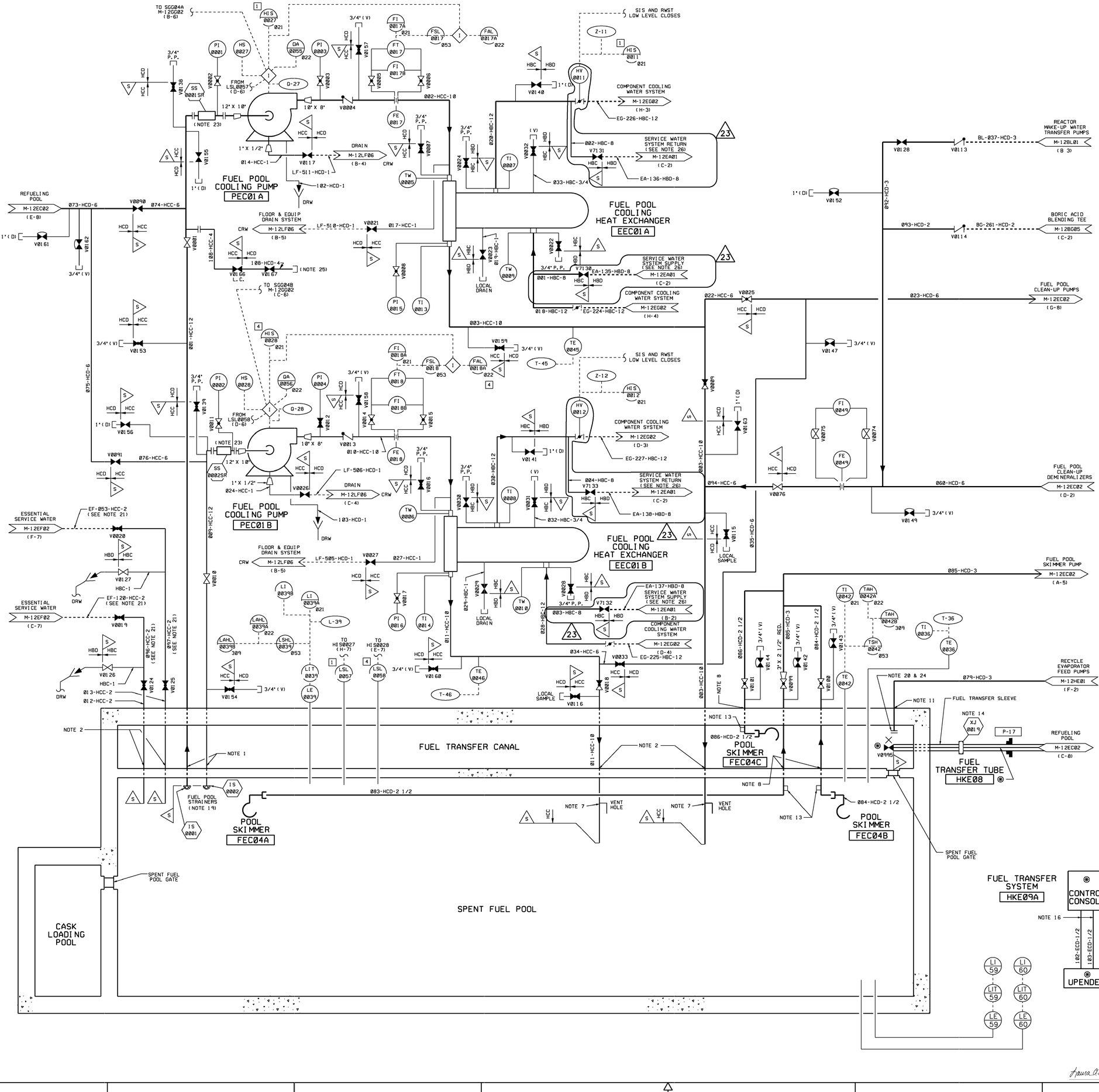

GENERAL NOTES

1. PIPING PENETRATES POOL BOUNDARY 3'-0" BELOW THE NORMAL WATER LEVEL OF THE POOL SUCTION AT 6'-0" BELOW NORMAL WATER LEVEL
2. PIPING PENETRATES POOL BOUNDARY AT 18" BELOW THE NORMAL WATER LEVEL OF THE POOL
3. PIPING PENETRATES POOL BOUNDARY 6'-0" BELOW NORMAL WATER LEVEL
4. DELETED
5. ALL PIPING THAT PENETRATES POOL BOUBDARY DOES SO AT EXTREME END OF FUEL TRANSFER CANAL OPPOSITE FUEL TRANSFER TUBE, WITH THE EXCEPTION OF 79-HCD-3 & 86-HCD-2 1/2
6. DELETED
7. 3" DIA. VENT HOLES TO BE LOCATED WITH CENTERLINE AT ELEVATION 2043'-2".
8. PIPING PENETRATES POOL BOUNDARY 6 INCHES BELOW NORMAL POOL WATER LEVEL.
9. PIPING PENETRATES REFUELING POOL AT BOTTOM OF ROD CLUSTER CONTROL (RCC) CHANGING FIXTURE PIT.
10. PIPING PENETRATES REFUELING POOL ABOVE NORMAL WATER LEVEL AT THE CONTROL ROD DRIVE MECHANISM (CRDM) SEISMIC SUPPORT POCKET. REMOVABLE ELBOW, WHICH EXTENDS 13 INCHES BELOW NORMAL WATER LEVEL, WILL BE PROVIDED.
11. PIPING PENETRATES FUEL TRANSFER CANAL WALL 12 INCHES ABOVE NORMAL WATER LEVEL.
12. REFUELING POOL DRAIN LINES, FLANGED ONLY DURING REFUELING.
13. 3/4 INCH DIA. VENT HOLES TO BE LOACTED ON TOP OF PIPE.
14. EXPANISON JOINT FOR FUEL TRANSFER SLEEVE ONLY.
15. CONTAINMENT PENETRATION LINES 067, 072, AND 081 TO BE SCHEDULE 80S.
16. LINE NO. 102,103,104,105 ARE EMBEDDED & SLOPED & CONNECT THE FUEL TRANSFER SYSTEM'S CONTROL CONSOLE WITH THE UPENDING MACHINE
17. LINE NO. 107-HCD-2 TO EXTEND TO AT LEAST ELEVATION 2050' BEFORE GOOSENECK.
18. DELETE
19. INLET STRAINER.
20. AN OWNER APPROVED, OPEN-ENDED HOSE MAY BE INSTALLED ONTO THE FLANGED END OF LINE EC-079-HDC-3. THE OPEN-ENDED PORTION OF THE HOSE MUST NOT REST BELOW LEVEL 2045'-6" IN ORDER TO ELIMINATE THE POSSIBILITY OF SIPHONING THE SPENT FUEL POOL. TO WITHSTAND A SEISMIC EVENT THE HOSE MUST BE SECURED IN A MANNER TO WITHSTAND FIVE TIMES THE WEIGHT OF THE HOSE ASSEMBLY, INCLUDING THE WEIGHT OF WATER WHEN THE HOSE IS COMPLETELY FILLED.
21. PIPING SHALL BE FABRICATED PER MS-02, CLASS HCC, EXCEPT FOR MATERIAL TYPE WHICH SHALL BE TYPE 316L. PIPING ON THE EC SYSTEM MAY BE TYPE 304
22. REMOVABLE STRAINER TO BE INSTALLED IN DRAIN INLET.
23. REMOVABLE SPOOL WITH SPACER RING INSTALLED. (REPLACEMENT FOR START-UP STRAINER)
24. AN OWNER APPROVED TEMPORARY SUBMERSIBLE PUMP AND A DISCHARGE HOSE (PUMP AND HOSE RATED AT LEAST 130°F) MAY BE ATTACHED TO END OF LINE EC-079-HCD-3' UNDER AN APPROVED PROCEDURE TO PERFORM THE TASK OF DRAINING THE FUEL TRANSFER CANAL AND/OR CASK PIT. PROCEDURE SHALL REQUIRE CLOSING VALVE HE85B2B AND BYPASS VALVE HE85B0 PRIOR TO STARTING THE PUMP FOR THE TASK. THE HOSE PRESSURE RATING MUST BE GREATER THAN THE PUMP FLUID PRESSURE. THE LIMITING PRESSURE FOR THIS TASK IS 130 PSI MAXIMUM. ONCE THE TASK IS COMPLETED, REMOVE THE PUMP, HOSE AND TO RESTORE THE SYSTEM.
25. THESE CONNECTIONS ARE FOR BEYOND-DESIGN-BASIS (FLEX) SPENT FUEL POOL MAKE-UP.
26. THIS IS FOR THE SFP ALTERNATE COOLING AND IS ONLY TO BE USED AT THE DIRECTION OF THE SHIFT MANAGER AND APPLICABLE PROCEDURES.

23

USAR FIG. 9.1-3-01

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12EC01-022-A-1	CHANGE PKG. NO. 015241
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REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM FUEL POOL COOLING AND CLEAN-UP SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EC01	1	23

34X44 E SIZE

NOTES

1. FOR GENERAL NOTES, SEE M-12EC01.

FUEL POOL CLEAN-UP PUMP PEC02A

FUEL POOL CLEAN-UP PUMP PEC02B

FUEL POOL CLEAN-UP FILTER FEC01A

FUEL POOL CLEAN-UP FILTER FEC01B

FUEL POOL CLEAN-UP DEMINERALIZER FEC03

NEAR FUEL POOL CLEANUP PUMP CONTROLS

FUEL POOL SKIMMER PUMP PEC03

FUEL POOL SKIMMER FILTER FEC02

POOL SKIMMERS FEC04D FEC04E

FUEL TRANSFER TUBE HKE08

FUEL TRANSFER SYSTEM HKE09B

USAR FIG. 9.1-3-02

ESSENTIAL DRAWING

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REVISION NOTES:

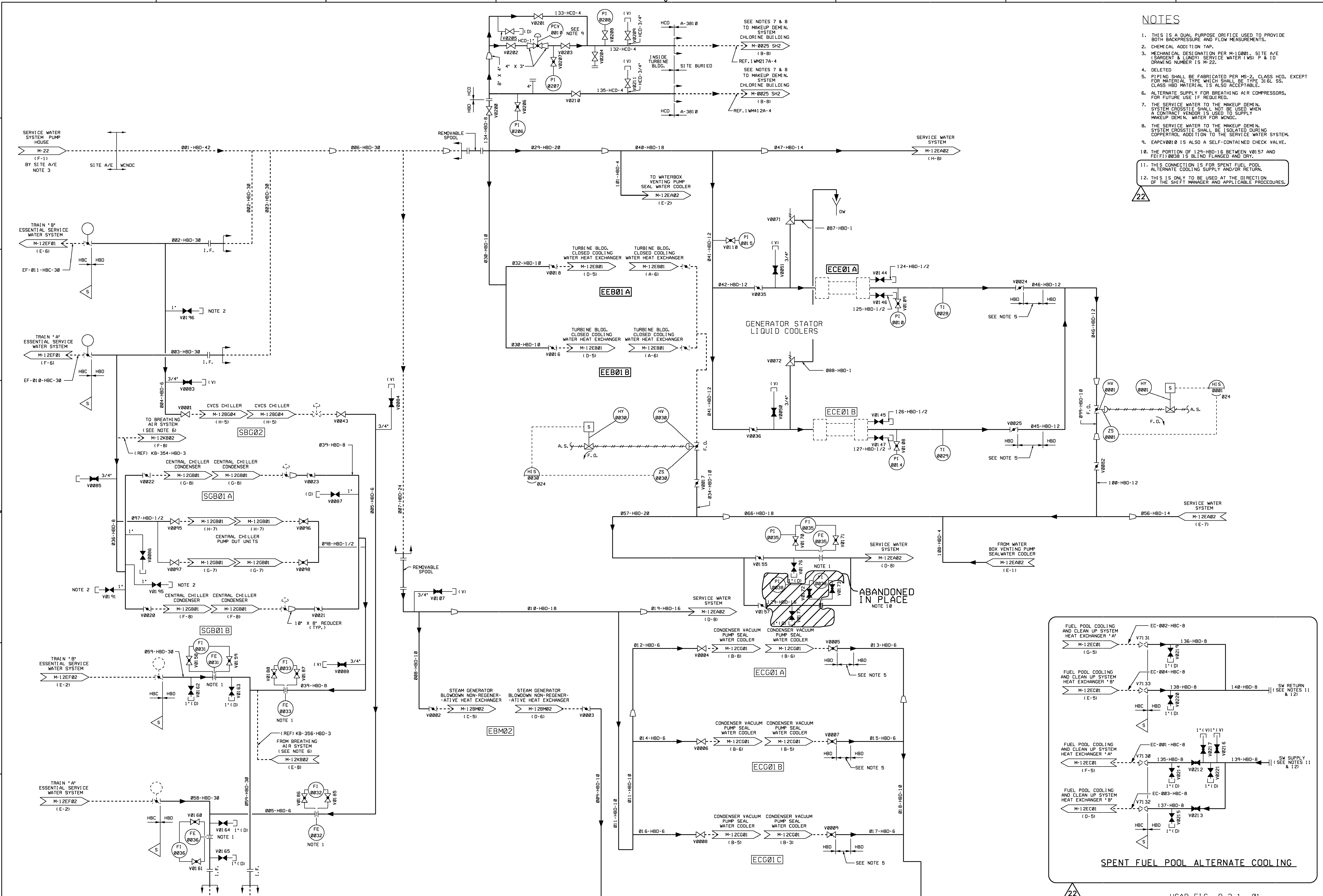
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM FUEL POOL COOLING AND CLEAN-UP SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EC02		07

34X44 E SIZE

Released by Document Services Release Date: 02/12/08



NOTES

1. THIS IS A DUAL PURPOSE ORIFICE USED TO PROVIDE BOTH BACKPRESSURE AND FLOW MEASUREMENTS.
2. CHEMICAL ADDITION TAP.
3. MECHANICAL DESIGNATION PER M-1G001. SITE A/E (SARGENT & LUNDY) SERVICE WATER (WS) P & ID DRAWING NUMBER IS M-22.
4. DELETED
5. PIPING SHALL BE FABRICATED PER MS-2, CLASS HCD, EXCEPT FOR MATERIAL TYPE WHICH SHALL BE TYPE 316L SS. CLASS HBD MATERIAL IS ALSO ACCEPTABLE.
6. ALTERNATE SUPPLY FOR BREATHING AIR COMPRESSORS, FOR FUTURE USE IF REQUIRED.
7. THE SERVICE WATER TO THE MAKEUP DEMIN. SYSTEM CROSSTIE SHALL NOT BE USED WHEN A CONTRACT VENDOR IS USED TO SUPPLY MAKEUP DEMIN. WATER FOR WCNOC.
8. THE SERVICE WATER TO THE MAKEUP DEMIN. SYSTEM CROSSTIE SHALL BE ISOLATED DURING COPPERTROL ADDITION TO THE SERVICE WATER SYSTEM.
9. EAPCV0010 IS ALSO A SELF-CONTAINED CHECK VALVE.
10. THE PORTION OF 129-HBD-16 BETWEEN V0157 AND FE(FI)0038 IS BLIND FLANGED AND DRY.
11. THIS CONNECTION IS FOR SPENT FUEL POOL ALTERNATE COOLING SUPPLY AND/OR RETURN.
12. THIS IS ONLY TO BE USED AT THE DIRECTION OF THE SHIFT MANAGER AND APPLICABLE PROCEDURES.

22

USAR FIG. 9.2-1 -01

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-12EA01-021-A-1	CHANGE PKG. NO.	15241
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REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM SERVICE WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EA01		22

34X44 E SIZE

NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DWG M-12EA01.
2. DELETED
3. DELETED
4. REFER TO P&ID DRAWING NO. M-12CB01.
5. REFER TO P&ID DRAWING NO. M-12CC01.
6. DISCHARGE TO THE CIRCULATING WATER SYSTEM IS THROUGH ONE 42" LINE ONLY. HV-5 OR HV-6 IS CLOSED.
7. TI-28 BELONGS TO THE (CC) SYSTEM
8. TI-14 BELONGS TO THE (CB) SYSTEM
9. VALVE(S) MAY BE THROTTLED AT THE 50% CLOSED POSITION.
10. THIS IS A DUAL PURPOSE ORIFICE USED TO PROVIDED BOTH BACKPRESSURE AND FLOW MEASUREMENTS.
11. CHEMICAL ADDITION TAP.
12. DELETED

29

SERVICE WATER SYSTEM M-12EA01 (G-3)

PI 0018 V0094 TI 0019

V0073 3/4" 089-HBD-1

048-HBD-6 V0026 V0060 076-HBD-1 V0074 (D) 090-HBD-1 3/4"

GENERATOR HYDROGEN COOLER SEE NOTE 5 ECC01A

TI 0021 PI 0020 V0078 049-HBD-6 V0064 V0027 080-HBD-1 (D)

3/8" V0114 V0116 113-HBD-3/4 V0112 115-HBD-1/2 2" X3/4"

PI 0023 V0079 3/8" V0115 V0117 V0119

050-HBD-6 V0028 V0061 077-HBD-1 (D) 089-HBD-1 051-HBD-6 V0065 V0029 081-HBD-1 (D)

TI 0022 115-HBD-1/2

091-HBD-1 V0075 3/4" 092-HBD-1

047-HBD-14

GENERATOR HYDROGEN COOLER SEE NOTE 5 ECC01B

TI 0024 PI 0025 V0080 053-HBD-6 V0066 V0031 082-HBD-1 (D)

3/8" V0118 2" X 3/4" V0113 116-HBD-3/4 118-HBD-1/2

PI 0027 V0081 3/8" V0117 V0119

052-HBD-6 V0030 V0062 078-HBD-1 V0076 (D) 3/4" 092-HBD-1 054-HBD-6 V0067 V0033 083-HBD-1 (D)

TI 0026 118-HBD-1/2

056-HBD-14

4" X1 1/2" REDUCER (TYP.)

119-HBD-1 1/2 120-HBD-1 1/2 O.W.

HIS 0007 024 TY 0007B S F.O. A.S.

ZS 0007 TY 0007 I/P TIC 0007 I/I TT 0007 E/I 053 TT 0007 R/E TE 0007 TI 0028 026 NOTE 7

10" X 8"

TY 0007 A.S.

MAIN GENERATOR COLD GAS PASSAGE GTG0003A SEE G.E. DWG. 826E226 (M-850-018)

SERVICE WATER SYSTEM M-12EA01 (E-2) HBD HCD V0037 14" X 10" 135-HCD-10 056-HBD-10

HCD HBD V0068 084-HBD-1 (D)

SERVICE WATER SYSTEM M-12EA01 (D-3) 057-HBD-20

057-HBD-20 1" V0042 3/4" NPT

HIS 0006 024 HV 0006 SEE NOTES 6 & 9 N.O. I.F. 069-HBD-42 EA-071-HBD-42 CIRCULATING WATER SYSTEM M-12DA01 (B-3)

123-HBD-2 DA-307-HBD-1 1/2 V0143 SERVICE WATER SAMPLE PUMP 1WS003P M-12DA01 (B-8)

122-HBD-2 V0197 EA DA

HIS 0005 024 HV 0005 SEE NOTES 6 & 9 N.C. I.F. 061-HBD-42 EA-070-HBD-42 CIRCULATING WATER SYSTEM M-12DA01 (B-4)

29

3/4" NPT V0041 1" CONDENSER DRAIN PUMP DISCHARGE M-12DA01 (B-3)

093-HBD-6 DAV0112

060-HBD-42

FROM SUPPLY HEADER M-12EA01 (G-5)

TO RETURN HEADER M-12EA01 (D-3)

WATERBOX VENTING PUMP SEAL WATER COOLER M-12DA02 (F-6) V0104 102-HBD-2 V0105 103-HBD-2

EDA01A

WATERBOX VENTING PUMP SEAL WATER COOLER M-12DA02 (F-5) V0102 104-HBD-2 V0103 105-HBD-2

EDA01B

WATERBOX VENTING PUMP SEAL WATER COOLER M-12DA02 (F-3) V0100 106-HBD-2 V0101 107-HBD-2

EDA01C

101-HBD-4 108-HBD-4

SERVICE WATER SYSTEM M-12EA01 (D-4) 019-HBD-16 1" V0106 022-HBD-10 024-HBD-12

PI 0011 V0091 3/4"

HY 0003 S HIS 0003 024 A.S. F.O. HV 0003 ZS 0003 F.O.

STEAM PACKING EXHAUSTER M-12CA01 (A-6) STEAM PACKING EXHAUSTER M-12CA01 (B-6) V0038 V0011 ECA01

020-HBD-2 1/2

MOTOR DRIVEN FEEDWATER PUMP M-12AE01 (F-2) MOTOR DRIVEN FEEDWATER PUMP M-12AE01 (E-2)

1" X3/4" V0140 130-HBD-3/4 V0192 NOTE 11

131-HBD-3/4 1" X 3/4" V0141

021-HBD-2 1/2 023-HBD-10

TURBINE GENERATOR LUBE OIL COOLERS

068-HBD-1 085-HBD-1 O.W. V0070 3/4" V0014 026-HBD-12 V0193 1" NOTE 11

(V) V0048 (V) V0049 ECB01A SEE NOTE 4

HIS 0008 024 PI 0013 V0090 ZS 0008 TY 0008 TY 0008B S F.O. A.S.

094-HBD-10 V0015 F.O. TI 0012 096-HBD-12 073-HBD-1 V0057

024-HBD-12 085-HBD-1

V0069 3/4" V0012 V0194 1" NOTE 11

(V) V0046 (V) V0047 ECB01B SEE NOTE 4

HIS 0009 024 PI 0017 V0092 ZS 0009 TY 0009B TY 0009 TIC 0009 TY 0009 NOTE 8 TI 0014 025 OIL TEMP. FROM COOLERS TT 0009 053 TE 0009 T-9

027-HBD-12 V0013 F.O. 025-HBD-10 095-HBD-12 072-HBD-1 V0056 TI 0016 O.W.

SERVICE WATER SYSTEM M-12EA01 (A-3) 067-HBD-16 028-HBD-20 068-HBD-24

FI 0034 PI 0034 V0166 FE 0034 V0167 V0154 V0174 NOTE 10

128-HBD-16 1" (D) FI 0037 PI 0037 V0168 FE 0037 V0169 (V) V0178 3/4"

V0156 NOTE 10 V0175 1" (D)

29

SERVICE WATER SYSTEM M-12EA01 (A-6) 060-HBD-42 I.F. 060-HBD-42

EA

Selena King
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USAR FIG. 9.2-1-02

ESSENTIAL DRAWING

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REVISION NOTES: REVISED TO REMOVE TCC TMP 15-002			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM SERVICE WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EA02		29

34X44 E SIZE
M-12EA02-1-29

1 WS002P

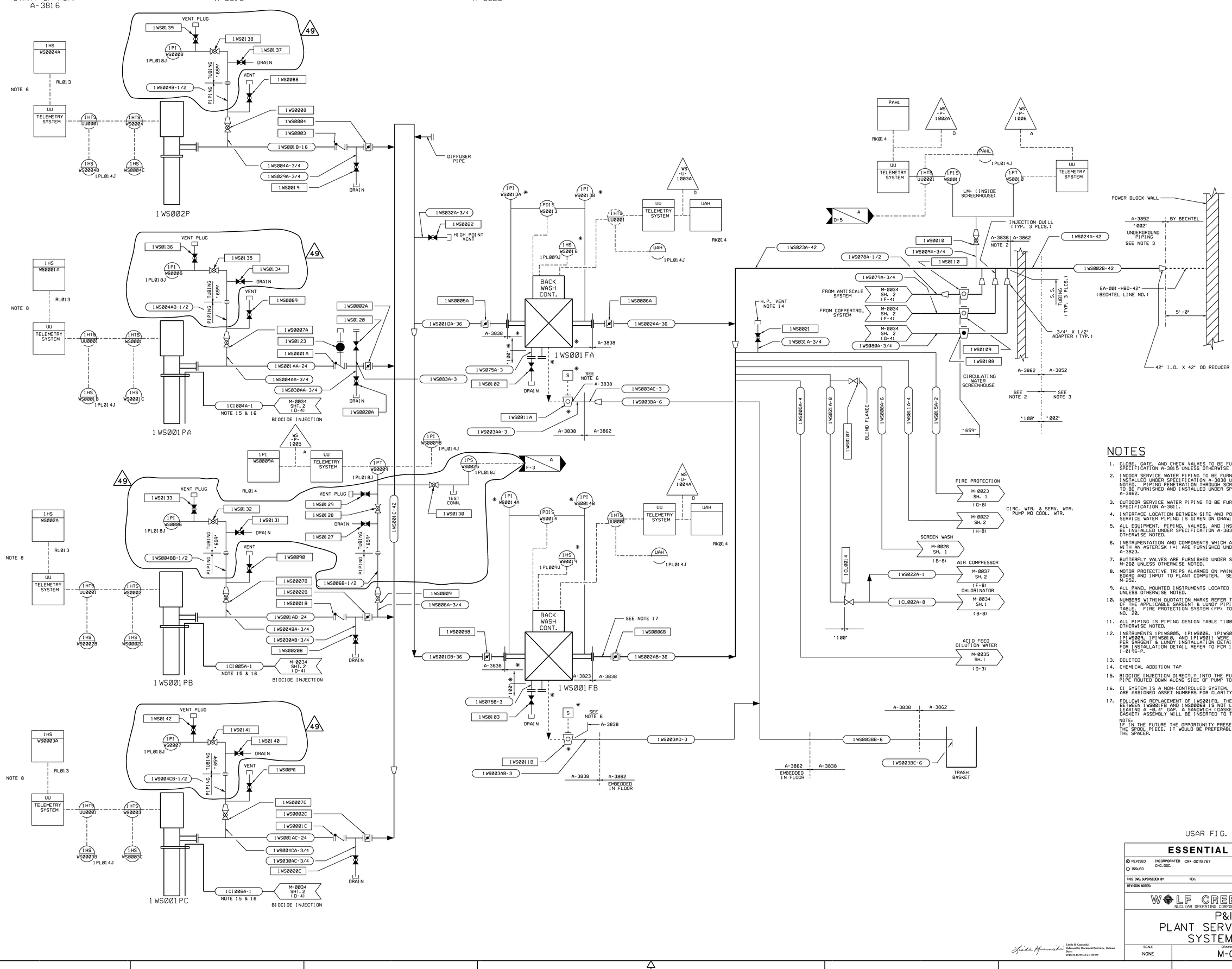
LOW FLOW & START-UP PUMP A-3816

1 WS001PA, 1 WS001PB, & 1 WS001PC

SERVICE WATER PUMPS A-3816

1 WS001FA, & 1 WS001FB

SERVICE WATER STRAINERS A-3823



NOTES

1. GLOBE, GATE, AND CHECK VALVES TO BE FURNISHED UNDER SPECIFICATION A-3815 UNLESS OTHERWISE NOTED.
2. INDOOR SERVICE WATER PIPING TO BE FURNISHED AND INSTALLED UNDER SPECIFICATION A-3838 UNLESS OTHERWISE NOTED. PIPING PENETRATION THROUGH SCREEN HOUSE FLOOR TO BE FURNISHED AND INSTALLED UNDER SPECIFICATION A-3862.
3. OUTDOOR SERVICE WATER PIPING TO BE FURNISHED UNDER SPECIFICATION A-3811.
4. INTERFACE LOCATION BETWEEN SITE AND POWER BLOCK SERVICE WATER PIPING IS GIVEN ON DRAWING M-52
5. ALL EQUIPMENT, PIPING, VALVES, AND INSTRUMENTATION TO BE INSTALLED UNDER SPECIFICATION A-3838 UNLESS OTHERWISE NOTED.
6. INSTRUMENTATION AND COMPONENTS WHICH ARE MARKED WITH AN ASTERISK (*) ARE FURNISHED UNDER SPECIFICATION A-3823.
7. BUTTERFLY VALVES ARE FURNISHED UNDER SPECIFICATION M-260 UNLESS OTHERWISE NOTED.
8. MOTOR PROTECTIVE TRIPS ALARMED ON MAIN CONTROL BOARD AND INPUT TO PLANT COMPUTER. SEE DRAWING M-252.
9. ALL PANEL MOUNTED INSTRUMENTS LOCATED ON 1PL14J, UNLESS OTHERWISE NOTED.
10. NUMBERS WITHIN QUOTATION MARKS REFER TO THE NUMBER OF THE APPLICABLE SARGENT & LUNDY PIPING DESIGN TABLE. FIRE PROTECTION SYSTEM (FP) TO BE PER NFPA NO. 20.
11. ALL PIPING IS PIPING DESIGN TABLE "100" UNLESS OTHERWISE NOTED.
12. INSTRUMENTS 1PIWS005, 1PIWS006, 1PIWS007, 1PIWS008, 1PIWS009, 1PIWS010, AND 1PIWS011 WERE NOT INSTALLED AS PER SARGENT & LUNDY INSTALLATION DETAIL MF 130.10.4 FOR INSTALLATION DETAIL REFER TO FCR 1-0196-P AND FCR 1-0196-P.
13. DELETED
14. CHEMICAL ADDITION TAP
15. BIOCIDE INJECTION DIRECTLY INTO THE PUMP BAY, PIPE ROUTED DOWN ALONG SIDE OF PUMP TO SUCTION BELL.
16. CI SYSTEM IS A NON-CONTROLLED SYSTEM, COMPONENTS ARE ASSIGNED ASSET NUMBERS FOR CLARITY.
17. FOLLOWING REPLACEMENT OF 1WS001FB, THE SPOOL PIECE BETWEEN 1WS001FB AND 1WS0006B IS NOT LONG ENOUGH, LEAVING A ~0.4" GAP. A SANDWELCH (GASKET, METAL SPACER, GASKET) ASSEMBLY WILL BE INSERTED TO TAKE UP THE GAP.

NOTE:
IF IN THE FUTURE THE OPPORTUNITY PRESENTS TO REPLACE THE SPOOL PIECE, IT WOULD BE PREFERABLE TO ELIMINATE THE SPACER.

USAR FIG. 9.2-1-03

ESSENTIAL DRAWING

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WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

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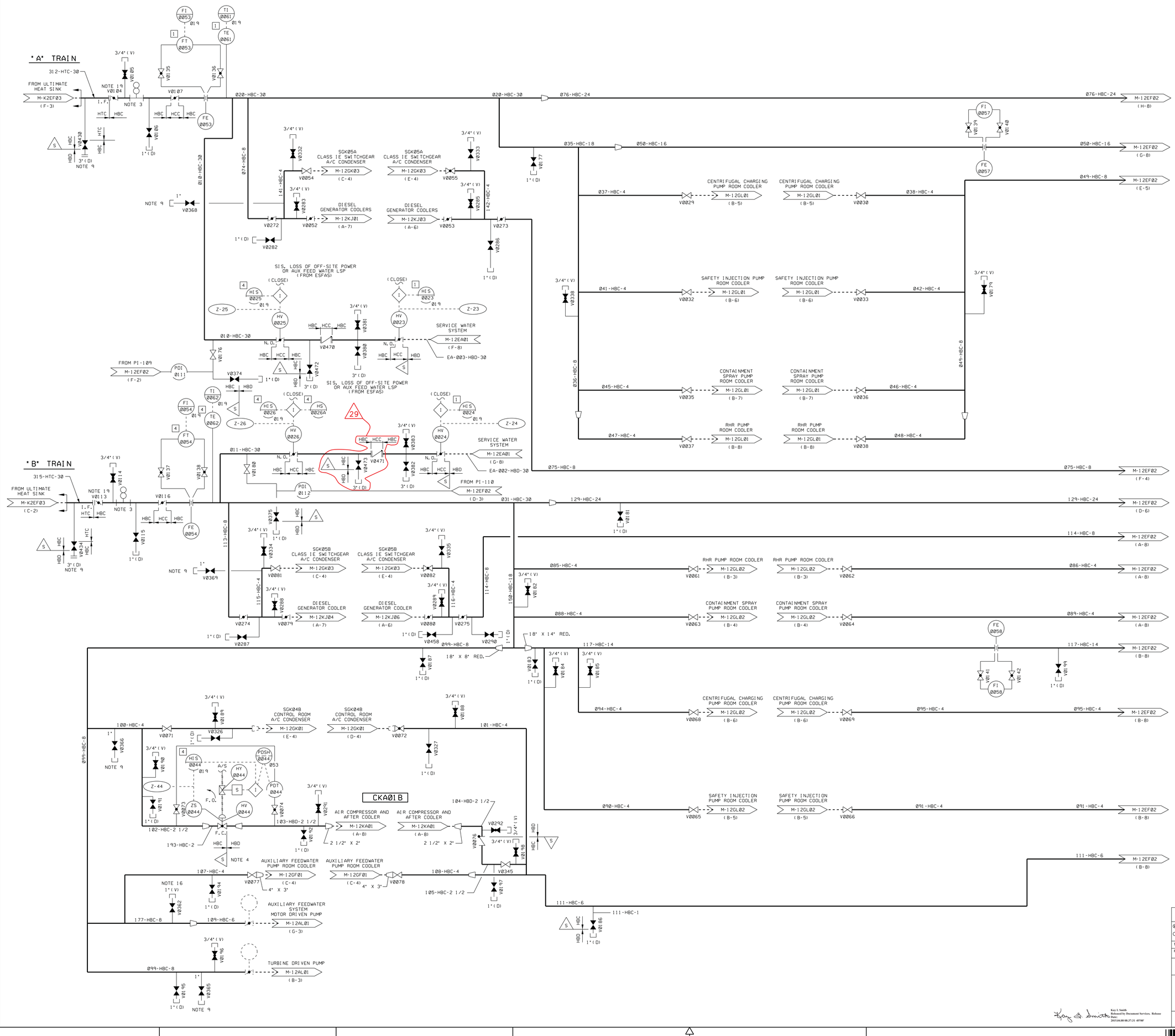
P&ID PLANT SERVICE WATER SYSTEM (WS)

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0022	1	49

34X44 E SIZE



NOTES

1. FOR NOTES SEE DRAWING M-12EF02

USAR FIG. 9.2-2 -01

ESSENTIAL DRAWING

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REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION | ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM ESSENTIAL SVC WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EF01		29

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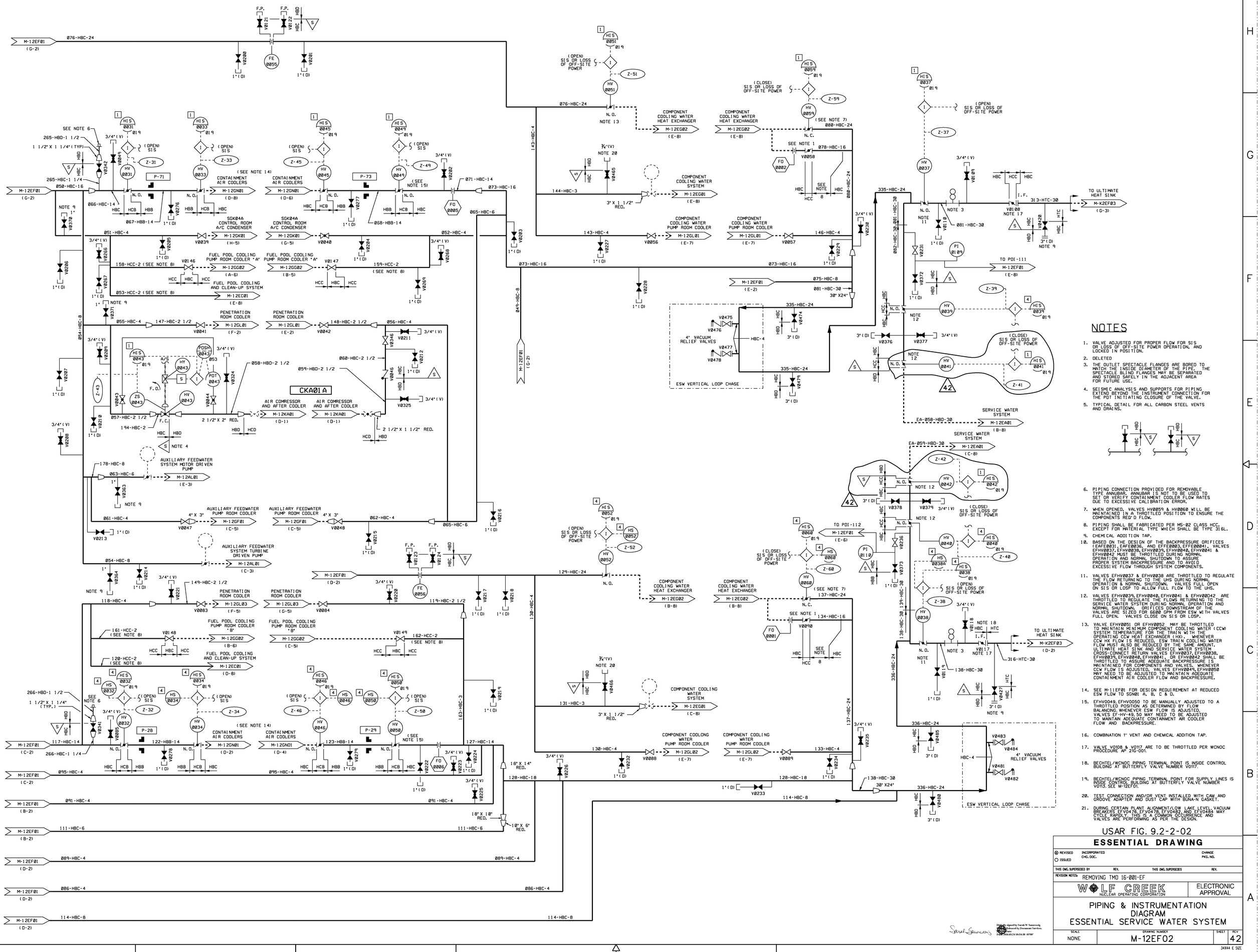
2015.04.08 08:37:31 -05'00'

34X44 E SIZE

M-12EF01-1-29



NOTES

1. VALVE ADJUSTED FOR PROPER FLOW FOR SIS OR LOSS OF OFF-SITE POWER OPERATION, AND LOCKED IN POSITION.
2. DELETED
3. THE OUTLET SPECTACLE FLANGES ARE BORED TO MATCH THE INSIDE DIAMETER OF THE PIPE. THE SPECTACLE BLIND FLANGES MAY BE SEPARATED AND STORED SAFELY IN THE ADJACENT AREA FOR FUTURE USE.
4. SEISMIC ANALYSIS AND SUPPORTS FOR PIPING EXTEND BEYOND THE INSTRUMENT CONNECTION FOR THE PDT INITIATING CLOSURE OF THE VALVE.
5. TYPICAL DETAIL FOR ALL CARBON STEEL VENTS AND DRAINS.

6. PIPING CONNECTION PROVIDED FOR REMOVABLE TYPE ANNUBAR. ANNUBAR IS NOT TO BE USED TO SET OR VERIFY CONTAINMENT COOLER FLOW RATES DUE TO EXCESSIVE CALIBRATION ERROR.
7. WHEN OPENED, VALVES HV0059 & HV0060 WILL BE MAINTAINED IN A THROTTLED POSITION TO ENSURE THE COMPONENTS REQ'D FLOW.
8. PIPING SHALL BE FABRICATED PER MS-02 CLASS HCC, EXCEPT FOR MATERIAL TYPE WHICH SHALL BE TYPE 316L.
9. CHEMICAL ADDITION TAP.
10. BASED ON THE DESIGN OF THE BACKPRESSURE ORIFICES (EAFE0031, EAFE0036, AND EFFE0003, EFFE0004), VALVES EFHV0037, EFHV0038, EFHV0039, EFHV0040, EFHV0041 & EFHV0042 MUST BE THROTTLED DURING NORMAL OPERATION AND NORMAL SHUTDOWN TO ASSURE PROPER SYSTEM BACKPRESSURE AND TO AVOID EXCESSIVE FLOW THROUGH SYSTEM COMPONENTS.
11. VALVES EFHV0037 & EFHV0038 ARE THROTTLED TO REGULATE THE FLOW RETURNING TO THE UHS DURING NORMAL OPERATION & NORMAL SHUTDOWN. VALVES FULL OPEN ON SIS OR LOSP TO ALLOW FULL FLOW TO THE UHS.
12. VALVES EFHV0039, EFHV0040, EFHV0041 & EFHV00D42 ARE THROTTLED TO REGULATE THE FLOWS RETURNING TO THE SERVICE WATER SYSTEM DURING NORMAL OPERATION AND NORMAL SHUTDOWN. ORIFICES DOWNSTREAM OF THE VALVES ARE SIZED FOR 6600 GPM FROM ESW WITH VALVES FULL OPEN. VALVES CLOSE ON SIS OR LOSP.
13. VALVE EFHV0051 OR EFHV0052 MAY BE THROTTLED TO MAINTAIN MINIMUM COMPONENT COOLING WATER (CCW) SYSTEM TEMPERATURE FOR THE TRAIN WITH THE OPERATING CCW HEAT EXCHANGER (HX). WHENEVER CCW HX FLOW IS REDUCED, ESW TRAIN COOLING WATER FLOW MUST ALSO BE REDUCED BY THE SAME AMOUNT. ULTIMATE HEAT SINK AND SERVICE WATER SYSTEM CROSS-CONNECT RETURN VALVES EFHV0037, EFHV0038, EFHV0039, EFHV0040, EFHV0041, OR EFHV0042 SHALL BE THROTTLED TO ASSURE ADEQUATE BACKPRESSURE IS MAINTAINED FOR COMPONENTS AND VALVES. WHENEVER CCW FLOW IS ADJUSTED, VALVES EFHV0049, EFHV0050 MAY NEED TO BE ADJUSTED TO MAINTAIN ADEQUATE CONTAINMENT AIR COOLER FLOW AND BACKPRESSURE.
14. SEE M-11EF01 FOR DESIGN REQUIREMENT AT REDUCED ESW FLOW TO SGN01 A, B, C & D.
15. EFHV0049, EFHV0050 TO BE MANUALLY ADJUSTED TO A THROTTLED POSITION AS DETERMINED BY FLOW BALANCING. WHENEVER ESW FLOW IS ADJUSTED, VALVES EF-HV-49, 50 MAY NEED TO BE ADJUSTED TO MAINTAIN ADEQUATE CONTAINMENT AIR COOLER FLOW AND BACKPRESSURE.
16. COMBINATION 1" VENT AND CHEMICAL ADDITION TAP.
17. VALVE V0108 & V0117 ARE TO BE THROTTLED PER WCNOC PROCEDURE AP 21G-001.
18. BECHTEL/WCNOC PIPING TERMINAL POINT IS INSIDE CONTROL BUILDING AT BUTTERFLY VALVE NUMBER V0117.
19. BECHTEL/WCNOC PIPING TERMINAL POINT FOR SUPPLY LINES IS INSIDE CONTROL BUILDING AT BUTTERFLY VALVE NUMBER V0113. SEE M-12EF01.
20. TEST CONNECTION AND/OR VENT INSTALLED WITH CAM AND GROOVE ADAPTER AND DUST CAP WITH BUNA-N GASKET.
21. DURING CERTAIN PLANT ALIGNMENT/LOW LAKE LEVEL, VACUUM BREAKERS EFV0476, EFV0478, EFV0482, AND EFV0484 MAY CYCLE RAPIDLY. THIS IS A COMMON OCCURRENCE AND VALVES ARE PERFORMING AS PER THE DESIGN.

USAR FIG. 9.2-2-02

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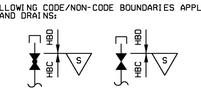
REVISION NOTES:	REMOVING TMO 16-001-EF	

WOLF CREEK
NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION
DIAGRAM
ESSENTIAL SERVICE WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EF02		42

34X44 E SIZE



NOTE:
FOR CHEMICAL INJECTION PIPING
FOR A & B ESW FORBAY,
REFEERENCE TO DWG. M-0034,
SHEET 2.

NOTES

1. ALL MECHANICAL COMPONENTS, PIPING AND VALVES SHOWN ON THIS P&ID ARE SEISMIC CATEGORY 1.
2. SPRAY PIPING BY WCNOC, SPRAY NOZZLES BY TRAVELING WATER SCREEN VENDOR.
3. ESW PUMP START OPENS SCREEN WASH WATER VALVE
4. ROUTED TO JUST ABOVE FLOOR DRAIN TO ALLOW OPERATOR TO VISUALLY VERIFY FLOW.
5. THIS IS A DUAL PURPOSE RESTRICTION ORIFICE USED TO PROVIDE BOTH BACKPRESSURE REQUIRED FOLLOWING A LOCA AND FLOW MEASUREMENT DURING NORMAL OPERATION AND NORMAL SHUTDOWNS.
6. DELETED
7. TRAVELING WATER SCREEN STARTS AFTER ESW PUMP START AND SCREEN WASH WATER VALVE OPENS.
8. VALVE CLOSES 15 SECONDS AFTER ESW PUMP STARTS.
9. COMPUTER POINT ID FOR MOTOR LOWER GUIDE BEARING THERMOCOUPLE.
10. COMPUTER POINT ID FOR MOTOR UPPER THRUST BEARING THERMOCOUPLE.
11. THE FOLLOWING CODE/NON-CODE BOUNDARIES APPLY TO ALL CARBON STEEL VENTS AND DRAINS:

12. THE TEMPERATURE INDICATOR IS PROVIDED FOR MONITORING DURING COLD WEATHER CONDITIONS. THIS MONITORING IS REQUIRED TO ASSURE THAT THE VAULT TEMPERATURES DO NOT DROP BELOW 32°F. IF A VAULT TEMPERATURE REACHES 32°F, THE ESW PUMPS MUST BE STARTED AND CONTINUE TO OPERATE UNTIL THE VAULT TEMPERATURE WILL REMAIN ABOVE 32°F. THE VAULT IS DESIGNED TO REMAIN DRY AND THE ASME PIPING IS NOT DESIGNED FOR SUBMERGENCE. THE STILLING WELLS ARE PROVIDED FOR PERIODIC MONITORING TO ENSURE THAT THE LONG TERM OPERABILITY OF THE PIPING IS NOT AFFECTED. A PUMP CAN BE LOWERED INTO THE WELLS TO ALLOW FOR WATER REMOVAL.
13. REMOVABLE SPOOL TO SERVICE CHEMICAL ADDITION INJECTION NOZZLE.
14. DELETED
15. LOCATE CLOSE TO TRASH RACK IN A 3'DIA., SCH. 40S PIPE.
16. 3'DIA., SCH. 40S PIPE CLOSE TO LAKE.
17. TERMINATED AT LOCAL TEMPERATURE TESTPOINT PANEL.
18. SEE M-K2EF01A FOR ABANDONED COMPONENTS.
19. THE FOLLOWING ORIFICE PLATES ARE CLASS 2 ITEMS:

F0-0021	F0-0026	F0-0032	F0-0040
F0-0022	F0-0027	F0-0033	F0-0041
F0-0023	F0-0028	F0-0034	F0-0042
F0-0024	F0-0029	F0-0035	
F0-0025	F0-0031	F0-0039	

20. SECTIONS OF THE ORIGINAL 007-HBC-30 AND 003-HBC-30 PIPING ARE REMOVED BETWEEN THE ESWS PUMPHOUSE WALL AND THE ACCESS VAULT TO ALLOW INSTALLATION OF THE NEW ESWS SUPPLY PIPING.
21. PIPING FROM THE TANK NOZZLE TO THE FIRST FITTING MAY BE REPLACED WITH STAINLESS STEEL PIPING SA312 TYPE 304, THE FITTING SHALL REMAIN CARBON STEEL AND THE PIPING SIZE/SCHEDULE SHALL REMAIN THE SAME.
22. THESE ARE ESW BEYOND-DESIGN-BASIS (FLEX) CONNECTIONS.
23. TWO CONNECTION POINTS, SEE DRAWING M-KC0911 FOR DETAILS.

70

DRAWING REFERENCE

M-K2EF01A ABANDONED ESW EQUIPMENT

USAR FIG. 9.2-2-03

Sarah W Saueressig
by Document Services. Release
2016.10.29 17:31:03 -05'00'

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-K2EF01-058-A-1	CHANGE PKG. NO. 014425
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES REV.

REVISION NOTES:

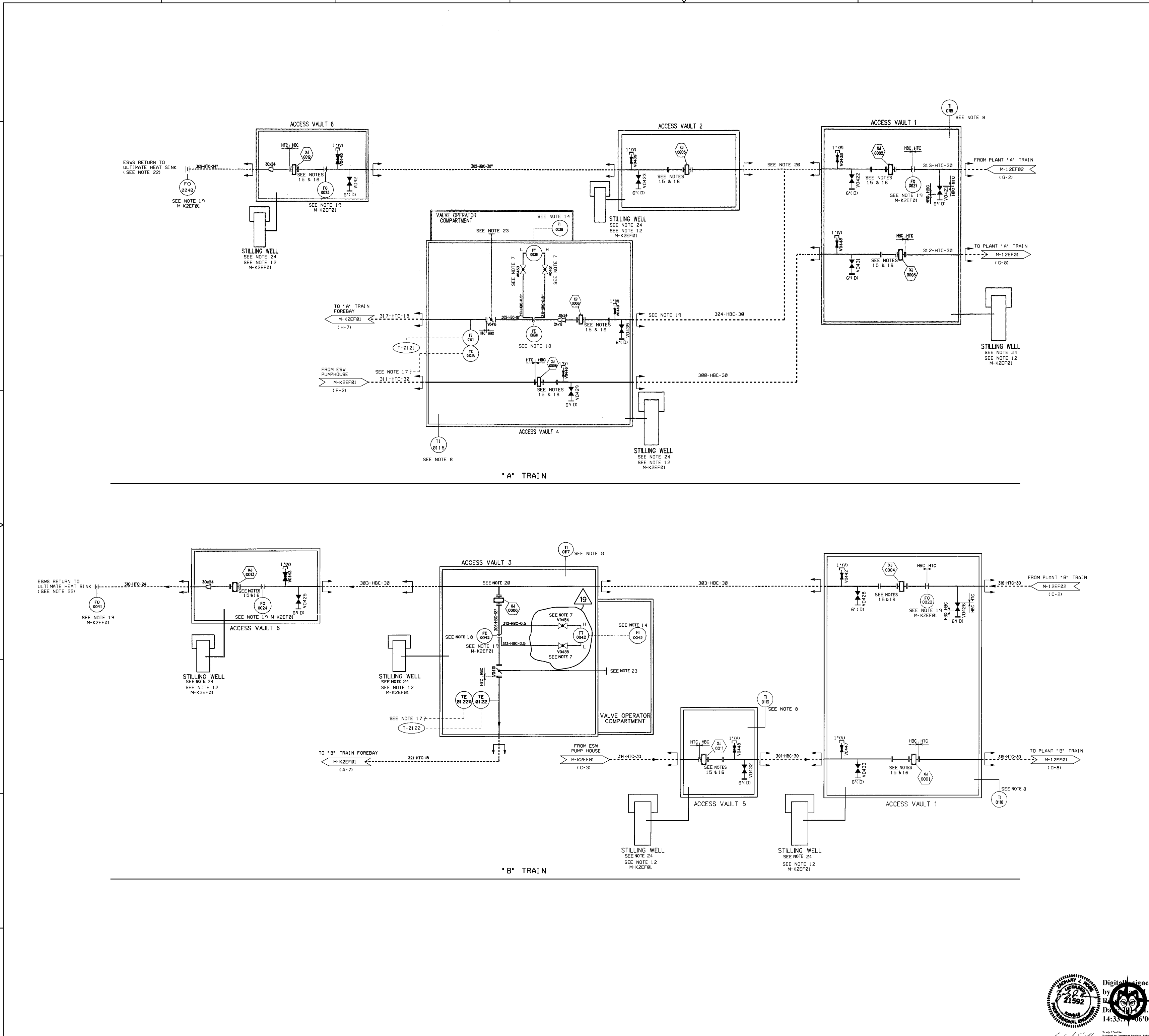
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION
DIAGRAM
ESSENTIAL SERVICE WATER SYS.

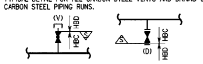
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-K2EF01	1	70

34X44 E SIZE



NOTES

1. DELETED
2. DELETED
3. DELETED
4. DELETED
5. FOR SYMBOLS AND LEGENDS SEE WOLF CREEK NUCLEAR OPERATING CORPORATION (WCNOC) DRAWING NUMBERS M-120101 THROUGH M-120104.
6. FOR PIPE CLASS CODE DEFINITION AND IDENTIFICATION SEE ESW BPRP ADDENDUM TO WCNOC DOCUMENT NUMBER MS-02 (PIPING CLASS SHEETS).
7. ALL PIPING/TUBING TO THE FLOW TRANSMITTERS SHALL BE SEISMIC CATEGORY 1 PER SPECIFICATION M-204. ORIFICE FLANGE CONNECTIONS SHALL BE ½" WITH ¾" ROOT VALVE (WITH ADAPTORS WHERE REQUIRED) FOR FLOW ORIFICES PER NOTE 3 OF SPECIFICATION J-17G10.
8. THE TEMPERATURE INDICATOR IS PROVIDED FOR MONITORING DURING COLD WEATHER CONDITIONS. THIS MONITORING IS REQUIRED TO ENSURE THAT THE VAULT TEMPERATURES DO NOT DROP BELOW 32°F. IF A VAULT TEMPERATURE REACHES 32°F, THE ESW PUMPS MUST BE STARTED AND CONTINUE TO OPERATE UNTIL THE VAULT TEMPERATURE WILL REMAIN ABOVE 32°F.
9. BECHTEL/WCNOC PIPING TERMINAL POINT IS INSIDE CONTROL BUILDING AT BUTTERFLY VALVE NUMBERS V0108 AND V0117. SEE WCNOC DRAWING NUMBER M-12EF02.
10. BECHTEL/WCNOC PIPING TERMINAL POINT FOR SUPPLY LINES IS INSIDE CONTROL BUILDING AT BUTTERFLY VALVE NUMBERS V0104 AND V0113. SEE WCNOC DRAWING NUMBER M-12EF01.
11. BECHTEL/WCNOC PIPING TERMINAL POINT IS INSIDE ESWS PUMPHOUSE AT EXISTING INSULATED FLANGE. SEE WCNOC DRAWING NUMBER M-K2EF01. AN INSULATED FLANGE WILL NO LONGER BE NECESSARY AND WILL BE REMOVED.
12. TYPICAL DETAIL FOR ALL CARBON STEEL VENTS AND DRAINS ON CARBON STEEL PIPING RUNS.



13. THE WARMING LINE AND ESWS SUPPLY LINE SHARE ACCESS VAULT 4 FOR TRAIN A.
14. INSTRUMENTATION SHALL HAVE LOCAL INDICATION INSIDE OF THE VALVE OPERATOR COMPARTMENT.
15. REMOVABLE SPOOL PIECE INSTALLED FOR TEMPORARY PIPELINE INSPECTION GAUGING (PIG) COMPONENT INSTALLATION. PIPE SUPPORTS FOR THE REMOVABLE SPOOL AND DRAIN/VENT VALVE ARRANGEMENT ARE INCLUDED IN PERMANENT DESIGN FOR CONSTRUCTION. SHOULD THE PIG SUBCONTRACTOR REQUIRE ADDITIONAL PIPE SUPPORTS, THEY SHALL BE SUPPLIED BY THE SUBCONTRACTOR. PIGGING SUBCONTRACTOR SHALL SUPPLY TEMPORARY PUMP FOR PIGGING OPERATIONS. WATER SOURCE AND DISCHARGE SHALL BE DETERMINED BY WCNOC.
16. WYEs AND MINIMUM 5D BENDS ARE REQUIRED TO ALLOW FOR PIGGING OPERATION.
17. TERMINATED AT LOCAL TEMPERATURE TESTPOINT PANEL LOCATED IN THE ESWS PUMPHOUSE.
18. FOR FE-0039, A MINIMUM STRAIGHT RUN OF 6D TO THE UPSTREAM REDUCER OUTLET AND 3,5D TO THE DOWNSTREAM BUTTERFLY VALVE INLET WILL BE PROVIDED. FOR FE-0042, A MINIMUM STRAIGHT RUN OF 15D TO THE UPSTREAM TEE AND 3.5D TO THE DOWNSTREAM BUTTERFLY VALVE INLET WILL BE PROVIDED.
19. THE SHORT PORTION OF HBC PIPING BETWEEN ACCESS VAULT 2 AND TEE SHALL BE VISUALLY INSPECTED TO CONFIRM INTEGRITY OF THE PIPE INTERNALS IN ACCORDANCE WITH WCNOC PROCEDURES.
20. BARRED TEE'S ARE REQUIRED TO ALLOW FOR PIGGING OPERATION.
21. VALVES V0108 & V0117 ARE TO BE THROTTLED DURING WINTER WARMING LINE OPERATION PER WCNOC PROCEDURE AP 21G-001.
22. RESTRICTION ORIFICE TO BE BOLTED BETWEEN WELD NECK FLANGE AND SLIP-ON FLANGE.
23. VALVES V0418 & V0419 SHALL BE SUITABLE FOR THROTTLING SERVICE. THE OPERATION OF VALVES V0418 & V0419 SHALL BE ADDED TO THE WCNOC PROGRAM IN ACCORDANCE WITH AP 21G-001 PROCEDURE. VALVES WILL BE DESIGNED TO ALLOW VALVE OPERATION EXTERNAL TO THE ACCESS VAULT, WITHIN THE VALVE OPERATOR COMPARTMENT.
24. FOR DETAILS, REFER TO DRAWING C-K235.
25. 1" ATMOSPHERIC VENT TO ALLOW FREE DRAINAGE OF WARMING LINE PIPE INSIDE ESWS PUMPHOUSE FOREBAY. THE 1" VENT SHALL BE LOCATED ON THE ESWS PIPE ELBOW WHERE THE ESWS PIPE TURNS DOWN INTO THE ESWS PUMPHOUSE FOREBAY WATER, AS CLOSE TO THE HORIZONTAL RUN AS POSSIBLE. THE VENT SHALL DISCHARGE IN THE DOWNWARD DIRECTION INTO THE ESWS PUMPHOUSE FOREBAY.
26. FOR ABANDONED IN PLACE COMPONENTS SEE M-K2EF03A.
27. DELETED
28. DELETED

USAR FIG. 9.2-2 -4

ESSENTIAL DRAWING

⊗ REVISED / ○ ISSUED	INCORPORATED CHG. DOC.	AS-BUILT UPDATE PER W.O. 13-379207-045 AND C.R. 00088782.	CHANGE PKG. NO.	014242
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.	
REVISION NOTES:				

Digitally signed by [illegible] Date: 2014.11.06 14:33:[illegible] -06'00'

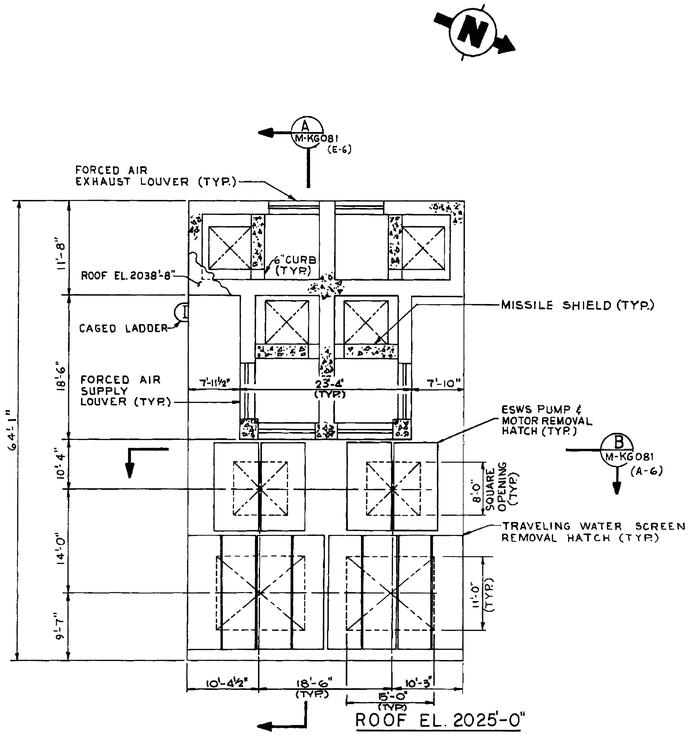
Trudy J Smither
Released by Document Services. Release Date:
2014.11.06 15:12:57 -06'00'

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

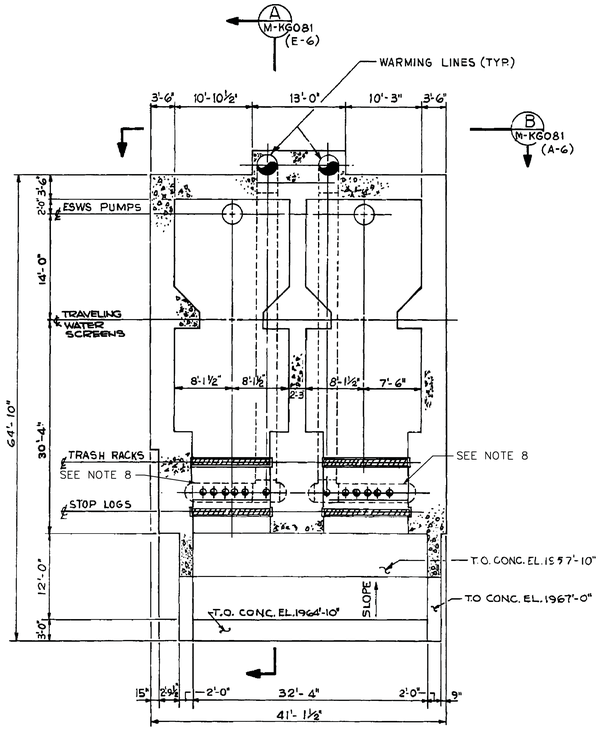
PIPING & INSTRUMENTATION DIAGRAM ESSENTIAL SERVICE WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-K2EF03		19

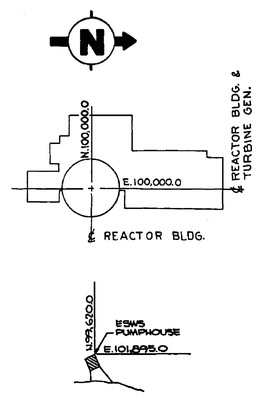
34X44 E SIZE
M-K2EF03+1+19



ROOF EL. 2025'-0"



PUMP STRUCTURE FOREBAY
EL. 1958'-0"



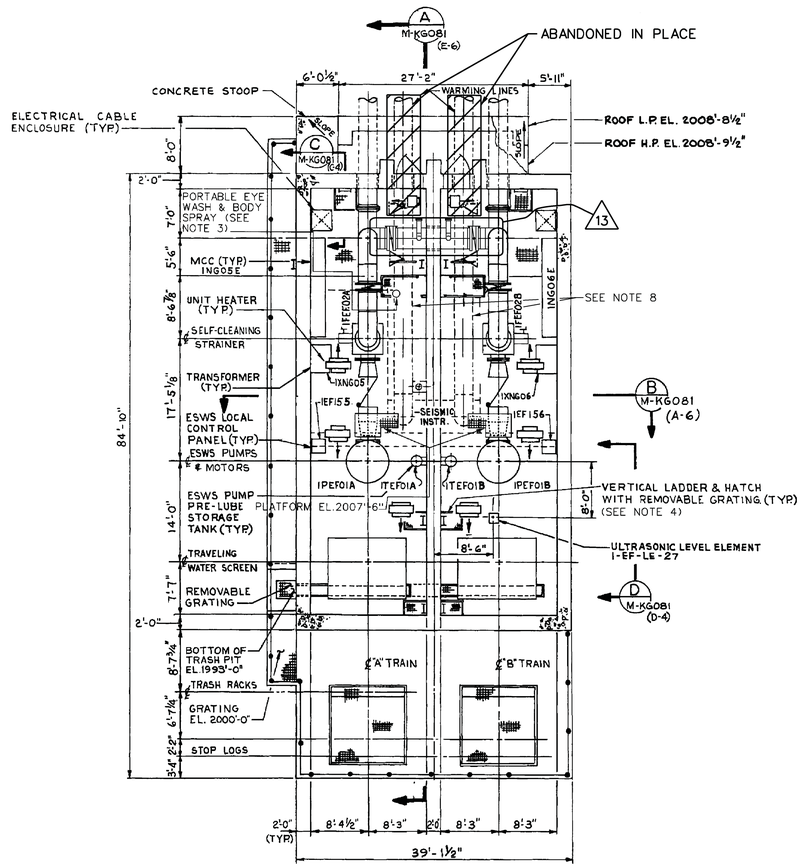
KEY PLAN
NO SCALE

NOTES:

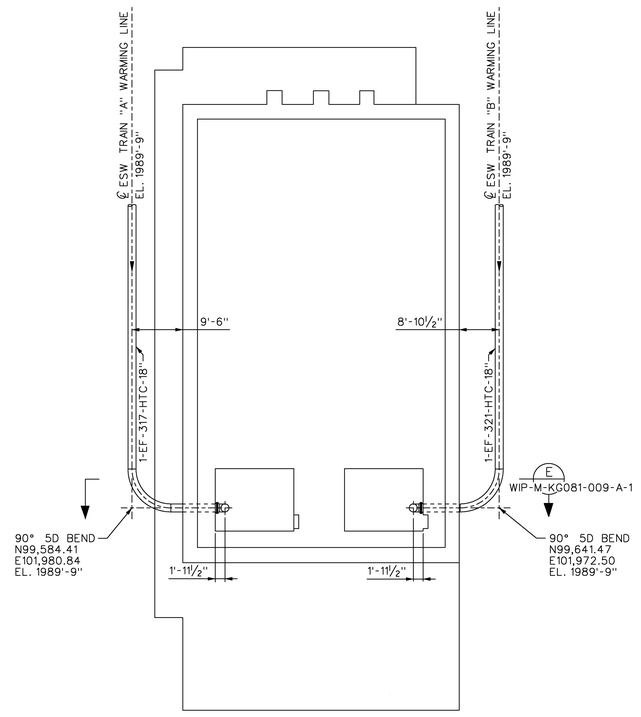
1. DELETED.
2. SNUPPS STANDARD PLANT FLOOR ELEVATION OF 2000'-0" CORRESPONDS TO WOLF CREEK SITE ELEVATION OF 1100'-0".
3. PORTABLE EYE WASH & BODY SPRAY SHALL BE "HAWS", MODEL 7601.37 OR EQUAL.
4. THE LADDERS CAN BE LEFT IN-PLACE OR REMOVED.
5. FOR SUPPORT DETAILS SEE WCNOC DRAWING C-KS305.
6. FOR THESE FLANGE LOCATIONS ONLY, THAT ARE IN LAKE WATER, USE STUD BOLTS TO ASME SA193 B8M, WITH HEAVY HEX NUTS TO ASME SA194 GR. 8M.
7. THE FOLLOWING ORIFICE PLATES ARE CLASS 2 ITEMS:

F0-0025	F0-0031
F0-0026	F0-0032
F0-0027	F0-0033
F0-0028	F0-0034
F0-0029	F0-0035

8. ORIGINAL WARMING WATER LINES REMAIN IN SERVICE TO BE USED ONLY FOR CHEMICAL ADDITION TO THE PUMPHOUSE FOREBAY.



PUMP ROOM FLOOR
EL. 2000'-0"



WARMING LINE DETAIL
EL. 1989'-9"

USAR FIG. 9.2-3

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-KG080-010-A-1	CHANGE PKG. NO. 014425
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

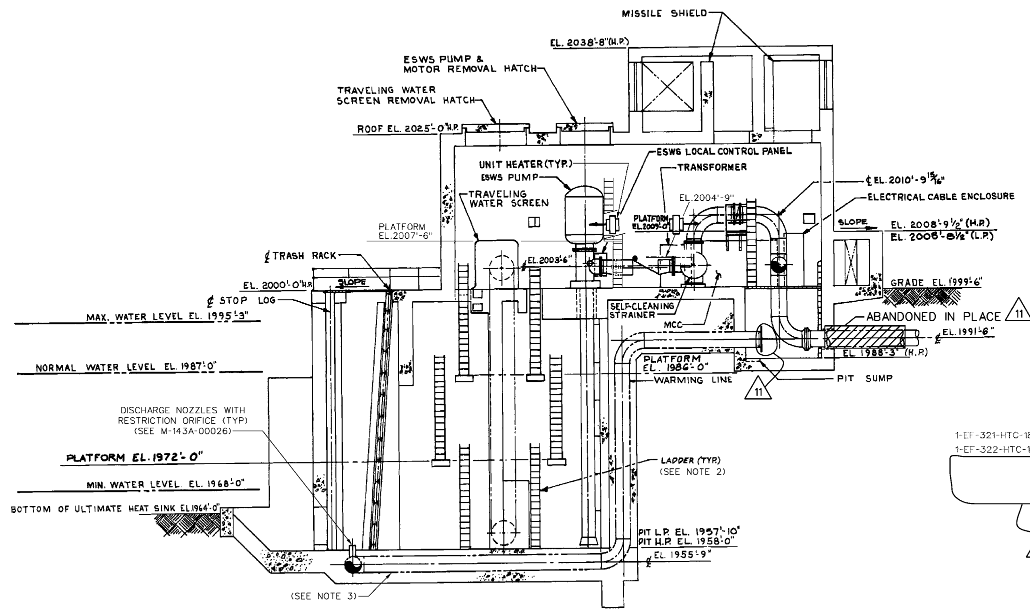
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

ESSENTIAL SERVICE WATER SYSTEM PUMPHOUSE EQUIPMENT LOCATION PLAN

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-KG080		13

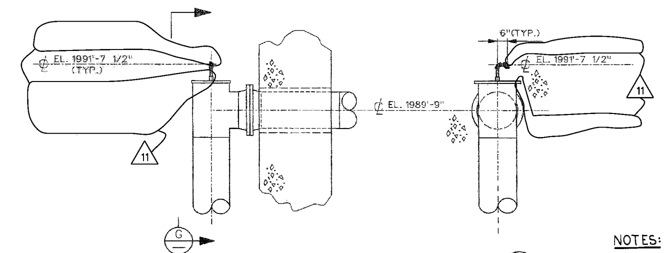
Kay E. Smith
Released by Document Services. Release Date: 2016.11.15 16:43:53 -06'00'

34X44 E SIZE



SECTION A M-KG081

SEE DWG. M-KG080

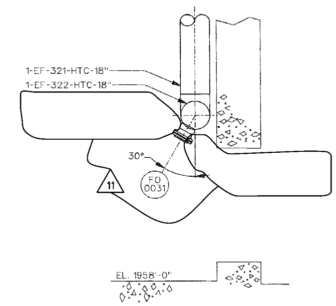


DETAIL 1

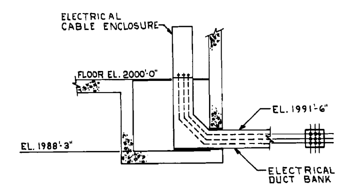
SECTION G

NOTES:

1. FOR GENERAL NOTES SEE DWG. M-KG080.
2. THE LADDERS CAN BE LEFT IN-PLACE OR REMOVED.
3. ORIGINAL WARMING WATER LINES REMAIN IN SERVICE TO BE USED ONLY FOR CHEMICAL ADDITION TO THE PUMPHOUSE FOREBAY.

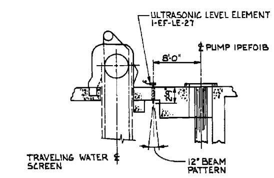


SECTION F



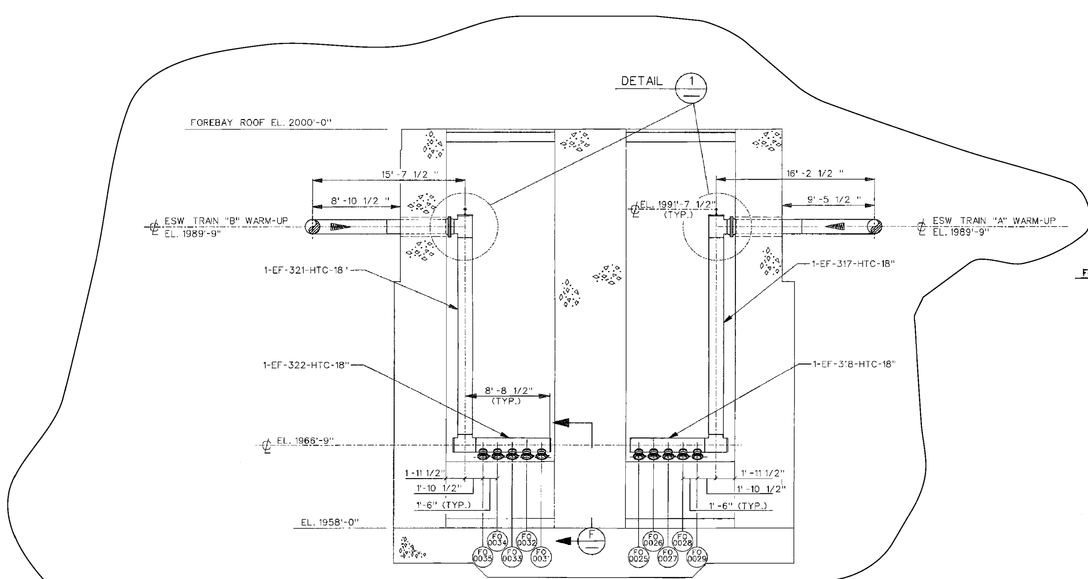
SECTION C M-KG081

SEE DWG. M-KG080

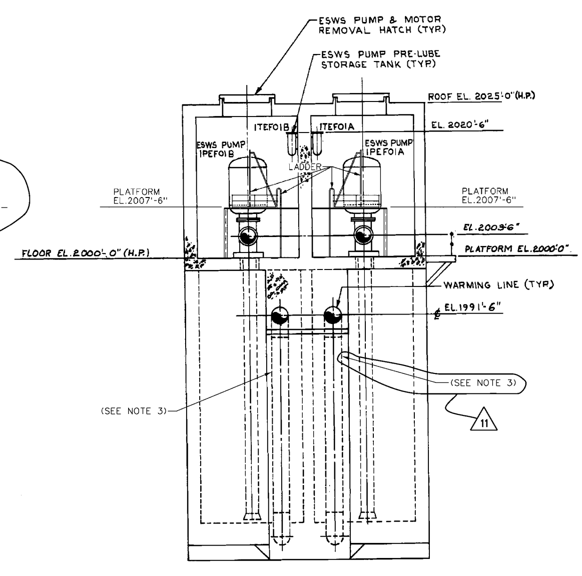


SECTION D M-KG081

SEE DWG. M-KG080



SECTION E



SECTION B M-KG081

SEE DWG. M-KG080

USAR FIG. 9.2-4

ESSENTIAL DRAWING

REVISED INCORPORATED CHG. DOC. WIP-M-KG081-009-A-1 CHANGE PKG. NO. 014592

ISSUED

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REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

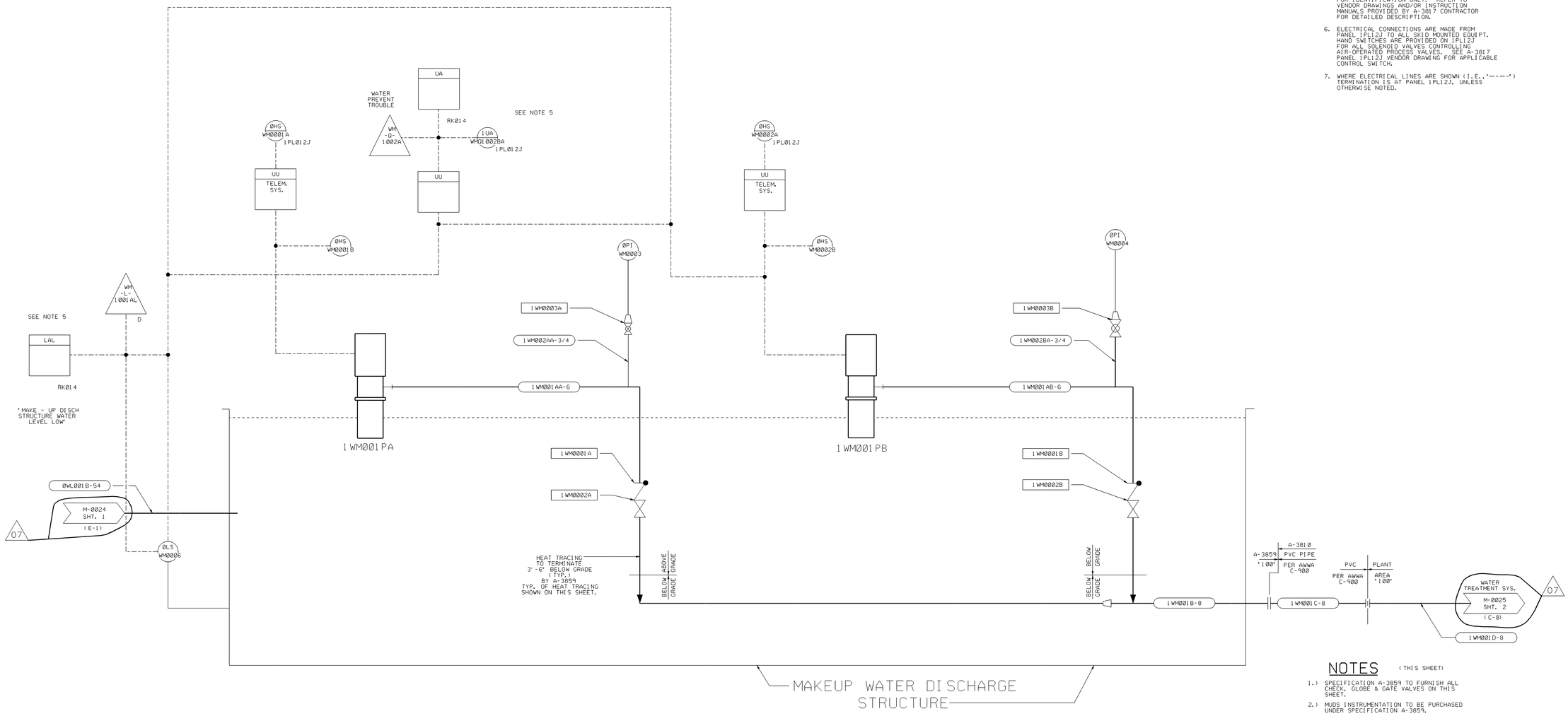
ESSENTIAL SERVICE WATER SYSTEM
PUMPHOUSE
EQUIPMENT LOCATION-SECTIONS

SCALE 1/8" = 1'-0" | DRAWING NUMBER M-KG081 | SHEET 1 | REV. 11

34X44 E SIZE

M-KG081-1-11

RAW WATER PUMPS
1WM001PA & 1WM001PB
A-3826



GENERAL NOTES

1. FOR PIPING AND VALVES MARKED SKID MOUNTED OR COMPONENTS DRAWN WITH DASHED LINES ARE FURNISHED PRE-ASSEMBLED. OTHER PIPING OR VALVES MARKED • ARE FURNISHED BY A-3817 AND INSTALLED BY A-3838.
2. ———— INDICATES 'HEAT' TRACED PIPING
3. VALVES MARKED '•' ARE FURNISHED BY A-3817.
4. VALVES FURNISHED BY A-3817 ARE NOT IDENTIFIED WITH S & L VALVE NUMBERS

   E.G. [1WM0001A]; HOWEVER, VENDOR NUMBERS

   ARE INDICATED WHERE IDENTIFIED ON A-3817 VENDOR DRAWINGS, S & L VALVE NOS; IDENTIFY VALVES BY A-3815 UNLESS OTHERWISE NOTED.
5. THIS P & ID SHOWS GENERAL CONFIGURATION OF COMPONENTS FOR SKID MOUNTED (PRE-ASSEMBLED EQUIPMENT AS AN AID FOR IDENTIFICATION ONLY. REFER TO VENDOR DRAWINGS AND/OR INSTRUCTION MANUALS PROVIDED BY A-3817 CONTRACTOR FOR DETAILED DESCRIPTION.
6. ELECTRICAL CONNECTIONS ARE MADE FROM PANEL 1PL12J TO ALL SKID MOUNTED EQUIPT. HAND SWITCHES ARE PROVIDED ON 1PL12J FOR ALL SOLENOID VALVES CONTROLLING AIR-OPERATED PROCESS VALVES. SEE A-3817 PANEL 1PL12J VENDOR DRAWING FOR APPLICABLE CONTROL SWITCH.
7. WHERE ELECTRICAL LINES ARE SHOWN (I.E.,'———') TERMINATION IS AT PANEL 1PL12J, UNLESS OTHERWISE NOTED.

NOTES (THIS SHEET)

1.) SPECIFICATION A-3859 TO FURNISH ALL CHECK, GLOBE & GATE VALVES ON THIS SHEET.

2.) MUDS INSTRUMENTATION TO BE PURCHASED UNDER SPECIFICATION A-3859.

3.) PRESSURE INDICATION AND RAW WATER PUMP CONTROL TO BE PROVIDED ON WATER TREATMENT SYSTEM CONTROL PANEL 1PL12J LOCATED IN SHOP BUILDING.

4.) MOTOR PROTECTIVE TRIPS ALARMED ON 1PL12J. SEE DWG. M-0255.

5.) UA ALARMS AND COMPUTER INPUT WM-Q-1002A ARE ALSO INITIATED BY ANY ALARM AT WATER TREATMENT PANEL 1PL12J.

USAR FIG. 9.2-5-01

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES REV.

REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

P&ID MAKEUP DEMINERALIZER SYSTEM WOLF CREEK GENERATING STA. UNIT 1

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0025	1	07

34X44 E SIZE

WM

NOTES

1. SEE GENERAL NOTES ON SHEET 1.
2. DELETED.
3. LEVEL SWITCH IN LIME SLUDGE SUMP IS INTEGRAL WITH 1WM03PA & PB, AND FURNISHED BY B/M: M-5.
4. DELETED.
5. DELETED.
6. DELETED.
8. DELETED.
9. DELETED.
10. DELETED.
11. 1FOWM0125 (RESTRICTION ORIFICE) AND THE FE FOR 1FTWM0001 REPLACED WITH A BLANK PLATE.

