.) The standards have not yet been approved, consequently they are not yet the water quality standard under the Clean Water Act. Therefore, they are not "applicable requirements" which the permit must meet under section 402 (33 USC 1342).
2. The Laboratory recommends EPA delete all language (definition, permit limits, footnotes, etc.) regarding tritium requirements in the proposed permit. The federal regulations under the federal Clean Water Act, 40 CFR 122.2 (definitions) define "pollutant" as follows: " Pollutant means dredged spoil, solid waste, . . . [and] radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)) . . . "

As the note under this definition states, "Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials." The definitions of source, byproduct and special nuclear materials have previously been interpreted not to include accelerator-produced isotopes, and accelerator-produced tritium has been included as a regulated substance in past versions of the Laboratory's NPDES Outfall Permit.

However, the Energy Policy Act of 2005, section 651(e)(1), amends the Atomic Energy Act to include accelerator-produced radioactive material in the definition of "byproduct material." Thus, tritium and other isotopes produced for research purposes at the Laboratory are byproduct material under the AEA (see 42 USC 2014(e)). They are therefore no longer within the definition of "pollutant" for purposes of the Clean Water Act, and are not regulated under the Clean Water Act. This amendment applies to tritium created before, on, or after the date of enactment of the amendment.

Accordingly, the draft NPDES Permit and Fact Sheet for the Laboratory should not include limits for accelerator-produced tritium.

3. Based on the complexity of Permit No. NM0028355, including changes in monitoring and reporting requirements, the Laboratory will need to develop a new process for

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generating computer-generated Discharge Monitoring Reports (DMRs). These DMRs will require EPA's approval. Unless the Laboratory is provided with sufficient time to prepare and submit draft computer-generated DMR forms for EPA's approval, we will need to submit the DMR information on draft forms, which can be reviewed and modified, if necessary, for future submittals. In previous years, DMRS have been required by EPA, in the month following the effective date of the permit. Please note, that the Laboratory has been using EPA approved computer, self-generated DMR forms, since February, 1999, which replicate EPA Form 3320-1. The Laboratory requests a 90 day period from the permit effective date to develop new DMR forms for EPA review and approval.

4. Pages 5, 9, 13, 16, 18, 21, 24, 27, 30, and 35 of Part I, Footnotes Section. Please add additional footnote with the following MQL language to all outfall categories (except NPDES Outfall 05A055): "*If any individual analytical test results is less than the minimum quantification level (MQL) listed at Part II. A of the permit, a value of zero (0) may be used for the Discharge Monitoring Report (DMR) calculations and reporting requirements*". This is consistent with the Laboratory's existing NPDES Permit and makes permit reporting requirements less confusing.
5. Please clarify Whole Effluent Toxicity Testing's 30-Day Avg. Min and 48-Hr. Min. requirements. Please add definitions for these monitoring requirements.
6. The Whole Effluent Toxicity Testing requires a 3-Hr composite for NPDES Outfalls 051, 05A055, 02A129, 03A021, 03A022, 03A027, 03A028, 03A048, 03A113, 03A130, 03A158, 03A160, 03A181, 03A185 and 03A199. All flows from these outfalls are intermittent and do not flow continuously for three hours. Therefore, we recommend the sampling type be changed from 3-Hr composite to grab sample requirements.
7. In footnote *1 for all outfalls concerning TRC the footnote states that NO MEASURABLE TRC at any time, yet in the PART II other conditions under paragraph A. MINIMUM QUANTIFICATION LEVEL (MQL) state that if any analytical test result is less than the MQL listed below (100 mg/L for TRC), a value of zero (0) may be used....The wording appears to contradict itself and is confusing. Please clarify this language in the draft NPDES Permit or delete footnote *1 for TRC.
8. Public comments brought up during the EPA Public Meeting on March 20, 2006, requested that EPA include perchlorate and plutonium limits in the Laboratory's NPDES Permit. There are currently no existing New Mexico water quality criteria for perchlorate or plutonium. Additionally, plutonium is included within the definition of special nuclear material in the Atomic Energy Act (42 USC 2014 (aa)). Therefore, it does not fall within the definition of "pollutant" for purposes of the Clean Water Act, and is not regulated under the Clean Water Act. Accordingly, effluent limits should not be developed or incorporated into the NPDES Permit for plutonium or perchlorate. Please note, that the proposed permit does include

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perchlorate monitoring and reporting requirements at NPDES Outfall 051. The Laboratory agrees with these monitoring and reporting requirements.

9. The issue of representative sampling at TA-50 RLWTF (NPDES Outfall 051) was brought up during the March 20, 2006, EPA Public Meeting. The Laboratory has provided documentation to EPA that addresses these concerns. Corrective actions completed to date include a new discharge pump and pipe work installed in the WM-2 pump house, installation of a new sample pump and tubing to the Room 116 sample sink, and changing the effluent discharge to utilize the 3 inch diameter cross-country line. The Laboratory and NMED collected split samples simultaneously at the TA-50 NPDES sampling sink (Room 116) and at the NPDES outfall on January 9, 2006. Sampling data was provided to EPA on March 17, 2006. Sampling results indicated that NPDES Permit compliance parameters were not significantly different between the sampling sink and the outfall. AEA regulated radiological data was slightly higher at the outfall but within DOE Derived Concentration Guidelines (DCGs). This may be due to standing water remaining in the pipeline between batch flow discharges. Up to 150 gallons of treated effluent may remain in the line based on pipe length and diameter. Potential corrective actions are being evaluated to address this concern. Additionally, there are access and safety issues with sampling at the outfall during the winter season. The access road to the outfall is steep and often becomes icy and dangerous to access. The Laboratory recommends continued sampling at the Room 116 sampling sink due to these access and safety issues.
10. The Laboratory has provided supplemental hardness data for all outfalls included in the draft NPDES Permit (Please see **Enclosure 1**). This information was used by the Laboratory to re-evaluate EPA's Reasonable Potential spreadsheets. The hardness data was calculated from Level 4 data packages using NPDES Re-Application data and yearly 2005 Discharge Monitoring Report (DMR) data, and from additional samples collected in February, 2006, and March, 2006.

Permit Specific Comments:

1. NPDES Permit cover-page. Please specify which perennial and/or ephemeral/intermittent canyons reaches are located in Water Body Segments Nos. 20.6.4.126 and 20.6.4.128. The perennial reach of Sandia Canyon is the only reach located in Water Body No. 20.6.4.126. All other NPDES outfalls are located in ephemeral/intermittent reaches of Mortandad Canyon, Los Alamos Canyon, Sandia Canyon, Ten Site Canyon, Canon de Valle, and Water Canyon in Water Body Segment No. 20.6.4.128. Water quality standards are very different for stream reaches 20.6.4.126 and 20.6.4.128.
2. Page 1 of Part I. A. Outfall 001, Discharge Limitations/Reporting Requirements. Please delete the Monthly Average effluent limit for Total Residual Chlorine (TRC) to be consistent with other TRC limits in the permit (i.e. keep Daily Max requirement only). Based on the compliance history at Outfall 001 and the DMR summary

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submitted in the Laboratory's 2004 Re-Application, the Laboratory recommends TRC monitoring frequency of 1/week be changed to 1/month.

3. Page 1 of Part I. A., Outfall 001, Discharge Limitations/Reporting Requirements, and Monitoring Requirements. The Laboratory has re-evaluated the reasonable potential (RP) for zinc (Zn) using new hardness data collected at Outfall 001. The average hardness data of 73 mg/l and the maximum hardness of 93 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluation (Please see **Enclosure 2**), there is no reasonable potential for effluent quality at NPDES Outfall 001 to exceed the Zn water quality standard in stream segment 20.6.4.126. Therefore, please delete the Zn effluent limit and monitoring requirements from Outfall 001.
4. The effluent limitation for total aluminum (Al) in the draft permit for Outfall 001 (Power Plant wastewater) is 58 ug/l (monthly average) and 87 ug/l (daily maximum). However, the water quality standards (WQS) define 87 ug/l of *dissolved* aluminum as a *chronic* standard, intended to avoid impacts from long term exposure (see 20.6.4.900.J). Accordingly, the draft permit should be revised to make 87 ug/l the monthly average, and use the acute stream standard of 750 ug/l for the daily maximum (See 20.6.4.900 J) to address the short term exposure impacts.
5. Page 3 of Part I. A., Outfall 001, Monitoring Frequencies. Please change pH monitoring requirement to once per month. The Laboratory's existing permit requires pH and TRC to be collected at a once per month frequency. The pH data provided in the NPDES Permit Re-Application (August 2004) consisted of the maximum and minimum pH values recorded over the past 6 years at each outfall, including Outfall 001. The Laboratory provided EPA with supplemental information showing the maximum, minimum, and long term average for all outfalls from 1/1/98 through 12/31/2003. During this time period there were only 3 exceedances of the maximum pH limit out of 863 samples collected at all outfalls. Corrective actions were taken to mitigate recurrence. As a result, there has not been a pH exceedance since December 17, 2002. Based on best professional judgment (BPJ), the long term averages and the compliance record for pH monitoring, the Laboratory recommends that the frequency of pH analysis remain consistent with the existing permit frequency.
6. Page 4 of Part I. A., Outfall 001, Sampling Locations And Other Requirements, states in part: "*PCBs... There shall be no discharge of PCB compounds such as those commonly used for transformer fluid from power plant operation sources to Outfall 001.*" Page V-9 of the Laboratory's Form 2c NPDES Re-Application documents the presence of PCBs 1242, 1254, 1248, and 1260 based on sludge data showing residual low levels of PCBs at the TA-46 Sanitary Wastewater System (SWWS) Facility. Treated effluent from the TA-46 SWWS Facility discharges through Outfall 001, when the treated effluent is not re-used in cooling towers at Technical Area 3. The Laboratory recommends EPA delete this paragraph and incorporate monitoring and reporting requirements on Page 1 of Part I. Alternatively, EPA could incorporate the

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following language: "The effluent shall contain NO MEASURABLE PCBs. NO MEASURABLE will be defined as no detectable concentrations of PCBs as determined by any approved method established in 40 CFR 136". To date, NPDES compliance effluent data has not documented the presence of PCBs using 40 CFR 136 analytical methods.