55

Sarah Sauerssig

Digitally signed by Sarah W Saueressig
st=KS, l=Burlington, o=Wolf Creek Nuclear
Sarah W Saueressig,
uer@wcnoc.com
Date: 2016.04.27 08:48:05 -05'00'

USAR FIG. 9.2-5-02

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-0025-48-B-2		CHANGE PKG. NO. 010396
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES: INCORPORATED AS-BUILT INFORMATION PER FIELD WALKDOWN;			

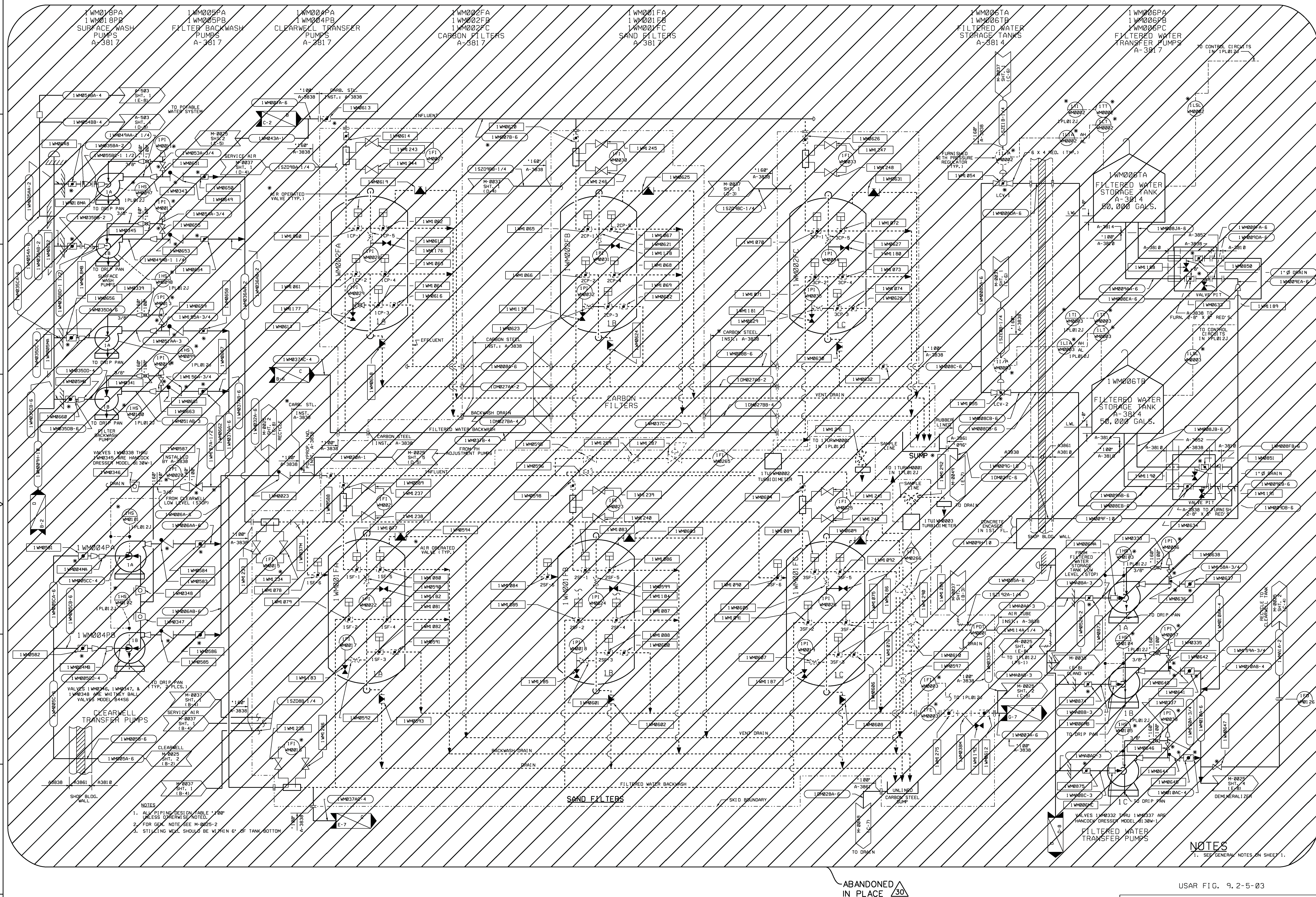
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

P & ID
MAKEUP DEMINERALIZER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0025	2	55

34X44 E SIZE


1WM018PA
1WM018PB
SURFACE WASH PUMPS
A-3817
1WM005PA
1WM005PB
FILTER BACKWASH PUMPS
A-3817
1WM004PA
1WM004PB
CLEARWELL TRANSFER PUMPS
A-3817
1WM002FA
1WM002FB
1WM002FC
CARBON FILTERS
A-3817
1WM001FA
1WM001FB
1WM001FC
SAND FILTERS
A-3817
1WM006TA
1WM006TB
FILTERED WATER STORAGE TANKS
A-3814
1WM006PA
1WM006PB
1WM006PC
FILTERED WATER TRANSFER PUMPS
A-3817
1WM006TA
FILTERED WATER STORAGE TANK
A-3814
50,000 GALS.
1WM006TB
FILTERED WATER STORAGE TANK
A-3814
50,000 GALS.
CARBON FILTERS
SAND FILTERS
CLEARWELL TRANSFER PUMPS
FILTERED WATER TRANSFER PUMPS
FILTER BACKWASH PUMPS
SURFACE WASH PUMPS
NOTES
1. ALL PIPING DESIGN TABLE "100" UNLESS OTHERWISE NOTED.
2. FOR GEN. NOTE SEE M-0025-2
3. STILLING WELL SHOULD BE WITHIN 6" OF TANK BOTTOM
NOTES
1. SEE GENERAL NOTES ON SHEET 1.
ABANDONED IN PLACE 30

USAR FIG. 9.2-5-03

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-0025-28-A-3
CHANGE PKG. NO.	010396
THIS DWG. SUPERSEDED BY / REV.	THIS DWG. SUPERSEDES / REV.
REVISION NOTES:	

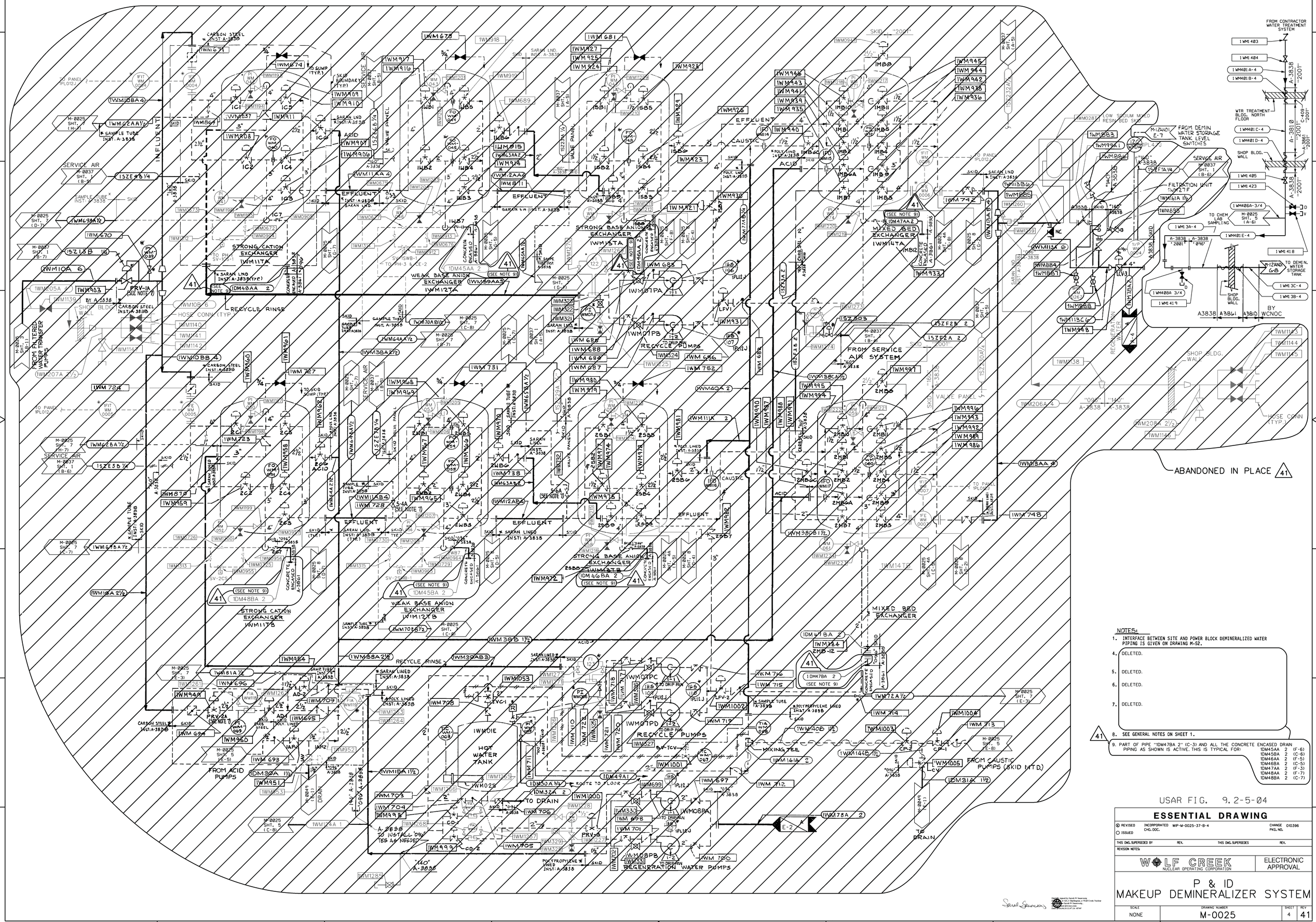
WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

P&ID
MAKEUP DEMINERALIZER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0025	3	30

34X44 E SIZE



NOTES:

1. INTERFACE BETWEEN SITE AND POWER BLOCK DEMINERALIZED WATER PIPING IS GIVEN ON DRAWING M-52.

4. DELETED.

5. DELETED.

6. DELETED.

7. DELETED.

8. SEE GENERAL NOTES ON SHEET 1.

41

9. PART OF PIPE "1DM47BA 2" (C-3) AND ALL THE CONCRETE ENCASED DRAIN PIPING AS SHOWN IS ACTIVE. THIS IS TYPICAL FOR:

1DM45AA	2	(F-6)
1DM45BA	2	(C-6)
1DM46AA	2	(F-5)
1DM46BA	2	(C-5)
1DM47AA	2	(F-3)
1DM48AA	2	(F-7)
1DM48BA	2	(C-7)

USAR FIG. 9.2-5-04

ESSENTIAL DRAWING

⊗ REVISED
○ ISSUED

INCORPORATED CHG. DOC. WIP-M-0025-37-B-4

CHANGE PKG. NO. 010396

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REVISION NOTES:

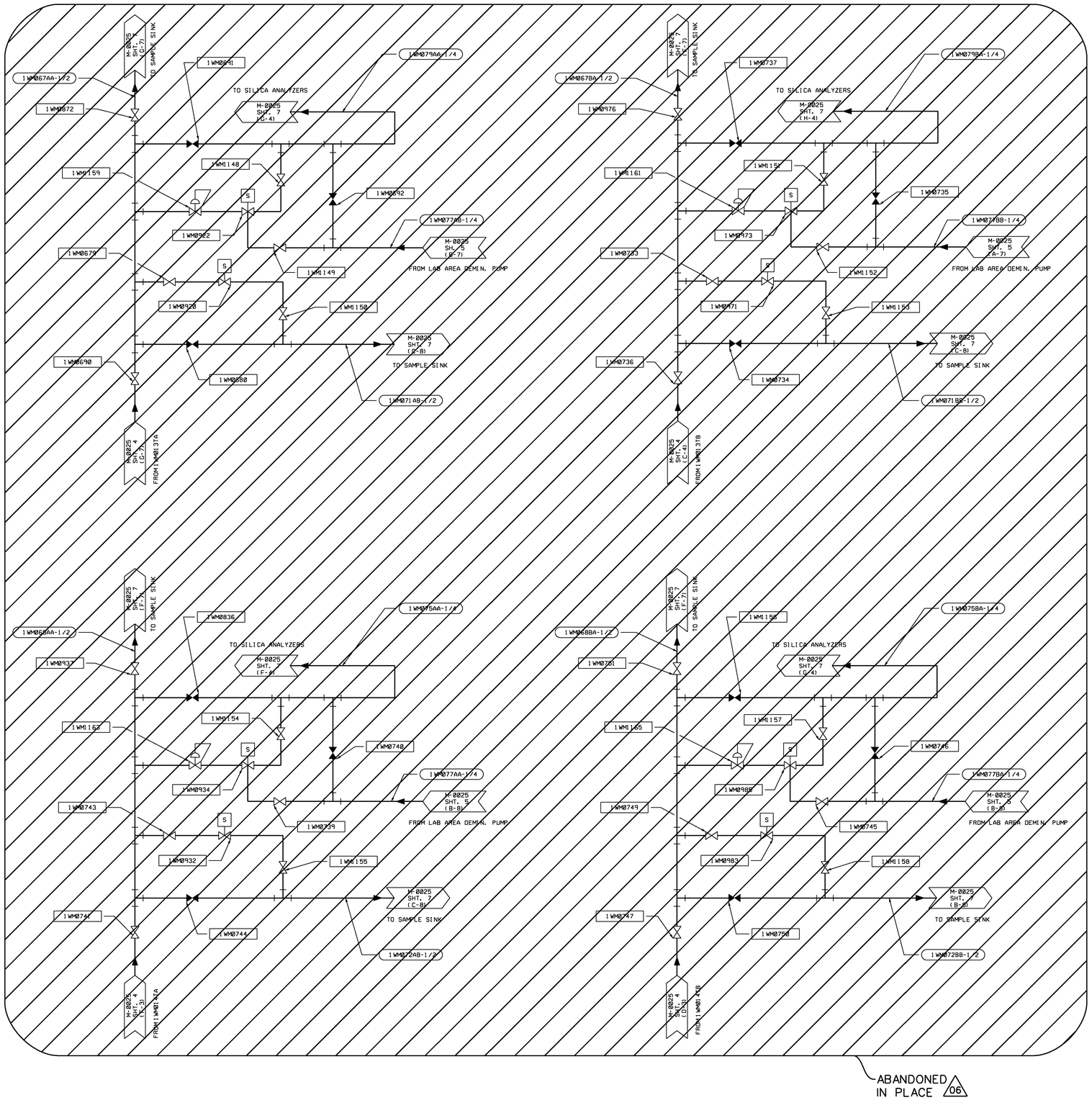
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

P & ID
MAKEUP DEMINERALIZER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0025	4	41

34X44 E SIZE



USAR FIG. 9.2-5-4A

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-0025-04-A-4A	CHANGE PKG. NO. 010396
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WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

P & ID
MAKEUP DEMINERLIZER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0025	4A	06

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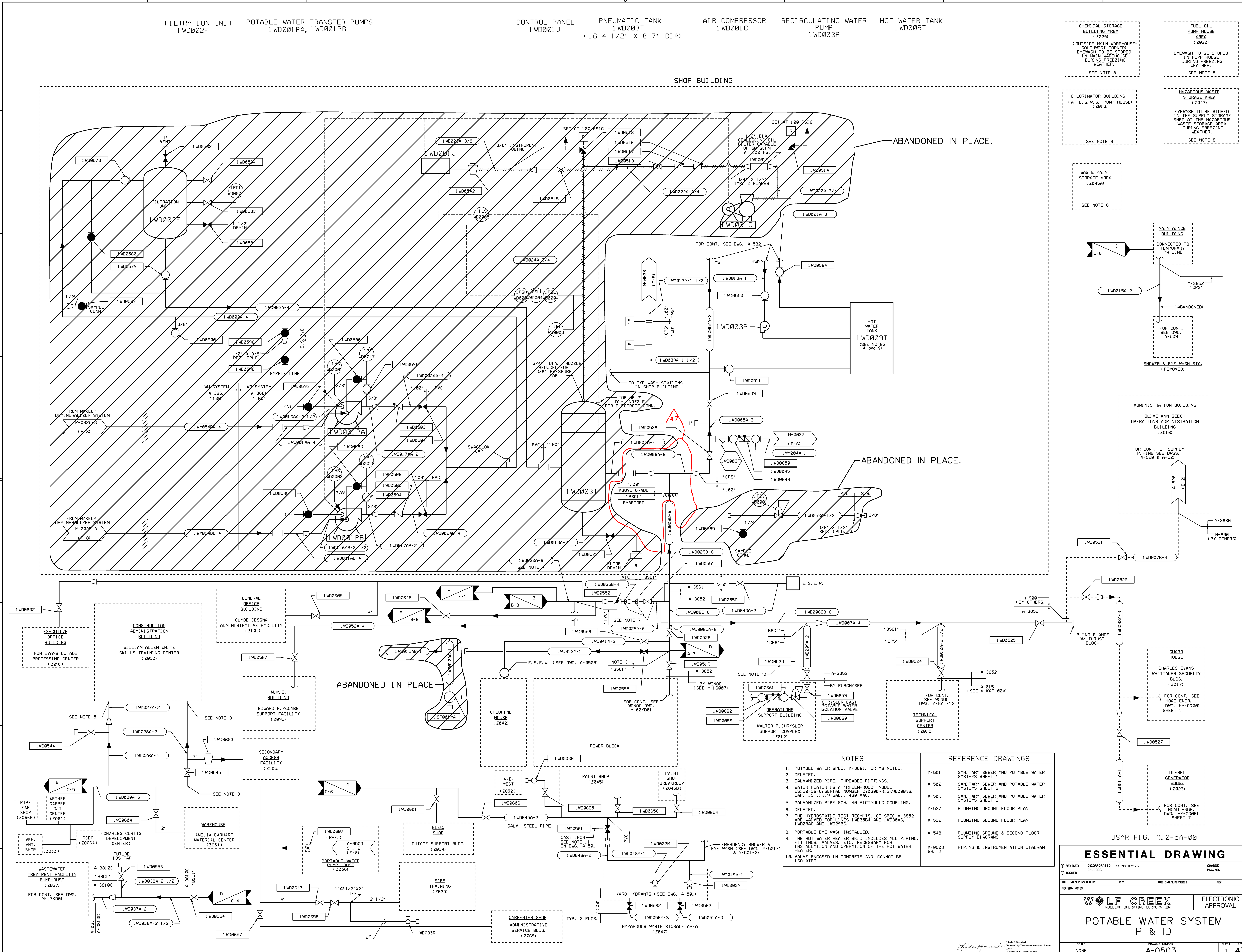
2016.05.18 08:22:01 -05'00'

34X44 E SIZE

WM


FILTRATION UNIT 1WD002F
POTABLE WATER TRANSFER PUMPS 1WD001PA, 1WD001PB
CONTROL PANEL 1WD001J
PNEUMATIC TANK 1WD003T (16-4 1/2" X 8-7" DIA)
AIR COMPRESSOR 1WD001C
RECIRCULATING WATER PUMP 1WD003P
HOT WATER TANK 1WD009T
SHOP BUILDING
ABANDONED IN PLACE.
ABANDONED IN PLACE.
ABANDONED IN PLACE
CHEMICAL STORAGE BUILDING AREA (Z029)
FUEL OIL PUMP HOUSE AREA (Z020)
CHLORINATOR BUILDING (AT E.S.W.S. PUMP HOUSE) (Z013)
HAZARDOUS WASTE STORAGE AREA (Z047)
WASTE PAINT STORAGE AREA (Z045A)
MAINTAINCE BUILDING
ADMINISTRATION BUILDING
OLIVE ANN BEECH OPERATIONS ADMINISTRATION BUILDING (Z016)
GUARD HOUSE
CHARLES EVANS WHITTAKER SECURITY BLDG. (Z017)
DIESEL GENERATOR HOUSE (Z023)
EXECUTIVE OFFICE BUILDING
RON EVANS OUTAGE PROCESSING CENTER (Z091)
CONSTRUCTION ADMINISTRATION BUILDING
WILLIAM ALLEM WHITE SKILLS TRAINING CENTER (Z030)
GENERAL OFFICE BUILDING
CLYDE CESSNA ADMINISTRATIVE FACILITY (Z101)
M.M.D. BUILDING
EDWARD P. McCABE SUPPORT FACILITY (Z095)
SECONDARY ACCESS FACILITY (Z105)
CHLORINE HOUSE (Z042)
POWER BLOCK
OPERATIONS SUPPORT BUILDING
WALTER P. CHRYSLER SUPPORT COMPLEX (Z012)
TECHNICAL SUPPORT CENTER (Z015)
PAINT SHOP (Z045)
WAREHOUSE
AMELIA EARHART MATERIAL CENTER (Z031)
ELEC. SHOP
OUTAGE SUPPORT BLDG. (Z034)
FIRE TRAINING (Z035)
PORTABLE WATER PUMP HOUSE (Z058)
WASTEWATER TREATMENT FACILITY PUMPHOUSE (Z037)
CARPENTER SHOP
ADMINISTRATIVE SERVICE BLDG. (Z069)
HAZARDOUS WASTE STORAGE AREA (Z047)
YARD HYDRANTS (SEE DWG. A-501)
E.S.W.
USAR FIG. 9.2-5A-00

NOTES
1. POTABLE WATER SPEC. A-3861, OR AS NOTED.
2. DELETED.
3. GALVANIZED PIPE, THREADED FITTINGS.
4. WATER HEATER IS A "RHEEM-RUUD" MODEL ES120-36-C; SERIAL NUMBER CY0300RR1299E00096, CAP. IS 119.9 GAL., 480 VAC.
5. GALVANIZED PIPE SCH. 40 VICTAULIC COUPLING.
6. DELETED.
7. THE HYDROSTATIC TEST REQM'TS. OF SPEC A-3852 ARE WAIVED FOR LINES 1WD35B4 AND 1WD30A6, 1WD29A6 AND 1WD29B6.
8. PORTABLE EYE WASH INSTALLED.
9. THE HOT WATER HEATER SKID INCLUDES ALL PIPING, FITTINGS, VALVES, ETC. NECESSARY FOR INSTALLATION AND OPERATION OF THE HOT WATER HEATER.
10. VALVE ENCASED IN CONCRETE, AND CANNOT BE ISOLATED.

REFERENCE DRAWINGS	
A-501	SANITARY SEWER AND POTABLE WATER SYSTEMS SHEET 1
A-502	SANITARY SEWER AND POTABLE WATER SYSTEMS SHEET 2
A-509	SANITARY SEWER AND POTABLE WATER SYSTEMS SHEET 3
A-527	PLUMBING GROUND FLOOR PLAN
A-532	PLUMBING SECOND FLOOR PLAN
A-548	PLUMBING GROUND & SECOND FLOOR SUPPLY DIAGRAMS
A-0503 SH. 2	PIPING & INSTRUMENTATION DIAGRAM

USAR FIG. 9.2-5A-00

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED — INCORPORATED CHG. DOC. CR •00113576 — CHANGE PKG. NO.

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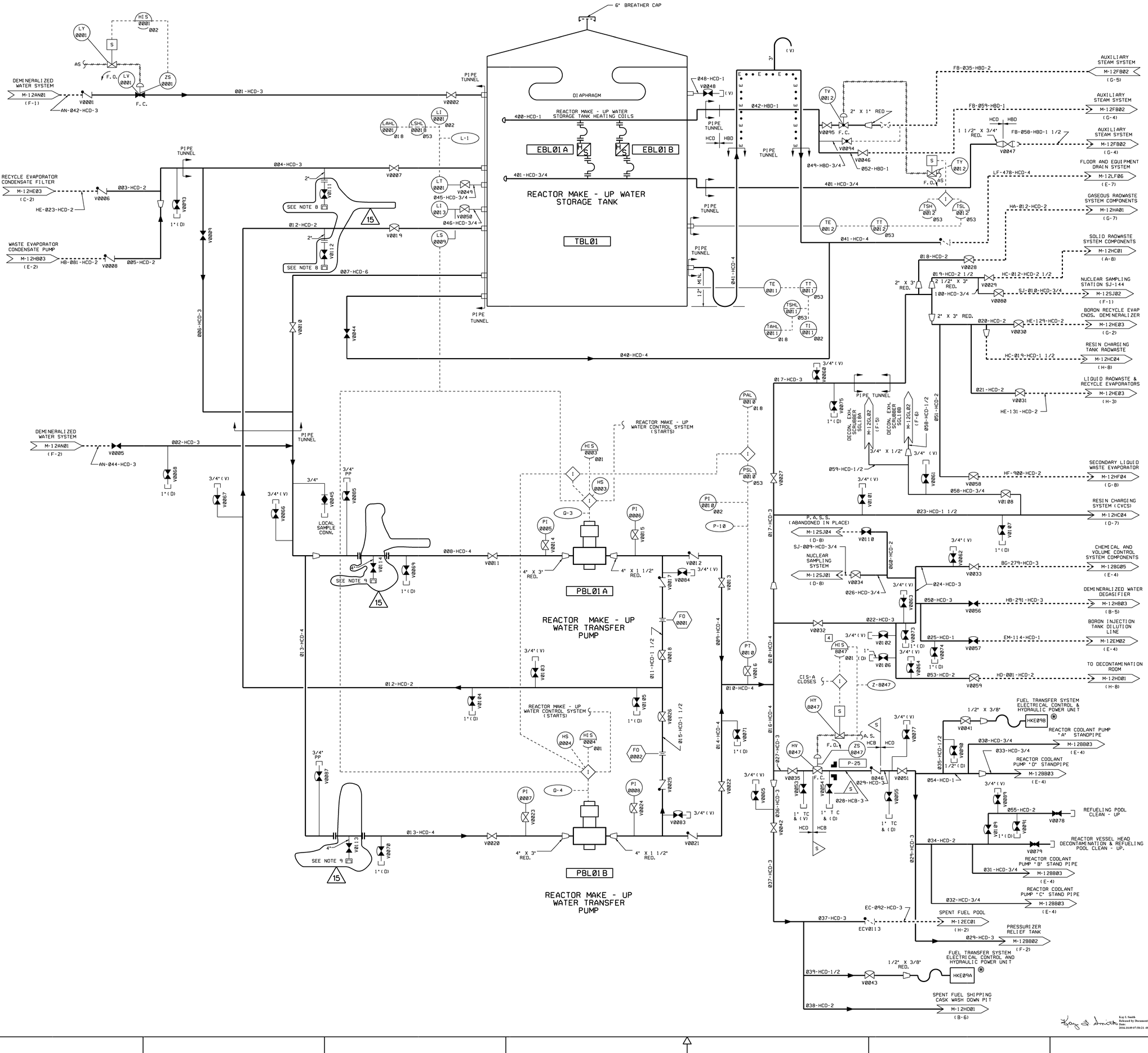
REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

POTABLE WATER SYSTEM P & ID

SCALE	DRAWING NUMBER	SHEET	REV
NONE	A-0503	1	47

34X44 E SIZE



NOTES

1. THE PORTIONS OF THE REACTOR MAKE - UP WATER SYSTEM WHICH ARE Q-LISTED INCLUDE THE PIPING AND VALVES ASSOCIATED WITH CONTAINMENT ISOLATION ONLY.
2. DELETED.
3. AN ABOVE GRADE STRUCTURE IS PROVIDED TO HOUSE PIPING AND VALVES AJACENT TO THE REACTOR MAKEUP WATER STORAGE TANK.
4. FOR P & ID LEGEND & SYMBOLS SEE DRAWINGS 10466-M-120101, M-120102, M-120103 AND M-020104
5. DELETED
6. DELETED
7. DELETED
8. 2" NPT TO 4" 30 DEGREE ANGLE STORZ CONNECTOR, NFPA 1963-1998, 200 PSI/150°F MINIMUM, ASTM B247 6061 T6, CAPPED. INSTALL THE STORZ CONNECTOR WITH THE CONNECTION ANGLED UP. THIS CONNECTION IS FOR BEYOND-DESIGN BASIS (FLEX) USAGE ONLY.

15

9. 4" NPT TO 4" STORZ CONNECTOR, NFPA 1963-1998, 200 PSI/150°F MINIMUM, ASTM B247 6061 T6, CAPPED. THIS CONNECTION IS FOR BEYOND-DESIGN BASIS (FLEX) USAGE ONLY.

USAR FIG. 9.2-13-00

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ESSENTIAL DRAWING

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REVISION NOTES:

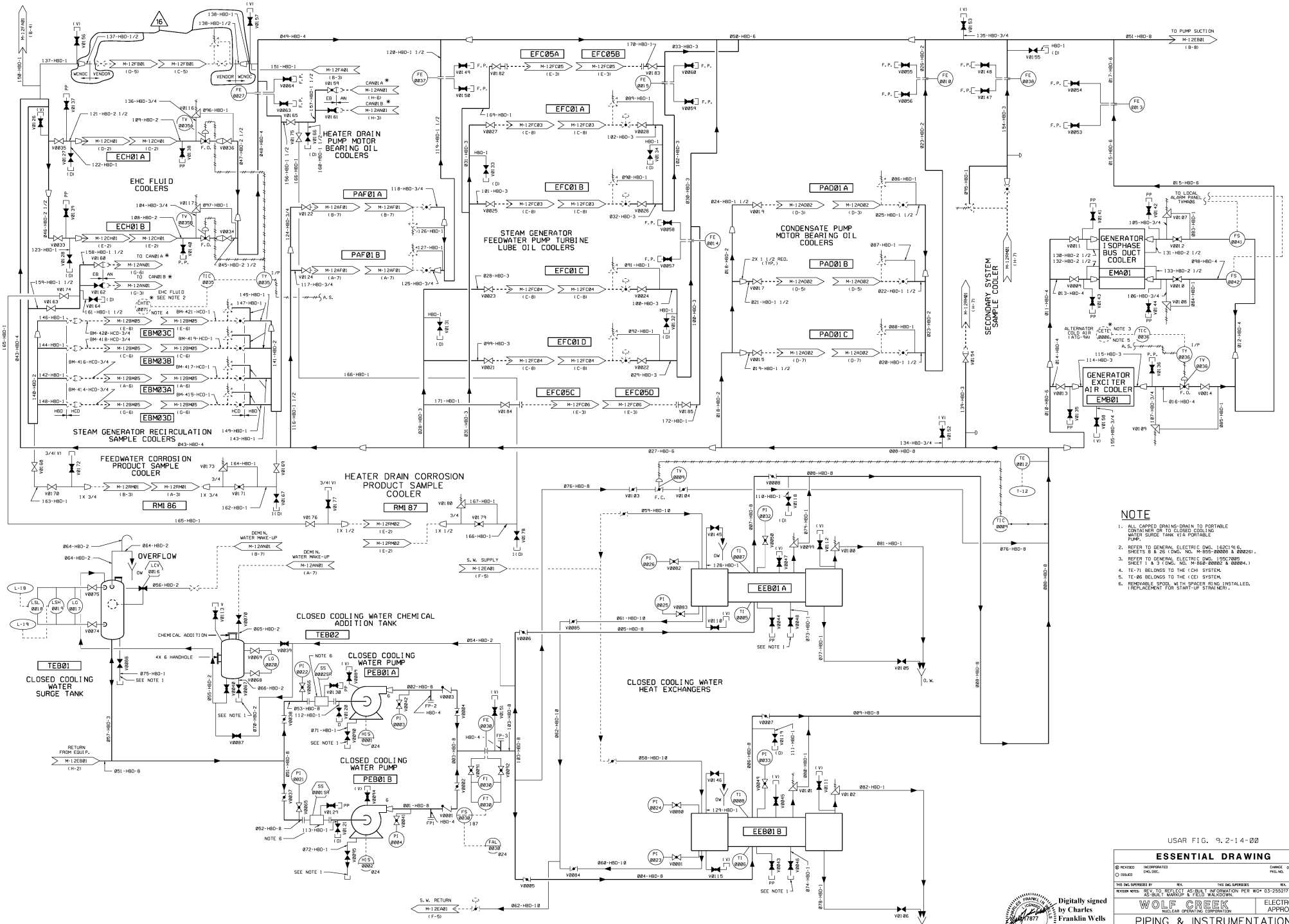
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
REACTOR MAKE-UP WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12BL01	1	15

34X44 E SIZE



NOTE

1. ALL CAPPED DRAINS-DRAIN TO PORTABLE CONTAINER OR TO CLOSED COOLING WATER SURGE TANK VIA PORTABLE PUMP.
2. REFER TO GENERAL ELECTRIC DWG. 162C1916, SHEETS 8 & 26 (DWG. NO. M-855-00008 & 00026).
3. REFER TO GENERAL ELECTRIC DWG. 195C7825 SHEET 1 & 3 (DWG. NO. M-862-00052 & 00004.)
4. TE-71 BELONGS TO THE (CHI) SYSTEM.
5. TE-86 BELONGS TO THE (CEI) SYSTEM.
6. REMOVABLE SPOOL WITH SPACER RING INSTALLED, (REPLACEMENT FOR START-UP STRAINER).

USAR FIG. 9.2-14-00

ESSENTIAL DRAWING

REVISED — INCORPORATED CHG. DOC.: — CHANGE 012779 REQ. NO.

ISSUED

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REVISION NOTES: REV. TO REFLECT AS-BUILT INFORMATION PER WO# 03-250217-006 AS-BUILT MARKUP & FIELD WALKDOWN.

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

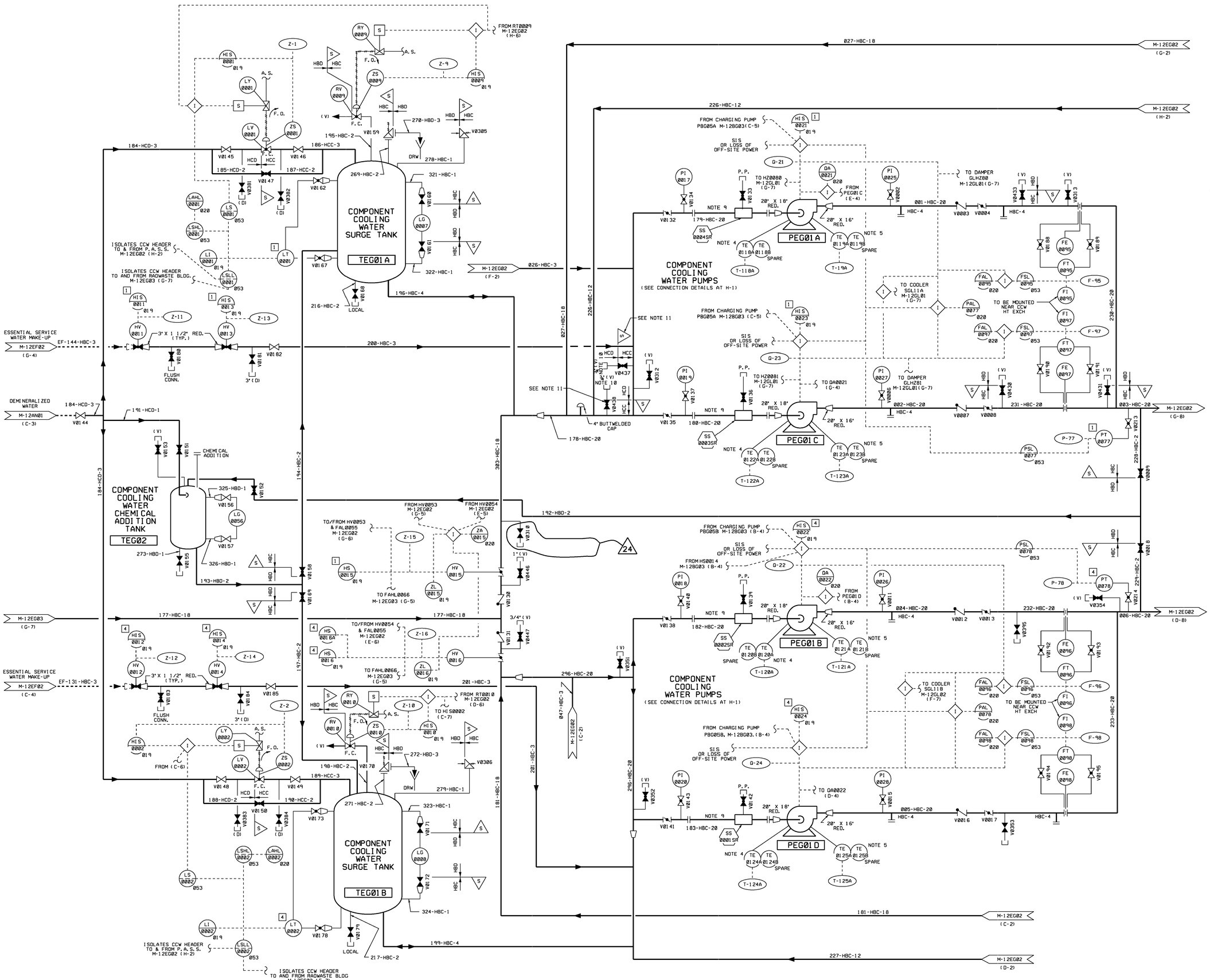
Digitally signed by Charles Franklin Wells
Date: 2014.07.01 08:24:44 -05'00'

PIPING & INSTRUMENTATION DIAGRAM CLOSED COOLING WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV.
NONE	M-12EB01		16

34144 E SIZE

M-12EB01-1-16



PUMP CONNECTION DETAILS

(SEE NOTE 2)

CONN.	PUMP	VALVE NO.	LINE NO.	PURPOSE
C	A	——	280-HBD-3/4"	STUFF. BOX OVERFLOW
	C	——	281-HBD-3/4"	STUFF. BOX OVERFLOW
	B	——	282-HBD-3/4"	STUFF. BOX OVERFLOW
	D	——	283-HBD-3/4"	STUFF. BOX OVERFLOW
D	A	——	284-HBD-3/4"	STUFF. BOX OVERFLOW
	C	——	285-HBD-3/4"	STUFF. BOX OVERFLOW
	B	——	286-HBD-3/4"	STUFF. BOX OVERFLOW
	D	——	287-HBD-3/4"	STUFF. BOX OVERFLOW
E	A	V0297	——	CASING VENT
	C	V0299	——	CASING VENT
	B	V0301	——	CASING VENT
	D	V0303	——	CASING VENT
F	ALL	PLUGGED		CASING PRIME
G	A	V0343	288-HBC-3/4"	CASING DRAIN
	C	V0344	289-HBC-3/4"	CASING DRAIN
	B	V0345	290-HBC-3/4"	CASING DRAIN
	D	V0346	291-HBC-3/4"	CASING DRAIN
H	A	V0347	292-HBC-3/4"	CASING DRAIN
	C	V0348	293-HBC-3/4"	CASING DRAIN
	B	V0349	294-HBC-3/4"	CASING DRAIN
	D	V0350	295-HBC-3/4"	CASING DRAIN
I	ALL	PLUGGED		OIL DRAIN
J	ALL	PLUGGED		OIL DRAIN
K	A	V0298	274-HBC-1"	BASEPLATE DRAIN
	C	V0300	275-HBC-1"	BASEPLATE DRAIN
	B	V0302	276-HBC-1"	BASEPLATE DRAIN
	D	V0304	277-HBC-1"	BASEPLATE DRAIN

NOTES

1. ALL CAPPED DRAINS: DRAIN TO PORTABLE CONTAINER OR TO THE COMPONENT COOLING WATER SURGE TANK VIA PORTABLE PUMP.
2. THE FOLLOWING APPLIES TO ALL VENTS, DRAINS, LOCAL SAMPLES, FLUSH CONNECTIONS, TEST CONNECTIONS AND FLOW TAPS:

3. DELETED
4. PUMP MOTOR DRIVING END BEARING TEMPERATURE (THERMOCOUPLE).
5. PUMP MOTOR OUTBOARD END BEARING TEMPERATURE (THERMOCOUPLE).
6. DELETED
7. DELETED
8. DELETED
9. REMOVABLE SPOOL WITH SPACER RING INSTALLED, (REPLACEMENT FOR START-UP STRAINER).
10. TEST CONNECTION AND/OR VENT INSTALLED WITH CAM AND GROOVE ADAPTER AND DUST CAP WITH BUNA-N GASKET.
11. PER GENERAL NOTE 4.G.2 OF MS-02 WHICH STATES "FOR REASONS OF ECONOMY AND INTERCHANGEABILITY, THE USE OF VALVE(S) MANUFACTURED AT A HIGHER QUALITY GROUP AND PRESSURE RATING THEN SPECIFIED VALVE CLASS IN THE PIPING CLASS SHEET IS AN ACCEPTABLE ALTERNATE", VENT VALVE ASSEMBLIES SHALL BE FABRICATED WITH STAINLESS STEEL PIPING AND VALVES.

24

USAR FIG. 9.2-15-01

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ESSENTIAL DRAWING

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○ ISSUED
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CHANGE PKG. NO.

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REVISION NOTES: REVISED TO REMOVE TMO 13-011-EG

WOLF CREEK
NUCLEAR OPERATING CORPORATION

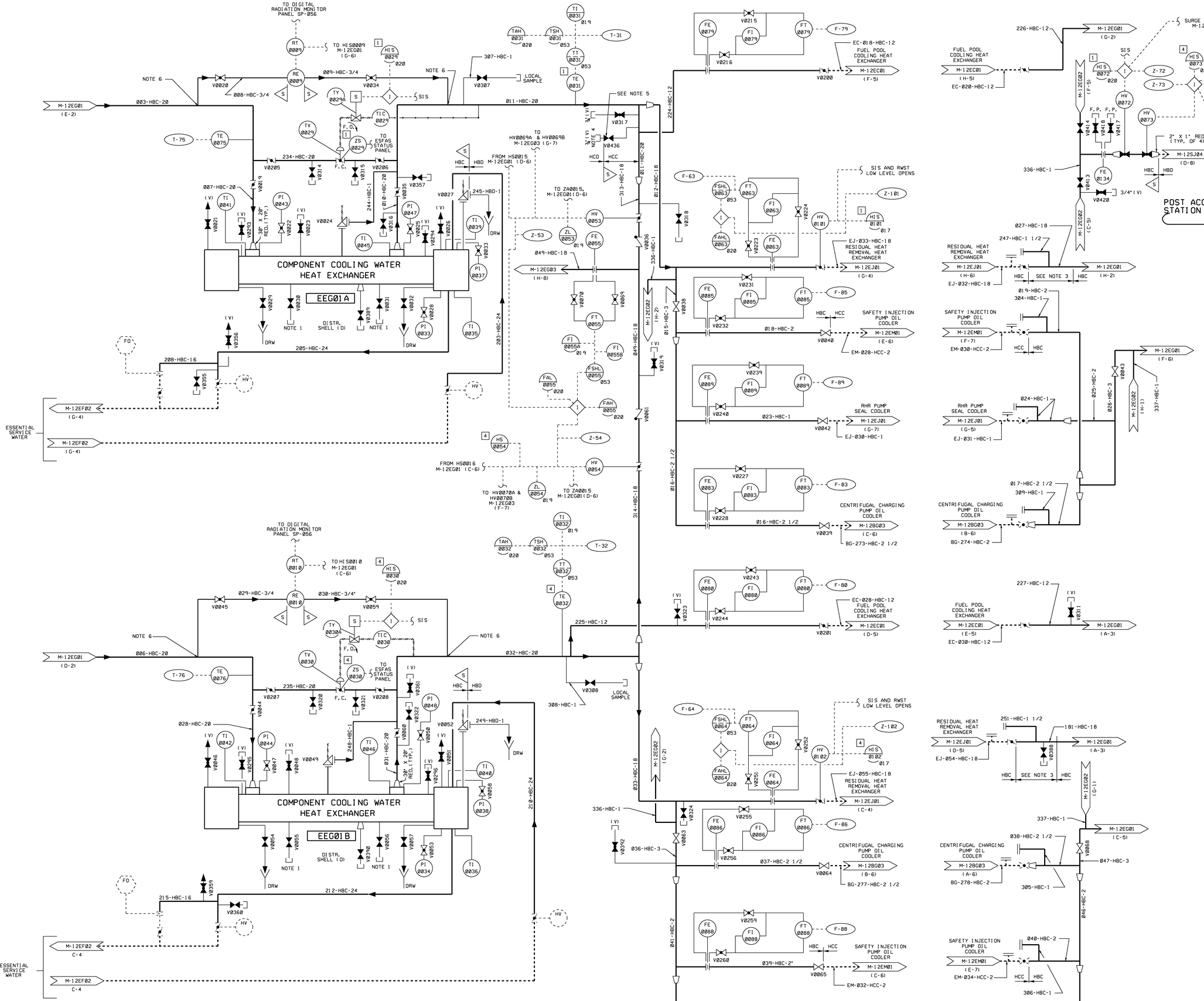
ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM COMPONENT COOLING WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EG01		24

34X44 E SIZE

M-12EG01+1+24



NOTES

1. SEE M-12EG01
2. DELETED
3. PIPING SHALL BE FABRICATED PER MS-02, CLASS HCC, EXCEPT FOR MATERIAL TYPE WHICH SHALL BE TYPE 316L.
4. TEST CONNECTION AND/OR VENT INSTALLED WITH CAM AND GROOVE ADAPTER AND DUST CAP WITH BUNA-N GASKET.
5. PER GENERAL NOTE 4.C.2 OF MS-02, WHICH STATES "FOR REASONS OF ECONOMY AND INTERCHANGEABILITY THE USE OF VALVES MANUFACTURED AT A HIGHER QUALITY GROUP AND PRESSURE RATING THEN SPECIFIED IN THE VALVE CLASS IN THE PIPING CLASS SHEET IS AN ACCEPTABLE ALTERNATE", VENT VALVE ASSEMBLIES SHALL BE FABRICATED WITH STAINLESS STEEL PIPING AND VALVES.
6. DRILLED 3*16" DIAMETER RESTRICTION TO MINIMIZE FLOW TO RE.

USAR FIG. 9.2-15-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC. CR 103296	CHANGE PKG. NO.
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REVISION NOTES:		

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM COMPONENT COOLING WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EG02		27

34X44 E SIZE

NOTES

1. SEE M-12EG01
2. SEISMIC ANALYSIS AND SUPPORTS FOR PIPING EXTEND BEYOND THE INSTRUMENT CONNECTION FOR FT0107.
3. ISOLATION SWITCH PROVIDED IN THE CONTROL ROOM FOR POWER LOCKOUT OF VALVES HV0126, HV0127, HV0130, HV0131, HV0132, AND HV0133. A CIS-B SIGNAL IS NOT REQUIRED FOR CLOSURE OF THESE VALVES SINCE THEY ARE MAINTAINED CLOSED.
4. FLOW INDICATOR EGF0117 IS ABANDONED IN PLACE.
5. TEST CONNECTION AND/OR VENT INSTALLED WITH CAM AND GROOVE ADAPTER AND DUST CAP WITH BUNA-N GASKET.
6. PER GENERAL NOTE 4.G.2 OF MS-02 WHICH STATES "FOR REASONS OF ECONOMY AND INTERCHANGEABILITY, THE USE OF VALVES MANUFACTURED AT A HIGHER QUALITY GROUP AND PRESSURE RATING THEN SPECIFIED VALVE CLASS IN THE PIPING CLASS SHEET IS AN ACCEPTABLE ALTERNATE". VENT VALVE ASSEMBLIES SHALL BE FABRICATED WITH STAINLESS STEEL PIPING AND VALVES.
7. DELETED
8. IF BOTH INLET AND OUTLET HEAT EXCHANGER VALVES ARE CLOSED THEN OPEN AT LEAST ONE OF THE PP OR VENT VALVES IN-BETWEEN THEM TO RELIEVE ANY POSSIBLE THERMAL EXPANSION.
9. CAM AND GROOVE COUPLINGS MAY BE SUBSTITUTED FOR THE PIPE CAPS IF DESIRED BY THE SYSTEM ENGINEER. SEE DRAWING M-13EG09, DETAIL 10.

PERMANENTLY OUT OF SERVICE

REACTOR COOLANT PUMPS

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2015.04.20 15:26:29 -05'00'

USAR FIG. 9.2-15-03

ESSENTIAL DRAWING

REVISED ○ ISSUED — INCORPORATED CHG. DOC. WIP-M-12EG03-012-A-1 — CHANGE PKG. NO. 01417.3

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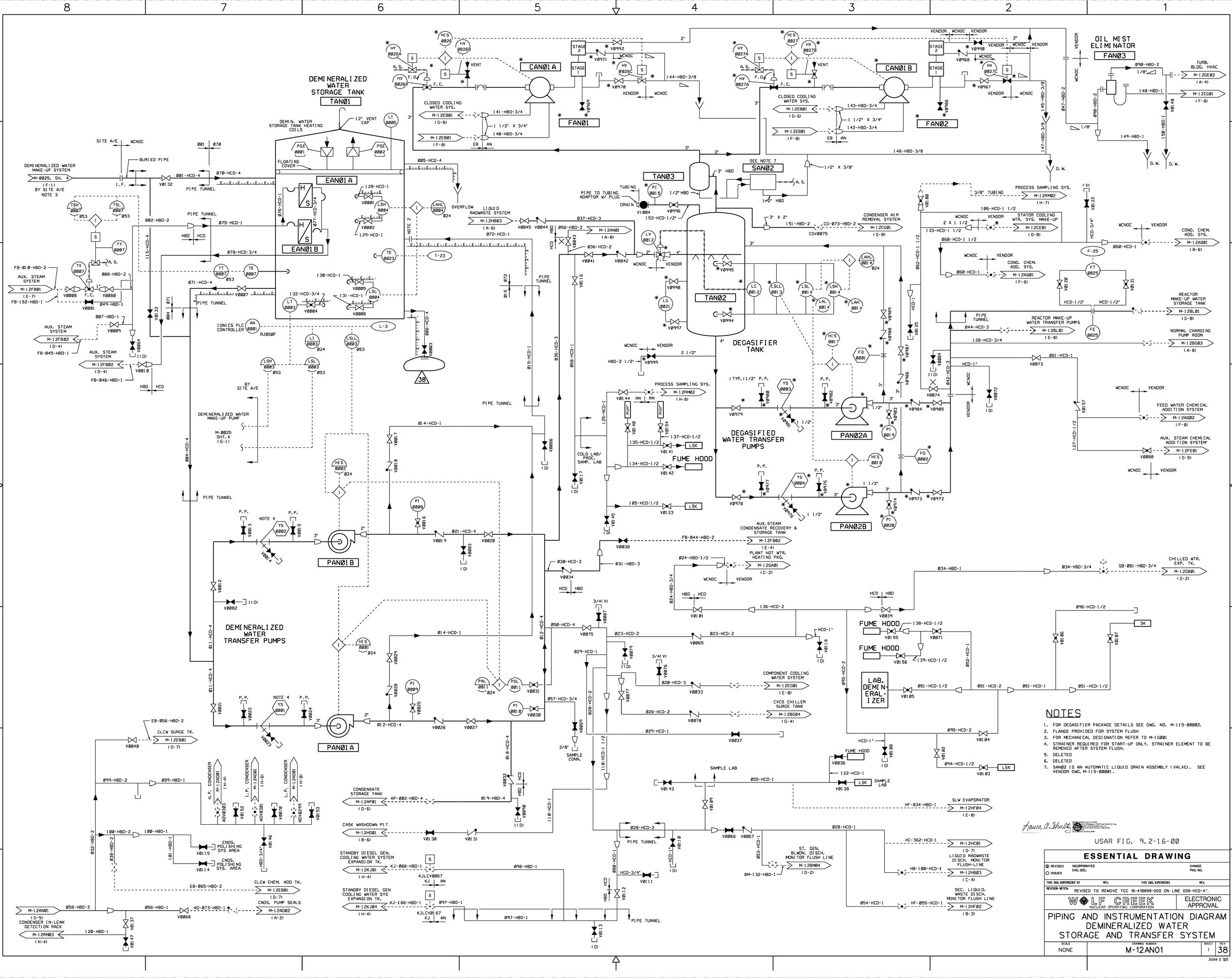
REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM
COMPONENT COOLING WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12EG03		19

34X44 E SIZE
M-12EG03-1-19



NOTES

1. FOR DEGASIFIER PACKAGE DETAILS SEE DWG. NO. M-115-00002.
2. FLANGE PROVIDED FOR SYSTEM FLUSH.
3. FOR MECHANICAL DESIGNATION REFER TO M-1G001.
4. STRAINER REQUIRED FOR START-UP ONLY. STRAINER ELEMENT TO BE REMOVED AFTER SYSTEM FLUSH.
5. DELETED
6. DELETED
7. SAN02 IS AN AUTOMATIC LIQUID DRAIN ASSEMBLY (VALVE). SEE VENDOR DWG. M-115-00001.

USAR FIG. 9.2-16-00

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.
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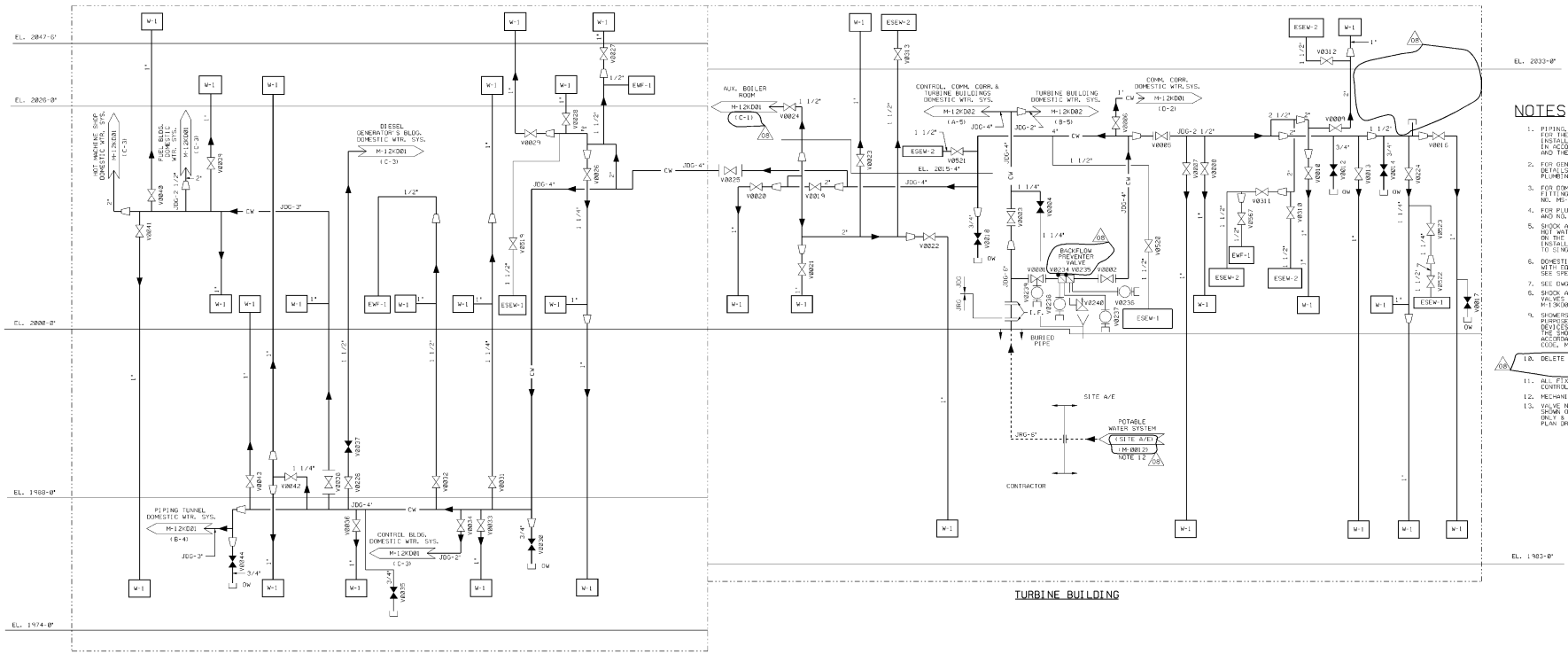
REVISION NOTES: REVISED TO REMOVE TCC 16-418899-000 ON LINE 006-HCD-4".

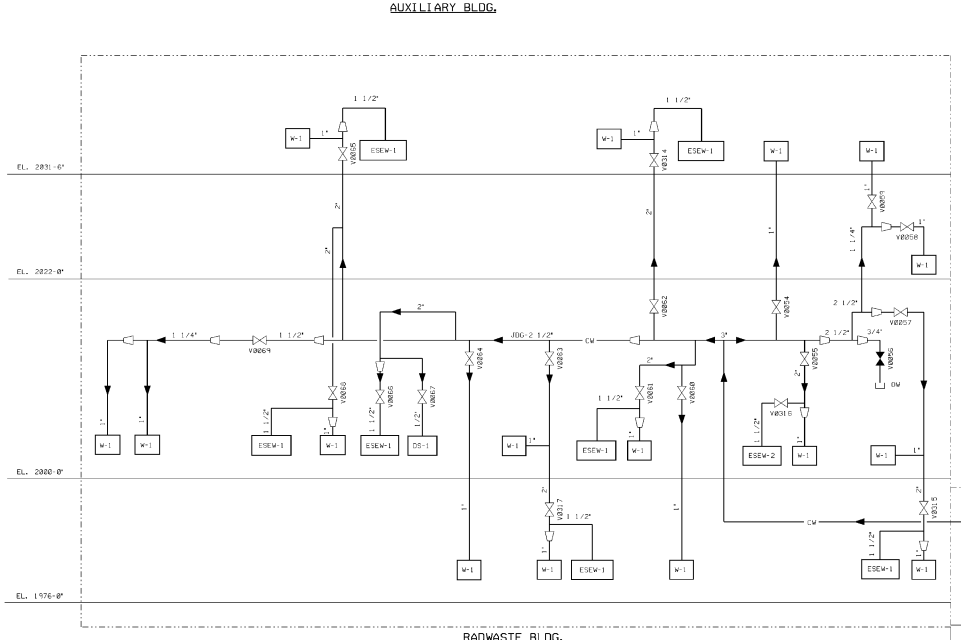
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

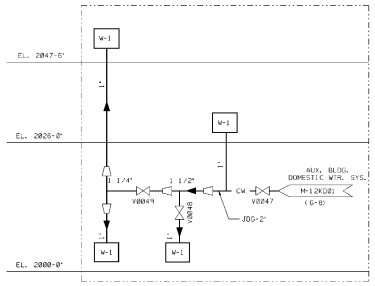
PIPING AND INSTRUMENTATION DIAGRAM DEMINERALIZED WATER STORAGE AND TRANSFER SYSTEM

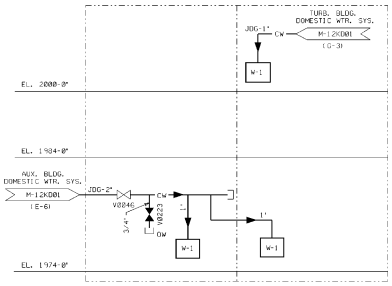
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12AN01	1	38

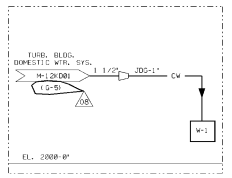
34X44 E SIZE

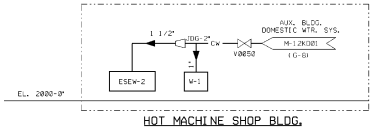


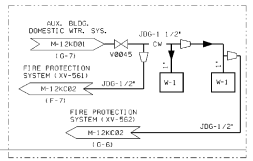












USAR FIG. 9.2-17-01

ESSENTIAL DRAWING

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○ ISSUED			

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REVISION NOTES: REV. TO INCORP. COMPONENT IDENTIFICATION NUMBERS PER PIR & REV. PER AP 005-BLD, SECTION B.1.A, TABLE A, TYPE 2.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM DOMESTIC WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KD01	1	08

34X44 E SIZE

ABANDONED IN PLACE

MAKEUP TO ELECTRIC STEAM HUMIDIFIER
M-12BK02 (B-3)
WELDED CAP
V0525 (SEE NOTE 4)
V0524

CONTROL ROOM PANTRY, TOILETS AND JANITOR'S CLOSET

CONFERENCE ROOM AREA

WORK CONTROLS/ RELIEF CREW AREA

HOT LAB

ACCESS CONTROL AREA

CONTROL BUILDING

COMMUNICATIONS CORRIDOR

TURBINE BLDG. TOILETS AREA

TURBINE BUILDING SAMPLE LAB

TURBINE BLDG. TOILETS AREA

EL. 2047-6"
EL. 2032-0"
EL. 2016-0"
EL. 2000-0"
EL. 1984-0"
EL. 1974-0"
EL. 2065-0"
EL. 2033-0"
EL. 2010-0"
EL. 2000-0"

DOMESTIC WATER SUPPLY FROM TURBINE BLDG. M-12KD02 (B-6)

PKD01 HOT WATER CIRCULATOR
TKD02 200 GAL.
TKD01 200 GAL.
TKD09
TKD05
TKD06
TKD07

REGULATING PLUG VALVE
BACKFLOW PREVENTOR VALVE
FOB
NOTE 3
NOTE 2

KB-413-JDG-3/4 TO BREATHING AIR COMPRESSOR SKB01A M-12KB02 (A-2)
KB-412-JDG-3/4 TO BREATHING AIR COMPRESSOR SKB01B M-12KB02 (A-8)
GK-342-HBD-1/2
CONTRACTOR VENDOR SKID

CONTROL AND COMM. CORR. BLDG'S. DOMESTIC WTR. SYS. M-12KD02 (G-2)
TURBINE BUILDING DOMESTIC WTR. SYS. M-12KD01 (G-4)
PROCESS SAMPLING LAB DOMESTIC HOT WATER HEATER
ATOMIC ABSORPTION SPECTROPHOTOMETER M-12EE82 (A-2)

NOTE

1. FOR GENERAL NOTES, SEE DRAWING M-12KD01.
2. VALVE V0550 MUST BE LOCKED OPEN WHEN EITHER HEATER IS OPERATING.
3. EACH HEATER'S OUTLET VALVE MUST BE LOCKED OPEN DURING THAT HEATER'S OPERATION.
4. PIPE IS CAPPED AND ABANDONED IN PLACE PER CCP 09991.

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED	WIP-M-12KD02-022-A-1	CHANGE 014806
○ ISSUED	CHG. DOC.	WIP-M-12KD02-022-B-1	PKG. NO. 013979

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REVISION NOTES: ALSO REFLECT AS-BUILD INFORMATION PER FIELD.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

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Linda R Kaminski
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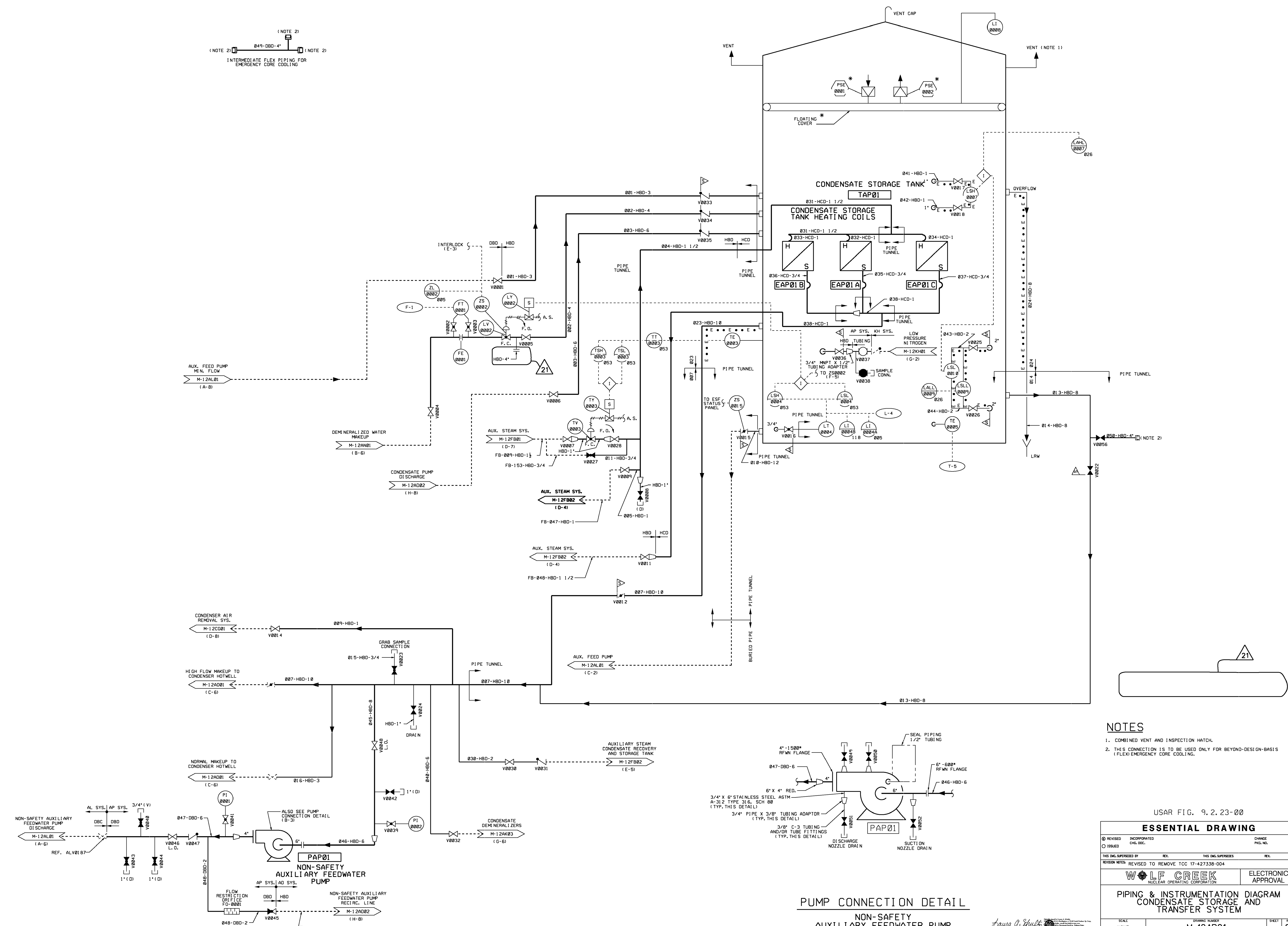
PIPING & INSTRUMENTATION DIAGRAM DOMESTIC WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KD02		25

34X44 E SIZE



INTERMEDIATE FLEX PIPING FOR EMERGENCY CORE COOLING
049-DBD-4"
(NOTE 2)
VENT CAP
VENT
VENT (NOTE 1)
FLOATING COVER
CONDENSATE STORAGE TANK
TAP01
CONDENSATE STORAGE TANK HEATING COILS
EAP01 B
EAP01 A
EAP01 C
OVERFLOW
PIPE TUNNEL
LOW PRESSURE NITROGEN
M-12KH01
SAMPLE CONN.
3/4" MNPT X 1/2" TUBING ADAPTER TO ZS0002 (F-5)
TO ESF STATUS PANEL
AUX. FEED PUMP MIN. FLOW
M-12AL01
DEMINERALIZED WATER MAKEUP
M-12AN01
CONDENSATE PUMP DISCHARGE
M-12AD02
AUX. STEAM SYS.
M-12FB01
M-12FB02
INTERLOCK (E-3)
LAW
BURIED PIPE
AUX. FEED PUMP
CONDENSER AIR REMOVAL SYS.
M-12CG01
HIGH FLOW MAKEUP TO CONDENSER HOTWELL
M-12AD01
GRAB SAMPLE CONNECTION
NORMAL MAKEUP TO CONDENSER HOTWELL
AUXILIARY STEAM CONDENSATE RECOVERY AND STORAGE TANK
CONDENSATE DEMINERALIZERS
M-12AK03
NON-SAFETY AUXILIARY FEEDWATER PUMP DISCHARGE
REF. ALV0187
ALSO SEE PUMP CONNECTION DETAIL (B-3)
PAP01
NON-SAFETY AUXILIARY FEEDWATER PUMP
FLOW RESTRICTION ORIFICE FO-0001
NON-SAFETY AUXILIARY FEEDWATER PUMP RECIRC. LINE
4"-1500# RFWN FLANGE
SEAL PIPING 1/2" TUBING
6"-600# RFWN FLANGE
6" X 4" RED.
3/4" X 6" STAINLESS STEEL ASTM A-312 TYPE 316, SCH 80 (TYP. THIS DETAIL)
3/4" PIPE X 3/8" TUBING ADAPTOR (TYP. THIS DETAIL)
3/8" C-3 TUBING AND/OR TUBE FITTINGS (TYP. THIS DETAIL)
DISCHARGE NOZZLE DRAIN
SUCTION NOZZLE DRAIN
PUMP CONNECTION DETAIL
NON-SAFETY AUXILIARY FEEDWATER PUMP

NOTES

1. COMBINED VENT AND INSPECTION HATCH.
2. THIS CONNECTION IS TO BE USED ONLY FOR BEYOND-DESIGN-BASIS (FLEX) EMERGENCY CORE COOLING.

USAR FIG. 9.2.23-00

ESSENTIAL DRAWING

REVISED — INCORPORATED CHG. DOC.

REVISION NOTES: REVISED TO REMOVE TCC 17-427338-004

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE STORAGE AND TRANSFER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12AP01		21

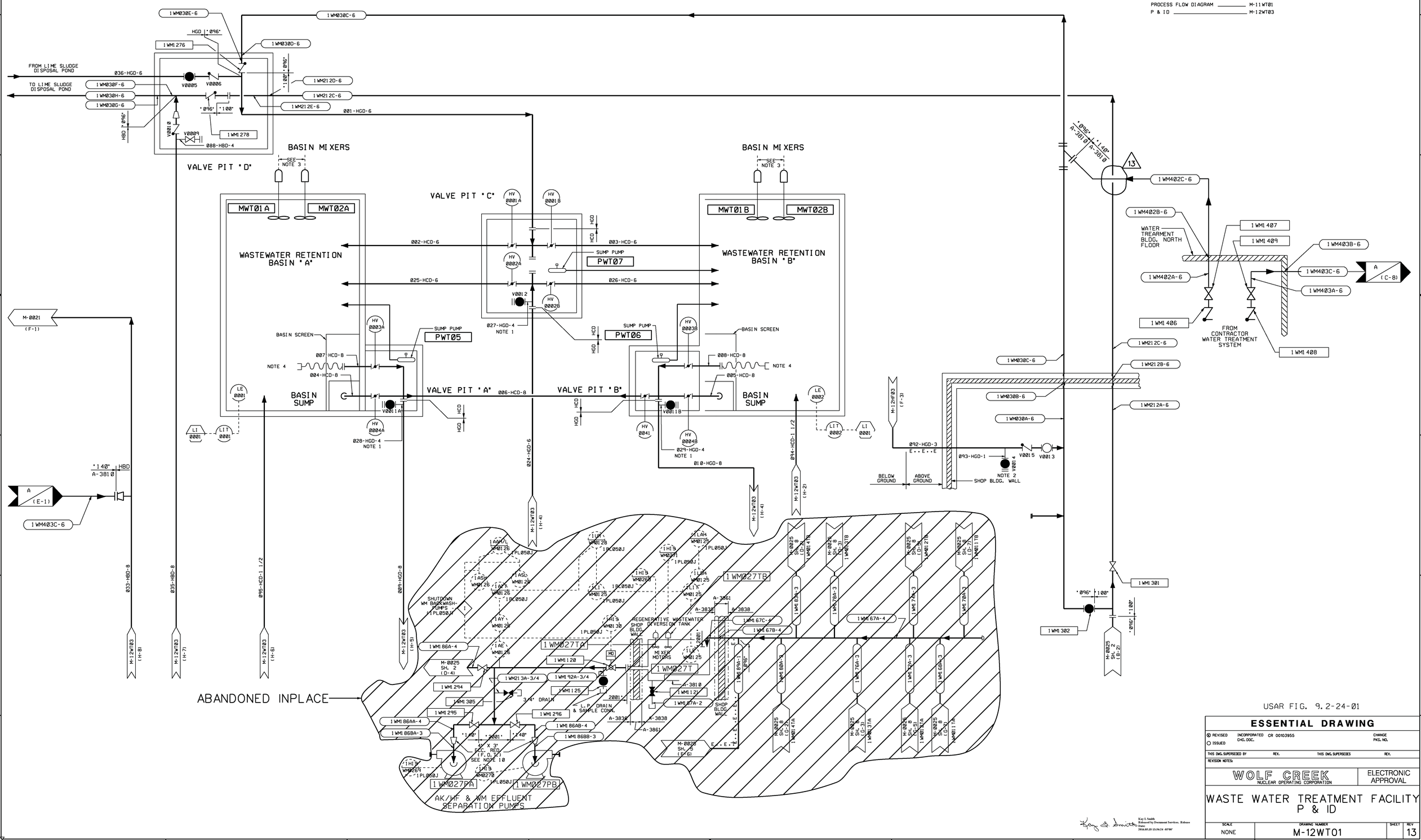
34X44 E SIZE

NOTES

1. VENDOR PROCESSING CONNECTIONS (TYP. 3 PLCS).
2. PH GRAB SAMPLE POINT (TYP. 4 PLCS).
3. ALL VALVES (HV) AND BASIN MIXERS HAVE STATUS AND/OR CONTROL I/O SEE NOTE 3 AND DETAILS ON DWG. M-12WT03.
4. FLOATING SUCTION SHALL BE ADDED AT A LATER DATE.
5. ALL BURIED PROCESS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION A-031.
6. PROCESS PIPING TO BE FURNISHED AND INSTALLED PER SPECIFICATION A-031 (UNLESS NOTED OTHERWISE).
7. FOR CATHODIC PROTECTION SEE S&L DRAWING E-0091 SHT. 8.
8. DELETED
9. INSTRUMENT AND TUBING FIELD INSTALLATION TO BE IN ACCORDANCE WITH SPEC. A-3838 STD. MF-130.10.2.
10. DELETED

REFERENCE DRAWINGS

PROCESS FLOW DIAGRAM _____ M-11WT01
P & ID _____ M-12WT03



USAR FIG. 9.2-24-01

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR 00103955	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

Kay J. Smith
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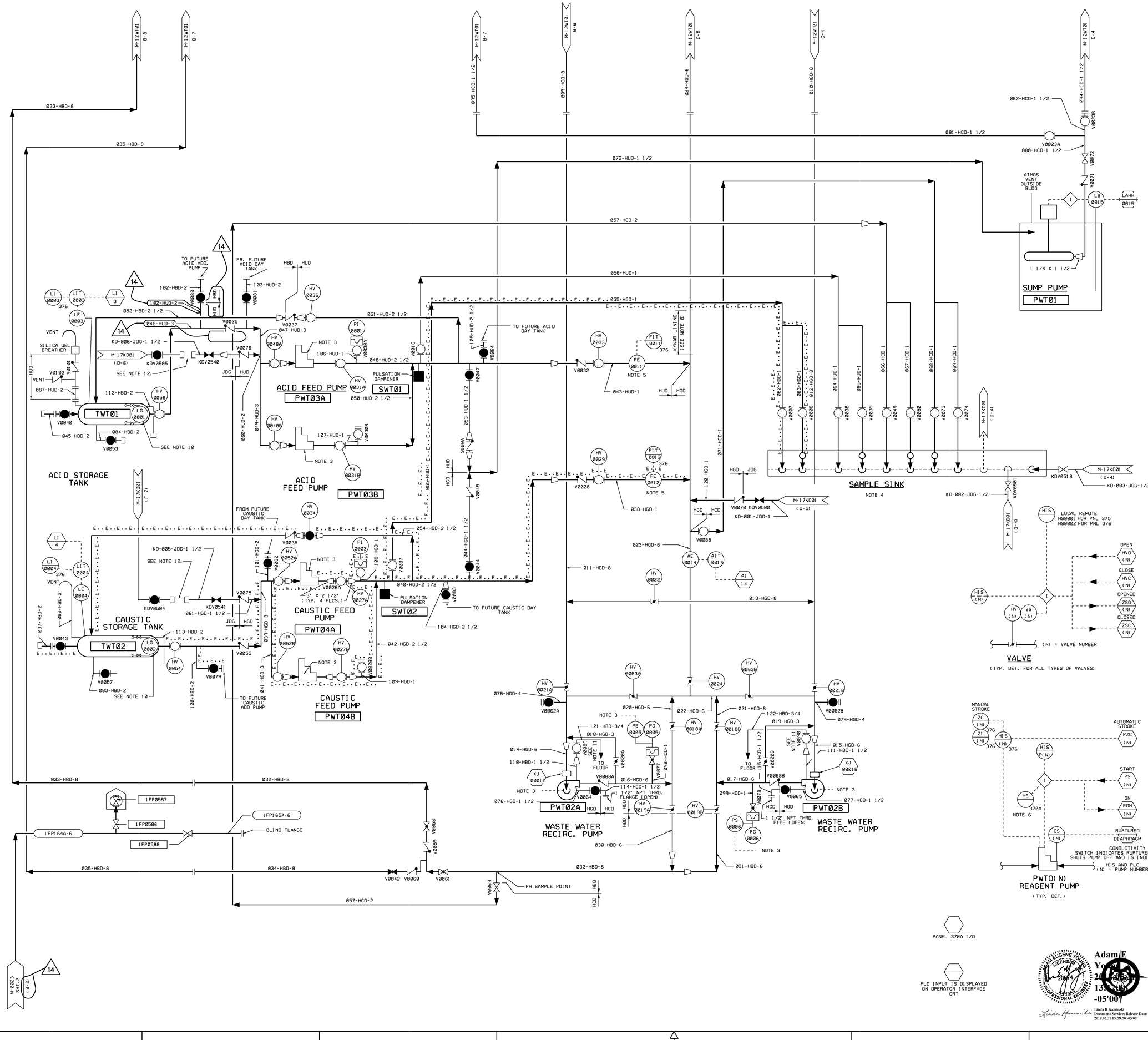
WASTE WATER TREATMENT FACILITY P & ID

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12WT01		13

34X44 E SIZE



NOTES

1. PUMP AND TANK DRAINS SHALL DRAIN INTO A FLOOR DRAIN SYSTEM WHICH IN TURN SHALL DRAIN INTO THE BUILDING SUMP.
2. ALL PROCESS PIPING INSIDE THE WASTE WATER TREATMENT FACILITY SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION A-031.
3. ALL VALVES (HV), REAGENT PUMPS, RECIRCULATION PUMPS AND MIXERS HAVE STATUS AND/OR CONTROL I/O SEE TYPICAL DETAILS BELOW.
4. SAMPLE SINK SHALL BE STAINLESS STEEL "P" TRAP, WITH THE FOLLOWING DIMENSIONS.
   LENGTH-4'-0"
   WIDTH - 18"
   HEIGHT - 2'-10"
5. DIGITAL FLOW TRANSMITTER WITH TOTALIZER INDICATOR
6. NORMAL OPERATION IS PUMPS 3A AND 4A FOR BASIN A ACID OR CAUSTIC PUMPS 3B AND 4B FOR BASIN B. HS-3 AND HS-4 IN THE NORMAL POSITION WILL ENABLE THIS ACTION. IF HS 3 IS PUT IN NORMAL 3A AND 4A WILL BE CHOSEN FOR BASIN A LIKEWISE FOR HS-4, IN NORMAL POSITION 3B AND 4B WILL BE CHOSEN FOR BASIN B. IF HS-3 IS PUT IN "SPARE" POSITION WITH HS-4 IN NORMAL 3A AND 4A WILL NOT BE USED. THIS IS TO ALLOW FOR MAINT. ON PUMPS 3A AND 4A AND ALLOWING NORMAL CONTROL FROM THE PLC. LIKEWISE IF HS-4 IS PUT IN THE SPARE POSITION PUMPS 3B AND 4B WILL NOT BE USED, PUMPS 3A AND 4A WILL BE USED FOR BASIN B VIA THE PLC PROGRAM.
7. FIRE PROTECTION PIPING TO BE FURNISHED AND INSTALLED PER SPECIFICATION A-031.
8. SEE PIPING PLAN M-1CWT01 (ZONE B-5) FOR PHYSICAL LOCATION OF KYNAR LINED PIPE. SPOOL PIECE SHALL BE DOW KYNAR LINED PIPE.
9. PRESSURE SWITCH SHUTS PUMP OFF ON HIGH DISCHARGE PRESSURE.
10. CURRENTLY A BULLS-EYE SIGHT GLASS IS PROVIDED.
11. BALL VALVES V0089 AND V0090 ARE STAINLESS STEEL.
12. HOSE TO BE INSTALLED FOR FLUSHING WHEN REQUIRED.

REFERENCE DRAWINGS

PROCESS FLOW DIAGRAM	M-11WT01
P & ID	M-12WT01

USAR FIG. 9.2-25-01

Adam E Young
-05'00'

Linda Kaminski

Linda R Kaminski
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2018.05.31 15:58:50 -05'00'

ADAM EUGENE YOUNG
20674

ESSENTIAL DRAWING

☒ REVISED
○ ISSUED
INCORPORATED CHG. DOC.
CHANGE PKG. NO. 020144

THIS DWG. SUPERSEDED BY REV. THIS DWG. SUPERSEDES REV.

REVISION NOTES: UPDATED REFERENCE AT A-8 PER ADMIN CHANGE

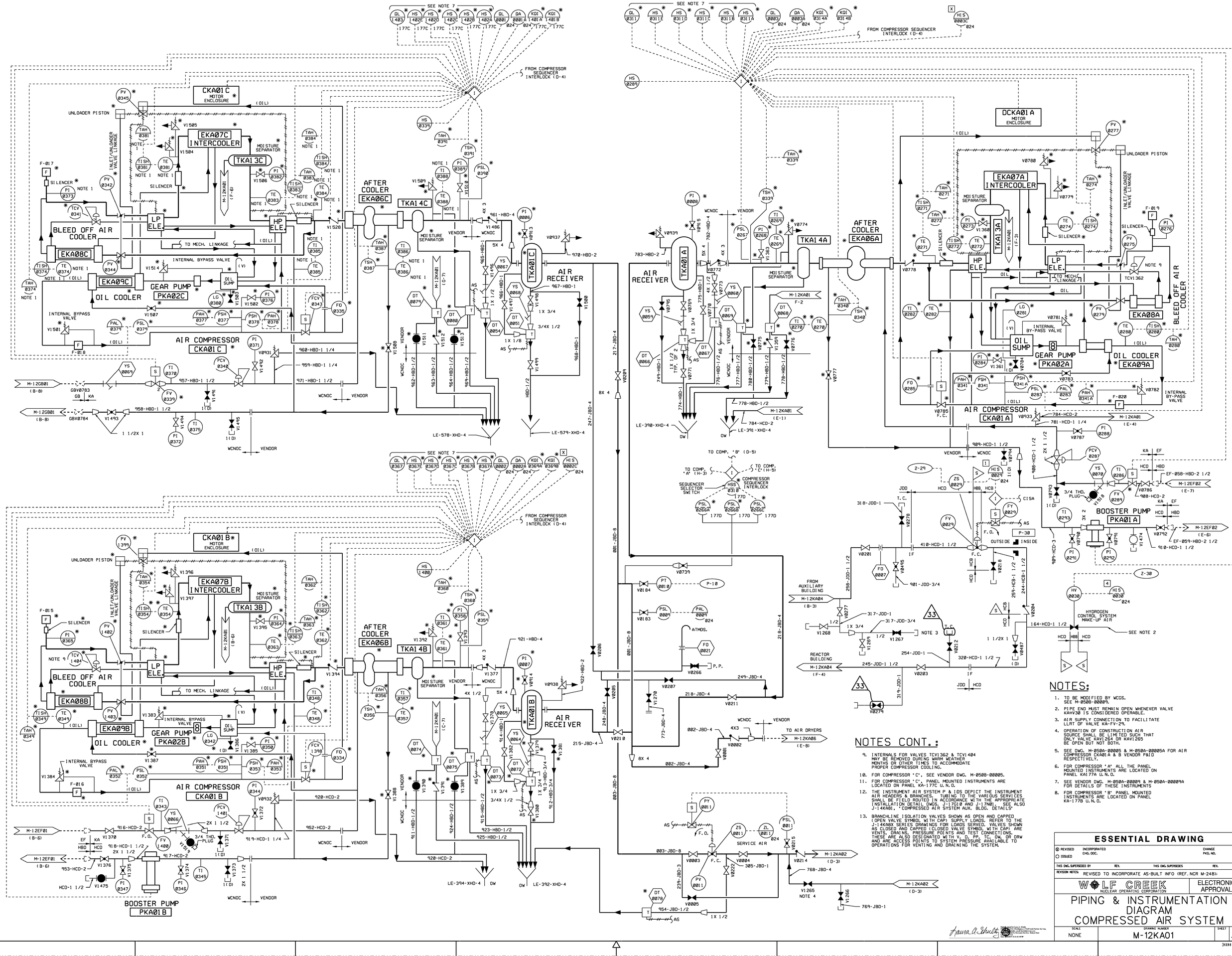
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

WASTE WATER TREATMENT
FACILITY
P & ID

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12WT03		14

34X44 E SIZE



NOTES:

1. TO BE MODIFIED BY WCGS. SEE M-0508-00009.
2. PIPE END MUST REMAIN OPEN WHENEVER VALVE KAHV30 IS CONSIDERED OPERABLE.
3. AIR SUPPLY CONNECTION TO FACILITATE LLRT OF VALVE KA-FV-29.
4. OPERATION OF CONSTRUCTION AIR SOURCE SHALL BE LIMITED SUCH THAT ONLY VALVE KAV1264 OR KAV1265 BE OPEN BUT NOT BOTH.
5. SEE DWG. M-050A-00005 & M-050A-00005A FOR AIR COMPRESSOR CKA01A A & B VENDOR P&ID RESPECTIVELY.
6. FOR COMPRESSOR 'A' ALL THE PANEL MOUNTED INSTRUMENTS ARE LOCATED ON PANEL KA177A U.N.O.
7. SEE VENDOR DWG. M-050A-00003 & M-050A-00009A FOR DETAILS OF THESE INSTRUMENTS
8. FOR COMPRESSOR 'B' PANEL MOUNTED INSTRUMENTS ARE LOCATED ON PANEL KA-177B U.N.O.

NOTES CONT.:

9. INTERNALS FOR VALVES TCV1362 & TCV1404 MAY BE REMOVED DURING WARM WEATHER MONTHS OR OTHER TIMES TO ACCOMMODATE PROPER COMPRESSOR COOLING.
10. FOR COMPRESSOR 'C', SEE VENDOR DWG. M-050B-00005.
11. FOR COMPRESSOR 'C', PANEL MOUNTED INSTRUMENTS ARE LOCATED ON PANEL KA-177C U.N.O.
12. THE INSTRUMENT AIR SYSTEM P & IDS DEPICT THE INSTRUMENT AIR HEADERS & BRANCHES. TUBING TO THE VARIOUS SERVICES SHALL BE FIELD ROUTED IN ACCORDANCE WITH THE APPROPRIATE INSTALLATION DETAIL DWGS. J-17J10 AND J-17N01. SEE ALSO J-14KA81, 'COMPRESSED AIR SYSTEM AUX. BLDG. DETAILS'
13. BRANCHLINE ISOLATION VALVES SHOWN AS OPEN AND CAPPED (OPEN VALVE SYMBOL WITH CAP) SUPPLY LOADS. REFER TO THE J-14KA8X SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED AND CAPPED (CLOSED VALVE SYMBOL WITH CAP) ARE VENTS, DRAINS, PRESSURE POINTS AND TEST CONNECTIONS. THESE ARE ALSO DESIGNATED WITH V, D, PP, IC, OW, OR DRW AND ARE ACCESS POINTS TO SYSTEM PRESSURE AVAILABLE TO OPERATIONS FOR VENTING AND DRAINING THE SYSTEM.

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.
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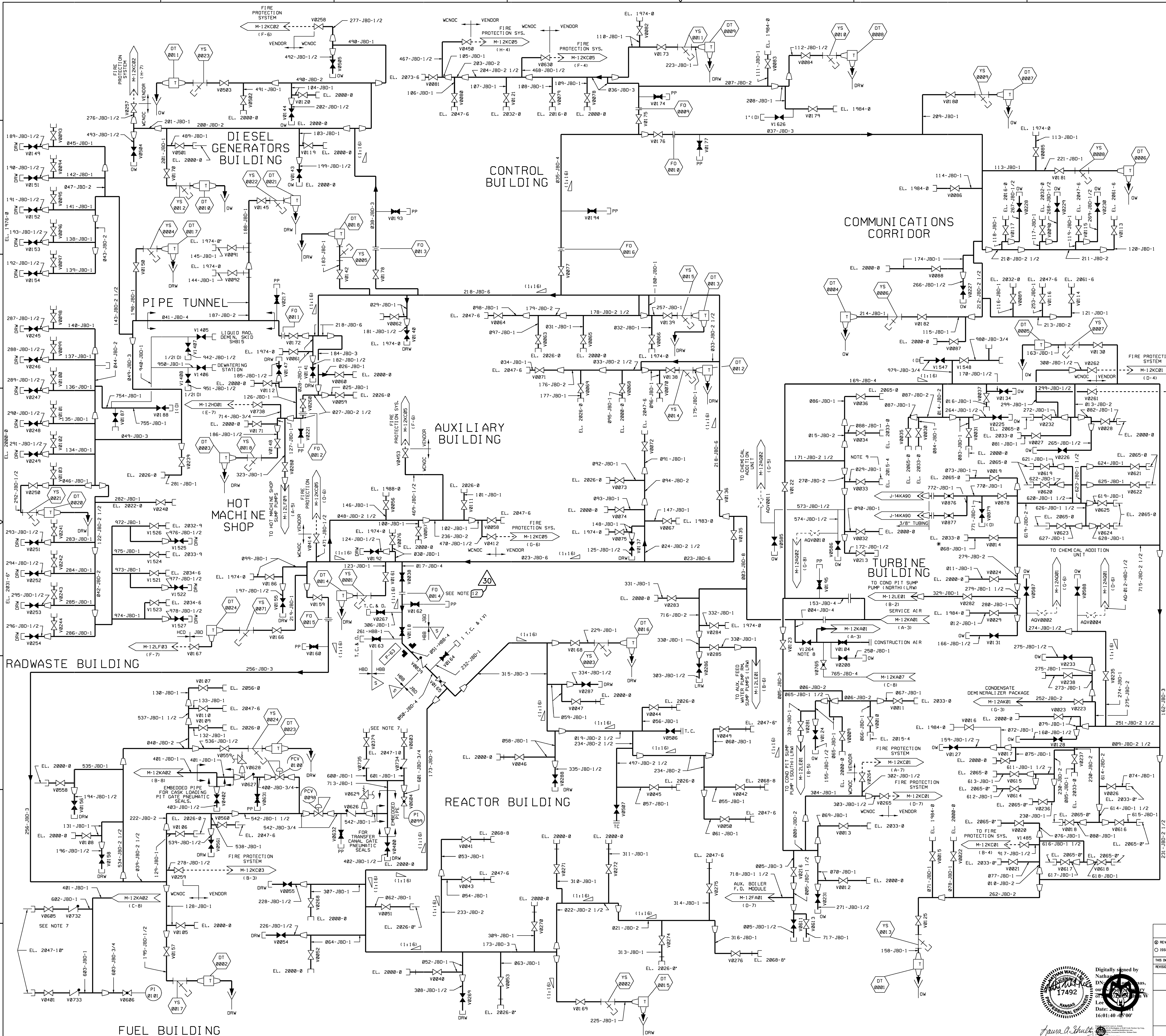
REVISION NOTES: REVISED TO INCORPORATE AS-BUILT INFO (REF. NCR M-248).

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM COMPRESSED AIR SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KA01		33

34X44 E SIZE



NOTES:

1. DRAIN TRAPS MAY BE LOCATED AT THE LOWEST POINT OF THE CLOSED LOOP OR THE LOWEST ELEVATION OF THE OPEN ENDED SUPPLY HEADER. LOCATION MAY BE CHOSEN TO SUIT EXISTING FLOOR DRAIN.
2. ALL PIPING IS JBD UNLESS SHOWN OTHERWISE.
3. AIR JACKS (CLAW COUPLING) ARE 1" UNLESS SHOWN OTHERWISE.
4. THE PORTION OF THIS SYSTEM THAT IS Q-LISTED INCLUDES THE PIPING AND VALVES ASSOCIATED WITH CONTAINMENT ISOLATION ONLY.
5. ALL HORIZONTAL BRANCH RUNS SHALL BE PITCHED 1/16' PER FOOT BACK TOWARDS THE VERTICAL HEADER.
6. ELEVATIONS INDICATED ARE FLOOR ELEVATIONS.
7. FLEXIBLE HOSE, WITH HANSEN COUPLING SET PROVIDED FOR EACH PNUEMATIC SEAL (2 SEALS PER GATE). TO BE DISCONNECTED AFTER SEAL INFLATION AND DURING GATE USE.
8. OPERATION OF CONSTRUCTION AIR SOURCE SHALL BE LIMITED SUCH THAT ONLY VALVE KAV1264 OR KAV1265 BE OPEN BUT NOT BOTH.
9. SERVICE AIR CONNECTION TO STAIRWELL T-1 DIAPHRAGM PUMP.
10. BRANCHLINE ISOLATION VALVES SHOWN AS OPEN AND CAPPED (OPEN VALVE SYMBOL WITH CAP) SUPPLY LOADS. REFER TO THE J-14KA8X SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED AND CAPPED (CLOSED VALVE SYMBOL WITH CAP) ARE VENTS, DRAINS, PRESSURE POINTS AND TEST CONNECTIONS. THESE ARE ALSO DESIGNATED WITH V, D, PP, TC, OW, OR DRW AND ARE ACCESS POINTS TO SYSTEM PRESSURE AVAILABLE TO OPERATIONS FOR VENTING AND DRAINING THE SYSTEM.
11. DELETED
12. FLOW ORIFICE KAF00014 MAY BE LEFT OUT PERMANENTLY OR REINSTALLED IF NEEDED TO SUPPORT PLANT ACTIVITIES.

30

ESSENTIAL DRAWING

⊗ REVISED / ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	020187
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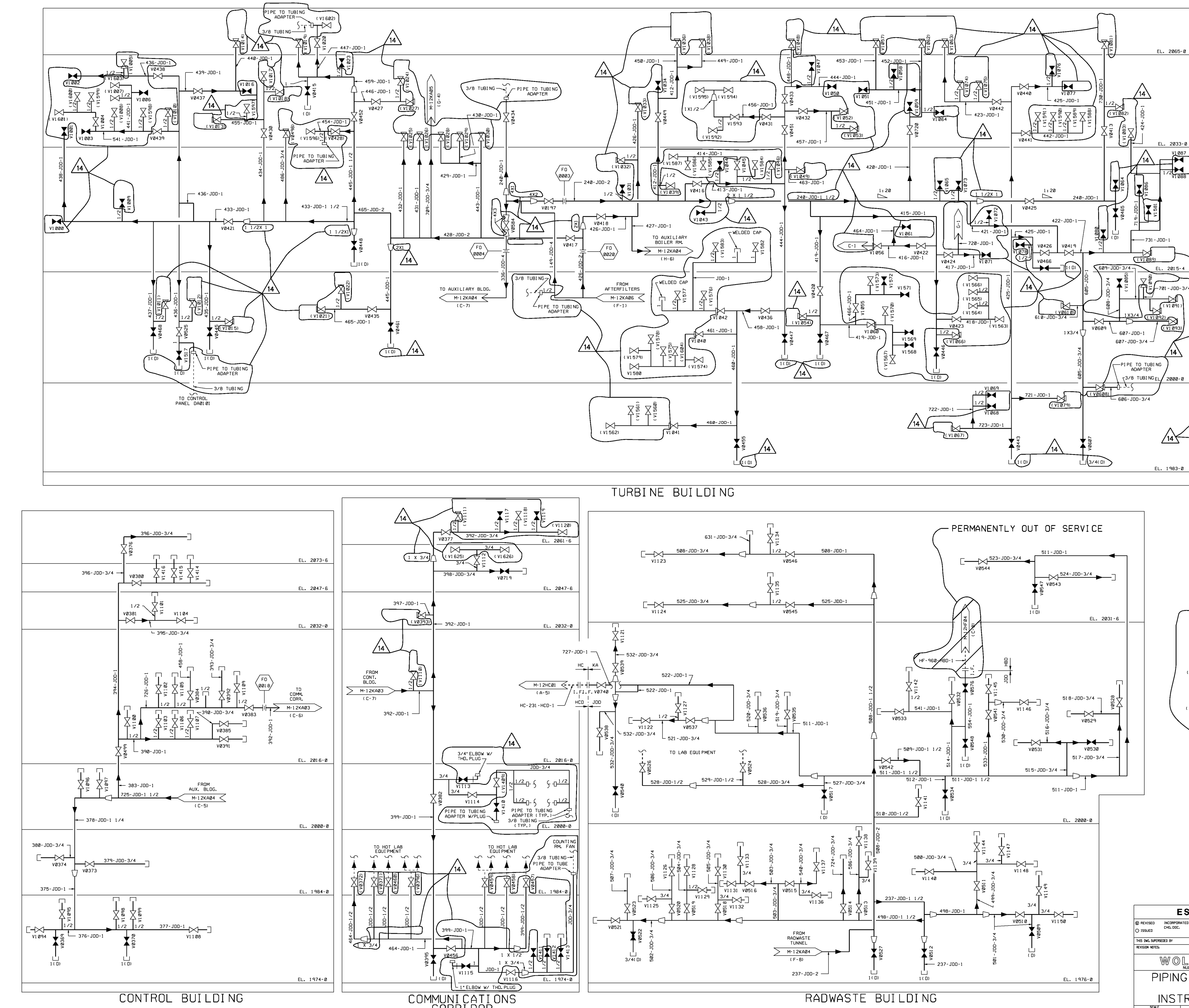
REVISION NOTES:	DELETED NOTE 11 AND ADDED NOTE 12.		