7. Page 5 of Part I, A., Outfall 001, Footnote *2. More stringent effluent limits were established in the proposed permit for total aluminum (Al), and total zinc (Zn). Based on the Laboratory's re-calculation of the reasonable potential for Zn, footnote *2 needs to be modified to delete the reference to total Zn (see Permit Specific Comment #3). Regarding aluminum, it is our understanding that: (a) EPA is reassessing the data in its criteria document for aluminum; and (b) NMED is aware that many areas in New Mexico have naturally high levels of aluminum, and has expressed the view that aluminum levels will have to be set on a canyon specific basis. Additionally, Footnote *4 requires the Laboratory to meet the new temperature requirement within 3 years of the effective date of the permit. The Laboratory needs to conduct initial investigations to insure that it can meet the new requirements for total Al, temperature, and potentially Whole Effluent Toxicity. The Laboratory requires the following compliance schedule to secure funding, and to develop and implement corrective measures to meet the new effluent limits:
 - a. 2 years after the effective date of the NPDES Permit to develop Pre-Project Planning and a Conceptual Design to determine the path forward, cost estimates and funding requests.
 - b. 4 years after the effective date of the NPDES Permit to complete Preliminary Design and Final Design packages.
 - c. 6 years after the effective date of the NPDES Permit to initiate and complete construction and to achieve compliance with permit limits.

Assuming that funding can be secured, a schedule of 6 years will be required to implement corrective measures for NPDES Outfall 001.

8. Page 6 and 7 of Part I, Outfall 13S, Discharge Limitations/Reporting Requirements. The draft permit incorporates new total Zn limits of 97.8 ug/l (monthly average) and 146.7 ug/l (daily maximum) for Outfall 13S. The Laboratory has re-evaluated the reasonable potential (RP) for total Zn using new hardness data collected at Outfall 13S. The average hardness data of 88 mg/l and the maximum hardness of 95 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluations (Please see **Enclosure 3**), there is no reasonable potential for effluent quality at NPDES Outfall 13S to exceed the water quality standard for Zn. Therefore, please delete the Zn effluent limit and monitoring requirements from Outfall 13S.
9. Page 7 of Part I, Outfall 13S, Effluent Characteristic, Discharge Monitoring. The Laboratory recommends that EPA modify footnote *5 to require bio-monitoring (48

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Hr. Static Renewal Test) at Outfall 13S, only if Outfall 13S discharges directly into Canada del Buey as stated in Section 5, paragraph 4, page 17 of the Fact Sheet.

10. Page 9 of Part I, Outfall 13S, Footnotes. Please delete Footnote *4 based on Permit Specific Comments #9. Please change Footnote *5 to * 4 because the original *4 was deleted.
11. Page 10 of Part I, Outfall 051- TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF), Discharge Limitations/Reporting Requirements. The federal regulations under the federal Clean Water Act, 40 CFR 122.2 (definitions) define "pollutant" as follows: " Pollutant means dredged spoil, solid waste, . . . [and] radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)) . . . "

As the note under this definition states, "Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials." The definitions of source, by product, and special nuclear materials have previously been interpreted not to include accelerator-produced isotopes, and accelerator-produced tritium has been included as a regulated substance in past versions of the Laboratory's NPDES Permit.

However, the Energy Policy Act of 2005, section 651(e)(1), amends the Atomic Energy Act to include accelerator-produced radioactive material in the definition of "byproduct material." Thus, tritium and other isotopes produced for research purposes at the Laboratory are byproduct material under the AEA (see 42 USC 2014 (e)). They are therefore no longer within the definition of "pollutant" for purposes of the Clean Water Act, and are not regulated under the Clean Water Act. This amendment applies to tritium created before, on, or after the date of enactment of the amendment.

Accordingly, the draft NPDES Permit and Fact Sheet for the Laboratory should not include limits for accelerator-produced tritium.

12. Page 11 of Part I, Outfall 051, Discharge Limitations/Reporting Requirements. The radioactive liquid wastewater (RLW) system does not add chlorine as part of its treatment processes, or in its collection system other than rinse water. The TRC results should have been reported as zero on the 2004 Permit Re-Application because it was below the minimum quantification level (MQL) and the QC spike indicated matrix interference. Based on this information, there is no RP for exceeding water quality standards for TRC. Please delete chlorine requirements from the draft permit.
13. Page 12 of Part I, Outfall 051, Effluent Characteristics. Discharge from the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF) discharges in batch flow (i.e. intermittent) and discharges last between 1 to 1.5 hours. Therefore, the Laboratory

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cannot collect the 3-hr composite sample, as required for whole effluent toxicity testing. The Laboratory recommends EPA change "sample type" to grab sample.

14. Page 12 of Part I, Outfall 051, Footnotes. Please delete *2 footnote based on previously noted modification of the Energy Policy Act of 2005.
15. Page 13 of Part I, Outfall 051, Footnotes. Please delete Footnote *5. The RLWTF does not treat its wastewater with chlorine nor dechlorinate the wastewater prior to final disposal (Please see comment 12).
16. Page 15 of Part I, Outfall 05A055 – High Explosives Wastewater Treatment Facility (HEWTF), Monitoring Requirements. The HEWTF discharges approximately 3000 gallons every other month. The Laboratory recommends the monitoring requirements for pH, RDX and flow be revised to 1/month based on DMR flow summary, this outfall's excellent compliance record, and intermittent discharge characteristics (batch flow).
17. Page 17 of Part I, Outfalls 03A021, 03A022, and 03A181, Discharge Limitations/Reporting Requirements. NPDES Outfall 03A022 has a proposed monthly average of 8.3 ug/l and a daily maximum of 12.4 ug/l for total copper (Cu). The Laboratory has re-evaluated the reasonable potential (RP) for total Cu using new hardness data collected at Outfall 03A022. The average hardness data of 69 mg/l and the maximum hardness of 99 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluations (Please see **Enclosure 4**), there is no reasonable potential for effluent quality at NPDES Outfall 03A022 to exceed the water quality standard for Cu in Mortandad Canyon in stream segment 20.6.4.128. Therefore, please delete the Cu effluent limit and monitoring requirements from Outfall 03A022
18. Page 17 of Part I, Outfalls 03A021, 03A022, and 03A181, Monitoring Requirements. The Laboratory recommends the monitoring requirements for Flow (1/day) and TRC (1/week) be reduced to 1/quarter. This recommendation is consistent with existing permit monitoring requirements, is similar to proposed monitoring requirements for other parameters for this outfall category, and is based on the intermittent flow characteristics and on the outfall compliance history. Justification was not provided for increased monitoring based on RP or documented in the Fact Sheet.
19. Page 18 of Part I, Outfalls 03A021, 03A022 and 03A181, Monitoring Requirements. The Laboratory recommends the monitoring requirements for pH (1/week) be reduced to 1/quarter which is consistent with existing permit requirements, similar to proposed monitoring requirements for other outfall parameters for this outfall category, and is based on intermittent flow characteristics and the outfall compliance history. Reasons were not provided for increased monitoring based on RP or documented in the Fact Sheet.

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20. Page 18 of Part I, Outfalls 03A021, 03A022, and 03A181, Footnotes *2, *3, and *4. Based on comment provided above (Permit Specific Comments #17) there is no RP for total Cu to exceed applicable stream standards. Therefore, please delete footnotes *2, *3 and *4.
21. Page 20 of Part I, Outfalls 03A027, 03A113, and 03A199. Outfall 03A113 does not discharge into stream segment 20.6.4.126 of Sandia Canyon. Please clarify that NPDES Outfalls 03A027 and 03A199 discharge into stream segment 20.6.4.126, and NPDES Outfall 03A113 discharges into the ephemeral/intermittent stream segment 20.6.4.128.
22. Page 20 of Part I, Outfalls 03A027, 03A113, and 03A199, Monitoring Requirements. Please reduce effluent monitoring requirements for flow (1/day), TRC (1/week) and pH (1/week) to 1/month. This recommendation is based on the intermittent flows at the outfalls and the DMR compliance summary records for these discharges. Monitoring of 1/month is more stringent than the existing permit monitoring requirement of 1/quarter. The Fact Sheet did not justify the increased monitoring frequency.
23. Page 20 of Part I, Outfalls 03A027, 03A113 and 03A199, Monitoring Requirements. The draft permit requires total Cu monitoring at Outfall 03A027. The Laboratory has re-evaluated the reasonable potential (RP) for total Cu using new hardness data collected at Outfall 03A027. The average hardness data of 110 mg/l and the maximum hardness of 117 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluations (Please see **Enclosure 5**), there is no reasonable potential for effluent quality at NPDES Outfall 03A027 to exceed the water quality standard for Cu in Sandia Canyon in stream segment 20.6.4.126. Therefore, please delete the Cu monitoring requirement from Outfall 03A027.
24. Page 21 of Part I, Outfalls 03A027, 03A113 and 03A199, Monitoring Requirements, Footnote *2. Please delete footnote *2 based on comments provided above (see Permit Specific Comments #23).
25. Page 21 of Part I, Outfalls 03A027, 03A113, and 03A199, Monitoring Requirements, Footnote *3. Outfall 03A027 may not meet pH requirement (Max 8.8). The Laboratory requests a 2 year compliance schedule be incorporated into the NPDES Permit to meet the pH requirement. Change Footnote *3 to Footnote *2 (see Permit Specific Comments #24)
26. Page 22 of Part I, Outfalls 03A028, 03A130 and 03A185, Discharge Limitations/Reporting Requirements. The draft permit has incorporated effluent limits of 8.3 ug/l (monthly average) and 12.4 ug/l (daily maximum) for total Cu at Outfall 03A028. The PHERMEX facility is no longer occupied and the cooling tower that supported this facility (Outfall 03A028) has been taken out of service. A work order has been requested to plug all floor drains from PHERMEX to the cooling

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tower. The Laboratory will request EPA and NMED visit the site to verify there is no flow from the cooling tower. The Laboratory recommends Outfall 03A028 be deleted from the draft NPDES Permit. If the outfall can not be deleted from the permit, the following information is applicable to Outfall 03A028. The Laboratory re-evaluated the reasonable potential (RP) for total Cu using new hardness data collected at Outfall 03A028. The average hardness data of 161 mg/l and the maximum hardness of 201 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluations (Please see **Enclosure 6**), there is still a reasonable potential for effluent quality at NPDES Outfall 03A028 to exceed the water quality standard for Cu in Water Canyon in stream segment 20.6.4.128. However, based on the hardness data the effluent Cu effluent limit should be changed to 41 ug/l (monthly average) and 61 ug/l (daily maximum).