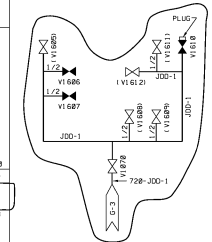
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

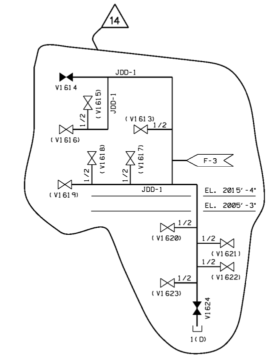
PIPING & INSTRUMENTATION DIAGRAM COMPRESSED AIR SYSTEM (SERVICE AIR)

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KA02		30

34X44 E SIZE







NOTES

1. THE INSTRUMENT AIR SYSTEM P & IDS DEPICT THE INSTRUMENT AIR HEADERS & BRANCHES. TUBING TO THE (VARIOUS SERVICES SHALL BE FIELD ROUTED IN ACCORDANCE WITH THE APPROPRIATE INSTALLATION DETAIL DWGS. 10466-J07G10 AND (LATER).
2. THE HORIZONTAL PIPE RUNS SHALL SLOPE AT A MINIMUM OF 1/16 PER FOOT UNLESS OTHERWISE NOTED.
3. ALL BRANCH LINES AND TEES ARE CAPPED DURING SYSTEM INSTALLATION TO PROVIDE THE SYSTEM PRESSURE BOUNDARY AND TO PROMOTE SYSTEM CLEANLINESS. CAPS ARE REMOVED AS REQUIRED WHEN INSTRUMENT AIR TUBING IS FIELD ROUTED AND CONNECTED TO THE INSTRUMENT AIR SYSTEM.
4. BRANCHES WITHOUT LINE SEQUENCE NUMBERS ARE CAPPED TEES ONLY.
5. DRAIN LINES CARRY THE LINE SEQUENCE NUMBER OF THE LINE THEY ARE BRANCHING FROM UNLESS OTHERWISE INDICATED.
6. VALVE NUMBERS V1000 THROUGH V1260 AND THE ASSOCIATED TUBING DOWNSTREAM OF THE VALVES ARE NOT SHOWN ON KA SYSTEM ISOMETRIC AND ORTHOGRAPHIC INSTRUMENT AIR DRAWINGS.
7. DELETED
8. FOR CONTROL AND RADWASTE BUILDINGS, BRANCH LINE ISOLATION VALVES SHOWN AS OPEN AND CAPPED (OPEN VALVE SYMBOL WITH CAP) SUPPLY LOADS. REFER TO THE J-14KAXX SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED AND CAPPED (CLOSED VALVE SYMBOL WITH CAP) ARE VENTS, DRAINS, PRESSURE POINTS AND TEST CONNECTIONS. THESE ARE ALSO DESIGNATED WITH V, D, PP, TC, DW, OR DRW AND ARE ACCESS POINTS TO SYSTEM PRESSURE AVAILABLE TO OPERATIONS FOR VENTING AND DRAINING THE SYSTEM.
9. FOR TURBINE AND COMMUNICATION CORRIDOR BUILDINGS, BRANCH LINE ISOLATION VALVES SHOWN OPEN WITH VALVE NUMBERS SHOWN WITHIN PARENTHESES (VXXXX) IDENTIFY FIELD ROUTED INSTRUMENT AIR TUBING (SUPPLY LOADS) TO EQUIPMENT. REFER TO THE J-14KAXX SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED OR CAPPED COULD BE USED AS VENTS, DRAINS, PRESSURE POINTS OR TEST CONNECTIONS. THESE ARE ALSO DESIGNATED WITH V, D, PP, TC, DW, OR DRW AND ARE ACCESS POINTS TO SYSTEM.

Trudy J Smither
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2014.10.02 14:05:50 -05'00'

USAR FIG. 9.3-1-03

ESSENTIAL DRAWING

⊗ REVISED / ○ ISSUED	INCORPORATED CHG. DOC. CR*00079500		CHANGE PKG. NO.
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REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM INSTRUMENT AIR SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KA03		14

34X44 E SIZE
M-12KA03+1+14

HOT MACHINE SHOP

REFUELING WATER STORAGE TANK VALVE PIT

RADWASTE TUNNEL

FUEL BUILDING

AUXILIARY BOILER ROOM

DIESEL GENERATOR BUILDING

REACTOR BUILDING

AUXILIARY BUILDING

NOTES

1. FOR NOTES SEE DWG. M-12KA03.
2. SEE DWG. J-14KA01 FOR INSTRUMENT VALVES DOWNSTREAM OF ISOLATION VALVES.
3. BRANCHLINE ISOLATION VALVES SHOWN AS OPEN AND CAPPED (OPEN VALVE SYMBOL WITH CAP) SUPPLY LOADS. REFER TO THE J-14KA8X SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED AND CAPPED (CLOSED VALVE SYMBOL WITH CAP) ARE VENTS, DRAINS, PRESSURE POINTS AND TEST CONNECTIONS (EXCEPT FOR VALVE V1222, WHICH IS IN ACCORDANCE WITH J-14KA81) THESE ARE ALSO DESIGNATED WITH V, D, PP, TC, DW, OR DRW AND ARE ACCESS POINTS TO SYSTEM PRESSURE AVAILABLE TO OPERATIONS FOR VENTING AND DRAINING THE SYSTEM.

RIC-WIL COND.

AIR TANK TKA15

DEMINERALIZED WATER STORAGE TANK

CONDENSATE STORAGE TK.

CONDENSATE & DEMINERALIZED WATER STORAGE TANKS PIPE TRENCH

Digitally signed by Sarah W Sauerwein
DN: cn=Sarah W Sauerwein, o=Wolf Creek Nuclear Operating Corporation, ou=Engineering, email=swsauer@wcnoc.com, c=US
Date: 2016.03.03 10:31:09 -06'00'

21

USAR FIG. 9.3-1-04

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED	CHANGE
○ ISSUED	CHG. DOC.	PKG. NO.

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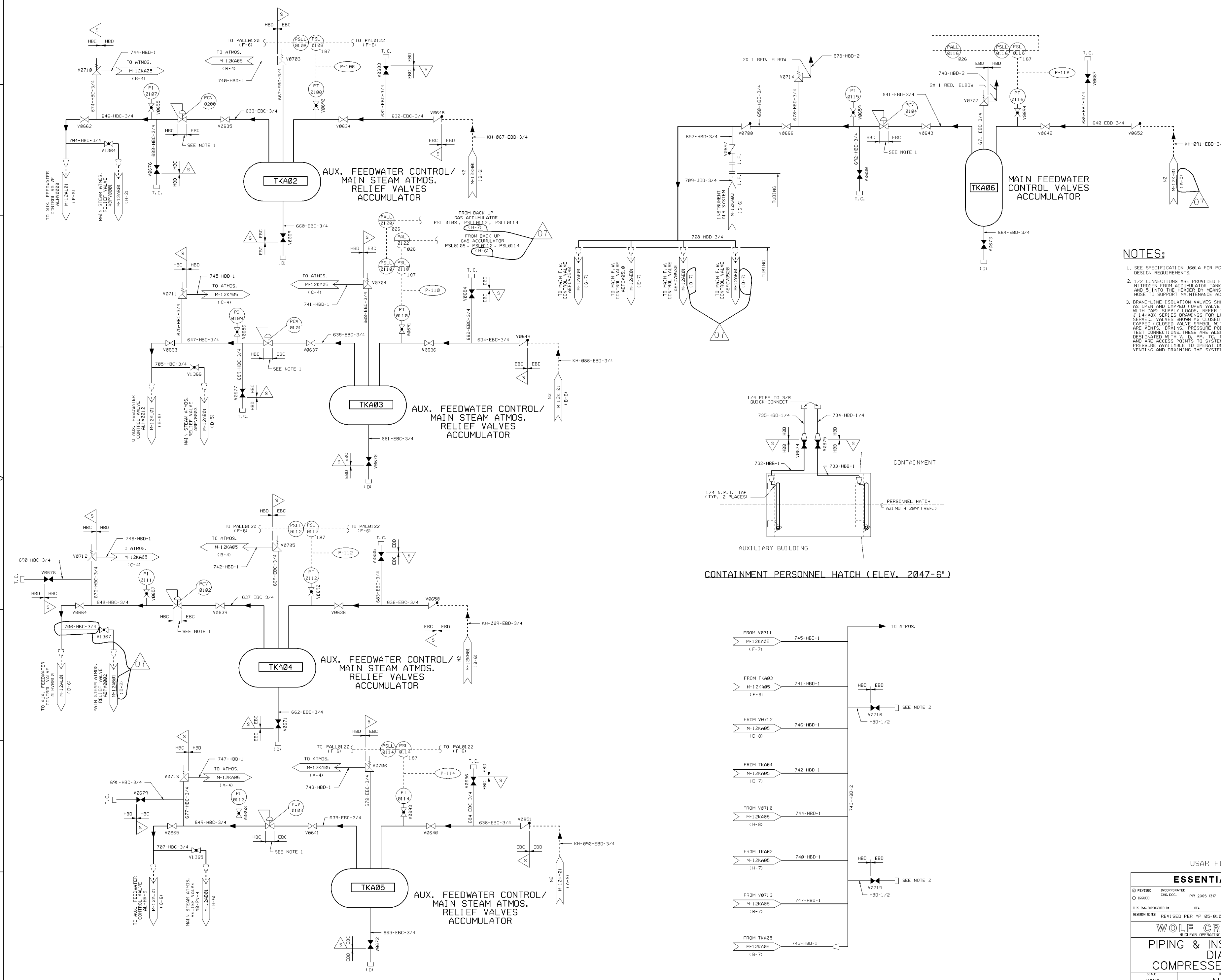
REVISION NOTES: REINSTATED USAR FIGURE NUMBER THAT WAS ERRONEOUSLY REMOVED IN A PRIOR REVISION (REF. AP05-010, Section 6.10, Table A).

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM INSTRUMENT AIR SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KA04		21

34X44 E SIZE



NOTES:

1. SEE SPECIFICATION J601A FOR PCV DESIGN REQUIREMENTS.
2. 1/2 CONNECTIONS ARE PROVIDED FOR DISCHARGING NITROGEN FROM ACCUMULATOR TANKS TKA02, 3, 4 AND 5 INTO THE HEADER BY MEANS OF A FLEXIBLE HOSE TO SUPPORT MAINTENANCE ACTIVITIES ON THE TANKS.
3. BRANCHLINE ISOLATION VALVES SHOWN AS OPEN AND CAPPED (OPEN VALVE SYMBOL WITH CAP) SUPPLY LOADS. REFER TO THE J-14KA8X SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED AND CAPPED (CLOSED VALVE SYMBOL WITH CAP) ARE VENTS, DRAINS, PRESSURE POINTS AND TEST CONNECTIONS. THESE ARE ALSO DESIGNATED WITH V, D, PP, TC, OW, OR DRW AND ARE ACCESS POINTS TO SYSTEM PRESSURE AVAILABLE TO OPERATIONS FOR VENTING AND DRAINING THE SYSTEM.

USAR FIG. 9.3-1-05

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED INCORPORATED CHG. DOC. PIR 2005-1317 CHANGE PKG. NO.

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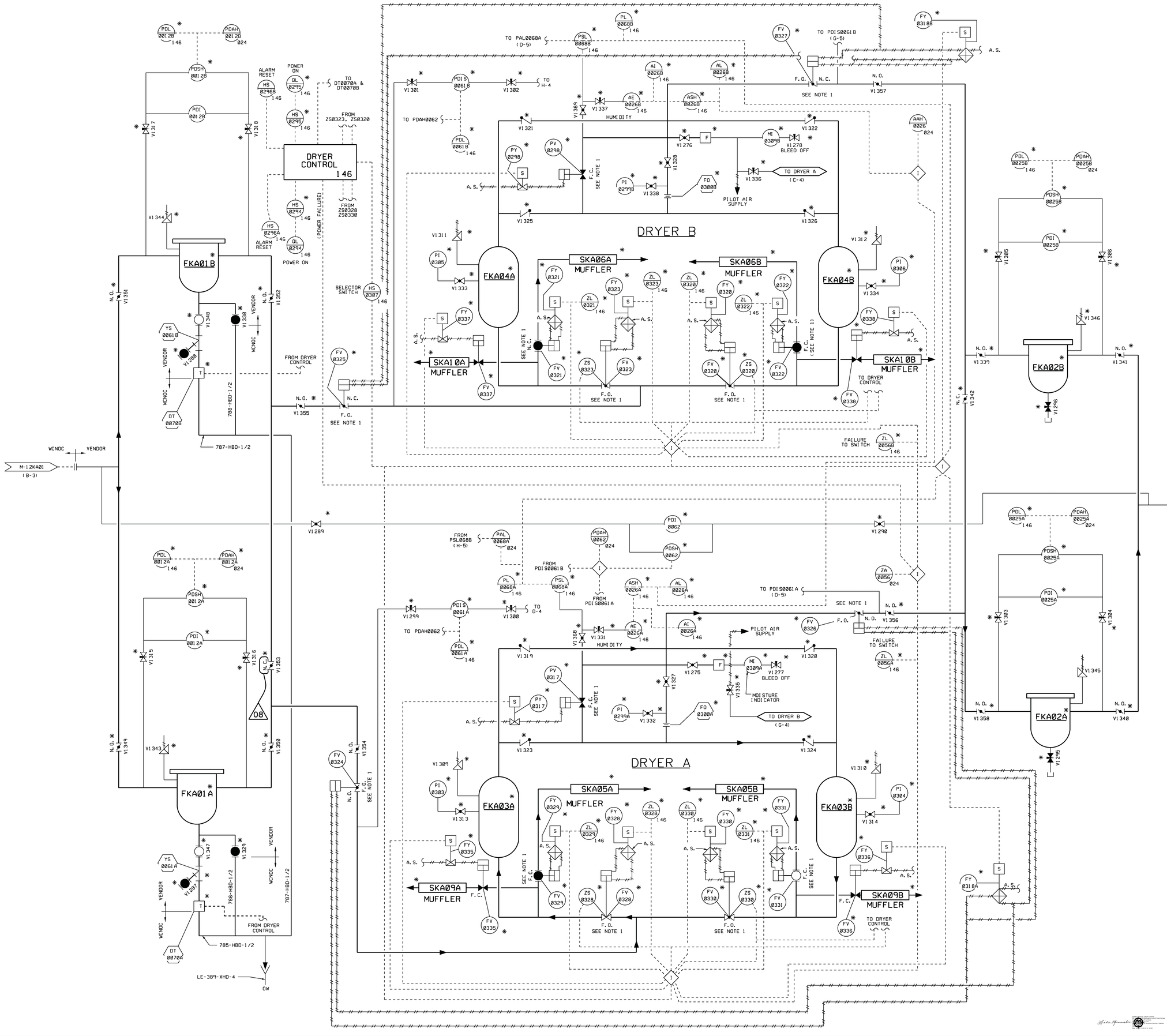
REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM COMPRESSED AIR SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KA05		07

34X44 E SIZE



NOTES:

1. THE FAILURE POSITION SHOWN IS CONSISTANT WITH A SOLENOID VALVE ELECTRICAL FAILURE.
2. SYSTEM FKA03 IS CONSIDERED 'TRAIN A', AND SYSTEM FKA04 IS CONSIDERED 'TRAIN B'.
3. TRAIN A IS SHOWN AS THE LEAD TRAIN WITH THE LEFT TOWER IN THE DRYING CYCLE AND THE RIGHT TOWER REGENERATING. TRAIN B IS SHOWN AS THE STANDBY TRAIN IN A DE-ENERGIZED CONDITION.
4. RELIEF VALVE SETTING: 150 ±3 PSI FOR VALVES KAV1309, V1310, V1311, V1312, V1343, V-1344, V1345, V1346.
5. SOLENOID FV0318A DRIVES FV0234 & FV0326 (TRAIN A OPERATING VALVES) AND SOLENOID FV0318B DRIVES FV0325 & FV0327 (TRAIN B OPERATING VALVES).
6. BRANCHLINE ISOLATION VALVES SHOWN AS OPEN AND CAPPED (OPEN VALVE SYMBOL WITH CAP) SUPPLY LOADS. REFER TO THE J-14KA0X SERIES DRAWINGS FOR LOADS SERVED. VALVES SHOWN AS CLOSED AND CAPPED (CLOSED VALVE SYMBOL WITH CAP) ARE VENTS, DRAINS, PRESSURE POINTS AND TEST CONNECTIONS. THESE ARE ALSO DESIGNATED WITH V, D, PP, TC, DW, OR DRW AND ARE ACCESS POINTS TO SYSTEM PRESSURE AVAILABLE TO OPERATIONS FOR VENTING AND DRAINING THE SYSTEM.

USAR FIG. 9.3-1-06

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR 00105435	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

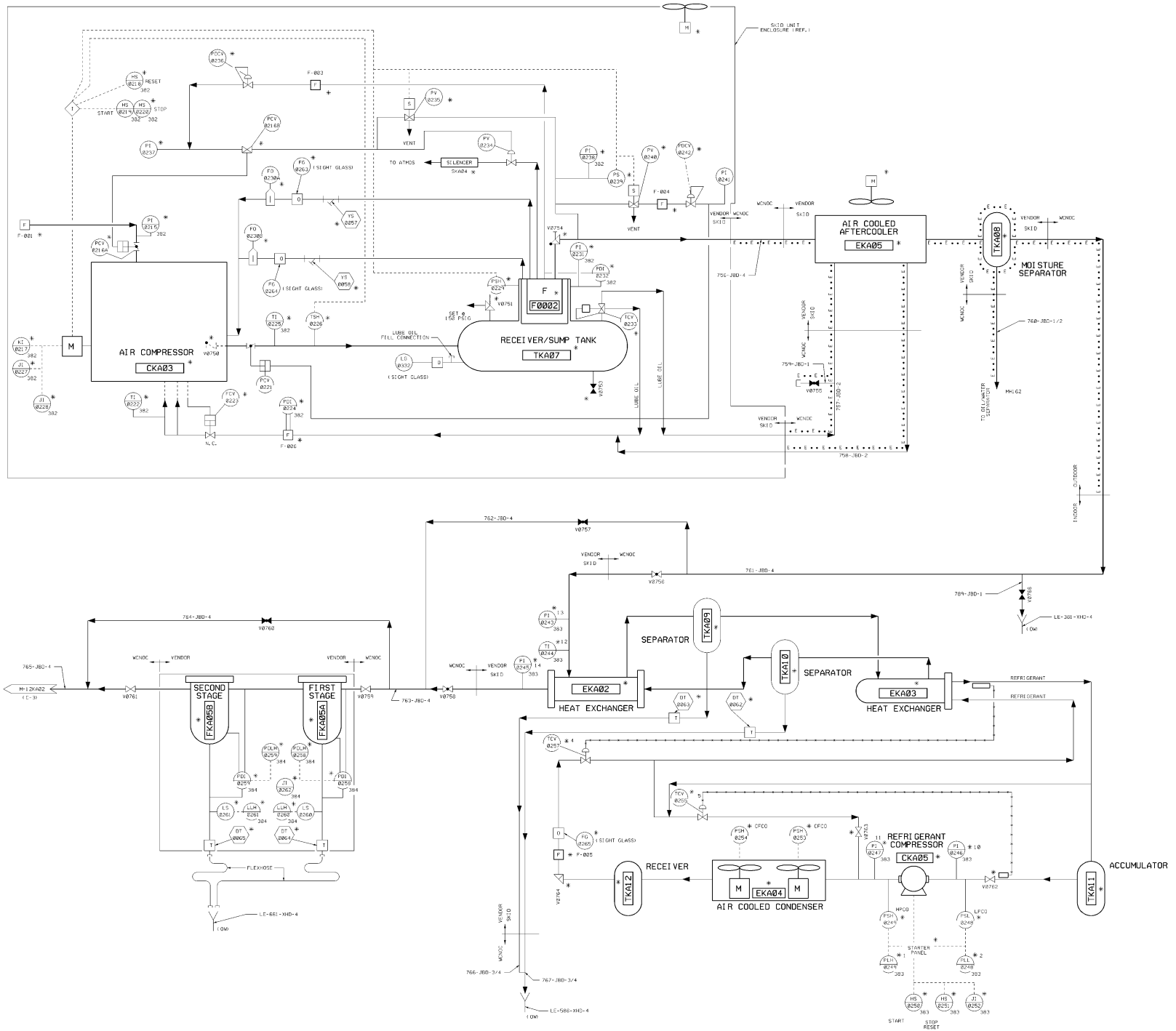
WOLF CREEK NUCLEAR OPERATING CORPORATION

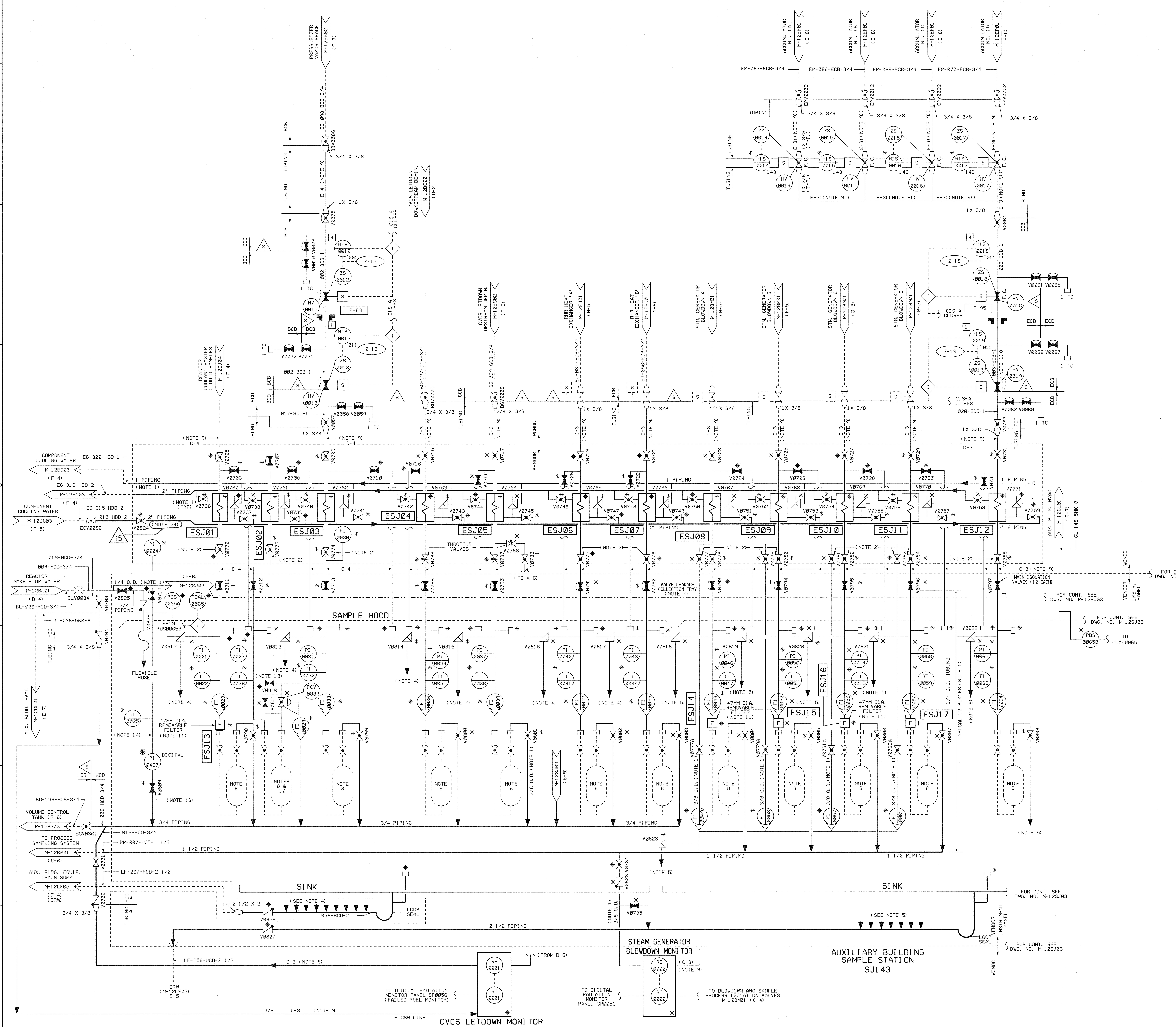
ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM COMRESSED AIR SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KA06		08

34X44 E SIZE





NOTES:

1. ALL VENDOR SAMPLE LINES ARE AUSTENITIC STAINLESS STEEL TUBING IN ACCORDANCE WITH STANDARD CODES FOR POWER PIPING ANSI B31.1-1973 ALL TUBING IS 3/8 INCH O.D. X.065 INCH WALL THICKNESS UNLESS OTHERWISE NOTED. TUBING THROUGH THE SAMPLE COOLERS MAY BE 1/4 INCH O.D. TUBING DOWNSTREAM OF THE MAIN ISOLATION VALVES MAY BE 1/4 INCH O.D. TUBING THROUGHOUT THE RADWASTE BUILDING PANEL (M-12SJ02) MAY BE 1/4 INCH O.D. DRAIN MANIFOLDS HEADERS, AND COOLER PIPING/TUBING SHALL ALSO MEET THE REQUIREMENTS OF ANSI B31.1-1973.
2. THIS VALVE IS AN ADJUSTABLE ROD - IN - TUBE TYPE FOR PRESSURE DROP AND FLOW CONTROL.
3. VALVE POSITIONS ARE SHOWN WHEN THE SAMPLE SYSTEM IS NOT IN OPERATION.
4. DIRECT DISCHARGE VIA A CLOSED CONNECTION TO A SINK DRAIN HEADER [TO AUX. BLDG. EQUIP. DRAIN SUMP (CRW)].
5. DIRECT DISCHARGE VIA A CLOSED CONNECTION TO A SINK DRAIN HEADER [TO AUX. BLDG. SUMP (DRW)].
6. DIRECT DISCHARGE VIA A CLOSED CONNECTION TO A SINK DRAIN HEADER [TO RADWASTE BLDG. EQUIP. DRAIN SUMP (CRW)].
7. DIRECT DISCHARGE VIA A CLOSED CONNECTION TO A SINK DRAIN HEADER [TO RADWASTE BLDG. SUMP (DRW)].
8. DENOTES SAMPLING CONNECTIONS FOR SAMPLE VESSELS. GRAB SAMPLES AND HOOK UP FOR IN LINE ANALYZERS CONNECTIONS ARE QUICK DISCONNECT COUPLINGS. VENDOR SHALL SUPPLY TEN (10) 500 ML CAPACITY SAMPLE VESSELS AND AT LEAST SIX (6) FAUCET ASSEMBLIES USED TO PROVIDE GRAB SAMPLES TO AN OPEN CONTAINER.
9. FOR INSTRUMENT PIPING CLASS SPECIFICATION FOR STAINLESS STEEL TUBING SEE DWG. J07G10.
10. THIS SAMPLE SHALL BE TAKEN, AT HIGHER PROCESS PRESSURES TO PREVENT FLASHING IN ANY PORTION OF THE SAMPLE LINE, FOR PURPOSES OF DETERMINING DISSOLVED GAS CONCENTRATIONS.
11. REMOVABLE IN - LINE FILTERS. FOR TRANSPORT TO THE HOT LABORATORY FOR FURTHER ANALYSIS.
12. FOUR (4) SPARE SAMPLE LINES, COMPLETE WITH TUBING, INSTRUMENTS, ISOLATION VALVES, QUICK DISCONNECTS AND THROTTLE VALVES, SHALL BE BUILT INTO THE VENDORS PANEL AS SHOWN, FOR FUTURE EXPANSION. THE VENDOR SHALL CAP EACH SAMPLE LINE, AT THE INLET AND OUTLET, ON THE EXTERNAL SIDE OF HIS BULKHEAD FITTINGS.
13. THIS VALVE IS USED TO RELEASE THE SAMPLE LINE PRESSURE TO ATMOSPHERE, BEFORE QUICK DISCONNECTING THE SAMPLE VESSEL, WHEN OBTAINING HIGH PRESSURE RCS PROCESS SAMPLES.
14. THE PRESSURE SENSING LINE SHOULD FORM A DEAD LEG OR A LOOP SEAL TO PROVIDE THERMAL BARRIER, IN THE CASE OF LOSS OF COMPONENT COOLING WATER TO THE SAMPLE COOLER.
15. ⊛ ITEMS SUPPLIED BY WESTINGHOUSE ELECTRIC CORP (NSSS).
16. DIGITAL PRESSURE INDICATOR BLEED VALVE SHALL BE PANEL MOUNTED IN CLOSE PROXIMITY TO THE INDICATOR. DIGITAL PRESSURE INDICATOR USED TO CALIBRATE REACTOR COOLANT SYSTEM PRESSURE INSTRUMENTATION.
17. THE Q-LISTED PORTION OF THIS SYSTEM IS ONLY THE PIPING AND VALVES ASSOCIATED WITH CONTAINMENT PENETRATIONS.
18. CONTAINMENT PENETRATION PIPING 003-ECB-1 IS SCH. 80S.
19. SWITCH PROVIDED FOR POWER LOCKOUT.
20. DELETED.
21. AIR PURGE OPERATES DURING PASS OPERATION TO CLEAR LINE OF RADIOACTIVE EFFLUENT. (REFERENCE PIR 94-0744)
22. FOR RADWASTE BUILDING SAMPLE STATION SJ144. MAIN ISOLATION VALVES MAY BE BALL TYPE.
23. WESTINGHOUSE NUCLEAR SAFETY ADVISORY LETTER (NSAL), NSAL-00-006, "PRESSURIZER UPPER LEVEL INSTRUMENT LINE SAFETY CLASSIFICATION" HAS BEEN EVALUATED IN PIR 2002-1236. NRC LETTER DATED MAY 31, 2005 FROM USNRC TO WCNOC (CORRESPONDENCE NO. 05-00319) AUTHORIZED THE ALTERNATIVE TO THE REQUIREMENTS OF 10 CFR 50.55A(C) IN RESPONSE TO WCNOC LETTER WM 04-0032. THUS, NO ASME CLASS CHANGE IS REQUIRED OF THE SUBJECT PIPING, TUBING, VALVES AND SUPPORTS.
24. FOR CCW SYSTEM FLOW BALANCING, TOTAL PACKAGE COOLING WATER FLOW MINIMUM OF 60 GPM IS ACCEPTABLE.

15

RICK L. RIETMANN LICENSED 19407 12/9/15 KANSAS PROFESSIONAL ENGINEER

USAR FIG. 9.3-2-01

ESSENTIAL DRAWING

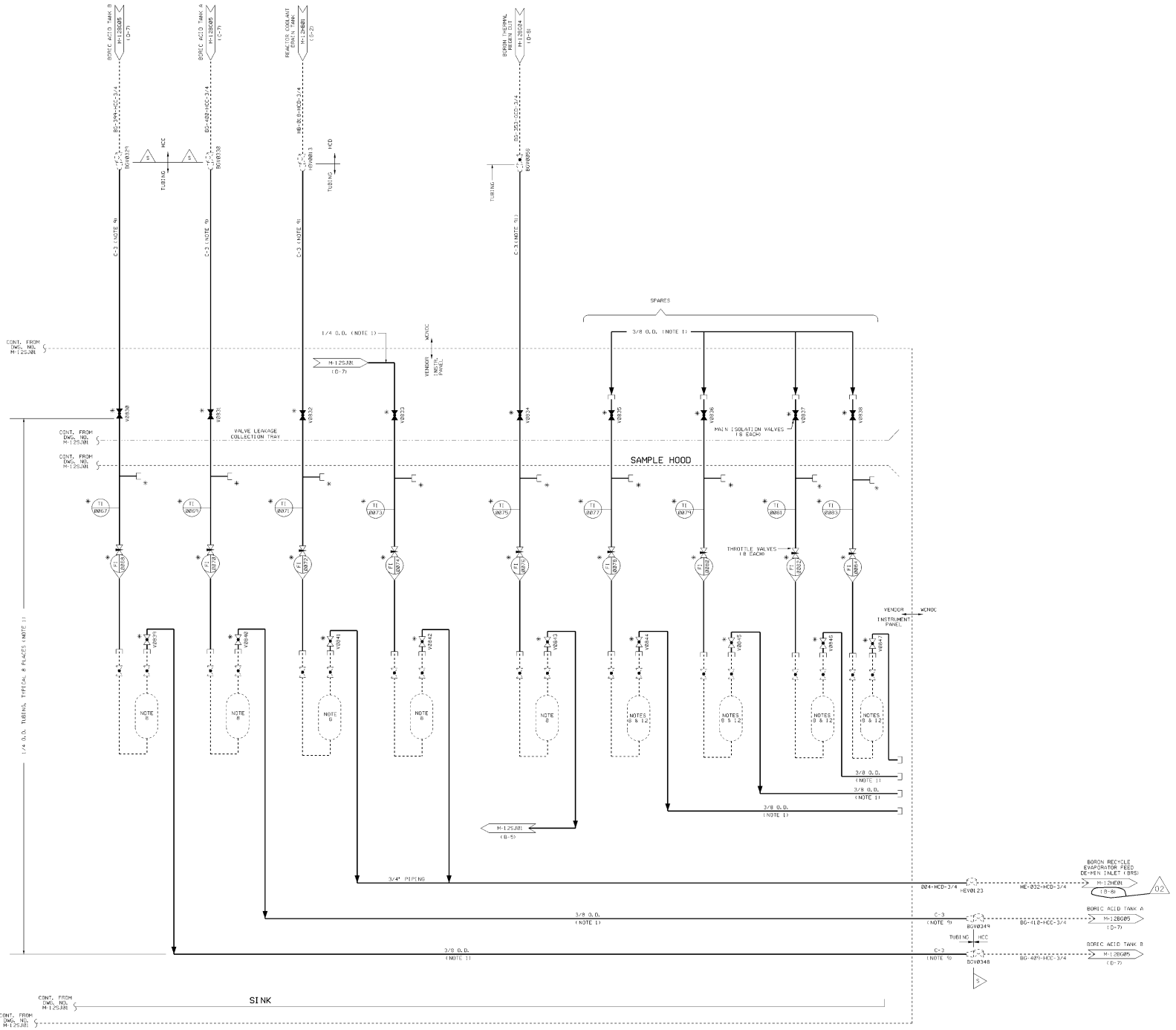
⊗ REVISED ◯ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	014990
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			DC4 12-14-15

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM NUCLEAR SAMPLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12SJ01		15

34X44 E SIZE



AUXILIARY BUILDING
SAMPLE STATION
SJ0143

USAR FIG. 9.3-2-02

ESSENTIAL DRAWING

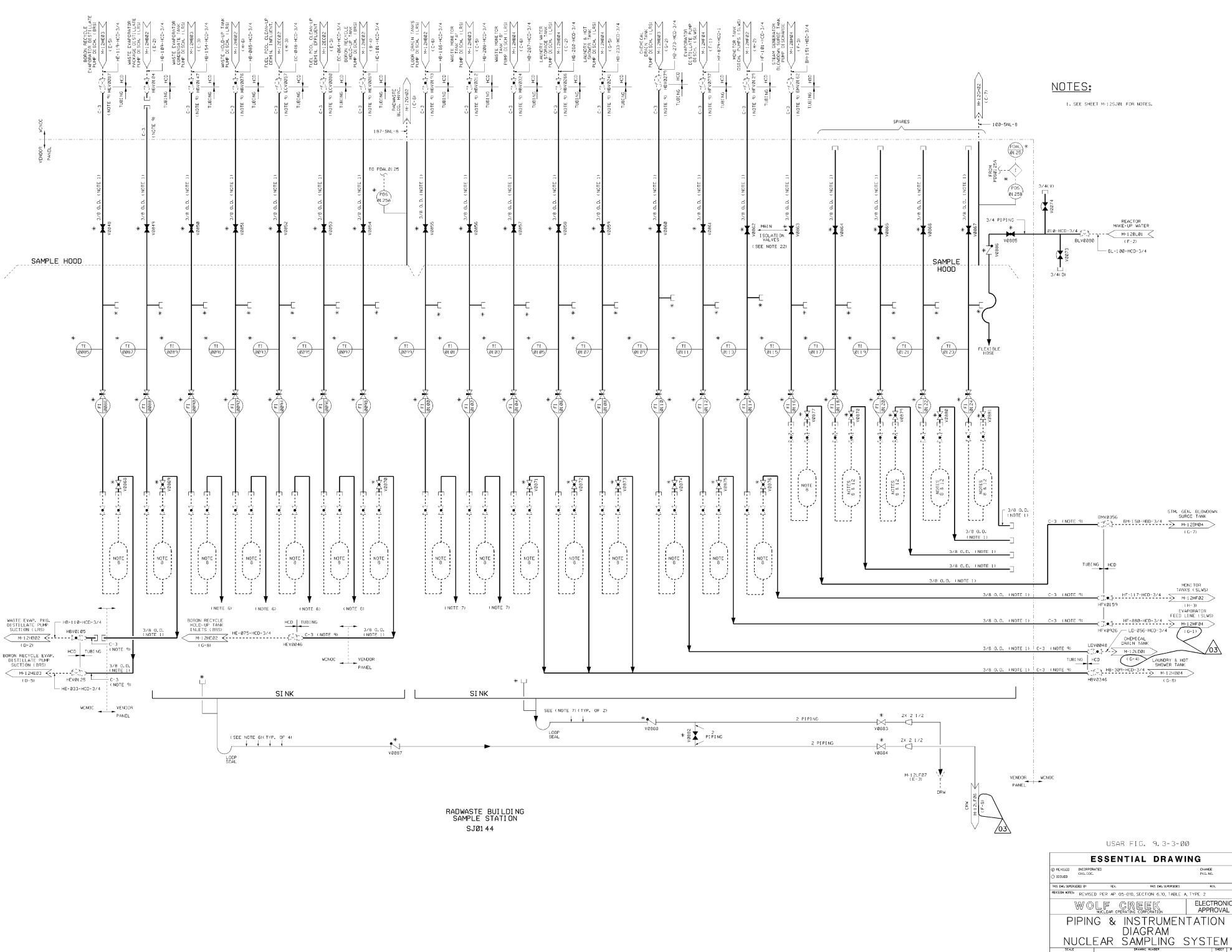
◉ REVISED ○ ISSUED	INCORPORATED ENG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
NUCLEAR SAMPLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12SJ03		02

34X44 E SIZE



ESSENTIAL DRAWING

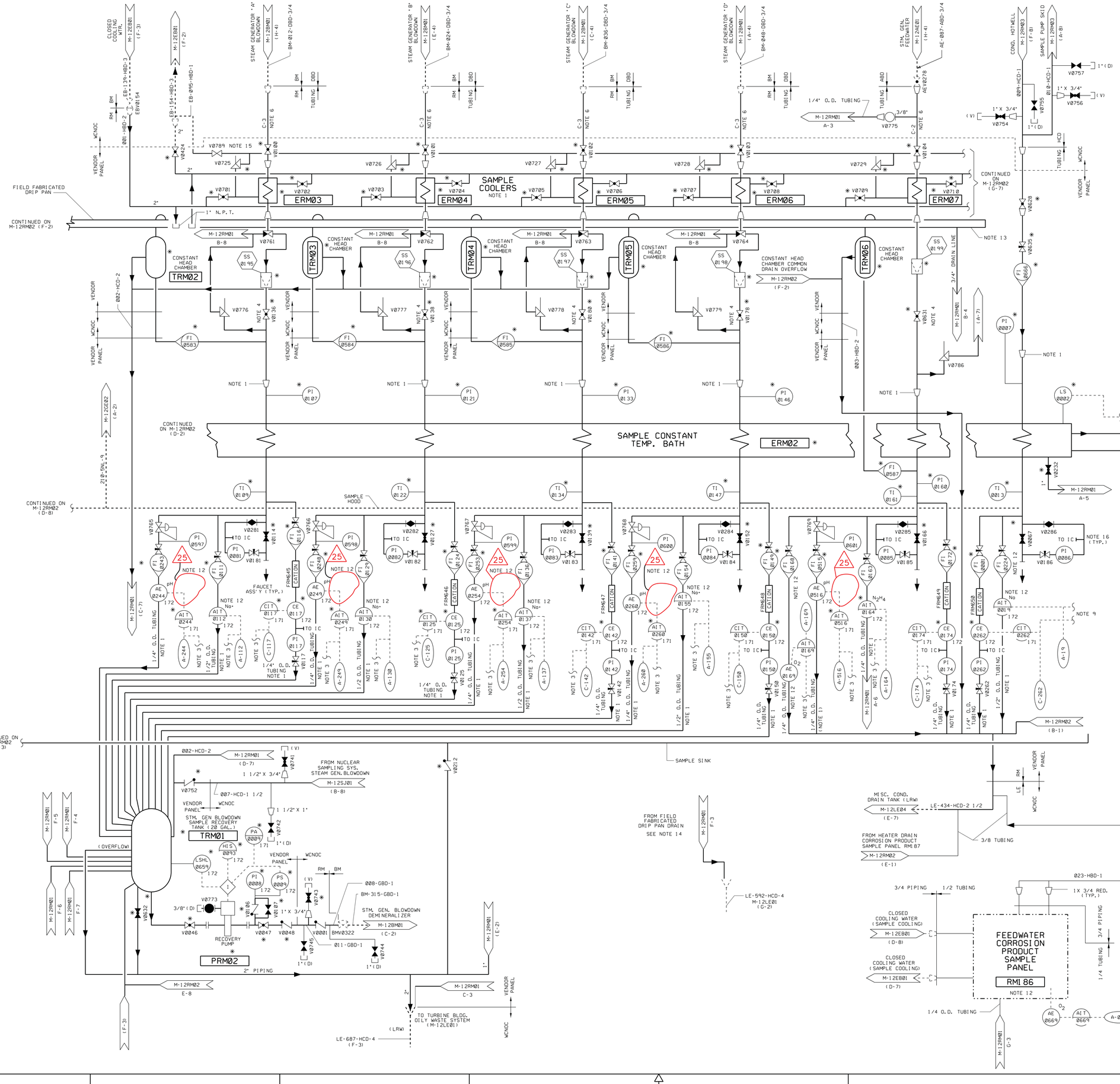
◉ REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
○ ISSUED			
THIS DWG SUPERSEDED BY	REV.	THIS DWG SUPERSEDES	REV.
REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM NUCLEAR SAMPLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12SJ02		03

34XM E SIZE



NOTES

1. ALL VENDOR SAMPLE LINES ARE AUSTENTIC STAINLESS STEEL TUBING, IN ACCORDANCE WITH STANDARD CODES FOR POWER PIPING ANSI B31.1. ALL TUBING IS 3/8 INCH O.D. X .065 INCH WALL UNLESS OTHERWISE NOTED. TUBING THRU THE SAMPLE COOLERS SHALL BE 1/4 INCH O.D. TUBING DOWNSTREAM OF THE CONSTANT HEAD CHAMBER TAKE OFF LINE SHALL BE 1/4 INCH O.D. DRAIN MANIFOLD, HEADER, COOLERS, INSTRUMENT RACK AND CHILLER PIPING / TUBING SHALL ALSO MEET THE REQUIREMENTS OF ANSI B31.1.
2. ALL INSTRUMENT VALVES ARE TO BE RATED FOR ANSI 1500 LB. CLASS.
3. INPUTS TO RECORDERS (LOCATED AT SAMPLE STATION) ARE LISTED IN THE TABLE ON DRAWING NO. M-12RM03.
4. THIS VALVE IS AN ADJUSTABLE ROD - IN TUBE TYPE FOR PRESSURE DROP AND FLOW CONTROL.
5. ALL VENDOR SUPPLIED EQUIPMENT SHALL BE CONTAINED WITHIN THE FOLLOWING INSTRUMENT PANELS AND RACK:

RM 171	PROCESS SAMPLING CONTROL & RECORDER INSTRUMENT PANEL (DRY PANEL)
RM 172	PROCESS SAMPLING CONDITIONING & ANALYSIS INSTRUMENT PANEL (WET PANEL)
RM 185	CONDENSER-IN-LEAK DETECTION INSTRUMENT RACK

6. FOR INSTRUMENT PIPING CLASS SPECIFICATION FOR STAINLESS STEEL TUBING SEE DWG. J07G10.
7. ALL INSTRUMENTS AND COMPONENTS DESIGNATED BY AN ASTERISK (*) ARE VENDOR SUPPLIED.
8. ALL ALARMS FROM THE SUPPLIER'S ANNUNCIATOR WILL BE IDENTIFIED BY A COMMON ALARM IN THE MAIN CONTROL ROOM (QA 624 AND COMPUTER I/O Q 642).
9. SIX CONDENSER HOTWELL SAMPLES SHALL BE AUTOMATICALLY AND SEQUENTIALLY DRAWN BY A SIX STEP SEQUENCER FOR A DWELL TIME AT 10 MINUTES EACH. EACH ANALYZER OUTPUT SHALL BE SEQUENTIALLY RECORDED ON A SEPARATE MULTIPOINT RECORDER CHANNEL.
10. DELETED
11. DELETED
12. COMPONENT IS SUPPLIED AND INSTALLED BY OWNER.
13. DRIP PAN AND DRAIN LINE SUPPLIED AND INSTALLED BY OWNER.
14. CONSTANT HEAD CHAMBER VENTS ROUTED TO EQUIPMENT DRAIN BY FIELD.
15. CAUTION:
    WHENEVER RMV0789 IS CLOSED, THE PIPE PLUG (M-12RM02 ZONE G-3) MUST BE REMOVED.
16. TEE BRANCH FITTING SHALL ALLOW CONNECTION OF 1/8" TEFZEL TUBING FROM ION CHROMATOGRAPH. SWAGELOK QUICK DISCONNECT COUPLINGS MAY BE USED TO CONNECT TEE BRANCH TO ION CHROMATOGRAPH 1/8" TEFZEL TUBING.
17. DELETED

25

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2015.04.10 16:06:44 -05'00'

USAR FIG. 9.3-4-01

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-12RM01-024-A-1	CHANGE PKG. NO.	013799
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES:

WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION
DIAGRAM
PROCESS SAMPLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12RM01	1	25

34X44 E SIZE

M-12RM01+1+25

NOTES

FOR GENERAL NOTES SEE M-12RM01.

1. PIPE PLUG MUST BE REMOVED WHENEVER RMV0789 IS CLOSED.

ERM08 ERM09 ERM10 ERM11 ERM12 ERM13 ERM14 ERM15 ERM02

TRM07 TRM08 TRM09 TRM10 TRM11 TRM12 TRM13 TRM14 TRM15 TRM16

SAMPLE CONSTANT TEMP. BATH

HEATER DRAIN CORROSION PRODUCT SAMPLE PANEL RM187

SAMPLE HOOD

CONTINUED FROM M-12RM01 (G-3)

CONTINUED ON M-12RM01 (F-8)

CONTINUED ON M-12RM01 (E-7)

CONTINUED ON M-12RM01 (D-8)

CONTINUED ON M-12RM01 (C-8)

M-12RM01 (F-4)

M-12RM01 (A-7)

M-12RM01 (C-2)

FIELD FABRICATED DRIP PAN

ISOLATION VALVES (TYP.)

THROTTLE/FLOW CONTROL VALVES (TYP.)

NOTE 1 (THIS DWG.)

TO LS0002 M-12RM01 (E-2)

FLEXIBLE HOSE

TO AMMONIA FEED CONTROL REF. TO M-12AQ01 (C-4)

TO CONDENSATE HYDRAZINE CONTROL REF. TO M-12AQ01 (C-4)

SINK

SINK

USAR FIG. 9.3-4-02

ESSENTIAL DRAWING			
⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12RM02-014-A-1	CHANGE PKG. NO. 013799
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

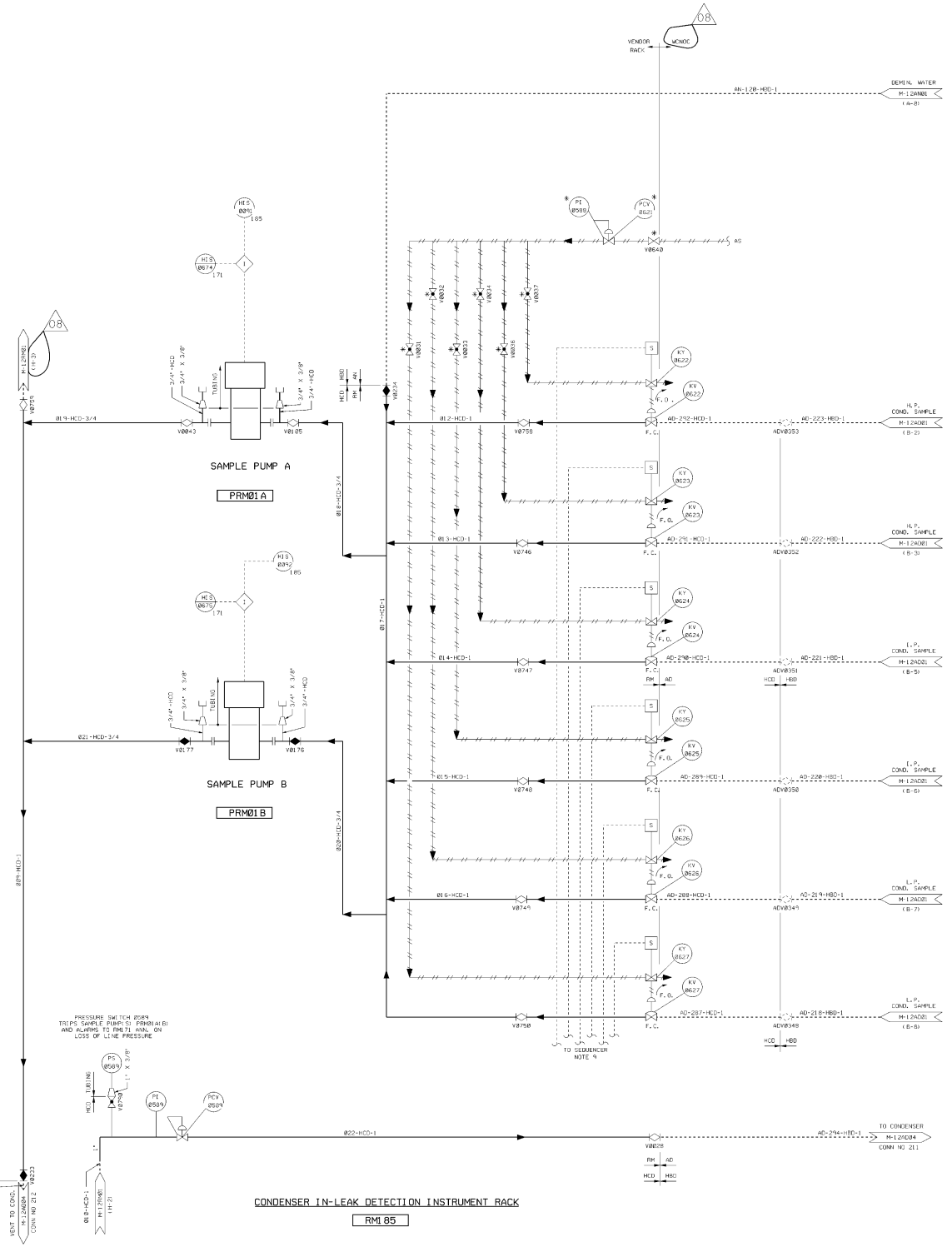
PIPING & INSTRUMENTATION DIAGRAM PROCESS SAMPLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12RM02	1	15

Kay L Smith
Released by Document Services, Release Date:
2015.04.10 16:07:45 -05'00'

34X44 E SIZE

M-12RM02•1•15



NOTES

FOR GENERAL NOTES SEE DRAWING M-12RM01.

REFERENCE NOTE 3.

SOURCE	PARAMETER	P & ID	INPUT	RECORDER NO.	SUPPLIERS ANNUNCIATOR (NOTE 8)
STM. GEN. A BLOWDOWN STM. GEN. B BLOWDOWN STM. GEN. C BLOWDOWN STM. GEN. D BLOWDOWN STEAM GEN. FEEDWATER	pH pH pH pH pH	M-12RM01 M-12RM01 M-12RM01 M-12RM01 M-12RM01	AE0244 (D-7) AE0249 (D-8) AE0254 (D-5) AE0259 (D-5) AE0516 (D-4)	AR0001	AAH0001 AAL0002
L.P.F.W. HTR. OUTLET M.S.R. HEATER DRAINS COND. PUMP DISCH. HDR.	pH pH pH	M-12RM02 M-12RM02 M-12RM02	AE0478 (C-4) AE0485 (C-5) AE0566 (C-2)		
STM. GEN. A BLOWDOWN STM. GEN. B BLOWDOWN STM. GEN. C BLOWDOWN STM. GEN. D BLOWDOWN STEAM GEN. FEEDWATER	CAT. COND. CAT. COND. CAT. COND. CAT. COND. CAT. COND.	M-12RM01 M-12RM01 M-12RM01 M-12RM01 M-12RM01	CE0117 (D-6) CE0125 (D-6) CE0142 (D-5) CE0150 (D-4) CE0174 (D-3)	AR0002	AAH0003
HTR. DRAIN PUMP DISCH. COND. DEMIN. OUTLET COND. PUMP DISCH. HDR.	CAT. COND. CAT. COND. CAT. COND.	M-12RM02 M-12RM02 M-12RM02	CE0415 (C-5) CE0573 (C-4) CE0564 (C-2)		
MAIN STM. LINE A MAIN STM. LINE B MAIN STM. LINE C MAIN STM. LINE D COND. PUMP DISCH. HDR. M.S.R. HEATER DRAINS L.P.F.W. HTR. OUTLET	SPEC. COND. SPEC. COND. SPEC. COND. SPEC. COND. SPEC. COND. SPEC. COND. SPEC. COND.	M-12RM02 M-12RM02 M-12RM02 M-12RM02 M-12RM02 M-12RM02 M-12RM02	CE0373 (C-5) CE0392 (C-6) CE0401 (C-5) CE0383 (C-7) CE0598 (C-2) CE0401 (C-3) CE0462 (C-4)	AR0003	AAH0004 AAH, 0462
STM. GEN. A BLOWDOWN STM. GEN. B BLOWDOWN STM. GEN. C BLOWDOWN STM. GEN. D BLOWDOWN COND. DEMIN OUTLET COND. PUMP DISCH. HDR.	Na+ Na+ Na+ Na+ Na+ Na+	M-12RM01 M-12RM01 M-12RM01 M-12RM01 M-12RM02 M-12RM02	AIT0112 (D-7) AIT0120 (D-6) AIT0137 (D-5) AIT0155 (D-4) AIT0447 (C-4) AIT0567 (C-2)	AR0004	AAH0005
STEAM GEN. FEEDWATER	O_2	M-12RM01	AE0169 (C-4)	AR0005	AAH0185
DEMIN. WATER DEGAS. COND. PUMP DISCH. HDR.	O_2 O_2	M-12RM02 M-12RM02	AE0517 (C-7) AE0565 (C-2)		AAH0006
STEAM GEN. FEEDWATER	N_2H_4	M-12RM01	AIT0164 (D-3)		AAL0007
CONDENSER HOT WELL	CAT. COND.	M-12RM01	CE0262 (SEQ. SEL. 6 SAMP.) (C-3)	AR0006	AAH0008
CONDENSER HOT WELL	Na+	M-12RM01	AIT0219 (SEQ. SEL. 6 SAMP.) (D-3)	AR0007	AAH0009
SAMPLE RETURN OVER PRESSURE	PRESSURE	M-12RM02	N/A	N/A	PA0009

USAR FIG. 9.3-4-03

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDES	REV.	THIS DWG. SUPERSEDED BY	REV.

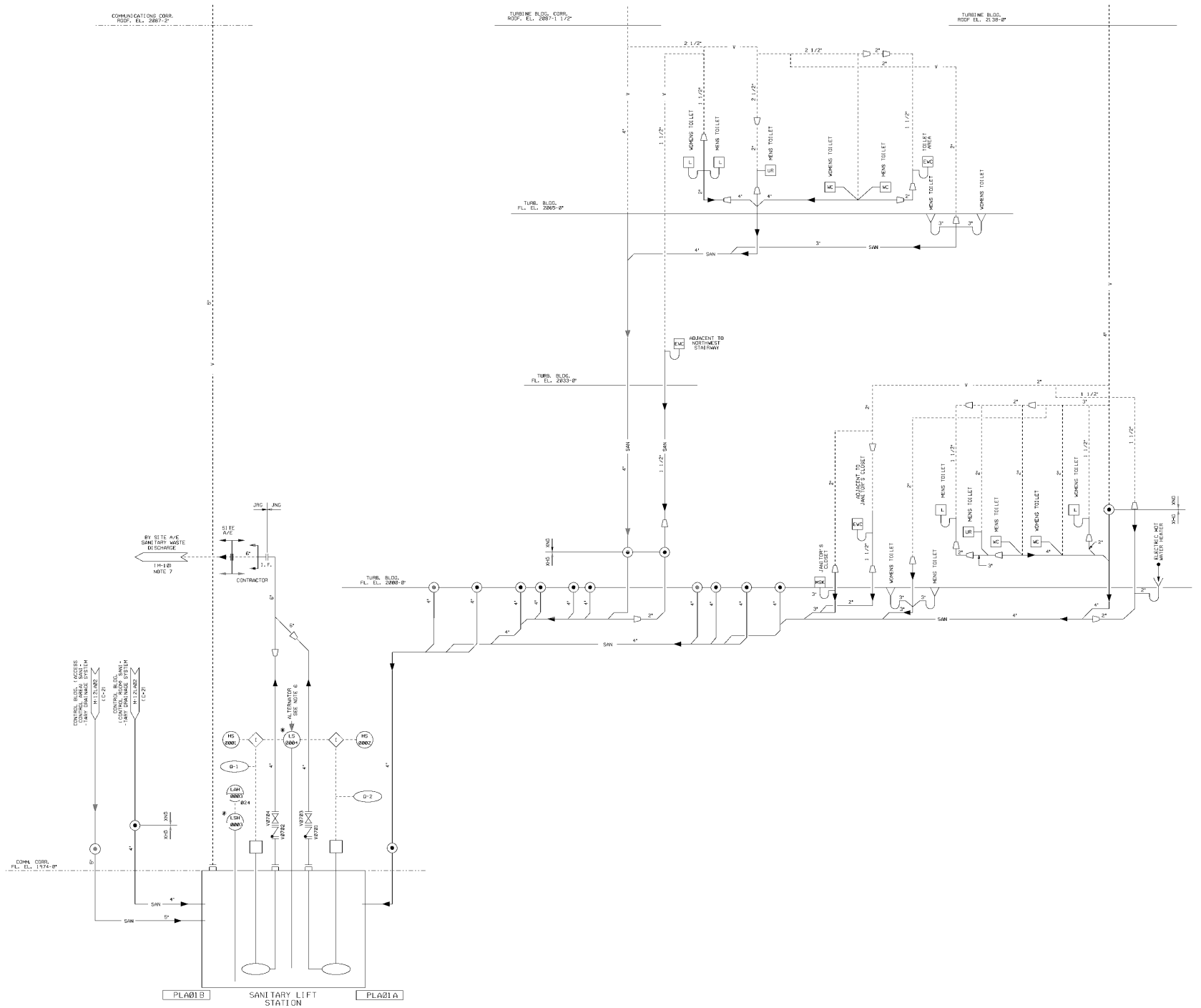
REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM PROCESS SAMPLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12RM03	08	

34X44 E SIZE



NOTES

1. PIPING, FITTINGS, VALVES, FIXTURES AND OTHER COMPONENTS, AS INDICATED, FOR THE SANITARY DRAINAGE SYSTEM SHALL BE FURNISHED, INSTALLED, CLEANED AND TESTED IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE AND/OR THE APPLICABLE LOCAL OR STATE CODES.
2. WATER CLOSETS AND URINALS ARE PROVIDED WITH INTEGRAL TRAPS.
3. ADDITIONAL SYMBOLS NOT SHOWN ON DWG. M-020103 ARE AS FOLLOWS:
   - ⊙ =CLEANOUT
   - DS =DEEP SINK
   - GD =GARBAGE DISPOSAL
   - PS =PANTRY SINK
4. PIPING CLASS FOR THE SANITARY WASTE SYSTEM SHALL BE AS FOLLOWS, EXCEPT AS NOTED.

MATERIAL	SERVICE
CLASS "XHD" EXTRA HEAVY CAST IRON SOIL PIPE, HUB AND PLAIN END.	SANITARY WASTE PIPE, CONTROL BLDG. & COMM. CORR. EL. 1964'-0" & BELOW, AND TURBINE BLDG. EL. 2000'-0" & BELOW.
CLASS "XND" GALVANIZED CARBON STEEL PIPING AND SCREWED CAST IRON DRAINAGE FITTINGS.	OTHER SANITARY WASTE AND ALL VENT PIPING.
CLASS "JNG" GALVANIZED CARBON STEEL WITH FLANGED FITTINGS.	DISCHARGE PIPING FROM THE SANITARY LIFT STATION EXCEPT AS NOTED BELOW
CLASS "JRG" DUCTILE IRON PRESSURE PIPING WITH FLANGED CONNECTIONS.	SANITARY LIFT STATION DISCHARGE PIPING PENETRATING THE EXTERIOR WALL OF THE COMM. CORR.

5. PLUMBING FIXTURES SHALL BE PER THE REQUIREMENTS OF SPECIFICATION A-228.
6. ALTERNATOR ALTERNATES PUMP OPERATION WHEN SUMP LEVEL IS HIGH, BOTH PUMPS RUN WHEN SUMP LEVEL IS HIGH - HIGH, AND BOTH PUMPS STOP ON LOW LEVEL.
7. MECHANICAL DESIGNATION PER M-1GB01.
8. THE SANITARY LIFT STATION PUMPS AND COVER ARE PROCURED BY BECHTEL. ALL OTHER EQUIPMENT IN THES SYSTEM IS OWNER PROCURED EXCEPT WHERE INDICATED.

USAR FIG. 9.3-5-01

ESSENTIAL DRAWING

○ REVISED INCORPORATED CHANGE
◎ ISSUED CMC DOC. PKG. NO.

THIS DWG SUPERSEDES REV BUD DWG SUPERSEDES M-12LA01 REV. 4

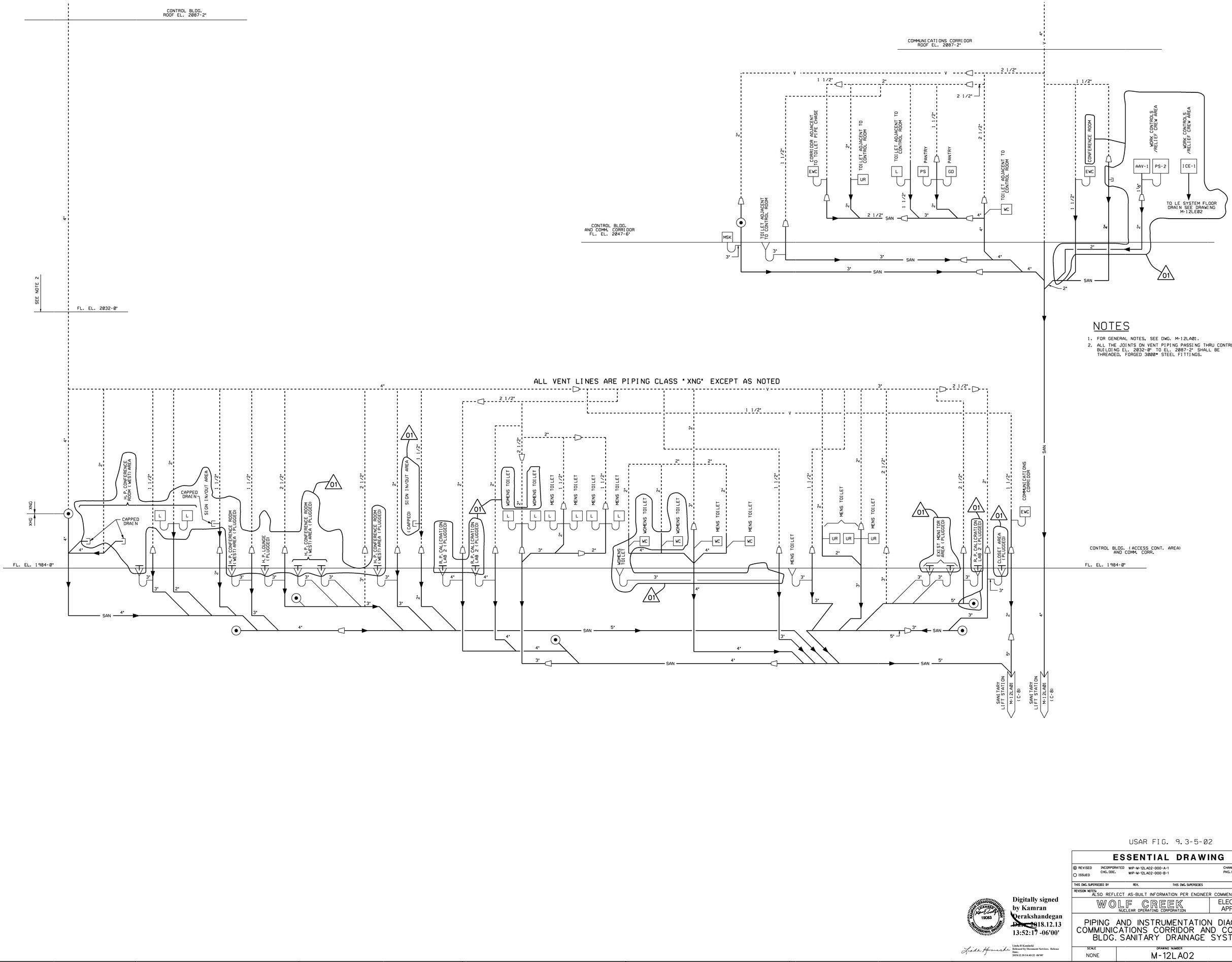
REVISION NOTES: ELECTRONICALLY CONVERTED PER AP 05-010

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM
SANITARY LIFT STATION & TURB. BLDG.
SANITARY DRAINAGE SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LA01		00

34944 E SIZE



NOTES

1. FOR GENERAL NOTES, SEE DWG. M-12LA01.
2. ALL THE JOINTS ON VENT PIPING PASSING THRU CONTROL BUILDING EL. 2032-0" TO EL. 2087-2" SHALL BE THREADED, FORGED 3000# STEEL FITTINGS.

USAR FIG. 9.3-5-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12LA02-000-A-1 WIP-M-12LA02-000-B-1	CHANGE 014806 PKG. NO. 013979
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: ALSO REFLECT AS-BUILT INFORMATION PER ENGINEER COMMENTS AND FIELD.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

Digitally signed by Kamran Derakshandegan Date: 2018.12.13 13:52:17 -06'00'

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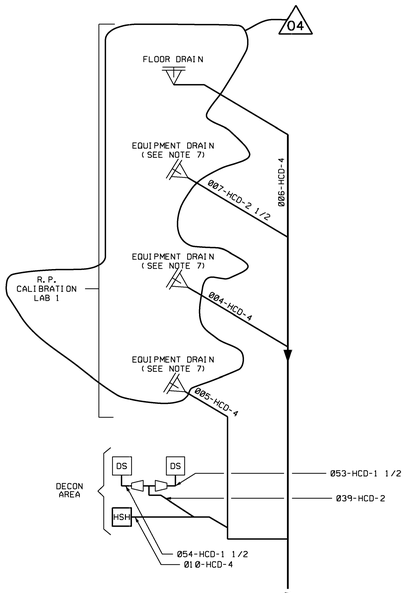
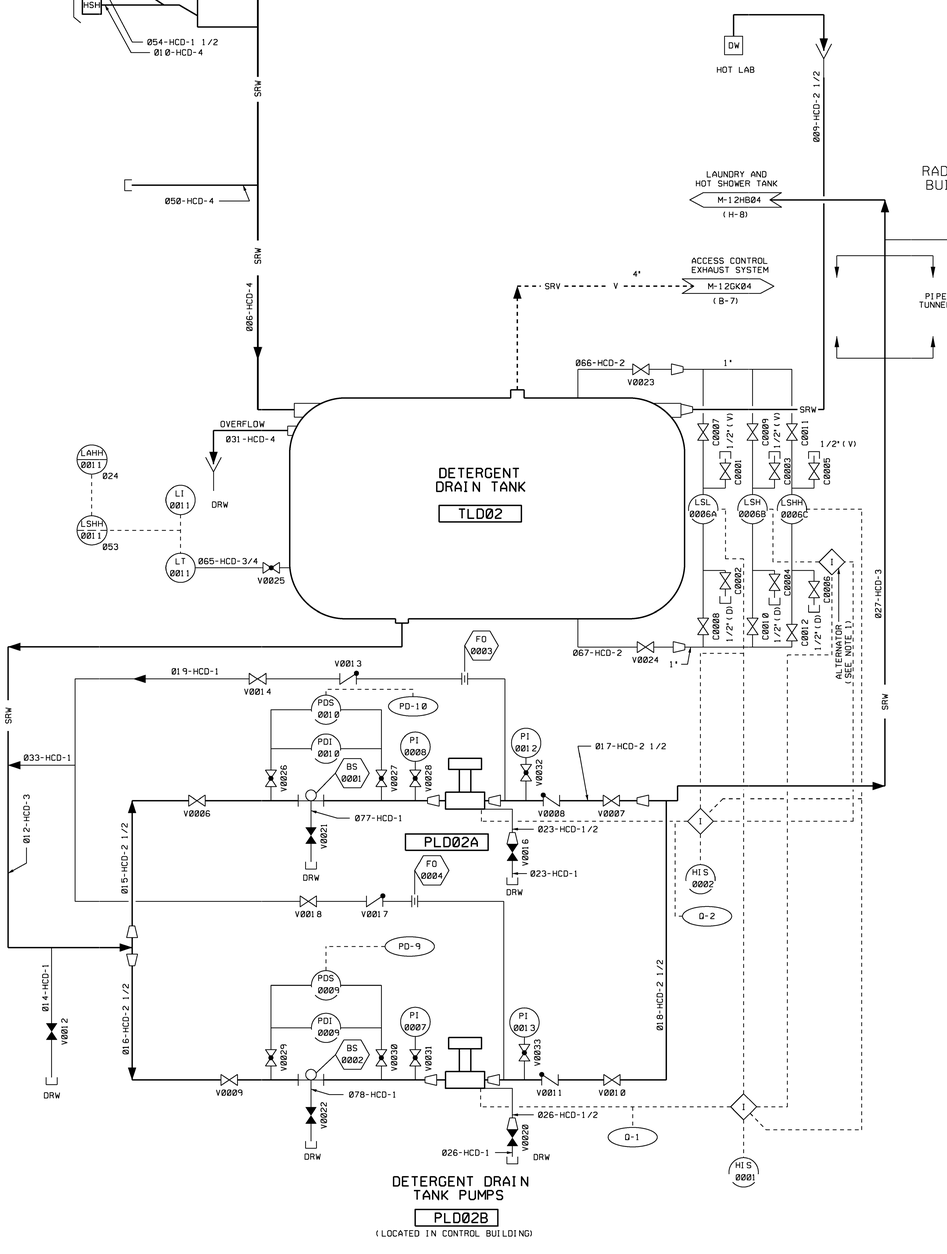
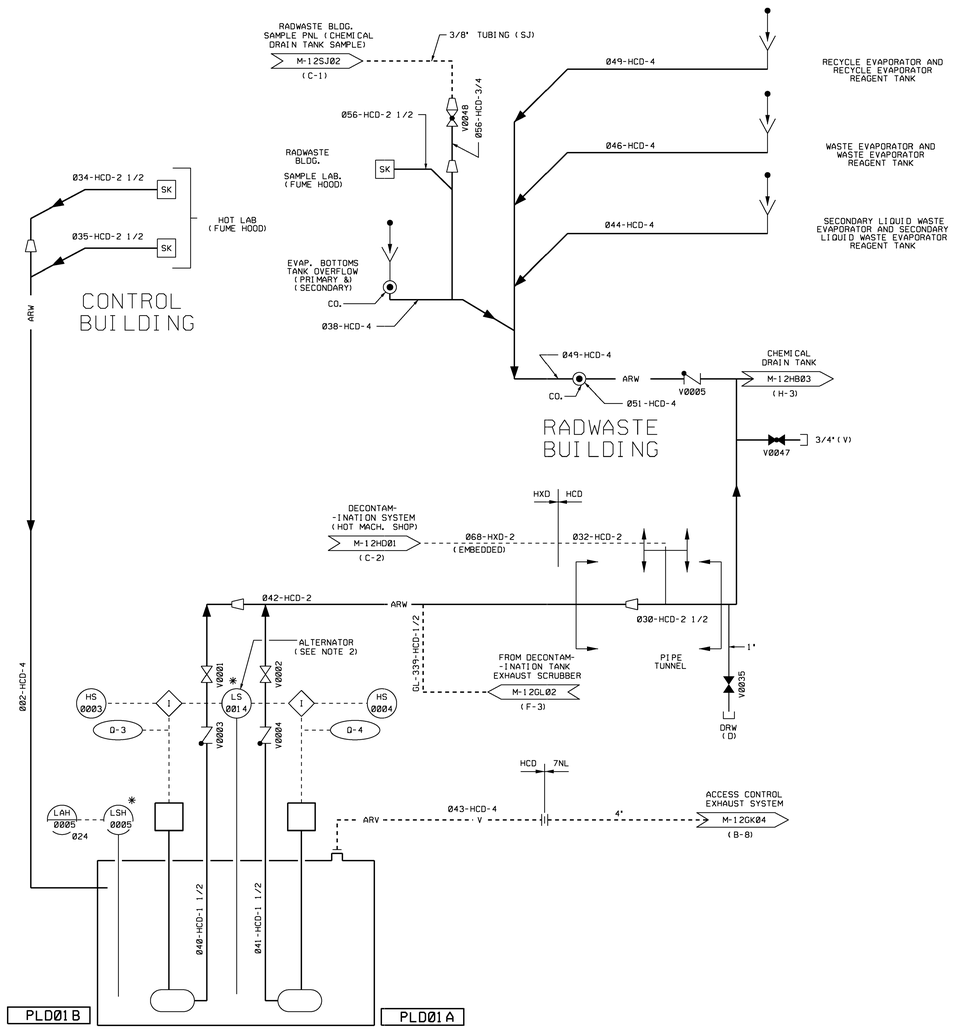
PIPING AND INSTRUMENTATION DIAGRAM COMMUNICATIONS CORRIDOR AND CONTROL BLDG. SANITARY DRAINAGE SYSTEM

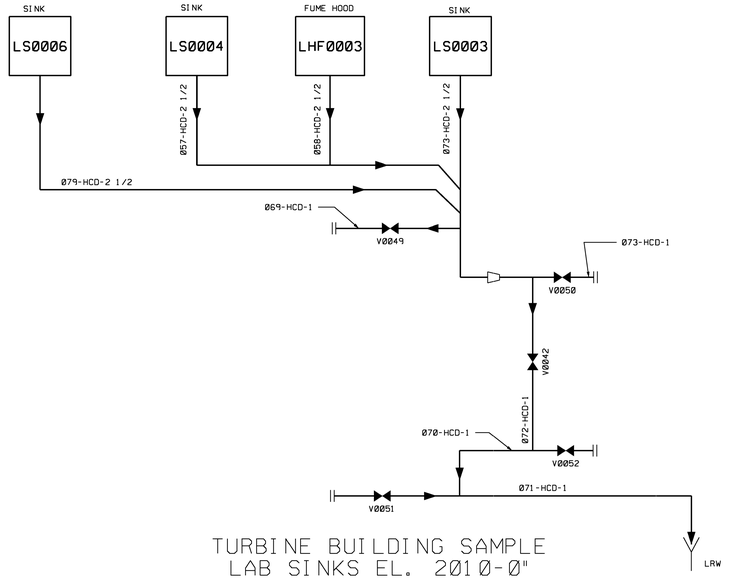
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LA02		01

34X44 E SIZE









NOTES

1. ELECTRICAL ALTERNATOR ALTERNATES PUMP OPERATION WHEN TANK LEVEL IS HIGH. BOTH PUMPS RUN WHEN TANK LEVEL IS HIGH - HIGH.
2. MECHANICAL ALTERNATOR ALTERNATES PUMP OPERATION WHEN SUMP LEVEL IS HIGH. BOTH PUMPS RUN WHEN SUMP LEVEL IS HIGH - HIGH.
3. DS - DEEP SINK.
4. HSH AND DS TO BE USED FOR DECONTAMINATION PURPOSES ONLY.
5. HSH - HOT SHOWER.
6. DELETED.
7. EQUIP. DRAINS IN R.P. CALIBRATION LAB 1 ARE CUT FLUSH WITH THE FLOOR AND PLUGGED WITH NON-SHRINK GROUT.

04

USAR FIG. 9.3-5-03

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12LD01-003-A-1	CHANGE PKG. NO. 013979
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CHEMICAL & DETERGENT WASTE

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LD01		04

34X44 E SIZE

Digitally signed by Kamran Derakshandegan Date: 2018.12.18 10:43:37 -06'00'

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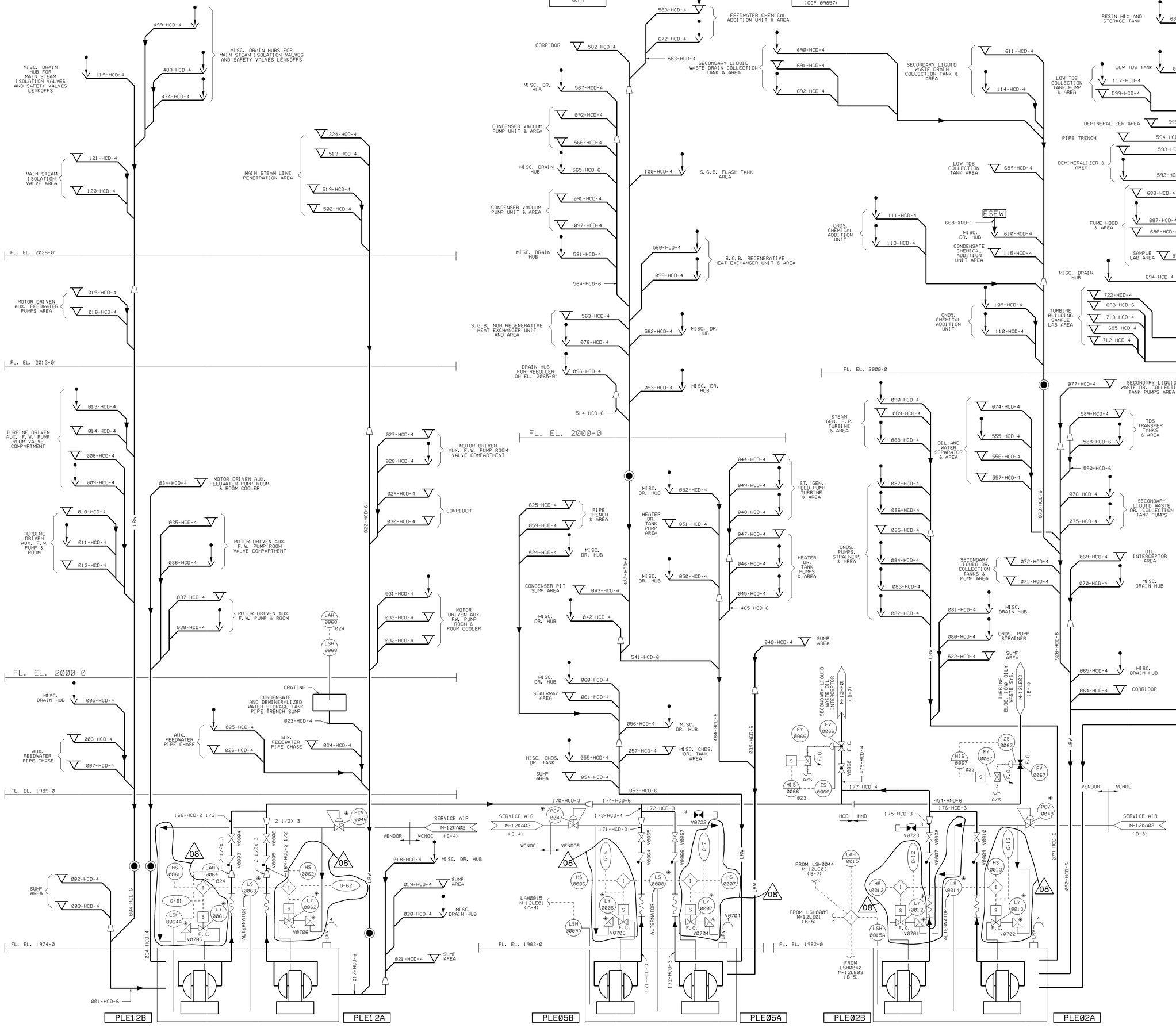


AUX. FEEDWATER PUMP ROOMS SUMP (1 RW)

COND. PIT SUMP (SOUTH) (LRW)

COND. PIT SUMP (NORTH) (LRW)

USAR FIG. 9.3-5-04

ESSENTIAL DRAWING

◉ REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
○ ISSUED			
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: REVISED PER CR#2008-002363

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM TURB. BLDG. AND AUX. FEEDWATER PUMP ROOMS OILY WASTE SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LE01		08

34X44 E SIZE

NOTES

1. DRAWING Q-LIST PERTAINS TO LEVEL INDICATORS LI0105 AND LI0106.
2. ▽ CAPPED EQUIP. DRAIN.

PLE06A PLE06B
DIESEL GENERATORS BUILDING SUMP (OW)

PLE06C PLE06D
DIESEL GENERATORS BUILDING SUMP (OW)

PLE07B PLE07A
CONTROL BUILDING OILY WASTE SUMP (OW)

TLE04
ACID NEUTRALIZER TANK

USAR FIG. 9.3-5-05

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:	ADM CORRECTION PER AP05-010 6.10.1 FOR LINE NUMBER		

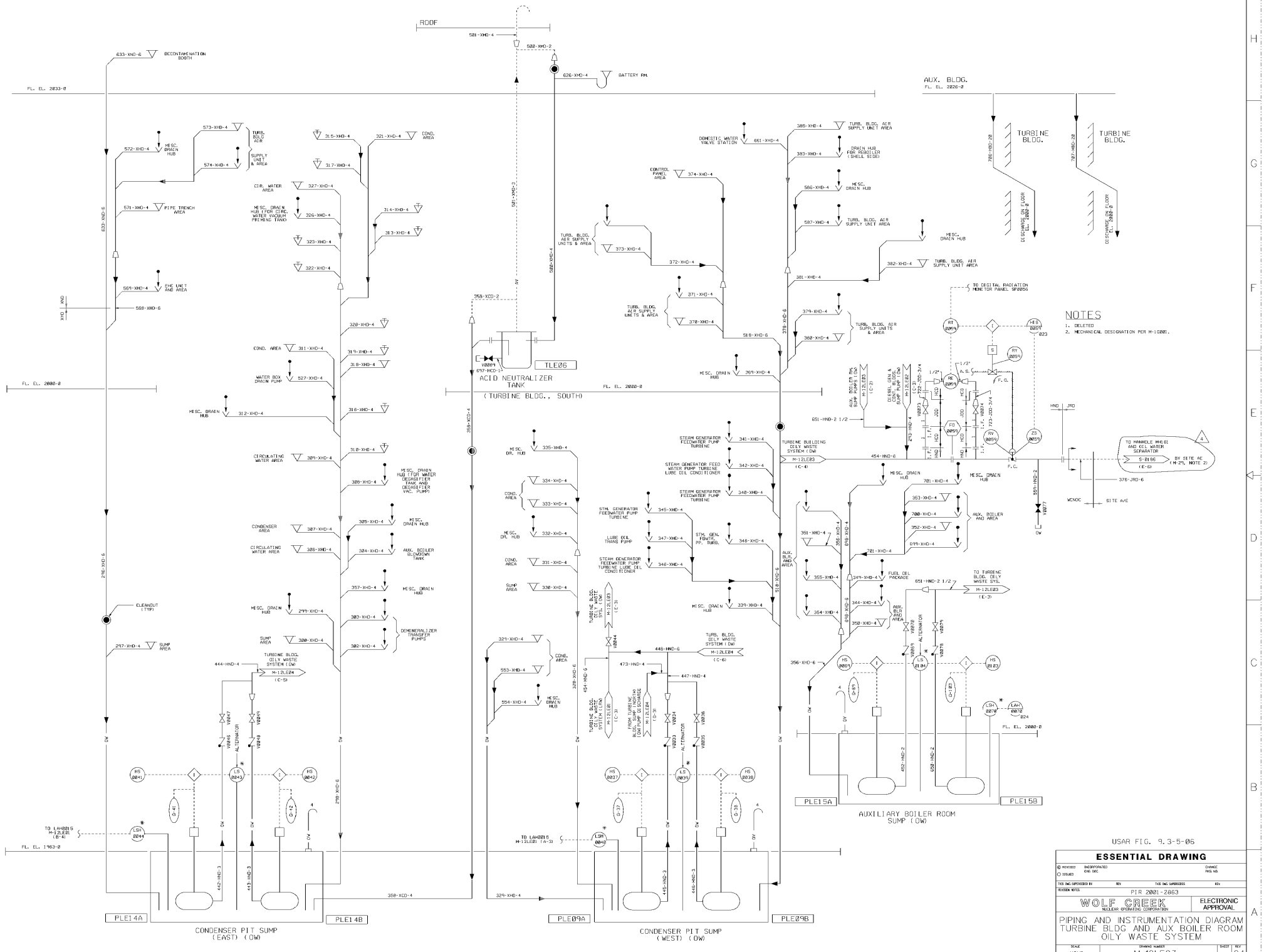
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CONTROL & DIESEL GEN. BLDG. OILY WASTE SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LE02		05

Linda D. Kaminski
Released by Document Services. Release Date: 2017.11.08 10:08:55 -06'00'

34X44 E SIZE



TRANSFORMER VAULT	LINE NO.	VALVE NO.
STATION SERVICE	718-HBD-6	V0094
ESF	719-HBD-6	V0095
START-UP	720-HBD-6	V0096
MAIN & AUX.	721-HBD-6	V0097
SPARE MAIN TRANS.	HBD-6	V0725 (NOTE 4)

YARD TRANSFORMER VAULT DRAIN VALVES

YARD TRANSFORMER VAULT DRAIN VALVE (TYPICAL)

NOTES

1. PIPING ASSOCIATED WITH THE MISCELLANEOUS CONDENSATE DRAIN TANK WILL BE DETAILED ON THE FOLLOWING SYSTEM ISOMETRICS.
   AD
   AF
   AE
   CG
2. LINE LE-434-HCD-2 1/2 WILL BE DETAILED ON THE LE ORTHOGRAPHICS.
3. DELETED.
4. VAULT DESIGN, PIPING & VALVE FOR "SPARE MAIN TRANSFORMER" IS UNDER SARGENT & LUNDY SCOPE OF WORK. REFER TO SARGENT & LUNDY DRAWINGS.

MISCELLANEOUS CONDENSATE DRAIN TANK (LRW) TLE02

TENDON ACCESS GALLERY SUMP (OW) PLE13B PLE13A

TURBINE BUILDING SUMP (SOUTH) (OW) PLE10A PLE10B

LUBE OIL STORAGE TANKS ROOM SUMP (OW) PLE03A PLE03B

TURBINE BLDG. SUMP (NORTH) (OW) PLE01A PLE01B

ACID NEUTRALIZER TANK TLE03

USAR FIG. 9.3-5-07

ESSENTIAL DRAWING

REVISED ISSUED — INCORPORATED CHG. DOC. CR 29532 — CHANGE PKG. NOS.

THIS DWG. SUPERSEDED BY — REV. — THIS DWG. SUPERSEDES — REV.

REVISION NOTES: DRAWING ISSUED TO REGENERATE CUSTOM LINESTYLES PER CR 29532

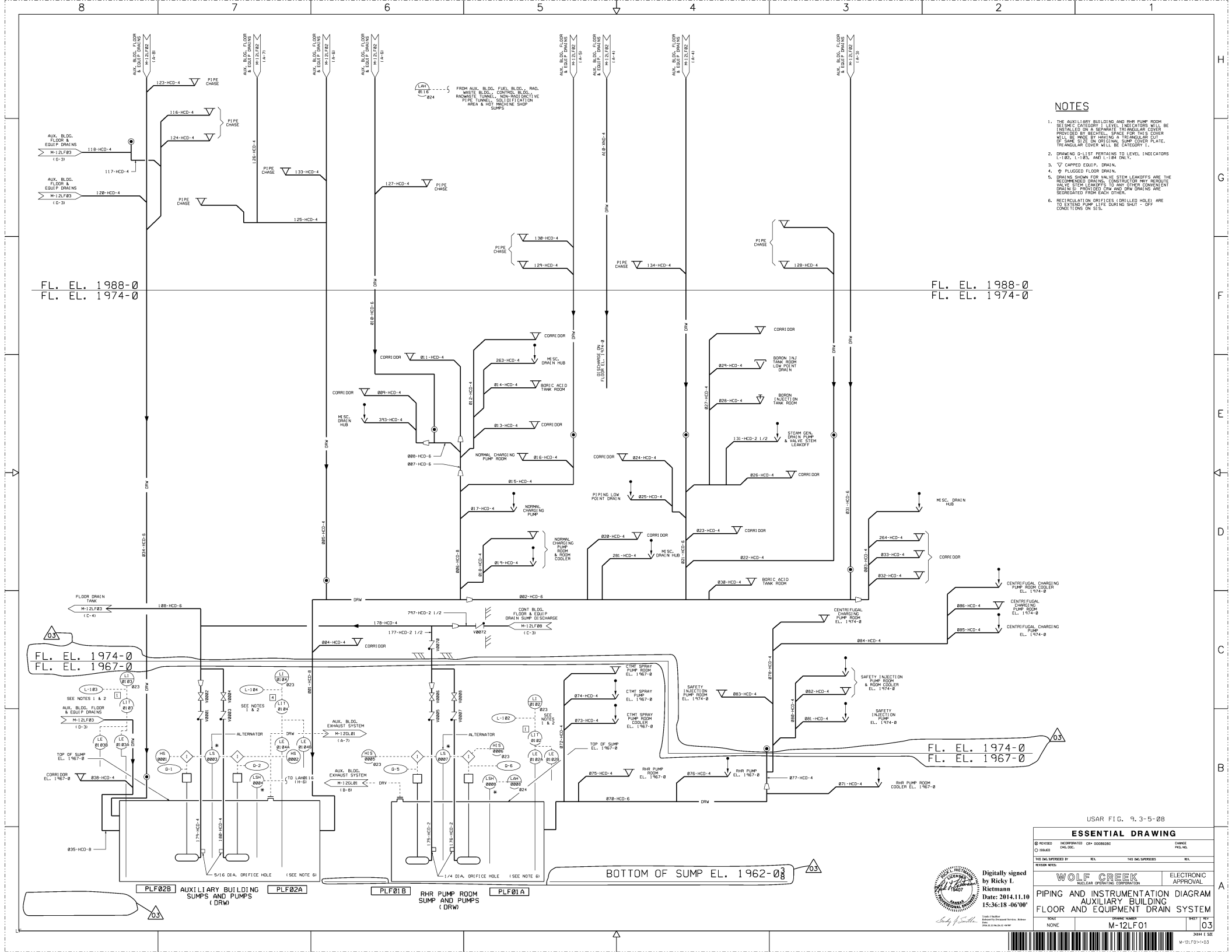
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

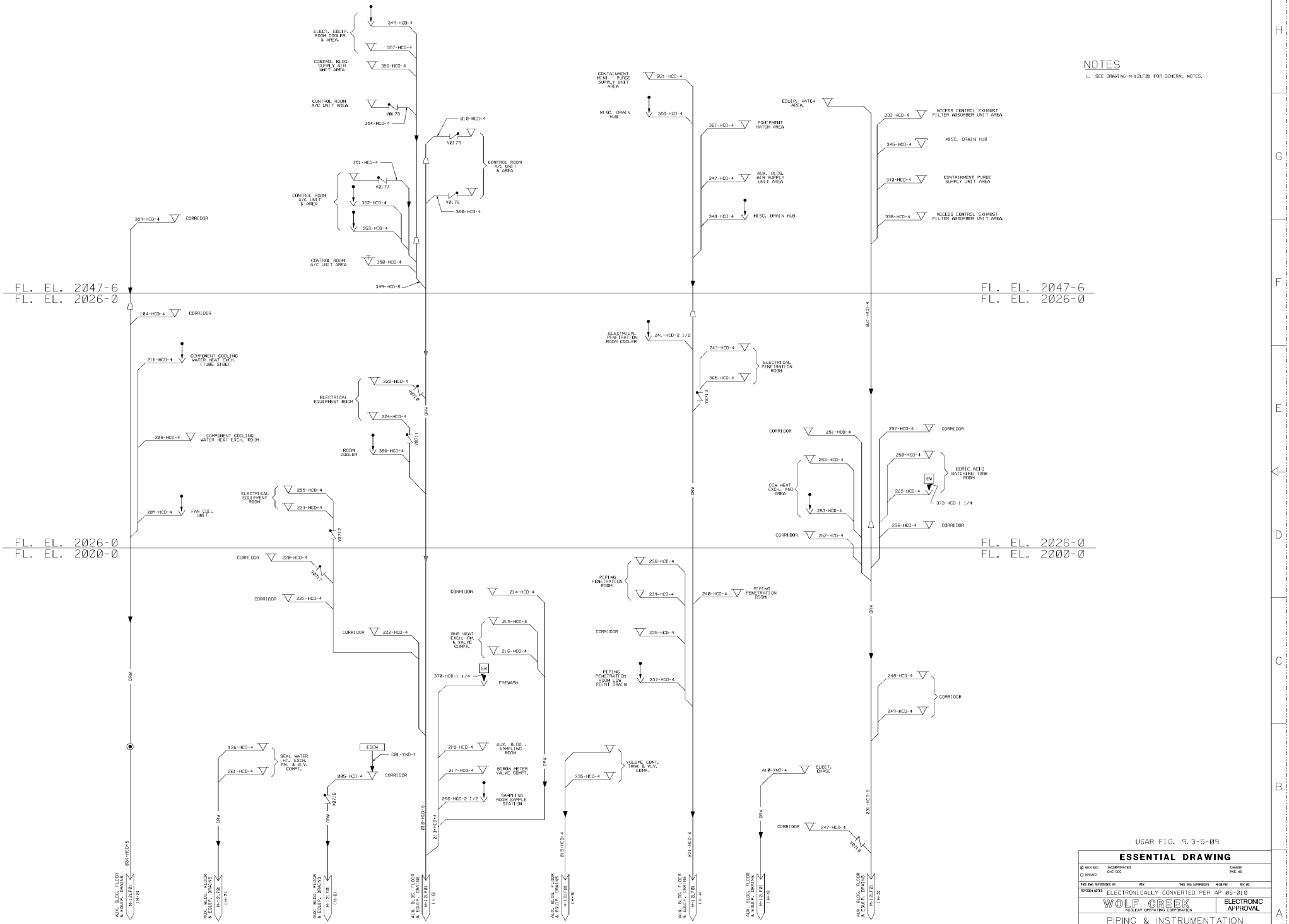
Released by Document Services. Release Date: 2011.12.13 12:45:47 -06'00'

PIPING AND INSTRUMENTATION DIAGRAM TENDON ACCESS GALLERY AND TURBINE BUILDING OILY WASTE SYS.

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LE04		08

34X44 E SIZE
M-12LE04-1-08


NOTES
1. THE AUXILIARY BUILDING AND RHR PUMP ROOM SEISMIC CATEGORY I LEVEL INDICATORS WILL BE INSTALLED ON A SEPARATE TRIANGULAR COVER PROVIDED BY BECHTEL. SPACE FOR THIS COVER WILL BE MADE BY HAVING A TRIANGULAR CUT OF SAME SIZE ON ORIGINAL SUMP COVER PLATE. TRIANGULAR COVER WILL BE CATEGORY I.
2. DRAWING Q-LIST PERTAINS TO LEVEL INDICATORS L-102, L-103, AND L-104 ONLY.
3. ▽ CAPPED EQUIP. DRAIN.
4. ⊕ PLUGGED FLOOR DRAIN.
5. DRAINS SHOWN FOR VALVE STEM LEAKOFFS ARE THE RECOMMENDED DRAINS. CONSTRUCTOR MAY REROUTE VALVE STEM LEAKOFFS TO ANY OTHER CONVENIENT DRAIN(S) PROVIDED CRW AND DRW DRAINS ARE SEGREGATED FROM EACH OTHER.
6. RECIRCULATION ORIFICES (DRILLED HOLE) ARE TO EXTEND PUMP LIFE DURING SHUT - OFF CONDITIONS ON SIS.
FL. EL. 1988-0
FL. EL. 1974-0
FL. EL. 1974-0
FL. EL. 1967-0
FL. EL. 1974-0
FL. EL. 1967-0
BOTTOM OF SUMP EL. 1962-0 3/8
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF02 (A-8)
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF02 (A-7)
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF02 (A-6)
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF02 (A-5)
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF02 (A-4)
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF02 (A-3)
AUX. BLDG. FLOOR & EQUIP DRAINS M-12LF03 (D-3)
FROM AUX. BLDG. FUEL BLDG., RAD. WASTE BLDG., CONTROL BLDG., RADWASTE TUNNEL, NON-RADIOACTIVE PIPE TUNNEL, SOLIDIFICATION AREA & HOT MACHINE SHOP SUMPS
PIPE CHASE
CORRIDOR
MISC. DRAIN HUB
BORIC ACID TANK ROOM
NORMAL CHARGING PUMP ROOM
NORMAL CHARGING PUMP
NORMAL CHARGING PUMP ROOM & ROOM COOLER
BORON INJ TANK ROOM LOW POINT DRAIN
BORON INJECTION TANK ROOM
STEAM GEN. DRAIN PUMP & VALVE STEM LEAKOFF
PIPING LOW POINT DRAIN
CENTRIFUGAL CHARGING PUMP ROOM COOLER EL. 1974-0
CENTRIFUGAL CHARGING PUMP ROOM EL. 1974-0
CENTRIFUGAL CHARGING PUMP EL. 1974-0
CONT BLDG. FLOOR & EQUIP DRAIN SUMP DISCHARGE M-12LF00 (C-3)
FLOOR DRAIN TANK M-12LF03 (C-4)
SAFETY INJECTION PUMP ROOM EL. 1974-0
SAFETY INJECTION PUMP ROOM & ROOM COOLER EL. 1974-0
SAFETY INJECTION PUMP EL. 1974-0
CTMT SPRAY PUMP ROOM EL. 1967-0
CTMT SPRAY PUMP EL. 1967-0
CTMT SPRAY PUMP ROOM COOLER EL. 1967-0
RHR PUMP ROOM EL. 1967-0
RHR PUMP EL. 1967-0
RHR PUMP ROOM COOLER EL. 1967-0
AUX. BLDG. EXHAUST SYSTEM M-12GL01 (A-7)
AUX. BLDG. EXHAUST SYSTEM M-12GL01 (B-8)
ALTERNATOR
TOP OF SUMP EL. 1967-0
CORRIDOR EL. 1967-0
TOP OF SUMP EL. 1967-0
SEE NOTES 1 & 2
5/16 DIA. ORIFICE HOLE (SEE NOTE 6)
1/4 DIA. ORIFICE HOLE (SEE NOTE 6)
PLF02B AUXILIARY BUILDING SUMPS AND PUMPS (DRW)
PLF02A
PLF01B RHR PUMP ROOM SUMP AND PUMPS (DRW)
PLF01A
USAR FIG. 9.3-5-08
ESSENTIAL DRAWING
WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
PIPING AND INSTRUMENTATION DIAGRAM AUXILIARY BUILDING FLOOR AND EQUIPMENT DRAIN SYSTEM
M-12LF01
03
Digitally signed by Ricky L Rietmann
Date: 2014.11.10 15:36:18 -06'00'



USAR FIG. 9.3-5-09

ESSENTIAL DRAWING

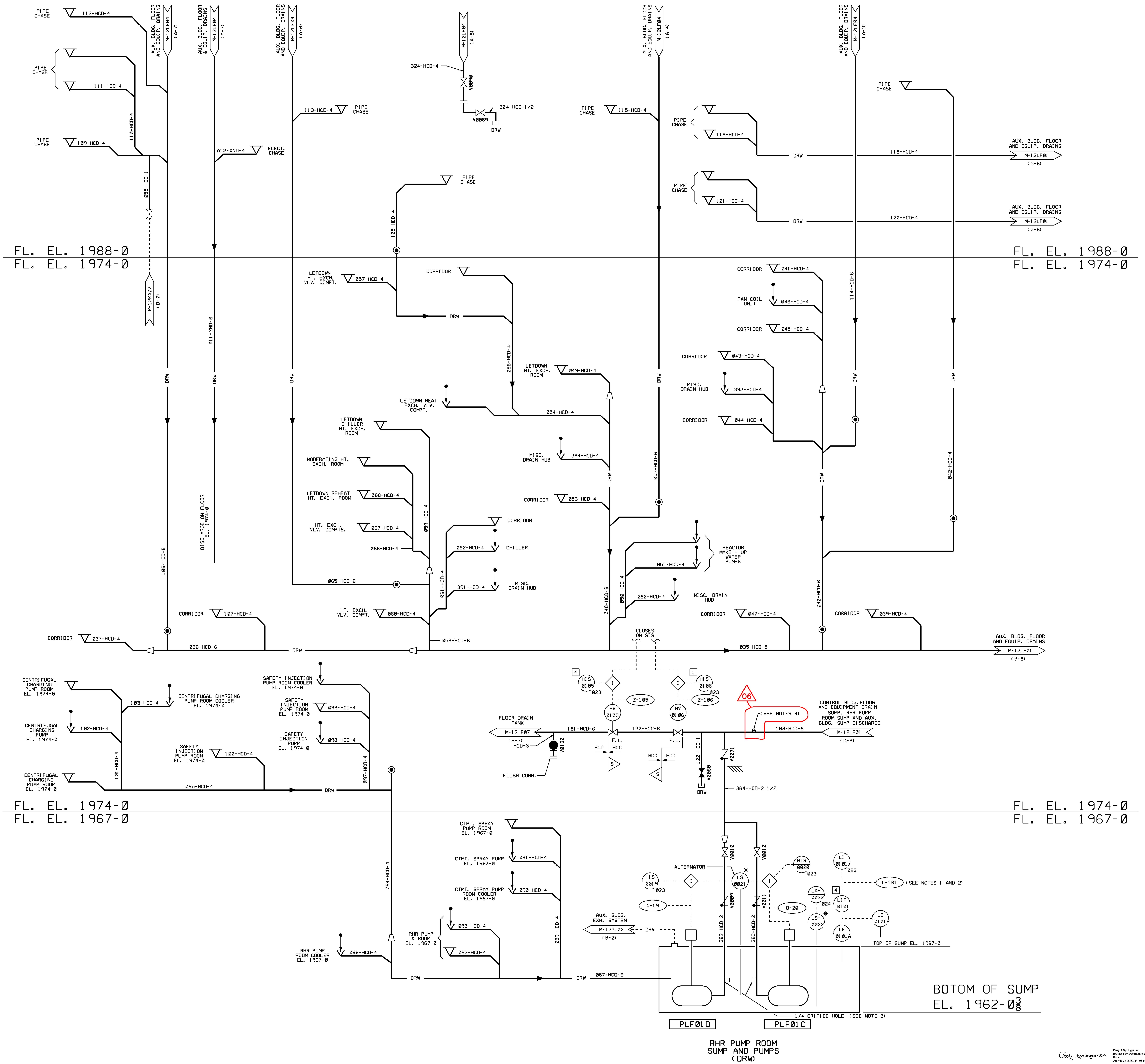
⊗ REVISED	INCORPORATED CHG DOC	CHANGE PKG NO.	
○ ISSUED			
THIS DWG SUPERSEDES	REV	THIS DWG SUPERSEDES	REV TO
REVISION NOTES: ELECTRONICALLY CONVERTED PER AP 05-010			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM AUXILIARY BUILDING FLOOR AND EQUIPMENT DRAIN SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF02	03	A

34X44 E SIZE



NOTES

1. THE RHR PUMP ROOM SEISMIC CATEGORY 1 LEVEL INDICATORS WILL BE INSTALLED ON A SEPARATE TRIANGULAR COVER PROVIDED BY BECHTEL. SPACE FOR THIS COVER WILL BE MADE BY HAVING A TRIANGULAR CUT OF SAME SIZE ON ORIGINAL SUMP COVER PLATE. COVER WILL BE CATEGORY 1.
2. DRAWING Q - LIST PERTAINS TO LEVEL INDICATOR L-101 AND VALVES HV0105 AND HV0106 ONLY.
3. RECIRCULATION ORIFICES (DRILLED HOLES) ARE TO EXTEND PUMP LIFE DURING SHUT - OFF CONDITION ON SIS.
4. 3' STAINLESS STEEL THREADOLET INSTALLED FOR INSPECTION/RETRIEVAL ACCESS. REFER TO DRAWING M-13LF02 FOR EXACT LOCATION. (06)

USAR FIG. 9.3-5-10

ESSENTIAL DRAWING

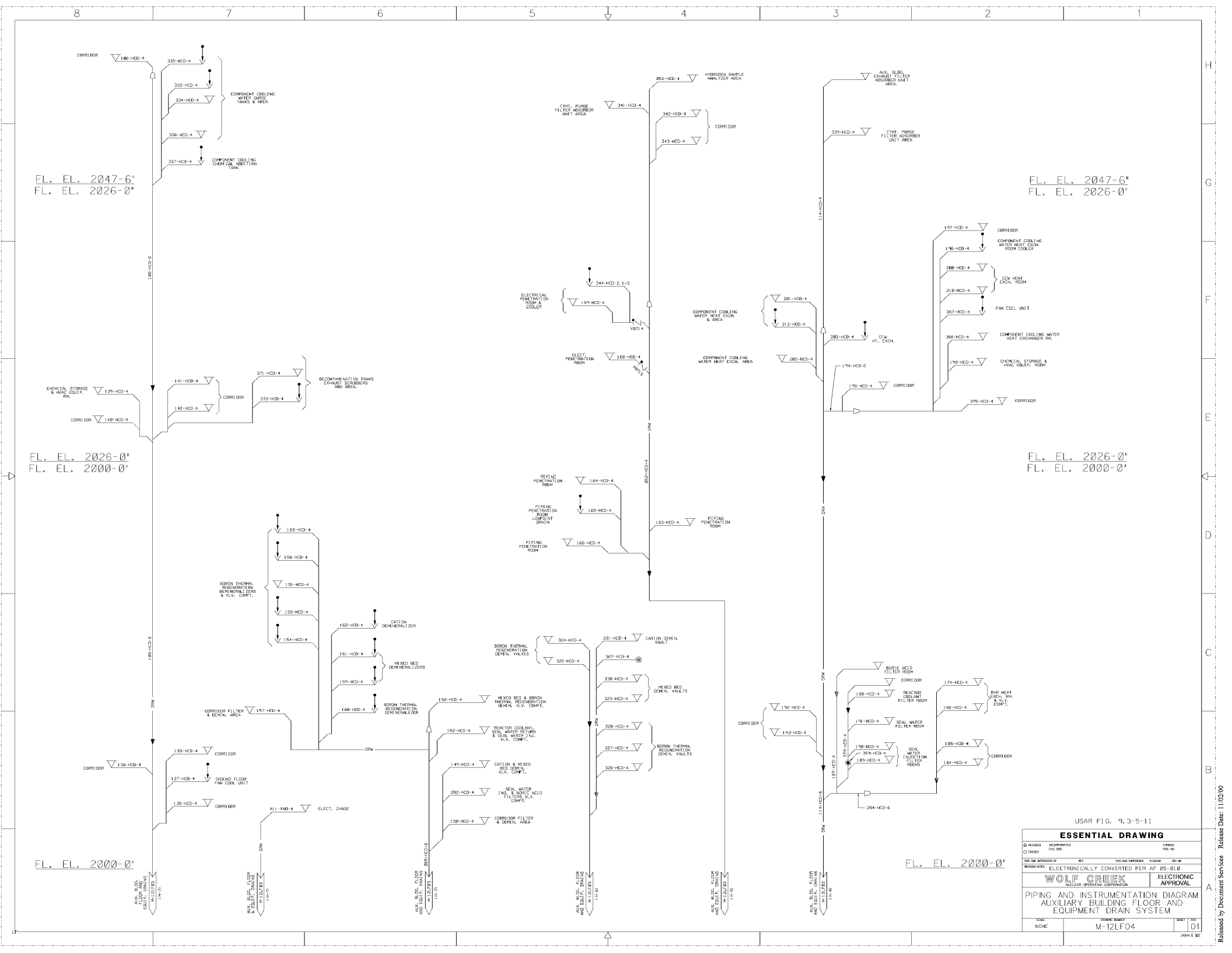
⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-12LF03-005-A-1	CHANGE PKG. NO. 015050	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM AUXILIARY BUILDING FLOOR AND EQUIPMENT DRAIN SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF03		06

34X44 E SIZE



USAR FIG. 9.3-5-11

ESSENTIAL DRAWING

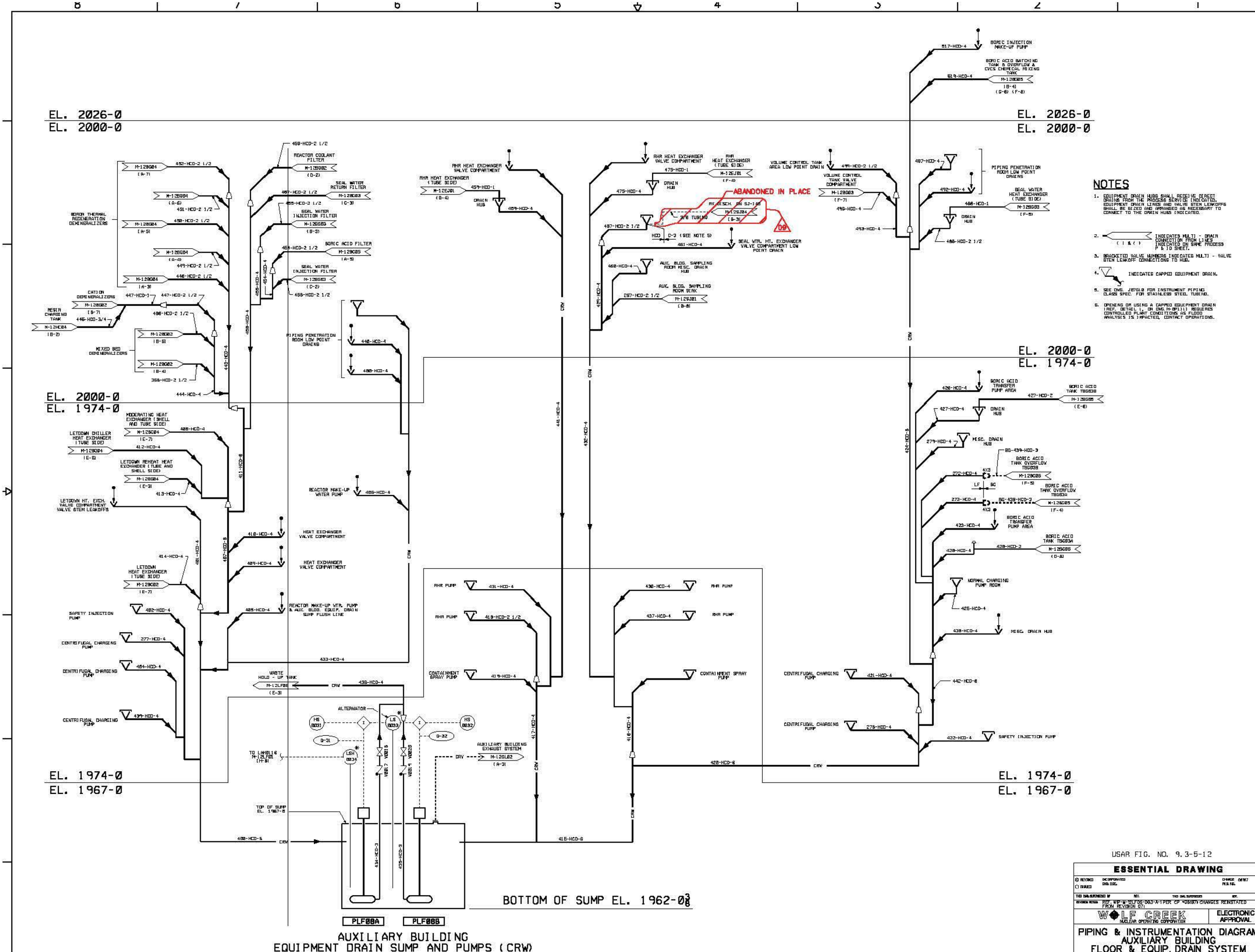
ⓐ REVISED ○ ISSUED	INCORPORATED CHG. DOC.		CHANGE PKG. NO.
THIS DWG. SUPERSEDES DI		REV.	THIS DWG SUPERSEDES M-12LF04 REV. 00
REVISION NOTES	ELECTRONICALLY CONVERTED PER AP 05-010		

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM AUXILIARY BUILDING FLOOR AND EQUIPMENT DRAIN SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF04		01

34844 E 92E


EL. 2026-0
EL. 2000-0
EL. 1974-0
EL. 1967-0
BOTTOM OF SUMP EL. 1962-0 3/8
ABANDONED IN PLACE
NOTES
1. EQUIPMENT DRAIN HUBS SHALL RECEIVE DIRECT DRAINS FROM THE PROCESS SERVICE INDICATED. EQUIPMENT DRAIN LINES AND VALVE STEM LEAKOFFS SHALL BE SIZED AND ARRANGED AS NECESSARY TO CONNECT TO THE DRAIN HUBS INDICATED.
2. INDICATES MULTI - DRAIN CONNECTION FROM LINES INDICATED ON SAME PROCESS P & ID SHEET.
3. BRACKETED VALVE NUMBERS INDICATES MULTI - VALVE STEM LEAKOFF CONNECTIONS TO HUB.
4. INDICATES CAPPED EQUIPMENT DRAIN.
5. SEE DWG. J07GL0 FOR INSTRUMENT PIPING CLASS SPEC. FOR STAINLESS STEEL TUBING.
6. OPENING OR USING A CAPPED EQUIPMENT DRAIN (REF. DETAIL 1, ON DWG.M-0P111) REQUIRES CONTROLLED PLANT CONDITIONS AS FLOOD ANALYSIS IS IMPACTED, CONTACT OPERATIONS.
BORIC INJECTION MAKE-UP PUMP
BORIC ACID BATCHING TANK & OVERFLOW & CVCS CHEMICAL MIXING TANK
REACTOR COOLANT FILTER
SEAL WATER RETURN FILTER
SEAL WATER INJECTION FILTER
BORIC ACID FILTER
BORON THERMAL REGENERATION DEMINERALIZERS
CATION DEMINERALIZERS
RESIN CHARGING TANK
MIXED BED DEMINERALIZERS
RHR HEAT EXCHANGER VALVE COMPARTMENT
RHR HEAT EXCHANGER (TUBE SIDE)
DRAIN HUB
VOLUME CONTROL TANK AREA LOW POINT DRAIN
VOLUME CONTROL TANK VALVE COMPARTMENT
PIPING PENETRATION ROOM LOW POINT DRAINS
SEAL WATER HEAT EXCHANGER (TUBE SIDE)
SEAL WTR. HT. EXCHANGER VALVE COMPARTMENT LOW POINT DRAIN
AUX. BLDG. SAMPLING ROOM MISC. DRAIN HUB
AUX. BLDG. SAMPLING ROOM SINK
MODERATING HEAT EXCHANGER (SHELL AND TUBE SIDE)
LETDOWN CHILLER HEAT EXCHANGER (TUBE SIDE)
LETDOWN REHEAT HEAT EXCHANGER (TUBE AND SHELL SIDE)
LETDOWN HT. EXCH. VALVE COMPARTMENT VALVE STEM LEAKOFFS
LETDOWN HEAT EXCHANGER (TUBE SIDE)
REACTOR MAKE-UP WATER PUMP
HEAT EXCHANGER VALVE COMPARTMENT
REACTOR MAKE-UP WTR. PUMP & AUX. BLDG. EQUIP. DRAIN SUMP FLUSH LINE
SAFETY INJECTION PUMP
CENTRIFUGAL CHARGING PUMP
BORIC ACID TRANSFER PUMP AREA
BORIC ACID TANK TBG03B
MISC. DRAIN HUB
BORIC ACID TANK OVERFLOW TBG03B
BORIC ACID TANK OVERFLOW TBG03A
BORIC ACID TANK TBG03A
NORMAL CHARGING PUMP ROOM
RHR PUMP
CONTAINMENT SPRAY PUMP
WASTE HOLD - UP TANK
ALTERNATOR
AUXILIARY BUILDING EXHAUST SYSTEM
TOP OF SUMP EL. 1967-8
PLF08A
PLF08B
AUXILIARY BUILDING
EQUIPMENT DRAIN SUMP AND PUMPS (CRW)

USAR FIG. NO. 9.3-5-12

ESSENTIAL DRAWING

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
AUXILIARY BUILDING
FLOOR & EQUIP. DRAIN SYSTEM

SCALE: NONE

M-12LF05

REV 09

NOTES

1. THE PROCESS SYSTEM DRAIN LINE ISOMETRIC SHALL BEAR THE LINE NUMBER OF THE DRAIN HUB TO WHICH THEY ARE CONNECTED. REFER TO PROCESS SYSTEM ISOMETRICS FOR EQUIP. DRAIN LINE ROUTING & CONFIGURATION.
2. ( ) & ( ) INDICATES MULTI - DRAIN CONNECTIONS FROM LINES INDICATED ON SAME PROCESS P & ID SHEET.
3. BRACKETED VALVE NUMBERS INDICATES MULTI - VALVE STEM LEAKOFF CONNECTIONS TO HUB.
4. CRW MISCELLANEOUS DRAIN HUBS TO BE CAPPED WITH A STAINLESS STEEL BODY AND PLUG ASSEMBLY, CO-1 AS SHOWN IN DETAIL 5 OF M-17LF02.
5. FOR GENERAL NOTES SEE DRAWING M-12LF01.

EL. 2031-6"
EL. 2000-0
EL. 2000-0
EL. 1976-0
EL. 1976-0

999-HCD-2 1/2 RECYCLE EVAP FEED FILTER VALVE RM M-12HE01 (D-3)
A03-HCD-2 1/2 RECYCLE EVAP FEED DEMIN VALVE RM M-12HE01 (E-4)
RECYCLE EVAP CONCENTRATE FILTER VALVE RM M-12HE03 (A-4)
A02-HCD-2 1/2 RECYCLE EVAP FEED DEMIN VALVE RM M-12HE01 (E-5)
A01-HCD-2 1/2
999-HCD-4
565-HCD-4 RECYCLE EVAP CONDENSATE FILTER VALVE RM M-12HE03 (C-2)
CRW
994-HCD-2 1/2 WASTE EVAP COND DEMIN VALVE RM M-12HB03 (E-5)
998-HCD-2 1/2 WASTE EVAP CONDENSATE FILTER VALVE RM M-12HB03 (D-5)
997-HCD-2 1/2 LIQUID WASTE CHARCOAL ADSORBER M-12HB03 (E-7)
WASTE GAS DRAIN FILTER VALVE RM M-12HA03 (A-4)
996-HCD-2 1/2
995-HCD-2 1/2 RECYCLE EVAP CONDENSATE DEMIN VALVE RM M-12HE03 (E-3)
994-HCD-4
565-HCD-6
FUEL POOL CLEAN - UP DEMIN VALVE RM M-12EC02 (C-4) (REF. V0078)
A04-HCD-2 1/2
A08-HCD-2 1/2 (PRIMARY) SPENT RESIN SLUICE FILTER VALVE RM M-12HC03 (D-7)
A06-HCD-2 1/2 FUEL POOL SKIMMER FILTER VALVE RM M-12EC02 (B-3) (REF. V0109)
A05-HCD-2 1/2 FUEL POOL CLEAN - UP FILTER VALVE RM M-12EC02 (G-5) (REF. V0063)
558-HCD-2 1/2 FUEL POOL CLEAN - UP FILTER VALVE RM M-12EC02 (REF. V0065) (E-5)
A04-HCD-4
548-HCD-4 SPENT RESIN STORAGE TANK PUMP & VALVE RM.
748-HCD-4 SPENT RESIN STORAGE TANK AREA
629-HCD-4 NUCLEAR SAMPLING SYSTEM SAMPLE PANEL M-12SJ02 (B-2)
630-HCD-4 RECYCLE EVAPORATOR PKG M-12HE03 (B-8)
RECYCLE EVAP. PKG. VALVE COMPARTMENT MISC. DR. HUB
631-HCD-4
WASTE EVAP PKG VALVE COMPARTMENT M-12HB02 (E-2)
632-HCD-4 WASTE EVAPORATOR PKG M-12HB02 (D-2)
633-HCD-4
627-HCD-4
SLWS EVAP. PKG. AREA MISC. DR. HUB
A32-HCD-4
A31-HCD-4
558-HCD-4
CRW
A31-HCD-4 SLWS EVAP. CONC. TRANSFER PUMP & MOTOR AREA MISC. DR. HUB (SHF09A & B) M-12HF04 (A-4)
A29-HCD-4 DISTILLATE PUMP (SHF10) & LEVEL POT AREA (SHF16) MISC. DR. HUB
A30-HCD-4 SLWS EVAP. RECIRC. PUMP AREA (SHF08) MISC. DR. HUB
628-HCD-4 SLWS EVAP. PKG. AREA MISC. DR. HUB
HVAC M-12GL03 (F-7)
POST ACCIDENT SAMPLING SYSTEM (ABANDONED IN PLACE) 09
A73-HCD-1
M-12SJ04 (B-4)
ABANDONED IN PLACE
A79-HCD-1 1/2
1/2" X 3/8"
PASS BY DISCH. M-12SJ04 (B-4)
09
AUX. BLDG. EQUIP. DRAIN SUMP PUMP DISCHARGE M-12LF05 (C-7)
TUNNEL
436-HCD-4
B82-HCD-1
V0175
B58-HCD-2 M-12HD01 (H-2) DECON. SYSTEM DECON. TANKS AND TURBULATOR (HOT MACHINE SHOP)
B35-HCD-2 1/2 (HOT MACHINE SHOP) M-12HD01 (D-6)
V
V0105
477-HCD-6
TUNNEL
WASTE HOLD - UP TANK M-12HB02 (H-8)
3/4"
REACTOR MAKE - UP WATER STORAGE TANK (OVERFLOW) M-12BL01 (G-2)
478-HCD-4
V0033
V0104
1" (D)
REFUELING W. STORAGE TK (OVERFLOW) M-12BN01 (F-2)
479-HCD-6
V0034
627-HCD-4
628-HCD-4
WASTE GAS COMPRESSOR AREA "B" SUCTION DRAIN TRAP M-12HA01 (C-6)
546-HCD-4
568-HCD-4
RECYCLE HOLD - UP TANK DISCHARGE M-12HE02 (E-5, E-7)
RECYCLE EVAPORATOR FEED PUMPS M-12HE02 (B-6, C-6)
570-HCD-4
569-HCD-4
WASTE GAS COMPRESSOR & CATALYTIC HYDROGEN RECOMBINER VALVE RM. MISC. DR. HUB
RECYCLE HOLD - UP TANK (DRAIN) M-12HE02 (F-6)
571-HCD-6
566-HCD-4
HA-162 SAMPLE AND PURGE DRAIN TRAP M-12HA02 (C-4)
567-HCD-4
GAS ANALYZER RACK AREA MISC. DR. HUB
565-HCD-6
WASTE GAS COMPRESSOR 'A' SUCTION DRAIN TRAP M-12HA01 (F-6)
564-HCD-4
563-HCD-4 WASTE GAS COMPRESSOR & CATALYTIC HYDROGEN RECOMBINER VALVE RM. MISC. DR. HUB
WASTE EVAP CNDS. TK. PUMP M-12HB03 (E-4)
553-HCD-1
DRAIN HUB
553-HCD-4
WASTE EVAP CNDS TK. DRAIN AND OVERFLOW M-12HB03 (F-5)
867-HCD-1
DRAIN HUB
867-HCD-4
HB-149-HCD-2
WASTE EVAP CNDS TK. DRAIN AND OVERFLOW M-12HB03 (G-3)
DRAIN HUB
549-HCD-4
SPENT RESIN SLUICE PUMP AREA MISC. DR. HUB
555-HCD-4
556-HCD-4
WASTE EVAP. BOTTOMS TANK PUMP AREA MISC. DR. HUB
WASTE MONITOR TANK AREA MISC. DR. HUB
554-HCD-4
CRW
553-HCD-4
RECYCLE HOLD - UP TANK M-12HE02 (F-8)
560-HCD-6
GASEOUS RADWASTE DRAIN COLLECTION TANK M-12HA03 (A-7)
562-HCD-4
GAS ANALYZER RACK AREA MISC. DR. HUB
561-HCD-4
584-HCD-2 1/2
CRW
SAMPLE & PURGE DRAIN TRAP HA0161 M-12HA02 (F-4)
559-HCD-4
V0026
V0028
V0025
V0027
GAS DECAY TANK AREA MISC. DR. HUB
557-HCD-4
GAS DECAY TANK VALVE ROOM MISC. DR. HUB
556-HCD-4
WASTE EVAP. BOTTOMS TANK (PRIMARY) AREA MISC. DR. HUB
552-HCD-4
551-HCD-4
GAS DECAY TANK VALVE RM. MISC. DR. HUB
549-HCD-4
550-HCD-4
GAS DECAY TANK AREA MISC. DR. HUB
CRW
546-HCD-6
FUEL POOL COOLING HEAT EXCHANGER (EEC01B) (TUBE SIDE) M-12EC01 (E-7)
505-HCD-1
FUEL POOL COOLING HEAT EXCH. AREA MISC. DR. HUB
A99-HCD-4
DRAIN HUB
505-HCD-4
FUEL POOL COOLING HEAT EXCHANGER (EEC01A) (TUBE SIDE) M-12EC01 (G-7)
510-HCD-1
518-HCD-4
509-HCD-4
FUEL POOL COOLING HEAT EXCH. AREA MISC. DR. HUB
FUEL POOL COOLING PUMP (PEC01B) M-12EC01 (E-6)
FUEL POOL COOLING PUMP (PEC01A) M-12EC01 (G-6)
506-HCD-4
511-HCD-4
FUEL POOL CLEAN - UP PUMP (PEC02B) M-12EC02 (E-6)
FUEL POOL CLEAN - UP PUMP (PEC02A) M-12EC02 (G-6)
507-HCD-4
508-HCD-4
516-HCD-2 1/2
CRW
V0030
V0032
V0029
V0031
FUEL POOL SKIMMER PUMP (PEC03) M-12EC02 (B-4)
512-HCD-4
FUEL BUILDING EXH SYS M-12GG02 (B-3)
ALTERNATOR
HS 0043
I
LS 0045
I
HS 0044
Q-43
Q-44
CRW
ALTERNATOR
HS 0047
I
LS 0049
I
HS 0048
Q-47
Q-48
CRW
RADWASTE BLDG. EXH. SYS. M-12GH01 (B-3)
TO LAH0116 M-12LF01 (H-6)
LSH 0046
TO LAH0116 M-12LF01 (H-6)
LSH 0050
548-HCD-6
547-HCD-4
GAS DECAY TANK AREA MISC. DR. HUB
546-HCD-8
502-HCD-2
503-HCD-2
507-HCD-6
514-HCD-2
515-HCD-2
513-HCD-4
FUEL BLDG. EQUIP. DR. SUMP FLUSH LINE MISC. DR. HUB
PLF10A
PLF10B
PLF09A
PLF09B

RADWASTE BUILDING EQUIP DRAIN SUMP AND PUMPS (CRW)

FUEL BUILDING EQUIP DRAIN SUMP AND PUMPS (CRW)

Patty A Springman
Patty A Springman
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USAR FIG. 9.3-5-13

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12LF06-006-A-1	CHANGE PKG. NO. 06187
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REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM RADWASTE AND FUEL BUILDINGS FLOOR AND EQUIP. DRAIN SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF06		09

34X44 E SIZE

8 7 6 5 4 3 2 1

04 (SEE NOTE 1)

CONTROL BLDG. FLOOR AND EQUIPMENT DRAIN SUMPS AND AUXILIARY BLDG. SUMPS M-12LF03 (C-5)
181-HCD-6
CTMT. BLDG. SUMPS M-12LF09 (F-1)
182-HCD-6
183-HCD-8
FUEL BLDG. SUMP M-12LF08 (D-7)
520-HCD-3
TUNNEL PIPE TUNNEL SUMPS M-12LF10 (C-7)
HCD-1
521-HCD-2 1/2
V0187 (D) DRW
HOT MACHINE SHOP OILY WATER SEPARATOR RADWASTE BLDG M-12LF09 (B-3)
385-HCD-2
FLOOR DRAIN TANK M-12HB02 (G-8)
SOLIDIFICATION AREA SUMP PUMPS M-12HC01 (D-8)
HC-345-HCD-2

RECYCLE EVAP. FEED DEMIN. 605-HCD-4
CORRIDOR 921-HCD-4
DEMIN. VLV. COMPT. 923-HCD-4
RECYCLE EVAP. COND. DEMIN. 925-HCD-4
922-HCD-4 WASTE EVAP. COND. DEMIN.
924-HCD-4 LIQUID WASTE CHARCOAL ADSORBER DEMIN.
926-HCD-4 DEMIN. VLV. COMPT.
921-HCD-4
917-HCD-4 MISC. DRAIN HUB
981-HCD-4 CORRIDOR
919-HCD-4 CORRIDOR
920-HCD-4 RECYCLE EVAP. FEED DEMIN. AND DEMIN. OVER FLOW.
640-HCD-4
642-HCD-4 PIPE CHASE

RADWASTE BLDG. EXHAUST FILTER ADSORBER UNIT AND AREA 652-HCD-4, 984-HCD-4
MISC. EQUIP. DRAIN 653-HCD-4
RADWASTE BLDG. EXHAUST FILTER ADSORBER UNIT AREA 983-HCD-4, 982-HCD-4

LAUNDRY & HOT SHOWER TANK & AREA 954-HCD-4, 964-HCD-4
CORRIDOR 960-HCD-4
CORRIDOR 959-HCD-4
MISC. EQUIP. DRAIN 990-HCD-4
991-HCD-4, 989-HCD-4 MISC. EQUIP. & FLOOR DRAIN
992-HCD-4 MISC. EQUIP. DRAIN
LAUNDRY WATER STORAGE TANK & AREA 958-HCD-4, 956-HCD-4
957-HCD-4 CORRIDOR
955-HCD-4 LAUNDRY AND HOT SHOWER CHARCOAL ADSORBER
592-HCD-4, 963-HCD-4 WASTE MONITOR TANK & PUMP
962-HCD-4 CORRIDOR
961-HCD-4 WASTE MONITOR TANK AREA
954-HCD-6

604-HCD-4 MISC. EQUIP. DRAIN
651-HCD-4 CORRIDOR
596-HCD-4 CORRIDOR
602-HCD-6 ESEW-2
598-HCD-4, 599-HCD-4 CORRIDOR
597-HCD-4 CORRIDOR
297-HCD-4 FAN COIL UNIT
604-HCD-4, 596-HCD-6

WASTE EVAP. CONDS. TK. PUMP & AREA 286-HCD-4, 874-HCD-4
533-HCD-4 CORRIDOR
FLOOR DRAIN TK. & AREA 530-HCD-4, 532-HCD-4
MISC. EQUIP. DRAIN 531-HCD-6
530-HCD-6
FLOOR DRAIN TK. PUMP & AREA 529-HCD-4
WASTE MONITOR TANK PUMP 871-HCD-4
525-HCD-4 WASTE MONITOR TANK
870-HCD-4 WASTE EVAP. CNDS. TANK
526-HCD-4 WASTE MONITOR TANK ROOM
527-HCD-4, 528-HCD-4 WASTE EVAP. BOTTOMS TANK & AREA
500-HCD-4 WASTE MONITOR TANK
523-HCD-4 PUMP ROOM
872-HCD-4 SPENT RESIN SLUICE PUMP
524-HCD-4 WASTE EVAP. BOTTOMS TANK PUMP

579-HCD-4 MISC. EQUIP. DRAIN
586-HCD-4 CORRIDOR
583-HCD-4 SLWS MONITOR TANK
585-HCD-4 MISC. STORAGE AREA
ESEW 731-HCD-1 1/4
584-HCD-4, 730-HCD-6 ESEW-1
584-HCD-6
582-HCD-4 CORRIDOR
DS
581-HCD-4
508-HCD-4, 729-HCD-4 SLWS MONITOR TANKS & AREA
583-HCD-6, 579-HCD-6, 582-HCD-6
DRW

484-HCD-4 SLWS MONITOR TK. ROOM
595-HCD-4, 594-HCD-4 SLWS DISCHARGE PUMPS
593-HCD-4 MISC. EQUIP. DRAIN
723-HCD-4 SLWS MONITOR TANK ROOM
485-HCD-4 CORRIDOR
491-HCD-4, 498-HCD-4, 497-HCD-4 FLOOR DRAIN TANK & AREA
494-HCD-4, 495-HCD-4 FLOOR DRAIN TK. PUMP & AREA
486-HCD-4, 490-HCD-4 FLOOR DRAIN TK. PUMPS & AREA
489-HCD-4 FLOOR DR. TK. PUMPS & AREA
297-HCD-6

397-HCD-4, 637-HCD-4 WASTE EVAP. PACK & AREA
RECYCLE EVAPORATOR PACKAGE AREA 576-HCD-4
RECYCLE EVAP. PACK & ROOM 634-HCD-4, 635-HCD-4
636-HCD-4 RECYCLE EVAP. PACK VLV. COMPT.
397-HCD-6

609-HCD-4 RECYCLE EVAP. PACK VLV. RM.
610-HCD-4 MISC. EQUIP. DRAIN
611-HCD-4 CORRIDOR
606-HCD-4 WASTE EVAP. PACK VLV. RM.
608-HCD-4 WASTE EVAP. PACK ROOM
607-HCD-4 WASTE EVAP. PACK VLV. RM.
605-HCD-6, 682-HCD-4 DRW

CATALYTIC HYDROGEN RECOMBINER ROOM 309-HCD-4
374-HCD-4
322-HCD-4
CATALYTIC HYDROGEN RECOMBINER VALVE ROOM 321-HCD-4
311-HCD-4
309-HCD-6
ESEW 862-HCD-1 1/4
310-HCD-4 ESEW-1
290-HCD-4 WASTE GAS COMPR. AREA
878-HCD-4 CORRIDOR
304-HCD-4 RECYCLE EVAP. FEED PUMP ROOM

CORRIDOR 298-HCD-4
PIPE CHASE 301-HCD-4
CATALYTIC HYDROGEN RECOMBINER ROOM 861-HCD-4
GASEOUS RADWASTE DRAIN COLLECTION TANK AREA 303-HCD-4
GAS DECAY TK. DR. PUMP 302-HCD-4
CORRIDOR 300-HCD-4
308-HCD-4 CORRIDOR
290-HCD-6
305-HCD-4 WASTE GAS COMPRESSOR ROOM
307-HCD-4, 306-HCD-4 WASTE GAS COMPRESSOR VALVE ROOM
299-HCD-4 FAN COIL UNIT
297-HCD-6

ESEW 868-HCD-1 1/4
482-HCD-4, 483-HCD-6 ESEW-1
482-HCD-6
MISC. EQUIP. DRAIN 472-HCD-4
GAS DECAY TANKS & AREA 473-HCD-4, 481-HCD-4
GAS DECAY TANKS VALVE ROOM 474-HCD-4, 476-HCD-4
466-HCD-4, 471-HCD-4 WASTE HOLD-UP TANK & AREA
470-HCD-4 MISC. EQUIP. DRAIN
468-HCD-4, 869-HCD-4, 469-HCD-4 WASTE EVAP. FEED PUMP & AREA
465-HCD-4 CORRIDOR
464-HCD-6 S.G. BLDG. SURGE TK.
462-HCD-4, 463-HCD-4 GAS DECAY TKS & AREA
GAS DECAY TANK ROOM 291-HCD-4
294-HCD-4
GAS DECAY TANK VALVE ROOM 293-HCD-4
CORRIDOR 292-HCD-4
295-HCD-4, 296-HCD-4 GAS DECAY TANK AREA
399-HCD-4 MISC. EQUIP. DRAIN
298-HCD-8
286-HCD-8

287-HCD-4, 875-HCD-4, 288-HCD-4 AUX. STEAM CNDS. RECOVERY TANK TRANSFER PUMPS & AREA
V0036, V0035 ALTERNATOR V0037
HS 0059, LS 0061, HS 0060
Q-59, LSH 0062
TO LAH0116 M-12LF01 (H-6)
Q-60
RADWASTE BLDG. EXHAUST SYS. M-12GH01 (B-3)
286-HCD-10
608-HCD-3, 601-HCD-3
PLF04A PLF04B

RADWASTE BLDG. SUMP AND PUMPS (DRW)

CORRIDOR 398-HCD-4
CORRIDOR 947-HCD-4
FILTER VLV. COMPT. 945-HCD-4
STEM GEN BLDN FILTER 944-HCD-4
CORRIDOR 951-HCD-4
953-HCD-6, ESEW, ESEW-1
943-HCD-1 1/4
952-HCD-4
951-HCD-6

FILTER VALVE COMPARTMENT 918-HCD-4
RECYCLE EVAP COND. FILTER ROOM 754-HCD-4
WASTE GAS DRAIN FILTER ROOM 755-HCD-4
750-HCD-4 RECYCLE EVAP. FEED FILTER ROOM
753-HCD-4 RECYCLE EVAP. CONCENTRATE FILTER ROOM
915-HCD-4 FILTER VALVE COMPARTMENT
751-HCD-4
757-HCD-4 WASTE EVAP. COND. FILTER ROOM
FILTER VALVE COMPARTMENT 903-HCD-4
WASTE MONITOR TANK FILTER 905-HCD-4
904-HCD-4 WASTE MONITOR TANK FILTER ROOM
906-HCD-4 WASTE EVAP. FEED FILTER ROOM
FILTER VLV. COMPT. 909-HCD-4
907-HCD-4 WASTE EVAP FEED FILTER
FLOOR DRAIN TANK FILTER 910-HCD-4
908-HCD-4 FLOOR DRAIN TANK FILTER ROOM
CORRIDOR 913-HCD-4
FILTER VLV. COMPT A13-HCD-4
911-HCD-4 FUEL POOL CLEAN - UP FILTER ROOM
FUEL POOL SKIMMER FILTER ROOM 914-HCD-4
912-HCD-4 FUEL POOL CLEAN - UP FILTER ROOM
751-HCD-6
A07-HCD-4 SECONDARY SPENT RESIN SLUICE FILTER
SECONDARY SPENT RESIN SLUICE FILTER ROOM 916-HCD-4
916-HCD-6 DRW

STEM GEN. BLDN. FILTER 946-HCD-4
STEM GEN. BLDN. FILTER ROOM 942-HCD-4
941-HCD-4 SECONDARY LIQUID WASTE EVAP. FEED FILTER ROOM
940-HCD-4 SECONDARY LIQUID WASTE EVAP FEED FILTER
LOW TDS FILTER ROOM 938-HCD-4, 936-HCD-4
DRW
950-HCD-4 LAUNDRY & HOT SHOWER TANK FILTER
949-HCD-4 LAUNDRY & HOT SHOWER TK FILTER ROOM
948-HCD-4 STEAM GEN. BLDN. FILTER ROOM
939-HCD-4 FUEL POOL CLEAN - UP DEMIN.
A15-HCD-4 FILTER VLV. COMPT.
993-HCD-4 LOW TDS FILTER
937-HCD-4 DEMIN. VLV. COMPT.
987-HCD-4 CORRIDOR
985-HCD-4 LOW TDS FILTER
935-HCD-4 SLWS DEMIN.
A14-HCD-4 DEMIN VLV COMPT
986-HCD-4 FILTER VLV COMPT.
934-HCD-4 (PRIMARY) SPENT RESIN SLUICE FILTER ROOM
398-HCD-6

A24-HCD-4, A20-HCD-4, A25-HCD-4, A21-HCD-4, A23-HCD-4 SLWS EVAPORATOR AREA
572-HCD-4, A28-HCD-4, A26-HCD-4 SLWS EVAPORATOR AREA
SAMPLE LAB 575-HCD-4
ESEW 737-HCD-1 1/4
626-HCD-4, 736-HCD-4, 626-HCD-6, 575-HCD-6 ESEW-1
574-HCD-4, A33-HCD-4 SLWS EVAP. AREA
A27-HCD-4, 578-HCD-4, 577-HCD-4 SLWS EVAPORATOR AREA
SUBCOOLER AND COND. AREA EL. 2010-6
647-HCD-6

WASTE MONITOR TK. DEMIN 927-HCD-4
928-HCD-4 S.G. BLDN. MIXED BED DEMIN
S.G. BLDN. MIXED BED DEMIN. 929-HCD-4
930-HCD-4 DEMIN. VLV. COMPT.
931-HCD-4
932-HCD-4 S.G. BLDN. MIXED BED DEMIN.
DEMIN. VLV. COMPT. 933-HCD-4
649-HCD-4 SLWS CHARCOAL ADSORBER DEMIN
647-HCD-4 CORRIDOR
PIPE CHASE 654-HCD-4, 656-HCD-4, 655-HCD-4
658-HCD-4 PIPE CHASE
648-HCD-4 PIPE CHASE

620-HCD-4 CONTROL ROOM
CONTROL ROOM FAN COIL UNIT 624-HCD-4
895-HCD-4 CORRIDOR
623-HCD-4, 622-HCD-4 SPENT RESIN STORAGE TK. PUMP AND VLV. ROOM
621-HCD-4 SPENT RESIN STORAGE TK. AREA
EVAPORATOR BOTTOMS TK. & AREA 638-HCD-4, 625-HCD-4, 638-HCD-6
573-HCD-4 CORRIDOR
SPENT RESIN STORAGE TANK 615-HCD-4
616-HCD-4, 618-HCD-4 LIQUID RADWASTE DEMIN. SKID ROOM
SAMPLE PANEL 614-HCD-4
612-HCD-4 SAMPLE LAB
SAMPLE LAB 613-HCD-4
573-HCD-6
572-HCD-6

CHEMICAL DR. TK. PUMP 540-HCD-4
544-HCD-4, 545-HCD-4 CHEMICAL DRAIN TK. & AREA
535-HCD-4
RECYCLE HOLD - UP TK. AREA 537-HCD-4, 538-HCD-4, 539-HCD-4
543-HCD-4 S.G. BLDN. SURGE TANK PUMPS AREA
542-HCD-4 ENTRANCE TO RADIOACTIVE PIPE TUNNEL
866-HCD-4, 865-HCD-4, 864-HCD-4, 863-HCD-4 RADIOACTIVE PIPE TUNNEL VALVE COMPARTMENT
V0032
860-HCD-4, 377-HCD-4, 378-HCD-4 MISC. EQUIP. DRAINS
873-HCD-4
LOAD CENTER AREA 536-HCD-4
541-HCD-4 S.G. BLDN. SURGE TK. PUMPS
398-HCD-8
535-HCD-6
540-HCD-4
DRW

NOTES

04

1. 3" STAINLESS STEEL THREADOLET INSTALLED FOR INSPECTION/RETRIEVAL ACCESS. REFER TO DRAWING M-13LF02 FOR EXACT LOCATION.

USAR FIG. 9.3-5-14

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12LF07-003-A-1	CHANGE 015050 PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM RADWASTE BUILDING FLOOR AND EQUIPMENT DRAIN SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF07		04

34X44 E SIZE

Patty A Springmeyer
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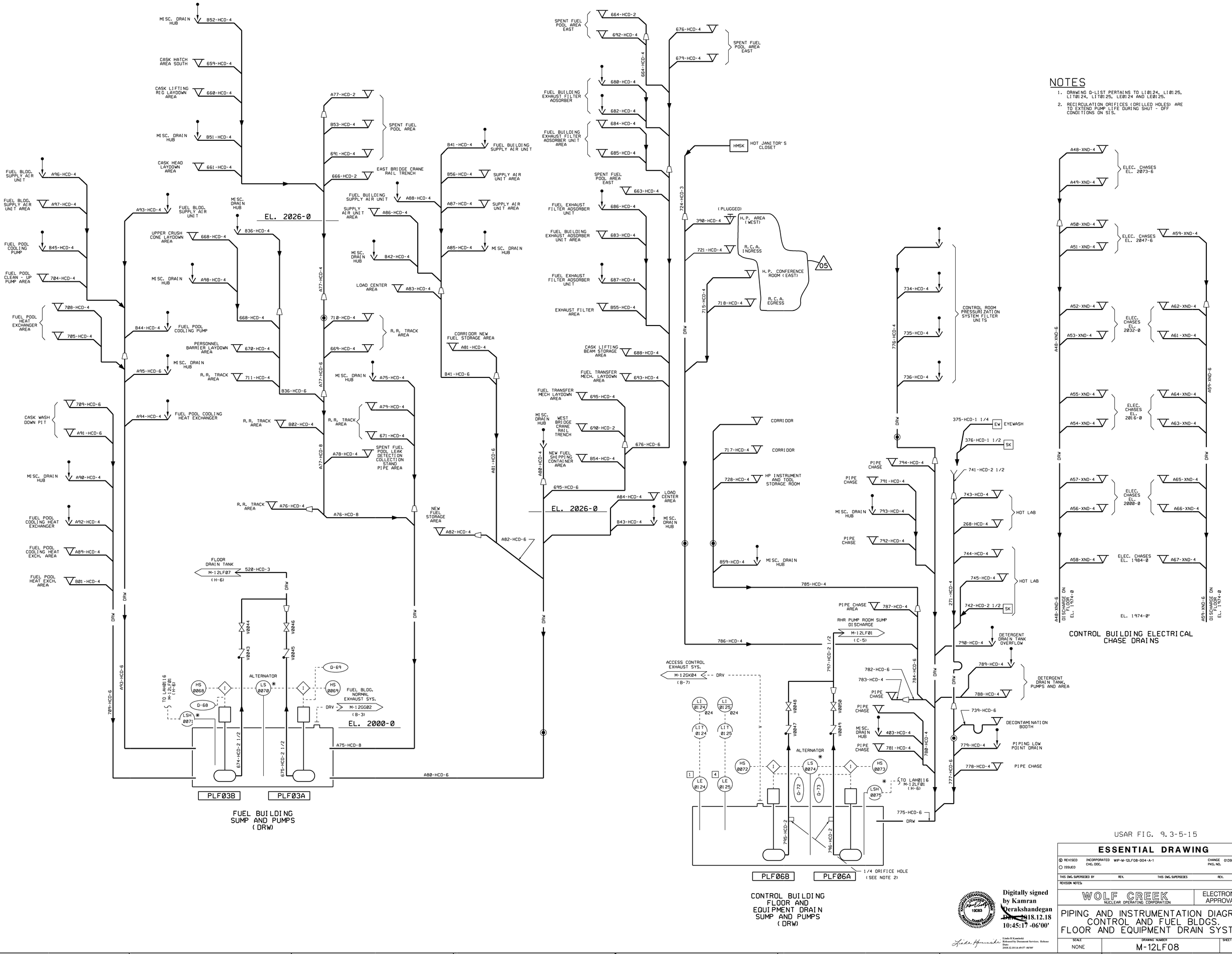
LF



USAR FIG. 9.3-5-15

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12LF08-004-A-1	CHANGE PKG. NO. 013979
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REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

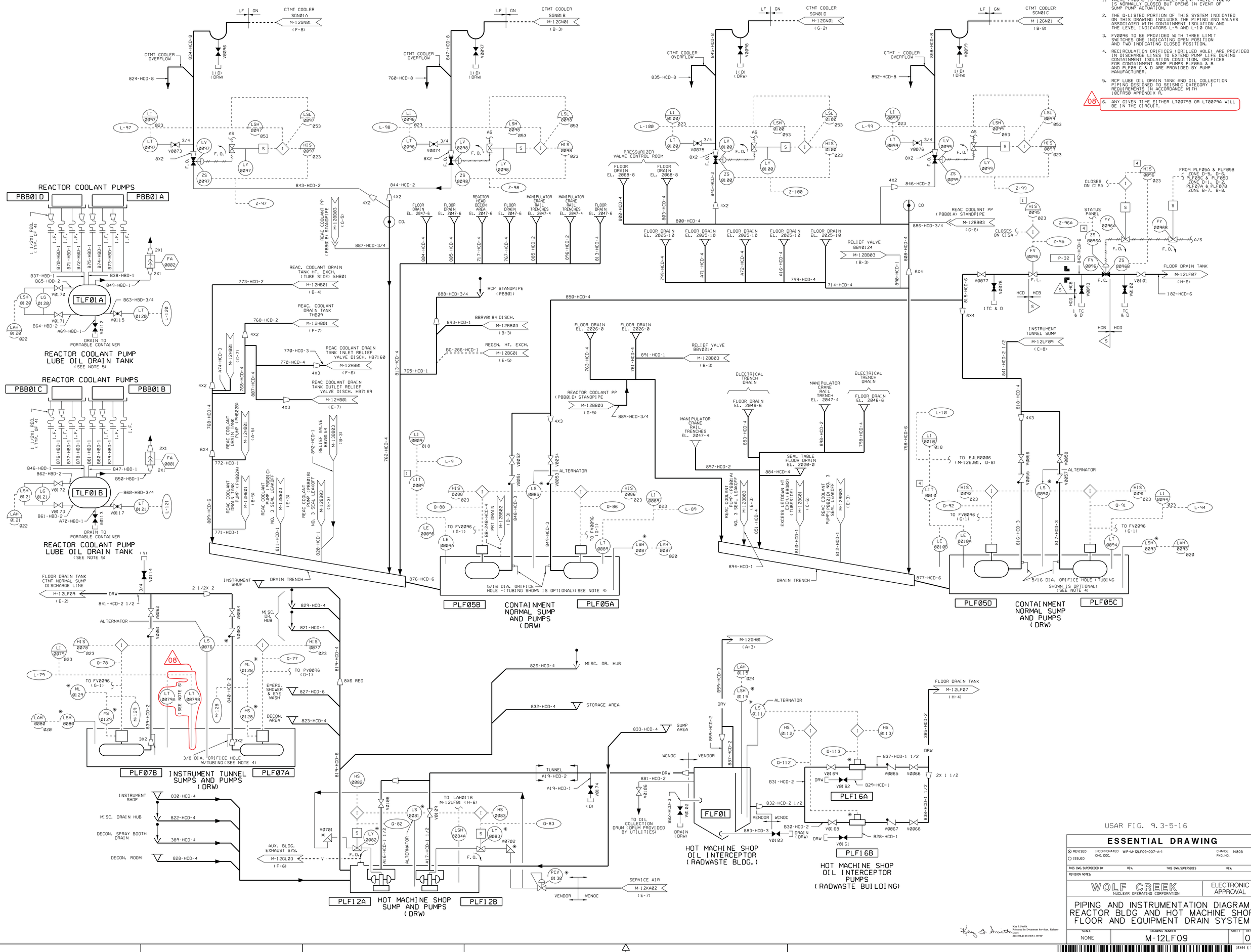
Digitally signed by Kamran Derakshandegan
Date: 2018.12.18 10:45:17 -06'00'

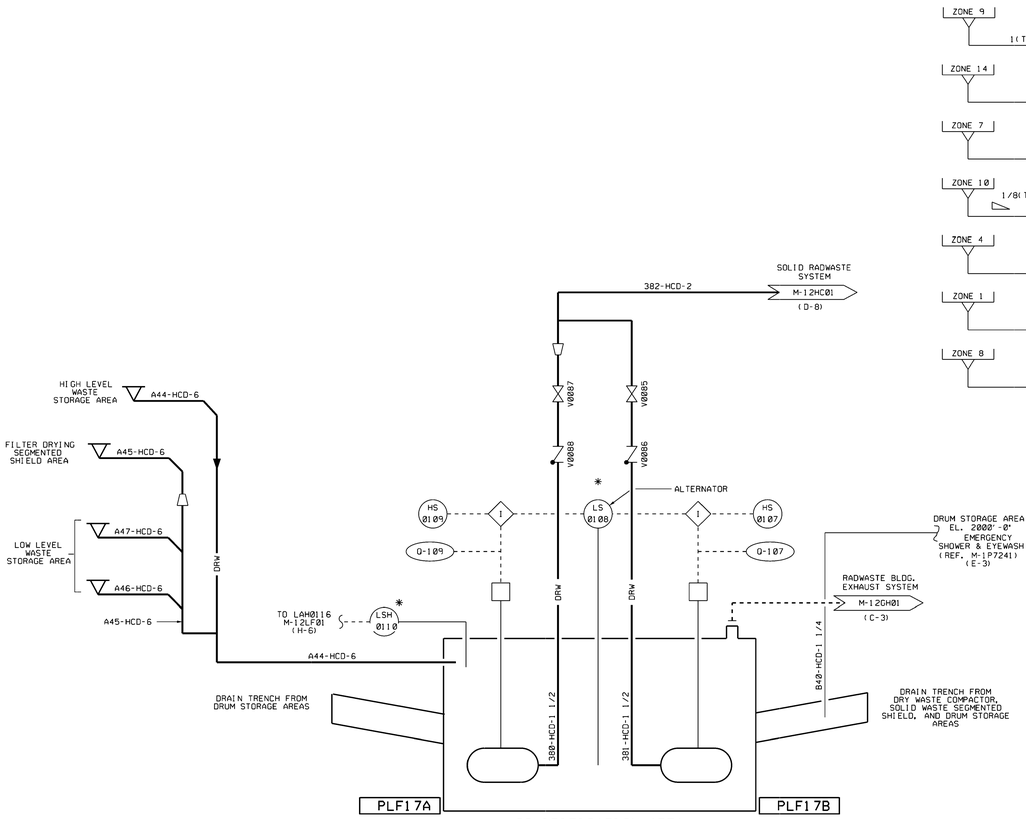
Linda R Kaminski
Released by Document Services. Release Date: 2018.12.18 14:49:57 -06'00'

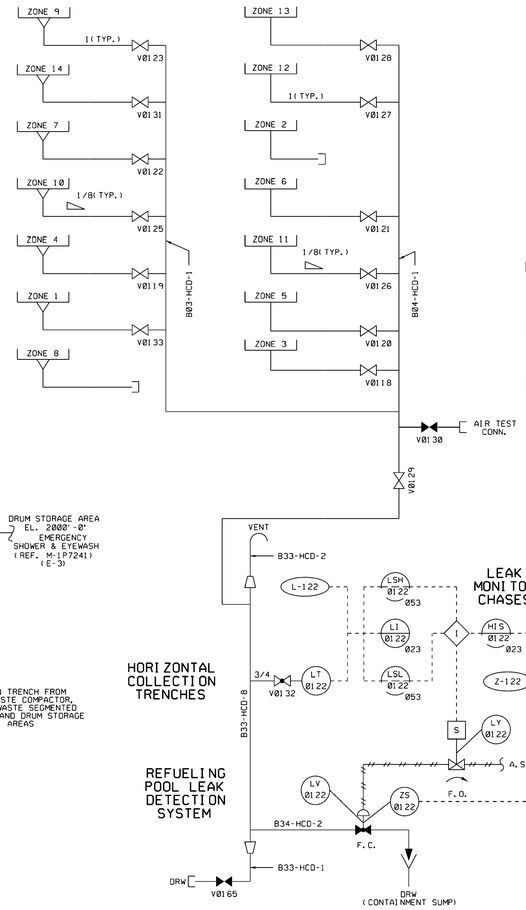
PIPING AND INSTRUMENTATION DIAGRAM CONTROL AND FUEL BLDGS. FLOOR AND EQUIPMENT DRAIN SYSTEM

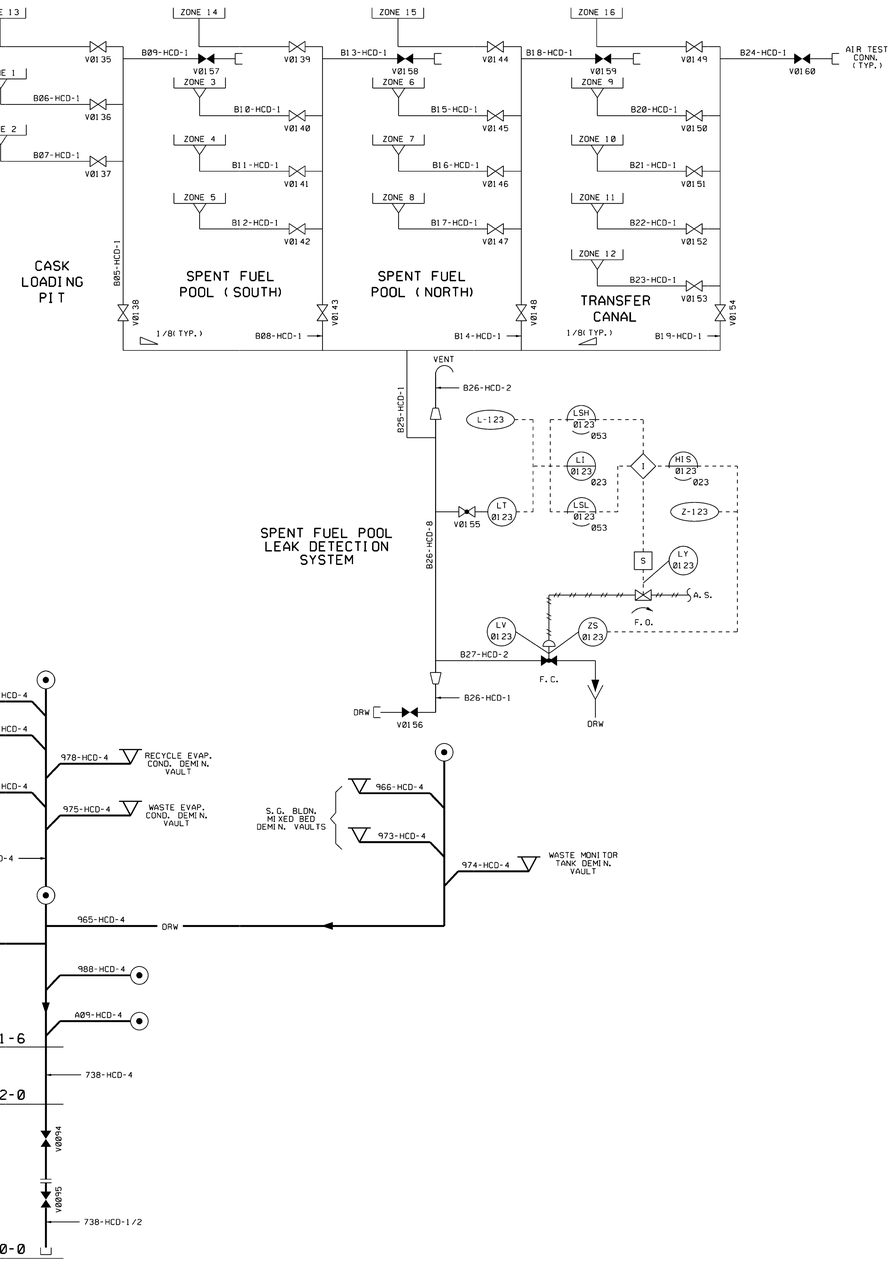
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF08		05

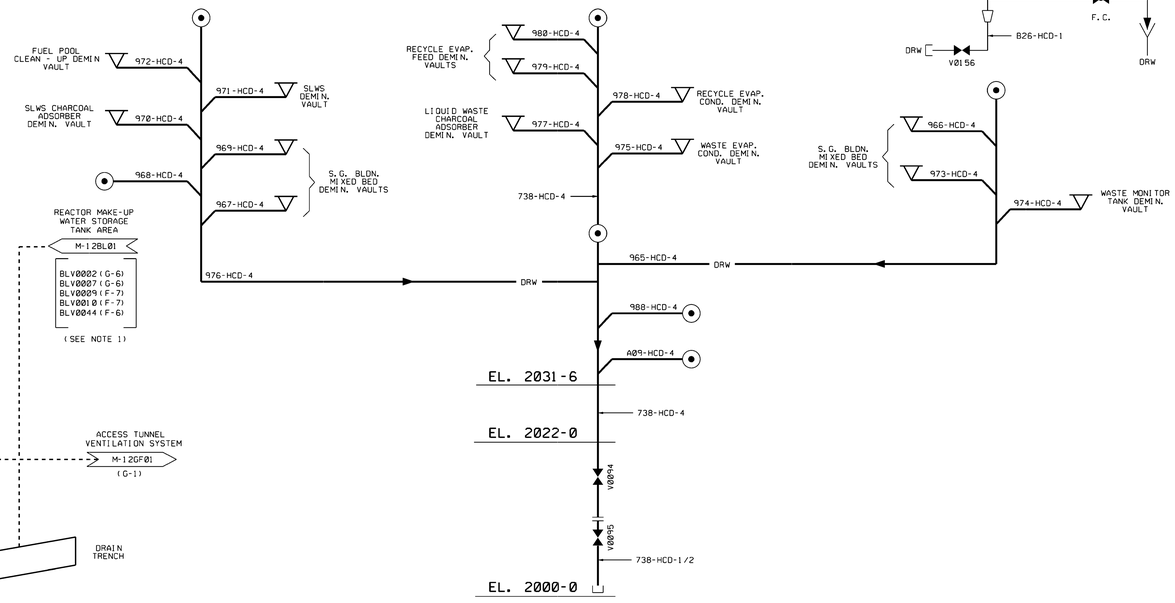
34X44 E SIZE

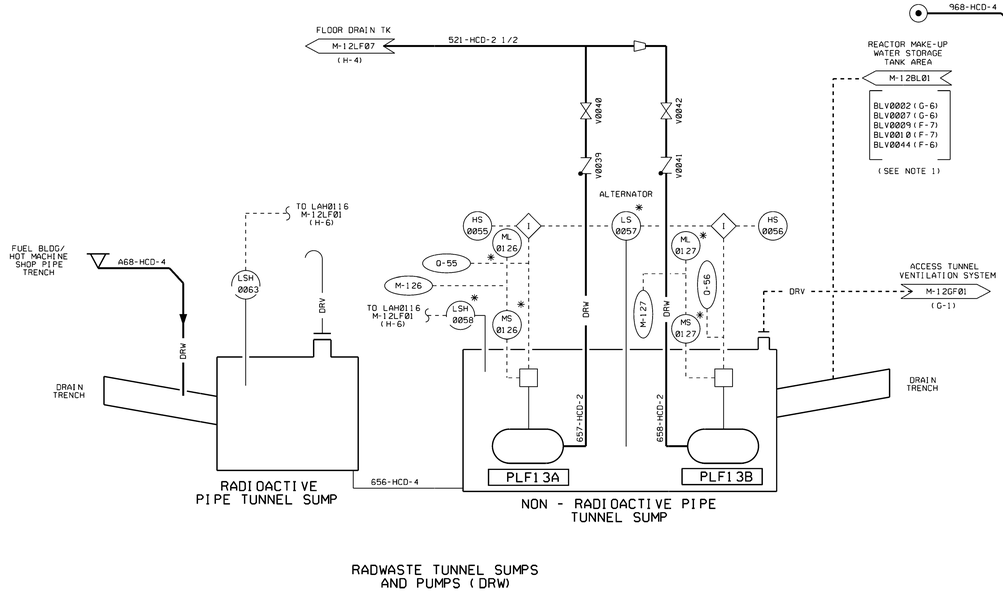

NOTES
1. VALVE FV0095 IS NORMALLY OPEN. VALVE FV0096 IS NORMALLY CLOSED BUT OPENS IN EVENT OF SUMP PUMP ACTUATION.
2. THE Q-LISTED PORTION OF THIS SYSTEM INDICATED ON THIS DRAWING INCLUDES THE PIPING AND VALVES ASSOCIATED WITH CONTAINMENT ISOLATION AND THE LEVEL INDICATORS L-9 AND L-10 ONLY.
3. FV0096 TO BE PROVIDED WITH THREE LIMIT SWITCHES ONE INDICATING OPEN POSITION AND TWO INDICATING CLOSED POSITION.
4. RECIRCULATION ORIFICES (DRILLED HOLE) ARE PROVIDED IN DISCHARGE LINES TO EXTEND PUMP LIFE DURING CONTAINMENT ISOLATION CONDITION. ORIFICES FOR CONTAINMENT SUMP PUMPS PLF05A & B AND PLF05 C & D ARE PROVIDED BY PUMP MANUFACTURER.
5. RCP LUBE OIL DRAIN TANK AND OIL COLLECTION PIPING DESIGNED TO SEISMIC CATEGORY I REQUIREMENTS IN ACCORDANCE WITH 10CFR50 APPENDIX R.
08 6. ANY GIVEN TIME EITHER LT0079B OR LT0079A WILL BE IN THE CIRCUIT.
REACTOR COOLANT PUMPS
PBB01D
PBB01A
TLF01A
REACTOR COOLANT PUMP LUBE OIL DRAIN TANK (SEE NOTE 5)
DRAIN TO PORTABLE CONTAINER
REACTOR COOLANT PUMPS
PBB01C
PBB01B
TLF01B
REACTOR COOLANT PUMP LUBE OIL DRAIN TANK (SEE NOTE 5)
DRAIN TO PORTABLE CONTAINER
CTMT COOLER OVERFLOW
CTMT COOLER SGN01A M-12GN01 (F-8)
CTMT COOLER SGN01B M-12GN01 (B-3)
CTMT COOLER SGN01D M-12GN01 (G-2)
CTMT COOLER SGN01C M-12GN01 (B-8)
PRESSURIZER VALVE CONTROL ROOM
FLOOR DRAIN EL. 2068-8
FLOOR DRAIN EL. 2047-6
REACTOR HEAD DECON AREA EL. 2047-6
MANIPULATOR CRANE RAIL TRENCHES EL. 2047-4
FLOOR DRAIN EL. 2025-10
FLOOR DRAIN EL. 2026-0
RELIEF VALVE BBV0124 M-12BB03 (B-3)
RELIEF VALVE BBV0214 M-12BB03 (B-3)
RELIEF VALVE BBV0184 M-12BB03 (B-3)
REAC COOLANT PP (PBB01A) STANDPIPE M-12BB03 (G-6)
REAC COOLANT PP (PBB01B) STANDPIPE M-12BB03 (G-5)
REAC COOLANT PP (PBB01D) STANDPIPE M-12BB03 (G-5)
RCP STANDPIPE (PBB01)
REAC. COOLANT DRAIN TANK HT. EXCH. (TUBE SIDE) EHB01 M-12HB01 (B-4)
REAC. COOLANT DRAIN TANK THB09 M-12HB01 (F-7)
REAC COOLANT DRAIN TANK INLET RELIEF VALVE DISCH. HB7160 M-12HB01 (F-6)
REAC COOLANT DRAIN TANK OUTLET RELIEF VALVE DISCH. HB7169 M-12HB01 (E-7)
REGEN. HT. EXCH. M-12BG01 (E-5)
BBRV0184 DISCH. M-12BB03 (B-3)
REAC COOLANT DRAIN TANK PUMP (PHB028) M-12HB01 (A-5)
REAC COOLANT DRAIN TANK PUMP (PHB024) M-12HB01 (B-5)
REAC COOLANT PUMP (PBB01C) NO. 3 SEAL LEAKOFF M-12BB03 (E-3)
REAC COOLANT PUMP (PBB01B) NO. 3 SEAL LEAKOFF M-12BB03 (E-3)
REAC COOLANT PUMP (PBB01A) NO. 3 SEAL LEAKOFF M-12BB03 (E-3)
REAC COOLANT PUMP(PBB01D) NO. 3 SEAL LEAKOFF M-12BB03 (E-3)
EXCESS LETDOWN HT EXCH (EBB02) (TUBESIDE) M-12BG01 (C-6)
SEAL TABLE FLOOR DRAIN EL. 2020-0
MANIPULATOR CRANE RAIL TRENCHES EL. 2047-4
ELECTRICAL TRENCH DRAIN
FLOOR DRAIN EL. 2046-6
MANIPULATOR CRANE RAIL TRENCH EL. 2047-4
FLOOR DRAIN TANK M-12LF07 (H-6)
182-HCD-6
INSTRUMENT TUNNEL SUMP M-12LF09 (C-8)
TO EJLR0086 (M-12EJ01, D-8)
FROM PLF05A & PLF05B ZONE D-5, D-6, PLF05C & PLF05D ZONE D-1, D-2, PLF07A & PLF07B ZONE B-7, B-8.
CLOSES ON CISA
CLOSES ON CISA
STATUS PANEL
P-32
TO FV0096 (G-1)
TO PV0096 (G-1)
TO LAH0116 M-12LF01 (H-6)
TO OIL COLLECTION DRUM (DRUM PROVIDED BY UTILITIES)
DRAIN (DRW)
5/16 DIA. ORIFICE HOLE (TUBING SHOWN IS OPTIONAL)(SEE NOTE 4)
PLF05B
CONTAINMENT NORMAL SUMP AND PUMPS (DRW)
PLF05A
PLF05D
CONTAINMENT NORMAL SUMP AND PUMPS (DRW)
PLF05C
FLOOR DRAIN TANK CTMT NORMAL SUMP DISCHARGE LINE M-12LF09 (E-2)
INSTRUMENT SHOP
DRAIN TRENCH
ALTERNATOR
MISC. DR. HUB
EMERG. SHOWER & EYE WASH
DECON. AREA
3/8 DIA. ORIFICE HOLE W/TUBING (SEE NOTE 4)
PLF07B
INSTRUMENT TUNNEL SUMPS AND PUMPS (DRW)
PLF07A
MISC. DR. HUB
STORAGE AREA
SUMP AREA
TUNNEL
AUX. BLDG. EXHAUST SYS. M-12GL03 (F-6)
PLF12A
HOT MACHINE SHOP SUMP AND PUMPS (DRW)
PLF12B
SERVICE AIR M-12KA02 (E-7)
FLF01
HOT MACHINE SHOP OIL INTERCEPTOR (RADWASTE BLDG.)
PLF16A
PLF16B
HOT MACHINE SHOP OIL INTERCEPTOR PUMPS (RADWASTE BUILDING)
USAR FIG. 9.3-5-16
ESSENTIAL DRAWING
REVISED
ISSUED
INCORPORATED CHG. DOC. WIP-M-12LF09-007-A-1
CHANGE PKG. NO. 14805
THIS DWG. SUPERSEDED BY REV.
THIS DWG. SUPERSEDES REV.
REVISION NOTES:
WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
PIPING AND INSTRUMENTATION DIAGRAM REACTOR BLDG AND HOT MACHINE SHOP FLOOR AND EQUIPMENT DRAIN SYSTEM
SCALE NONE
DRAWING NUMBER M-12LF09
SHEET
REV 08
Kay E. Smith Released by Document Services. Release Date: 2015.04.24 15:50:54 -05'00'
34X44 E SIZE
M-12LF09-1-08











RADWASTE TUNNEL SUMPS AND PUMPS (DRW)

NOTES:

1. BRACKETED VALVE NUMBERS INDICATE MULTI - VALVE STEM LEAKOFF PIPING TO RADWASTE TUNNEL TRENCH.

USAR FIG. 9.3-5-17

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR Action 29532-01-05	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: REVISED TO REGENERATE CORRECT LINESTYLES PER CR 29532.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

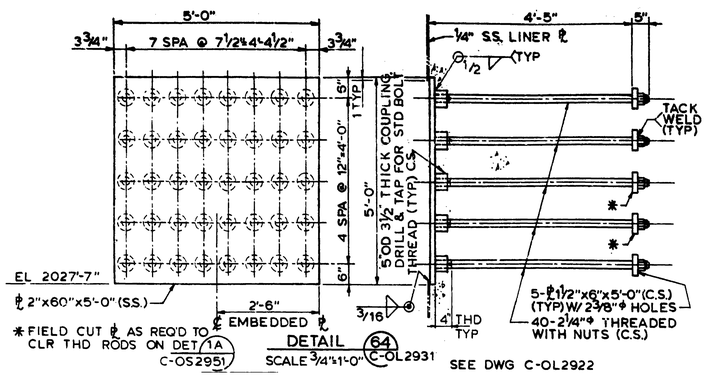
PIPING AND INSTRUMENTATION DIAGRAM RADWASTE BUILDING & TUNNEL FLOOR AND EQUIPMENT DRAIN SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12LF10		05

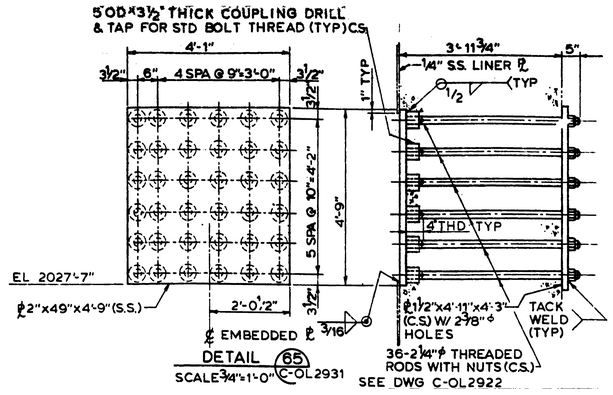
Released by Document Services. Release Date: 2011.12.12 10:37:33 -06'00'

M-12LF10-1-05

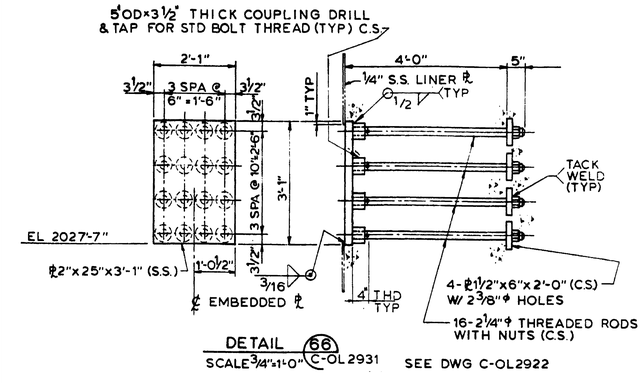
34X44 E SIZE



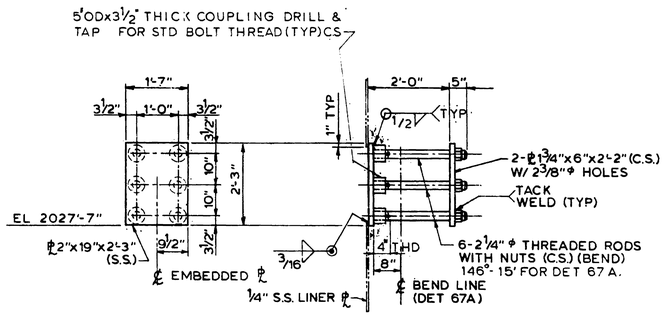
DETAIL 64 SCALE ¾"=1'-0" C-OL2931 SEE DWG C-OL2922



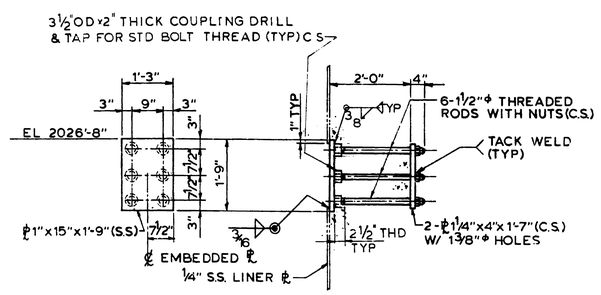
DETAIL 65 SCALE ¾"=1'-0" C-OL2931 SEE DWG C-OL2922



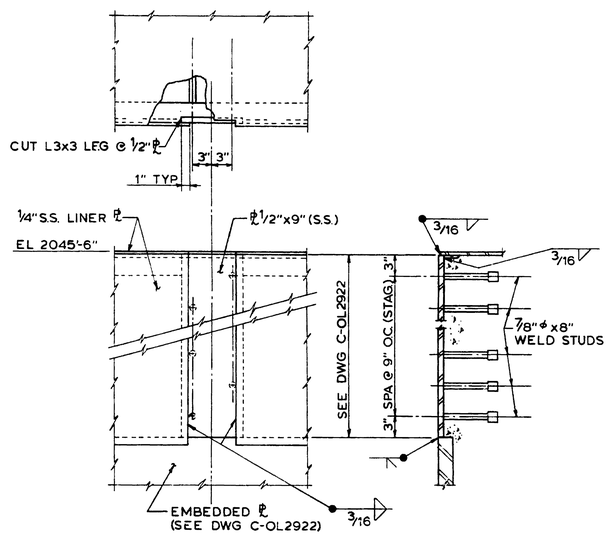
DETAIL 66 SCALE ¾"=1'-0" C-OL2931 SEE DWG C-OL2922



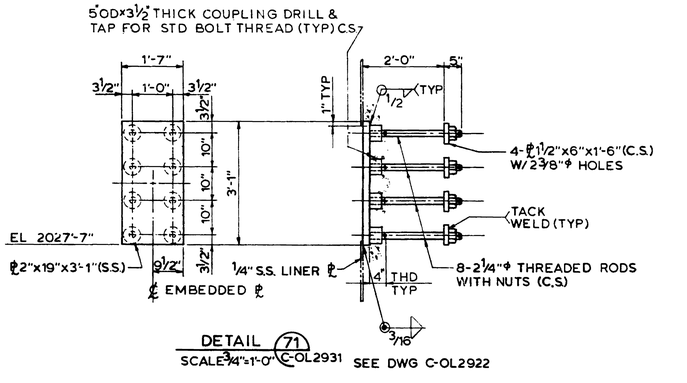
DETAIL 67 67A SCALE ¾"=1'-0" C-OL2931 SEE DWG C-OL2922



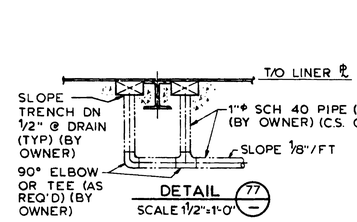
DETAIL 68 SCALE ¾"=1'-0" C-OL2931 SEE DWG C-OL2922



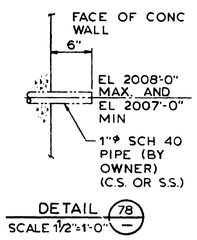
DETAIL 7 SCALE 1½"=1'-0" C-OL2931



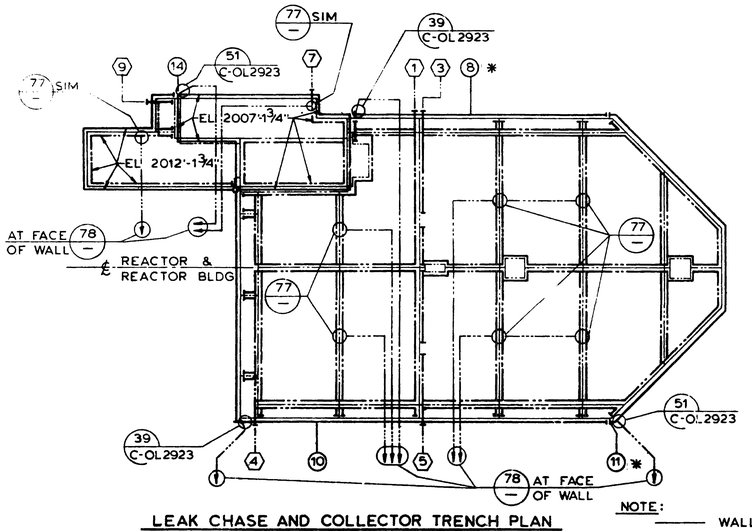
DETAIL 71 SCALE ¾"=1'-0" C-OL2931 SEE DWG C-OL2922



DETAIL 77 SCALE 1½"=1'-0"



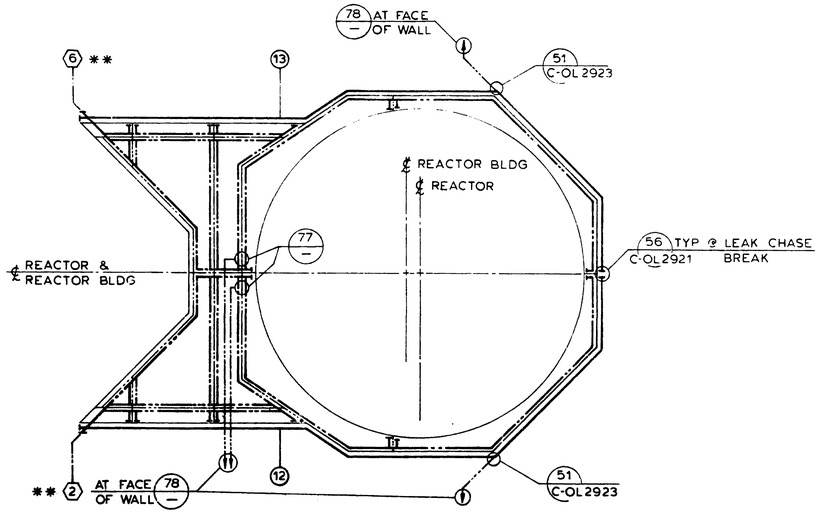
DETAIL 78 SCALE 1½"=1'-0"



LEAK CHASE AND COLLECTOR TRENCH PLAN
(EL 2009'-8¾" U.N.O.)

* - UNIT 1 DOES NOT HAVE ZONE 8. IT IS COMBINED WITH ZONE 11.