27. Page 22 of Part I, Outfalls 03A028, 03A130 and 03A185, Discharge Limitations/Reporting Requirements. The draft permit has incorporated effluent limits of 8.3 ug/l (monthly average) and 12.4 ug/l (daily maximum) for total Cu at Outfall 03A130. Additionally, Outfall 03A130 has total Zn effluent limits of 87.3 ug/l (monthly average) and 131 ug/l (daily maximum). The Laboratory re-evaluated the reasonable potential (RP) for total Cu using new hardness data collected at Outfall 03A130. The average hardness data of 130 mg/l and the maximum hardness of 157 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluations (Please see **Enclosure 7**), there is still a reasonable potential for effluent quality at NPDES Outfall 03A130 to exceed the water quality standard for Cu in Water Canyon in stream segment 20.6.4.128. However, based on the new hardness data the effluent Cu effluent limit should be changed to 29.3 ug/l (monthly average) and 43.9 ug/l (daily maximum).

The Laboratory also re-evaluated the RP for Zn using the same hardness data (130 mg/l average and 157 ug/l maximum). Based on the new RP evaluations (Please see **Enclosure 7**), there is not a reasonable potential for effluent quality at NPDES Outfall 03A130 to exceed the water quality standard for Zn in Water Canyon in stream segment 20.6.4.128. Therefore, please delete the Zn effluent limit and monitoring requirements from the draft permit.

28. Page 22 of Part I, Outfalls 03A028, 03A130 and 03A185, Discharge Limitations/Reporting Requirements. The draft permit has incorporated total cyanide limits of 3.5 ug/l (monthly average) and 5.2 ug/l (daily maximum) for Outfalls 03A130 and 03A185. The EPA Permit Writer requested additional information for cyanide, weak acid dissociable based on analytical interferences in the methods used in the permit re-application process. This information is tabulated (Please see **Enclosure 8**) and includes the cyanide result using method 4500 CN-I for Outfall 03A130. Based on the new data there is no reasonable potential for cyanide to exceed the water quality standard at Outfall 03A130 and 03A185 (Please see **Enclosures 7 and 8**). Please delete the total cyanide effluent limit and monitoring requirement from the draft permit.

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29. Page 23 of Part I, Outfalls 03A028, 03A130 and 03A185, Monitoring Requirements. The Laboratory recommends the monitoring requirements for flow (1/day), TRC (1/week), and pH (1/week) be revised to 1/month. This recommendation is based on the intermittent flows from these outfalls, 1/month is still more stringent than existing permit monitoring requirements, 1/month is consistent with other outfall monitoring requirements, and the DMR summary compliance history is good. Reasons were not provided for increased monitoring requirements in the Fact Sheet.
30. Page 24 of Part I, Outfalls 03A028, 03A130 and 03A185, Footnotes *2 and *3. Please delete reference to Outfall 03A028 from Footnotes *2 and *3 based on Permit Specific Comments #26. Delete reference to Zn requirement in Footnotes *2 and *3 based on Permit Specific Comments #27. Delete cyanide requirements from Footnotes *2 and *3 based on Permit Specific Comments #28.
31. Page 25 of Part I, Outfalls 03A048 and 03A158. NPDES Outfall Permit 03A048 is associated with TA-53-964 and 979. Please delete reference to TA-53-963 and 978 in the proposed permit.
32. Page 25 of Part I, Outfalls 03A048 and 03A158, Discharge Limitations/Reporting Requirements. The draft permit incorporates effluent limits for total arsenic (As) of 9.5 ug/l (monthly average) and 14.2 (daily maximum) for Outfall 03A048. Additionally, the draft permit has total Cu limits of 8.3 (monthly average) and 12.4 ug/l (daily maximum) for Outfalls 03A048 and 03A158. The Laboratory re-evaluated the reasonable potential (RP) for both total As and total Cu using new hardness data collected at Outfall 03A048 and 03A158. The average hardness data of 102 mg/l and the maximum hardness of 145 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet for 03A048. Based on the new RP evaluations (Please see **Enclosure 9**), there is still a reasonable potential for effluent quality at NPDES Outfall 03A048 to exceed the water quality standards for As and Cu in Los Alamos Canyon in stream segment 20.6.4.128. However, based on the new hardness data the Cu effluent limit should be changed to 28.6 ug/l (monthly average) and 42.8 ug/l (daily maximum). The As limit does not change.

The average hardness data of 59 mg/l and the maximum hardness of 91 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet for 03A158. Based on the new RP evaluations (Please see **Enclosure 10**), using the new "average" hardness data there is still a reasonable potential for effluent quality at NPDES Outfall 03A158 to exceed the water quality standard for Cu in Los Alamos Canyon in stream segment 20.6.4.128. However, based on using the new "maximum" hardness data there is not a RP for Cu. Therefore, the Laboratory recommends deletion of the Cu limit and monitoring requirements for 03A158. If EPA disagrees, the Cu effluent limit should be changed to 12.3 ug/l (monthly average) and 18.5 ug/l (daily maximum) based on the average hardness data.

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33. Page 25 and 26 of Part I, Outfalls 03A048 and 03A158, Discharge Limitations/Reporting Requirements, and Monitoring Requirements. Delete monitoring and reporting requirements for tritium based on revisions to the Energy Policy Act of 2005.
34. Page 26 of Part I, Outfalls 03A048 and 03A158, Monitoring Requirements. The Laboratory recommends the monitoring requirements for flow (1/day), TRC (1/week), and pH (1/week) be revised to 1/month. This recommendation is based on the intermittent flows at these outfalls, 1/month is still more stringent than existing permit, 1/month is consistent with other outfall monitoring requirements, and the DMR summary compliance history is good. Justification was not provided for increased monitoring in Fact Sheet.
35. Page 27 of Part I, Outfalls 03A048 and 03A158, Footnotes *4 and *5 apply only to Outfall 03A048.
36. Page 27 of Part I, Outfalls 03A048 and 03A158, Footnotes *6. Please delete footnote based on modification to Energy Policy Act of 2005.
37. Page 28 of Part I, Outfall 03A160. Discharge Limitations/Reporting Requirements. The draft permit has incorporated new effluent limits for total Cu of 8.3 ug/l (monthly average) and 12.4 ug/l (daily maximum). Additionally, the draft permit incorporates new total Zn effluent limits of 87.3 ug/l (monthly average) and 131 ug/l (daily maximum). The Laboratory re-evaluated the reasonable potential (RP) for both total Zn and total Cu using new hardness data collected at Outfall 03A160. The average hardness data of 88 mg/l and the maximum hardness of 95 mg/l were incorporated into EPA's Reasonable Potential (RP) spreadsheet. Based on the new RP evaluations (Please see **Enclosure 11**), there is still a reasonable potential for effluent quality at NPDES Outfall 03A160 to exceed the water quality standard for Cu in Ten Site Canyon in stream segment 20.6.4.128. However, based on the new hardness data the Cu effluent limit should be changed to 23.3 ug/l (monthly average) and 34.9 ug/l (daily maximum). Based on the new hardness data for Zn, there is no RP for exceedance of the Zn water quality standard. Therefore, please delete the effluent limits and monitoring requirements for Zn at Outfall 03A160.
38. Page 29 of Part I, Outfall 03A160, Monitoring Requirements. The Laboratory recommends the monitoring requirements for flow (1/day), TRC (1/week), and pH (1/week) be revised to 1/month based on the intermittent flows from this outfall, 1/month is more stringent than the existing permit, 1/month is consistent with other outfall monitoring requirements, and the DMR summary compliance history for this outfall is good. Reasons were not provided for increased monitoring requirements in Fact Sheet.
39. Page 30 of Part I, Footnote *3. Please delete Footnote *3 for Zn based on Permit Specific Comments #36).

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40. Page 31 of Part I, Outfalls 03A021, 022, 027, 028, 048, 113, 130, 158, 160, 181, 185, and 199. Discharges are intermittent and do not discharge for three hours, therefore, the Laboratory can not collect a 3 hr. composite sample for bio-monitoring. The Laboratory requests the sample type be changed to grab sample.
41. Page 33 and 34 of Part I, Outfall 02A129, Monitoring Requirements. The Laboratory recommends the monitoring requirements for flow (1/day), TRC (1/week), and pH (1/week) be revised to 1/month. This recommendation is based on intermittent flow from this outfall, it is more stringent than existing permit, it is consistent with other outfall monitoring requirements and the DMR summary compliance history for this outfall is good. The reasons were not provided for increased monitoring requirements in Fact Sheet. Please delete monitoring requirement for TRC based on Permit Specific Comments #42.
42. Page 33 of Part I, Outfall 02A129, Monitoring Requirements. More stringent effluent limits were established in the proposed permit for total Cu, and Whole Effluent Toxicity Testing. The Laboratory needs to conduct initial investigations to insure that it can meet the new requirements. The Laboratory requires the following compliance schedule to secure funding, and to develop and implement corrective measures to meet the new Cu effluent limit:
 - a. 2 years after the effective date of the NPDES Permit to develop Pre-Project Planning and a Conceptual Design to determine the path forward, cost estimates and funding requests.
 - b. 4 years after the effective date of the NPDES Permit to complete Preliminary Design and Final Design packages.
 - c. 6 years after the effective date of the NPDES Permit to initiate and complete construction and achieve compliance with the permit limits.

Assuming funding is secured, a schedule of 6 years is required to implement corrective measures for NPDES Outfall 02A129.

Additionally, the TRC was reported as zero on the Laboratory's 2004 NPDES Re-Application. The TA-3 Steam Plant uses potable water at its facility, but does not add chlorine as part of its treatment of waste streams. Based on this information, there is not a reasonable potential for TRC to exceed the water quality standard. Please delete the TRC requirement from the draft permit. If TRC is not removed from the draft permit, the Laboratory will need to incorporate this into the compliance schedule.

43. Page 34 of Part I, Effluent Characteristics. Discharge from the TA-21 Steam Plant. Discharges will vary from 1 to 3 hours and therefore the Laboratory cannot meet the

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3-hr. composite sampling requirement for bio-monitoring. The Laboratory recommends a change in monitoring type to grab sample.

44. Page 35 of Part I, Footnote *1. Please delete Footnote *1 based on Permit Specific Comments # 42.
45. Page 35 of Part I, Footnote *2 and *3. Footnote *2 needs to be modified based on comments provided in Permit Specific Comments #42. Change this footnote to *1 based on Permit Specific Comments #44. Please change Footnote *3 to Footnote *2.
46. Page 36 of Part I.B. Schedule of Compliance. Modification to the compliance schedule is documented by tracked changes on the draft permit. Please delete references to the compliance schedule for total zinc based on the permit specific comments and re-evaluation using EPA's reasonable potential process. Also please delete reference to Outfall 03A028 because the Laboratory is recommending that it be deleted from the permit. Please delete the reference to the copper limit for Outfall 03A022 based on permit specific comments. Please modify Total Cyanide language based on permit specific comments.