NOTE:
- WALL
- FLOOR SEAM
- COLLECTOR TRENCH
- LEAK CHASE
- SCH 40 PIPE (BY OWNER)



LEAK CHASE AND COLLECTOR TRENCH PLAN
(EL 2021'-7")

** -UNIT 1 DOES NOT HAVE ZONE 2. IT IS COMBINED WITH ZONE 6.

NOTES

1. SEE DWG C-OL2921
2. DETAILS 7, 64, 65, 66, 67, 67A, 68, & 71 ARE Q. EVERYTHING ELSE IS NON-Q
3. THE COLLECTOR TRENCH PIPING IN THE FLOOR OF THE REFUELING POOL SHALL BE TESTED WITH A HYDROSTATIC HEAD OF 10 FEET

REFERENCE DRAWINGS

1. SEE DWG. C-OL2921
2. SEE DWG. M-03LF16 & M-03LF17 FOR LEAK CHASE PIPING ISO.

MATERIAL RESPONSIBILITY

1. SEE DWG C-OL2921

0

USAR FIG. 9.3-7

ESSENTIAL DRAWING

○ REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
◎ ISSUED			
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	C-0L2930 REV. 9

REVISION NOTES: REF. CR 2007-000952

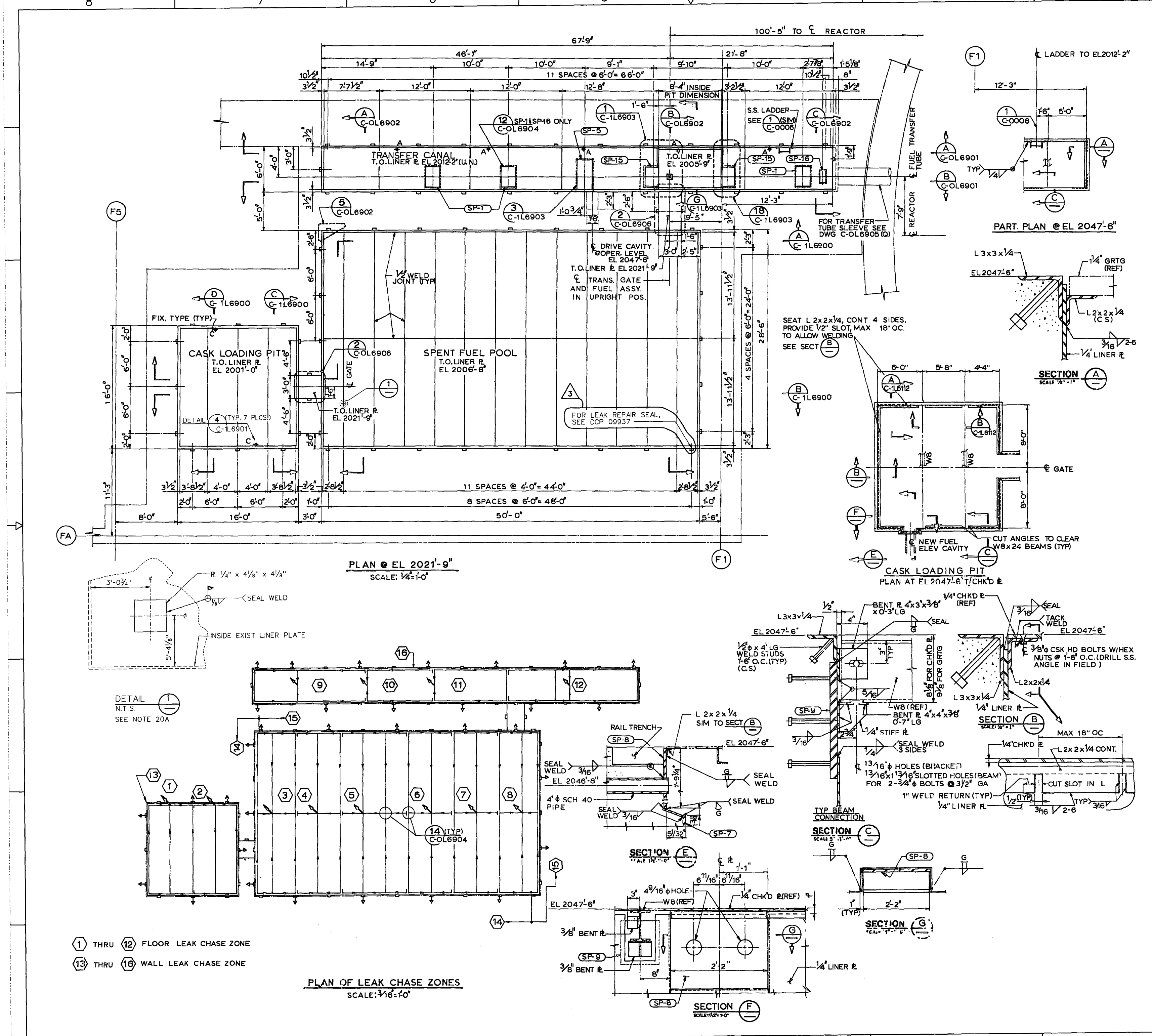
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

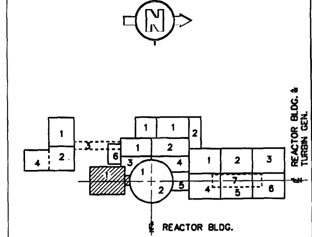
REACTOR BUILDING S.S. LINER PLATE REACTOR REFUELING CANAL - DETAILS

SCALE	DRAWING NUMBER	SHEET	REV
NONE	C-1L2931		00

34X44 E SIZE

Released by Document Services Release Date: 09/04/07





NOTES

1. STAINLESS STEEL LINER PLATE AND APPURTENANCES SHALL BE FURNISHED IN ACCORDANCE WITH SPEC 10466-C-171 AND ERECTED IN ACCORDANCE WITH SPEC 10466-C-172.
2. TRANSFER GATES SHALL CONFORM TO THE REQUIREMENTS OF SPEC 10466-C-174.
3. ALL DIMENSIONS OR ELEVATIONS ARE MEASURED ALONG THE INSIDE SURFACE OF STAINLESS STL LINER ℞ (U.N.O).
4. STAINLESS STL LINER ℞ SHALL BE 1/4" THICK.
5. THE STAINLESS STL LINER ℞ IS DESIGNED AS FORMWORK. FORM TIES SHALL BE SPACED AT A MAXIMUM DISTANCE OF 5'-0" ALONG THE HORIZONTAL CHANNEL STIFFENERS.
6. CONCRETE SHALL BE PLACED AT A MAX RATE OF 1.5 FT PER HOUR.
7. REFERENCE EL 2000'-0" IS TOP OF FUEL BLDG GROUND FLOOR.
8. ALL EXPOSED FIELD WELDS SHALL BE GROUND TO A SMOOTH CONTOUR.
9. ALL UNDERCUT SECTIONS IN LINER ℞ SEAMS AND CORNER WELDS SHALL BE COVERED WITH WELD METAL.
10. FOR DESIGNATION OF ALL SUPPORT PLATES SEE SCHEDULE ON DWG C-OL6904.
11. ALL PLATES AND SHAPES SHALL CONFORM TO ASTM-A240 TYPE 304L UNLESS NOTED.
12. DELETED
13. CARBON STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM-A36.
14. BOLTS AND NUTS SHALL CONFORM TO ASTM-A325.
15. FOR FUEL TRANSFER SYSTEM INSTALLATION REQUIREMENTS SEE DWG. C-OL6906.
16. FORMWORK SHALL BE ADEQUATELY BRACED PRIOR TO CONCRETE PLACEMENT.
17. TEMPORARY ERECTION BRACING SHALL BE PROVIDED BY THE ERECTOR WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND, ERECTION EQUIPMENT AND OPERATION OF SAME.
18. FLOOR LEAK CHASE CHANNELS SHALL BE SET WITHIN THE FOLLOWING TOLERANCES: LOCATION ± 1/4" ELEVATION ± 1/4" LEVEL ± 1/8" IN 10'-0" IN ANY DIRECTION ACROSS THE LEAK CHASE CHANNEL PATTERN.
19. NOTED PLATES SHALL BE USED FOR GROUNDING.
20. THE TOP OF THE CASK LOADING PIT LINER PLATE (EL 2047'-6") SHALL BE ADJUSTED AND BRACED TO MAINTAIN SQUARENESS. THE TOLERANCE FOR THE DIAGONAL DIMENTIONS AT THE TOP OF THE LINER PLATE IS ± 3/4".

20A. FLOOR LINER REPAIR PLATE PER CHANGE PACKAGE 09189. SEE ALSO DWG. C-171-00086. PLATE INSTALLATION TOLERANCE IS ± 1/2" FROM DIMENSIONS SHOWN.

FOR CONT. OF NOTES SEE DWG. C-1L6900.

REFERENCE DRAWING

C-OL6905 S.S. LINER PLATE FUEL TRANSFER TUBE

MATERIAL RESPONSIBILITY

1. FURNISHING OF SPENT FUEL POOL S S LINER ℞ AND APPURTENANCES UNDER SPEC 10466-C-171.
2. FURNISHING OF SPENT FUEL POOL GATES UNDER SPEC 10466-C-174.
3. FURNISHING OF S S LADDERS UNDER SPEC 10466-C-171A.
4. FURNISHING OF "Q" EMB. ℞'S UNDER SPEC 10466-C-171B.

USAR FIG. 9.3-7-02

ESSENTIAL DRAWING

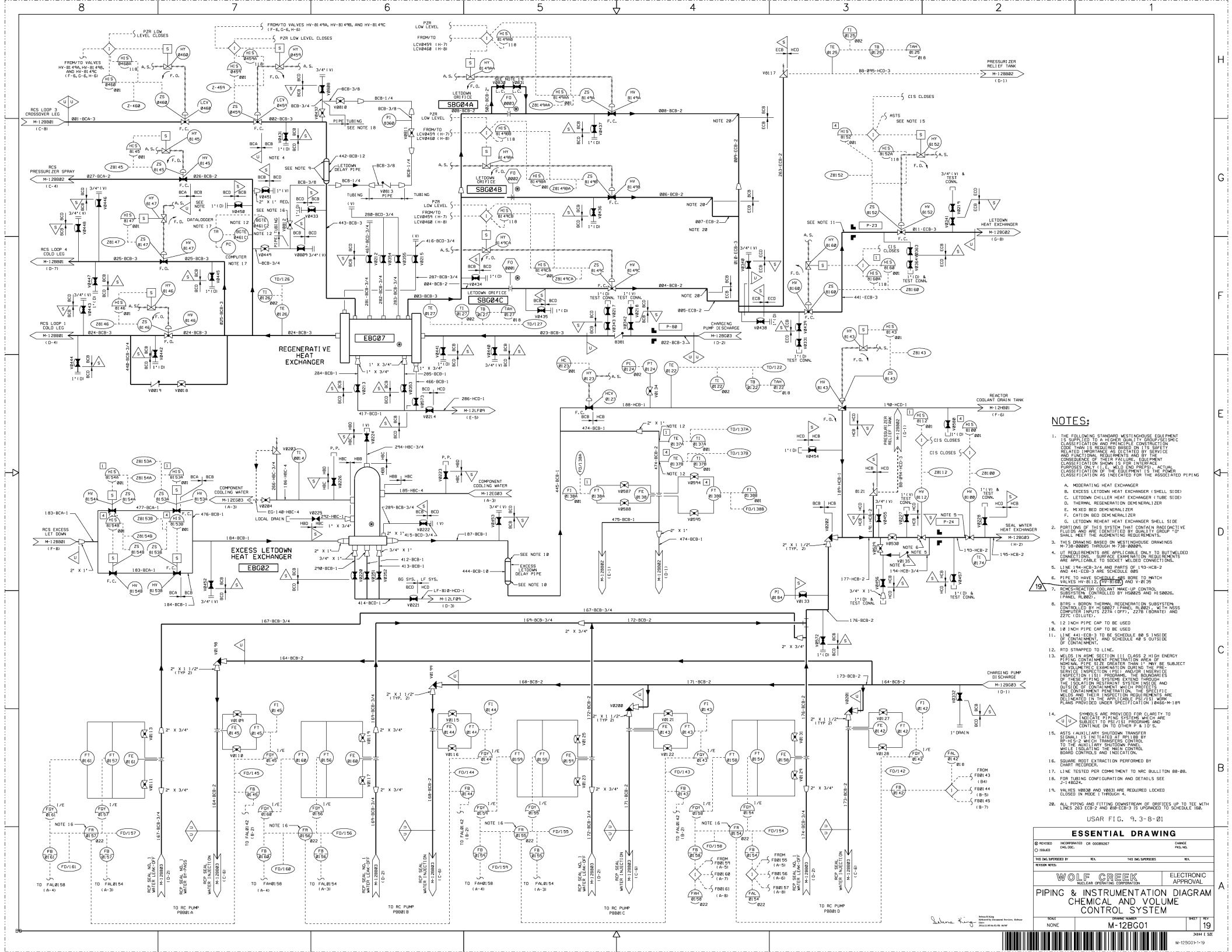
REVISED INCORPORATED WIP-C-1L6111-02-A, R/00 CHG. DOC. CHANGE 09937 PKG. NO.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

FUEL BUILDING-AREA 1
STAINLESS STEEL LINER PLATE
PLAN-SPENT FUEL POOL

SCALE	DRAWING NUMBER	REV
NOTED	C-1L6111	03

RISD. DCA 03/05/03



NOTES:

1. THE FOLLOWING STANDARD WESTINGHOUSE EQUIPMENT IS SUPPLIED TO A HIGHER QUALITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPLE CONSTRUCTION CODE THAN IS REQUIRED BASED ON ITS SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTS AND BY THE CONSEQUENCE OF THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSES ONLY. (I.E., WELD END PREPS). ACTUAL CLASSIFICATION OF THE EQUIPMENT IS THE POWER CLASSIFICATION AS INDICATED FOR THE ASSOCIATED PIPING
   A. MODERATING HEAT EXCHANGER
   B. EXCESS LETDOWN HEAT EXCHANGER (SHELL SIDE)
   C. LETDOWN CHILLER HEAT EXCHANGER (TUBE SIDE)
   D. THERMAL REGENERATION DEMINERALIZER
   E. MIXED BED DEMINERALIZER
   F. CATION BED DEMINERALIZER
   G. LETDOWN REHEAT HEAT EXCHANGER SHELL SIDE
2. PORTIONS OF THIS SYSTEM THAT CONTAIN RADIOACTIVE FLUIDS AND ARE IDENTIFIED BY QUALITY GROUP "D" SHALL MEET THE AUGMENTING REQUIREMENTS.
3. THIS DRAWING BASED ON WESTINGHOUSE DRAWINGS M-738-000B5 THROUGH M-738-000B74.
4. UT REQUIREMENTS ARE APPLICABLE ONLY TO BUTTWELDED CONNECTIONS. SURFACE EXAMENATION REQUIREMENTS ARE APPLICABLE TO SOCKET WELDED CONNECTIONS.
5. LINE 194-HCB-3/4 AND PARTS OF 193-HCB-2 AND 441-ECB-3 ARE SCHEDULE 80S
6. PIPE TO HAVE SCHEDULE 80S BORE TO MATCH VALVES HV-8112, (HV-8108) AND V-0135
7. RCMCS=REACTOR COOLANT MAKE-UP CONTROL SUBSYSTEM, CONTROLLED BY HS8025 AND HS80026. (PANEL RLB02).
8. BTRS = BORON THERMAL REGENERATION SUBSYSTEM, CONTROLLED BY HS80027 (PANEL RLB02), WITH NSSS COMPUTER INPUTS 227A (OFF), 227B (BORATE) AND 227C (DILUTE).
9. 12 INCH PIPE CAP TO BE USED
10. 10 INCH PIPE CAP TO BE USED
11. LINE 441-ECB-3 TO BE SCHEDULE 80 S INSIDE OF CONTAINMENT, AND SCHEDULE 40 S OUTSIDE OF CONTAINMENT.
12. RTD STRAPPED TO LINE.
13. WELDS IN ASME SECTION III CLASS 2 HIGH ENERGY PIPING CONTAINMENT PENETRATION AREA OF NOMINAL PIPE SIZE GREATER THAN 1" MAY BE SUBJECT TO VOLUMETRIC EXAMINATION DURING THE PRE-SERVICE INSPECTION (PSI) AND/OR INSERVICE INSPECTION (ISI) PROGRAMS. THE BOUNDARIES OF THESE PIPING SYSTEMS EXTEND THROUGH THE ISOLATION RESTRAINT SYSTEM INSIDE AND OUTSIDE OF CONTAINMENT WHICH PROTECTS THE CONTAINMENT PENETRATION. THE SPECIFIC WELDS AND THEIR INSPECTION REQUIREMENTS ARE DELINEATED IN THE APPLICABLE PSI/ISI WORK PLANS PROVIDED UNDER SPECIFICATION 10466-M-189
14. SYMBOLS ARE PROVIDED FOR CLARITY TO INDICATE PIPING SYSTEMS WHICH ARE SUBJECT TO PSI/ISI PROGRAMS AND CONTINUE ON TO OTHER P & ID'S.
15. ASTS (AUXILIARY SHUTDOWN TRANSFER SIGNAL) IS INITIATED AT RPLB6 BY RP-HIS-2 WHICH TRANSFERS CONTROL TO THE AUXILIARY SHUTDOWN PANEL WHILE ISOLATING THE MAIN CONTROL BOARD CONTROLS AND INDICATION.
16. SQUARE ROOT EXTRACTION PERFORMED BY CHART RECORDER.
17. LINE TESTED PER COMMITMENT TO NRC BULLITON 88-08.
18. FOR TUBING CONFIGURATION AND DETAILS SEE J-1-HBG24.
19. VALVES V0830 AND V0831 ARE REQUIRED LOCKED CLOSED IN MODE 1 THROUGH 4.
20. ALL PIPING AND FITTING DOWNSTREAM OF ORIFICES UP TO TEE WITH LINES 263 ECB-2 AND 810-ECB-3 IS UPGRADED TO SCHEDULE 160.

USAR FIG. 9.3-8-01

ESSENTIAL DRAWING

⊠ REVISED	INCORPORATED CHG./DOC.	CR 00008267	CHANGE PKG. NO.
○ ISSUED			
THIS DWG SUPERSEDED BY	REV.	THIS DWG SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CHEMICAL AND VOLUME CONTROL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
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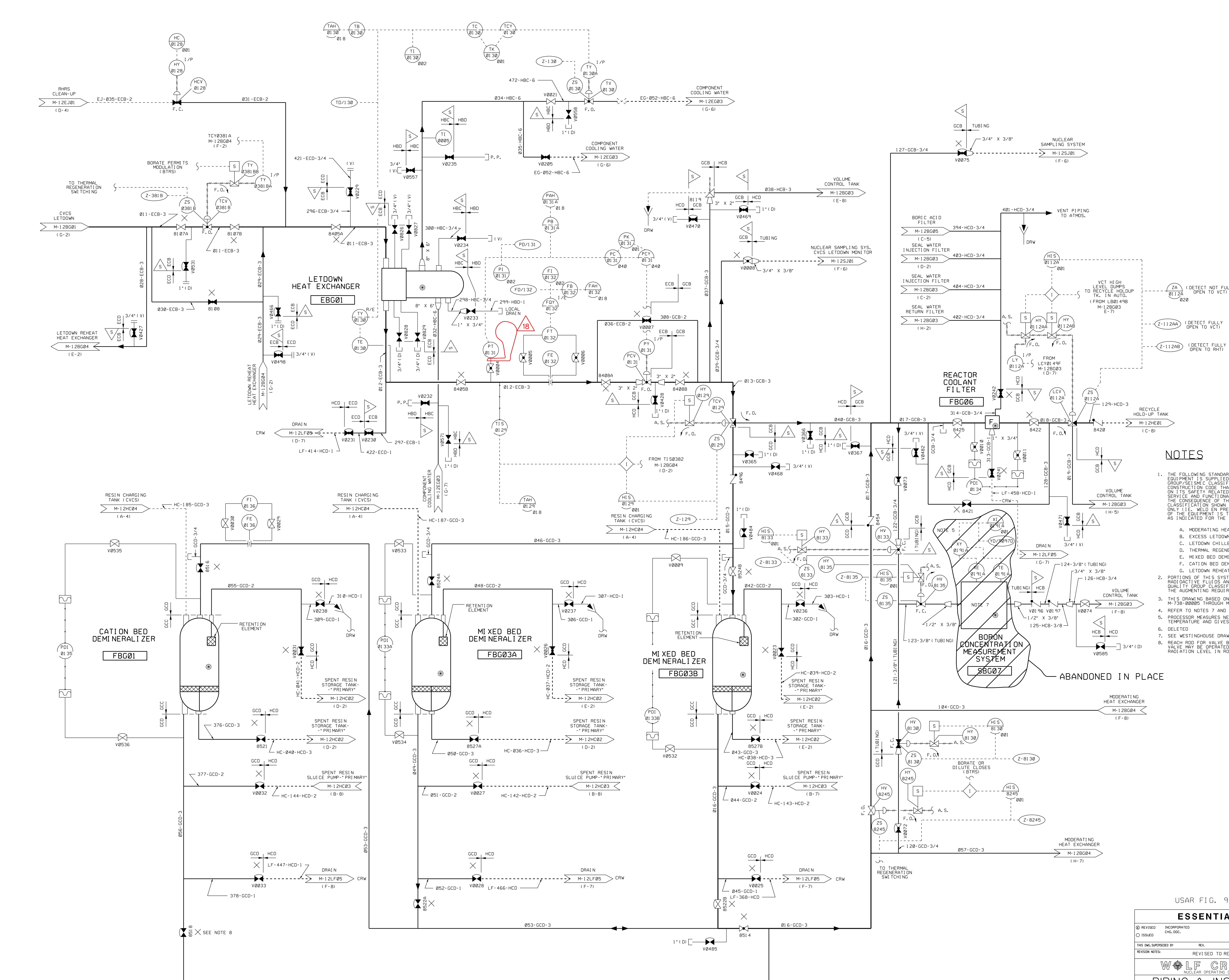
34344 E SIZE

M-12BG01-1-19



NOTES

1. THE FOLLOWING STANDARD WESTINGHOUSE EQUIPMENT IS SUPPLIED TO A HIGHER QUALITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPLE CONSTRUCTION CODE THAN IS REQUIRED BASED ON ITS SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTSAND BY THE CONSEQUENCE OF THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSE ONLY (IE. WELD EN PREPS). ACTUAL CLASSIFICATION OF THE EQUIPMENT IS THE LOWER CLASSIFICATION AS INDICATED FOR THE ASSOCIATED PIPING.
   - A. MODERATING HEAT EXHCHANGER
   - B. EXCESS LETDOWN HEAT EXCHANGER (SHELL SIDE)
   - C. LETDOWN CHILLER HEAT EXCHANGER (TUBE SIDE)
   - D. THERMAL REGENERATION DEMINERALIZERS
   - E. MIXED BED DEMINERALIZERS
   - F. CATION BED DEMINERALIZERS
   - G. LETDOWN REHEAT HEAT EXCHANGER (SHELL SIDE)
2. PORTIONS OF THIS SYSTEM THAT CONTAIN RADIOACTIVE FLUIDS AND ARE IDENTIFIED BY QUALITY GROUP CLASSIFICATION "D" SHALL MEET THE AUGMENTING REQUIREMENTS.
3. THIS DRAWING BASED ON WESTINGHOUSE DRAWINGS M-738-00005 THROUGH M-738-00009.
4. REFER TO NOTES 7 AND 8 ON M-12BG01.
5. PROCESSOR MEASURES NEUTRON FLUX, COMPENSATES FOR TEMPERATURE AND GIVES READ-OUT IN BORON CONCENTRATION.
6. DELETED
7. SEE WESTINGHOUSE DRAWING M-770-00031.
8. REACH ROD FOR VALVE BG8518 HAS BEEN DISCONNECTED. THIS VALVE MAY BE OPERATED LOCALLY UNTIL SUCH TIME THAT THE RADIATION LEVEL IN ROOM 1308 BECOMES PROHIBITIVE.

USAR FIG. 9.3-8-02

ESSENTIAL DRAWING

(X) REVISED ( ) ISSUED INCORPORATED CHG. DOC. CHANGE PKG. NO.

THIS DWG. SUPERSEDED BY REV. THIS DWG. SUPERSEDES REV.

REVISION NOTES: REVISED TO REMOVE TMO 15-016-BG

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CHEMICAL & VOLUME CONTROL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
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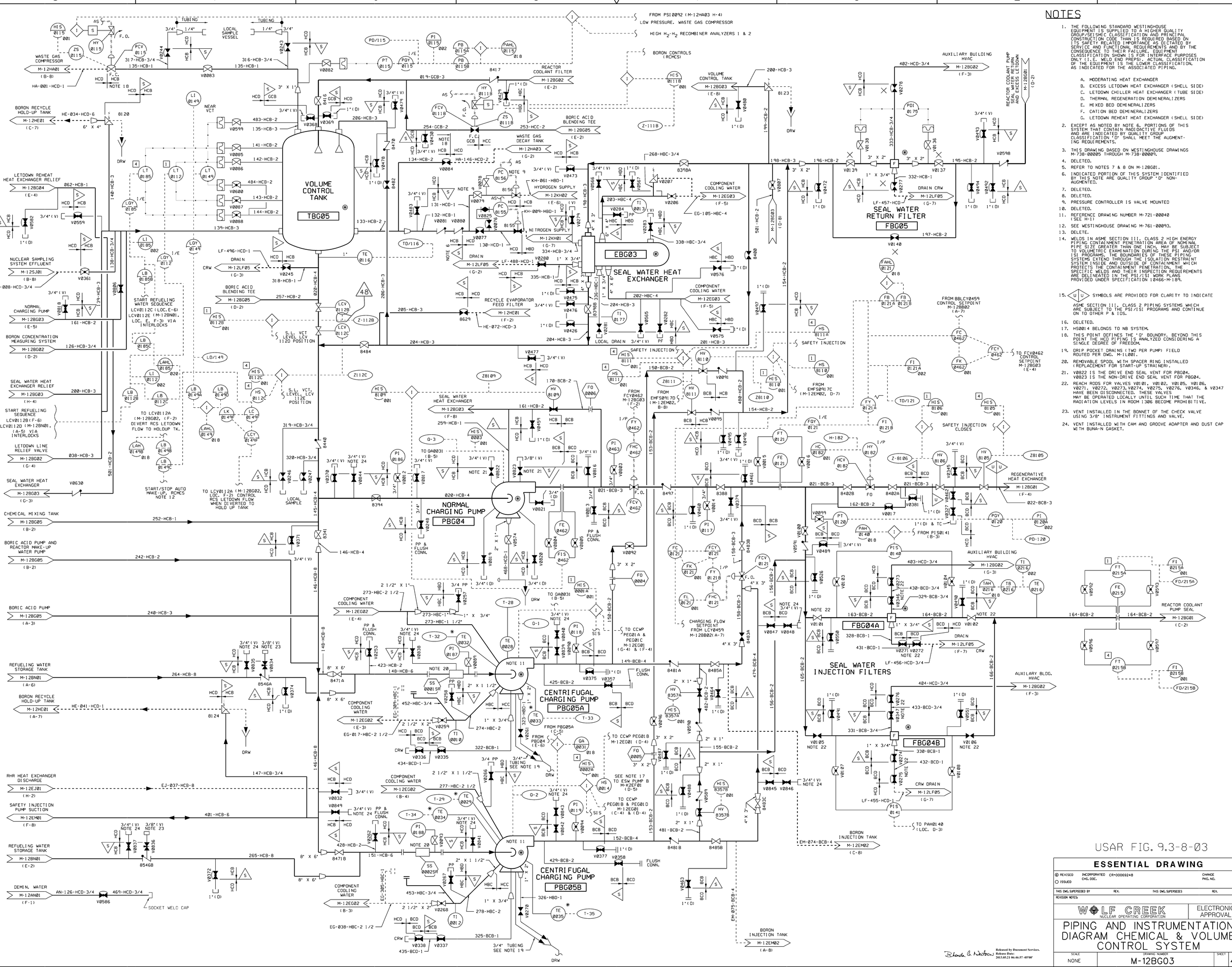
34X44 E SIZE



NOTES

1. THE FOLLOWING STANDARD WESTINGHOUSE EQUIPMENT IS SUPPLIED TO A HIGHER QUALITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPAL CONSTRUCTION CODE THAN IS REQUIRED BASED ON ITS SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTS AND BY THE CONSEQUENCE TO THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSES ONLY (I.E. WELD END PREPS). ACTUAL CLASSIFICATION OF THE EQUIPMENT IS THE LOWER CLASSIFICATION, AS INDICATED FOR THE ASSOCIATED PIPING.
    A. MODERATING HEAT EXCHANGER
    B. EXCESS LETDOWN HEAT EXCHANGER (SHELL SIDE)
    C. LETDOWN CHILLER HEAT EXCHANGER (TUBE SIDE)
    D. THERMAL REGENERATION DEMINERALIZERS
    E. MIXED BED DEMINERALIZERS
    F. CATION BED DEMINERALIZERS
    G. LETDOWN REHEAT HEAT EXCHANGER (SHELL SIDE)
2. EXCEPT AS NOTED BY NOTE 6, PORTIONS OF THIS SYSTEM THAT CONTAIN RADIOACTIVE FLUIDS AND ARE INDICATED BY QUALITY GROUP CLASSIFICATION "D" SHALL MEET THE AUGMENTING REQUIREMENTS.
3. THIS DRAWING BASED ON WESTINGHOUSE DRAWINGS M-738-00005 THROUGH M-738-00009.
4. DELETED.
5. REFER TO NOTES 7 & 8 ON M-12BG01.
6. INDICATED PORTION OF THIS SYSTEM IDENTIFIED BY THIS NOTE ARE QUALITY GROUP "D" NON-AUGMENTED.
7. DELETED.
8. DELETED.
9. PRESSURE CONTROLLER IS VALVE MOUNTED
10. DELETED.
11. REFERENCE DRAWING NUMBER M-721-00040 (SEE H-1)
12. SEE WESTINGHOUSE DRAWING M-761-00093.
13. DELETE.
14. WELDS IN ASME SECTION III, CLASS 2 HIGH ENERGY PIPING CONTAINMENT PENETRATION AREA OF NOMINAL PIPE SIZE GREATER THAN ONE INCH, MAY BE SUBJECT TO VOLUMETRIC EXAMINATION DURING THE PSI AND/OR ISI PROGRAMS. THE BOUNDARIES OF THESE PIPING SYSTEMS EXTEND THROUGH THE ISOLATION RESTRAINT SYSTEM INSIDE AND OUTSIDE OF CONTAINMENT WHICH PROTECTS THE CONTAINMENT PENETRATION. THE SPECIFIC WELDS AND THEIR INSPECTION REQUIREMENTS ARE DELINEATED IN THE PSI/ISI WORK PLANS PROVIDED UNDER SPECIFICATION 10466-M-189.
15. ◇U|U◇ SYMBOLS ARE PROVIDED FOR CLARITY TO INDICATE ASME SECTION III, CLASS 2 PIPING SYSTEMS WHICH ARE SUBJECT TO THE PSI/ISI PROGRAMS AND CONTINUE ON TO OTHER P & IDS.
16. DELETED.
17. HS0014 BELONGS TO NB SYSTEM.
18. THIS POINT DEFINES THE "Q" BOUNDRY. BEYOND THIS POINT THE HCD PIPING IS ANALYZED CONSIDERING A SINGLE DEGREE OF FREEDOM.
19. DRIP POCKET DRAINS (TWO PER PUMP) FIELD ROUTED PER DWG. M-1L001.
20. REMOVABLE SPOOL WITH SPACER RING INSTALLED (REPLACEMENT FOR START-UP STRAINER).
21. V0822 IS THE DRIVE END SEAL VENT FOR PBG04. V0823 IS THE NON-DRIVE END SEAL VENT FOR PBG04.
22. REACH RODS FOR VALVES V0101, V0102, V0105, V0106, V0271, V0272, V0273, V0274, V0275, V0276, V0346, & V0347 HAVE BEEN DISCONNECTED. THESE VALVES MAY BE OPERATED LOCALLY UNTIL SUCH TIME THAT THE RADIATION LEVELS IN ROOM 1306 BECOME PROHIBITIVE.
23. VENT INSTALLED IN THE BONNET OF THE CHECK VALVE USING 3/8" INSTRUMENT FITTINGS AND VALVE.
24. VENT INSTALLED WITH CAM AND GROOVE ADAPTER AND DUST CAP WITH BUNA-N GASKET.

USAR FIG. 9.3-8-03

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2013.05.21 06:46:57 -05'00'

ESSENTIAL DRAWING

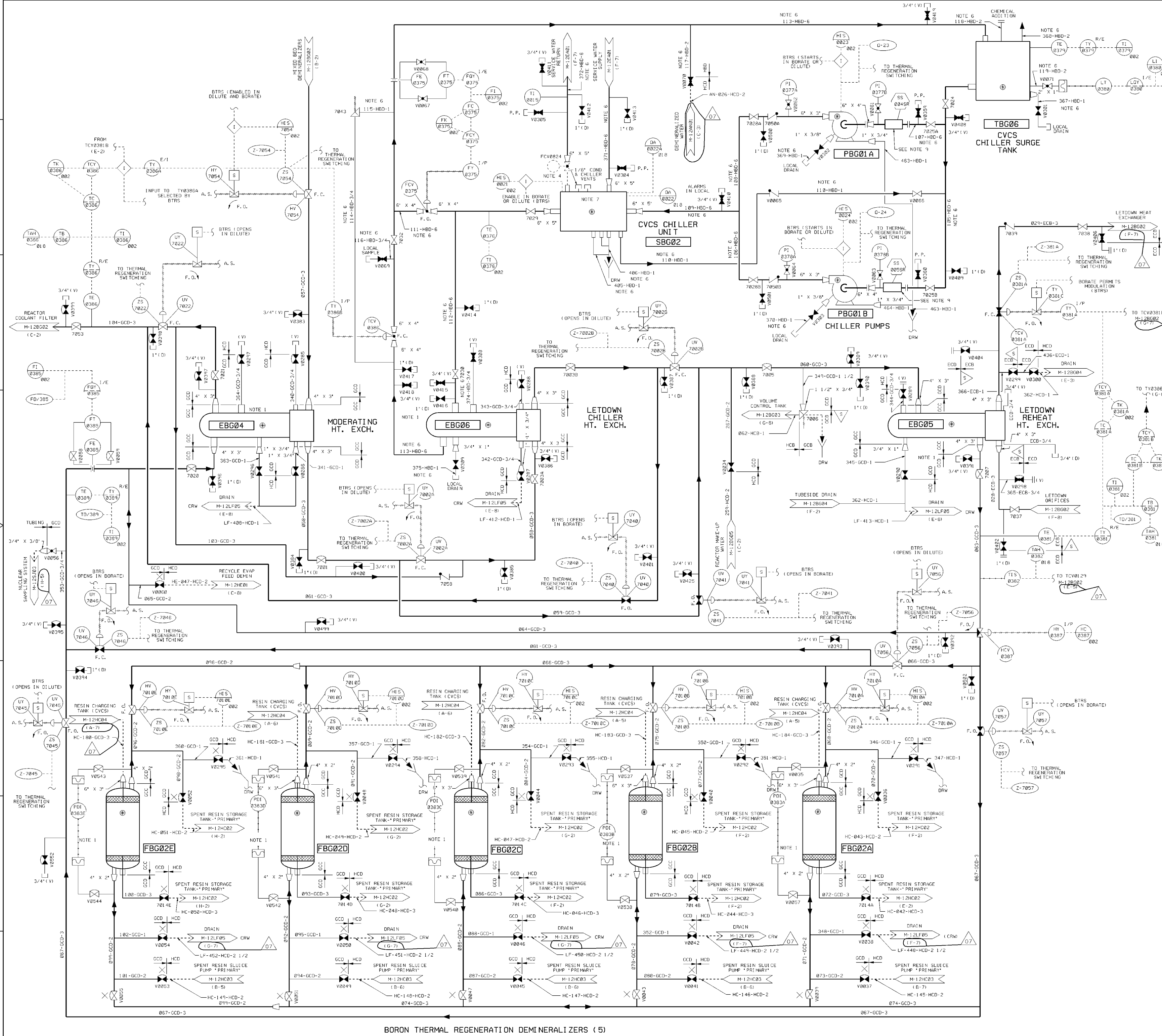
☒ REVISED
○ ISSUED
INCORPORATED CHG. DOC. CR▪00069248
CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY REV. THIS DWG. SUPERSEDES REV.
REVISION NOTES:

WOLF CREEK
NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM CHEMICAL & VOLUME CONTROL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12BG03		48

34X44 E SIZE
M-12BG03▪1▪48



NOTES

1. THE FOLLOWING STANDARD WESTINGHOUSE EQUIPMENT IS SUPPLIED TO A HIGHER QUALITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPLE CONSTRUCTION CODE THAN IS REQUIRED BASED ON ITS SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTS AND BY THE CONSEQUENCE OF THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSES ONLY (IE WELD END PREPS). ACTUAL CLASSIFICATION OF THE EQUIPMENT IS THE LOWER CLASSIFICATION AS INDICATED FOR THE ASSOCIATED PIPING.

   A. MODERATING HEAT EXCHANGER
   B. EXCESS LETDOWN HEAT EXCH. (SHELL)
   C. LETDOWN CHILLER HEAT EXCH. (TUBE)
   D. THERMAL REGENERATION DEMINERALIZER
   E. MIXED BED DEMINERALIZERS
   F. CATION BED DEMINERALIZER
   G. LETDOWN REHEAT HEAT EXCHANGER (SHELL)

2. PORTIONS OF THIS SYSTEM THAT CONTAIN RADIOACTIVE FLUIDS AND ARE IDENTIFIED BY QUALITY GROUP "D" SHALL MEET THE AUGEMENTING REQUIREMENTS.
3. THIS DRAWING IS BASED ON WESTINGHOUSE DRAWINGS M-738-00005 THROUGH M-738-00009.
4. THIS VALVE SUPPLIED LOOSE, WITH CHILLER UNIT PACKAGE, REFERENCE DRAWING M-726-00001.
5. REFER TO NOTES 7&8 ON M-12BG01.
6. INDICATED PORTIONS OF THIS SYSTEM, IDENTIFIED BY THIS NOTE ARE QUALITY GROUP "D" NON-AUGMENTED.
7. REFERENCE DRAWING NUMBER M-726-00034.
8. DELETED
9. REMOVABLE SPOOL WITH SPACER RING INSTALLED, (REPLACEMENT FOR START-UP STRAINER).

USAR FIG. 9.3-8-04

ESSENTIAL DRAWING

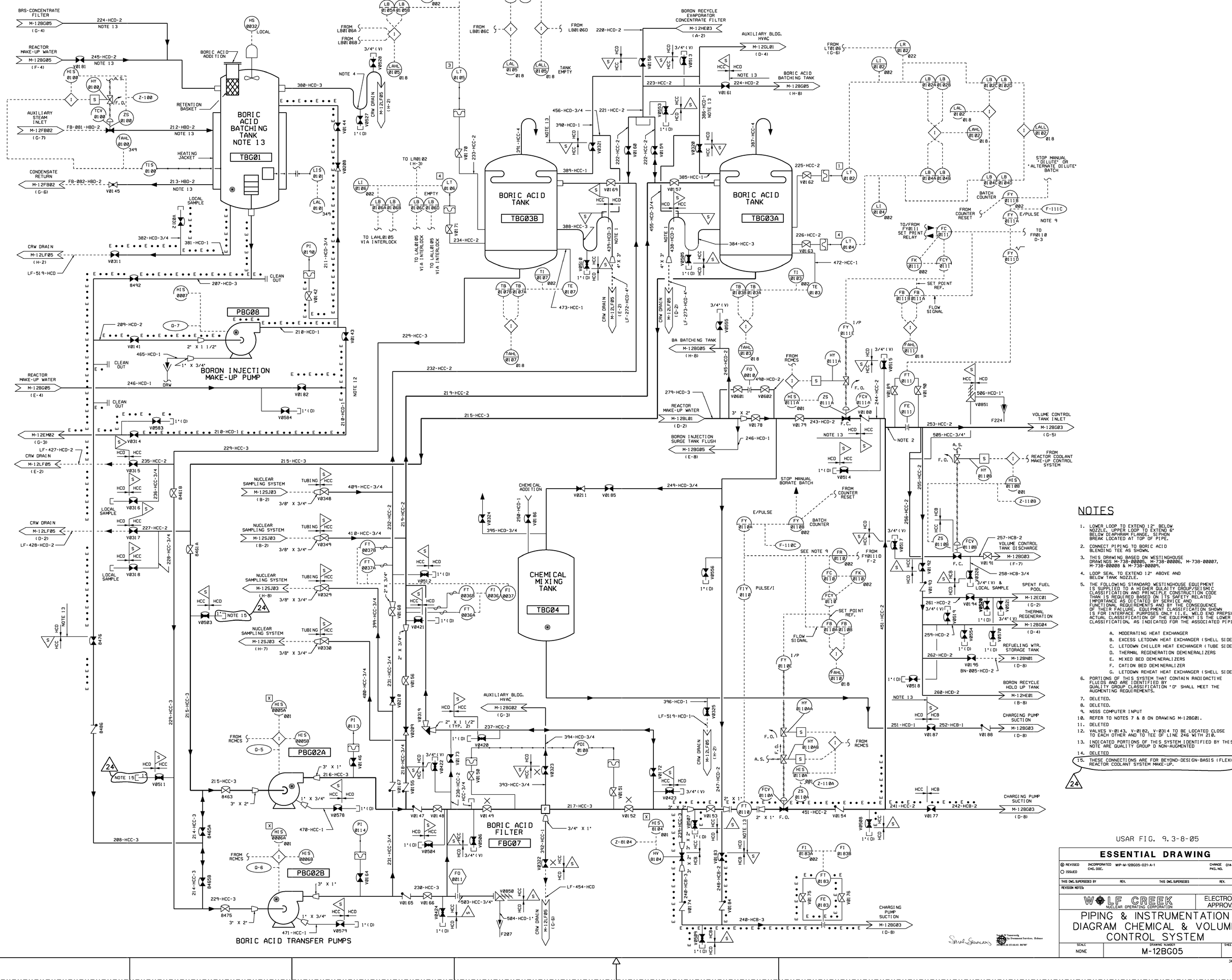
⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM CHEMICAL AND VOLUME CONTROL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12BG04		07

34X44 E SIZE



USAR FIG. 9.3-8-05

NOTES

1. LOWER LOOP TO EXTEND 12" BELOW NOZZLE. UPPER LOOP TO EXTEND 6" BELOW DIAPHRAM FLANGE. SIPHON BREAK LOCATED AT TOP OF PIPE.
2. CONNECT PIPING TO BORIC ACID BLENDING TEE AS SHOWN.
3. THIS DRAWING BASED ON WESTINGHOUSE DRAWINGS M-738-00005, M-738-00006, M-738-00007, M-738-00008 & M-738-00009.
4. LOOP SEAL TO EXTEND 12" ABOVE AND BELOW TANK NOZZLE.
5. THE FOLLOWING STANDARD WESTINGHOUSE EQUIPMENT IS SUPPLIED TO A HIGHER QULAITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPLE CONSTRUCTION CODE THAN IS REQUIRED BASED ON ITS SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTS AND BY THE CONSEQUENCE OF THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSES ONLY (I.E. WELD END PREPS). ACTUAL CLASSIFICATION OF THE EQUIPMENT IS THE LOWER CLASSIFICATION, AS INDICATED FOR THE ASSOCIATED PIPING.
   - A. MODERATING HEAT EXCHANGER
   - B. EXCESS LETDOWN HEAT EXCHANGER (SHELL SIDE)
   - C. LETDOWN CHILLER HEAT EXCHANGER (TUBE SIDE)
   - D. THERMAL REGENERATION DEMINERALIZERS
   - E. MIXED BED DEMINERALIZERS
   - F. CATION BED DEMINERALIZER
   - G. LETDOWN REHEAT HEAT EXCHANGER (SHELL SIDE)
6. PORTIONS OF THIS SYSTEM THAT CONTAIN RADIOACTIVE FLUIDS AND ARE IDENTIFIED BY QUALITY GROUP CLASSIFICATION "D" SHALL MEET THE AUGMENTING REQUIREMENTS.
7. DELETED.
8. DELETED.
9. NSSS COMPUTER INPUT
10. REFER TO NOTES 7 & 8 ON DRAWING M-12BG01.
11. DELETED
12. VALVES V-0143, V-0182, V-0314 TO BE LOCATED CLOSE TO EACH OTHER AND TO TEE OF LINE 246 WITH 210.
13. INDICATED PORTIONS OF THIS SYSTEM IDENTIFIED BY THIS NOTE ARE QUALITY GROUP D NON-AUGMENTED
14. DELETED
15. THESE CONNECTIONS ARE FOR BEYOND-DESIGN-BASIS (FLEX) REACTOR COOLANT SYSTEM MAKE-UP.

24

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-12BG05-021-A-1	CHANGE PKG. NO. 014413	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

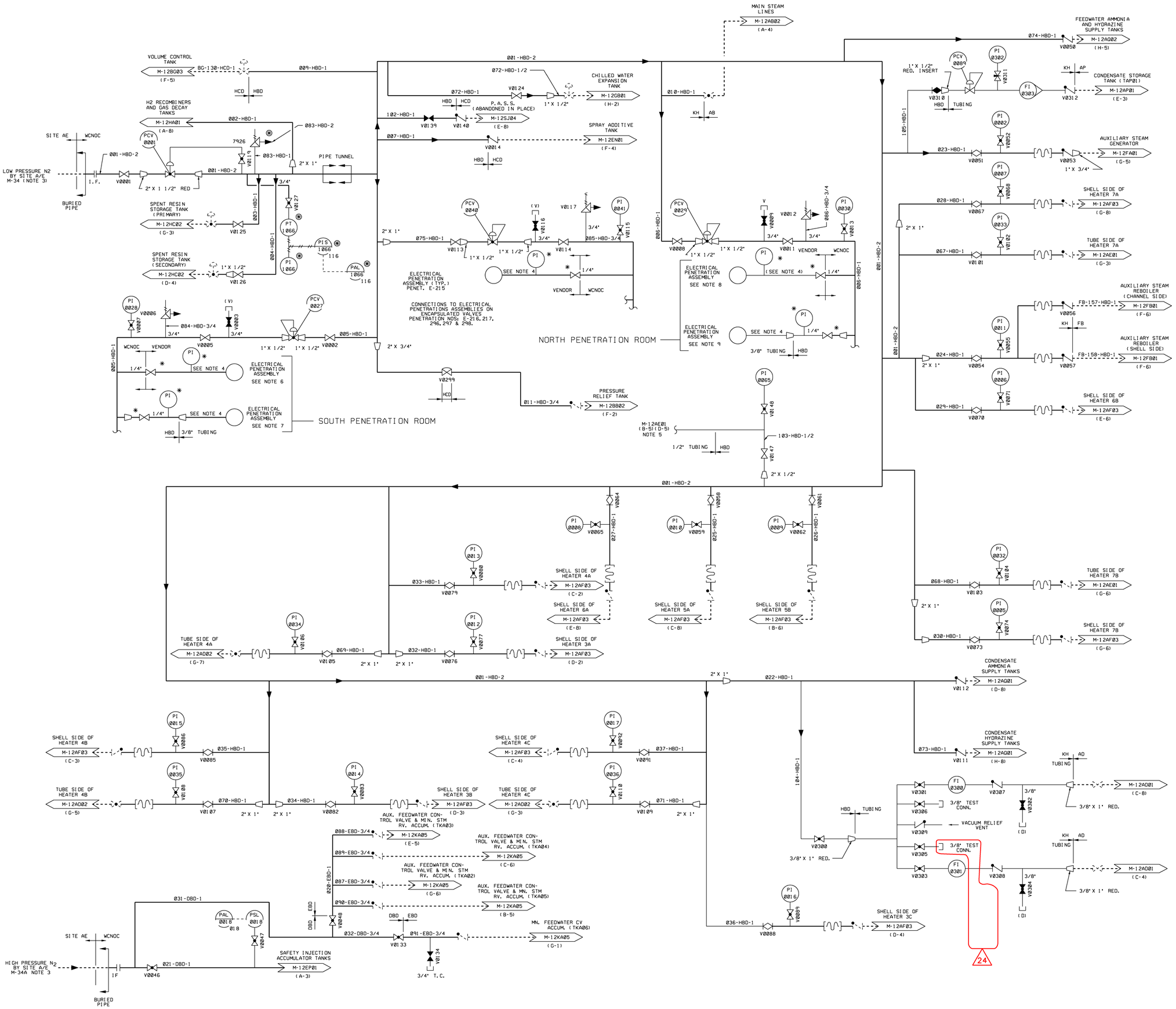
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CHEMICAL & VOLUME CONTROL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12BG05		24

34X44 E SIZE



USAR FIG. 9.3-9-01

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: REVISED TO REMOVE TCC SYS NT-120

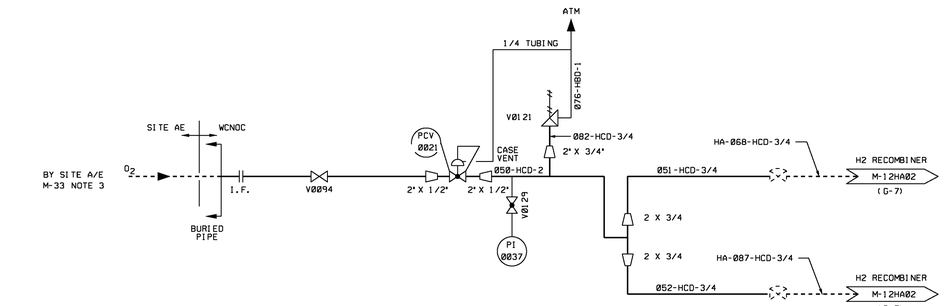
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

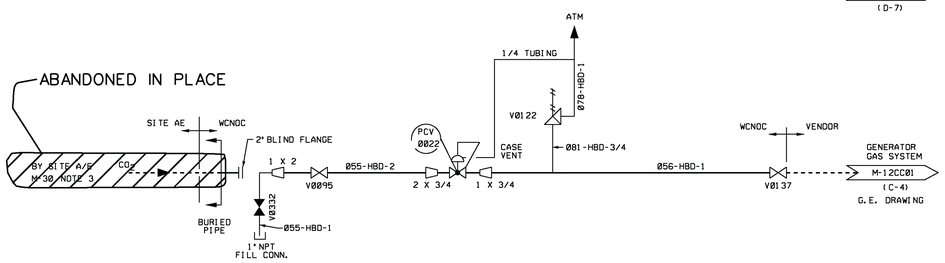
PIPING AND INSTRUMENTATION DIAGRAM SERVICE GAS SYSTEM

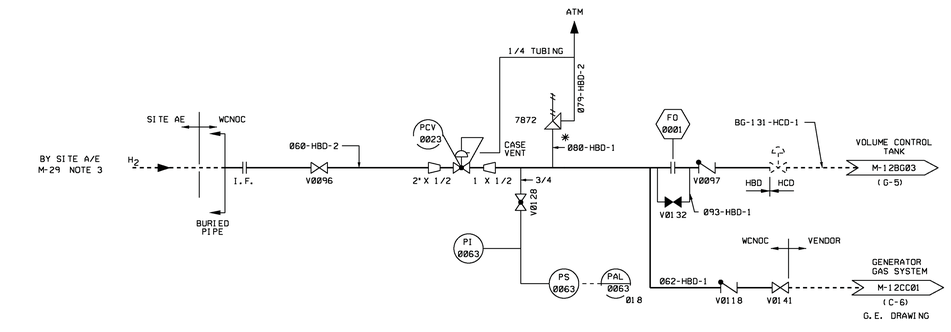
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KH01		24

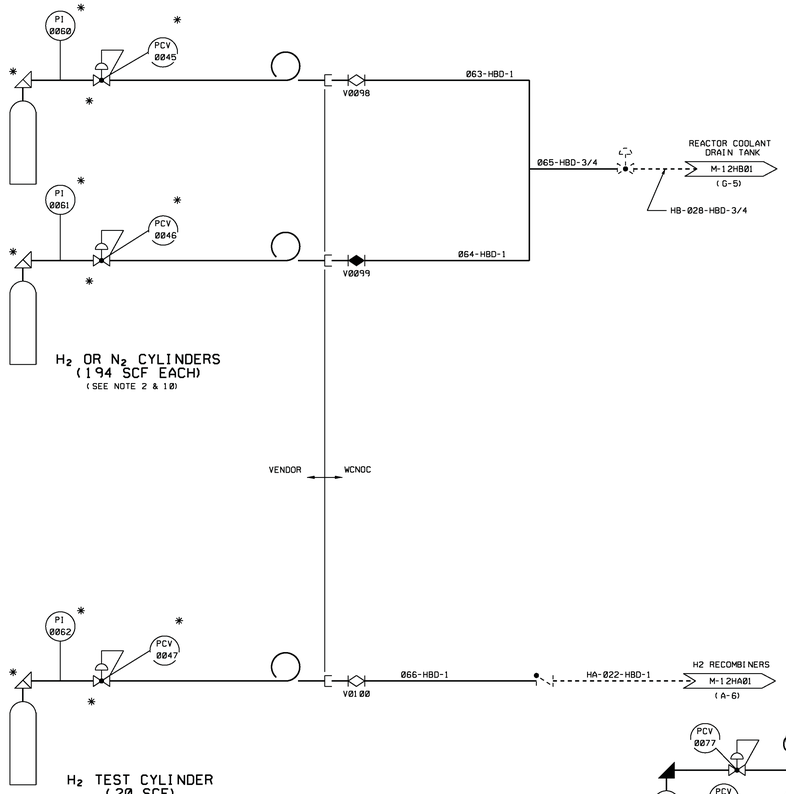
Linda R Kamlenki
Released by Document Services. Release Date:
2018.06.13 07:46:45 -05'00'

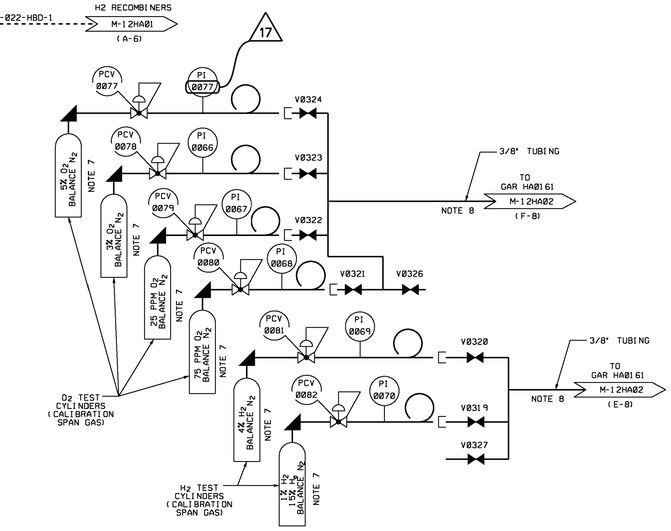
34X44 E SIZE

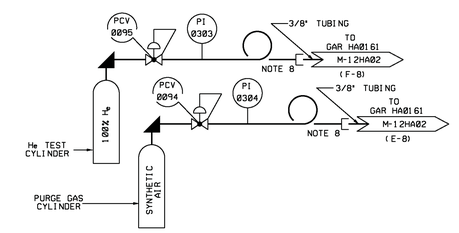


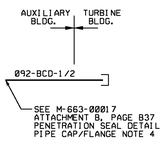


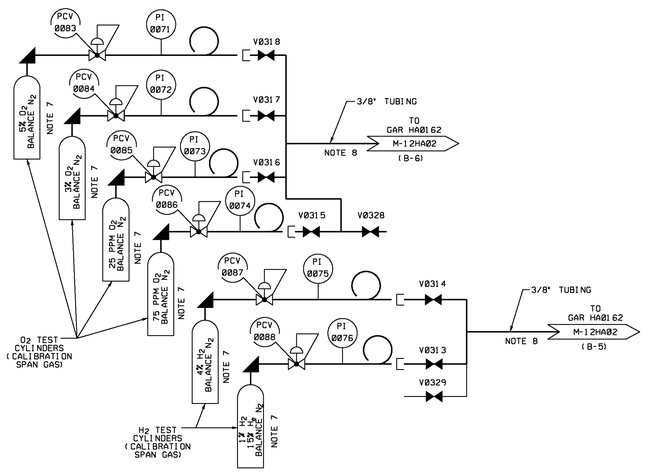


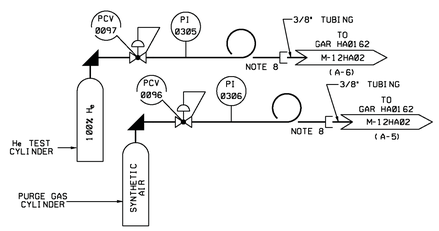












NOTES

1. FOR NOTES, SEE M-12KH01.
2. H_2 CYLINDERS WITH WELDING TYPE PRESSURE REGULATORS SUPPLIED BY PLANT OWNER.
3. RECOMMENDED BOTTLE PRESSURE IS 6000 PSIG CHARGE PRESSURE OF ACCUMULATORS IS APPROXIMATELY 4000 PSIG.
4. PIPING ASSOCIATED WITH LABORATORY GASES IS FIELD RUN.
5. ⌓ INDICATES FLEXIBLE CONN. BY PLANT OWNER
6. WHEN NOT IN USE THE NITROGEN PIPING SHALL BE DEPRESSURIZED PRESSURE GAUGES SHALL ONLY BE INSTALLED AND REMOVED FROM THE PRESSURE POINTS WHEN THE SYSTEM IS DEPRESSURIZED.
7. NOMINAL COMPOSITION OF PRESSURIZED GASES.
8. SPAN GAS CALIBRATION CYLINDERS TUBING SUPPORTS AND ASSOCIATED FITTINGS FROM THE PRESSURIZED CYLINDERS TO THE CATALYTIC HYDROGEN RECOMBINER GAS ANALYZER RACKS (HA-161 AND HA-162), ARE BY OWNER.
9. DELETED
10. N_2 CAN BE USED IN PLACE OF H_2.

USAR FIG. 9.3-9-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC. CR 00098464	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM SERVICE GAS SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KH02	01	17

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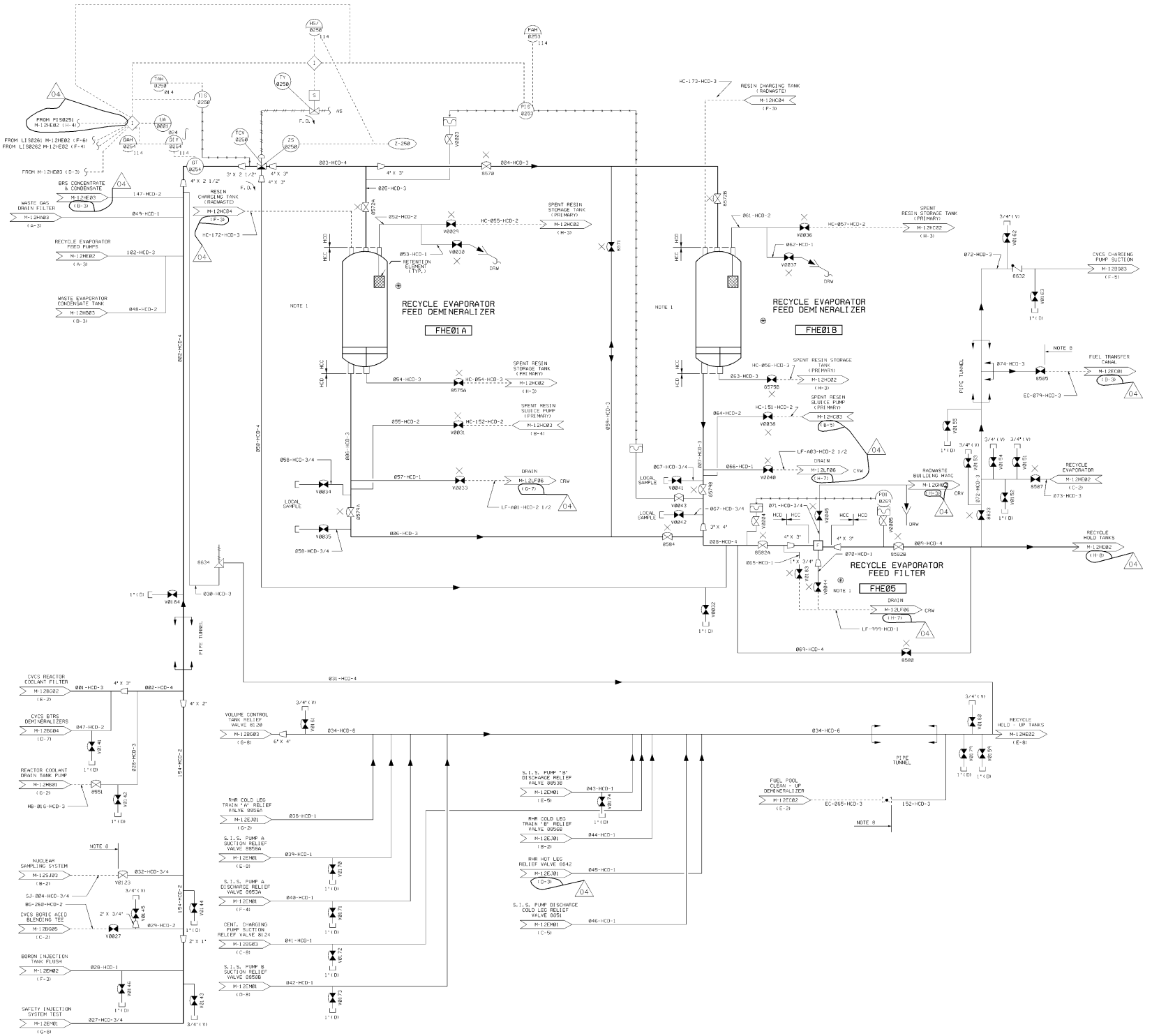
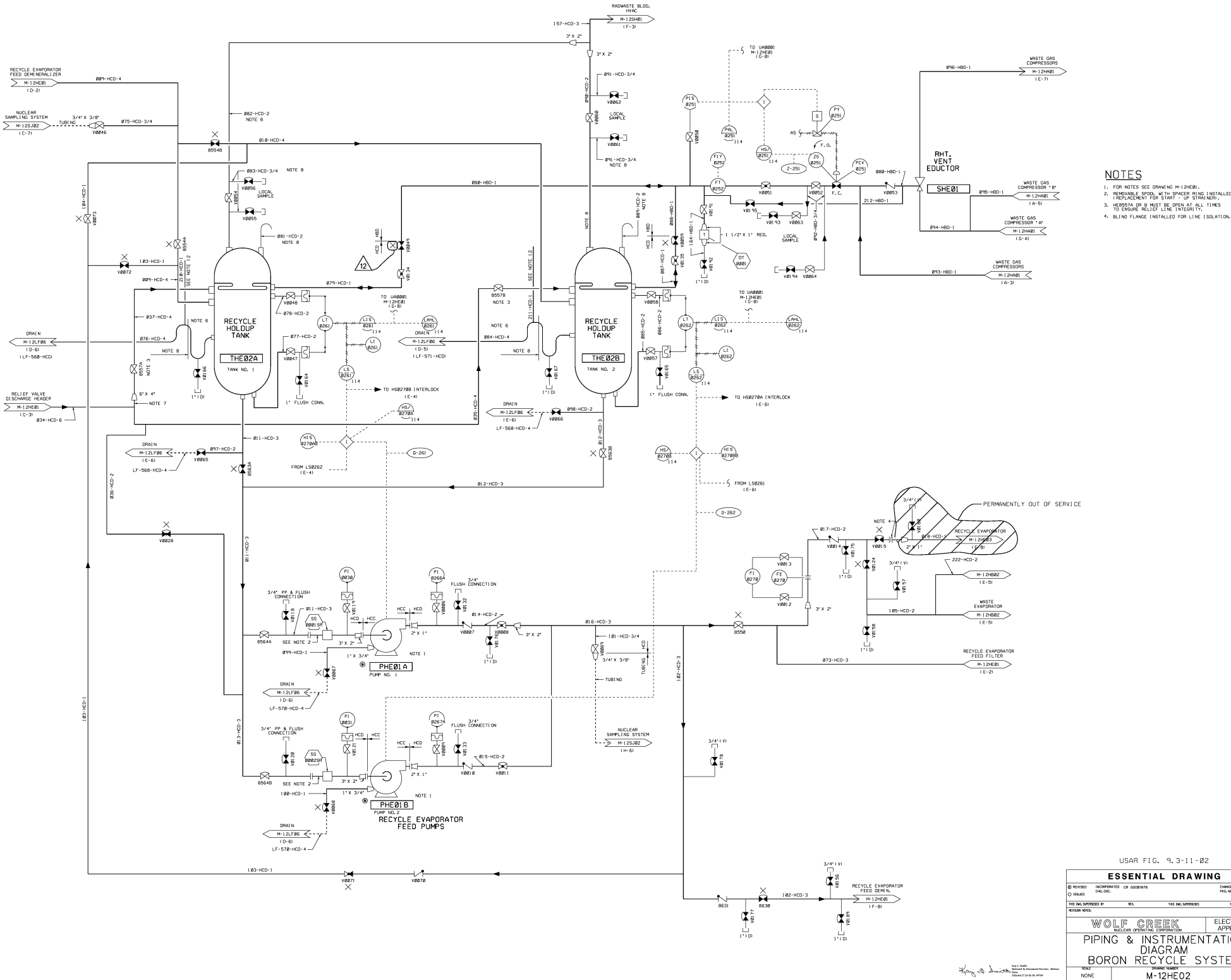
34X44 E SIZE




RECYCLE HOLDUP TANK
THE02A
TANK NO. 1
RECYCLE HOLDUP TANK
THE02B
TANK NO. 2
PHE01A
PUMP NO. 1
PHE01B
PUMP NO. 2
RECYCLE EVAPORATOR FEED PUMPS
RHT. VENT EDUCTOR
SHE01
PERMANENTLY OUT OF SERVICE
RECYCLE EVAPORATOR FEED DEMINERALIZER
M-12HE01
NUCLEAR SAMPLING SYSTEM
M-12SJ02
RADWASTE BLDG. HVAC
M-12GH01
WASTE GAS COMPRESSORS
M-12HA01
WASTE EVAPORATOR
M-12HB02
RECYCLE EVAPORATOR FEED FILTER
M-12HE01
RELIEF VALVE DISCHARGE HEADER
M-12HE01
DRAIN
M-12LF06
LOCAL SAMPLE
FLUSH CONNECTION
TO HS0270B INTERLOCK
TO HS0270A INTERLOCK
FROM LS0262
FROM LS0261
TO UA0001
M-12HE01
NOTES
1. FOR NOTES SEE DRAWING M-12HE01.
2. REMOVABLE SPOOL WITH SPACER RING INSTALLED. (REPLACEMENT FOR START - UP STRAINER).
3. HE0557A OR B MUST BE OPEN AT ALL TIMES TO ENSURE RELIEF LINE INTEGRITY.
4. BLIND FLANGE INSTALLED FOR LINE ISOLATION.
USAR FIG. 9.3-11-02
ESSENTIAL DRAWING
WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
PIPING & INSTRUMENTATION DIAGRAM
BORON RECYCLE SYSTEM
SCALE NONE
DRAWING NUMBER M-12HE02
SHEET
REV 12
M-12HE02-1-12

NOTES

1. FOR GENERAL NOTES SEE DRAWING M-12HE01.
2. THE FOLLOWING EQUIPMENT IS SUPPLIED WITH EVAPORATOR PACKAGE BY VENDOR:
   A. LT00315, BELLOWS, AND ASSOCIATED TUBING.
3. BLIND FLANGE INSTALLED FOR LINE ISOLATION.

PERMANENTLY OUT OF SERVICE

RECYCLE EVAPORATOR PACKAGE
SHE02
NOTE 1
NOTE 9
NOTE 10
SEE M-726-00039 FOR ACTIVE SUB COMPONENTS

RECYCLE EVAPORATOR CONDENSATE DEMIN.
FHE02
NOTE 1

RECYCLE EVAPORATOR CONDENSATE FILTER
FHE06
NOTE 1

RECYCLE EVAPORATOR CONCENTRATES FILTER
FHE04
NOTE 1

SHE03
NOTE 5
NOTE 7

USAR FIG. 9.3-11-03

ESSENTIAL DRAWING

REVISED ○ ISSUED — INCORPORATED CHG. DOC. WIP-M-12HE03-006-A-1 — CHANGE PKG. NO. 013540

THIS DWG. SUPERSEDED BY: REV. — THIS DWG. SUPERSEDES: REV.

REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM BORON RECYCLE SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12HE03		07

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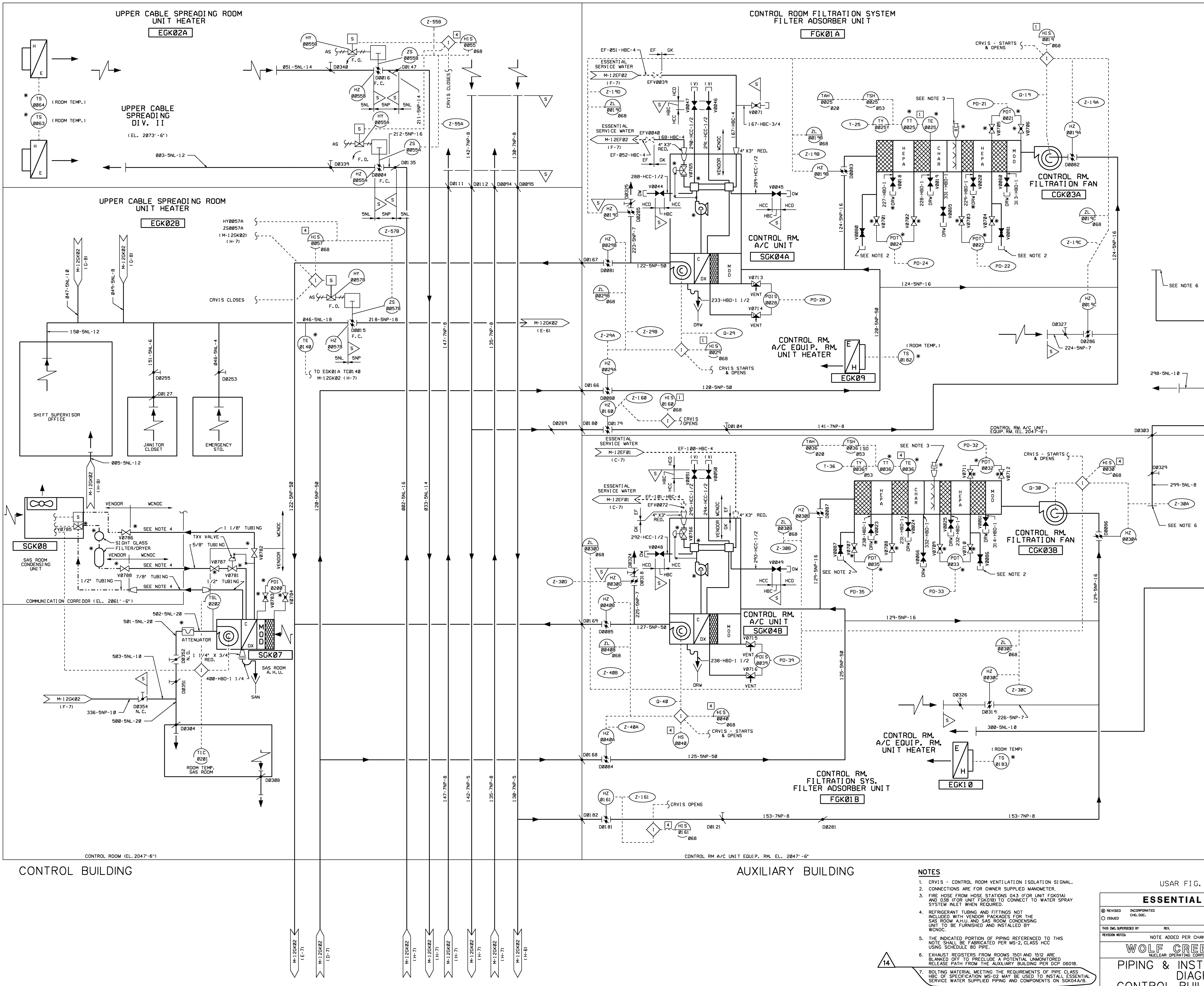
34444 E SIZE

M-12HE03+1+07



NOTES

1. CRVIS - CONTROL ROOM VENTILATION ISOLATION SIGNAL.
2. CONNECTIONS ARE FOR OWNER SUPPLIED MANOMETER.
3. FIRE HOSE FROM HOSE STATIONS 043 (FOR UNIT FGK01A) AND 038 (FOR UNIT FGK01B) TO CONNECT TO WATER SPRAY SYSTEM INLET WHEN REQUIRED.
4. REFRIGERANT TUBING AND FITTINGS NOT INCLUDED WITH VENDOR PACKAGES FOR THE SAS ROOM A.H.U. AND SAS ROOM CONDENSING UNIT TO BE FURNISHED AND INSTALLED BY WCNOC.
5. THE INDICATED PORTION OF PIPING REFERENCED TO THIS NOTE SHALL BE FABRICATED PER MS-2, CLASS HCC USING SCHEDULE 80 PIPE.
6. EXHAUST REGISTERS FROM ROOMS 1501 AND 1512 ARE BLANKED OFF TO PRECLUDE A POTENTIAL UNMONITORED RELEASE PATH FROM THE AUXILIARY BUILDING PER DCP 06018.
7. BOLTING MATERIAL MEETING THE REQUIREMENTS OF PIPE CLASS HBC OF SPECIFICATION MS-02 MAY BE USED TO INSTALL ESSENTIAL SERVICE WATER SUPPLIED PIPING AND COMPONENTS ON SGK04A/B. (14)

USAR FIG. 9.4-1-01

ESSENTIAL DRAWING

⊗ REVISED / ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	012860
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:	NOTE ADDED PER CHANGE PACKAGE ENGINEER		

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CONTROL BUILDING H.V.A.C.

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GK01		14

34X44 E SIZE

M-12GK01 +1+14

NOTES:

1. CRVIS - CONTROL ROOM VENTILATION ISOLATION SIGNAL.
2. DENOTES COMMON ENCLOSURE REFERENCE J-805-00020.
3. FIRE HOSE FROM HOSE STATION 045 TO CONNECT TO WATER SPRAY SYSTEM INLET, WHEN REQUIRED.
4. 15" I.D. FLOW ORFICE.
5. INSTR. GKAE-2/GKAT-2/GKAI-2, GKAE-3/GKAT-3/GKAI-3 ARE SPARED IN PLACE. IF CHLORINE IS BROUGHT ON SITE, IN GREATER THAN 150 LB SINGLE CONTAINER, THE INSTRUMENTS MUST BE PLACED BACK IN SERVICE.
6. HUMIDIFIER SGK09 AND ASSOCIATED MECHANICAL COMPONENTS ARE ABANDONED IN PLACE PER CCP 09991 AND PROVIDES NO SUPPORT TO PLANT SYSTEM.

ABANDONED IN PLACE (SEE NOTE 6)

CONTROL RM. ELECT DUCT HEATER EGK01A

ABANDONED IN PLACE (SEE NOTE 6)

PANTRY

TOILET

CONTROL ROOM

CABINET ROOM

CONTROL ROOM EL. 2047-6"

CONTROL BLDG. SUPPLY AIR UNIT SGK02

CONTROL BLDG. EXHAUST FANS CGK01A CGK01B

ACCESS CONTROL EXH. FILTER ADSORBER UNIT FGK03

ACCESS CONTROL EXHAUST FANS CGK02A CGK02B

HVAC EQUIPMENT ROOM (EL. 2047-6")

AUXILIARY BUILDING

EGK03A LOWER CABLE SPREADING ROOM UNIT HEATER

EGK03B LOWER CABLE SPREADING ROOM UNIT HEATER

LOWER CABLE SPREADING DIV. I (EL. 2032'-0")

CONTROL BUILDING

SGK09 ELECTRIC STEAM HUMIDIFIER

ABANDONED IN PLACE (SEE NOTE 6)

USAR FIG. 9.4-1, SHT. 2

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR 00129208
CHANGE PKG. NO.		
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES REV.
REVISION NOTES:		

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CONTROL BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GK02		23

34X44 E SIZE

Linda R Kaminski
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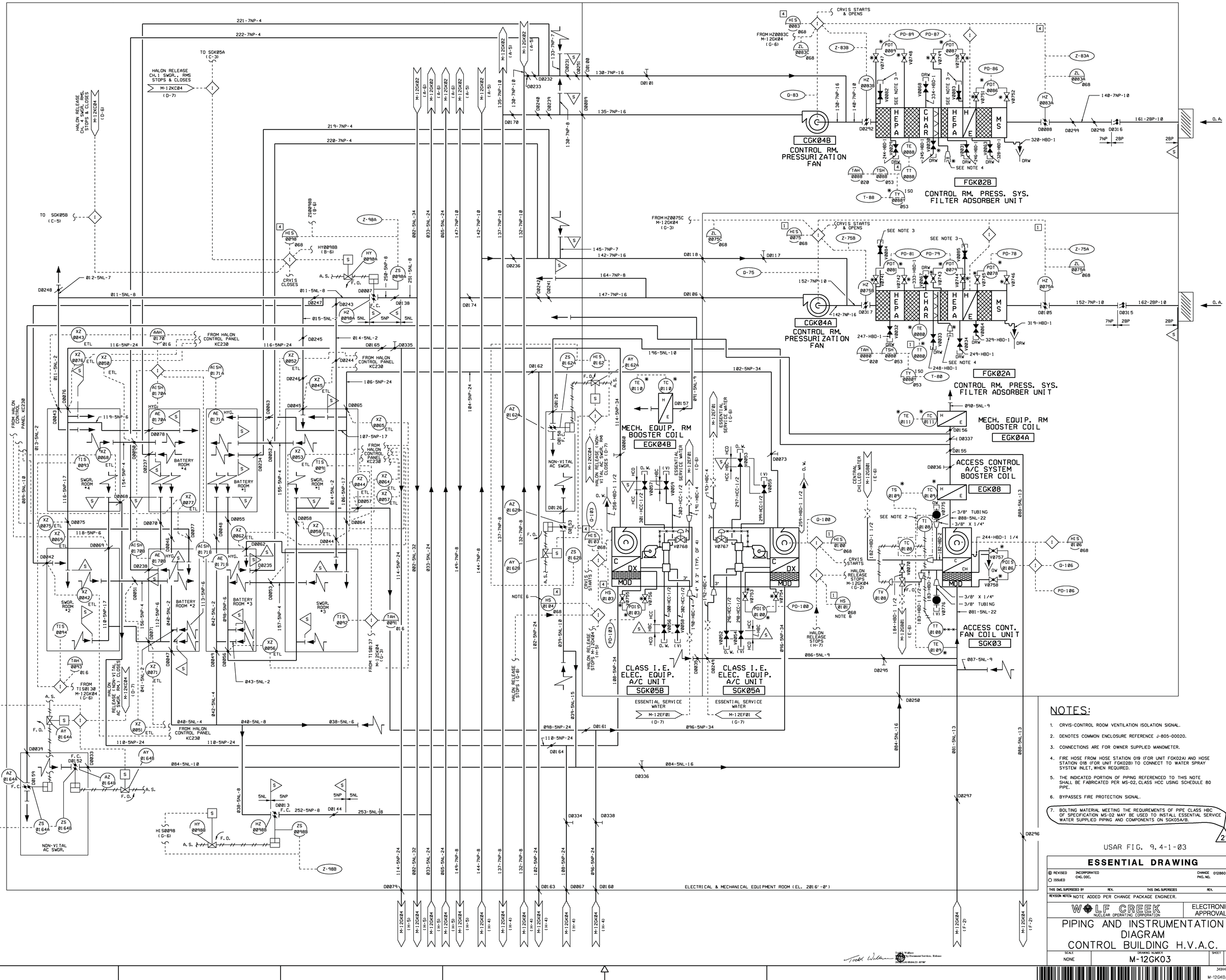


NOTES:

1. CRVIS-CONTROL ROOM VENTILATION ISOLATION SIGNAL.
2. DENOTES COMMON ENCLOSURE REFERENCE J-805-00020.
3. CONNECTIONS ARE FOR OWNER SUPPLIED MANOMETER.
4. FIRE HOSE FROM HOSE STATION 019 (FOR UNIT FGK02A) AND HOSE STATION 018 (FOR UNIT FGK02B) TO CONNECT TO WATER SPRAY SYSTEM INLET, WHEN REQUIRED.
5. THE INDICATED PORTION OF PIPING REFERENCED TO THIS NOTE SHALL BE FABRICATED PER MS-02, CLASS HCC USING SCHEDULE 80 PIPE.
6. BYPASSES FIRE PROTECTION SIGNAL.
7. BOLTING MATERIAL MEETING THE REQUIREMENTS OF PIPE CLASS HBC OF SPECIFICATION MS-02 MAY BE USED TO INSTALL ESSENTIAL SERVICE WATER SUPPLIED PIPING AND COMPONENTS ON SGK05A/B.

21

USAR FIG. 9.4-1-03

ESSENTIAL DRAWING

☒ REVISED
○ ISSUED

INCORPORATED CHG. DOC.

CHANGE PKG. NO. 012860

THIS DWG. SUPERSEDED BY REV. THIS DWG. SUPERSEDES REV.

REVISION NOTES: NOTE ADDED PER CHANGE PACKAGE ENGINEER.

WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM CONTROL BUILDING H.V.A.C.

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GK03		21

34X44 E SIZE

M-12GK03+1+21

ESF. SWGR. ROOM 2

ESF SWGR. ROOM UNIT HEATER EGK05B

ESF. SWGR. ROOM 1

ESF SWGR. ROOM UNIT HEATER EGK05A

SWGR. ROOM (EL. 2000-0')

ACCESS CONTROL SUPPLY SYSTEM BOOSTER COILS EGK11

EGK12

CHASE & TANK AREA UNIT HEATERS EGK07A EGK07B

CHASE & TK. AREA UNIT HEATER EGK07C

SGK06 COUNTING ROOM FAN COIL UNIT

NOTES:

1. CRVIS - CONTROL ROOM VENTILATION ISOLATION SIGNAL.
2. STAND ALONE DUCT DETECTOR. NOT MONITORED BY KC-008. SEE E-1F3101 FOR LOCATION.

USAR FIG. 9.4-1-04

ESSENTIAL DRAWING

REVISED / ISSUED — INCORPORATED CHG. DOC.: WIP-M-12GK04-013-A-1 — CHANGE PKG. NO.: 013979

THIS DWG. SUPERSEDED BY: REV. — THIS DWG. SUPERSEDES: REV.

REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

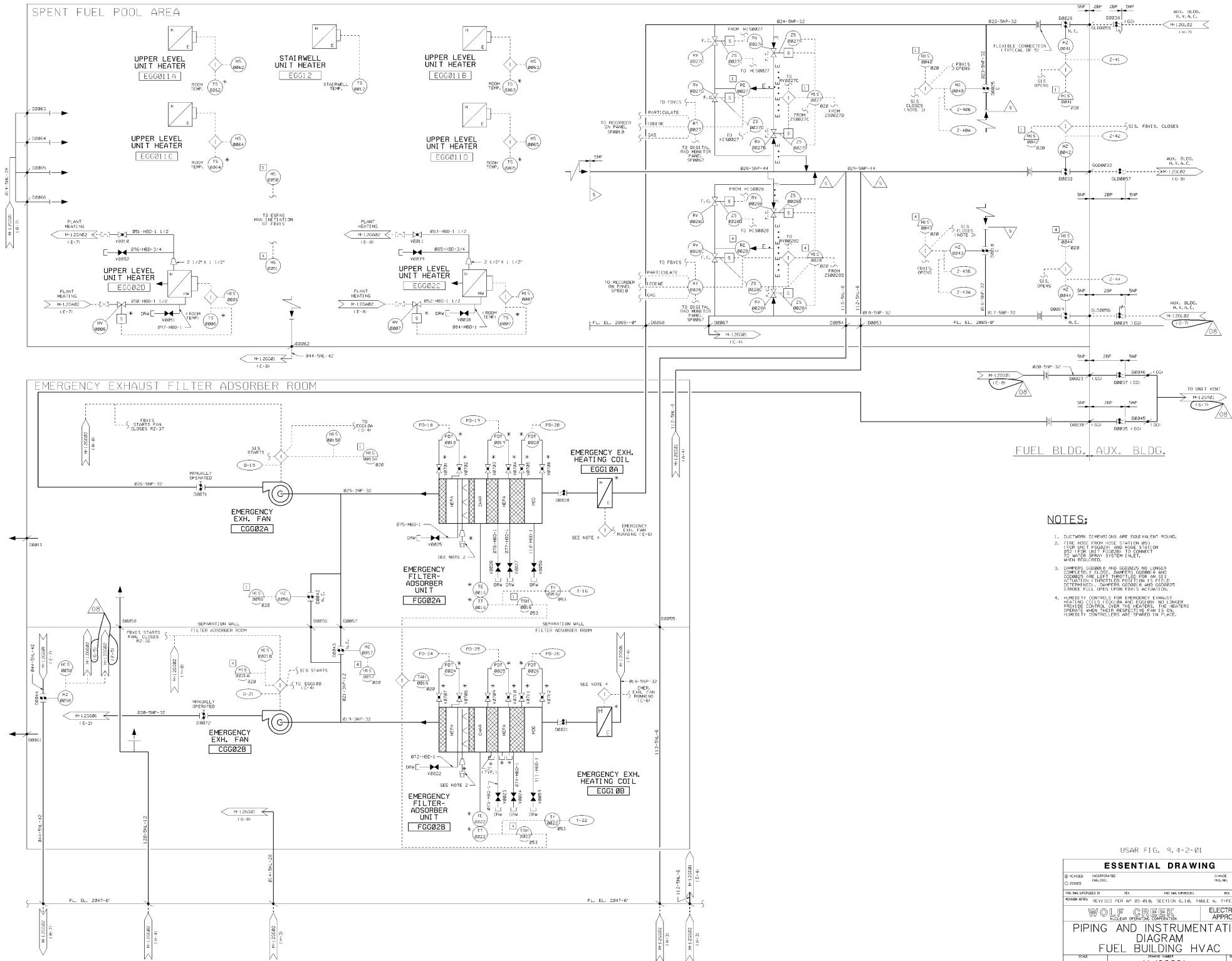
PIPING AND INSTRUMENTION DIAGRAM CONTROL BUILDING H.V.A.C.

SCALE: NONE — DRAWING NUMBER: M-12GK04 — SHEET — REV: 15

34X44 E SIZE

Digitally signed by Kamran Derakshandegan Date: 2018.12.18 10:37:57 -06'00'

Linda H Kaniuki Released by Document Services. Release Date: 2018.12.18 14:26:58 -06'00'



USAR FIG. 9.4-2-01

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

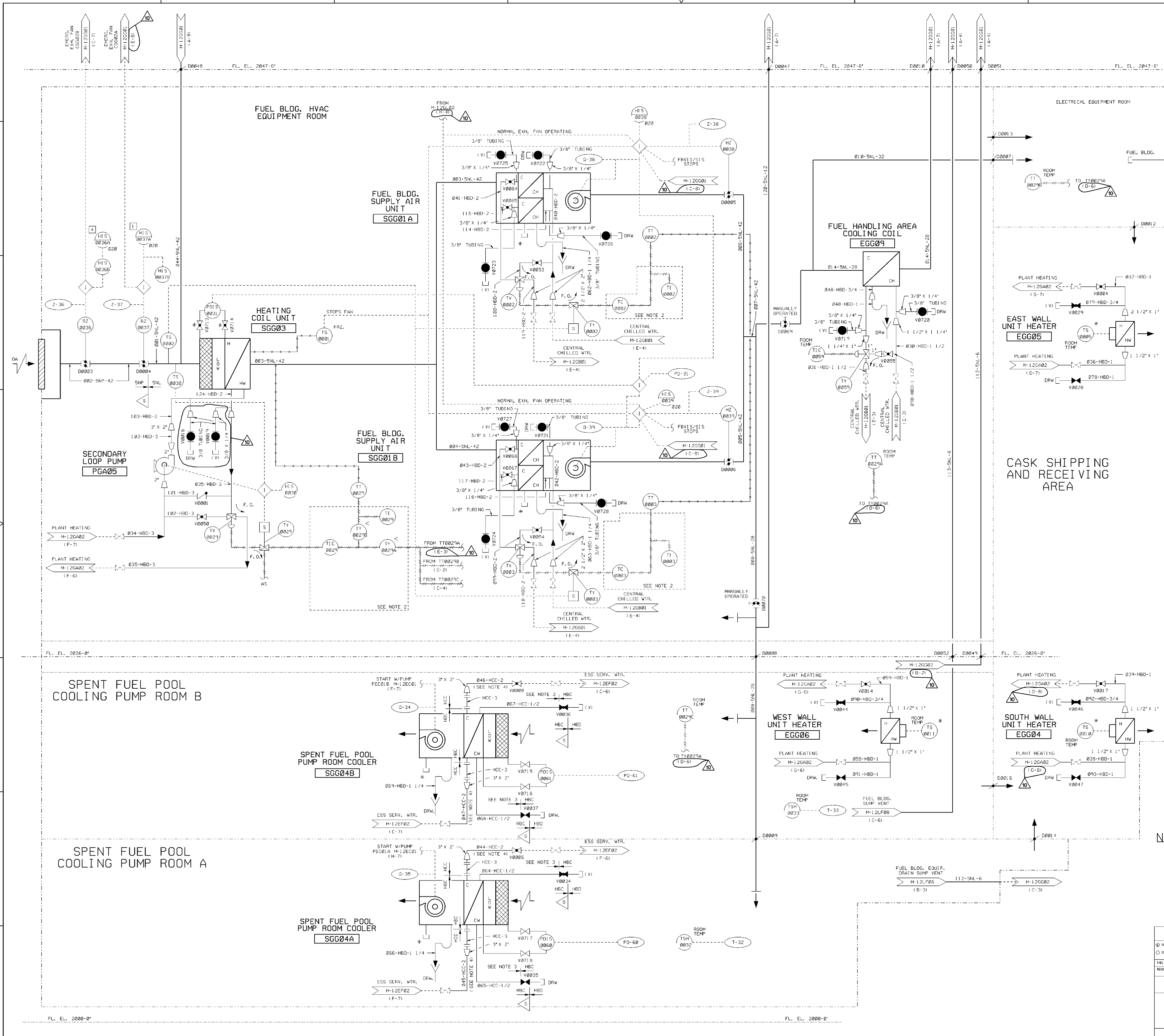
REVISION NOTES: REVISED PER AP 85-010, SECTION 6.10, TABLE A, TYPE 2

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM FUEL BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GG01		08

34X44 E SIZE



NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-12GG01.
2. DENOTES COMMON ENCLOSURE. REFERENCE J-805-00020
3. THE INDICATED PORTION OF PIPING REFERENCED TO THIS NOTE SHALL BE FABRICATED PER MS-2, CLASS HCC USING SCHEDULE 80 PIPE.
4. PIPING SHALL BE FABRICATED PER MS-02, CLASS HCC, EXCEPT FOR MATERIAL TYPE WHICH SHALL BE TYPE 316L.