Please delete reference to the compliance schedule for selenium at Outfall 03A027 since there is no permit requirement for selenium at this outfall. Additionally, the total selenium result reported on Form 2C (3.3 ug/L) was using EPA Method 200.8. When analyzing for selenium using this method, if bromine is present in the sample, a false positive detection of selenium can occur. The cooling tower that discharges to Outfall 03A027 uses bromine as part of the water treatment and samples collected during the first part of CY 2005 indicated selenium could be present. Re-analysis of these samples by an alternate EPA-approved method demonstrated that selenium was not present. See **Enclosure 12** for additional information. The Laboratory recommends no selenium monitoring requirement at Outfall 03A027.

The Laboratory request the exceedance determination (sub-tier a.) be changed from 6 months to 12 months and development requirements for controls (sub-tier b.) be changed from 1 year to 18 months based on the complexity of these facilities and worker authorization processes. Please add language to sub-tier c. to include "unless otherwise specified in permit" to the end of the sentence based on Permit Specific Comments (i.e. Outfalls 001, 02A129, 03A199).

47. Page 37 of Part I.C. REPORTING OF MONITORING RESULTS (MAJOR DISCHARGERS) states in part,
"Monitoring information shall be on Discharge Monitoring Report Form(s) EPA 3320-1 as specified in Part III.D.4 of this permit and shall be submitted monthly.
2. *The permittee is required to submit regular monthly reports as described Above postmarked not later than the 15th of the month following each reporting period."*

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The DMR submittal date of the 28th day was negotiated between the Laboratory, New Mexico Environment Department (NMED), and EPA's Enforcement and Permits Branches during the last permit process period (2000-2005) in order to assure that results from samples collected during the month be available for including in the monthly DMRS. Submittal by the 28th day of the following month was also required to allow adequate time for quality assurance of the data. The Laboratory requests that the 28th day of the month be included in the new permit to allow the Laboratory to receive all NPDES compliance data back from the analytical laboratory and complete all quality assurance reviews in time to meet the NPDES Permit submittal deadline.

48. It is the Laboratory's understanding that EPA rates all facilities on a point system to determine if the permittee is a "Major" or "Minor" treatment facility. The Laboratory requests clarification regarding its classification as a "Major" discharger". Please provide the criteria for this determination.
49. Page 1 of Part II.A. Minimum Quantification Level (MQL). In addition to the MQLs listed, Laboratory requests that MQLs be specified for sulfite, phosphorus, Oil and Grease, RDX, TNT, nickel, Ra 226+228, COC, BOD, TSS, TTOs, perchlorate, and iron in the draft permit.
50. Page 1 of Part II.B. 24 Hour Reporting. Please delete reference to Zinc, TRC and Cyanide based on permit specific comments. In the Laboratory's existing permit, TRC is not listed as a parameter requiring 24-hr oral reporting of daily maximum limitation violations. Reasons were not provided in the Fact Sheet for including this reporting requirement for TRC in the draft permit. The Laboratory recommends removing TRC from this requirement
51. Page 3 of Part II, Paragraph D. Tritium. Please delete paragraph based on modifications to Energy Policy Act of 2005.
52. Page 3 of Part II, Paragraph F. Co-Permittees. On June 1, 2006, the University of California will no longer operate the Los Alamos National Laboratory. The permit will be transferred to Los Alamos National Security (LANS) LLC. The Laboratory will provide written notification to EPA as required by the NPDES Permit.
53. Page 4 of Part II, Paragraph H Test Methods. Method ANC335, R-1 (Tritium in Environmental Matrices--Distillation and LS Counting) is a method used by the Laboratory's Analytical Chemistry Sciences Group. This internal Group is no longer performing tritium analyses for the Laboratory, so this method should be deleted from the draft permit. EPA Method 906 should be added for tritium analysis if tritium "report only" remains in permit.

EPA Methods 904.0 and 903.1 are not gamma spec methods and this descriptor

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should be removed. These methods are currently being used for radium analyses. EPA Method 904.0 is used for Ra228 and EPA Method 903.1 is used for Ra226.

54. Part IV Sludge Regulations. The Laboratory disposes of its sludge off-site. Most of the boiler-plate language in Part IV of the draft permit does not apply. The Laboratory recommends that the sludge language be revised to address off-site disposal only.
55. Summary of Proposed Schedules of Compliance. The Laboratory recommends the following schedules of compliance to complete corrective actions necessary to achieve compliance with proposed effluent limits.

Outfall 001 and Outfall 02A129:

- a. 6 months after the effective date of the NPDES Permit to achieve compliance with permit requirements for pH.
- b. 2 years after the effective date of the NPDES permit to develop Pre-Project Planning and a Conceptual Design to determine the path forward, cost estimates and funding requests.
- c. 4 years after the effective date of the NPDES permit to complete Preliminary Design and Final Design packages.
- d. 6 years after the effective date of the NPDES permit to initiate and complete construction and achieve compliance with the permit limits for aluminum, WET, and temperature.

Outfalls 03A027 and 03A199: 2 years from effective date of permit to achieve compliance with new effluent limit for pH.

Outfalls 051, 03A130, 03A160, and 03A185: 3 years from effective date of permit to achieve compliance with new effluent limit for copper.

Outfall 03A048: 3 years from effective date of permit to achieve compliance with new effluent limits for arsenic and copper.

Outfalls 13S, 05A055, 03A021, 03A022, 03A113, 03A158, 03A181: No compliance schedule.

Outfall 03A028: Delete from NPDES Permit.

Revisions to this proposed schedules of compliance may be required depending on addition or deletion of other effluent limits.

ENCLOSURE 1

NPDES PERMIT No. NM0028355 OUTFALL HARDNESS DATA

	HARDNESS CALCULATED FROM LEVEL 4 DATA PACKAGES (RE-APPLICATION DATA AND YEARLY DMR DATA)					HARDNESS FROM SAMPLES COLLECTED IN 2006										
Outfall Number	2004 Re-App	Hardness (as CaCO ₃) mg/L	2005 WQP	Hardness (as CaCO ₃) mg/L	2006 Sample 1	SDG #	Hardness (as CaCO ₃) mg/L	2006 Sample 2	SDG #	Hardness (as CaCO ₃) mg/L	2006 Sample 3	SDG #	Hardness (as CaCO ₃) mg/L	Outfall Number	Avg. Hardness (as CaCO ₃) mg/L	
001	5/26/2004	66.68177	7/13/2005	43.79185	2/14/2006	156071	75.1000	2/22/06	156665	85.5000	3/9/2006	157758	92.7000	001	72.754724	
02A129	5/11/2004	14.11375	9/15/2005	6.380354	3/13/2006	158018	1.3700								02A129	7.2880
03A021	5/26/2004	58.66793	7/25/2005	82.17055	off-line										03A021	70.41924
03A022	4/21/2004	39.88192	7/14/2005	98.83139	3/21/06		112.0000								03A022	83.5711
03A027	3/29/2004	115.1278	7/13/2005	99.22585	2/22/2006	156664	117.0000								03A027	110.4512
03A028	3/29/2004	120.916	4/18/2005	200.8211	No discharge										03A028	160.86855
03A048	5/4/2004	144.5796	9/8/2005	*131.4482	2/22/2006	156664	52.5000	3/7/06	157571	110.0000					03A048	102.3599
03A113	5/4/2004	110.62	9/14/2005	100.6823	3/7/2006	157571	75.7000	3/7/06	157571	75.7000					03A113	90.6756
03A130	6/8/2004	93.28409	7/19/2005	139.8933	2/15/2006	156222	157.0000								03A130	130.0591
03A158	5/20/2004	84.36896	4/21/2005	90.91121	No discharge			3/14/06	158060	2.2800					03A158	59.1867
03A160	6/18/2004	94.73841	12/16/2005	79.28307	3/16/2006	158357	89.5000								03A160	87.8405
03A181	4/27/2004	94.637	3/23/2004	92.46684	3/2/2006		123.0000	3/13/06	158016	97.3000					03A181	101.8510
03A185	4/19/2004	71.59	9/14/2005	84.03558	3/10/2006	157900	105.0000								03A185	86.8752
03A199	1/21/2005	95.31126	8/4/2005	107.9653	3/7/2006	157571	157.0000								03A199	120.0922
051	6/9/2004	0.85647	5/19/2005	0.800701	2/6/2006	156666	0.1000	2/21/06	156666	0.1010					051	0.4645
05A055	5/3/2004	0.076574	2/28/2005	0.402895	No discharge										05A055	0.2397345
13S	3/31/2005	81.841			3/9/2006	157786	95.1000								13S	88.4705

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

1 LANL NM0028355 OUTFALL 001

A	B	C	D	I	J	L	M	N	O
32	Are acute aquatic life criteria considered (1= yes, 0= no)			1					
33	Are chronic aquatic life criteria considered (1= yes, 0= no)			1					
40	Receiving Stream TSS (mg/l)			6.4	For intermittent stream, enter effluent TSS				
41	Receiving Stream Hardness (mg/l as CaCO ₃)			41	For intermittent stream, enter effluent Hardness				
42	Receiving Stream Critical Low Flow (4Q3) (cfs)			D	Enter "0" for intermittent stream and lake.				
43	Receiving Stream Harmonic Mean Flow (cfs)			D	Enter harmonic mean or modified harmonic mean flow data				
44	Avg. Water Temperature (C)			13.4-27					
45	pH (Avg)			6.9-8.9					
46	Fraction of stream allowed for mixing (F)			1	Enter 1, if stream morphology data is not available or for intermittent streams.				
47	Fraction of Critical Low Flow			0					
273	POLLUTANTS			Livestock or	Acute Fish	Chronic Fish	Human Health	Daily Max. Conc	Monthly Ave.
274		CAS No.	STORET	Wildlife Limit	Limits	Limits	Limits	ug/l	ug/l
275	Radioactivity, Nutrients, and Chlorine								
276	Aluminum, dissolved	7420-90-5	01006	N/A	N/A	BT	N/A	BT	50
277	Barium, dissolved	7440-39-3	01005	N/A	N/A	N/A	N/A	N/A	N/A
278	Boron, dissolved	7440-42-8	01022	N/A	N/A	N/A	N/A	N/A	N/A
279	Cobalt, dissolved	7440-48-4	01037	N/A	N/A	N/A	N/A	N/A	N/A
280	Molybdenum, dissolved	7439-98-7	01062	N/A	N/A	N/A	N/A	N/A	N/A
281	Uranium, dissolved	7440-01-1	22708	N/A	N/A	N/A	N/A	N/A	N/A
282	Vanadium, dissolved	7440-62-2	01087	N/A	N/A	N/A	N/A	N/A	N/A
283	Ra-226 and Ra-228 (pCi/l)		11503	N/A	N/A	N/A	N/A	N/A	N/A
284	Strontrium (pCi/l)		13501	N/A	N/A	N/A	N/A	N/A	N/A
285	Tritium (pCi/l)		04124	N/A	N/A	N/A	N/A	N/A	N/A
286	Gross Alpha (pCi/l)		60029	N/A	N/A	N/A	N/A	N/A	N/A
287	Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A
288	Total Residual Chlorine	7782-50-5	50000	N/A	N/A	N/A	N/A	N/A	N/A
289	Nitrate as N (mg/l)		00620	N/A	N/A	N/A	N/A	N/A	N/A
290	Nitrite + Nitrate (mg/l)		00630	N/A	N/A	N/A	N/A	N/A	N/A
291	METALS AND CYANIDE								
292	Antimony, dissolved (P)	7440-38-0	01097	N/A	N/A	N/A	N/A	N/A	N/A
293	Arsenic, dissolved (P)	7440-38-2	01000	N/A	N/A	N/A	N/A	N/A	N/A
294	Beryllium, dissolved	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A
295	Cadmium, dissolved	7440-43-9	01025	N/A	N/A	N/A	N/A	N/A	N/A
296	Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A
297	Chromium, dissolved	18540-29-9	01034	N/A	N/A	N/A	N/A	N/A	N/A
298	Copper, dissolved	7440-50-8	01042	N/A	N/A	N/A	N/A	N/A	N/A
299	Lead, dissolved	7439-92-1	01049	N/A	N/A	N/A	N/A	N/A	N/A
300	Mercury, dissolved	7439-97-6	71890	N/A	N/A	N/A	N/A	N/A	N/A
301	Mercury, total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A
302	Nickel, dissolved (P)	7440-02-0	01085	N/A	N/A	N/A	N/A	N/A	N/A
303	Selenium, dissolved (P)	7782-49-2	01145	N/A	N/A	N/A	N/A	N/A	N/A
304	Selenium, dis (SO ₄ > 500 mg/l)		01145	N/A	N/A	N/A	N/A	N/A	N/A
305	Selenium, total recoverable	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A
306	Silver, dissolved	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A
307	Thallium, dissolved (P)	7440-28-0	01059	N/A	N/A	N/A	N/A	N/A	N/A
308	Zinc/Diss (P)	7440-98-5	01080	N/A	86.0612188	86.6015388	N/A	176.1478828	116.7662552
309	Cyanide, dissolved	57-12-5	00720	N/A	N/A	N/A	N/A	N/A	N/A
310	Cyanide, weak acid dissoci	57-12-5	00718	N/A	N/A	N/A	N/A	N/A	N/A

□ = No change with new hardness data.

SPREADSHEET USING AVG
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 001

SPREADSHEET USING
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 001

= No RP with new hardness data.
Recommend no effluent limit in permit.

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

1 LANL		NM0028355		OUTFALL 13S				
A	B	C	J	K	L	M	N	O
32	Are acute aquatic life criteria considered (1=		1					
33	Are chronic aquatic life criteria considered (1		0					
40	Receiving Stream TSS (mg/l)		2.6	For intermittent stream, enter effluent TSS				
41	Receiving Stream Hardness (mg/l as CaCO ₃)		41	For intermittent stream, enter effluent Hardness				
42	Receiving Stream Critical Low Flow (4Q3) (cfs)		0	Enter "0" for intermittent stream and lake.				
43	Receiving Stream Harmonic Mean Flow (cfs)		0	Enter harmonic mean or modified harmonic mean flow data				
44	Avg. Water Temperature (C)		13.4-27					
45	pH (Avg)		6.9-8.9					
46	Fraction of stream allowed for mixing (F)		1	Enter 1, if stream morphology data is not available or for intermittent streams.				
47	Fraction of Critical Low Flow		0					
271	POLLUTANTS			Livestock or	Acute Fish	Chronic Fish	Human Health	Daily Max. Co.
272		CAS No.		Wildlife Limit	Limits	Limits	Limits	ug/l
273	Radioactivity, Nutrients, and Chlorine							ug/l
274	Aluminum, dissolved	7429-90-5	N/A	N/A	N/A	N/A	N/A	N/A
275	Barium, dissolved	7440-39-3	N/A	N/A	N/A	N/A	N/A	N/A
276	Boron, dissolved	7440-42-8	N/A	N/A	N/A	N/A	N/A	N/A
277	Cobalt, dissolved	7440-48-4	N/A	N/A	N/A	N/A	N/A	N/A
278	Molybdenum, dissolved	7439-98-7	N/A	N/A	N/A	N/A	N/A	N/A
279	Uranium, dissolved	7440-81-1	N/A	N/A	N/A	N/A	N/A	N/A
280	Vanadium, dissolved	7440-82-2	N/A	N/A	N/A	N/A	N/A	N/A
281	Ra-226 and Ra-228 (pCi/l)		N/A	N/A	N/A	N/A	N/A	N/A
282	Strontrium (pCi/l)		N/A	N/A	N/A	N/A	N/A	N/A
283	Tritium (pCi/l)		N/A	N/A	N/A	N/A	N/A	N/A
284	Gross Alpha (pCi/l)		N/A	N/A	N/A	N/A	N/A	N/A
285	Asbestos (fibers/l)		N/A	N/A	N/A	N/A	N/A	N/A
286	Total Residual Chlorine	7782-50-5	11	19	N/A	N/A	11	7.333333333
287	Nitrate + N (mg/l)		N/A	N/A	N/A	N/A	N/A	N/A
288	Nitrite + Nitrate (mg/l)		N/A	N/A	N/A	N/A	N/A	N/A
289	METALS AND CYANIDE							
290	Antimony, dissolved (P)	7440-36-0	N/A	N/A	N/A	N/A	N/A	N/A
291	Arsenic, dissolved (P)	7440-38-2	N/A	N/A	N/A	N/A	N/A	N/A
292	Beryllium, dissolved	7440-41-7	N/A	N/A	N/A	N/A	N/A	N/A
293	Cadmium, dissolved	7440-43-9	N/A	N/A	N/A	N/A	N/A	N/A
294	Cadmium, Total	7440-43-9	N/A	N/A	N/A	N/A	N/A	N/A
295	Chromium, dissolved	18540-29-9	N/A	N/A	N/A	N/A	N/A	N/A
296	Copper, dissolved	7440-50-8	N/A	N/A	N/A	N/A	N/A	N/A
297	Lead, dissolved	7439-92-1	N/A	N/A	N/A	N/A	N/A	N/A
298	Mercury, dissolved	7439-97-6	N/A	N/A	N/A	N/A	N/A	N/A
299	Mercury, total	7439-97-6	N/A	N/A	N/A	N/A	N/A	N/A
300	Nickel, dissolved (P)	7440-02-0	N/A	N/A	N/A	N/A	N/A	N/A
301	Selenium, dissolved (P)	7782-49-2	N/A	N/A	N/A	N/A	N/A	N/A
302	Selenium, dia (SO ₄ >500 mg/l)		N/A	N/A	N/A	N/A	N/A	N/A
303	Selenium, total recoverable	7782-49-2	N/A	N/A	N/A	N/A	N/A	N/A
304	Silver, dissolved	7440-22-4	N/A	N/A	N/A	N/A	N/A	N/A
305	Thallium, dissolved (P)	7440-28-0	N/A	N/A	N/A	N/A	N/A	N/A
306	Zinc, Diss. (P)	7440-02-0	15.0512185	N/A	N/A	N/A	145.708610	67.805646
307	Cyanide, dissolved	57-12-5	N/A	N/A	N/A	N/A	N/A	N/A
308	Cyanide, weak acid dissociable	57-12-5	N/A	N/A	N/A	N/A	N/A	N/A

SPREADSHEET USING AVG
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 13S

SPREADSHEET USING MAX
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 13S

N/A = No RP with new hardness data.
Recommend no effluent limit in permit.

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

SPREADSHEET USING AVERAGE
EFFLUENT HARDNESS
(NEW DATA)

READSHEET AX
EFFLUENT HA SS
(NEW DATA)

N/A

= No RP with new hardness data.
Recommend no effluent limit in permit.