USAR FIG. 9.4-2-02

ESSENTIAL DRAWING

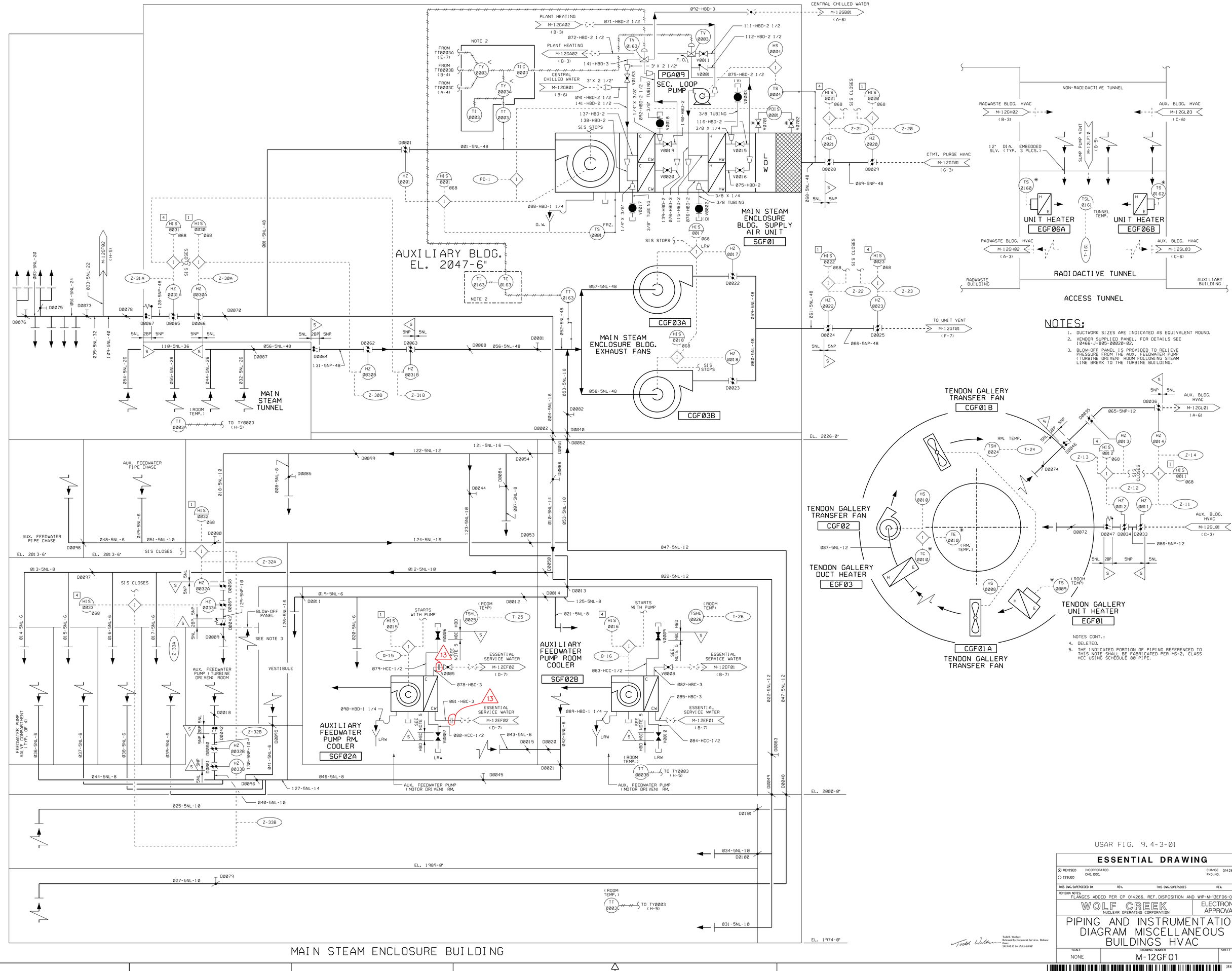
⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC. WIP-M-12GG02-09-A, R/00	CHANGE PKG. NO. 10290	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES: REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM FUEL BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GG02		10

34X44 E SIZE



USAR FIG. 9.4-3-01

ESSENTIAL DRAWING

(X) REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	014266
( ) ISSUED			
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: FLANGES ADDED PER CP 014266. REF. DISPOSITION AND WIP-M-13EF06-017-A-1

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

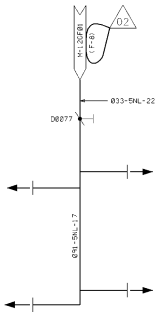
Todd L. Wallace Released by Document Services. Release Date: 2015.05.12 16:57:13 -05'00'

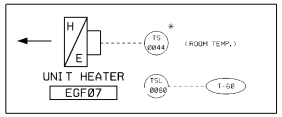
PIPING AND INSTRUMENTATION DIAGRAM MISCELLANEOUS BUILDINGS HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GF01		13

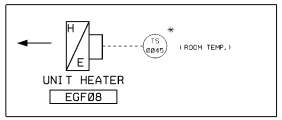
34X44 E SIZE

M-12GF01-1-13

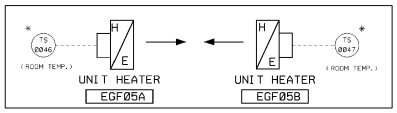




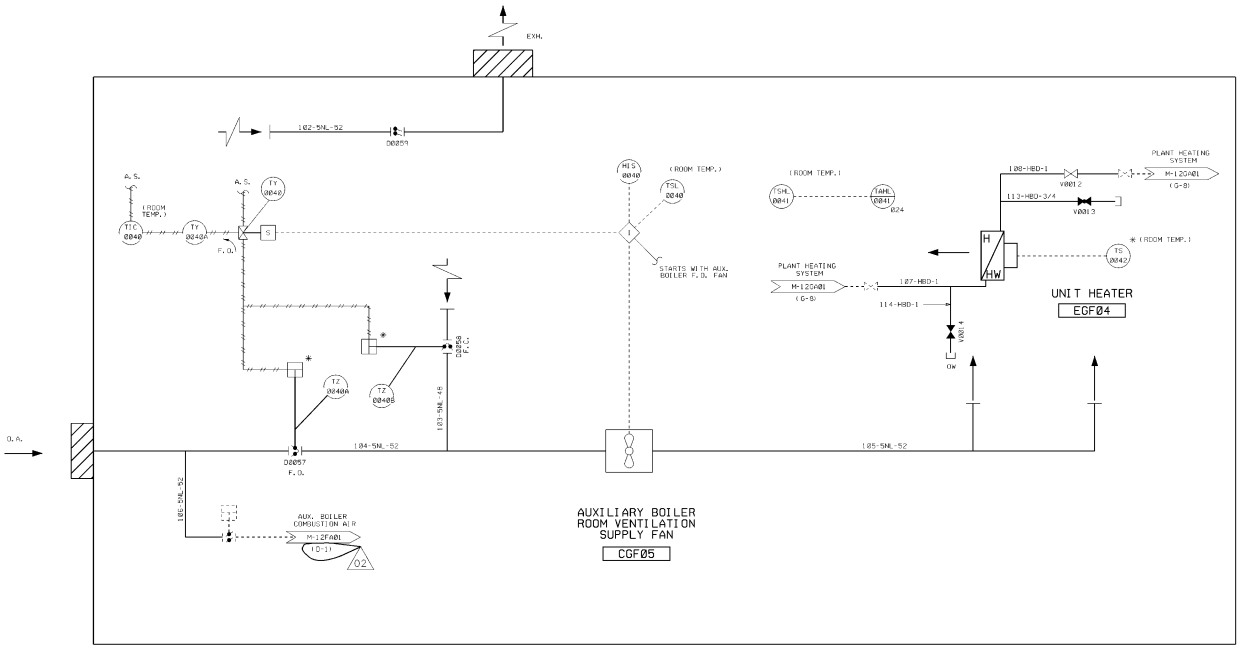
REFUELING WATER STORAGE TANK VALVE HOUSE



REACTOR MAKE-UP WATER STORAGE TANK VALVE HOUSE



CONDENSATE AND DEMIN. WATER PIPE TUNNEL



AUXILIARY BOILER ROOM

NOTES:

1. DUCTWORK SIZES ARE INDICATED AS EQUIVALENT ROUND.

USAR FIG. 9.4-3-02

ESSENTIAL DRAWING

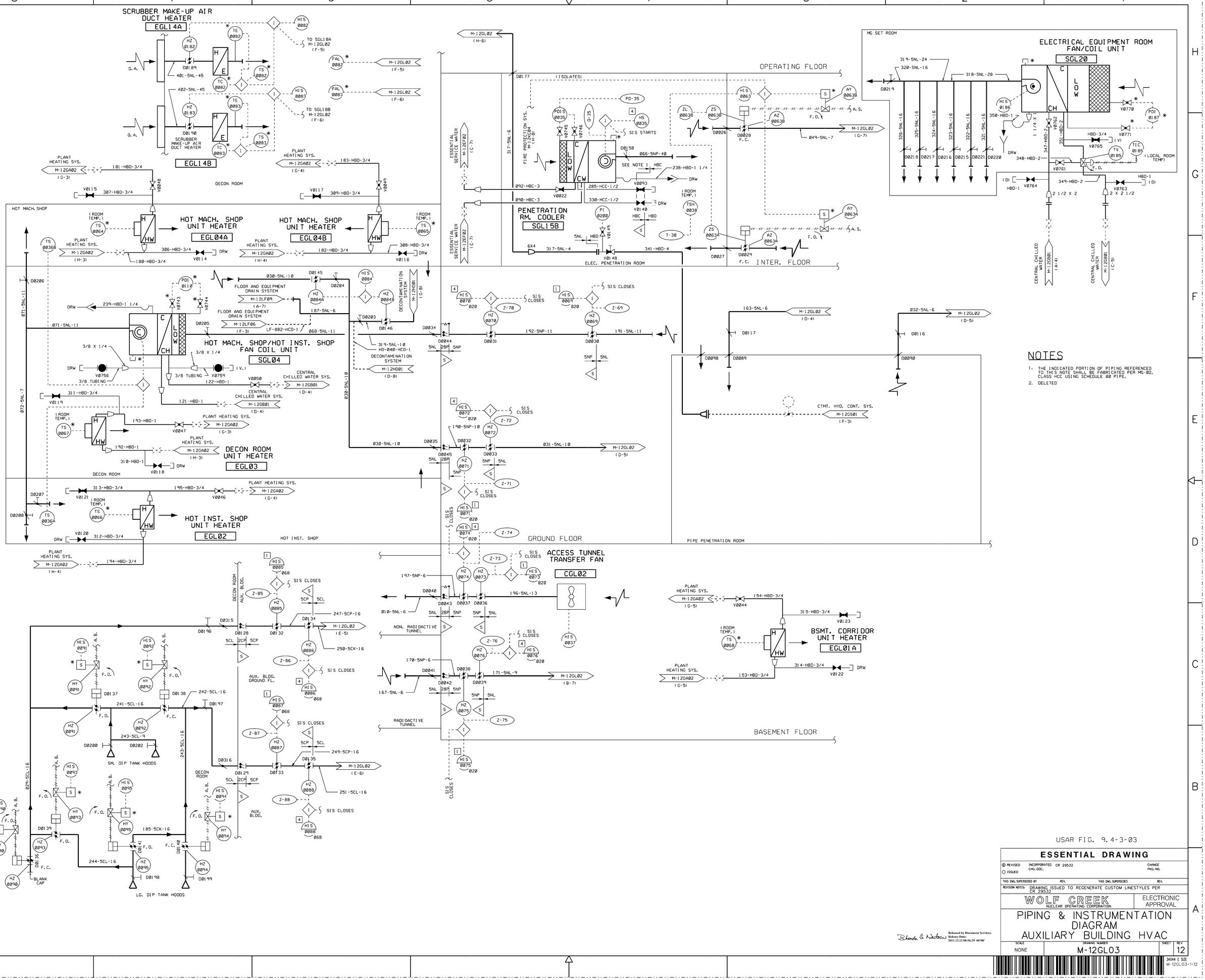
◉ REVISED ○ ISSUED	INCORPORATED CNG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES	REVISED PER AP 05-010, SECTION 6.10, TABLE A, TYPE 2		

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM MISCELLANEOUS BUILDINGS HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GF02		02

34X44 E SIZE



USAR FIG. 9.4-3-03

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR 29532	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: DRAWING ISSUED TO REGENERATE CUSTOM LINESTYLES PER CR 29532

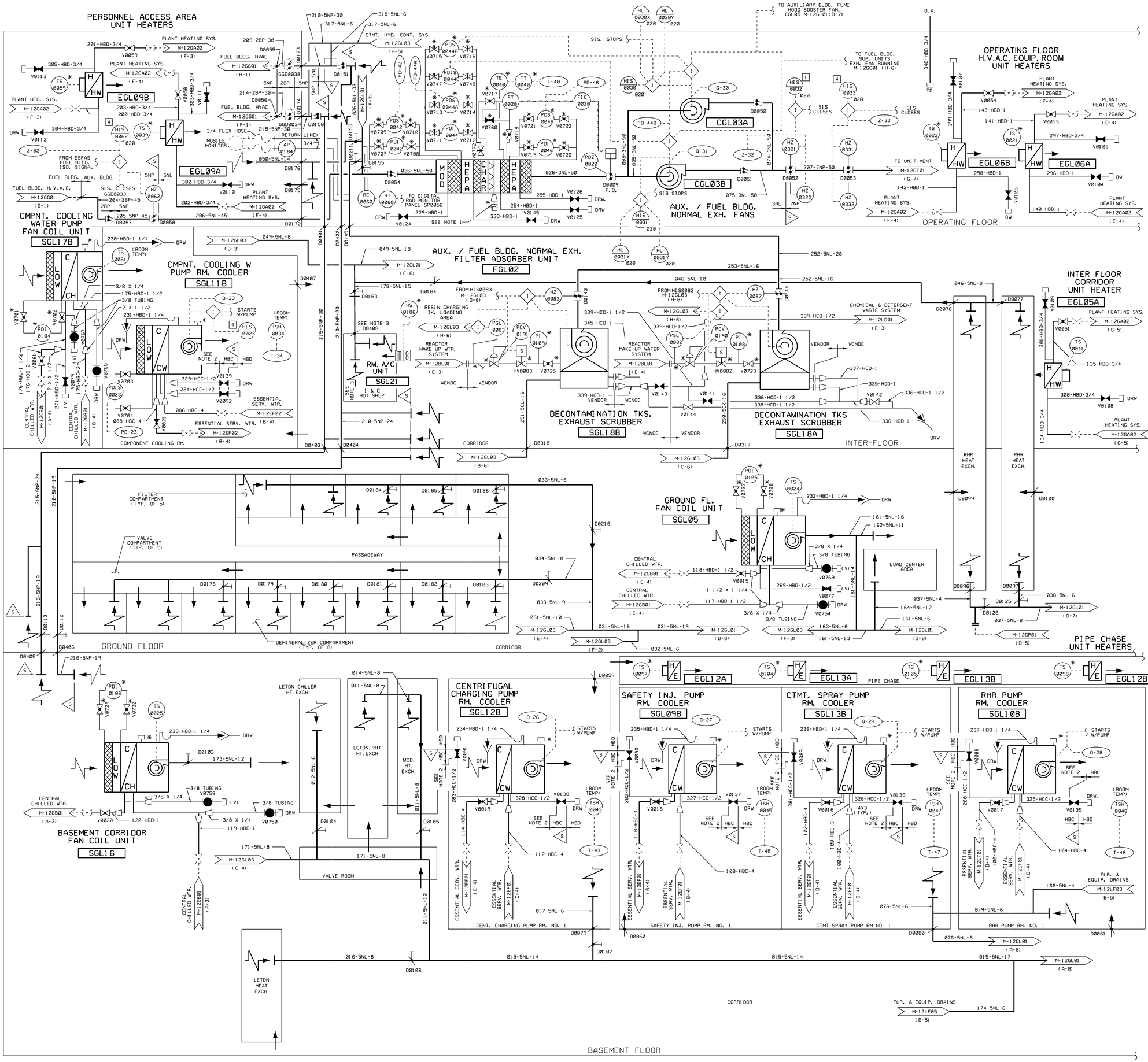
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM AUXILIARY BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GL03		12

Released by Document Services. Release Date: 2011.12.12 08:56:29 -06'00'

34X44 E SIZE
M-12GL03-1-12



Released by Document Services.
Release Date: 2011.12.12 12:33:25 -06'00'

USAR FIG. 9.4-3-04

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CR 29532 CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

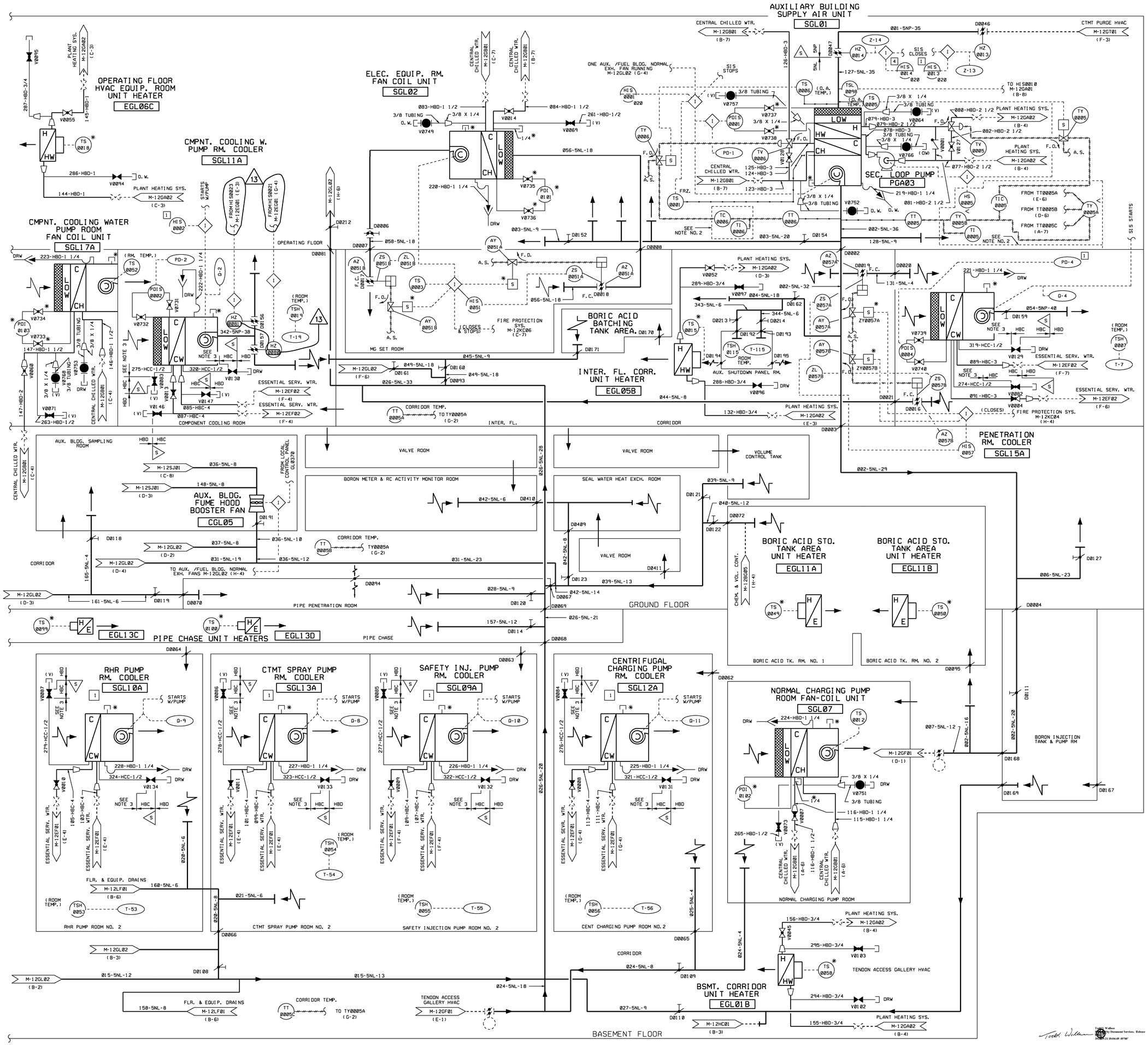
REVISION NOTES: DRAWING ISSUED TO REGENERATE CUSTOM LINESTYLES PER CR 29532

WOLF CREEK NUCLEAR OPERATING CORPORATION | ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM AUXILIARY BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GL02		17

34044 E SIZE
M-12GL02-1-17



NOTES

1. DUCTWORK SIZE ARE INDICATED AS EQUIVALENT ROUND.
2. LINE DENOTES UNIT ENCLOSURE REF. J-805-0020.
3. THE INDICATED PORTION OF PIPING REFERENCED TO THIS NOTE SHALL BE FABRICATED PER MS-2, CLASS HCC USING SCHEDULE 80 PIPE.

USAR FIG. 9.4-3 -05

ESSENTIAL DRAWING

☒ REVISED
○ ISSUED
INCORPORATED CHG. DOC. C.R. •0106996
CHANGE PKG. NO.

THIS DWG. SUPERSEDED BY REV. THIS DWG. SUPERSEDES REV.

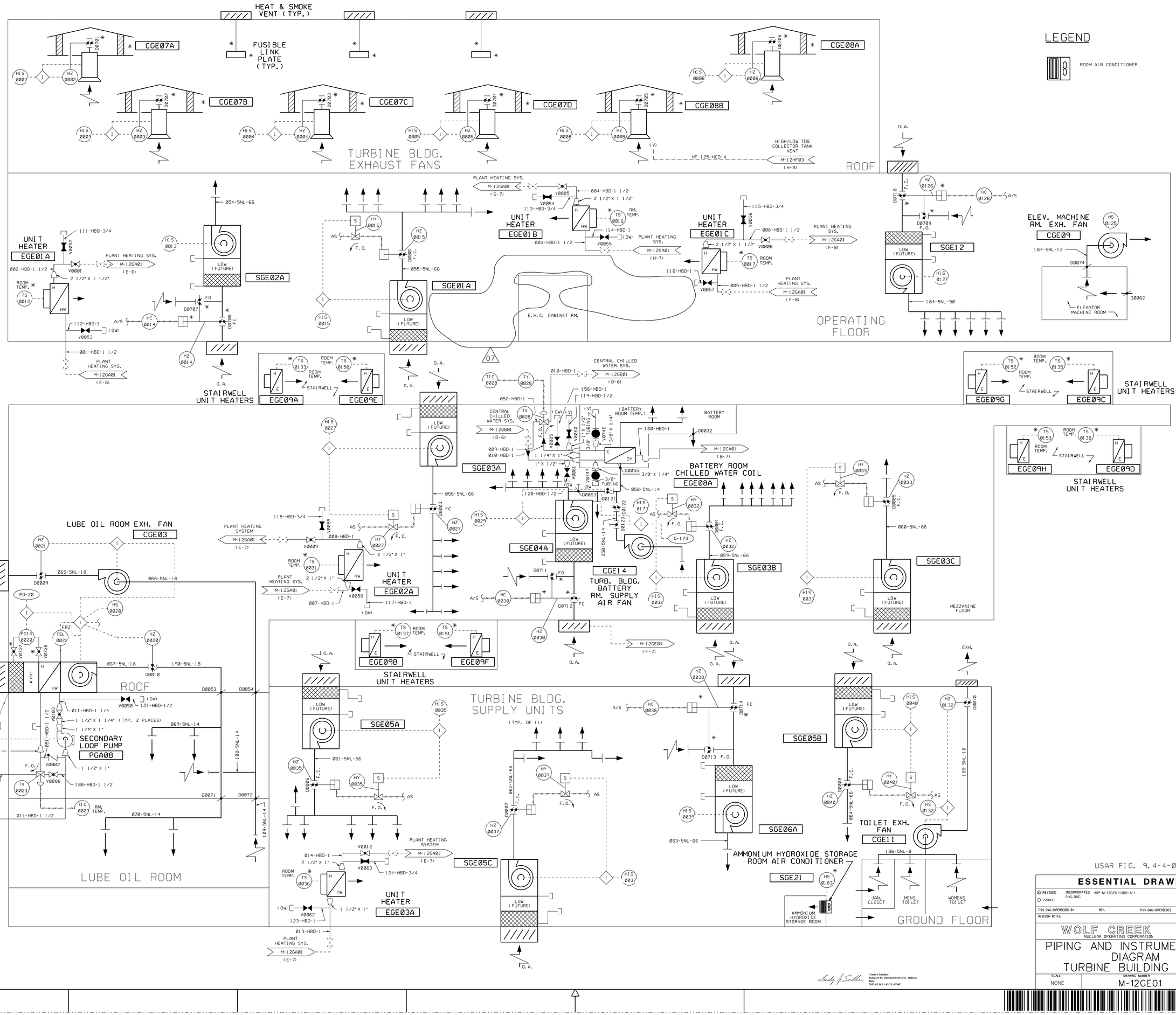
REVISION NOTES:

WOLF CREEK
NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM AUXILIARY BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GL01		13

34X44 E SIZE



USAR FIG. 9.4-4-01

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12GE01-005-A-1	CHANGE PKG. NO. 013865
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM TURBINE BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GE01		07

34X44 E SIZE

M-12GE01-1-07

Trudy J Smither
Released by Document Services. Release Date: 2013.03.14 11:45:25 -05'00'

NOTES:

1. REFRIGERANT PIPING, VALVES, FITTINGS AND OTHER SPECIALTIES FOR THE PROCESS SAMPLING LAB. HVAC SYSTEM TO BE SPECIFIED, FURNISHED AND INSTALLED BY THE CONSTRUCTOR.
2. FIRE HOSE FROM HOSE STATION 050 TO CONNECT TO WATER SPRAY SYSTEM INLET.
3. ATOMIC ABSORPTION SPECTROPHOTOMETER PROVIDED BY OWNER.

HEAT & SMOKE VENT (TYP.)

FUSIBLE LINK PLATE (TYP.)

CGE07E CGE07F CGE07G CGE07H

TURBINE BLDG. EXH. FANS

ROOF

SGE02B SGE01B

TOILET EXH. FAN CGE10

WOMENS TOILET

MENS TOILET

UNIT HEATER EGE01D

ROOM AIR COND. (TYP.) SGE22 SGE23 SGE24

TURBINE DECK OFFICE

OPERATING FLOOR

SGE03D SGE04B SGE03E

BATTERY ROOM CHILLED WATER COIL EGE08B

CGE15 TURBINE BUILDING BATTERY ROOM SUPPLY AIR FAN

BATTERY ROOM

UNIT HEATER EGE02B

MEZZANINE FLOOR

UNIT HEATER EGE03D

EGE10A EGE11A EGE11B EGE10C

UNIT HEATER EGE03C

EGE10B

SGE06B

UNIT HEATER EGE03B

SGE08

TURBINE BUILDING SUPPLY UNIT (TYP. OF 7)

GROUND FLOOR TURBINE BUILDING

CONDENSER AIR REMOVAL FILTRATION SYSTEM

FGE01

CGE01B CGE01A

AUXILIARY BUILDING

SGE14

CGE12 SAMPLE LAB FUME HOOD EXH. FAN

PROCESS SAMPLING LAB

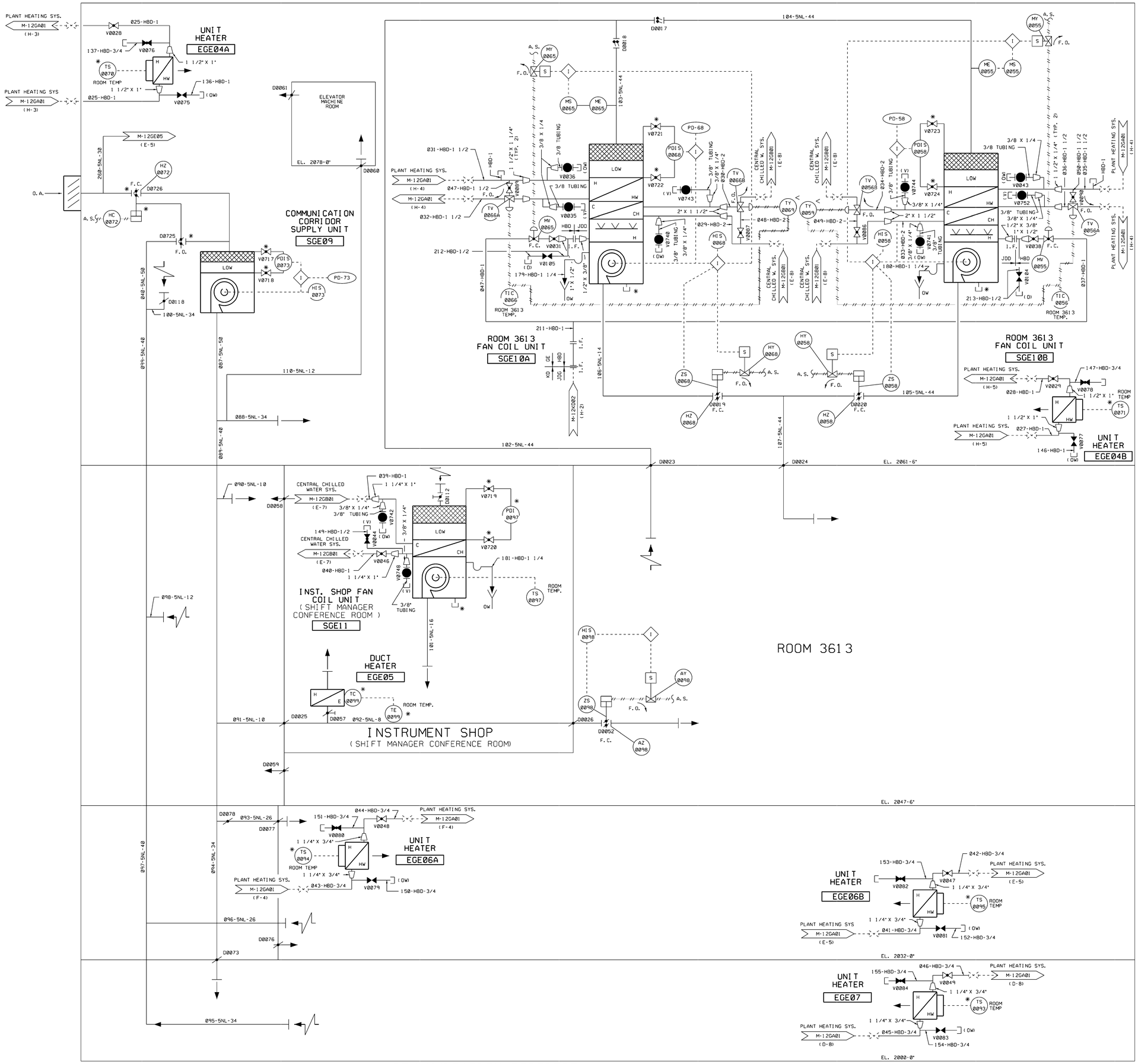
USAR FIG. 9.4-4-02

ESSENTIAL DRAWING			
☒ REVISED ☐ ISSUED	INCORPORATED CR 29532 CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:	DRAWING ISSUED TO REGENERATE CUSTOM LINESTYLES PER CR 29532		
WOLF CREEK NUCLEAR OPERATING CORPORATION		ELECTRONIC APPROVAL	

PIPING AND INSTRUMENTATION DIAGRAM TURBINE BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GE02		09

34X44 E SIZE
M-12GE02-1-09



USAR FIG. 9.4-4-03

ESSENTIAL DRAWING

(X) REVISED	INCORPORATED CHG. DOC.	CR 29532	CHANGE PKG. NO.
( ) ISSUED			

THIS DWG. SUPERSEDED BY REV. | THIS DWG. SUPERSEDES REV.

REVISION NOTES: DRAWING ISSUED TO REGENERATE CUSTOM LINESTYLES PER CR 29532

WOLF CREEK NUCLEAR OPERATING CORPORATION | ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM TURBINE BUILDING HVAC

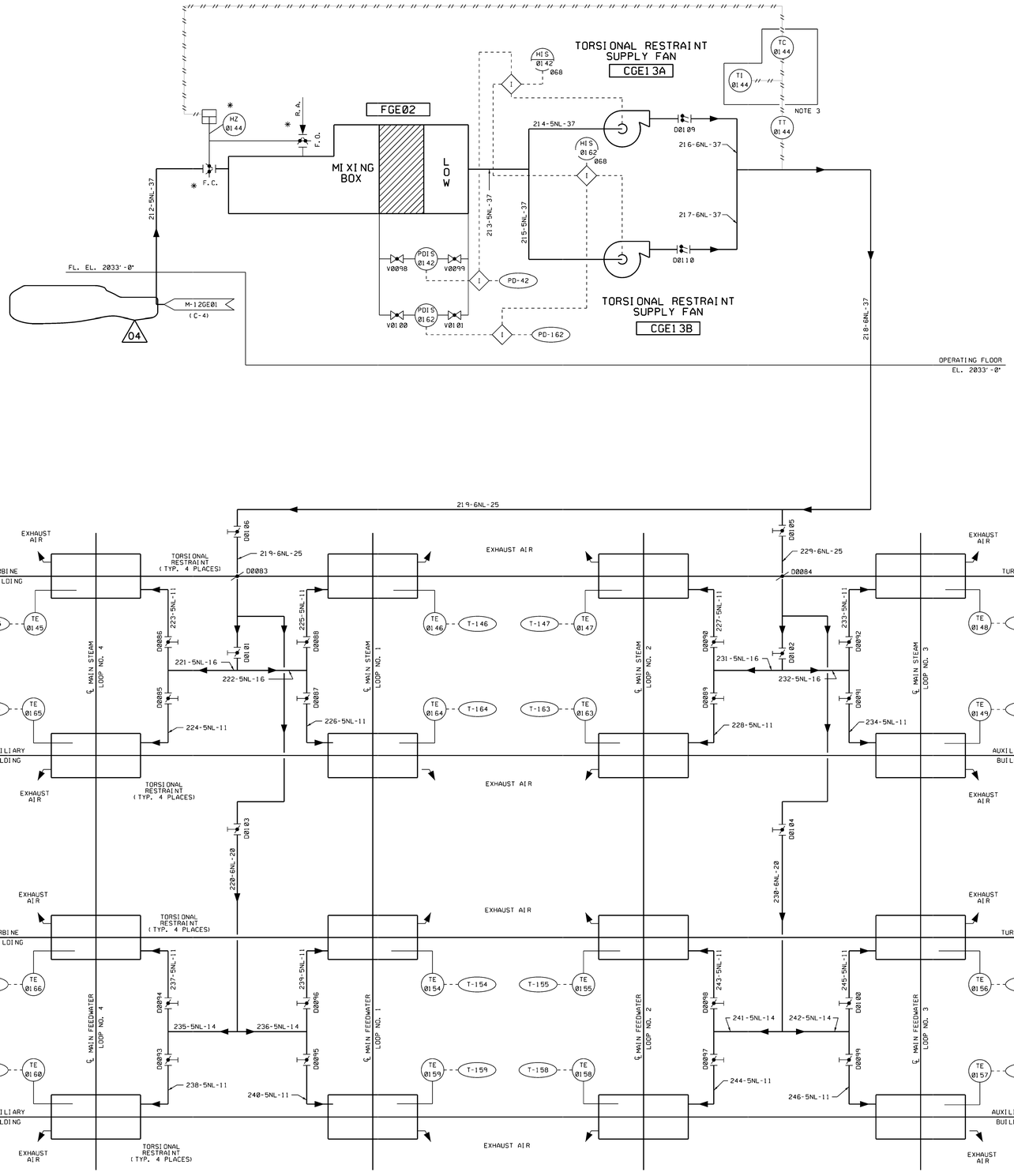
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GE03		09

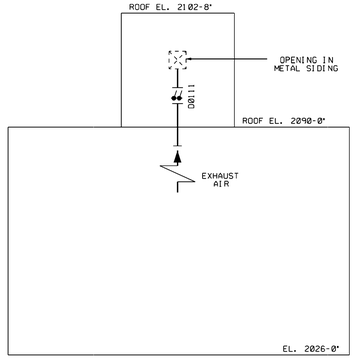
Released by Document Services. Release Date: 2011.12.12 08:52:39 -06'00'

34X44 E SIZE
M-12GE03-1-09

NOTES:

1. ALL TE'S ARE MONITORING CONCRETE TEMPERATURE.
2. DUCTWORK SIZES ARE INDICATED AS EQUIVALENT ROUND.
3. DENOTES COMMON ENCLOSURE REFERENCE J-805-00020.





AUXILIARY BLDG. (AREA-5)

MEZZANINE FLOOR 2033'-0"

GROUND FLOOR 2003'-0"

USAR FIG. 9.4-4-04

ESSENTIAL DRAWING

☒ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR# 00045144	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

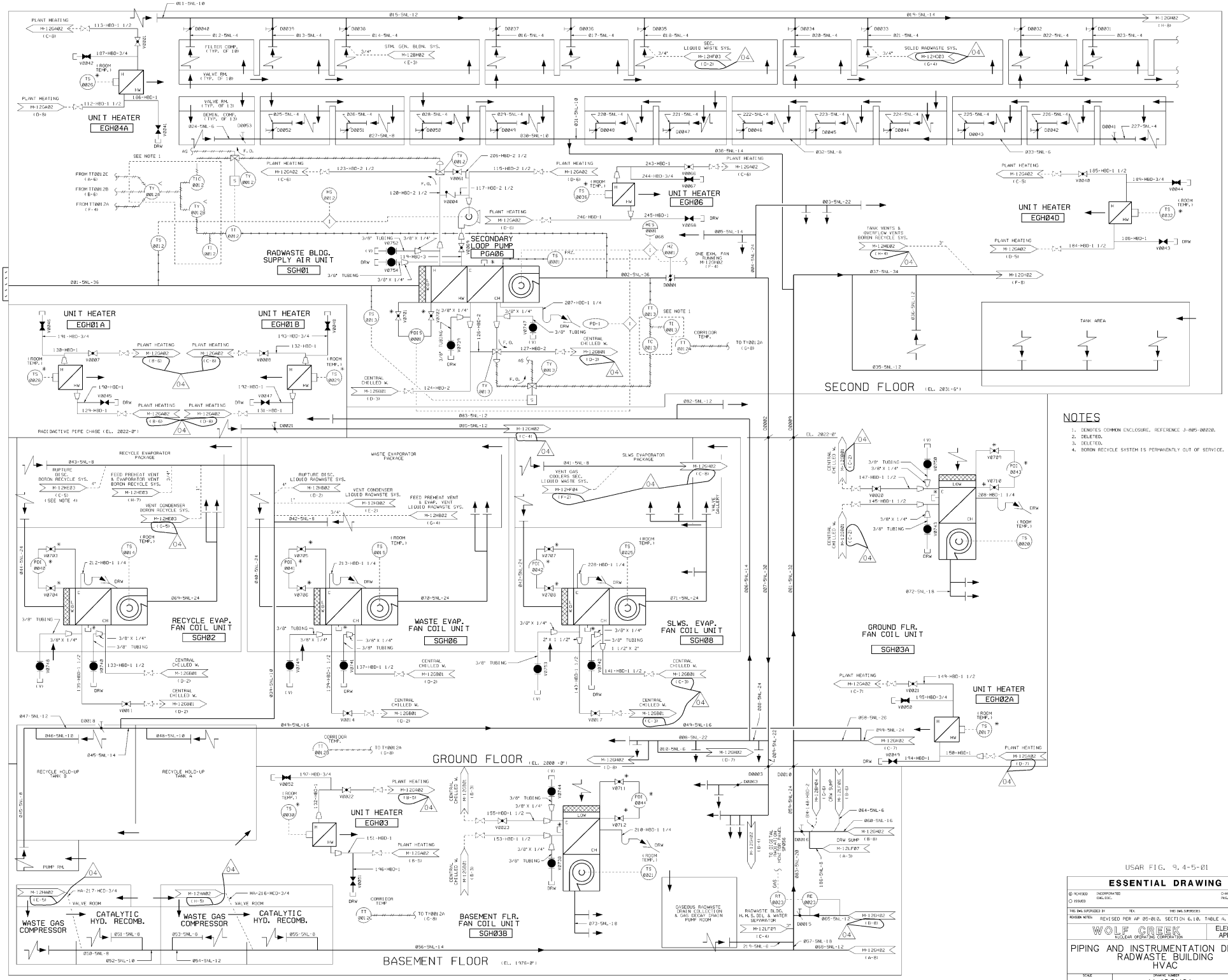
PIPING AND INSTRUMENTATION DIAGRAM TURBINE BUILDING HVAC

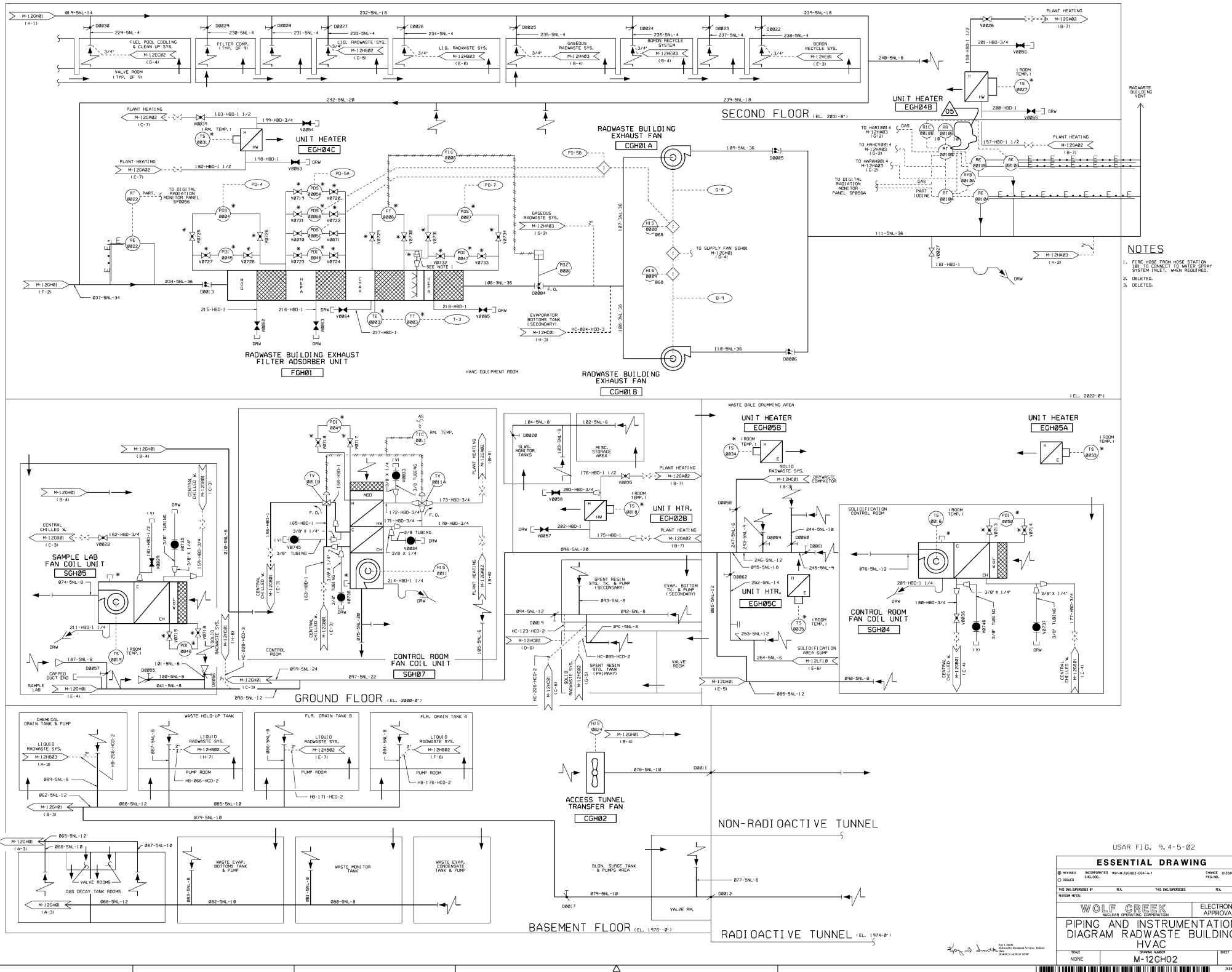
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GE04		04

Kay Lynn Smith
Released by Document Services, Release Date: 2012.02.06 10:22:54 -06'00'

34X44 E SIZE

M-12GE04-1-04


UNIT HEATER EGH04A
RADWASTE BLDG. SUPPLY AIR UNIT SGH01
SECONDARY LOOP PUMP PGA06
UNIT HEATER EGH01A
UNIT HEATER EGH01B
UNIT HEATER EGH06
UNIT HEATER EGH04D
SECOND FLOOR (EL. 2031'-6")
RECYCLE EVAP. FAN COIL UNIT SGH02
WASTE EVAP. FAN COIL UNIT SGH06
SLWS. EVAP. FAN COIL UNIT SGH08
GROUND FLR. FAN COIL UNIT SGH03A
UNIT HEATER EGH02A
GROUND FLOOR (EL. 2000'-0")
UNIT HEATER EGH03
BASEMENT FLR. FAN COIL UNIT SGH03B
WASTE GAS COMPRESSOR
CATALYTIC HYD. RECOMB.
WASTE GAS COMPRESSOR
CATALYTIC HYD. RECOMB.
BASEMENT FLOOR (EL. 1976'-0")
RADIOACTIVE PIPE CHASE (EL. 2022'-0")
TANK AREA
NOTES
1. DENOTES COMMON ENCLOSURE, REFERENCE J-M05-00020.
2. DELETED.
3. DELETED.
4. BORON RECYCLE SYSTEM IS PERMANENTLY OUT OF SERVICE.
USAR FIG. 9.4-5-01
ESSENTIAL DRAWING
WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
PIPING AND INSTRUMENTATION DIAGRAM RADWASTE BUILDING HVAC
SCALE NONE
DRAWING NUMBER M-12GH01
SHEET 04
REV
34X44 E SIZE
Released by Document Services Release Date: 09/16/05



USAR FIG. 9.4-5-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WP-M-12GH02-004-A-1	CHANGE 013586 PKG. NO.
THIS DWG SUPERSEDES	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION

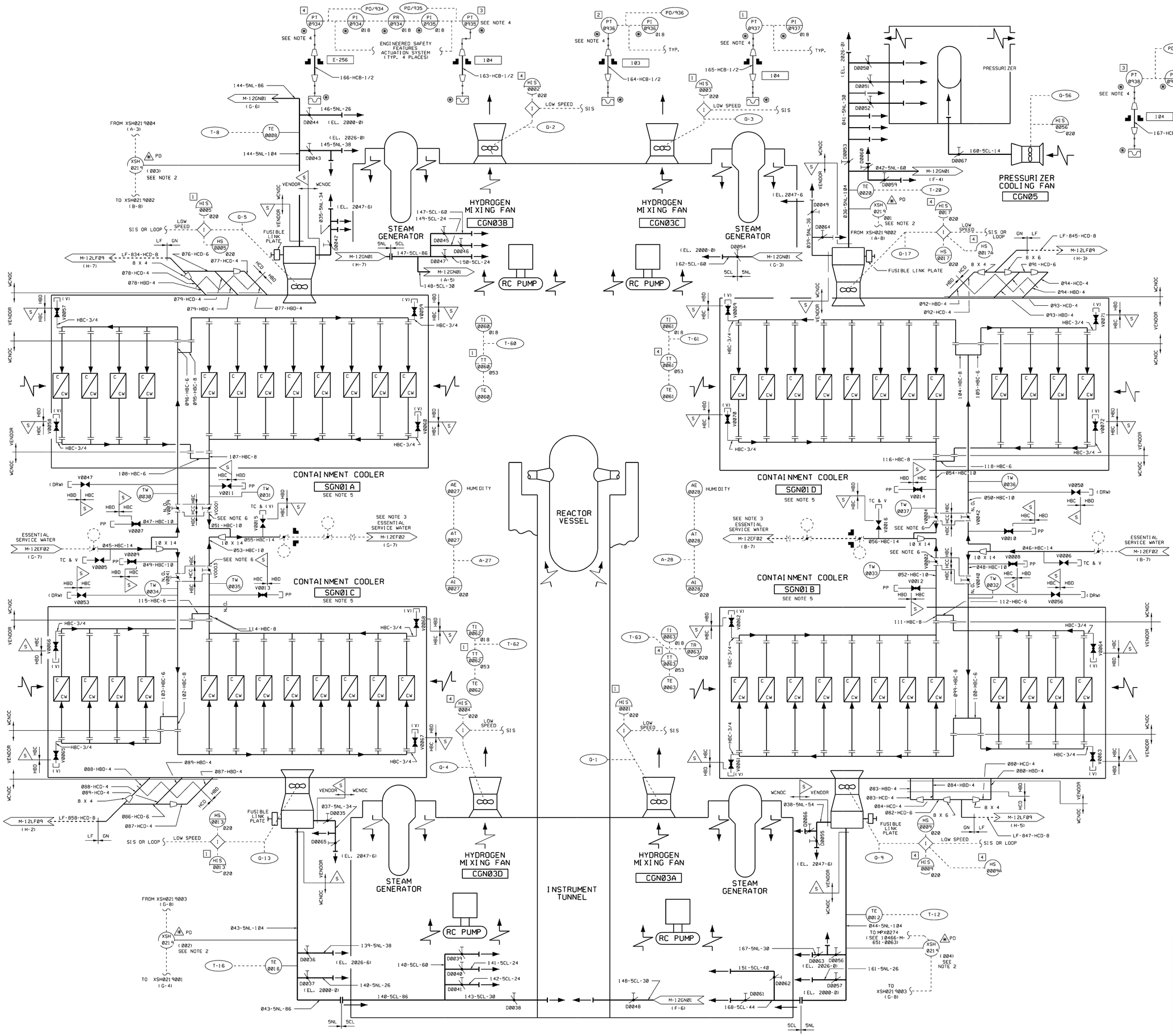
ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM RADWASTE BUILDING HVAC

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GH02		05

34144 E SIZE

M-12GH02-1-05



NOTE

1. DUCTWORK SIZE ARE INDICATED AS EQUIVALENT ROUND.
2. LETTERS AND NUMBERS REFER TO DESIGNATIONS IN THE FIRE PROTECTION SYSTEM, KC (REFER TO M-12KC01) NUMBERS IN THE PARENTHESIS REFER TO ZONE DETECTOR SEQUENCE NUMBERS.
3. SEE M-11GN01 FOR DESIGN REQUIREMENT AT REDUCED ESW FLOW TO SGN01A, B, C, & D.
4. ORIGINAL TRANSMITTERS SUPPLIED BY WESTINGHOUSE ARE BARTON. ROSEMOUNT TRANSMITTERS HAVE BEEN PROCURED AS REPLACEMENTS & WILL BE INSTALLED ON AN AS NEEDED BASIS.
5. INDIVIDUAL COOLING COILS MAY BE REMOVED PER ENGINEERING APPROVAL. REFER TO HX DWG. M-1HX001 FOR STATUS OF INDIVIDUAL COOLING COILS.
6. V001, V002, V003, AND V004 TO BE MANUALLY ADJUSTED TO A THROTTLED POSITION AS DETERMINED BY FLOW BALANCING. ONCE BALANCED, THESE VALVES TO BE LOCKED TO THE THROTTLED POSITION. WHENEVER ESW FLOW IS ADJUSTED, THESE VALVES MAY NEED TO BE ADJUSTED.

USAR FIG. 9.4-6-01

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED — INCORPORATED CHG. DOC. CR ACTION 29532-01-05 — CHANGE PKG. NO.

THIS DWG. SUPERSEDED BY — REV. — THIS DWG. SUPERSEDES — REV.

REVISION NOTES: REISSUED TO REGENERATE CUSTOM LINE STYLES ONLY PER CR 29532

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM CONTAINMENT COOLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GN01		24

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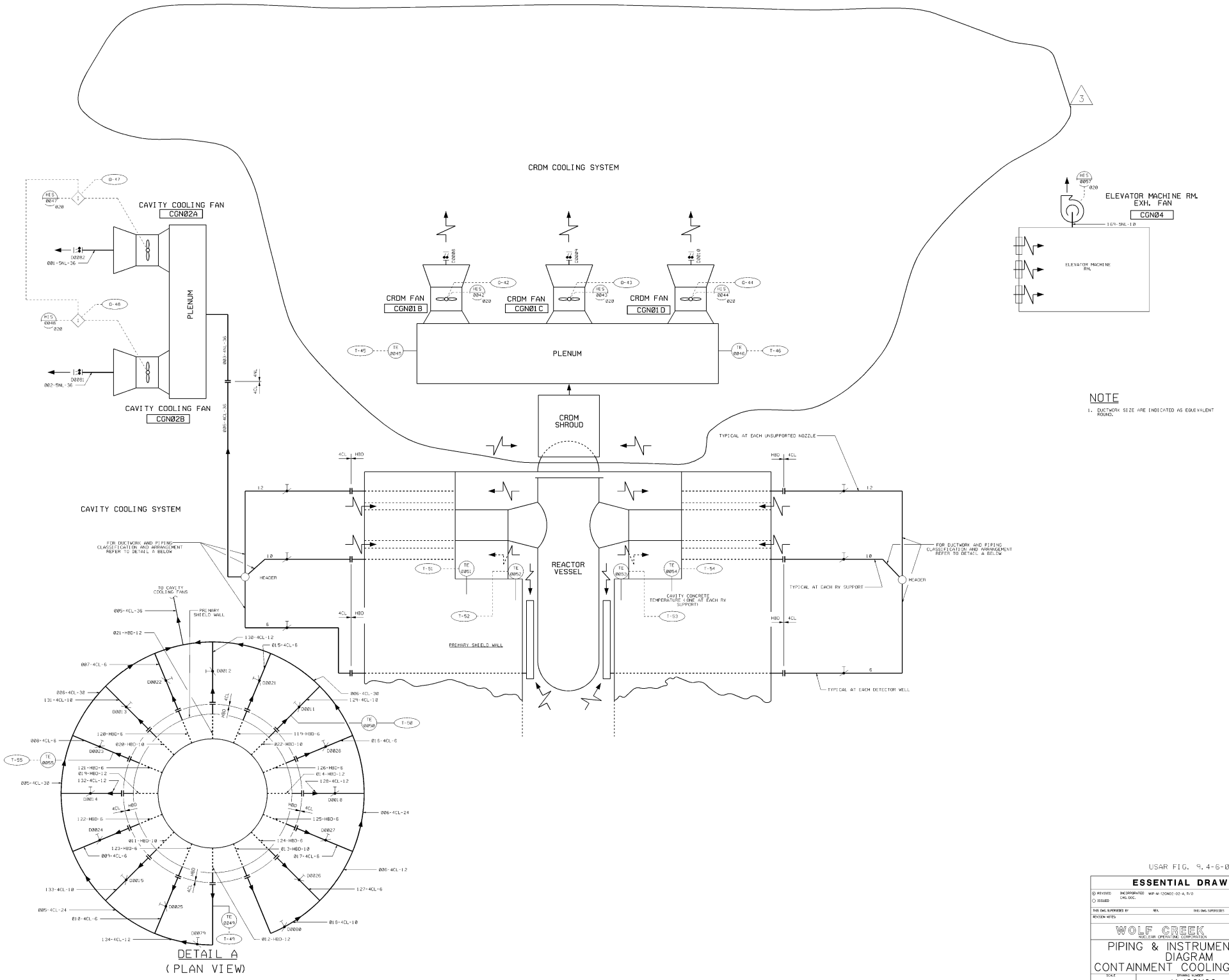
M-12GN01-1-24

34X44 E SIZE



NOTE

1. DUCTWORK SIZE ARE INDICATED AS EQUIVALENT ROUND.

USAR FIG. 9.4-6-02

ESSENTIAL DRAWING

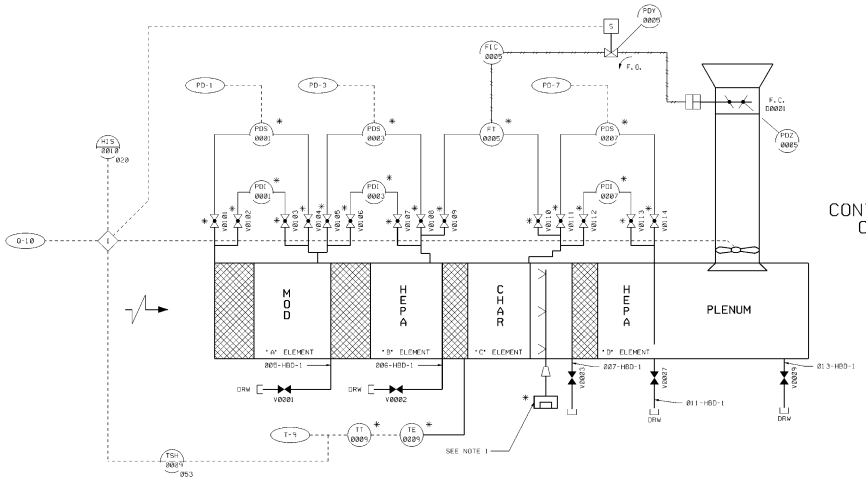
◉ REVISED ○ ISSUED	INCORPORATED CAL/DOC.	WIP-M-12GN01-02-A, R/0	CHANGE 09953 PKG. NO.
THIS DWG SUPERSEDES		REV.	THIS DWG SUPERSEDED BY M-12GN02 REV. 01
REVISION NOTES			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CONTAINMENT COOLING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GN02		03

34044 E 5/8

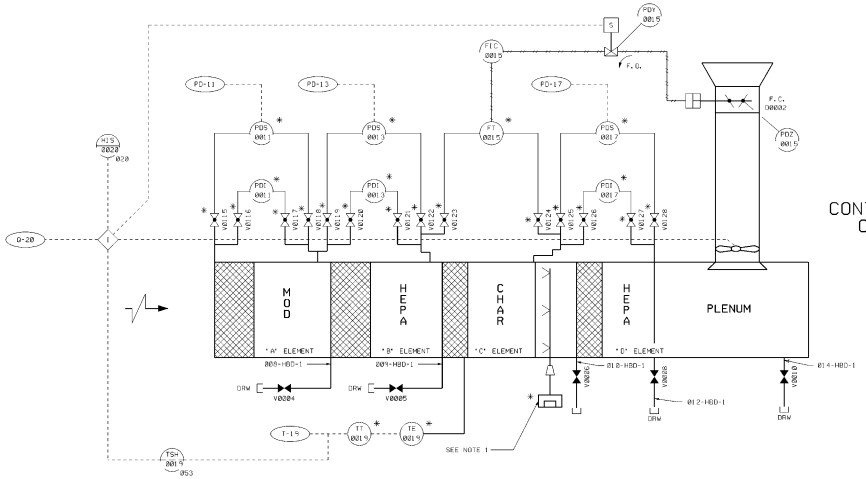


CONTAINMENT ATMOSPHERIC
CONTROL SYSTEM FILTRATION TRAIN

FGR01A

CONTAINMENT ATMOSPHERIC
CONTROL SYSTEM FAN

CGR01A



CONTAINMENT ATMOSPHERIC
CONTROL SYSTEM FILTRATION TRAIN

FGR01B

CONTAINMENT ATMOSPHERIC
CONTROL SYSTEM FAN

CGR01B

NOTES

1. FIRE HOSE FROM HOSE STATION 123 (FOR BOTH UNITS) TO CONNECT TO WATER SPRAY SYSTEM INLET, WHEN REQUIRED.

USAR FIG. 9.4-6-03

ESSENTIAL DRAWING

REVISED / ISSUED — INCORPORATED CHG DOC. — CHANGE PKG. NO.

THIS DWG SUPERSEDED BY — REV. — THIS DWG SUPERSEDES — M-12GR0 — REV. 00

REVISION NOTES: ELECTRONICALLY CONVERTED PER AP 05-012

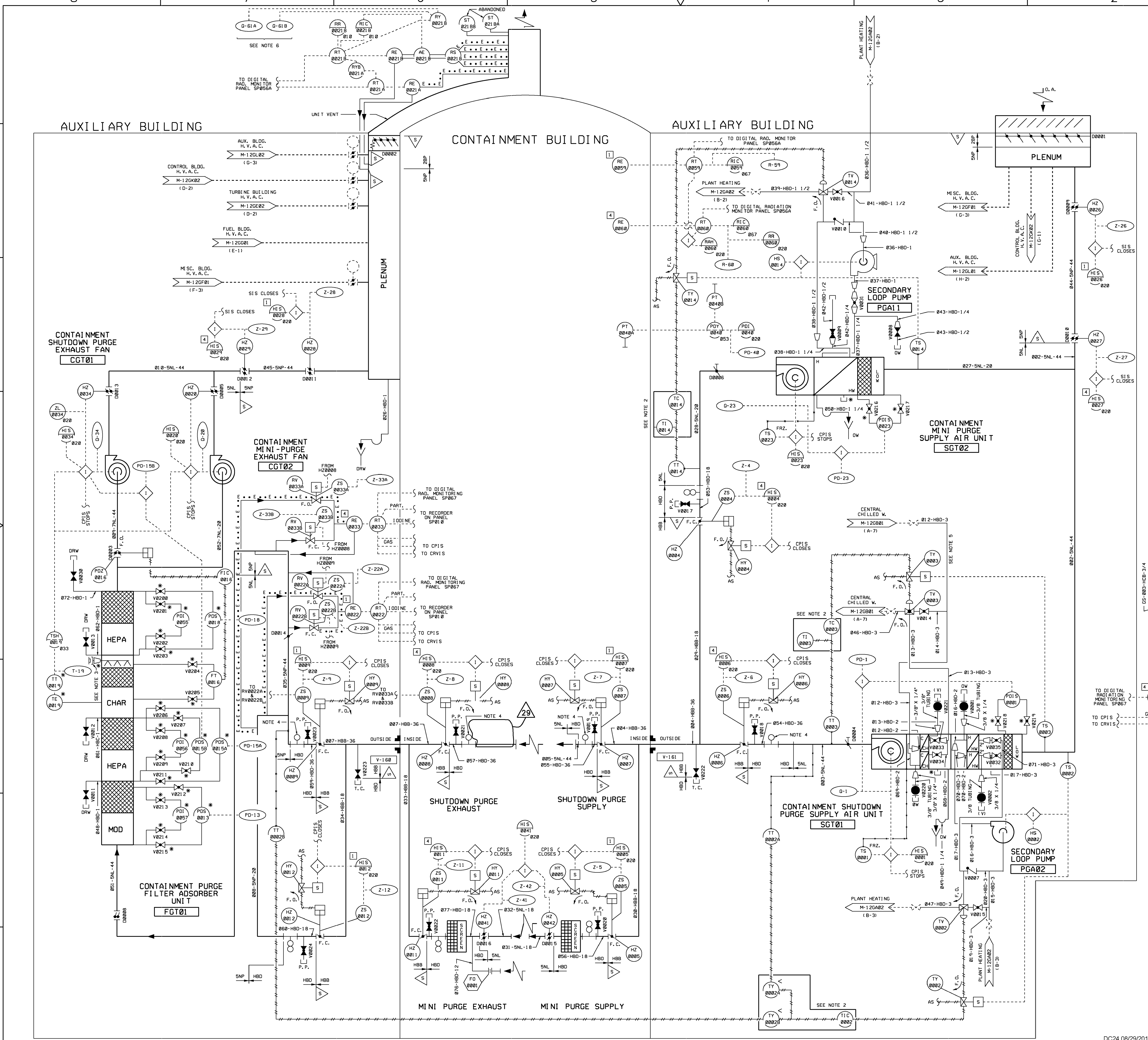
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
CONTAINMENT ATMOSPHERIC
CONTROL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV.
NONE	M-12GR01	01	A

34X44 E SIZE

8	7	6	5	4	3	2	1



AUXILIARY BUILDING
CONTAINMENT BUILDING
AUXILIARY BUILDING
PLENUM
CONTAINMENT SHUTDOWN PURGE EXHAUST FAN
CGT01
CONTAINMENT MINI-PURGE EXHAUST FAN
CGT02
CONTAINMENT PURGE FILTER ADSORBER UNIT
FGT01
HEPA
CHAR
HEPA
MOD
SHUTDOWN PURGE EXHAUST
SHUTDOWN PURGE SUPPLY
MINI PURGE EXHAUST
MINI PURGE SUPPLY
CONTAINMENT MINI PURGE SUPPLY AIR UNIT
SGT02
CONTAINMENT SHUTDOWN PURGE SUPPLY AIR UNIT
SGT01
SECONDARY LOOP PUMP
PGA11
SECONDARY LOOP PUMP
PGA02
CONTAINMENT ATMOSPHERIC MONITORS
UNIT VENT
ABANDONED
SEE NOTE 6
TO DIGITAL RAD. MONITOR PANEL SP056A
PLANT HEATING
CENTRAL CHILLED W.
OUTSIDE
INSIDE

NOTES

1. CPIS - CONTAINMENT PURGE ISOLATION SIGNAL FROM ESFAS
2. BROKEN LINE DENOTES UNIT ENCLOSURE. REF. J-605-00020.
3. FIRE HOSE FROM HOSE STATION 033 TO CONNECT TO WATER SPRAY SYSTEM INLET, WHEN REQUIRED.
4. IF INSTALLED DURING MODES 1 THRU 4 THEN BLIND FLANGE TO BE REMOVED AND REPLACED WITH SPACER RING DURING PLANT MODES 5 & 6 AS REQD.
5. CHILLED WATER RETURN FLOW IS NORMALLY ISOLATED FROM SGT01 AND FLOW IS ALIGNED TO SGF01.
6. THESE COMPUTER OUTPUT POINTS REPRESENT THE FLOW RATE THROUGH THE UNIT VENT, BASED ON FAN RUN STATUS FOR VENTILATION SYSTEMS THAT DISCHARGE VIA THE UNIT VENT.

LEGEND

SCREEN - SCREEN

USAR FIG. 9.4-6-04

ESSENTIAL DRAWING

REVISED INCORPORATED CHG. DOC. CR# 00120915 — CHANGE PKG. NO.
ISSUED

THIS DWG. SUPERSEDED BY — REV. — THIS DWG. SUPERSEDES — REV.

REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

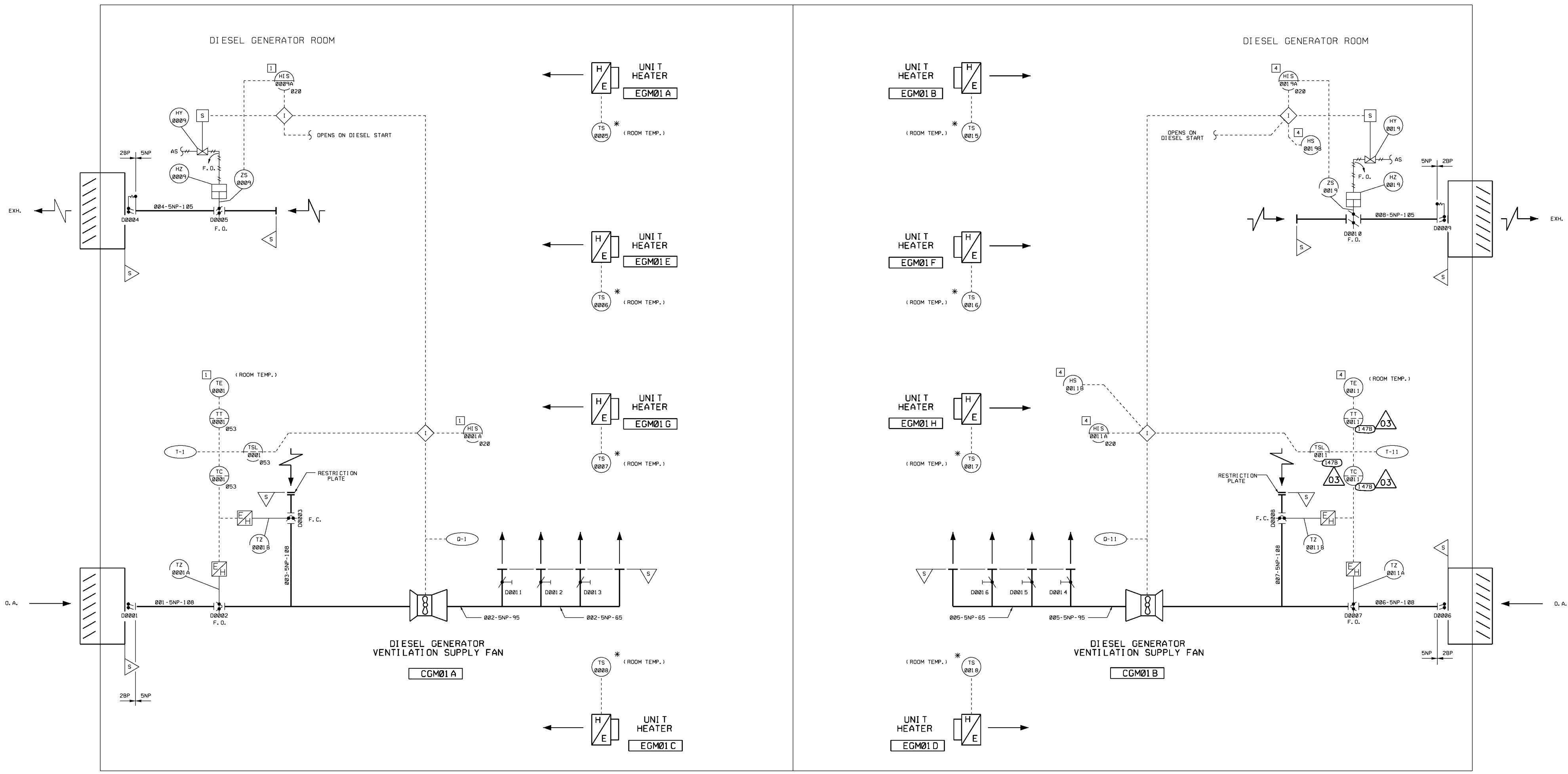
PIPING & INSTRUMENTATION DIAGRAM
CONTAINMENT PURGE SYSTEMS
HVAC

SCALE NONE — DRAWING NUMBER M-12GT01 — SHEET 29 — REV

DC24 08/29/2018

34X44 E SIZE

H	G	F	E	D	C	B	A



USAR FIG. 9.4-7-00

ESSENTIAL DRAWING

REVISED INCORPORATED CHG. DOC. WIP-M-12GM01-001-A-1 CHANGE PKG. NO. 013800

ISSUED

THIS DWG. SUPERSEDED BY | REV. | THIS DWG. SUPERSEDES | REV.

REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM DIESEL GENERATORS BUILDING HVAC

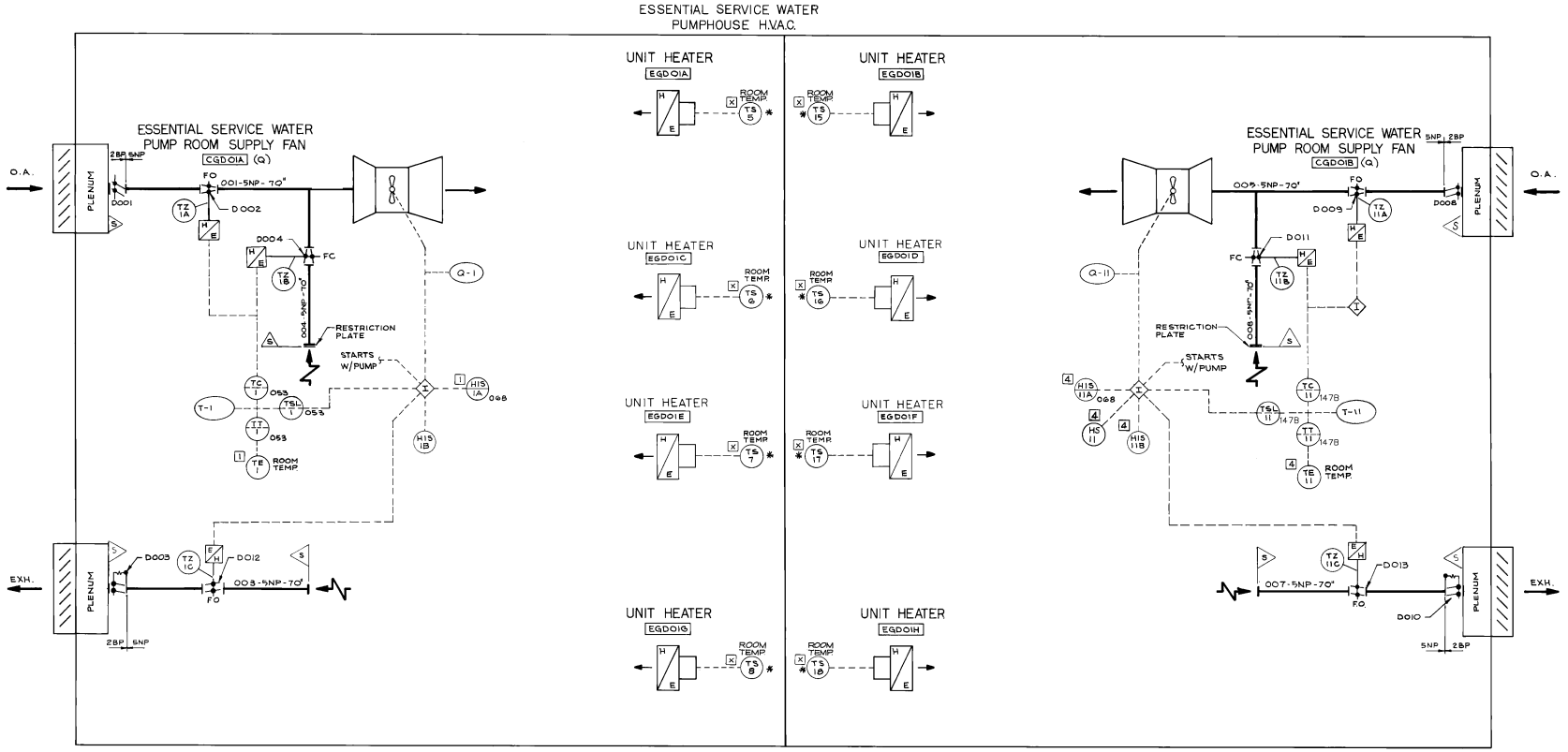
SCALE NONE

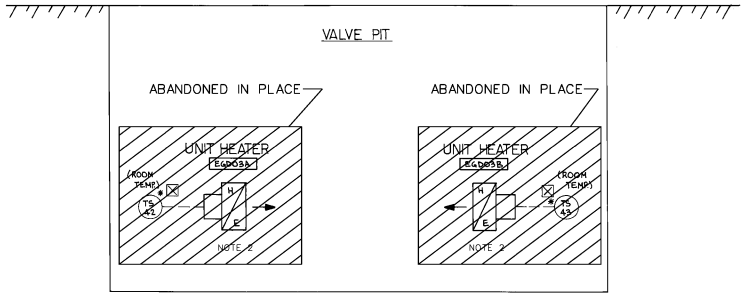
DRAWING NUMBER M-12GM01

SHEET 01

REV. 03

34X44 E SIZE





NOTE:

1. DRAWING APPLICABLE TO WOLF CREEK UNIT 1 ONLY.
2. UNIT HEATER & TEMPERATURE SWITCH ARE ABANDONED IN PLACE.

USAR FIG. 9.4-8-00

ESSENTIAL DRAWING

◉ REVISED ○ ISSUED	INCORPORATED CHG. DOC.:	WP-M-K2GD01-008-A-1	CHANGE 014592 PKG. NO.
THIS DWG SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

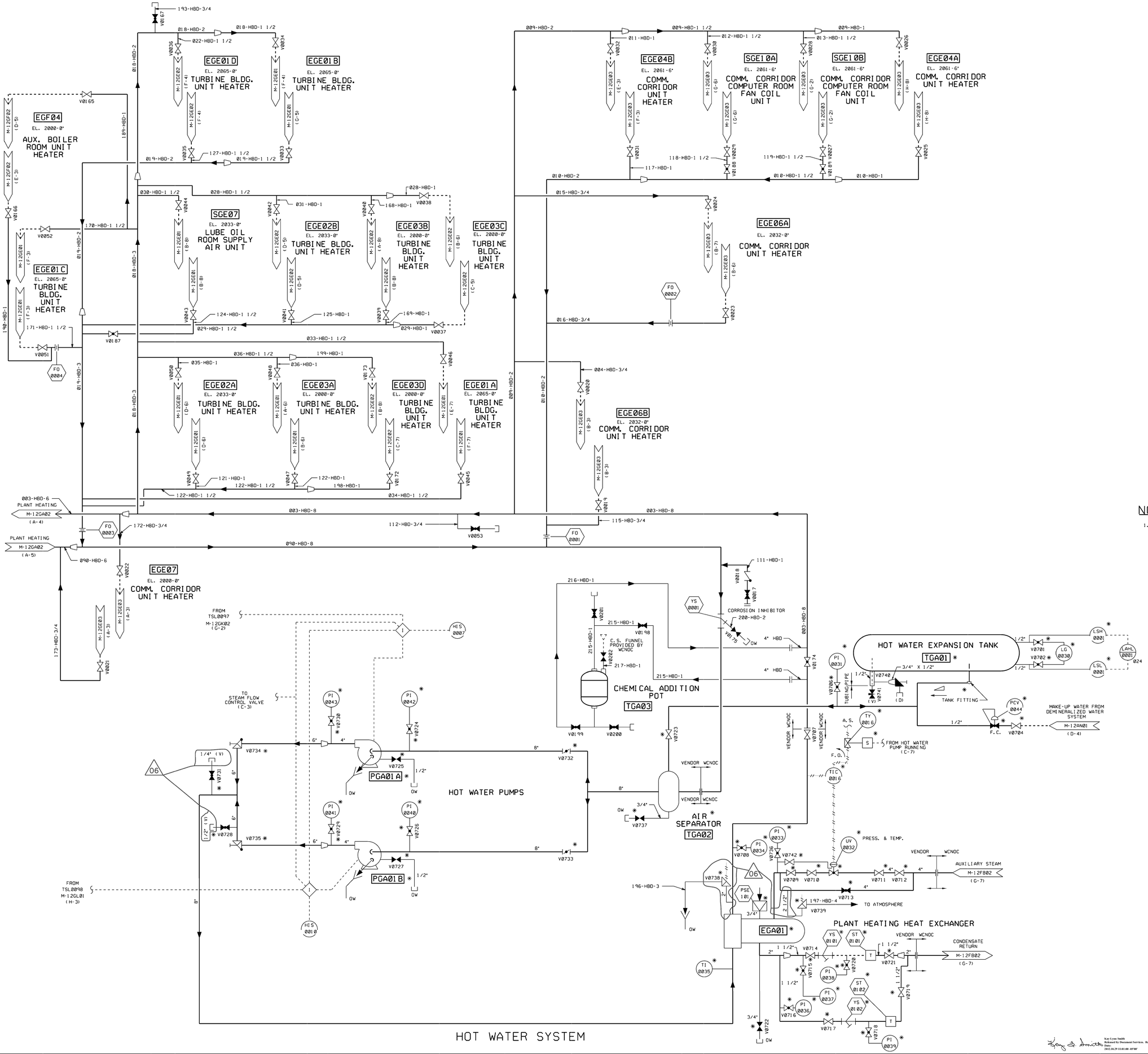
REVISION NOTES: DRAWING REVISED TO INC. WP. DRAFTING CHANGES NOT REQUIRED.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
ESSENTIAL SERVICE WATER PUMP HOUSE HVAC

SCALE	DRAWING NUMBER	SHEET	REV.
NONE	M-K2GD01		12

24144 E SIZE
M-K2GD01-1-12



HOT WATER SYSTEM

NOTES

1. HOT WATER PUMPS START WHEN OUTSIDE AIR ENTERING CONTROL BLDG. OR AUXILIARY BLDG. AIR SUPPLY IS BELOW TEMPERATURE SWITCH SET POINT.

USAR FIG. 9.4-9-01

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED CHG. DOC.	CR• 00058306	CHANGE PKG. NO.
○ ISSUED			

THIS DWG. SUPERSEDED BY — REV. — THIS DWG. SUPERSEDES — REV.

REVISION NOTES:
REV. 2' LINE FOR VALVES V0738 & V0739 PER AS-BUILT INFORMATION

WOLF CREEK NUCLEAR OPERATING CORPORATION | ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM PLANT HEATING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GA01	06	A

Kay Lynn Smith
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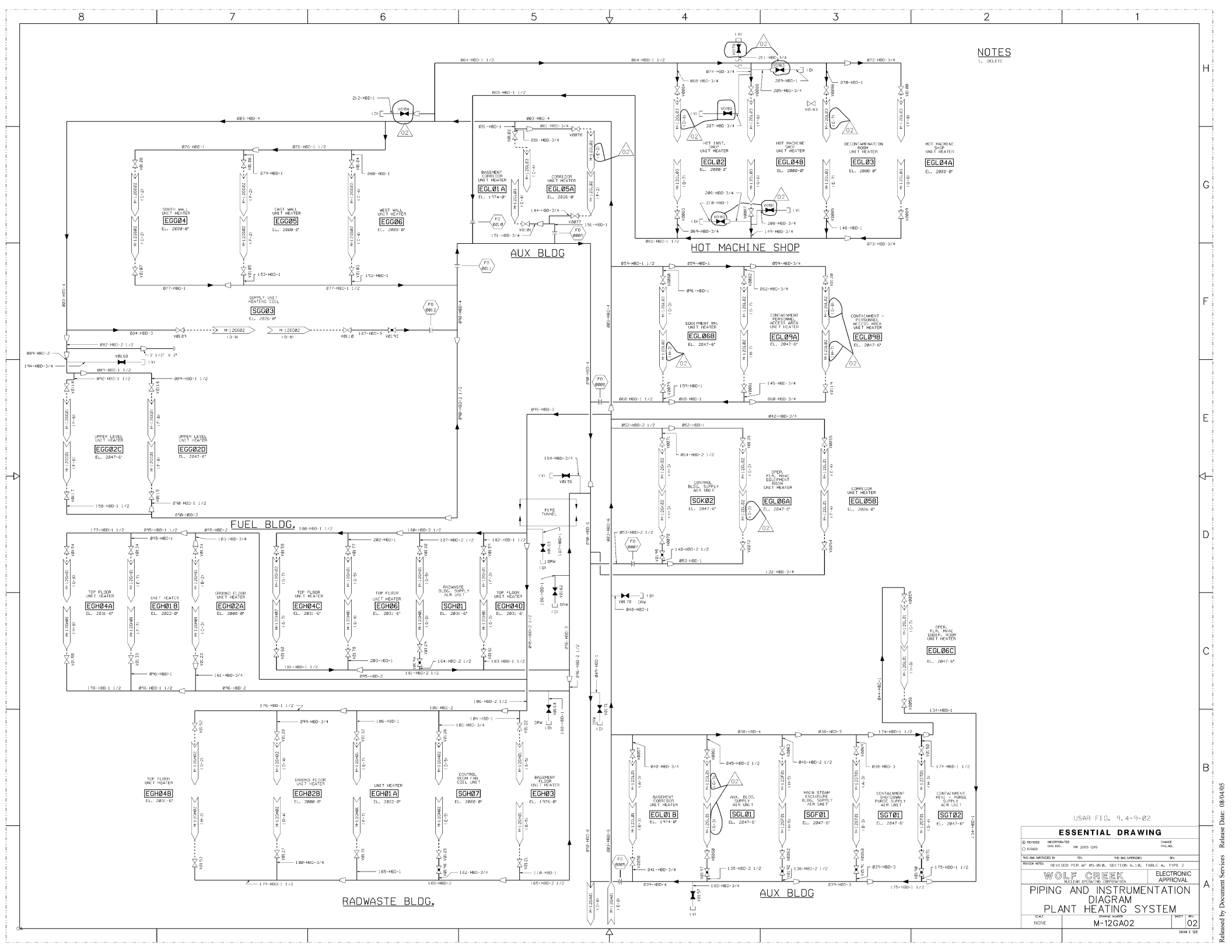
2012.10.29 11:01:00 -05'00'

34X44 E SIZE

M-12GA01-1-06



USAR FIG. 9.4-9-02

ESSENTIAL DRAWING

ⓐ REVISED	INCORPORATED	CHANGE	
○ VOIDED	DWG./DOC.	PKG./WO.	
	PER 2005-1295		
THIS DWG. SUPERSEDES		THIS DWG. SUPERSEDED BY	
REVISION NOTES	REVISED PER NP 05-01.0, SECTION 6.10, TABLE A, TYPE 2		

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM PLANT HEATING SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV.
NONE	M-12GA02	02	A

34144 E 505

8 7 6 5 4 3 2 1

H G F E D C B A

CENTRAL CHILLER SGB01A
FOR CHILLER DETAILS REFER TO M-609.1-00002 & M-609.1-00001

CENTRAL CHILLER SGB01B
FOR CHILLER DETAILS REFER TO M-609.1-00002 & M-609.1-00001

CHILLED WATER EXP. TANK TGB01

CHILLED WATER PUMPS
PGB01A
PGB01B

AIR SEPARATOR TGB02

TMO 16-004-GB

NOTES
1) THIS IS FOR THE SFP ALTERNATE COOLING CONNECTION AND IS ONLY TO BE USED AT THE DIRECTION OF THE SHIFT MANAGER AND APPLICABLE PROCEDURES.
2) A SPOOL MAY BE INSTALLED IN LIEU OF THE ELBOW WHEN THE SFP ALTERNATE COOLING IS NOT ALIGNED FOR REFUELING OUTAGES.

COMMUNICATION CORRIDOR
CONTROL BLDG.
TURBINE BLDG.
AUXILIARY BLDG.
FUEL BUILDING
HOT MACHINE SHOP
RADWASTE BLDG.

USAR FIG 9.4-10-00

ESSENTIAL DRAWING

REVISED / ISSUED — INCORPORATED CHG. DOC. WP-M-12GB01-017-A-1 — CHANGE PKG. NO. 015241

THIS DWG. SUPERSEDED BY — REV. — THIS DWG. SUPERSEDES — REV.

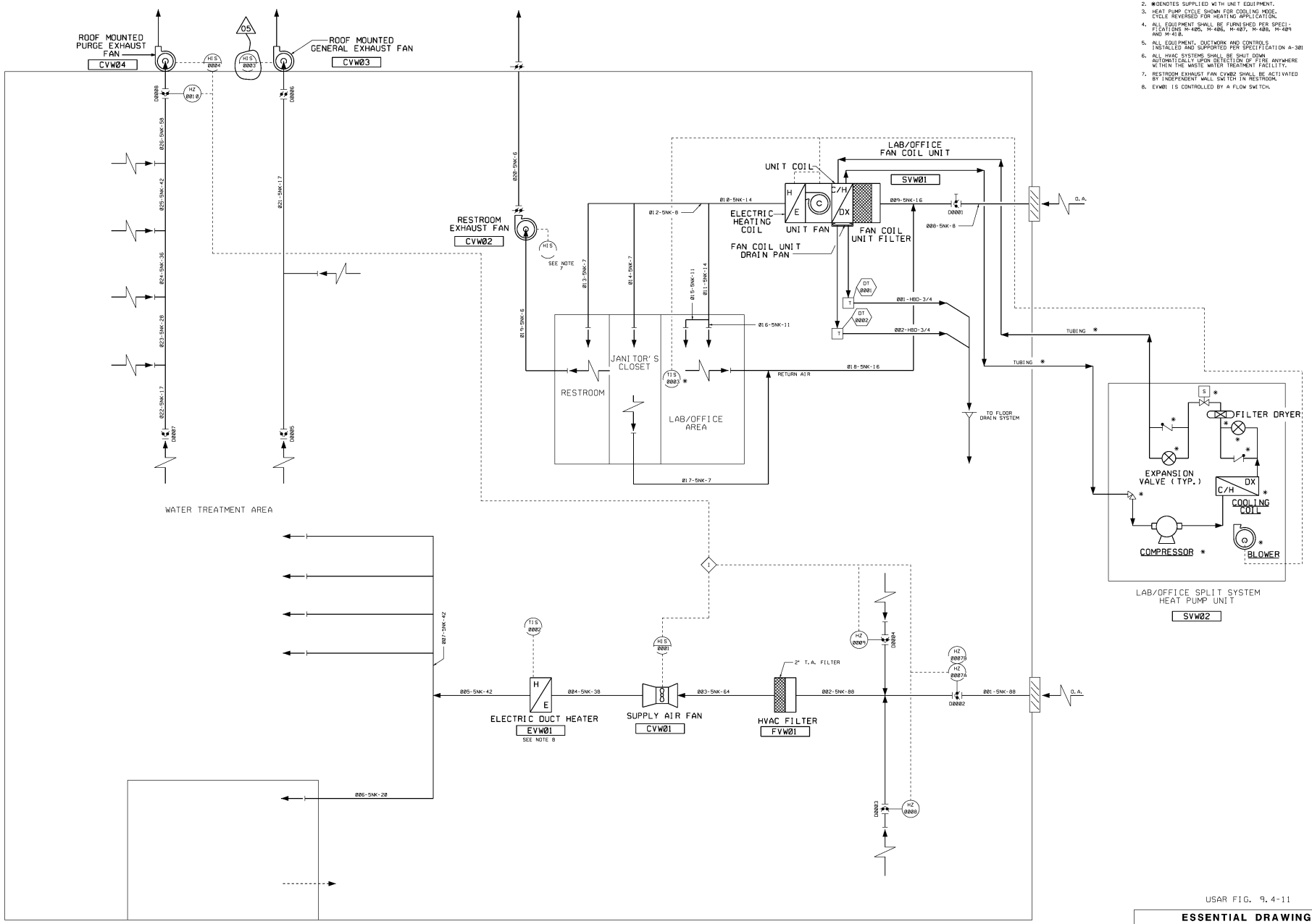
REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM CENTRAL CHILLED WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12GB01	18	

34X44 E SIZE



NOTES

1. DUCTWORK SIZES ARE INDICATED AS EQUIVALENT ROUND.
2. * DENOTES SUPPLIED WITH UNIT EQUIPMENT.
3. HEAT PUMP CYCLE SHOWN FOR COOLING MODE. CYCLE REVERSED FOR HEATING APPLICATION.
4. ALL EQUIPMENT SHALL BE FURNISHED PER SPECIFICATIONS M-405, M-406, M-407, M-408, M-409 AND M-418.
5. ALL EQUIPMENT, DUCTWORK AND CONTROLS INSTALLED AND SUPPORTED PER SPECIFICATION A-301
6. ALL HVAC SYSTEMS SHALL BE SHUT DOWN AUTOMATICALLY UPON DETECTION OF FIRE ANYWHERE WITHIN THE WASTE WATER TREATMENT FACILITY.
7. RESTROOM EXHAUST FAN CVW02 SHALL BE ACTIVATED BY INDEPENDENT WALL SWITCH IN RESTROOM.
8. EVW01 IS CONTROLLED BY A FLOW SWITCH.