ENCLuRE 5

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

1 LANL	NM0028355		OUTFALL 03A027						
A	B	C	D	J	K	L	M	N	O
32	Are acute aquatic life criteria considered (1= yes, 0= no)			1					
33	Are chronic aquatic life criteria considered (1= yes, 0= no)			1					
40	Receiving Stream TSS (mg/l)			2.6	For Intermittent stream, enter effluent TSS				
41	Receiving Stream Hardness (mg/l as CaCO ₃)			41	For Intermittent stream, enter effluent Hardness				
42	Receiving Stream Critical Low Flow (4Q3) (cfs)			0	Enter "0" for intermittent stream and lake.				
43	Receiving Stream Harmonic Mean Flow (cfs)			0	Enter harmonic mean or modified harmonic mean flow data				
44	Avg. Water Temperature (C)			13.4-27					
45	pH (Avg)			6.9-8.9					
46	Fraction of stream allowed for mixing (F)			-	1	Enter 1, if stream morphology data is not available or for intermittent streams.			
47	Fraction of Critical Low Flow			0					
272	POLLUTANTS			Livestock or	Acute Fish	Chronic Fish	Human Health	Daily Max. Conc.	Monthly Ave.
273	CAS No.			STORET	Wildlife Limits	Limits	Limits	ug/l	ug/l
274	Radioactivity, Nutrients, and Chlorine								
275	Aluminum, dissolved			7429-90-5	01106	N/A	N/A	N/A	N/A
276	Barium, dissolved			7440-39-3	01005	N/A	N/A	N/A	N/A
277	Boron, dissolved			7440-42-8	01022	N/A	N/A	N/A	N/A
278	Cobalt, dissolved			7440-48-4	01037	N/A	N/A	N/A	N/A
279	Molybdenum, dissolved			7439-98-7	01062	N/A	N/A	N/A	N/A
280	Uranium, dissolved			7440-61-1	22706	N/A	N/A	N/A	N/A
281	Vanadium, dissolved			7440-62-2	01087	N/A	N/A	N/A	N/A
282	Ra-226 and Ra-228 (pCi/l)				11503	N/A	N/A	N/A	N/A
283	Strontium (pCi/l)				13501	N/A	N/A	N/A	N/A
284	Tritium (pCi/l)				04124	N/A	N/A	N/A	N/A
285	Gross Alpha (pCi/l)				80029	N/A	N/A	N/A	N/A
286	Asbestos (fibers/l)					N/A	N/A	N/A	N/A
287	Total Residual Chlorine			7782-50-5	50060	11	19	11	11
288	Nitrate as N (mg/l)				00620	N/A	N/A	N/A	N/A
289	Nitrite + Nitrate (mg/l)				00630	N/A	N/A	N/A	N/A
290	METALS AND CYANIDE								
291	Antimony, dissolved (P)			7440-36-0	01097	N/A	N/A	N/A	N/A
292	Arsenic, dissolved (P)			7440-38-2	01000	N/A	N/A	N/A	N/A
293	Beryllium, dissolved			7440-41-7	01012	N/A	N/A	N/A	N/A
294	Cadmium, dissolved			7440-43-9	01025	N/A	N/A	N/A	N/A
295	Cadmium, Total			7440-43-9	01027	N/A	N/A	N/A	N/A
296	Chromium, dissolved			18540-29-9	01034	N/A	N/A	N/A	N/A
297	Copper, dissolved			7440-50-8	01042	N/A	N/A	N/A	N/A
298	Lead, dissolved			7439-92-1	01049	N/A	N/A	N/A	N/A
299	Mercury, dissolved			7439-97-6	71890	N/A	N/A	N/A	N/A
300	Mercury, total			7439-97-6	71900	N/A	N/A	N/A	N/A
301	Nickel, dissolved (P)			7440-02-0	01065	N/A	N/A	N/A	N/A
302	Selenium, dissolved (P)			7782-49-2	01145	N/A	N/A	N/A	N/A
303	Selenium, dis (SO ₄ > 500 mg/l)				01145	N/A	N/A	N/A	N/A
304	Selenium, total recoverable			7782-49-2	01147	N/A	N/A	N/A	N/A
305	Silver, dissolved			7440-22-4	01077	N/A	N/A	N/A	N/A
306	Thallium, dissolved (P)			7440-28-0	01059	N/A	N/A	N/A	N/A
307	Zinc, Dis. (P)			7440-66-6	01080	N/A	N/A	N/A	N/A
308	Cyanide, dissolved			57-12-5	00720	N/A	N/A	N/A	N/A
309	Cyanide, weak acid dissociable			57-12-5	00718	N/A	N/A	N/A	N/A

N/A

= No RP with original hardness data.

Recommend no reporting requirement in permit.

NIA =

= No RP with new hardness data.

Recommend no reporting requirement in permit.

**SPREADSHEET USING AVG
EFFLUENT HARDNESS
(NEW DATA)**

**SPREADSHEET USING MAX
EFFLUENT HARDNESS
(NEW DATA)**

ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L

1 LANL

NM0028355

OUTFALL 03A028

	A	B	C	D	J	K	L	M	N	O
32	Are acute aquatic life criteria considered (1= yes, 0= no)				1					
33	Are chronic aquatic life criteria considered (1= yes, 0= no)				0					
34	Are domestic water supply criteria considered (1= yes, 0= no)				0					
35	Are irrigation water supply criteria considered (1= yes, 0= no)				0					
36	Livestock watering and wildlife habitat criteria applied to all streams									
37										
38	USGS Flow Station				USGS					
39	WQ Monitoring Station No.				SJR					
40	Receiving Stream TSS (mg/l)				2.8					
41	Receiving Stream Hardness (mg/l as CaCO ₃)				41					
42	Receiving Stream Critical Low Flow (4Q3) (cfs)				0					
43	Receiving Stream Harmonic Mean Flow (cfs)				0					
44	Avg. Water Temperature (C)				13.4-27					
45	pH (Avg)				8.9-9.9					
46	Fraction of stream allowed for mixing (F)				1					
47	Fraction of Critical Low Flow				0					
271	POLLUTANTS									
272		CAS No.	STORET	Livestock or Wildlife Limit	Acute Fish Limits	Chronic Fish Limits	Human Health Limits	Daily Max. Conc.	Monthly Ave.	
273	Radioactivity, Nutrients, and Chlorine									
274	Aluminum, dissolved	7429-90-5	01105	N/A	N/A	N/A	N/A	N/A	N/A	
275	Barium, dissolved	7440-39-3	01005	N/A	N/A	N/A	N/A	N/A	N/A	
276	Boron, dissolved	7440-42-8	01022	N/A	N/A	N/A	N/A	N/A	N/A	
277	Cobalt, dissolved	7440-45-4	01037	N/A	N/A	N/A	N/A	N/A	N/A	
278	Molybdenum, dissolved	7439-95-7	01092	N/A	N/A	N/A	N/A	N/A	N/A	
279	Uranium, dissolved	7440-81-1	22708	N/A	N/A	N/A	N/A	N/A	N/A	
280	Vanadium, dissolved	7440-82-2	01087	N/A	N/A	N/A	N/A	N/A	N/A	
281	Ra-226 and Ra-228 (pCi/l)		11503	N/A	N/A	N/A	N/A	N/A	N/A	
282	Strontrium (pCi/l)		13501	N/A	N/A	N/A	N/A	N/A	N/A	
283	Trillium (pCi/l)		04124	N/A	N/A	N/A	N/A	N/A	N/A	
284	Gross Alpha (pCi/l)		80029	N/A	N/A	N/A	N/A	N/A	N/A	
285	Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A	
286	Total Residual Chlorine	7782-50-5	50060	N/A	N/A	N/A	N/A	N/A	N/A	
287	Nitrate as N (mg/l)		00620	N/A	N/A	N/A	N/A	N/A	N/A	
288	Nitrite + Nitrate (mg/l)		00630	N/A	N/A	N/A	N/A	N/A	N/A	
289	METALS AND CYANIDE									
290	Antimony, dissolved (P)	7440-39-0	01087	N/A	N/A	N/A	N/A	N/A	N/A	
291	Arsenic, dissolved (P)	7440-38-2	01000	N/A	N/A	N/A	N/A	N/A	N/A	
292	Beryllium, dissolved	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A	
293	Cadmium, dissolved	7440-43-9	01025	N/A	N/A	N/A	N/A	N/A	N/A	
294	Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A	
295	Chromium, dissolved	18540-29-9	01034	N/A	N/A	N/A	N/A	N/A	N/A	
296	Copper, dissolved	7440-00-8	01043	N/A	0.60140575	N/A	N/A	13.65855048	0.124655865	
297	Lead, dissolved	7439-92-1	01049	N/A	N/A	N/A	N/A	N/A	N/A	
298	Mercury, dissolved	7439-97-6	71890	N/A	N/A	N/A	N/A	N/A	N/A	
299	Mercury, total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	
300	Nickel, dissolved (P)	7440-02-0	01085	N/A	N/A	N/A	N/A	N/A	N/A	
301	Selenium, dissolved (P)	7782-49-2	01145	N/A	N/A	N/A	N/A	N/A	N/A	
302	Selenium, dis (904 >500 mg/l)		01145	N/A	N/A	N/A	N/A	N/A	N/A	
303	Selenium, total recoverable	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	
304	Silver, dissolved	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A	
305	Thallium, dissolved (P)	7440-28-0	01059	N/A	N/A	N/A	N/A	N/A	N/A	
306	Zinc, Dis. (P)	7440-05-6	01080	N/A	N/A	N/A	N/A	N/A	N/A	
307	Cyanide, dissolved	57-12-5	00720	N/A	N/A	N/A	N/A	N/A	N/A	
308	Cyanide, weak acid dissoci	57-12-5	00718	N/A	N/A	N/A	N/A	N/A	N/A	

* Draft Permit limits are 12.4 ug/L MAX
and 8.3 ug/L AVG

SPREADSHEET USING AVG
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 03A028

	J
32	1
33	0
34	0
35	0
36	
37	
38	USGS
39	SJR
40	2.8
41	161
42	0
43	0
44	13.4-27
45	8.9-9.9
46	1
47	0
271	
272	Daily Max. Conc. ug/l
273	Daily Max. Conc. ug/l
274	N/A
275	N/A
276	N/A
277	N/A
278	N/A
279	N/A
280	N/A
281	N/A
282	N/A
283	N/A
284	N/A
285	N/A
286	N/A
287	N/A
288	N/A
289	
290	N/A
291	N/A
292	N/A
293	N/A
294	N/A
295	N/A
296	40.68072886
297	33.10718337
298	
299	
300	
301	
302	
303	
304	
305	
306	
307	
308	

= No RP with new hardness data.
Recommend no effluent limit in permit.

SPREADSHEET USING MAX
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 03A028

	J
32	1
33	0
34	0
35	0
36	
37	
38	USGS
39	SJR
40	2.8
41	201
42	0
43	0
44	13.4-27
45	8.9-9.9
46	1
47	0
271	
272	Daily Max. Conc. ug/l
273	Daily Max. Conc. ug/l
274	N/A
275	N/A
276	N/A
277	N/A
278	N/A
279	N/A
280	N/A
281	N/A
282	N/A
283	N/A
284	N/A
285	N/A
286	N/A
287	N/A
288	N/A
289	
290	N/A
291	N/A
292	N/A
293	N/A
294	N/A
295	N/A
296	40.68072886
297	40.68072886
298	
299	
300	
301	
302	
303	
304	
305	
306	
307	
308	

= Still RP with new hardness data.
Recommend using new effluent limits.

ENCLOSURE 8

LOS ALAMOS NATIONAL LABORATORY CYANIDE (CN) RESULTS FOR NPDES PERMIT RE-APPLICATION

FORM 2C Sampling March through June 2004					
CN (total) Method 335.3					
Outfall	Result (ug/L)	Analytical Laboratory Qualifier	Additional Qualifier From Level 4	DL (ug/L)	RL (ug/L)
03A027	2.14	J	none	1.72	5.00
03A048	1.79	J	none	1.72	5.00
03A113	1.73	J	none	1.72	5.00
03A130	3.83	J	NJ-	1.72	5.00
03A185	8.29	none	none	1.72	5.00

Additional Sampling February and March 2005					
CN (weak acid dissociable) Method 4500 CN-I					
Outfall	Result (ug/L)	Analytical Laboratory Qualifier	Qualifier From Level 4 Validation	DL (ug/L)	RL (ug/L)
03A027	4.63	J	none	1.14	5.00
03A048	1.56	J	none	1.14	5.00
03A113	ND	U	U	1.14	5.00
03A130	0.85	U	none	2.5	5.00
03A185	2.45	J	none	1.14	5.00

J = The associated numeric value is an estimated quantity.

U = The material was analyzed for, but was not detected above the DL.

NJ- = An estimated quantity with a suspected negative bias.

ENCL^s E9

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

1 LANL		NM0028355		OUTFALL 03A048						
A	B	C	D	J	K	L	M	N	O	
32	Are acute aquatic life criteria considered (1= yes, 0= no)			1						
33	Are chronic aquatic life criteria considered (1= yes, 0= no)			0						
40	Receiving Stream TSS (mg/l)			2						For intermittent stream, enter effluent TSS
41	Receiving Stream Hardness (mg/l as CaCO ₃)			41						For intermittent stream, enter effluent Hardness
42	Receiving Stream Critical Low Flow (4Q3) (cfs)			0						Enter "0" for intermittent stream and lake.
43	Receiving Stream Harmonic Mean Flow (cfs)			0						Enter harmonic mean or modified harmonic mean flow data
44	Avg. Water Temperature (C)			13.4-27						
45	pH (Avg)			6.9-8.9						
46	Fraction of stream allowed for mixing (F)			-	1					Enter 1, if stream morphology data is not available or for intermittent streams.
47	Fraction of Critical Low Flow				0					
267	POLLUTANTS									
268		CAS No.	STORET	Livestock or Wildlife Limit	Acute Fish Limits	Chronic Fish Limits	Human Health Limits	Daily Max. Conc.	Monthly Ave.	
269	Radioactivity, Nutrients, and Chlorine							ug/l	ug/l	
270	Aluminum, dissolved	7429-90-5	01006	N/A	N/A	N/A	N/A	N/A	N/A	
271	Barium, dissolved	7440-39-3	01005	N/A	N/A	N/A	N/A	N/A	N/A	
272	Boron, dissolved	7440-42-8	01022	N/A	N/A	N/A	N/A	N/A	N/A	
273	Cobalt, dissolved	7440-48-4	01037	N/A	N/A	N/A	N/A	N/A	N/A	
274	Molybdenum, dissolved	7439-98-7	01062	N/A	N/A	N/A	N/A	N/A	N/A	
275	Uranium, dissolved	7440-61-1	22706	N/A	N/A	N/A	N/A	N/A	N/A	
276	Vanadium, dissolved	7440-62-2	01087	N/A	N/A	N/A	N/A	N/A	N/A	
277	Ra-226 and Re-228 (pCi/l)		11503	N/A	N/A	N/A	N/A	N/A	N/A	
278	Strontrium (pCi/l)		13501	N/A	N/A	N/A	N/A	N/A	N/A	
279	Tritium (pCi/l)		04124	N/A	N/A	N/A	N/A	N/A	N/A	
280	Gross Alpha (pCi/l)		80029	N/A	N/A	N/A	N/A	N/A	N/A	
281	Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A	
282	Total Residual Chlorine	7782-60-5	50080	N/A	N/A	N/A	N/A	N/A	N/A	
283	Nitrate as N (mg/l)		00620	N/A	N/A	N/A	N/A	N/A	N/A	
284	Nitrite + Nitrate (mg/l)		00630	N/A	N/A	N/A	N/A	N/A	N/A	
285	METALS AND CYANIDE									
286	Antimony, dissolved (P)	7440-36-0	01097	N/A	N/A	N/A	N/A	N/A	N/A	
287	Arsenic, dissolved (P)	7440-09-8	01000	N/A	N/A	N/A	N/A	14.200088982	0.472728544	
288	Beryllium, dissolved	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A	
289	Cadmium, dissolved	7440-43-9	01025	N/A	N/A	N/A	N/A	N/A	N/A	
290	Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A	
291	Chromium, dissolved	18540-29-9	01034	N/A	N/A	N/A	N/A	N/A	N/A	
292	Copper, dissolved	7440-09-8	01042	N/A	5.8014387878	N/A	N/A	13.02841765	8.884278433	
293	Lead, dissolved	7439-92-1	01049	N/A	N/A	N/A	N/A	N/A	N/A	
294	Mercury, dissolved	7439-97-6	71990	N/A	N/A	N/A	N/A	N/A	N/A	
295	Mercury, total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	
296	Nickel, dissolved (P)	7440-02-0	01065	N/A	N/A	N/A	N/A	N/A	N/A	
297	Selenium, dissolved (P)	7782-49-2	01145	N/A	N/A	N/A	N/A	N/A	N/A	
298	Selenium, dis (SO ₄ >500 mg/l)		01145	N/A	N/A	N/A	N/A	N/A	N/A	
299	Selenium, total recoverable	7782-40-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	
300	Silver, dissolved	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A	
301	Thallium, dissolved (P)	7440-28-0	01059	N/A	N/A	N/A	N/A	N/A	N/A	
302	Zinc, Dis. (P)	7440-66-6	01080	N/A	N/A	N/A	N/A	N/A	N/A	
303	Cyanide, dissolved	57-12-3	00720	N/A	N/A	N/A	N/A	N/A	N/A	
304	Cyanide, weak acid dissoci	57-12-5	00718	N/A	N/A	N/A	N/A	N/A	N/A	

* Draft Permit limits are 12.4 ug/L MAX and 8.3 ug/L AVG

SPREADSHEET USING AVG
EFFLUENT HARDNESS
(NEW DATA)

 = Still RP with new hardness data.
Recommend using new effluent limits.

SPREADSHEET USING MAX
EFFLUENT HARDNESS
(NEW DATA)

= No change with new hardness data.

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

1 LANL

NM0028355

OUTFALL 158

A	B	C	D	J	K	L	M	N	O
32	Are acute aquatic life criteria considered (1= yes, 0= no)			1					
33	Are chronic aquatic life criteria considered (1= yes, 0= no)			0					
40	Receiving Stream TSS (mg/l)			2.1		For intermittent stream, enter effluent TSS			
41	Receiving Stream Hardness (mg/l as CaCO ₃)			41		For intermittent stream, enter effluent Hardness			
42	Receiving Stream Critical Low Flow (4Q3) (cfs)			0		Enter "0" for intermittent stream and lake			
43	Receiving Stream Harmonic Mean Flow (cfs)			0		Enter harmonic mean or modified harmonic mean flow da			
44	Avg. Water Temperature (C)			13.4-27					
45	pH (Avg.)			6.9-8.9					
46	Fraction of stream allowed for mixing (F)			1		Enter 1, if stream morphology data is not available or for			
47	Fraction of Critical Low Flow			0		-	intermittent streams.	-	
267	POLLUTANTS			Livestock or	Acute Fish	Chronic Fish	Human Health	Daily Max. Con	Monthly Ave.
268		CAS No.	STORET	Wildlife Limit	Limits	Limits	Limits	ug/l	ug/l
269	Radioactivity, Nutrients, and Chlorine								
274	Aluminum, dissolved	7429-90-5	01100	N/A	N/A	N/A	N/A	N/A	N/A
275	Barium, dissolved	7440-39-3	01005	N/A	N/A	N/A	N/A	N/A	N/A
276	Boron, dissolved	7440-42-8	01022	N/A	N/A	N/A	N/A	N/A	N/A
277	Cobalt, dissolved	7440-46-4	01037	N/A	N/A	N/A	N/A	N/A	N/A
278	Molybdenum, dissolved	7439-06-7	01002	N/A	N/A	N/A	N/A	N/A	N/A
279	Uranium, dissolved	7440-61-1	22700	N/A	N/A	N/A	N/A	N/A	N/A
280	Vanadium, dissolved	7440-62-2	01087	N/A	N/A	N/A	N/A	N/A	N/A
281	Ra-226 and Ra-228 (pCi/l)	11503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
282	Strontrium (pCi/l)	13501	N/A	N/A	N/A	N/A	N/A	N/A	N/A
283	Tritium (pCi/l)		04124	20000	N/A	N/A	N/A	20000	13333.33333
284	Gross Alpha (pCi/l)		80028	N/A	N/A	N/A	N/A	N/A	N/A
285	Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A
286	Total Residual Chlorine	7782-50-5	50080	N/A	N/A	N/A	N/A	N/A	N/A
287	Nitrate as N (mg/l)		00820	N/A	N/A	N/A	N/A	N/A	N/A
288	Nitrite + Nitrate (mg/l)		00830	N/A	N/A	N/A	N/A	N/A	N/A
289	METALS AND CYANIDE								
290	Antimony, dissolved (P)	7440-36-0	01097	N/A	N/A	N/A	N/A	N/A	N/A
291	Arsenic, dissolved (P)	7440-38-2	01000	N/A	N/A	N/A	N/A	N/A	N/A
292	Beryllium, dissolved	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A
293	Cadmium, dissolved	7440-43-9	01025	N/A	N/A	N/A	N/A	N/A	N/A
294	Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A
295	Chromium, dissolved	18540-29-9	01034	N/A	N/A	N/A	N/A	N/A	N/A
296	Copper, dissolved	7440-50-5	01042	N/A	5.80133878	N/A	N/A	13.11805352	8.7457560013
297	Lead, dissolved	7439-92-1	01049	N/A	N/A	N/A	N/A	N/A	N/A
298	Mercury, dissolved	7439-07-0	71800	N/A	N/A	N/A	N/A	N/A	N/A
299	Mercury, total	7439-07-0	71900	N/A	N/A	N/A	N/A	N/A	N/A
300	Nickel, dissolved (P)	7440-02-0	01065	N/A	N/A	N/A	N/A	N/A	N/A
301	Selenium, dissolved (P)	7782-49-2	01145	N/A	N/A	N/A	N/A	N/A	N/A
302	Selenium, dis (SC4 >500 mg/l)		01145	N/A	N/A	N/A	N/A	N/A	N/A
303	Selenium, total recoverable	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A
304	Silver, dissolved	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A
305	Thallium, dissolved (P)	7440-28-0	01059	N/A	N/A	N/A	N/A	N/A	N/A
306	Zinc, Dis. (P)	7440-65-8	01080	N/A	N/A	N/A	N/A	N/A	N/A
307	Cyanide, dissolved	67-12-5	00720	N/A	N/A	N/A	N/A	N/A	N/A
308	Cyanide, weak acid dissociat	57-12-5	00718	N/A	N/A	N/A	N/A	N/A	N/A

- Draft Permit limits are 12.4 ug/L MAX and 8.3 ug/L AVG

SPREADSHEET USING AVG
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 158

SPREADSHEET USING MAX
EFFLUENT HARDNESS
(NEW DATA)
OUTFALL 158

= Still RP with new hardness data.
Recommend using new effluent limits.

N/A

= No RP with new hardness data.
Recommend no effluent limit in permit.