USAR FIG. 9.4-11

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR 89603	CHANGE PKG. NO.
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REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

WASTE WATER TREATMENT FACILITY
H.V.A.C. P310

SCALE	DRAWING NUMBER	SHEET	REV.
NONE	M-12VW01		05

34044 E SIZE
M-12VW01-1-05

1FP001PA & 1FP001PB FIRE PUMPS A-3824

1FP002P JOCKEY PUMP A-3824

1FP003P BACKUP JOCKEY FIRE PUMP

CIRCULATING WATER SCREEN HOUSE WALL

SCREEN HOUSE FOREBAY

DIESEL ENGINE

SURGE PRESSURE SUPPRESSION TANK 1FP0031 500 GALLON

FOR TEMPORARY DIESEL FIRE PUMP SKID SEE M-0023, SHT. 7

NOTES

1. COMPLETE FIRE PROTECTION SYSTEM (PUMPS, DRIVES, VALVES, PIPING, HYDRANTS, INSTRUMENTATION) TO BE FURNISHED AND INSTALLED UNDER SPECIFICATION A-3824, UNLESS INDICATED OTHERWISE
2. [R] INDICATES FLOW ALARM CHECK VALVE. ALARM INDICATES IN MAIN CONTROL ROOM AND LOCALLY. 1FP022 INCLUDES (2) PRESSURE INDICATORS, 1PI-FP022A (UPSTREAM, 1PI-FP022B (DOWNSTREAM).
3. INDICATES VALVE WITH VISUAL POSITION INDICATOR.
4. [ZA] INDICATES VALVE WITH VISUAL INDICATOR AND ELECTRIC TAMPER SWITCH TO ACTUATE MAIN CONTROL ROOM ALARMS INDICATED.
5. A. SEE SCHEMATIC DWG. E-1005-FP FOR ALARMS INITIATED BY FIRE PUMPS.
   B. SEE P&ID DWG. M-0042 FOR AUTOMATIC START OF EXHAUST FAN 1HV11C.
6. PIPING PENETRATIONS THROUGH SCREEN HOUSE FLOOR TO BE FURNISHED AND INSTALLED UNDER SPECIFICATION A-3862
7. NUMBERS WITHIN QUOTATION MARKS OF THE APPLICABLE SAL PIPING DESIGN TABLE.
8. ALL PRESSURE TRANSMITTERS AND/OR INSTRUMENTS MOUNTED ON PANEL 1PL193 FURNISHED AND INSTALLED BY SPEC. A-3838.
9. FILL AREA BETWEEN PIPE AND SLEEVE OF DIESEL EXHAUST WITH INSULATION.
10. PROVIDE HEAT SHIELDING FOR DIESEL ENGINE EXHAUST PIPING FOR PERSONNEL PROTECTION. APPLY WHERE PIPING CAN BE INADVERTENTLY TOUCHED, UP TO 8'-0" ABOVE THE FINISH FLOOR (MINIMUM.
11. CHECK VALVE INSTALLED WITH FLOW DIRECTION TOWARD HEADER. DRILL 3/32" DIA. HOLE THROUGH CLAPPER.
12. FLANGED ORIFICE WITH 1/4" THICK SS PLATE WITH 3/16" DIA. SQUARE EDGED HOLE.
13. SEE INSTRUMENT DATA SHEETS (8026-J-OD-00 SERIES) FOR INSTRUMENT INFORMATION AND TOLERANCES.
14. THE SPOOL PIECE AND ELBOW IMMEDIATELY DOWNSTREAM OF THE FLANGED ORIFICE HAS BEEN UPGRADED TO 316 S.S., TO ADDRESS EROSION CORROSION CONCERNS.
15. CHEMICAL ADDITION TAP
16. ISOLATION VALVE 1FP0815A IS NORMALLY CLOSED EXCEPT WHEN PERFORMING FIRE PUMP FLOW TESTING OR WHEN A TEMPORARY FIRE PUMP IS CONNECTED TO THE TEST HEADER.
17. CONNECTIONS FOR A TEMPORARY FIRE PUMP SKID, SEE M-0023, SHEET 7.
18. CI SYSTEM IS A NON-CONTROLLED SYSTEM. COMPONENTS ARE ASSIGNED ASSET NUMBERS FOR CLARITY.
19. MALLEABLE IRON FITTINGS RATED FOR A MAXIMUM WORKING PRESSURE OF 150 PSI MAY BE ATTACHED TO THE DISCHARGE OUTLETS OF ALL INSPECTOR TEST CONNECTIONS AND WET PIPE SYSTEM RELIEF VALVES PROVIDED IN THE "FP" AND "HC" SYSTEMS TO SUPPORT THE CONNECTION OF TEST/DRAIN HOSES AS NECESSARY.
20. SEE M-0093, DETAIL) FOR DIESEL FIRE PUMP DISCHARGE PIPING CONFIGURATION.
21. CARBON STEEL SCHEDULE 40 , A106 OR A53, GR.B
22. [HH] DENOTES STANDARD HOSE HOUSE INCLUDING 250 FT. OF 2½ INCH, WOVEN JACKET, LINED, U.L.L. LISTED FIRE HOSE, 2 SPRAY NOZZLES WITH NATIONAL STANDARD THREADS (7½ PER INCH), 1-AXE, 1-BAR, EMERGENCY LIGHT, 4-SPANNERS AND 2-WRENCHES.
23. DENOTES TYPICAL FIRE HYDRANT WITH (2)-2½ HOSE GATE VALVES WITH HOSE CONNECTED.
24. 5/8"ID. PVDF/KYNAR TUBING, 1/2" PVC PIPE AND 3/4" PVC PIPE FOR CHEMICAL INJECTION.
25. PRESSURE CONTROL VALVE FOR ENGINE COOLANT LINES ARE 1 1/2".
26. TUBING IS SPECIFIED BY OUTER DIAMETER INSTEAD OF THE STANDARD INNER DIAMETER PER SAL SPEC. KMS-3. ALL TUBING REFER TO THIS NOTE HAS A 1/2" I.D..
70. 26. 1/2" VENT LINE FOR BACKUP JOCKEY FIRE PUMP MAY BE OPEN OR CAPPED, AS DESIRED BY OPERATIONS.

USAR FIG. 9.5-1-01

ESSENTIAL DRAWING

REVISED / ISSUED	INCORPORATED CHG. DOC.	SHP-M-0023-068-A-1	CHANGE PKG. NO. 020051
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION

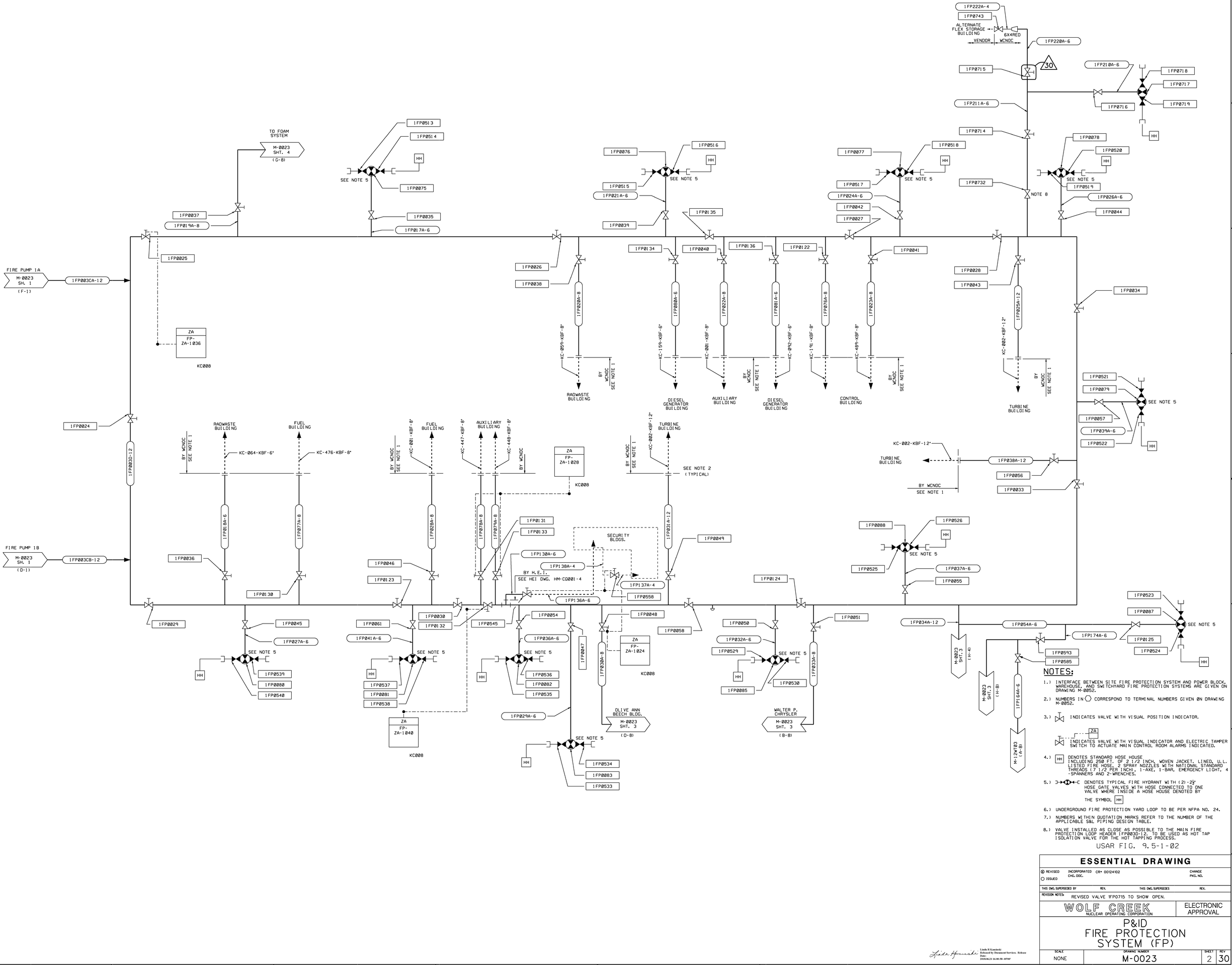
ELECTRONIC APPROVAL

P&ID FIRE PROTECTION SYSTEM (FP)

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0023	1	70

FP

3X44 E SIZE



NOTES:

1.) INTERFACE BETWEEN SITE FIRE PROTECTION SYSTEM AND POWER BLOCK, WAREHOUSE, AND SWITCHYARD FIRE PROTECTION SYSTEMS ARE GIVEN ON DRAWING M-0052.

2.) NUMBERS IN ◯ CORRESPOND TO TERMINAL NUMBERS GIVEN ØN DRAWING M-0052.

3.) ⋈ INDICATES VALVE WITH VISUAL POSITION INDICATOR.

⋈ ZA — INDICATES VALVE WITH VISUAL INDICATOR AND ELECTRIC TAMPER SWITCH TO ACTUATE MAIN CONTROL ROOM ALARMS INDICATED.

4.) HH DENOTES STANDARD HOSE HOUSE INCLUDING 250 FT. OF 2 1/2 INCH, WOVEN JACKET, LINED, U.L. LISTED FIRE HOSE, 2 SPRAY NOZZLES WITH NATIONAL STANDARD THREADS (7 1/2 PER INCH), 1-AXE, 1-BAR, EMERGENCY LIGHT, 4 -SPANNERS AND 2-WRENCHES.

5.) ⋈ DENOTES TYPICAL FIRE HYDRANT WITH (2)-2½" HOSE GATE VALVES WITH HOSE CONNECTED TO ONE VALVE WHERE INSIDE A HOSE HOUSE DENOTED BY THE SYMBOL HH

6.) UNDERGROUND FIRE PROTECTION YARD LOOP TO BE PER NFPA NO. 24.

7.) NUMBERS WITHIN QUOTATION MARKS REFER TO THE NUMBER OF THE APPLICABLE S&L PIPING DESIGN TABLE.

8.) VALVE INSTALLED AS CLOSE AS POSSIBLE TO THE MAIN FIRE PROTECTION LOOP HEADER 1FP003D-12, TO BE USED AS HOT TAP ISOLATION VALVE FOR THE HOT TAPPING PROCESS.

USAR FIG. 9.5-1-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR• 00124102	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: REVISED VALVE 1FP0715 TO SHOW OPEN.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

P&ID FIRE PROTECTION SYSTEM (FP)

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0023	2	30

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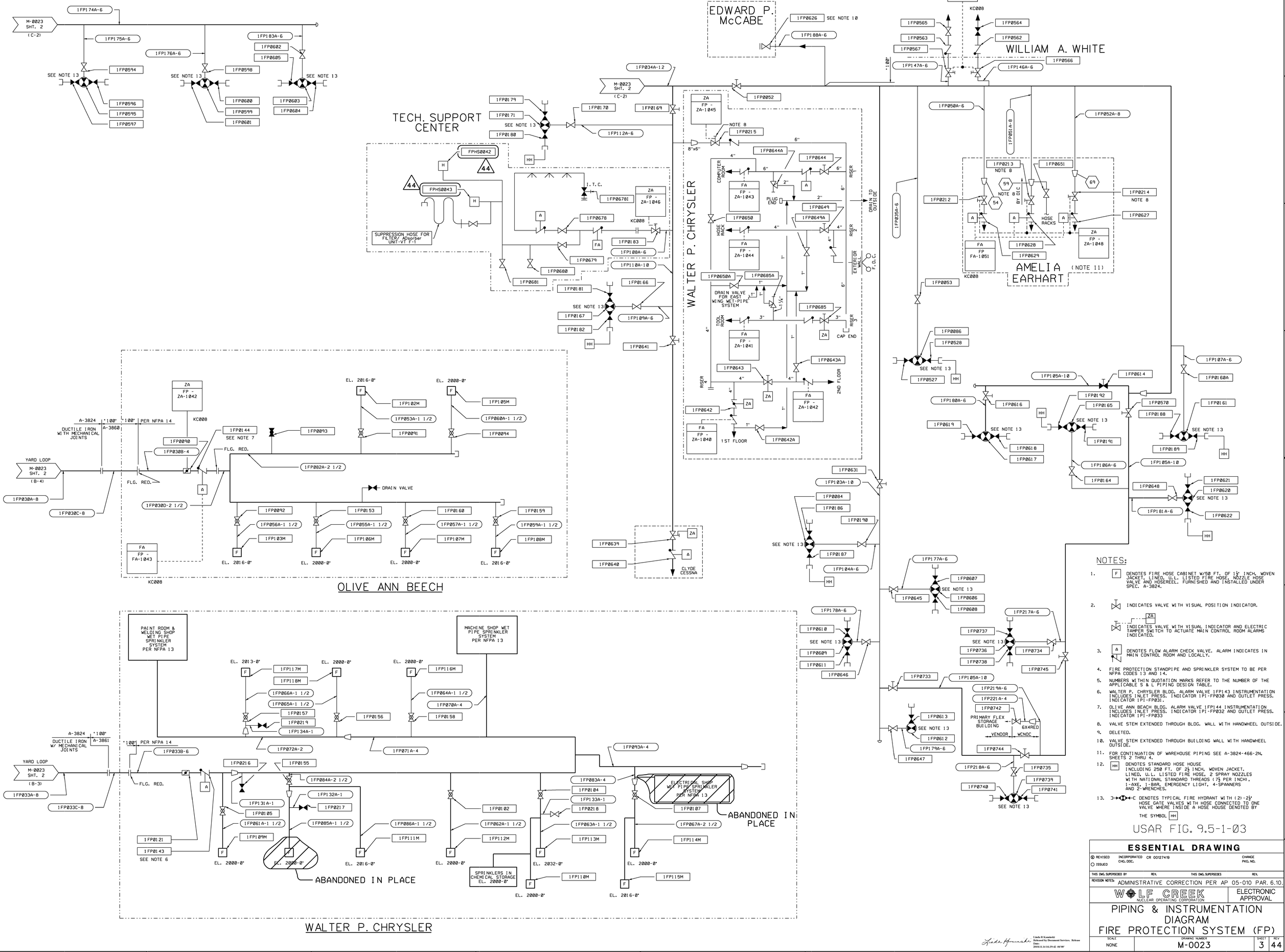
34X44 E SIZE

FP



NOTES:

1. F DENOTES FIRE HOSE CABINET W/50 FT. OF 1½ INCH, WOVEN JACKET, LINED, U.L. LISTED FIRE HOSE, NOZZLE HOSE VALVE AND HOSEREEL. FURNISHED AND INSTALLED UNDER SPEC. A-3824.
2. INDICATES VALVE WITH VISUAL POSITION INDICATOR.
   ZA — INDICATES VALVE WITH VISUAL INDICATOR AND ELECTRIC TAMPER SWITCH TO ACTUATE MAIN CONTROL ROOM ALARMS INDICATED.
3. A DENOTES FLOW ALARM CHECK VALVE. ALARM INDICATES IN MAIN CONTROL ROOM AND LOCALLY.
4. FIRE PROTECTION STANDPIPE AND SPRINKLER SYSTEM TO BE PER NFPA CODES 13 AND 14.
5. NUMBERS WITHIN QUOTATION MARKS REFER TO THE NUMBER OF THE APPLICABLE S & L PIPING DESIGN TABLE.
6. WALTER P. CHRYSLER BLDG. ALARM VALVE 1FP143 INSTRUMENTATION INCLUDES INLET PRESS. INDICATOR 1PI-FP030 AND OUTLET PRESS. INDICATOR 1PI-FP031.
7. OLIVE ANN BEECH BLDG. ALARM VALVE 1FP144 INSTRUMENTATION INCLUDES INLET PRESS. INDICATOR 1PI-FP032 AND OUTLET PRESS. INDICATOR 1PI-FP033
8. VALVE STEM EXTENDED THROUGH BLDG. WALL WITH HANDWHEEL OUTSIDE.
9. DELETED.
10. VALVE STEM EXTENDED THROUGH BUILDING WALL WITH HANDWHEEL OUTSIDE.
11. FOR CONTINUATION OF WAREHOUSE PIPING SEE A-3824-466-2N, SHEETS 2 THRU 4.
12. HH DENOTES STANDARD HOSE HOUSE INCLUDING 250 FT. OF 2½ INCH, WOVEN JACKET, LINED, U.L. LISTED FIRE HOSE, 2 SPRAY NOZZLES WITH NATIONAL STANDARD THREADS (7½ PER INCH), 1-AXE, 1-BAR, EMERGENCY LIGHT, 4-SPANNERS AND 2-WRENCHES.
13. C DENOTES TYPICAL FIRE HYDRANT WITH (2)-2½ HOSE GATE VALVES WITH HOSE CONNECTED TO ONE VALVE WHERE INSIDE A HOSE HOUSE DENOTED BY THE SYMBOL HH

USAR FIG. 9.5-1-Ø3

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED CHG. DOC.	CR 0012749	CHANGE PKG. NO.
○ ISSUED			
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: ADMINISTRATIVE CORRECTION PER AP 05-010 PAR. 6.10.

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM FIRE PROTECTION SYSTEM (FP)

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0023	3	44

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34X44 E SIZE

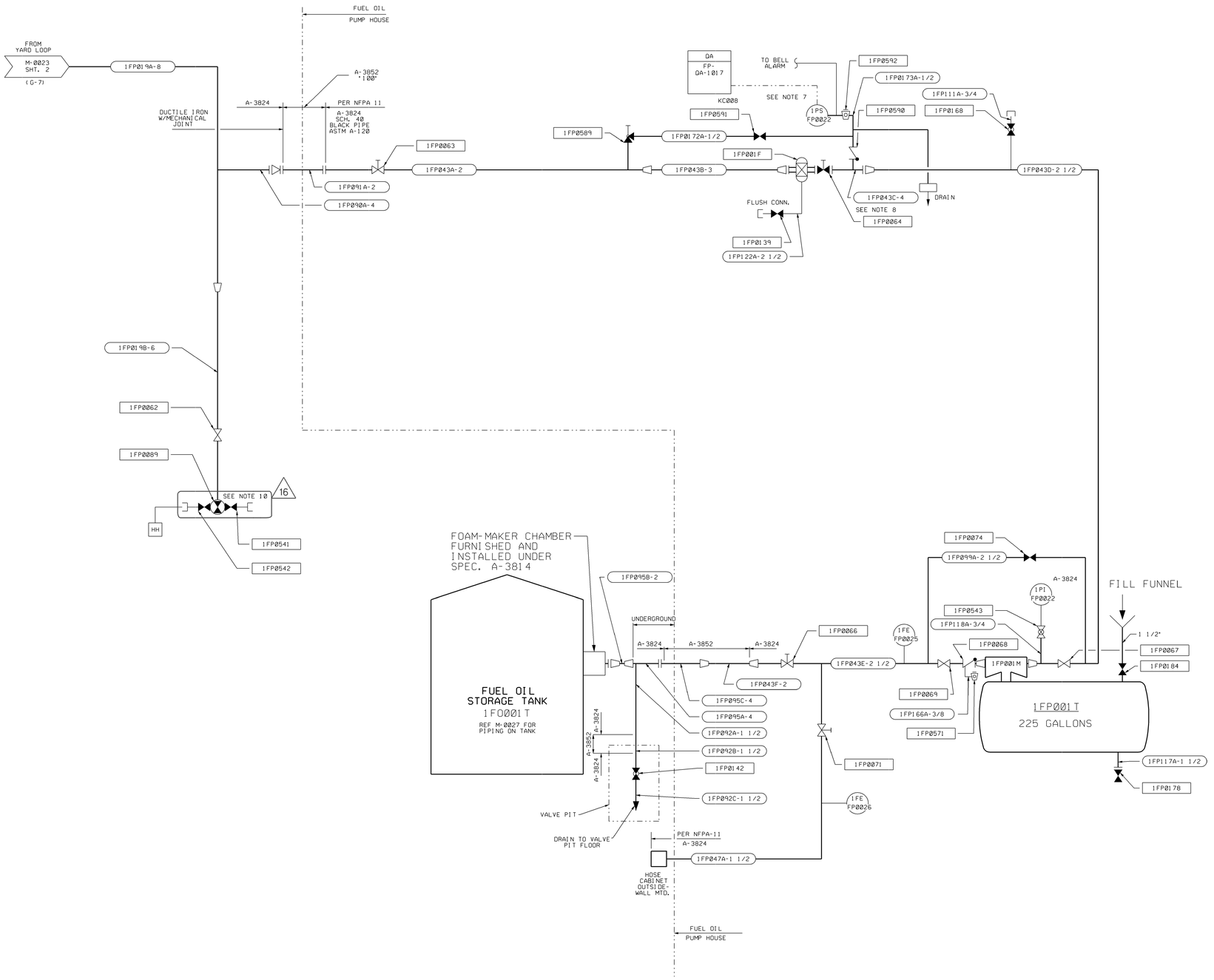
1FO001T
FUEL OIL STORAGE TANK A-3814

1FP001F
STRAINER A-3824

1FP003M
FOAM MAKER CHAMBER A-3814

1FP001M
PROPORTIONER A-3824

1FP001T
FOAM CONCENTRATE STORAGE TANK A-3824



NOTES:

1. DELETED
2. ⋈ INDICATES VALVE WITH VISUAL POSITION INDICATION.
3. FOAM FIRE PROTECTION SYSTEM TO BE FURNISHED & INSTALLED UNDER SPEC. A-3824. INDOOR PIPING IN THE FUEL OIL PUMP HOUSE TO BE FIELD ROUTED.
4. FOAM FIRE PROTECTION SYSTEM TO BE PER NFPA NO. 11.
5. NUMBERS WITHIN QUOTATION MARKS REFER TO THE NUMBER OF THE APPLICABLE S & L PIPING DESIGN TABLE.
6. DELETED.
7. SWITCH FACTORY SET @ 5 LBS. ± 1 LB.
8. OPEN VALVE 1FP064 TO INITIATE THE FOAM SPRAY SYSTEM.
9. HH DENOTES STANDARD HOSE HOUSE INCLUDING 250 FT. OF 2½ INCH, WOVEN JACKET, LINED, U.L. LISTED FIRE HOSE, 2 SPRAY NOZZLES WITH NATIONAL STANDARD THREADS (7½ PER INCH). 1-AXE, 1-BAR, EMERGENCY LIGHT, 6-SPANNERS AND 2-WRENCHES.

16

10. ⋈ DENOTES TYPICAL FIRE HYDRANT WITH (2)-2½" HOSE GATE VALVES WITH HOSE CONNECTED.

USAR FIG. 9.5-1-004

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CR 57153	CHANGE PKG. NO.
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

SARGENT & LUNDY
P & ID
FIRE PROTECTION SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-0023	4	16

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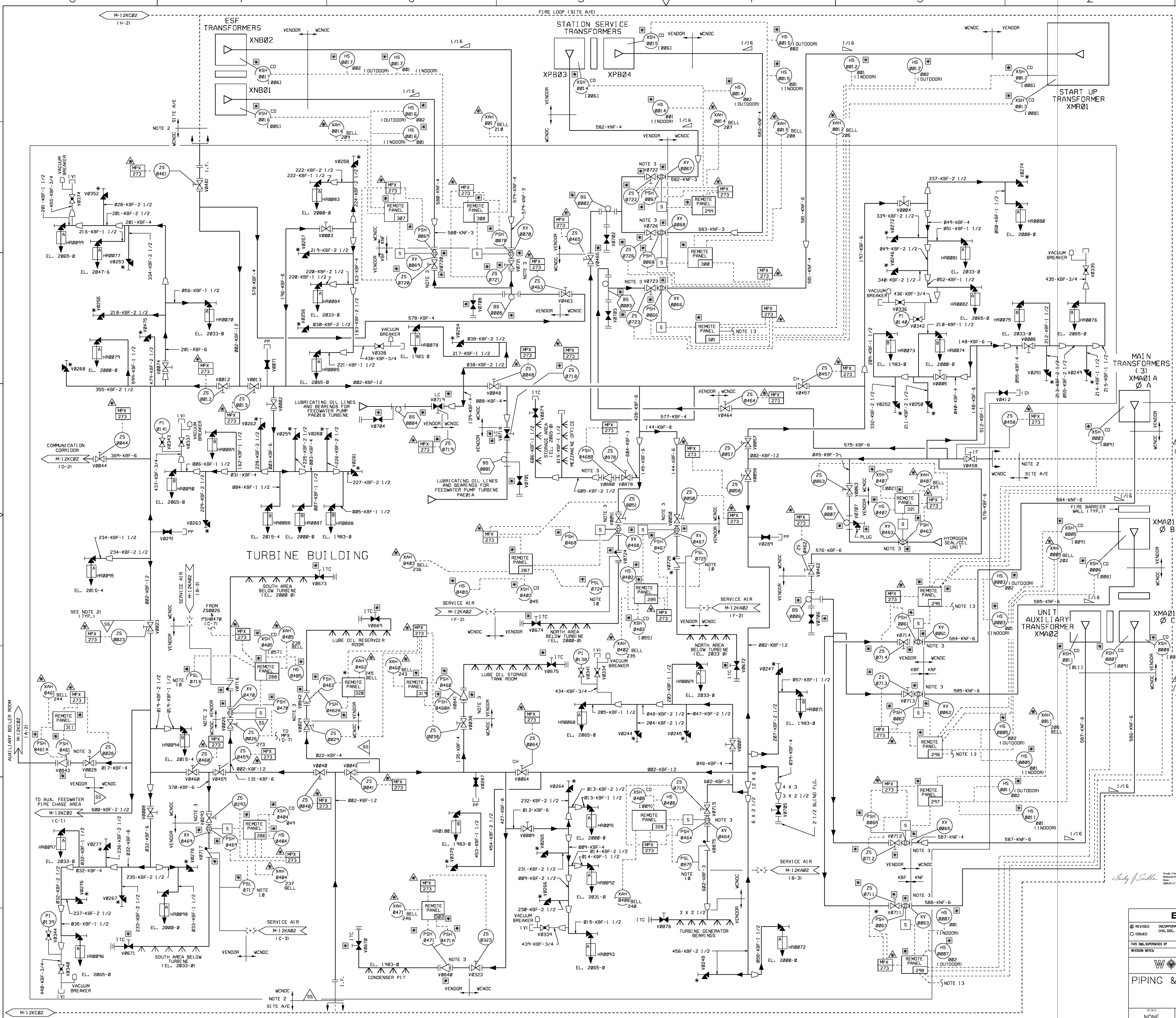
34X44 E SIZE
M-0023-4-16



NOTES

1. REFER TO M-12KC03 FOR HOSE STATION DETAILS HOSE STATION TYPE IS INDICATED BY LETTER DESIGNATION AT EACH HOSE STATION SYMBOL
2. DASHED LINE SHOWN IS UNDERGROUND FIRE LOOP AND IS PROVIDED BY SITE A/E MECH. DESIGNATION M-1 PER M-1G001.
3. DETAILED TYPICAL SCHEMATICS OF SPRINKLER AND SPRAY SYSTEMS ARE SHOWN ON M-12KC03
4. THE FOLLOWING HOSE STATIONS SHALL BE EQUIPPED WITH ELECTRICAL FOG NOZZLES FOR CLASS 'C' FIRES 0004, 0005, 0007, 0012, 0016, 0017, 0018, 0019, 0021, 0114, 0115 & 0117
5. HOSE STATIONS INSIDE THE CONTAINMENT ARE TYPE 'B' WITHOUT THE FIRE DEPARTMENT CONNECTION
6. A ¼ NPT TAP MUST BE PROVIDED IN THE SYSTEM PIPING JUST UPSTREAM OF THE FOLLOWING VALVES (REFER TO PRE ACTION AND DELUGE SYSTEM DETAILS ON M-12KC03) V0026, V0050, V0051, V0076, V0293, V0434, V0435, V0441, V0442, V0443, V0444, V0445 & V0063
7. [✳ in square] -ITEMS SUPPLIED AS PART OF VENDOR PACKAGE SPECIFIED IN M-650 & M-650(A)

   [✳ in triangle] -ITEMS SUPPLIED AS PART OF VENDOR PACKAGE SPECIFIED IN M-651.
8. [✳ in diamond] -ITEMS SUPPLIED AS PART OF VENDOR PACKAGE SPECIFIED IN M-658
9. FOR SYSTEM ACTUATION DETECTORS, NUMBER IN BRACKETS INDICATES TOTAL NUMBER OF DETECTORS IN ZONE
10. THE LOW AIR PRESSURE SWITCH ON SERVICE AIR SUPPLY TO DRY PIPE SYSTEMS ANNUNCIATES THE REMOTE PANEL TROUBLE ALARM.
11. LIMIT SWITCHES (ZS) ON VALVES ARE SUPPLIED WITH THE ASSOCIATED VALVE FROM THE VALVE SUPPLIER AS A COMPLETE UNIT
12. ITEMS LABELED WITH THE SAME SEQUENCE NUMBER DENOTE COMMON ALARM WINDOWS, MULTIPLEXERS' LIGHTS, ETC.
13. CROSS ZONE DETECTION TRIPS TRANSFORMER
14.
15. EACH DELUGE VALVE HAS AN ASSOCIATED SOLENOID VALVE (CONTROL VALVE) THE SOLENOID VALVE AND THE DELUGE VALVE SHALL CARRY THE SAME PREFIX AND THREE DIGIT NUMBER (XV-***) THIS IDENTIFICATION IS NOT CARRIED ON THE P & ID (SEE NOTE 3)
16. AREA DETECTORS WHICH DO NOT ACTUATE AN EXTINGUISHING SYSTEM ARE NOT SHOWN ON THE KC P & ID'S. REFER TO THE E OF SERIES DWGS. FOR ALL KC SYSTEM DETECTORS AND ALARMS
17. THE THREE MPX CONTROL PANELS SERVE THE FOLLOWING AREAS
    273 TURBINE BLDG. & COMM. CORRIDOR
    274 AUXILIARY, REACTOR, FUEL, & RADWASTE BLDGS., AND EAST DIESEL GEN. ROOM
    275 CONTROL BLDG., ESW PUMPHOUSE & WEST DIESEL GEN. ROOM
18. HOSE STATIONS INSIDE THE ESW PUMPHOUSE ARE TYPE "B" WITHOUT THE FIRE DEPARTMENT CONNECTION
19. FLOW ALARM PRESSURE SWITCH 'A' IN THE WET PIPE SYSTEMS OPERATES THE LOCAL ALARM BELL
20. PIPING WITHIN VENDOR BOUNDARIES IS DIAGRAMATIC REFER TO VENDOR DRAWINGS FOR SPECIFIC INFORMATION REGARDING LOCATION OF FITTINGS AND PIPE SIZES
21. THE PIPING AND COMPONENTS INCLUDED WITHIN THE SS FLAG BOUNDARY AND THOSE ASSOCIATED WITH THE AUXILIARY FEEDWATER PIPE CHASE AREA WET-PIPE SPRINKLER SYSTEM ARE CLASSIFIED AS SPECIAL SCOPE.
22. MALLEABLE IRON FITTINGS RATED FOR A MINIMUM WORKING PRESSURE OF 150 PSI MAY BE ATTACHED TO THE DISCHARGE OUTLETS OF ALL INSPECTOR TEST CONNECTIONS AND WET PIPE SYSTEM RELIEF VALVES PROVIDED IN THE "FP" AND "KC" SYSTEMS TO SUPPORT THE CONNECTION OF TEST/DRAIN HOSES AS NECESSARY.

20

Trudy J Smither
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BRIAN R. FOX LICENSED 18295 KANSAS PROFESSIONAL ENGINEER

Digitally signed by Brian R. Fox
Date: 2009.07.16 13:09:58 -05'00'

USAR FIG. 9.5.1-1-01

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	013049
○ ISSUED			
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

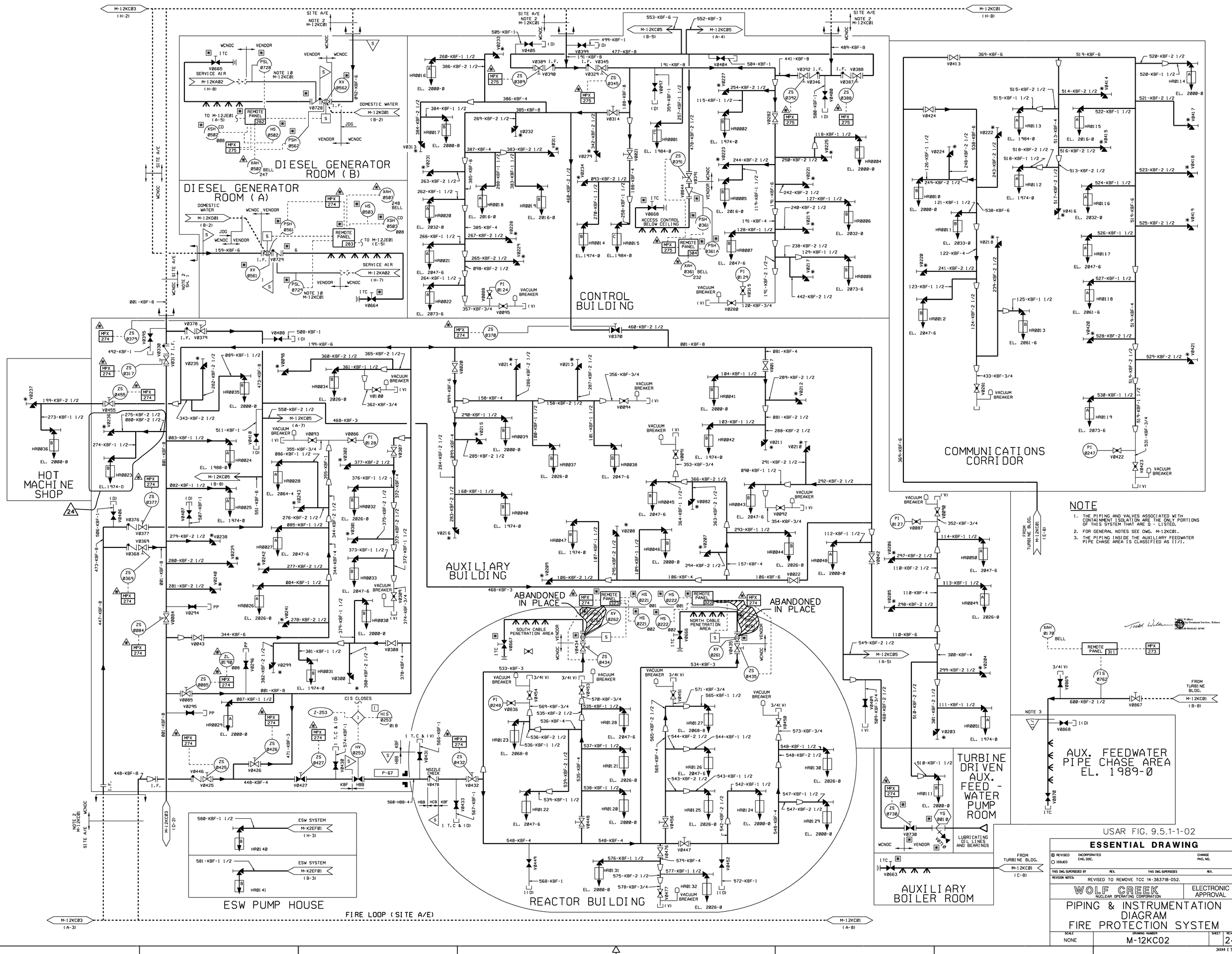
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM FIRE PROTECTION TURBINE BUILDING

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC01		20

34X44 E SIZE

M-12KC01+1+20



NOTE

1. THE PIPING AND VALVES ASSOCIATED WITH CONTAINMENT ISOLATION ARE THE ONLY PORTIONS OF THIS SYSTEM THAT ARE Q - LISTED.
2. FOR GENERAL NOTES SEE DWG. M-12KC01.
3. THE PIPING INSIDE THE AUXILIARY FEEDWATER PIPE CHASE AREA IS CLASSIFIED AS II/I.

USAR FIG. 9.5.1-1-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.

REVISION NOTES: REVISED TO REMOVE TCC 14-383718-052.

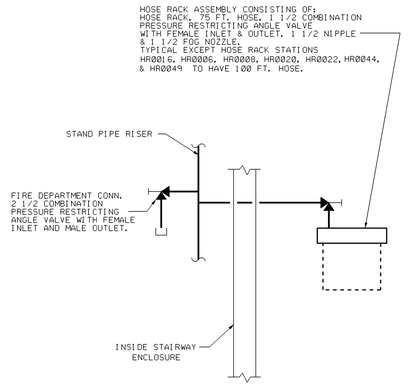
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM FIRE PROTECTION SYSTEM

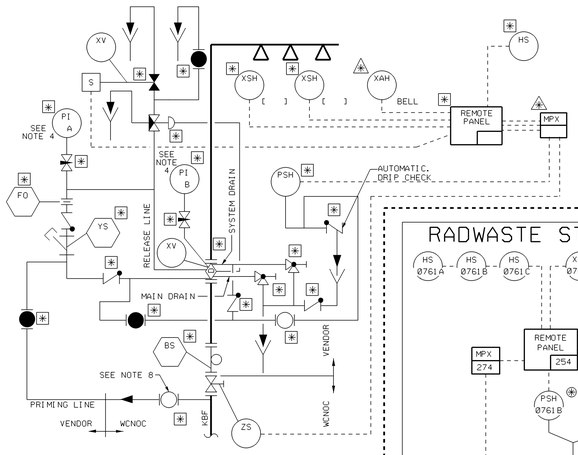
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC02		24

34X44 E SIZE



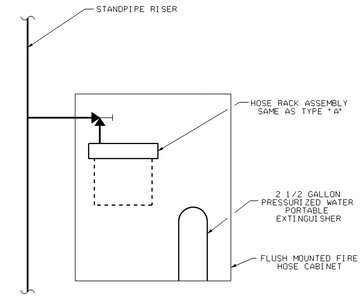
TYPICAL HOSE STATION TYPE "A"

(AT STAIRWAYS)



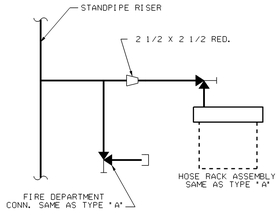
TYPICAL AUTOMATIC WATER SPRAY SYSTEM

(SHOWN WITH CROSS ZONE DETECTION)



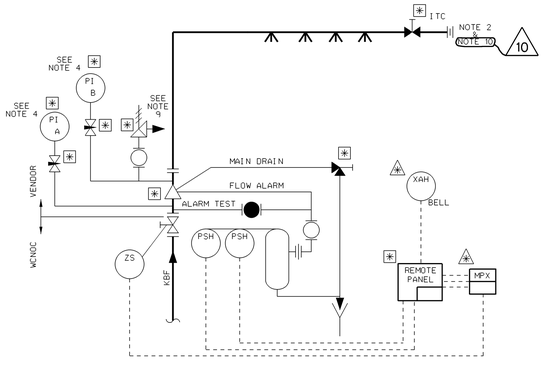
TYPICAL HOSE STATION - TYPE "C"

(IN FINISHED AREAS)

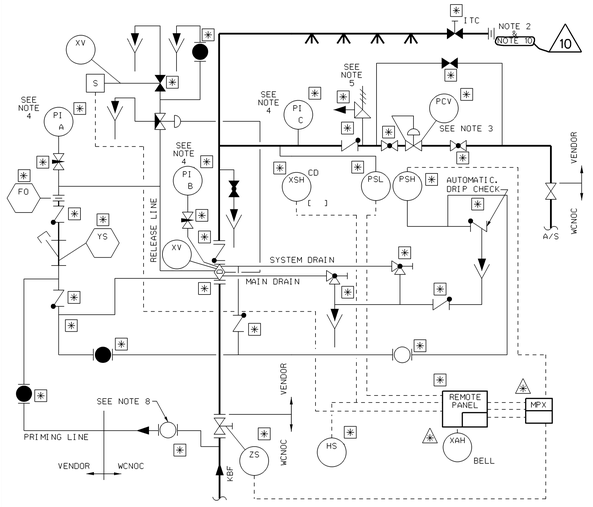


TYPICAL HOSE RACK - TYPE "B"

(AT INTERIOR COLUMNS)

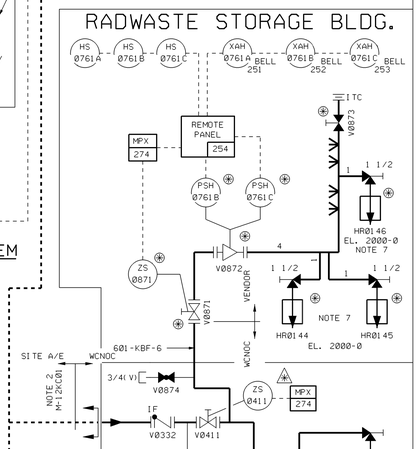


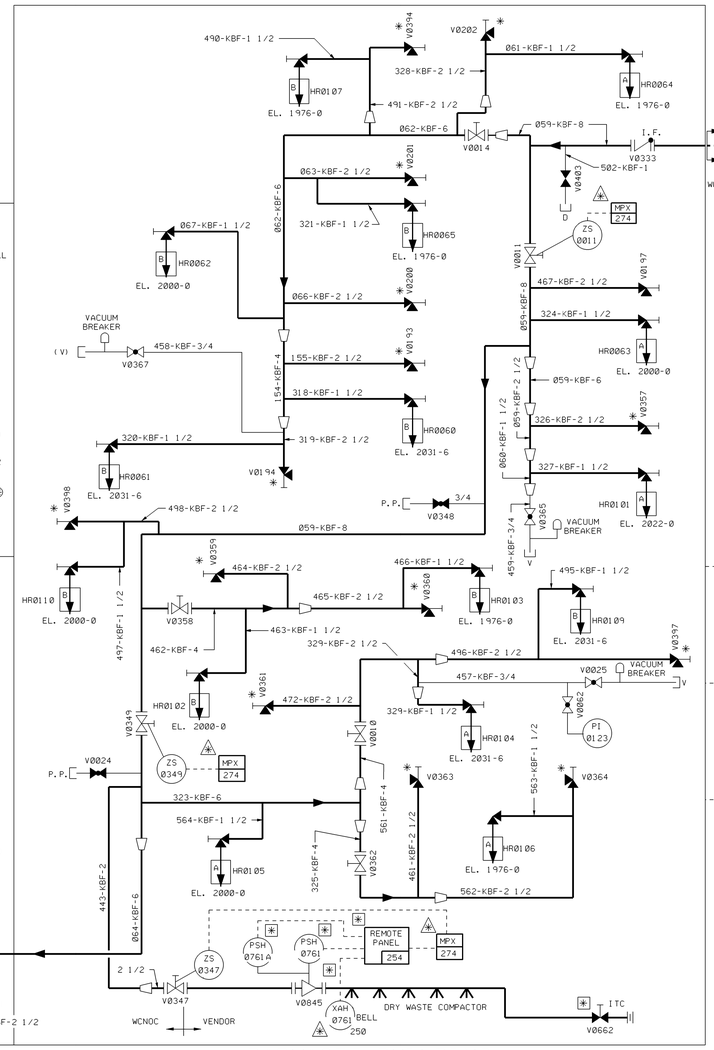
TYPICAL WET PIPE SPRINKLER SYSTEM



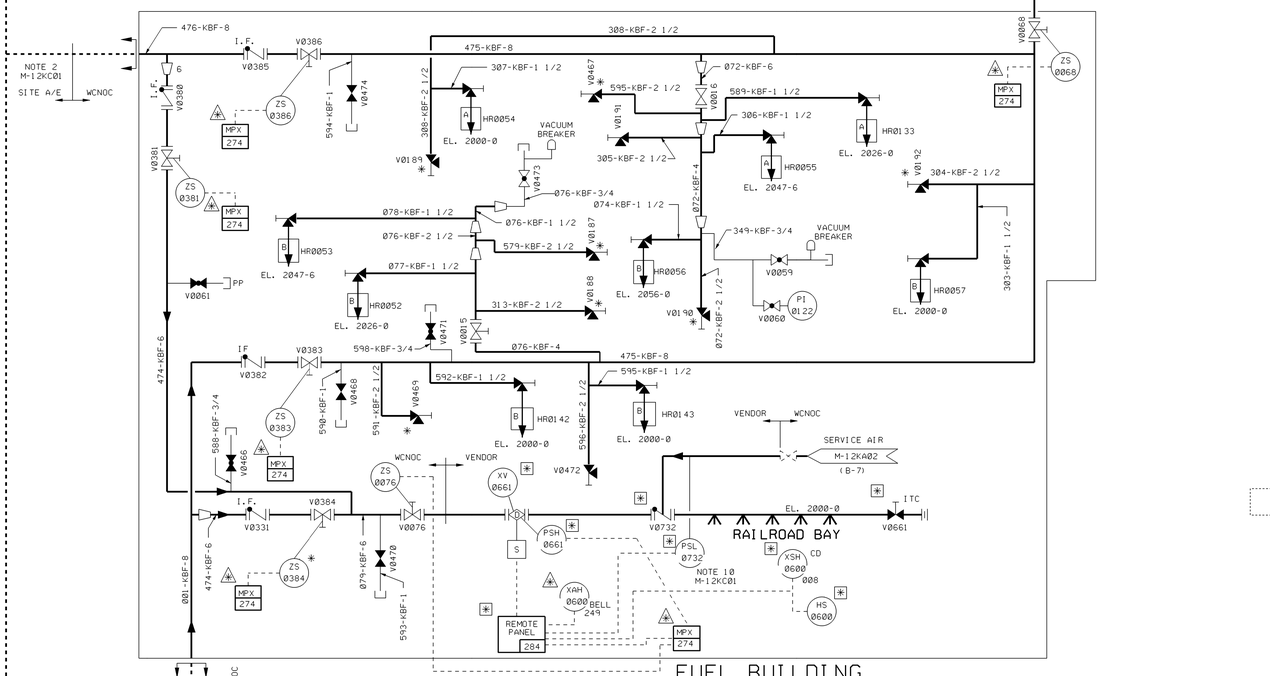
TYPICAL PRE - ACTION SPRINKLER SYSTEM

(SHOWN WITH THERMAL DETECTOR ACTUATION, IONIZATION DETECTOR ACTUATED SYSTEMS HAVE DETECTOR CIRCUIT WIRED DIRECTLY TO MPX. DISCHARGE SIGNAL TO DELUGE VALVE IS GENERATED BY MPX PANEL.)





RADWASTE BUILDING



NOTES

1. FOR GENERAL NOTES SEE DRAWING M-12KC01.
2. ITC: INSPECTORS TEST CONNECTION CONSISTS OF A SHUT OFF VALVE AND A SMOOTH BORE BRASS BUSHING. THE BUSHING SHOULD BE A STANDARD ORIFICE SIZE SPRINKLER HEAD WITH FRAME AND FUSIBLE LINK REMOVED.
3. THE AIR PRESSURE REGULATING VALVE (PRESSURE CONTROL VALVE) ASSOCIATED WITH EACH PRE - ACTION SPRINKLER SYSTEM SHALL BE IDENTIFIED BY THE NUMBER OF THE RESPECTIVE PRE - ACTION SPRINKLER SYSTEM DELUGE VALVE WITH THE PREFIX PCV. THIS IDENTIFICATIONS NOT CARRIED ON THE P & ID.
4. PRESSURE INDICATORS ASSOCIATED WITH THE SPRINKLER AND SPRAY SYSTEMS SHALL BE IDENTIFIED BY THE THREE DIGIT NUMBER OF THE RESPECTIVE ALARM FLOW PRESSURE SWITCH WITH THE PREFIX PI AND THE SUFFIX A, B, OR C. FOR WET-PIPE SYSTEMS, THE SUFFIX A SHALL APPLY TO THE SUPPLY SIDE PRESSURE GAUGE AND THE SUFFIX B SHALL APPLY TO THE SYSTEM SIDE PRESSURE GAUGE. FOR PRE-ACTION AND WATER SPRAY SYSTEMS, THE SUFFIX A SHALL APPLY TO THE SYSTEM SIDE PRESSURE GAUGE AND THE SUFFIX B SHALL APPLY TO THE SUPPLY SIDE PRESSURE GAUGE. THE SUFFIX C SHALL APPLY TO THE AIR PRESSURE GAUGE USED IN THE PRE - ACTION SYSTEMS. THIS IDENTIFICATION IS NOT CARRIED ON THE P&ID EXCEPT IN THE "TYPICAL" DIAGRAMS.
5. PREACTION SYSTEM RELIEF VALVES SHALL BE IDENTIFIED BY THE THREE DIGIT NUMBER OF THE ASSOCIATED DELUGE VALVE, WITH THE PREFIX "RV". THIS IDENTIFICATION IS NOT CARRIED ON THE P & ID.
6. COMPONENTS AND ITEMS IDENTIFIED WITH • ARE SUPPLIED AS PART OF THE VENDOR PACKAGE (REF. 2007A-M-SERIES DOCUMENTS).
7. THESE HOSE RACK ASSEMBLIES CONSIST OF THE HOSE RACK, 75 FEET HOSE, 1 1/2" COMBINATION PRESSURE RESTRICTING ANGLE VALVE WITH FEMALE INLET AND OUTLET, 1 1/2" NIPPLE AND 1 1/2" FOG NOZZLE (TYPICAL OF HOSE STATIONS TYPE A OR TYPE B EXCEPT 2 1/2" FIRE DEPARTMENT CONNECTION).
8. EXTRA PRIMING LINE ISOLATION VALVE INSTALLED ON THE FOLLOWING SUB-SYSTEMS: SKC11-16, 19, 20 & 25.
9. THIS IS THE TYPICAL RELIEF VALVE INSTALLATION FOR VIKING MODEL F-1. ALTERNATE LOCATION FOR VIKING MODEL H-2 AND J-1 ARE IN THE EXTERNAL BYPASS LINE AS DESCRIBED IN THE RESPECTIVE VENDOR DRAWINGS 2007A-M-0009 AND M-650-00186.
10. MALLEABLE IRON FITTINGS RATED FOR A MINIMUM WORKING PRESSURE OF 150 PSI MAY BE ATTACHED TO THE DISCHARGE OUTLETS OF ALL INSPECTOR TEST CONNECTIONS AND WET PIPE SYSTEM RELIEF VALVES PROVIDED IN THE "FP" AND "KC" SYSTEMS TO SUPPORT THE CONNECTION OF TEST/DRAIN HOSES AS NECESSARY.

10

USAR FIG. 9.5.1-1-03

ESSENTIAL DRAWING

◇ REVISED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	013049
○ ISSUED			
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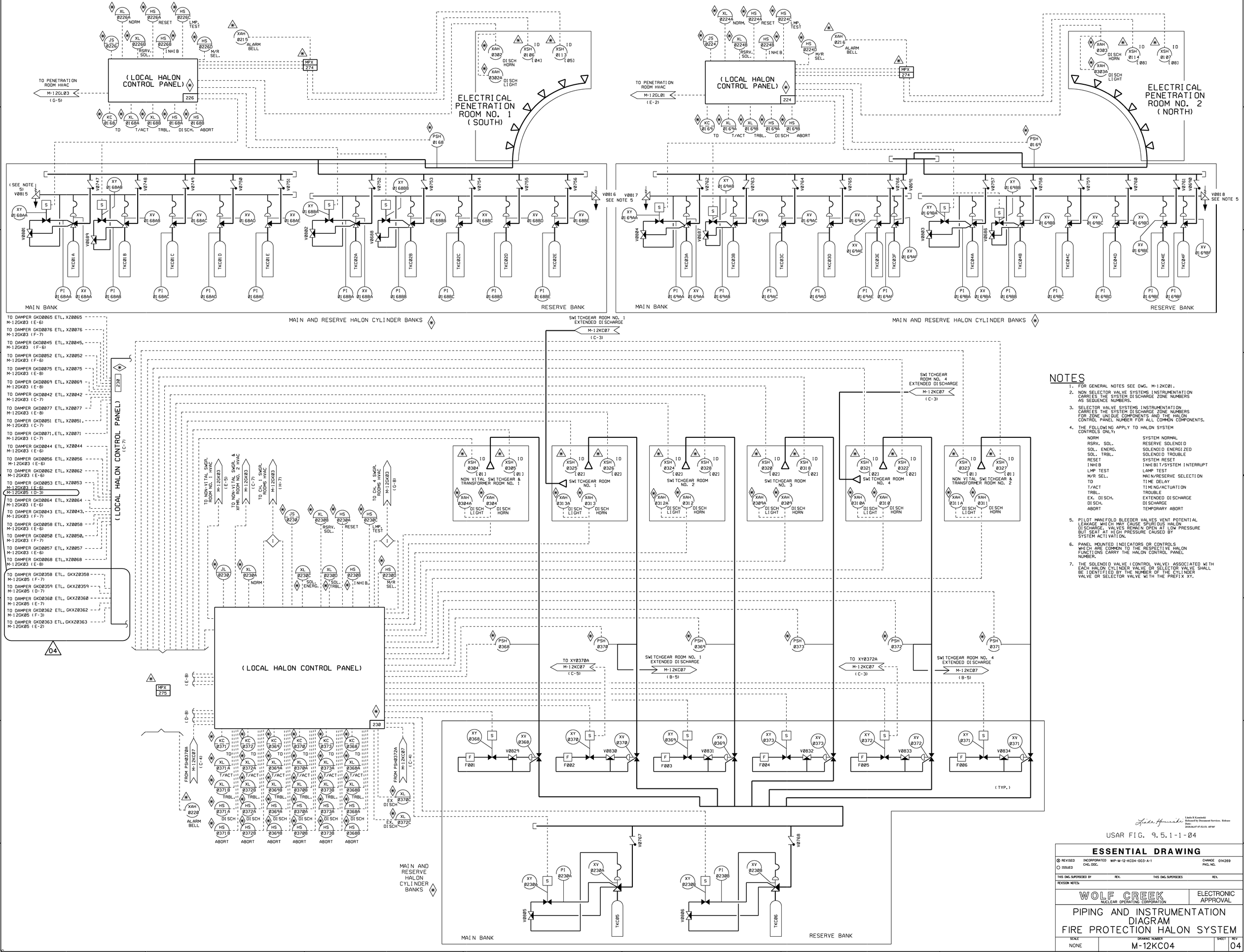
SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC03		10

34X44 E SIZE

M-12KC03-1-10



NOTES

1. FOR GENERAL NOTES SEE DWG. M-12KC01.
2. NON SELECTOR VALVE SYSTEMS INSTRUMENTATION CARRIES THE SYSTEM DISCHARGE ZONE NUMBERS AS SEQUENCE NUMBERS.
3. SELECTOR VALVE SYSTEMS INSTRUMENTATION CARRIES THE SYSTEM DISCHARGE ZONE NUMBERS FOR ZONE UNIQUE COMPONENTS AND THE HALON CONTROL PANEL NUMBER FOR ALL COMMON COMPONENTS.
4. THE FOLLOWING APPLY TO HALON SYSTEM CONTROLS ONLY:

NORM	SYSTEM NORMAL
RSRV. SOL.	RESERVE SOLENOID
SOL. ENERG.	SOLENOID ENERGIZED
SOL. TRBL.	SOLENOID TROUBLE
RESET	SYSTEM RESET
INHIB	INHIBIT/SYSTEM INTERRUPT
LMP TEST	LAMP TEST
M/R SEL.	MAIN/RESERVE SELECTION
TD	TIME DELAY
T/ACT	TIMING/ACTUATION
TRBL.	TROUBLE
EX. DISCH.	EXTENDED DISCHARGE
DISCH.	DISCHARGE
ABORT	TEMPORARY ABORT

5. PILOT MANIFOLD BLEEDER VALVES VENT POTENTIAL LEAKAGE WHICH MAY CAUSE SPURIOUS HALON DISCHARGE. VALVES REMAIN OPEN AT LOW PRESSURE BUT SEAT AT HIGH PRESSURE CAUSED BY SYSTEM ACTIVATION.
6. PANEL MOUNTED INDICATORS OR CONTROLS WHICH ARE COMMON TO THE RESPECTIVE HALON FUNCTIONS CARRY THE HALON CONTROL PANEL NUMBER.
7. THE SOLENOID VALVE (CONTROL VALVE) ASSOCIATED WITH EACH HALON CYLINDER VALVE OR SELECTOR VALVE SHALL BE IDENTIFIED BY THE NUMBER OF THE CYLINDER VALVE OR SELECTOR VALVE WITH THE PREFIX XY.

Linda H Kaminski
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2018.06.07 07:53:51 -05'00'

USAR FIG. 9.5.1-1-04

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WIP-M-12-KC04-003-A-1	CHANGE PKG. NO. 014269
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REVISION NOTES:			

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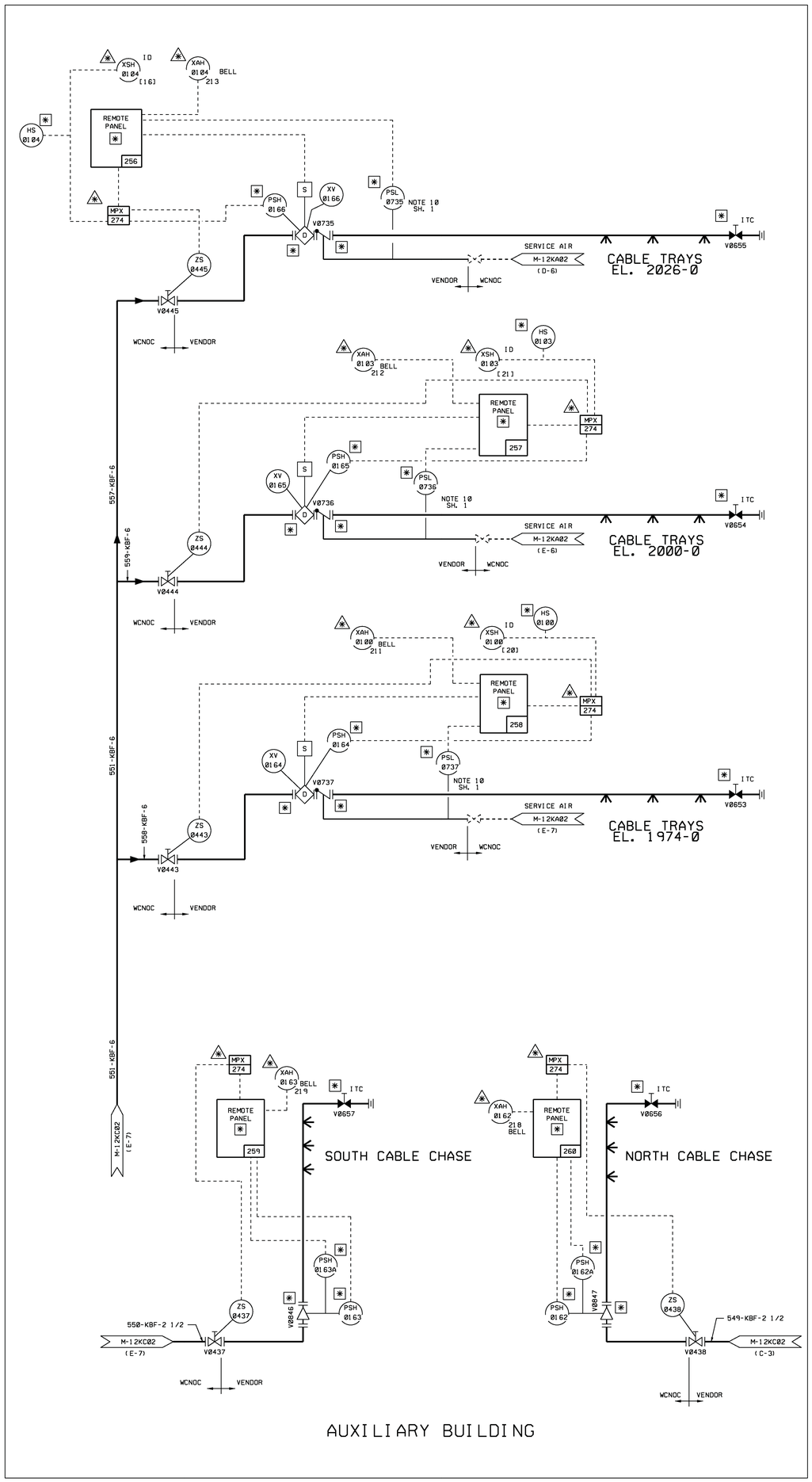
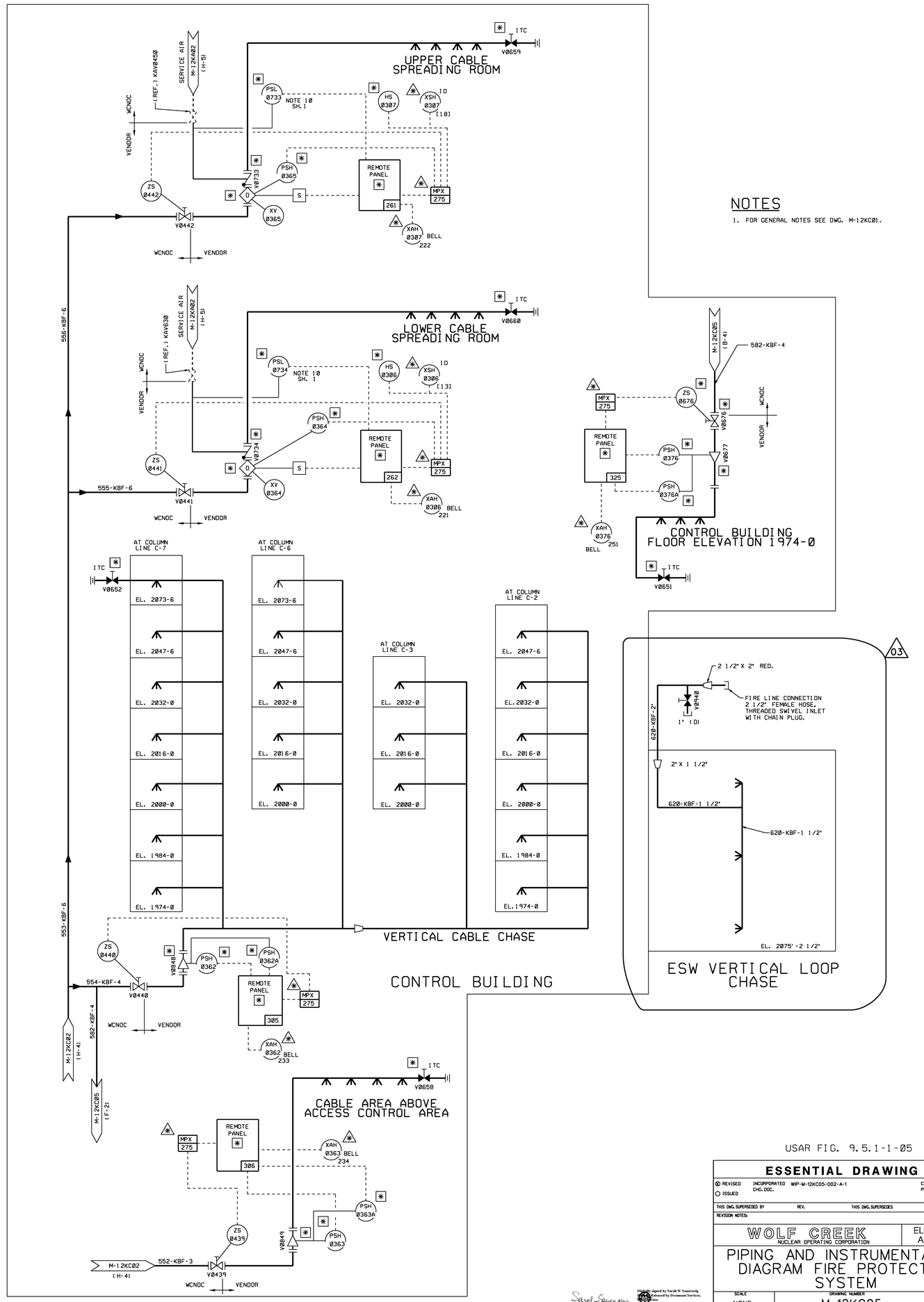
PIPING AND INSTRUMENTATION DIAGRAM FIRE PROTECTION HALON SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC04		04

34X44 E SIZE





NOTES

1. FOR GENERAL NOTES SEE DWG. M-12KC01.

USAR FIG. 9.5.1-1-05

ESSENTIAL DRAWING

REVISED ○ ISSUED — INCORPORATED CHG. DOC. WSP-M-12KC05-002-A-1 — CHANGE PKG. NO. 014959

THIS DWG. SUPERSEDED BY — REV. — THIS DWG. SUPERSEDES — REV.

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PIPING AND INSTRUMENTATION DIAGRAM FIRE PROTECTION SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC05		03

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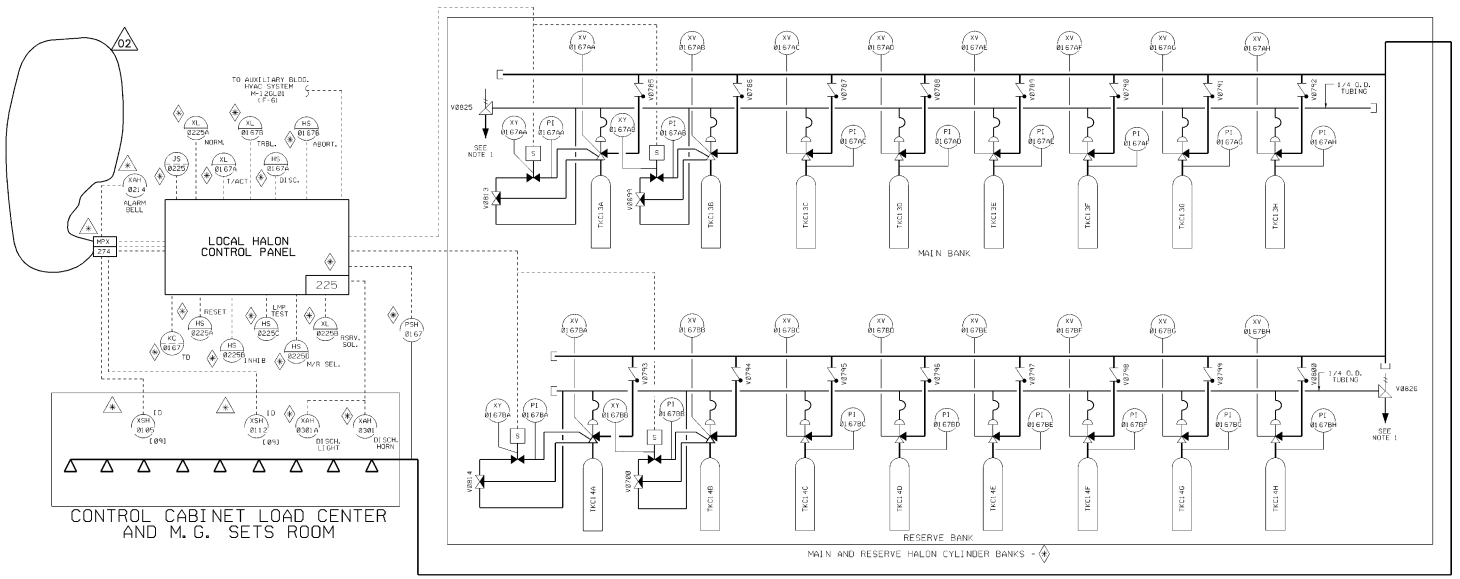
34X44 E SIZE

KC

NOTES

1. FOR HALON SYSTEM GENERAL NOTES SEE DWG. M-12KC04. FOR FIRE PROTECTION SYSTEM GENERAL NOTES SEE DWG. M-12KC01.



USAR FIG. 9.5.1-1-06

ESSENTIAL DRAWING

◎ REVISED	INCORPORATED	CHANGE 04519	
○ ISSUED	CHG. DOC.	PKG. NO.	
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REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM FIRE PROTECTION HALON SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC06		02

34044 E SIZE

NOTES

1. FOR HALON SYSTEM GENERAL NOTES SEE DWG. M-12KC04. FOR FIRE PROTECTION SYSTEM GENERAL NOTES SEE DWG. M-12KC01.

JL Ø222 · XL Ø222A NORM. · XL Ø222B RSRV. SOL. · HS Ø222A RESET · HS Ø222B INHIB.
JS Ø222 · XL Ø222C SOL. ENERG. · XL Ø222D SOL. TRBL. · HS Ø222C LMP. TEST · HS Ø222D M/R SEL.
TO ESF. SWGR. ROOM NO. 1 HVAC, M-12GK04 (H-2)
TO ESF SWGR. ROOM NO. 2 HVAC, M-12GK04 (H-5)

MPX 275

(LOCAL HALON CONTROL PANEL)

222

TO DAMPER GKD0123 ETL., GKXZ0123 M-12GK04 (G-4)
TO DAMPER GKD0124 ETL., GKXZ0124 M-12GK04 (H-4)
TO DAMPER GKD0140 ETL., GKXZ0140 M-12GK04 (G-4)
TO DAMPER GKD0184 ETL., GKXZ0184 M-12GK04 (H-4)

KC Ø367 TD · XL Ø366B TRBL. · XL Ø367B TRBL. · HS Ø367B ABORT · XAH Ø226 ALARM BELL

KC Ø366 TD · XL Ø367A T/ACT · XL Ø366A T/ACT · HS Ø366B ABORT · HS Ø367A DISCH. · HS Ø366A DISCH. · PSH Ø366 · PSH Ø367

XSH Ø316 ID [Ø5] · XSH Ø317 ID [Ø5] · XAH Ø308A DISCH. LIGHT · XAH Ø308 DISCH. HORN

ESF. SWITCHGEAR ROOM NO. 2 (SOUTH)

XSH Ø314 ID [Ø7] · XSH Ø315 ID [Ø7] · XAH Ø307A DISCH. LIGHT · XAH Ø307 DISCH. HORN

ESF. SWITCHGEAR ROOM NO. 1 (NORTH)

XY Ø366 · S · XV Ø366 · F Ø07 · V0827

XY Ø367 · S · XV Ø367 · V0828 · F Ø08 · 03

PI Ø222AA · XY Ø222BA · PI Ø222BA · XY Ø222BB · PI Ø222BB

V0821 SEE NOTE 1 · V0822 SEE NOTE 1

V0769 V0770 V0771 V0772 V0685 V0684 V0683 V0773 V0774 V0775 V0776 V0682 V0681 V0680

V0807 V0678 V0808 V0679

XY Ø222AA · XV Ø222AA · XY Ø222AB · XV Ø222AB · XV Ø222AC · XV Ø222AD · XV Ø222AE · XV Ø222AF · XV Ø222AG · XV Ø222BA · XV Ø222BB · XV Ø222BC · XV Ø222BD · XV Ø222BE · XV Ø222BF · XV Ø222BG

PI Ø222AB · PI Ø222AC · PI Ø222AD · PI Ø222AE · PI Ø222AF · PI Ø222AG · PI Ø222BA · PI Ø222BB · PI Ø222BC · PI Ø222BD · PI Ø222BE · PI Ø222BF · PI Ø222BG

TKC07A · TKC07B · TKC07C · TKC07D · TKC07E · TKC07F · TKC07G · TKC08A · TKC08B · TKC08C · TKC08D · TKC08E · TKC08F · TKC08G

MAIN BANK · RESERVE BANK

MAIN AND RESERVE HALON CYLINDER BANKS

XL Ø227A NORM. · HS Ø227B INHIB. · JS Ø227 · HS Ø227A RESET · HS Ø227C LMP. TEST.

MPX 275

(LOCAL HALON CONTROL PANEL)

227

PSH Ø375

XL Ø375A T/ACT · HS Ø375A DISCH. · XAH Ø305A DISCH. LIGHT · XAH Ø305 DISCH. HORN

KC Ø375 TD · XL Ø375B TRBL. · HS Ø375B ABORT

XV Ø375C · XV Ø375D

TKC17 · TKC18

RESERVE BANK

V0781 · V0784

XY Ø375A · S · PI Ø375A · XV Ø375A

XY Ø375B · S · PI Ø375B · XV Ø375B

V0811 · V0812

TKC11 · TKC12

MAIN BANK

MAIN & RESERVE HALON CYLINDERS

XSH Ø309 ID [Ø7] · XSH Ø319 ID [Ø7]

CONTROL ROOM CABLE TRENCHES AND WEST CHASES

SWITCHGEAR ROOM NO. 1 M-12KC04 (F-5)
FROM XY0370 M-12KC04 (C-5)
TO CONTROL PANEL NO. 230 M-12KC04 (B-7)
TO CONTROL PANEL NO. 230 M-12KC04 (B-6)
SWITCHGEAR ROOM NO. 4 M-12KC04 (E-3)
FROM XY-372 M-12KC04 (C-3)

XY Ø370A · S · XV Ø370A · PSH Ø370A · PSH Ø372A · XV Ø372A · V0698 · V0697 · XY Ø372A · F F009 · F F010

SWITCHGEAR ROOM NO. 1 M-12KC04 (C-4) 1/4 V0695
SWITCHGEAR ROOM NO. 4 M-12KC04 (C-2) 1/4 V0694
V0696 · V0693 · V0692

XV Ø230C · XV Ø230D · PI Ø230C · PI Ø230D

TKC15 · TKC16

MAIN · RESERVE

EXTENDED DISCHARGE HALON CYLINDER BANK

USAR FIG. 9.5.1-1-07

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CR 78115 CHG. DOC.	CHANGE PKG. NO.
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REVISION NOTES:		

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM FIRE PROTECTION HALON SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KC07		03

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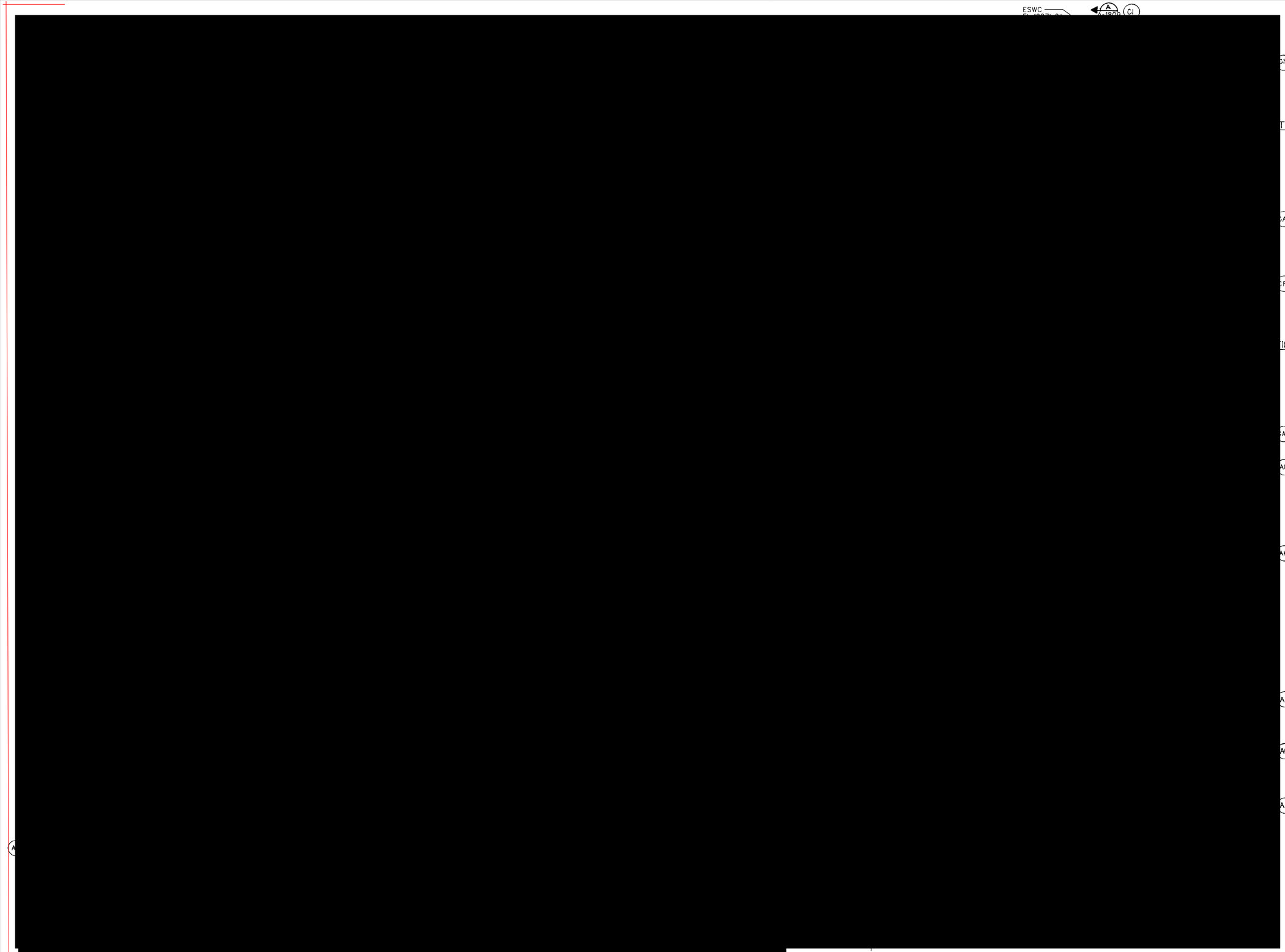
34X44 E SIZE
M-12KC07-1-03



NOTES:

1) NUMBER SYSTEM (C-5, ETC., TYP.) RELATES TO SEPERATE FIRE HAZARDS ANAYSIS REPORT ZONE DATA SHEETS.

2) SEE SPEC. A-0126, SPEC. A-018 AND ARCHL. FINISH SCHEDULE FOR ADDITIONAL FIRE REQUIREMENTS.

3) EXTINGUISHING SYSTEMS (a, b, c or d) DO NOT NECESSARILY COVER ENTIRE AREA WHERE INDICATED-MAY ONLY PROTECT CABLE TRAY CONCERTRATIONS, SINGLE EQUIPMENT ITEMS, ETC.

4) WHERE LARGE CONDUIT IS WITHIN THE MINIMUM THICKNESS REQUIRED ON A FIREPROOFED MEMBER, THE FIREPROOFING SHALL BE INSTALLED BEHIND THE CONDUIT AND ON EACH SIDE, UP TO THE MINIMUM REQUIRED FOR THE MEMBER PROTECTED.

5) WHERE SMALL PIPE OR CONDUIT (OTHER THAN STAINLESS) IS WITHIN THE MINIMUM THICKNESS REQUIRED, THE FIREPROOFING SHALL BE BRIDGED OVER THE PIPE/CONDUIT TO MAINTAIN THE REQUIRED THICKNESS.

6) INTERIORS OF TUBE STEEL, JUNCTION BOXES, LIGHT PANELS AND OTHER COVERED ATTACHMENTS SHALL NOT BE COVERED.

7) TEMPORARY SERVICE LINES SHALL BE REMOVED FROM THE WORK SURFACE PRIOR TO FIREPROOFING.

8) ALL STRUCTURAL STEEL LARGER THAN 6" MEMBERS AND SHOWN ON THE CIVIL STRUCTURAL DRAWINGS SHALL, IN AREAS DESIGNATED ON THE FIRE DELINEATION DRAWINGS, BE FIREPROOFED TO THE CLASSIFICATION THICKNESS NOTED.

9) WHERE NOTED, ALL STRUCTURAL STEEL LARGER THAN 6" SHALL BE CONTOUR-COVERED WITH DURASPRAY FIREPROOFING TO THE FOLLOWING MINIMUM THICKNESS:

2 HOUR BEAMS	1"
2 HOUR COLUMNS	1 3/16"
3 HOUR BEAMS	1 1/2" (BOTTOM FLANGE MESHED)
3 HOUR COLUMNS	1 11/16"

OR CONTOUR-COVERED WITH MONOKOTE Z-146 FIREPROOFING TO THE FOLLOWING MINIMUM THICKNESS:

2 HOUR BEAMS	*15/16"
2 HOUR COLUMNS	1 1/2"
3 HOUR BEAMS	*2 1/8" (BOTTOM FLANGE MESHED)
3 HOUR COLUMNS	2 1/4"

COLUMNS IN FINISHED AREAS SHOWN AS BOXED CONSTUCTIONS SHALL BE WRAPPED WITH 3/8" WIRE MESH AND COVERED TO THICKNESS NOTED ABOVE. COLUMNS SHALL HAVE A TROWEL SMOOTH FINISH TO THE HIEGHTS NOTED IN PARAGRAPH 10.4 OF SPEC. 10466-A-126.

* W8X10 COLUMNS REQUIRES 1 11/16" FOR 2 HOUR BARRIER AND 3 3/16" FOR 3 HOUR BARRIER.

10) MANUFACTURER'S CERTIFICATION THAT THE MATERIAL FURNISHED IS THE SAME AS THAT RATED IN U.L. DESIGNS N-711, N-712, X-708, AND X-730, OR DESIGNS N-782 AND X-795, WILL MEET THE INTENT OF PARAGRAPH 4.1 OF SPEC. 10466-A-126.

11) STRUCTURAL STEEL SHOWN ON DRAWINGS LISTED BELOW ARE NOT PART OF THE STRUCTURAL BUILDING FRAME, AND SHALL NOT BE FIREPROOFED. THE DRAWINGS ARE:
C-1S1212
C-1S1222
C-1S1242
C-1S1312

12) FOR FIRE RATED CLOSURE DETAILS SEE MECHANICAL DRAWINGS.

13) CMU WALLS 3 HOUR FIRE RATED SHALL HAVE ALL CELLS FULLY GROUTED.

14) FIRE EXTINGUISHERS SHALL BE LOCATED IN COMPLIANCE WITH THE GENERAL LOCATIONS SHOWN ON THE DRAWINGS. THE MOUNTING LOCATION IS SUBJECT TO FIELD CONDITIONS AND THEREFORE MAY DEVIATE FROM THE INTENTED LOCATION BUT MUST COMPLY WITH THE REQUIREMENTS OF NFPA 10 (1975) SECTION 1-4. PRIOR APPROVAL MUST BE OBTAINED FOR DEVIATIONS FROM THE DESIGN LOCATION WHERE THE PLACEMENT REQUIREMENTS OF NFPA 10 (1975) CHAPTER 3 ARE IMPACTED. FIRE EXTINGUISHERS MUST NOT BE MOUNTED TO CATEGORY 1 CMU WALLS AS DENOTED BY AN (E) ON THE ARCHITECTURAL DRAWINGS OR CONTAINMENT LINER PLATES, WITHOUT PRIOR ENGINEERING APPROVAL. AN ALTERNATE METHOD FOR SUPPORT AT SUCH LOCATIONS IS TO SUPPORT THE EXTINGUISHERS FROM THE FLOOR. THESE SUPPORTS SHALL BE SUPPLIED BY OTHERS. IN THE REACTOR BUILDING UPWARD OPEN TUBE STEEL CAN BE CAPPED AS NECESSARY FOR SAFETY, CLEANLINESS, AND/OR PLANT NEEDS. THE CAP SHALL BE STAINLESS STEEL AND CAN BE HELD ON BY SETSCREWS. SEE DRAWING C-1063 & C-1064 FOR CAP DETAIL.

15) THE ROOFS OF THE POWER BLOCK ARE NOT FIRE BARRIERS.

16) BEAM POCKETS WHICH PENETRATE THROUGH CONCRETE WALLS AND HORIZONTAL GAPS BETWEEN STRUCTURAL STEEL BEAMS AND CONCRETE WALLS MAY BE CLOSED USING SPRAY FIREPROOFING AS A SEAL.

17) WATER MIST FIRE EXTINGUISHERS ARE NOT TO BE INSTALLED IN CONTAINMENT.

18) WATER SUPPLY FOR ESW VERTICAL LOOP CHASE FIRE PROTECTION IS SUPPLIED BY OUTSIDE FIRE PUMP TRUCK OR FIRE HYDRANT.

19) HILTI FIRE FINISH CFP-SP WB IS AN ACCEPTABLE ALTERNATIVE FOR FIRE PROOFING OF NEW STRUCTURAL STEEL. SEE SPEC. A-126A AND VENDOR MANUAL A-126A-00001 FOR ADDITIONAL INFORMATION.

15

LEGEND

——→	EXIT ROUTE (ARROW POINTS TOWARDS EXIT)
HS	HOSE STATION
(E)	EXIT FIXTURE
	FOUR HOUR FIRE RESISTIVE RATING (INCLUDES ALL EXPOSED STR STL & THREE HOUR PENETRATIONS
	THREE HOUR FIRE RESISTIVE RATING (INCLUDES ALL EXPOSED STR STL & PENETRATIONS)
	TWO HOUR FIRE RESISTIVE RATING (INCLUDES ALL EXPOSED STR STL & PENETRATIONS)
	ZONE BOUNDARY
a	AUTOMATIC PRE-ACTION SYSTEM
b	AUTOMATIC WET SPRINKLER SYSTEM
c	WATER SPRAY SYSTEM
d	HALON 1301 SYSTEM
(W) (D) (C)	PORTABLE EXTINGUISHERS: (NOTE 17) W - PRESSURIZED WATER OR WATER MIST; D - DRY CHEMICAL; C - CARBON DIOXIDE (CO).

AARON B. HOLLOWAY LICENSED 24438 KANSAS PROFESSIONAL ENGINEER

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Date: 2017.07.20 15:27:05 -05'00'

Linda R Kominski
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USAR FIG.-9.5.1-2-01

ESSENTIAL DRAWING

⊗ REVISED	INCORPORATED	CHANGE	015274
○ ISSUED	CHG. DOC.	PKG. NO.	

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REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION | ELECTRONIC APPROVAL

ARCHITECTURAL FIRE DELINEATION FLOOR PLAN, EL. 1974'-0"

SCALE	DRAWING NUMBER	SHEET	REV
1/16"=1'-0"	10466-A-1801		15

34X44 E SIZE

NOTE:

1. SEE DRAWING 10466-A-1801 FOR ADDITIONAL FIREPROOFING NOTES.
2. DELETED

USAR FIG. 9.5.1-2-02

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WP-10466-A-1802-016-A-1	CHANGE 014959 PKG. NO.
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WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

ARCHITECTURAL
FIRE DELINEATION
FLOOR PLAN EL.2000'-0"

SCALE	DRAWING NUMBER	SHEET	REV
1/16" = 1'-0"	10466-A-1802		17

34X44 E SIZE

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[redacted]IREPROOFING NOTES.