**ORIGINAL EPA SPREADSHEET USING AVG
SUPPLY WELL HARDNESS OF 41 mg/L**

1 LANL		NM0028355		OUTFALL 03A160						
A	B	C	D	I	J	L	M	N	O	
32	Are acute aquatic life criteria considered (1= yes, 0= no)			1						
33	Are chronic aquatic life criteria considered (1= yes, 0= no)			0						
40	Receiving Stream TSS (mg/l)			7						For intermittent stream, enter effluent TSS
41	Receiving Stream Hardness (mg/l as CaCO ₃)			41						For intermittent stream, enter effluent Hardness
42	Receiving Stream Critical Low Flow (4Q3) (cfs)			0						Enter "0" for intermittent stream and lake.
43	Receiving Stream Harmonic Mean Flow (cfs)			0						Enter harmonic mean or modified harmonic mean flow data
44	Avg. Water Temperature (C)			13.4-27						
45	pH (Avg)			6.9-8.9						
46	Fraction of stream allowed for mixing (F)			1						Enter 1, if stream morphology data is not available or for intermittent streams.
47	Fraction of Critical Low Flow			0						
267	POLLUTANTS									
268		CAS No.	STORET	Livestock or Wildlife Limit	Acute Fish Limits	Chronic Fish Limits	Human Health Limits	Daily Max. Con.	Monthly Ave.	
269	Radioactivity, Nutrients, and Chlorine							ug/l	ug/l	
273	Aluminum, dissolved	7429-90-5	01106	N/A	N/A	N/A	N/A	N/A	N/A	
274	Barium, dissolved	7440-39-3	01025	N/A	N/A	N/A	N/A	N/A	N/A	
275	Boron, dissolved	7440-42-8	01022	N/A	N/A	N/A	N/A	N/A	N/A	
276	Cobalt, dissolved	7440-48-4	01037	N/A	N/A	N/A	N/A	N/A	N/A	
277	Molybdenum, dissolved	7439-98-7	01062	N/A	N/A	N/A	N/A	N/A	N/A	
278	Uranium, dissolved	7440-01-1	22706	N/A	N/A	N/A	N/A	N/A	N/A	
279	Vanadium, dissolved	7440-82-2	01087	N/A	N/A	N/A	N/A	N/A	N/A	
280	Re-220 and Re-228 (pCi/l)		11503	N/A	N/A	N/A	N/A	N/A	N/A	
281	Strontrium (pCi/l)		13501	N/A	N/A	N/A	N/A	N/A	N/A	
282	Tritium (pCi/l)		04124	N/A	N/A	N/A	N/A	N/A	N/A	
283	Gross Alpha (pCi/l)		80029	N/A	N/A	N/A	N/A	N/A	N/A	
284	Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A	
285	Total Residual Chlorine	7782-50-5	50060	N/A	N/A	N/A	N/A	N/A	N/A	
286	Nitrate as N (mg/l)		00620	N/A	N/A	N/A	N/A	N/A	N/A	
287	Nitrite + Nitrate (mg/l)		00630	N/A	N/A	N/A	N/A	N/A	N/A	
288	METALS AND CYANIDE									
289	Antimony, dissolved (P)	7440-35-0	01097	N/A	N/A	N/A	N/A	N/A	N/A	
290	Arsenic, dissolved (P)	7440-35-2	01000	N/A	N/A	N/A	N/A	N/A	N/A	
291	Beryllium, dissolved	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A	
292	Cadmium, dissolved	7440-43-9	01025	N/A	N/A	N/A	N/A	N/A	N/A	
293	Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A	
294	Chromium, dissolved	18540-29-0	01034	N/A	N/A	N/A	N/A	N/A	N/A	
295	Copper, dissolved	7440-50-5	01042	N/A	5,60143678	N/A	N/A	15,80621773	10,53881182	
296	Lead, dissolved	7439-92-1	01049	N/A	N/A	N/A	N/A	N/A	N/A	
297	Mercury, dissolved	7439-97-6	71890	N/A	N/A	N/A	N/A	N/A	N/A	
298	Mercury, total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	
299	Nickel, dissolved (P)	7440-02-0	01065	N/A	N/A	N/A	N/A	N/A	N/A	
300	Selenium, dissolved (P)	7782-49-2	01145	N/A	N/A	N/A	N/A	N/A	N/A	
301	Selenium, dissolved (SO ₄ >500 mg/l)		01145	N/A	N/A	N/A	N/A	N/A	N/A	
302	Selenium, total recoverable	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	
303	Silver, dissolved	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A	
304	Thallium, dissolved (P)	7440-28-0	01056	N/A	N/A	N/A	N/A	N/A	N/A	
305	Zinc, dissolved (P)	7440-54-5	01080	85,0612188	N/A	N/A	N/A	178,4203095	118,040673	
306	Cyanide, dissolved	57-12-5	00720	N/A	N/A	N/A	N/A	N/A	N/A	
307	Cyanide, weak acid dissociated	57-12-5	00718	N/A	N/A	N/A	N/A	N/A	N/A	

- Draft Permit limits are 12.4 ug/L MAX and 8.3 ug/L AVG

SPREADSHEET USING AVG EFFLUENT HARDNESS

= Still RP with new hardness data.
Recommend using new effluent limits.

SPREADSHEET USING MAX
EFFLUENT HARDNESS

**INTERFERENCES USING EPA METHODS 200.7 AND 200.8
FOR SELENIUM ANALYSIS FROM NPDES OUTFALLS
COLLECTED IN FEBRUARY AND APRIL 2005**
ENV-WQH January 28, 2006

Outfall	Sample Date	Date EPA Notified of Potential Exceedence	GEL	WCAS	SwRI
			Selenium Result ug/L	Selenium Result ug/L	Selenium Result ug/L
03A027	2/10/2005	2/18/05	200.7 ICP-AES DL= 2.29 ug/L	ICP-MS (hydride generation prep) DL= 1.0 ug/L	AA gaseous hydride DL = 0.5 ug/L
03A027	2/24/2005	3/3/05	7.45	ND	Insufficient sample volume remaining
05A055	2/28/2005	3/10/05	12.5	ND	0.65
03A158	4/21/2005	5/3/05	6.82 (DL= 6.0ug/L)	ND	0.96
			6.33	ND	ND

**ELEVATED SELENIUM RESULTS FROM NPDES OUTFALLS
COLLECTED IN FEBRUARY 2005**
ENV-WQH March 22, 2005

The following narrative describes the current status of investigating these potential permit exceedences:

The original Se exceedence was at outfall 03A027 (TA-3-2327 SCC Cooling Tower) from a discharge on February 10, 2005. No Se is present in the treatment chemicals used at this cooling tower. Preliminary information suggested that during the timeframe the sample was collected, a potential cause of the elevated result could be naturally occurring Se in dust and dirt entering the cooling tower due to construction activities nearby. WQH recently learned the biocide used in this cooling tower contains bromine, and as we discovered at the end of CY 2003, bromine is a positive interference for Se using EPA Method 200.8 (ICP-MS). During the investigation at the end of CY 2003, we used an alternate EPA approved method (Method 200.7 ICP-AES) for Se analysis when bromine was present with no exceedences being observed. Since that time, when bromine is known to be present in a sample matrix, we have used Method 200.7 to analyze for Se. To check for bromine interference, the initial sample was analyzed using both Method 200.7, and Method 200.8 with results of 7.45 ug/L and 5.04 ug/L respectively (NPDES permit limit = 5.0ug/L).

A repeat Se sample was collected at 03A027 on February 24, 2005, again using Method 200.7 and Method 200.8 with results of 12.5 ug/L and 6.61 ug/L respectively. Observations from a field visit to the cooling tower did not confirm the theory that dust and dirt were entering the cooling tower. Due to the fluctuating conductivity they have been encountering, operations and water treatment personnel at outfall 03A027 suggested sampling the water coming in to the SCC. A sample from the cooling tower basin was collected on March 4, 2005 and a sample of incoming water was collected at the SCC on March 9, 2005. At this point, Billy Turney was consulted and he suspected bromine was causing a positive interference in both methods. He suggested sending the first two samples that exceeded the permit limit to an alternate analytical laboratory (WCAS) that uses a special prep method (using hydride generation to introduce the sample into the ICP-MS).

Meanwhile, the results from a compliance sample collected at outfall 05A055 (HEWTF) on February 28, 2005 showed Se had also exceeded the permit limit with a result of 6.82 ug/L (Method 200.7). There is no indication that bromine is present in this waste stream.

Discussions with Bob Beers about the quality of water being supplied to the Laboratory indicated that during the month of February a "pump test" was being conducted at Well PM-4. All the water coming into the Laboratory during this test was from PM-4 and normally the Laboratory receives water from PM-2 and PM-5. These two wells were taken off-line for the pump test and remain off-line to measure re-charge. Historic data for PM-4 did not indicate elevated levels of Se (PM-4 last sampled in 2002). Bob did sample PM-4 on February 15, 2005 during the pump test and preliminary results from that effort showed Se at a concentration

**ELEVATED SELENIUM RESULTS FROM NPDES OUTFALLS
COLLECTED IN FEBRUARY 2005
ENV-WQH March 22, 2005**

of 9.21 ug/L (SW846 Method 3005 ICP). The Laboratory supply water could have contributed to these elevated Se results from samples collected at the outfalls during February.

The results from the re-analyses by WCAS of the first two samples (Outfall 03A027) that exceeded the Se permit limit were Non-Detect for both. This confirms Dr. Turney's suspicion that bromine is a positive interference for both Method 200.7 and Method 200.8. The re-analysis result from the third sample that exceeded the Se permit limit (Outfall 05A055) was also Non-Detect. Dr. Turney suspects that the sample matrix from this outfall could have other chemical interferences with Method 200.7 and Method 200.8 from co-existing transition metals, namely iron (Fe), copper (Cu), and manganese (Mn).

Based on available information, Table 2 summarizes the compliance status of outfalls 03A027 and 05A055.

Table 2

Outfall	Date Sampled	GEL Result for Se (ug/L) Method 200.7	WCAS Result for Se (ug/L)	Se Permit Limit (ug/L)	Comments
03A027	2-10-05	7.45	ND	5.0	No Exceedence -Bromine interference
03A027	2-24-05	12.5	ND	5.0	No Exceedence -GEL result qualified as "U" -Bromine interference
03A027	3-11-05	2.43	ND	5.0	No Exceedence -GEL result < permit limit -WCAS result Non-Detect
05A055	2-28-05	6.82	ND	5.0	No Exceedence (pending final validation) -WCAS result Non-Detect

ENV-WQH is continuing the investigation and will provide additional information as it is received.