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USAR FIG. 9.5.1-2-03

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WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

FIRE DELINEATION FLOOR PLAN, EL. 2026'-0"

SCALE	DRAWING NUMBER	SHEET	REV
1/16"-1'-0"	10466-A-1803		10

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ESWC
EL. 2075'-2½''

[redacted]

REACTOR BLDG
PLAN @ EL. 2068'-8''

PLAN-EL. 2090'-0''

NOTE :

1. SEE DRAWING 10466-A-1801 FOR ADDITIONAL FIRE PROOFING NOTES.
2. DELETED
3. FIREPROOFING ON STRUCTURAL STEEL SHALL BE HAND TROWELLED SMOOTH FINISH FOR ROOMS 3702 AND 3703. SEE SPEC. A-126 AND DWG. A-1801, NOTE 9.
4. DELETED

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USAR FIG. 9.5.1-2-04

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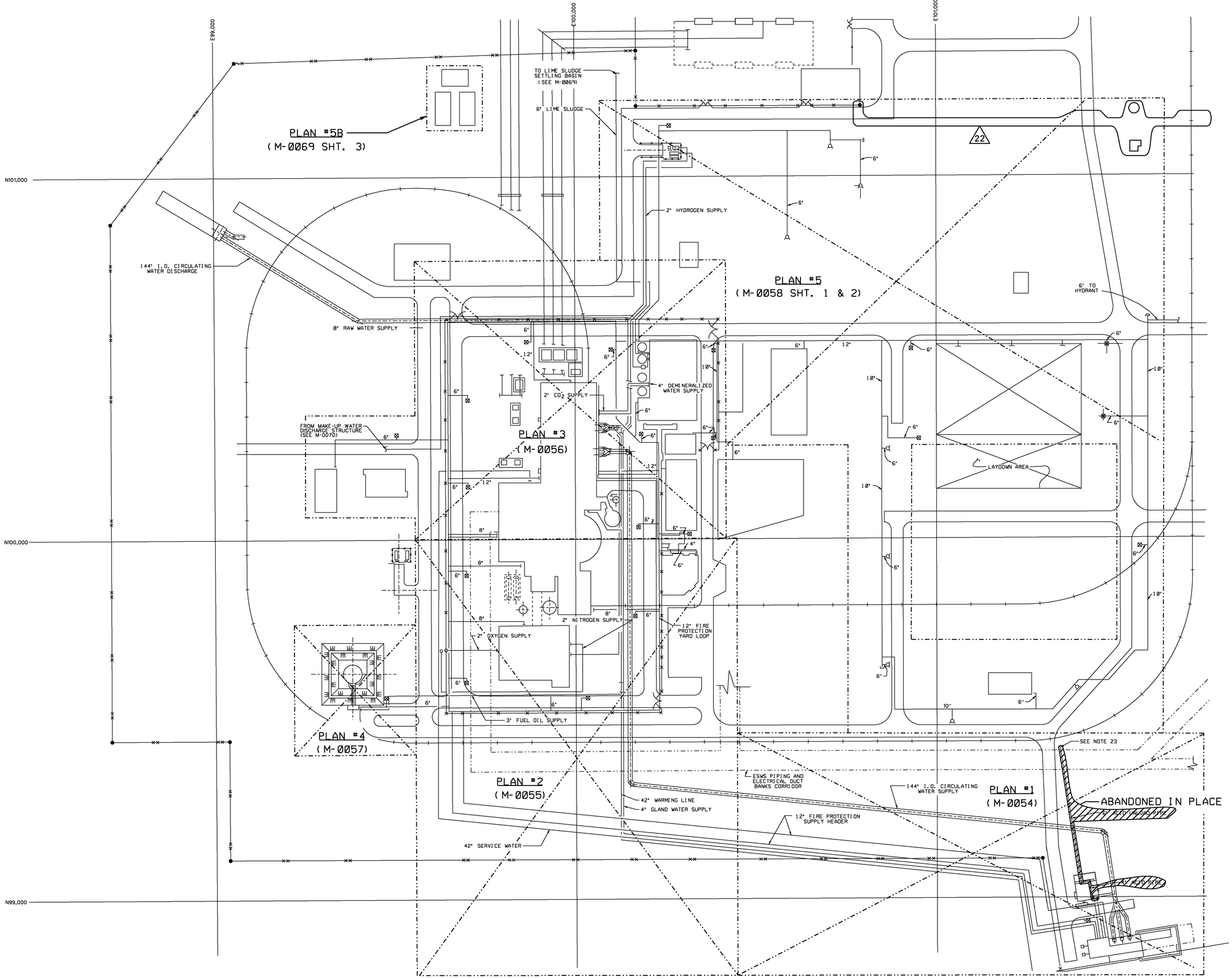
WOLF CREEK
NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

ARCHITECTURAL
FIRE DELINEATION
FLOOR PLAN, EL. 2047'-6''

SCALE	DRAWING NUMBER	SHEET	REV
1/16''=1'-0''	10466-A-1804		13

34X44 E SIZE



GENERAL NOTES

1. FOR PIPING AT JOHN REDMOND RESERVIOR DAM SEE M-0065.
2. FOR CIRCULATING WATER PIPING SEE M-0071 THRU M-0080 (SPEC. A-3809).
3. U.P.C DENOTES MISCELLANEOUS UNDERGROUND PIPING CONTRACTOR (SPEC. A-3810).
4. F.P.S.C. DENOTES FIRE PROTECTION SYSTEM CONTRACTOR (SPEC. A-3824).
5. S.W.P.C. DENOTES SERVICE WATER (ITEM 'B') PIPING CONTRACTOR (SPEC. A-3811)
6. ALL PIPING IN SIZES LARGER THAN 24", EXCLUDING MANHOLES, SHALL BE BASED ON CLEAR INTERNAL DIAMETER.
7. WALL THICKNESS OF STEEL PIPE IN SIZES GREATER THAN 24" SHALL BE 3/8" UNLESS OTHERWISE NOTED.
8. WALL THICKNESS OF STEEL PIPING IN SIZES 24" AND SMALLER SHALL BE AS FOLLOWS:

PIPE SIZE	WALL THICKNESS
2 1/2" AND SMALLER	SCHEDULE 80
2 1/2" THROUGH 10"	SCHEDULE 40
10" THROUGH 24"	3/8" NOMINAL

9. ALL MISCELLANEOUS UNDERGROUND PIPING FURNISHED UNDER SPECIFICATION A-3810 TO BE INSTALLED BY ERECTION CONTRACTOR UNDER SPECIFICATION A-3832.
10. WARMING LINE AND SERVICE WATER. PIPING TO BE FURNISHED UNDER SPECIFICATION A-3811 AND INSTALLED UNDER SPECIFICATION A-3852
11. ALL FIRE PROTECTION SYSTEM PIPING, VALVES, AND INSTRUMENTATION TO BE FURNISHED AND INSTALLED UNDER SPECIFICATION A-3824
12. WARMING LINE VALVE TO BE FURNISHED UNDER SPECIFICATION A-3822 AND INSTALLED BY ERECTION CONTRACTOR UNDER SPECIFICATION A-3838
13. ALL VALVES, EXCEPT WARMING LINE VALVE AND FIRE PROTECTION SYSTEM VALVES, TO BE FURNISHED UNDER SPECIFICATION A-3815 AND INSTALLED BY ERECTION CONTRACTOR UNDER SPECIFICATION A-3838
14. ERECTION CONTRACTOR AND FIRE PROTECTION SYSTEM CONTRACTOR SHALL BE RESPONSIBLE FOR ANCHORING, SUPPORTING, AND RESTRAINING PIPING TO ENSURE THE PHYSICAL INTEGRITY OF PIPING UNDER THEIR RESPECTIVE SCOPE OF WORK.
15. DIMENSIONS GIVEN ARE DESIGN DIMENSIONS; NO ALLOWANCES ARE MADE FOR CUT-SHORTS OR MAKE-LONGS UNLESS NOTED AS SUCH.
16. EXCAVATION OF SERVICE WATER PIPING (1WS02042) AND WARMING LINE (1CW03442) SHALL BE BY SITEWORK CONTRACTOR UNDER SPECIFICATION A-3850.
17. ⊠ DENOTES FIRE HYDRANT, SHUT-OFF VALVE, AND HOSE HOUSE CONTAINING 250 FT. OF 2 1/2 INCH, WOVEN JACKET, LINED, U.L. LISTED FIRE HOSE, 2 SPRAY NOZZLES WITH NATIONAL STANDARD THREADS (7 1/2 PER INCH) 1 AXE, 1 BAR, EMERGENCY LIGHT, 6 SPANNERS, AND 2 WRENCHES, FOR TYPICAL DETAIL SEE M-66.
18. † DENOTES FIRE PROTECTION SYSTEM ISOLATION VALVE WITH POST INDICATOR AND CLOSED CIRCUIT ELECTRICALLY ACTUATED POSITION SWITCHES TO INDICATE VALVE IS NOT FULLY OPEN. FOR TYPICAL DETAIL SEE M-0066.
19. WALL THICKNESS REQUIREMENTS FOR MITER JOINT FITTINGS GIVEN IN SPECIFICATIONS.
20. ○ DENOTES CATHODIC PROTECTION TEST POINT PER S & L STD. EF-316.
21. WHERE PIPING IS MARKED WITH PIPE PENETRATION NUMBERS (E.G., PP-103) REFER TO PIPE PENETRATION DRAWING FOR DETAILS
22. PIPING MARKED A-3838 TO BE FURNISHED AND INSTALLED UNDER SPECIFICATION A-3838.
23. EQUIPMENT AND POWER FOR ACID UNLOAD PUMPS TO BE REMOVED WITH PIPE AND POWER CABLE TERMINATED 2 FEET BELOW GRADE.

REFERENCE DRAWINGS

M-1G001
INTERFACE PEN. SITE ARRANGEMENT

M-1G006 & M-1G007
INTERFACE UNDER GROUND PIPING LOCATIONS

USAR FIG. 9.5-2-00

ESSENTIAL DRAWING

◉ REVISED	INCORPORATED	CHANGE	05586
○ ISSUED	CHG. DOC.	PKG. NO.	

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REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION | ELECTRONIC APPROVAL

OUTDOOR PIPING KEY PLAN & GENERAL NOTES

SCALE	DRAWING NUMBER	SHEET	REV
1"=100'-0"	M-0051		22

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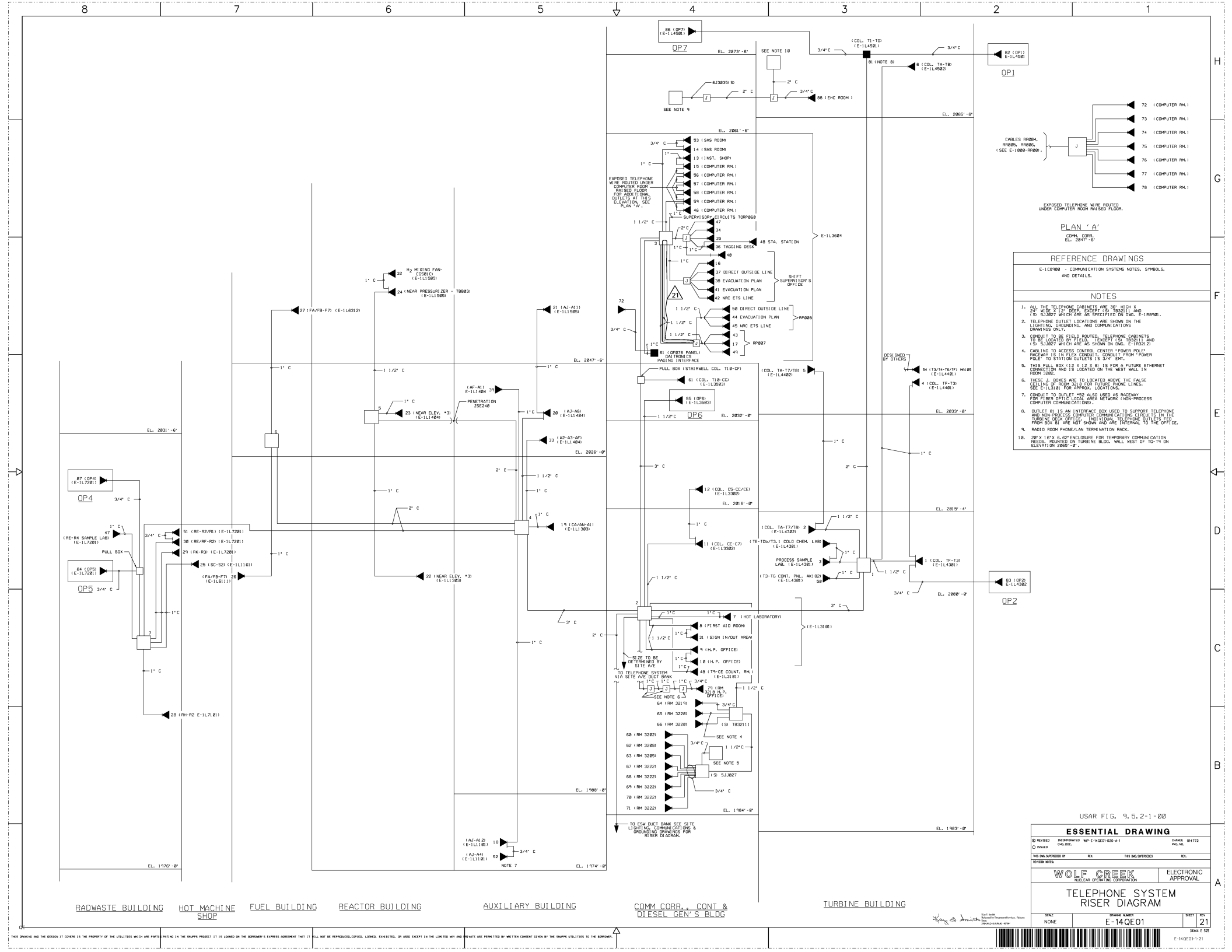
34X44 E SIZE


86 (OP7) (E-IL4501)
OP7
EL. 2073'-6"
SEE NOTE 10
3/4" C
(COL. T1-TG) (E-IL4501)
81 (NOTE 8)
6 (COL. TA-TB) (E-IL4502)
82 (OP1) E-IL4501
OP1
6JJ0305(S)
2" C
SEE NOTE 9
88 (EHC ROOM)
EL. 2065'-6"
EL. 2061'-6"
63 (SAS ROOM)
14 (SAS ROOM)
13 (INST. SHOP)
15 (COMPUTER RM.)
56 (COMPUTER RM.)
57 (COMPUTER RM.)
58 (COMPUTER RM.)
59 (COMPUTER RM.)
46 (COMPUTER RM.)
EXPOSED TELEPHONE WIRE ROUTED UNDER COMPUTER ROOM RAISED FLOOR FOR ADDITIONAL OUTLETS AT THIS ELEVATION, SEE PLAN 'A'.
SUPERVISORY CIRCUITS TORP060
47
34
35
48 STA. STATION
36 TAGGING DESK
40
16
37 DIRECT OUTSIDE LINE
38 EVACUATION PLAN
41 EVACUATION PLAN
42 NRC ETS LINE
SHIFT SUPERVISOR'S OFFICE
E-1L3604
50 DIRECT OUTSIDE LINE
44 EVACUATION PLAN
45 NRC ETS LINE
RP006
43
17
49
RP007
61 (OP076 PANEL) (ANTRONICS PAGING INTERFACE
72
21
CABLES RA004, RA005, RA006, (SEE E-1000-RA00).
72 (COMPUTER RM.)
73 (COMPUTER RM.)
74 (COMPUTER RM.)
75 (COMPUTER RM.)
76 (COMPUTER RM.)
77 (COMPUTER RM.)
78 (COMPUTER RM.)
EXPOSED TELEPHONE WIRE ROUTED UNDER COMPUTER ROOM RAISED FLOOR.
PLAN 'A'
COMM. CORR. EL. 2047'-6"
REFERENCE DRAWINGS
E-1C0900 - COMMUNICATION SYSTEMS NOTES, SYMBOLS, AND DETAILS.
NOTES
1. ALL THE TELEPHONE CABINETS ARE 36" WIDE X 24" WIDE X 12" DEEP, EXCEPT (S) TB3211 AND (S) 5JJ027 WHICH ARE AS SPECIFIED ON DWG. E-1R0901.
2. TELEPHONE OUTLET LOCATIONS ARE SHOWN ON THE LIGHTING, GROUNDING, AND COMMUNICATIONS DRAWINGS ONLY.
3. CONDUIT TO BE FIELD ROUTED, TELEPHONE CABINETS TO BE LOCATED BY FIELD. (EXCEPT (S) TB3211 AND (S) 5JJ027 WHICH ARE AS SHOWN ON DWG. E-1R3212)
4. CABLING TO ACCESS CONTROL CENTER "POWER POLE" RACEWAY IS IN FLEX CONDUIT. CONDUIT FROM "POWER POLE" TO STATION OUTLETS IS 3/4" EMT.
5. THIS PULL BOX (12 X 12 X 8) IS FOR A FUTURE ETHERNET CONNECTION AND IS LOCATED ON THE WEST WALL IN ROOM 3082.
6. THESE J. BOXES ARE TO LOCATED ABOVE THE FALSE CEILING OF ROOM 3218 FOR FUTURE PHONE LINES. SEE E-1J318 FOR APPROX. LOCATIONS.
7. CONDUIT TO OUTLET #52 ALSO USED AS RACEWAY FOR FIBER OPTIC LOCAL AREA NETWORK (NON-PROCESS COMPUTER COMMUNICATIONS).
8. OUTLET 81 IS AN INTERFACE BOX USED TO SUPPORT TELEPHONE AND NON-PROCESS COMPUTER COMMUNICATIONS CIRCUITS IN THE TURBINE DECK OFFICE. (INDIVIDUAL TELEPHONE OUTLETS FED FROM BOX 81 ARE NOT SHOWN AND ARE INTERNAL TO THE OFFICE.
9. RADIO ROOM PHONE/LAN TERMINATION RACK.
10. 20" X 16" X 6.62" ENCLOSURE FOR TEMPORARY COMMUNICATION NEEDS. MOUNTED ON TURBINE BLDG. WALL WEST OF TG-19 ON ELEVATION 2065'-0".
EL. 2047'-6"
1" C
1 1/2" C
PULL BOX (STAIRWELL COL. T10-CF)
61 (COL. T10-CC) (E-IL3503)
85 (OP6) (E-IL3503)
OP6
EL. 2032'-0"
(COL. TA-T7/T8) 5 (E-IL4402)
DESIGNED BY OTHERS
54 (T3/T4-T6/TF) HA185 (E-IL4401)
4 (COL. TF-T3) (E-IL4401)
EL. 2033'-0"
(AF-A1) E-LI1484 39
PENETRATION ZSE240
23 (NEAR ELEV. *3) (E-LI1484)
20 (AJ-A8) (E-LI1484)
33 (A2-A3-AF) (E-LI1404)
EL. 2026'-0"
2" C
3" C
12 (COL. C5-CC/CE) (E-IL3302)
EL. 2016'-0"
EL. 2015'-4"
11 (COL. CE-C7) (E-IL3302)
(COL. TA-T7/T8) 2 (E-IL4302)
(TE-TDb/T3.1 COLD CHEM. LAB) (E-IL4301)
PROCESS SAMPLE LAB. (E-IL4301)
(T3-TG CONT. PNL. AK182) (E-IL4301)
1 (COL. TF-T3) (E-IL4301)
83 (OP2) E-IL4302
OP2
EL. 2000'-0"
7 (HOT LABORATORY)
8 (FIRST AID ROOM)
31 (SIGN IN/OUT AREA)
9 (H.P. OFFICE)
10 (H.P. OFFICE)
48 (T9-CE COUNT. RM.) (E-IL3101)
79 (RM 3218 (H.P. OFFICE)
(E-IL3101)
SIZE TO BE DETERMINED BY SITE A/E
TO TELEPHONE SYSTEM VIA SITE A/E DUCT BANK
SEE NOTE 6
64 (RM 3219)
65 (RM 3220)
66 (RM 3220)
(S) TB3211
SEE NOTE 4
SEE NOTE 5
(S) 5JJ027
60 (RM 3202)
62 (RM 3208)
63 (RM 3205)
67 (RM 3222)
68 (RM 3222)
69 (RM 3222)
70 (RM 3222)
71 (RM 3222)
EL. 1984'-0"
TO ESW DUCT BANK SEE SITE LIGHTING, COMMUNICATIONS & GROUNDING DRAWINGS FOR RISER DIAGRAM.
EL. 1983'-0"
EL. 1988'-0"
87 (OP4) (E-IL7201)
OP4
47 (RE-R4 SAMPLE LAB) (E-IL7201)
51 (RE-R2/RI) (E-IL7201)
30 (RE/RF-R2) (E-IL7201)
29 (RK-R3) (E-IL7201)
84 (OP5) (E-IL7201)
OP5
25 (SC-S2) (E-1L1161)
(FA/FB-F7) 26 (E-1L6111)
PULL BOX
27 (FA/FB-F7) (E-IL6312)
32 H2 MIXING FAN-CQS01C (E-1L1505)
24 (NEAR PRESSURIZER - TB003) (E-1L1505)
21 (AJ-A1) (E-1L1505)
22 (NEAR ELEV. *3) (E-1L1303)
19 (CA/AN-A1) (E-1L1303)
28 (RH-R2 E-IL7101)
(AJ-A12) (E-1L1101) 18
(AJ-A4) (E-1L1101) 52
NOTE 7
EL. 1974'-0"
EL. 1976'-0"
EL. 2031'-6"
RADWASTE BUILDING
HOT MACHINE SHOP
FUEL BUILDING
REACTOR BUILDING
AUXILIARY BUILDING
COMM CORR., CONT & DIESEL GEN'S BLDG
TURBINE BUILDING
USAR FIG. 9.5.2-1-00
ESSENTIAL DRAWING
REVISED
ISSUED
INCORPORATED CHG.DOC. WP-E-WQE01-020-A-1
CHANGE PKG.NO. 014772
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WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
TELEPHONE SYSTEM RISER DIAGRAM
SCALE NONE
DRAWING NUMBER E-14QE01
SHEET 21
REV
34344 E SIZE
E-14QE01-1-21
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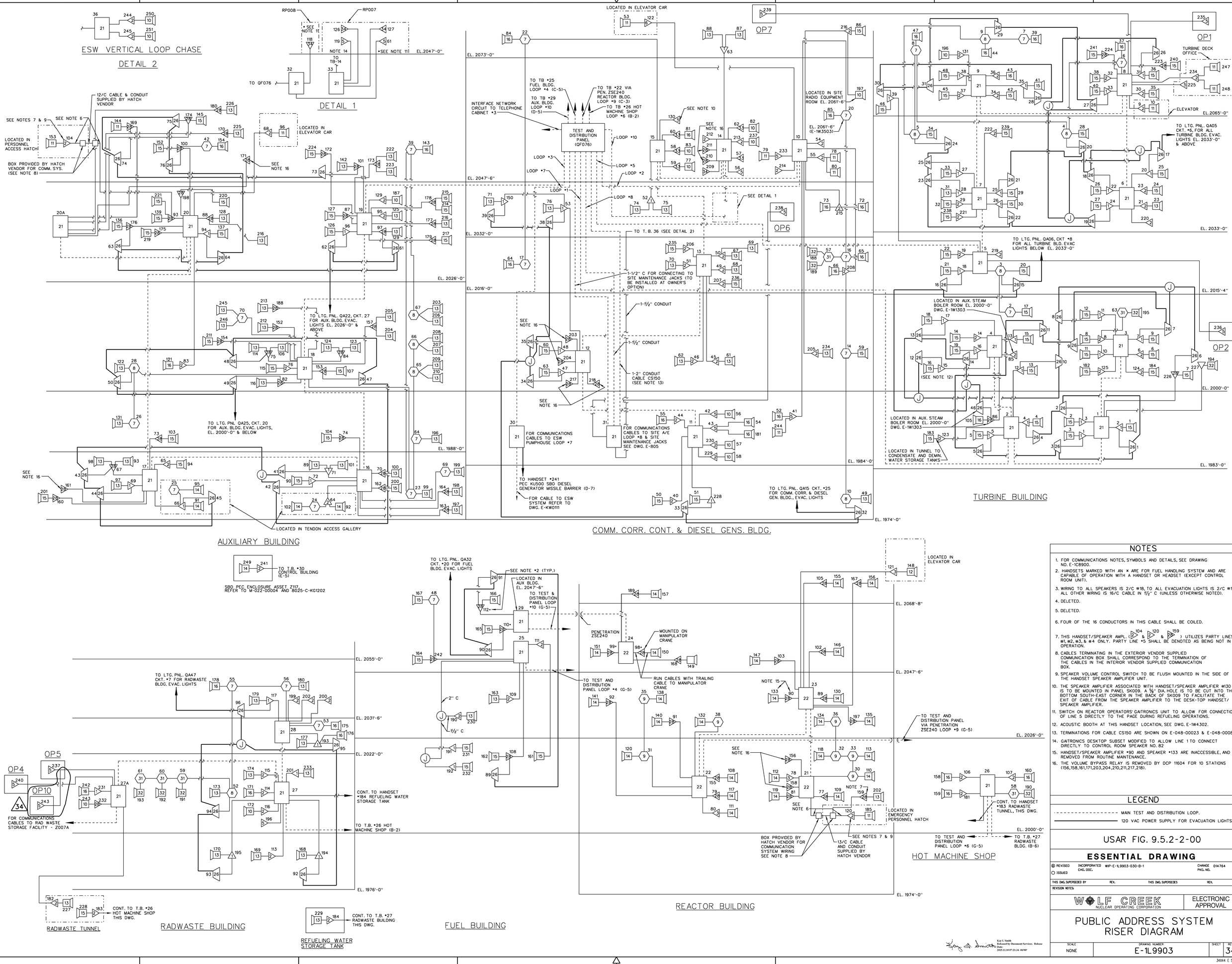

NOTES

1. FOR COMMUNICATIONS NOTES, SYMBOLS AND DETAILS, SEE DRAWING NO. E-1C8900.
2. HANDSETS MARKED WITH AN × ARE FOR FUEL HANDLING SYSTEM AND ARE CAPABLE OF OPERATION WITH A HANDSET OR HEADSET (EXCEPT CONTROL ROOM UNIT).
3. WIRING TO ALL SPEAKERS IS 2/C #18, TO ALL EVACUATION LIGHTS IS 2/C #12, ALL OTHER WIRING IS 16/C CABLE IN ½" C (UNLESS OTHERWISE NOTED).
4. DELETED.
5. DELETED.
6. FOUR OF THE 16 CONDUCTORS IN THIS CABLE SHALL BE COILED.
7. THIS HANDSET/SPEAKER AMPL. (▷104 & ▷120 & ▷159) UTILIZES PARTY LINES #1, #2, #3, & #4 ONLY. PARTY LINE •5 SHALL BE DENOTED AS BEING NOT IN OPERATION.
8. CABLES TERMINATING IN THE EXTERIOR VENDOR SUPPLIED COMMUNICATION BOX SHALL CORRESPOND TO THE TERMINATION OF THE CABLES IN THE INTERIOR VENDOR SUPPLIED COMMUNICATION BOX.
9. SPEAKER VOLUME CONTROL SWITCH TO BE FLUSH MOUNTED IN THE SIDE OF THE HANDSET SPEAKER AMPLIFIER UNIT.
10. THE SPEAKER AMPLIFIER ASSOCIATED WITH HANDSET/SPEAKER AMPLIFIER #130 IS TO BE MOUNTED IN PANEL SK009. A 5⁄8" DIA. HOLE IS TO BE CUT INTO THE BOTTOM SOUTH-EAST CORNER IN THE BACK OF SK009 TO FACILITATE THE EXIT OF CABLE FROM THE SPEAKER AMPLIFIER TO THE DESK-TOP HANDSET/ SPEAKER AMPLIFIER.
11. SWITCH ON REACTOR OPERATORS' GAITRONICS UNIT TO ALLOW FOR CONNECTION OF LINE 5 DIRECTLY TO THE PAGE DURING REFUELING OPERATIONS.
12. ACOUSTIC BOOTH AT THIS HANDSET LOCATION, SEE DWG. E-1W4302.
13. TERMINATIONS FOR CABLE CS150 ARE SHOWN ON E-048-00023 & E-048-00086.
14. GAITRONICS DESKTOP SUBSET MODIFIED TO ALLOW LINE 1 TO CONNECT DIRECTLY TO CONTROL ROOM SPEAKER NO. 82
15. HANDSET/SPEAKER AMPLIFIER •90 AND SPEAKER •133 ARE INACCESSIBLE, AND REMOVED FROM ROUTINE MAINTENANCE.
16. THE VOLUME BYPASS RELAY IS REMOVED BY DCP 11604 FOR 10 STATIONS (156,158,161,171,203,204,210,211,217,218).

LEGEND

- ---------- MAIN TEST AND DISTRIBUTION LOOP.
- ———— 120 VAC POWER SUPPLY FOR EVACUATION LIGHTS.

USAR FIG. 9.5.2-2-00

ESSENTIAL DRAWING

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WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

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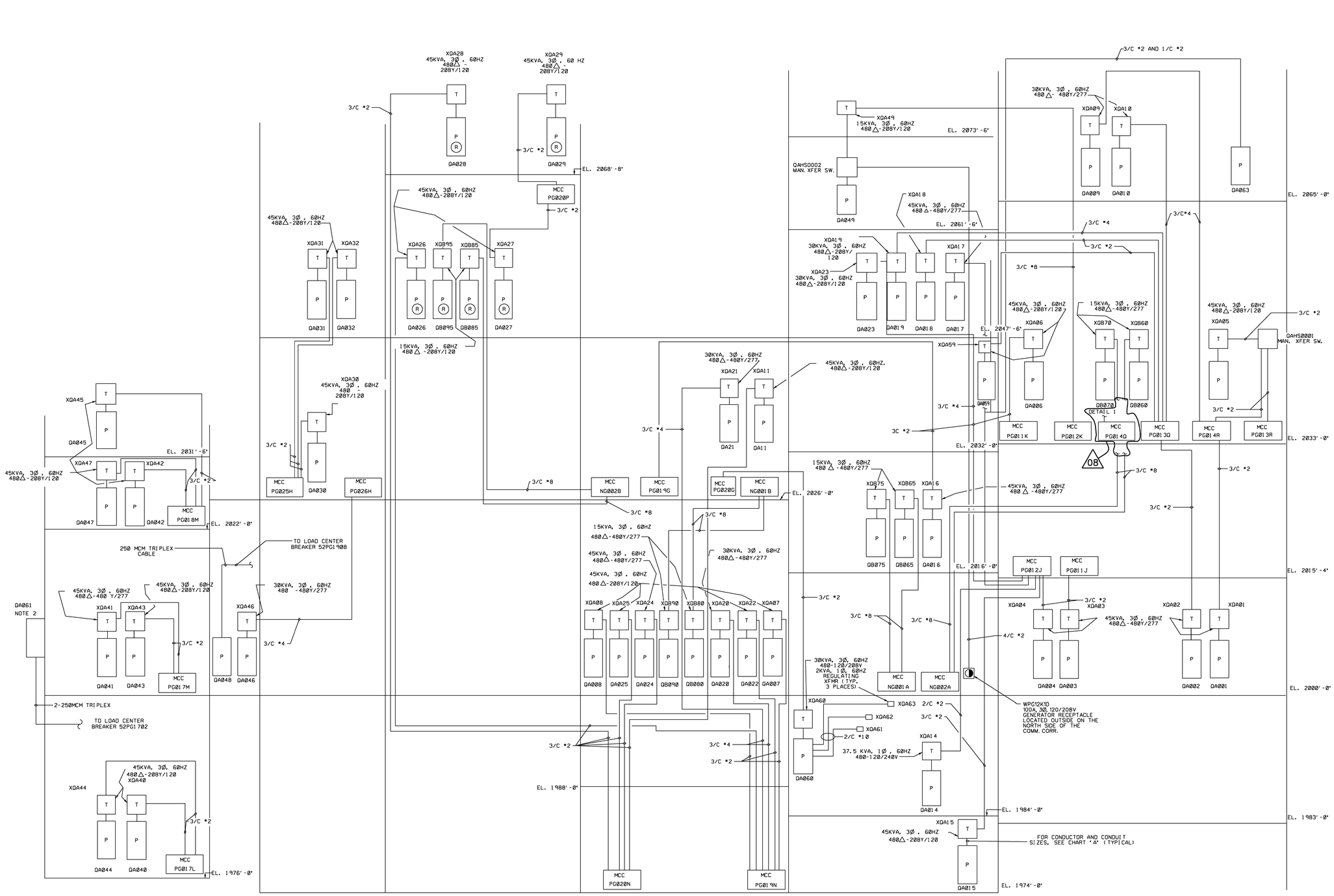
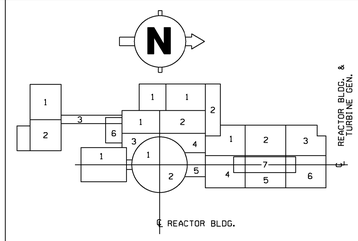
PUBLIC ADDRESS SYSTEM RISER DIAGRAM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	E-1L9903		34

34X44 E SIZE





KEY PLAN

REFERENCE DRAWINGS

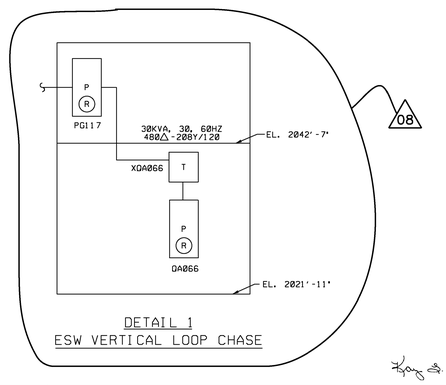
E-1L8900	LIGHTING NOTES SYMBOLS AND DETAILS
E-1L9900	PANEL SCHEDULES

NOTES

1. (R) INDICATES RAINTIGHT ENCLOSURE, SEE E-1L9900.
2. PANEL QA061 IS LOCATED ON THE EXTERIOR WALL OF THE RADWASTE BLDG. AND IS DEDICATED TO SUPPLY THE ADJOINING MAINTENANCE BUILDING.

TRANSFORMER TO PANEL WIRING INFO.			
TRANSFORMER RATING		CONDUCTOR SIZE (MIN.	CONDUIT SIZE (MIN.
45KVA (3Ø)	480Y/277	4/C *4	1 1/2"
	208Y/120	4/C 2/0	2"
30KVA (3Ø)	480Y/277	4/C *6	1"
	208Y/120	4/C *2	1 1/2"
15KVA (3Ø)	480Y/277	4/C *10	3/4"
	208Y/120	4/C *6	1"
37.5KVA (1Ø)	120/240	3/C 4/0	2"

CHART A



DETAIL 1
ESW VERTICAL LOOP CHASE

USAR FIG. 9.5.3-1-00

ESSENTIAL DRAWING

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REVISION NOTES: REVISED TO INCORPORATE WIP PER WO# 14-390612-068, STEPS 1& 2.

WOLF CREEK NUCLEAR OPERATING CORPORATION	ELECTRONIC APPROVAL

LIGHTING DISTRIBUTION RISER DIAGRAM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	E-1L9901		08

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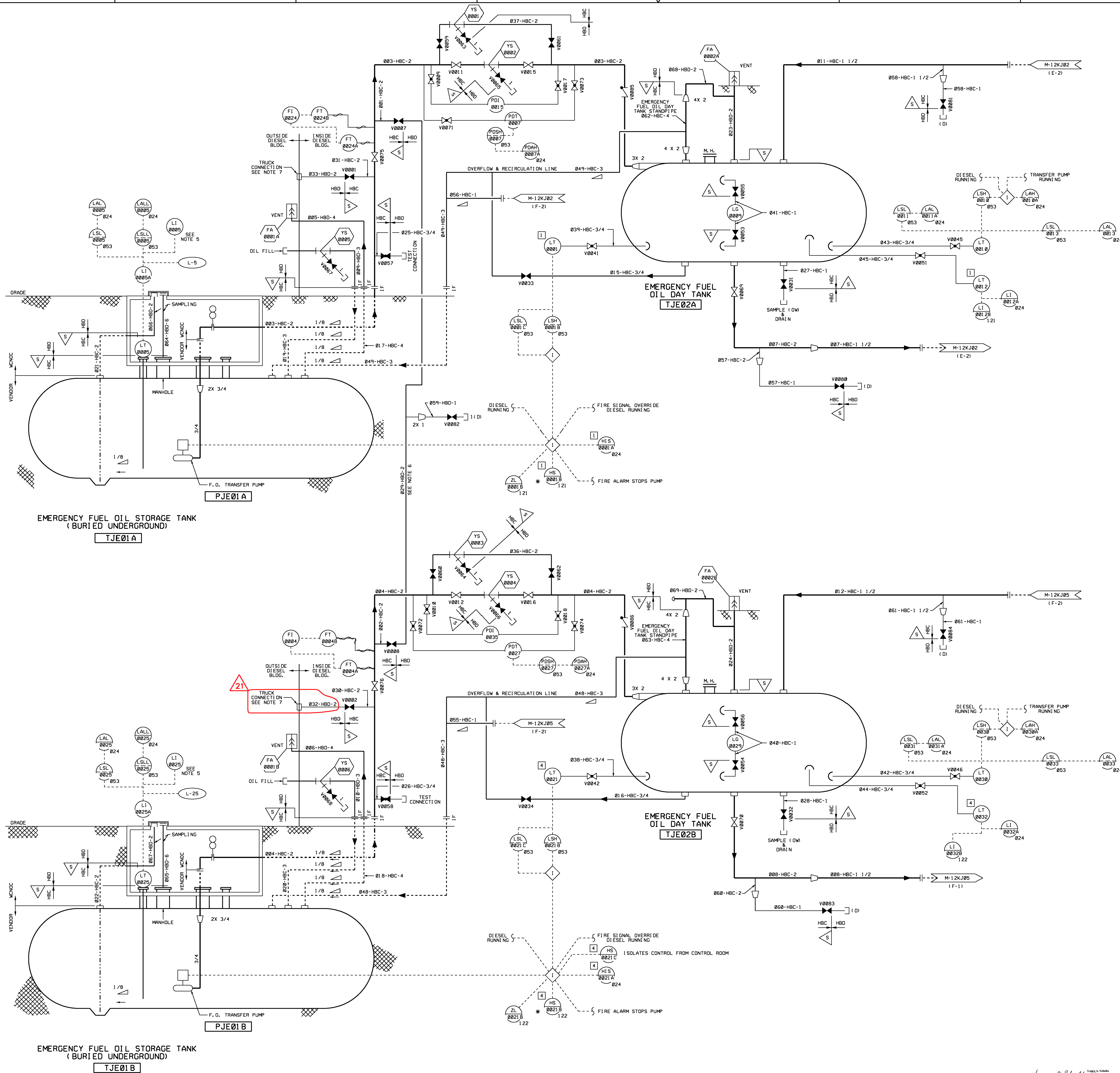

NOTES

1. THE ASME SECTION III, CLASS 3 COMPONENTS ARE SUBJECT TO VISUAL INSERVICE INSPECTION REQUIREMENTS.
2. HYDROTESTING FOR INSERVICE INSPECTION SHALL BE WITH NO. 2 DIESEL OIL.
3. ALL BURIED LINES TO SLOPE 1/8" PER FOOT TOWARD EMERGENCY FUEL OIL STORAGE TANKS.
4. INSULATING FLANGES MATERIALS SHALL BE COMPATIBLE WITH NO. 2 DIESEL FUEL OIL.
5. LI0005 & LI0025 ARE LOCATED OUTSIDE THE DIESEL BUILDING ADJACENT TO THE FILL CONNECTION.
6. SEISMICALLY SUPPORTED.
7. THE TRUCK CONNECTION IS RECESSED FROM THE EXTERIOR WALL SURFACE APPROXIMATELY 1/4". A 2" BUSHING IS WELDED TO THE END OF THE PIPE AND THREADED TO ACCEPT A 1" NPTF PIPE PLUG COVERED WITH A CARBON STEEL PLATE FOR TORNADO GENERATED MISSILE PROTECTION. REFERENCE DRAWING C-0C5903 FOR PLATE DETAIL.

USAR FIG. 9.5.4-1-00

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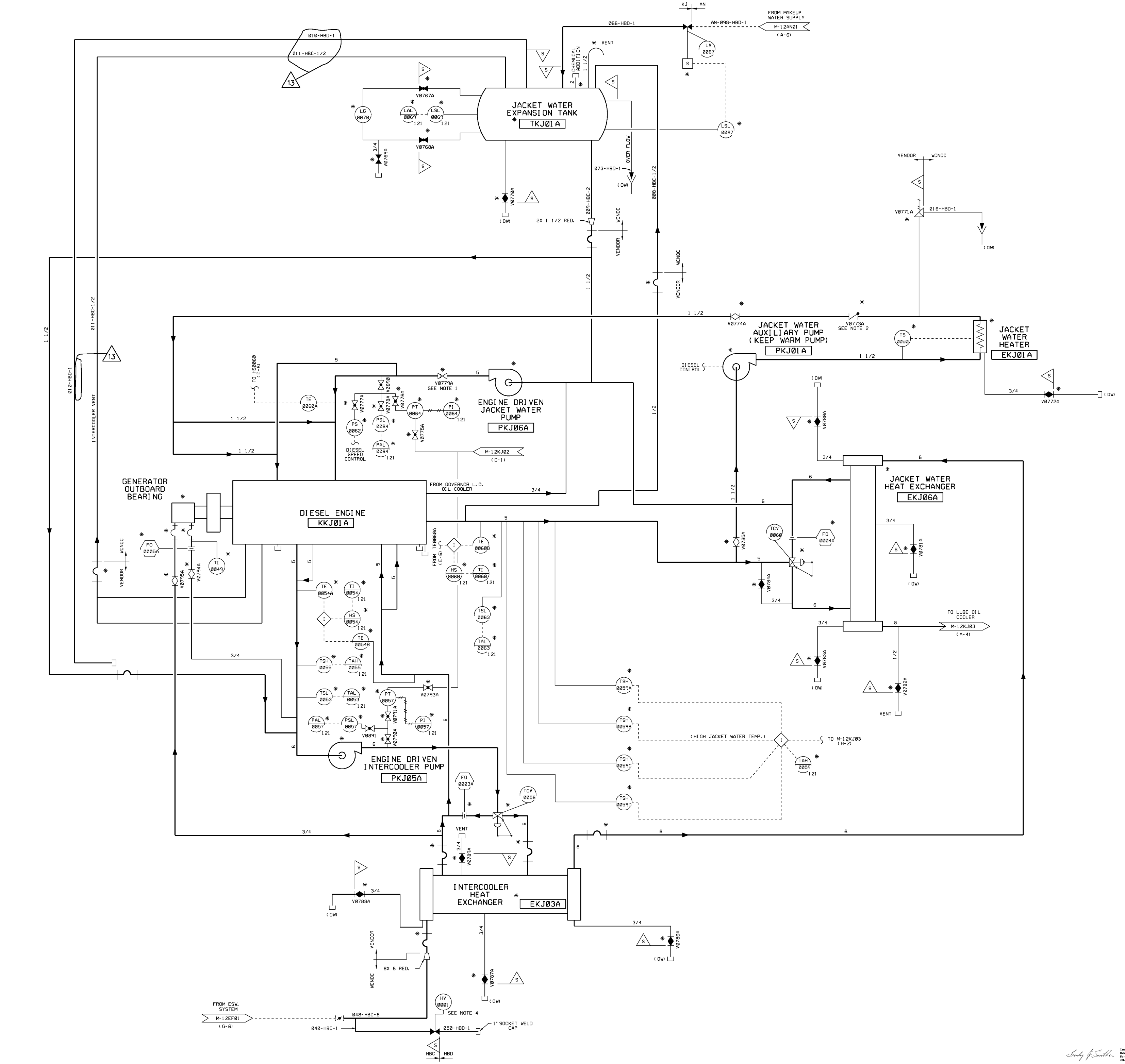
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
EMERGENCY FUEL OIL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12JE01		21

34X44 E SIZE



NOTES

1. —⋈— REPRESENTS A DUAL PLATE CHECK VALVE
2. THE INTERNALS OF VALVE V0773A HAVE BEEN REMOVED.
3. DELETED
4. KJHV001 IS ABANDONED IN PLACE AND BLOCKED CLOSED WITH THE ACTUATOR REMOVED.

USAR FIG. 9.5.5-1-01

ESSENTIAL DRAWING

⊗ REVISED / ○ ISSUED	INCORPORATED CHG. DOC. CR# 00088438	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:	REVISED TO DELETE NOTE 3 PER CR# 00088438.		

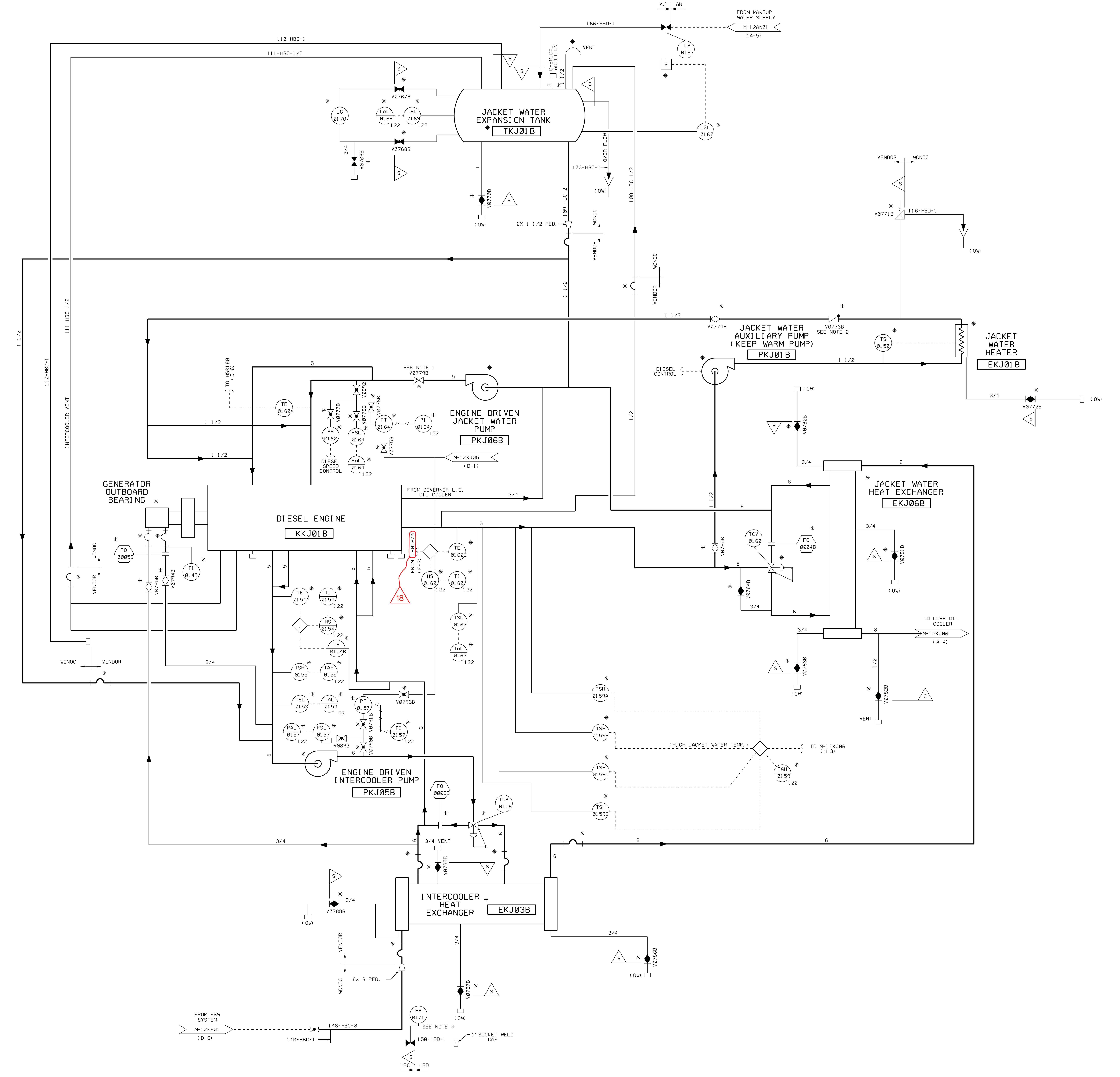
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
STANDBY DIESEL GENERATOR "A"
COOLING WATER SYSTEM

Trudy J Smither
Released by Document Services. Release Date:
2014.12.11 13:12:33 -06'00'

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KJ01		13

34X44 E SIZE
M-12KJ01-1-13



NOTES

1. REPRESENTS A DUAL PLATE CHECK VALVE.
2. THE INTERNALS OF VALVE V0773B HAS BEEN REMOVED.
3. DELETED
4. KJHV0101 IS ABANDONED IN PLACE AND BLOCKED CLOSED WITH THE ACTUATOR REMOVED.

USAR FIG. 9.5.5-1-02

ESSENTIAL DRAWING

REVISED / ISSUED	INCORPORATED CR 00094692 CHG. DOC.
CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY / REV.	THIS DWG. SUPERSEDES / REV.
REVISION NOTES:	

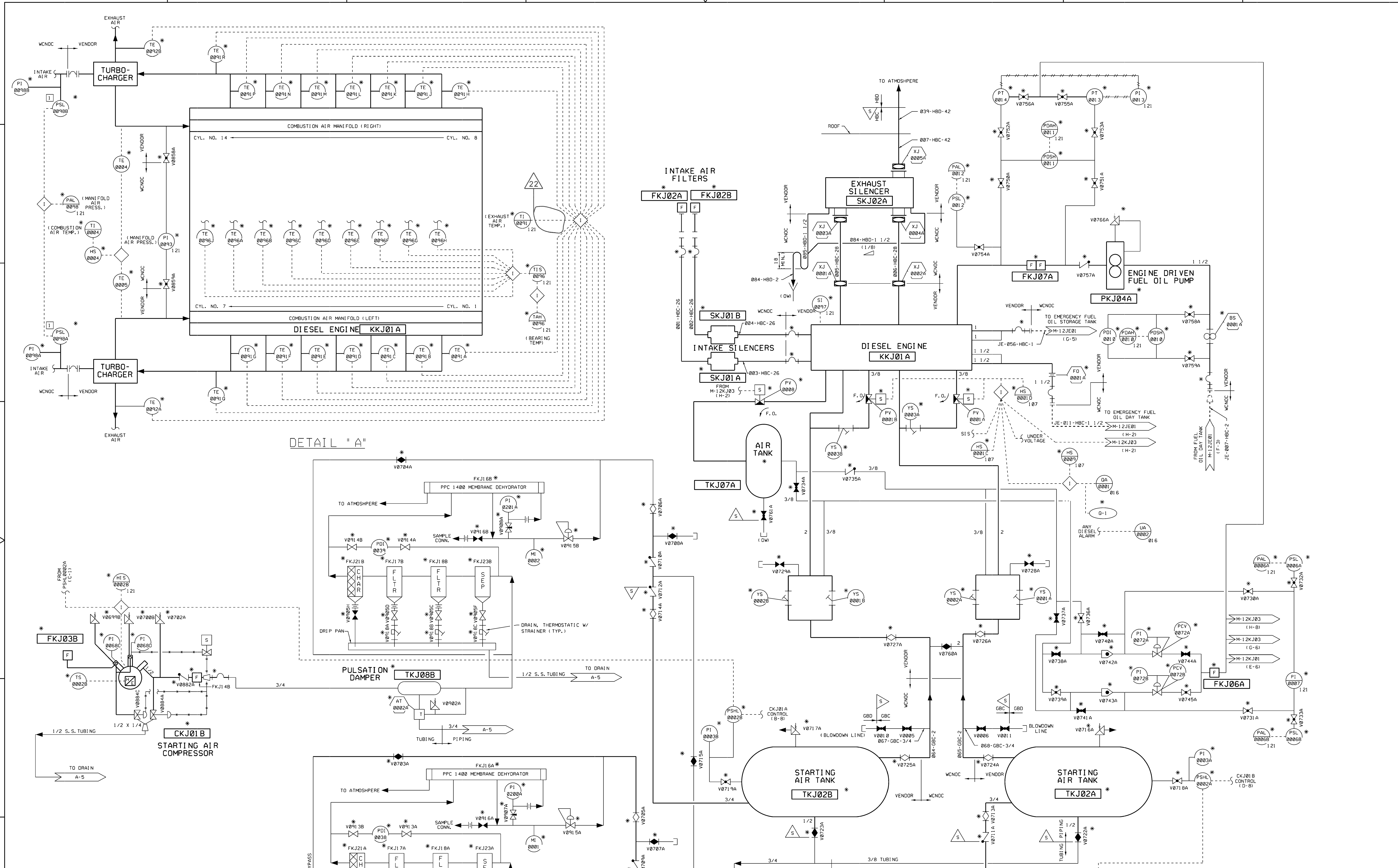
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
STANDBY DIESEL GENERATOR "B"
COOLING WATER SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KJ04	1	18

34X44 E SIZE

M-12KJ04-1-18



LEGEND:

F F DUPLEX FILTER

NOTE:

1. FOR INTAKE AIR EXHAUST AIR & BEARING INSTRUMENTATION, SEE DETAIL "A" (F-7).

USAR FIG. 9.5.6-1-01

ESSENTIAL DRAWING

REVISED / ISSUED — INCORPORATED CHG. DOC. WIP-M-12KJ02-018-B-1 R/00 — CHANGE PKG. NO. 012480

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
STANDBY DIESEL GENERATOR "A"
INTAKE EXHAUST. F.O. & START. AIR SYS.

SCALE	DRAWING NUMBER	SHEET	REV.
NONE	M-12KJ02		22

34X44 E SIZE

M-12KJ02-1-22

NOTES:

1. FOR INTAKE AIR, EXHAUST AIR & BEARING INSTRUMENTATION, SEE DETAIL "A" (F-7).

LEGEND:

F F DUPLEX FILTER

USAR FIG. 9.5.6-1-02

ESSENTIAL DRAWING

⊗ REVISED INCORPORATED CHG. DOC.
○ ISSUED
CHANGE PKG. NO.

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REVISION NOTES: REVISED PER AP 05-10 SECTION 6.10 TO ADD MISSING DRIP PAN BACK

WOLF CREEK NUCLEAR OPERATING CORPORATION

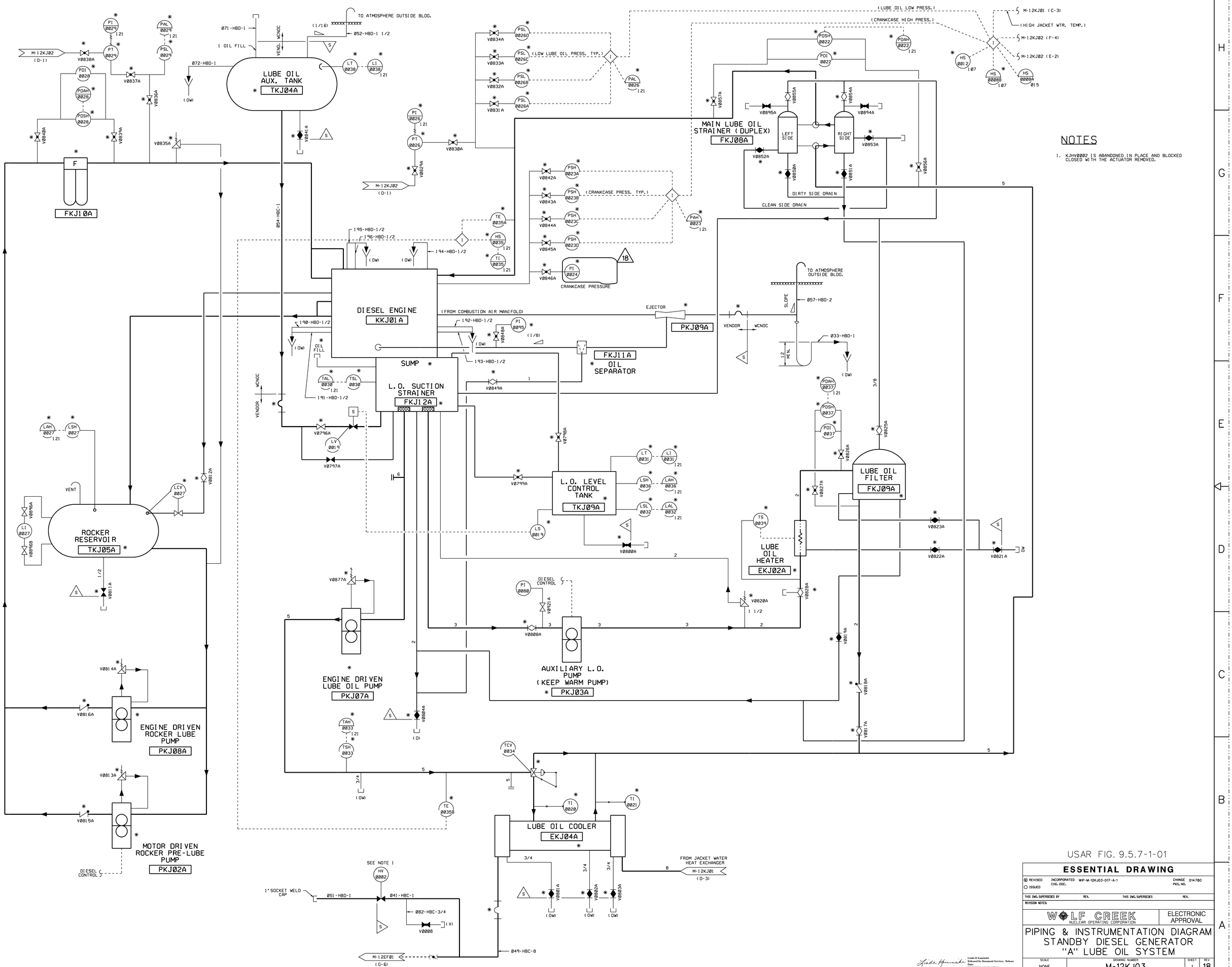
ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
STANDBY DIESEL GENERATOR "B"
INTAKE EXHAUST, F.O. & START AIR SYS.

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KJ05		17

Kay L Smith
Kay L Smith
Released by Document Services. Release Date:
2013.12.12 07:43:49 -06'00'

34X44 E SIZE
M-12KJ05+1+17



USAR FIG. 9.5.7-1-01

ESSENTIAL DRAWING

⊗ REVISED ○ ISSUED	INCORPORATED CHG. DOC.	WP-M-12KJ03-017-A-1	CHANGE PKG. NO. 014780
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES	REV.
REVISION NOTES:			

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM STANDBY DIESEL GENERATOR "A" LUBE OIL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KJ03	1	18

Linda R Kaminski Released by Document Services. Release Date: 2018.07.31 16:00:28 -05'00'

34X44 E SIZE

8 7 6 5 4 3 2 1

H G F E D C B A

LUBE OIL AUX. TANK
TKJ04B

DIESEL ENGINE
KKJ01B

SUMP
L.O. SUCTION STRAINER
FKJ12B

FKJ10B

FKJ11B
OIL SEPARATOR

EJECTOR
PKJ09B

MAIN LUBE OIL STRAINER (DUPLEX)
FKJ08B
LEFT SIDE
RIGHT SIDE
DIRTY SIDE DRAIN
CLEAN SIDE DRAIN

L.O. LEVEL CONTROL TANK
TKJ09B

LUBE OIL FILTER
FKJ09B

LUBE OIL HEATER
EKJ02B

LUBE OIL COOLER
EKJ04B

ROCKER RESERVOIR
TKJ05B

ENGINE DRIVEN LUBE OIL PUMP
PKJ07B

AUXILIARY L.O. PUMP
PKJ03B

ENGINE DRIVEN ROCKER LUBE PUMP
PKJ08B

MOTOR DRIVEN ROCKER PRE-LUBE PUMP
PKJ02B

CRANKCASE PRESSURE

TO ATMOSPHERE OUTSIDE BLDG.

FROM JACKET WATER HEAT EXCHANGER
M-12KJ04 (D-3)

SEE NOTE 1

1. KJHV0102 IS ABANDONED IN PLACE AND BLOCKED CLOSED WITH THE ACTUATOR REMOVED.

NOTES:

USAR FIG. 9.5.7-1, SHT.2

ESSENTIAL DRAWING

REVISED ⊗ ISSUED ○ INCORPORATED CHG. DOC. WP-M-12KJ06-021-A-1 CHANGE PKG. NO. 014780

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REVISION NOTES:

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM STANDBY DIESEL GENERATOR "B" LUBE OIL SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
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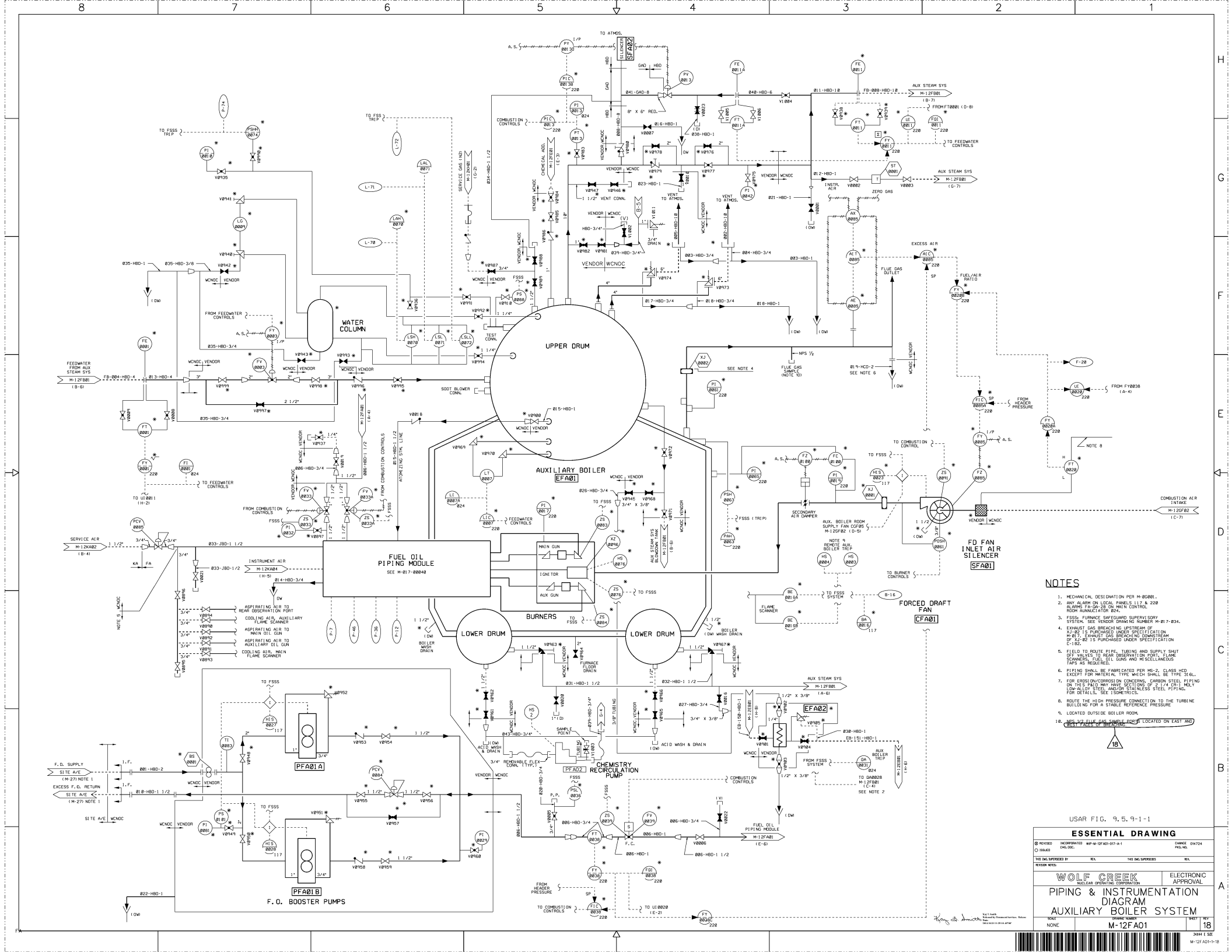
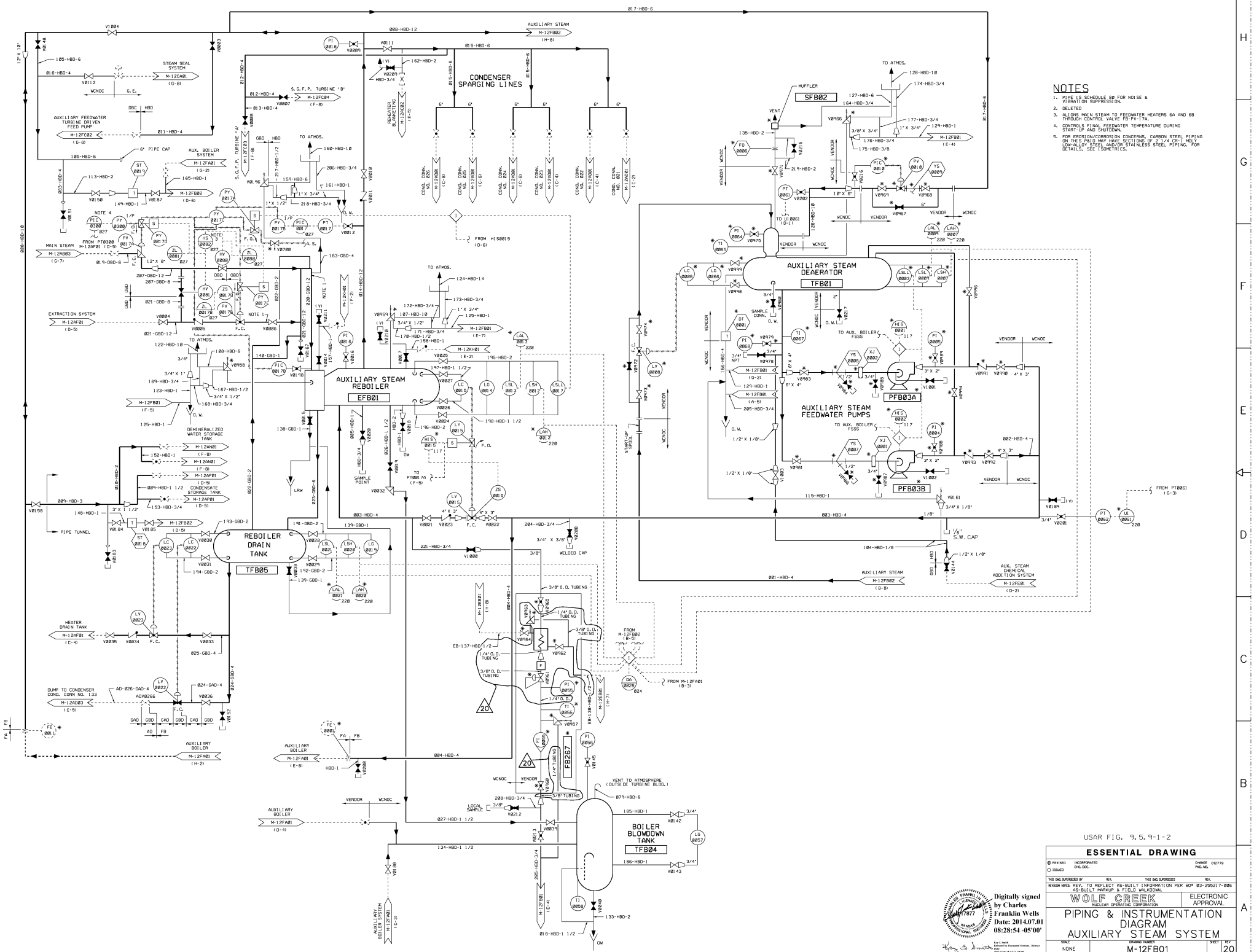
Linda R Kaminski
Released by Document Services. Release Date: 2018.07.23 16:06:43 -05'00'

34X44 E SIZE


WATER COLUMN
UPPER DRUM
LOWER DRUM
LOWER DRUM
AUXILIARY BOILER
EFA01
FUEL OIL PIPING MODULE
SEE M-017-00040
BURNERS
MAIN GUN
IGNITOR
AUX GUN
CHEMISTRY RECIRCULATION PUMP
PFA02
PFA01A
PFA01B
F.D. BOOSTER PUMPS
FD FAN INLET AIR SILENCER
SFA01
FORCED DRAFT FAN
CFA01
SILENCER
SFA02
EFA02
NOTES
1. MECHANICAL DESIGNATION PER M-00001.
2. ANY ALARM ON LOCAL PANELS L17 & 220 ALARMS FA-0A-28 ON MAIN CONTROL ROOM ANNUNCIATOR 024.
3. FSSS: FURNACE SAFEGUARD SUPERVISORY SYSTEM. SEE VENDOR DRAWING NUMBER M-017-034.
4. EXHAUST GAS BREACHING UPSTREAM OF XJ-02 IS PURCHASED UNDER SPECIFICATION M-017. EXHAUST GAS BREACHING DOWNSTREAM OF XJ-02 IS PURCHASED UNDER SPECIFICATION C-182.
5. FIELD TO ROUTE PIPE, TUBING AND SUPPLY SHUT OFF VALVES TO REAR OBSERVATION PORT, FLAME SCANNERS, FUEL OIL GUNS AND MISCELLANEOUS TAPS AS REQUIRED.
6. PIPING SHALL BE FABRICATED PER MS-2, CLASS HCD EXCEPT FOR MATERIAL TYPE WHICH SHALL BE TYPE 316L.
7. FOR EROSION/CORROSION CONCERNS, CARBON STEEL PIPING ON THIS P&ID MAY HAVE SECTIONS OF 2 1/4 CR-1 MOLY LOW-ALLOY STEEL AND/OR STAINLESS STEEL PIPING. FOR DETAILS, SEE ISOMETRICS.
8. ROUTE THE HIGH PRESSURE CONNECTION TO THE TURBINE BUILDING FOR A STABLE REFERENCE PRESSURE
9. LOCATED OUTSIDE BOILER ROOM.
10. NPS 1/2 FLUE GAS SAMPLE PORTS LOCATED ON EAST AND WEST FACES OF BREACHING.
USAR FIG. 9.5.9-1-1
ESSENTIAL DRAWING
WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
PIPING & INSTRUMENTATION DIAGRAM
AUXILIARY BOILER SYSTEM
SCALE NONE
DRAWING NUMBER M-12FA01
SHEET 18
REV A
34144 E 505
M-12FA01-1-18


AUXILIARY STEAM REBOILER EF01
AUXILIARY STEAM DEAERATOR TF01
AUXILIARY STEAM FEEDWATER PUMPS
PFB03A
PFB03B
REBOILER DRAIN TANK TF05
BOILER BLOWDOWN TANK TF04
CONDENSER SPARGING LINES
MUFFLER SF802
NOTES
1. PIPE IS SCHEDULE 80 FOR NOISE & VIBRATION SUPPRESSION.
2. DELETED
3. ALIGNS MAIN STEAM TO FEEDWATER HEATERS 6A AND 6B THROUGH CONTROL VALVE FB-PV-17A.
4. CONTROLS FINAL FEEDWATER TEMPERATURE DURING START-UP AND SHUTDOWN.
5. FOR EROSION/CORROSION CONCERNS, CARBON STEEL PIPING ON THIS P&ID MAY HAVE SECTIONS OF 2 1/4 CR-1 MOLY LOW-ALLOY STEEL AND/OR STAINLESS STEEL PIPING. FOR DETAILS, SEE ISOMETRICS.
USAR FIG. 9.5.9-1-2
ESSENTIAL DRAWING
REVISED
ISSUED
INCORPORATED
CHANGE 012779
WOLF CREEK NUCLEAR OPERATING CORPORATION
ELECTRONIC APPROVAL
PIPING & INSTRUMENTATION DIAGRAM
AUXILIARY STEAM SYSTEM
SCALE NONE
DRAWING NUMBER M-12FB01
SHEET 20
REV A
Digitally signed by Charles Franklin Wells
Date: 2014.07.01 08:28:54 -05'00'

PERMANENTLY OUT OF SERVICE
(SEE NOTE 7)

DECON. SYSTEM (AUX. BLDG.) M-12HD01 (G-8)

REACTOR HEAD DECON. AREA CTMT. BLDG.) M-12HD01 (B-8)

PIPE TUNNEL

AUXILIARY STEAM SYSTEM M-12FB01 (H-5)

3" PIPE CAP

(SEE NOTE 8)

BORIC ACID BATCHING TANK M-12BG05 (G-8)

BORIC ACID BATCHING TANK M-12BG05 (G-8)

PLANT HEATING SYSTEM M-12GA01 (B-3)

PLANT HEATING SYSTEM M-12GA01 (A-3)

REMOVABLE START-UP SPOOLS

DRW

REACTOR MAKE UP WATER STORAGE TANK M-12BL01 (G-2)

REFUELING WATER STORAGE TANK M-12BN01 (G-2)

FROM FSL0107 & FSH0107 M-12EG03 (F-8)

FROM INTERLOCK (C-3)

TO ATMOSPHERE

SFB01

F.C.

F.O.

PERMANENTLY OUT OF SERVICE

SECONDARY WASTE SYS. M-12HF04 (C-8)

SECONDARY WASTE SYS. M-12HF04 (D-8)

LIQUID RADWASTE SYS. M-12HB02 (D-5)

LIQUID RADWASTE SYS. M-12HB02 (A-3)

BORON RECYCLE SYS. M-12HE03 (C-6)

BORON RECYCLE SYS. M-12HE03 (H-5)

BORON RECYCLE SYS. M-12HE03 (C-8)

BORON RECYCLE SYS. M-12HE03 (C-8)

PERMANENTLY OUT OF SERVICE

M-12HF04 (H-5)

CONDENSATE STORAGE & TRANSFER M-12AP01 (B-5)

DEMINERALIZED WATER MAKE-UP M-12AN01 (D-4)

DEMINERALIZED WATER STORAGE TANK M-12AN01 (F-8)

M-12AP01 (D-5)

CONDENSATE STORAGE TANK M-12AP01 (D-5)

M-12FB01 (D-7)

M-12FB01 (G-7)

1" NPT (TC & D)

16

PIPE TUNNEL

COMPONENT COOLING WATER M-12EG03 (E-7)

M-12EG03 (E-6)

AUXILIARY STEAM SYSTEM M-12FB01 (D-3)

AUXILIARY STEAM CONDENSATE RECOVERY AND STORAGE TANK

TFB02

AUXILIARY STEAM CONDENSATE RECOVERY TANK

(SEE NOTE 1)

TFB03

TO DIGITAL RADIATION MONITOR PANEL SP056

TO INTERLOCK (H-4)

TO AUX. BOILER FSSS

PFB02A

PFB02B

AUXILIARY STEAM DEAERATOR FEED PUMPS

PFB01A

PFB01B

AUXILIARY STEAM CONDENSATE TRANSFER PUMPS

START-UP SPOOL

LOOP SEAL

OVERFLOW

VENT TO ATMOSPHERE

2" CAP

4" X 2" RED.

NOTES

1. TFB03 IS LOCATED IN THE RADWASTE BUILDING.
2. FLEXIBLE TYPE FITTING.
3. ADJUST V0168 TO OBTAIN AT PUMP (PFB01A OR B). A DISCHARGE PRESSURE OF 20 PSIG AT PI-35. OR PI-36.
4. DELETED.
5. FOR EROSION/CORROSION CONCERNS, CARBON STEEL PIPING ON THIS P&ID MAY HAVE SECTIONS OF 2-1/4 CR-1 MOLY LOW-ALLOY STEEL AND/OR STAINLESS STEEL PIPING. FOR DETAILS, SEE ISOMETRICS.
6. BLIND FLANGE INSTALLED FOR LINE ISOLATION.
7. REFERENCE CCP 11146.
8. VALVE FBV0146 IS IN SERVICE AS A PORTION OF THE PRESSURE BOUNDARY, BUT IS FILLED WITH SEALANT PER CCP 11146 TO ELIMINATE LEAK-BY AND CANNOT BE OPENED.

USAR FIG. 9.5.9-1-03

ESSENTIAL DRAWING

(X) REVISED ( ) ISSUED — INCORPORATED CHG. DOC. WSP-M-12FB02-015-A-1 — CHANGE PKG. NO. 014737

THIS DWG. SUPERSEDED BY REV. — THIS DWG. SUPERSEDES REV.

REVISION NOTES:

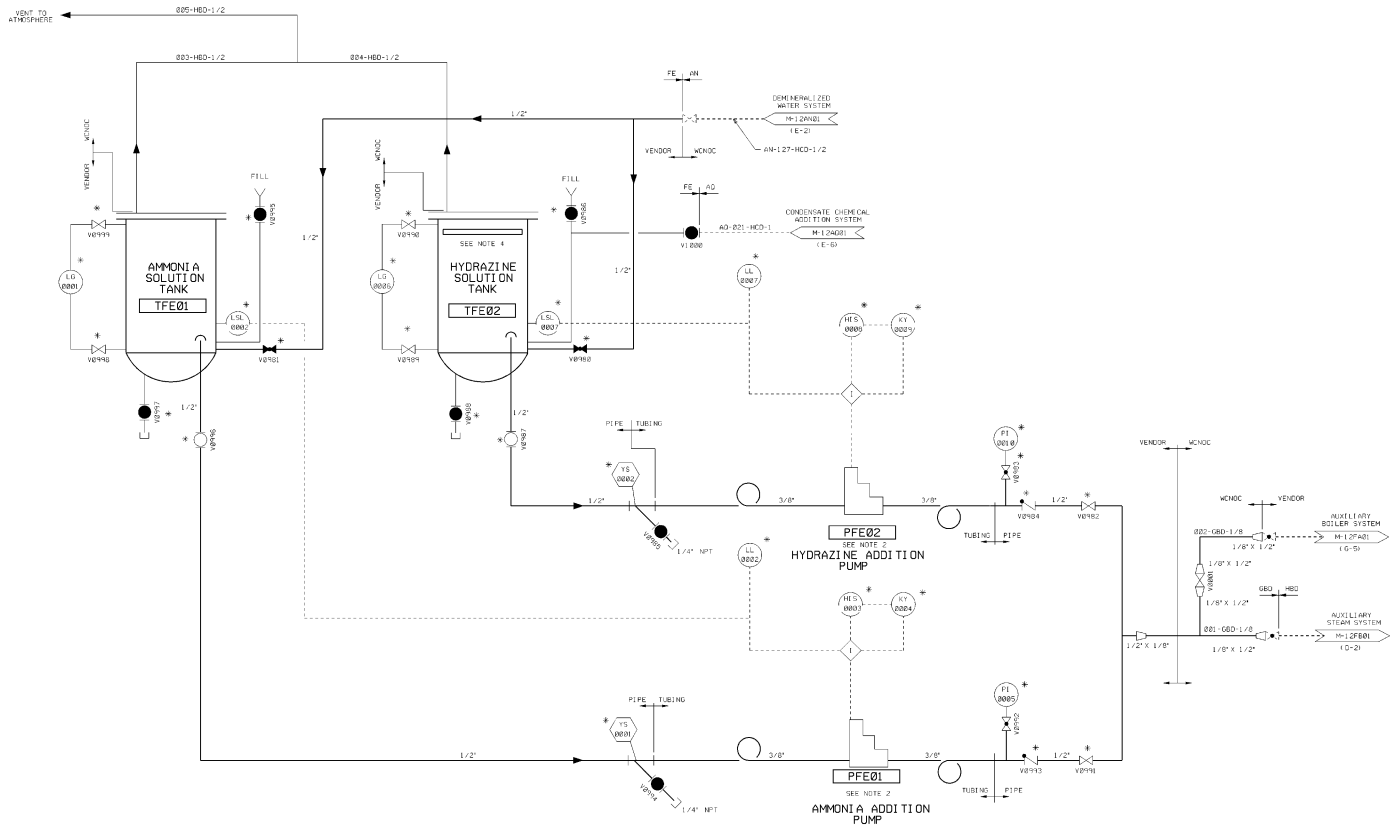
WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM AUXILIARY STEAM SYSTEM

Linda R Kaminski
Released by Document Services. Release Date: 2017.06.06 12:46:16 -05'00'

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12FB02		16

34X44 E SIZE



NOTES

1. FE SYSTEM IS MANUALLY OPERATED.
2. PUMPS ARE EQUIPPED WITH MANUAL STROKE CONTROL.
3. TIMER HAS A RANGE OF 0 TO 30 HOURS.
4. HIGH DENSITY POLYETHYLENE FLOATING COVER SUPPLIED WITH TANK.

USAR FIG. 9.5.9-1-04

ESSENTIAL DRAWING

REVISED	INCORPORATED DCL DOC.	CHANGE PKG. NO.
ISSUED		

THIS DWG. SUPERSEDED BY: REV. | THIS DWG. SUPERSEDES: REV.

REVISION NOTES: REVISED LINE SYLES PER PIR 2005-0842

WOLF CREEK NUCLEAR OPERATING CORPORATION — ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM AUXILIARY STEAM CHEMICAL ADDITION SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12FE01		10

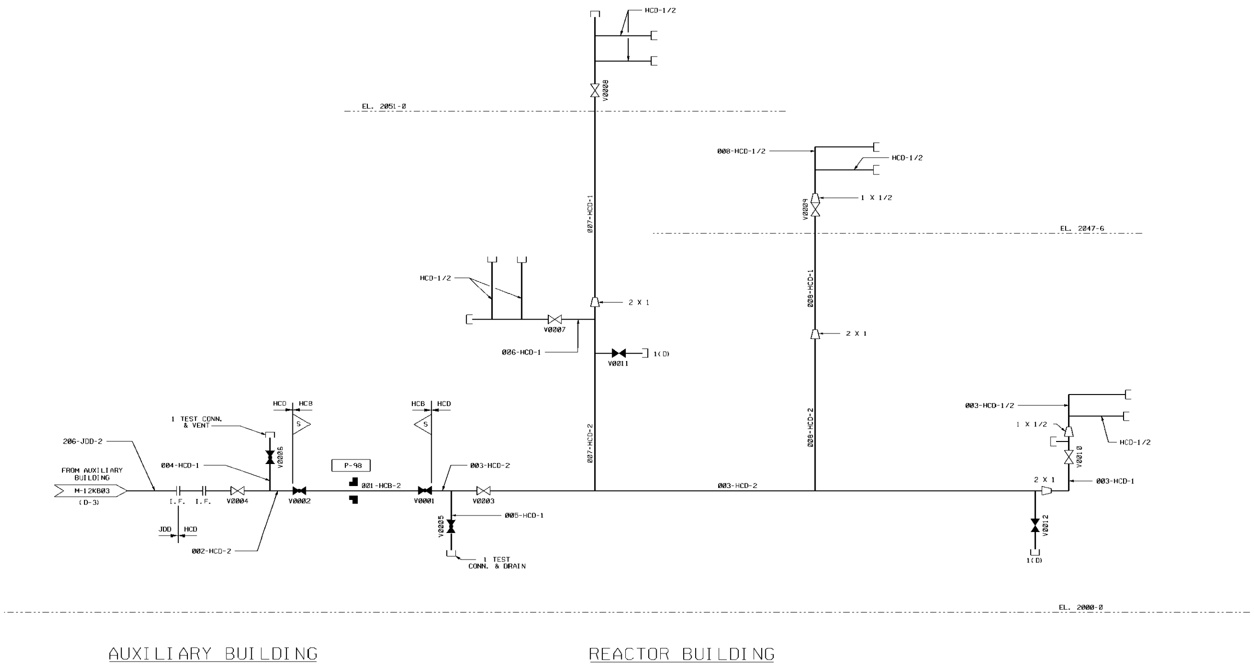
34X44 E SIZE

8 7 6 5 4 3 2 1

H G F E D C B A

NOTES

1. THE PIPING AND VALVES ASSOCIATED WITH CONTAINMENT ISOLATION ARE THE ONLY PORTIONS OF THIS SYSTEM THAT ARE Q-LISTED.

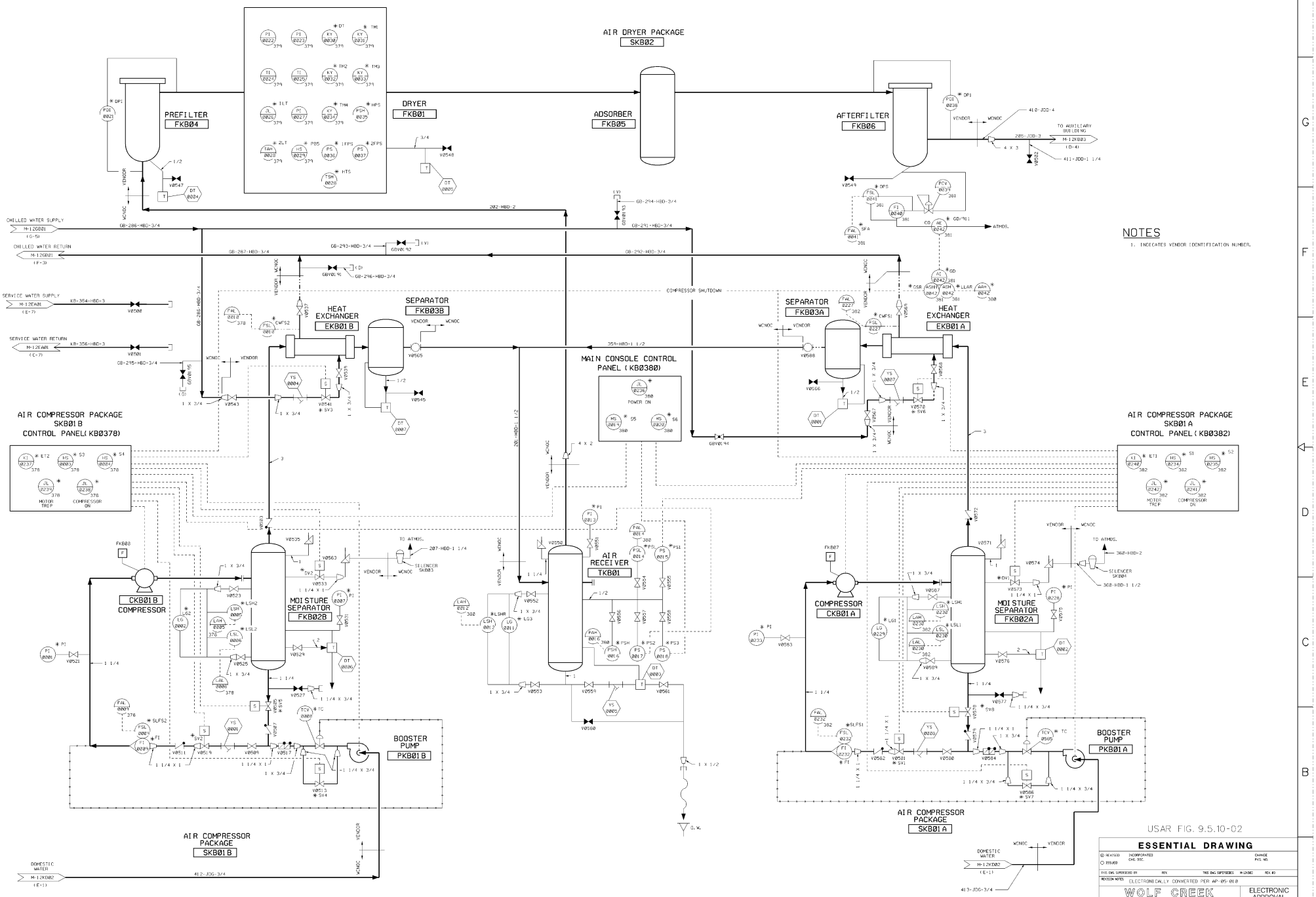


USAR FIG. 9.5.10-01

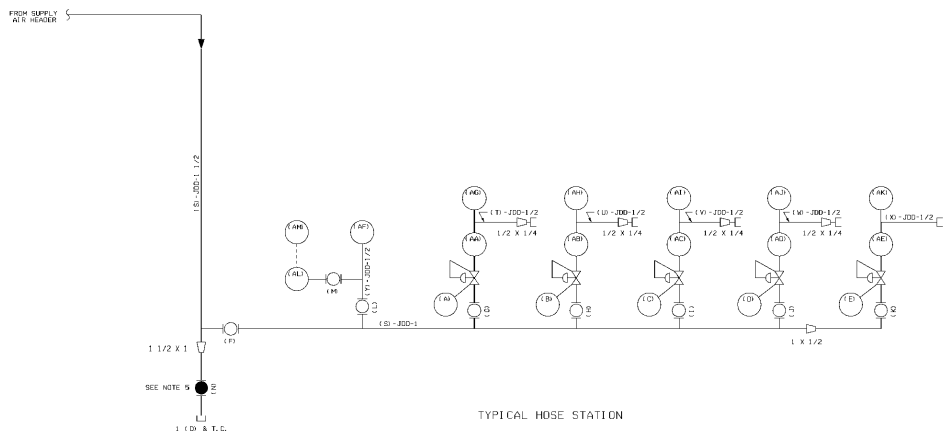
ESSENTIAL DRAWING			
⊗ REVISED ◯ ISSUED	INCORPORATED CHG. DOC.	CHANGE PKG. NO.	
THIS DWG. SUPERSEDED BY	REV.	THIS DWG. SUPERSEDES M-12KB01(Q)	REV. 03
REVISION NOTES: ELECTRONICALLY CONVERTED PER AP-05-010			
WOLF CREEK NUCLEAR OPERATING CORPORATION		ELECTRONIC APPROVAL	
PIPING & INSTRUMENTATION DIAGRAM BREATHING AIR SYSTEM			
SCALE NONE	DRAWING NUMBER M-12KB01	SHEET	REV 04

34X44 E SIZE

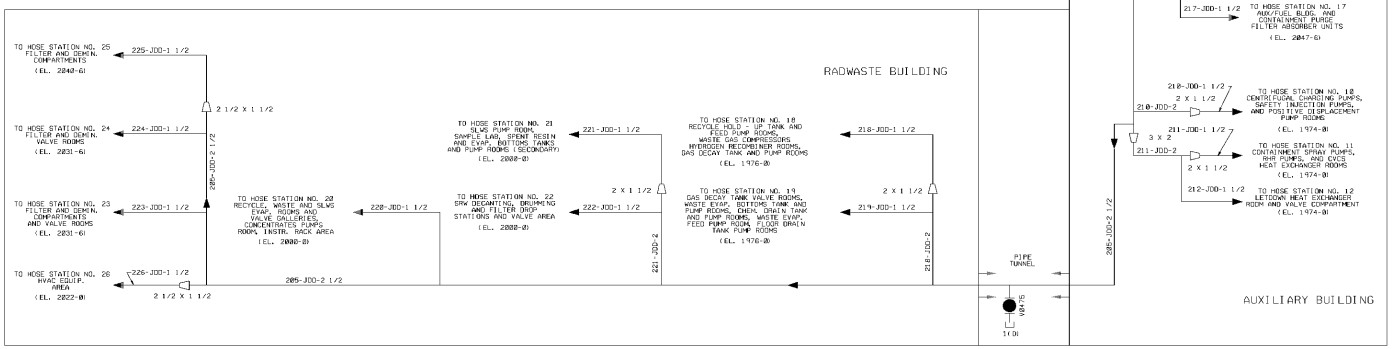
KB



HOSE STATION NUMBER	HOSE STATION EQUIPMENT IDENTIFICATION NUMBERS																																						
	PRESSURE REGULATORS					ISOLATION VALVES									LINE NUMBERS							FLOW INDICATORS					PRESSURE INDICATORS							PRESS. SWITCH	PRESS. ALARM
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	S	T	U	V	W	X	Y	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM					
10	PCV0210A	PCV0210B	PCV0210C	PCV0210D	PCV0210E	V0210	V0230	V0250	V0270	V0290	V0310	V0330	V0350	V0370	210	230	250	270	290	310	330	F10210A	F10210B	F10210C	F10210D	F10210E	P10210	P10210A	P10210B	P10210C	P10210D	P10210E	PSL0210	PAL0210					
11	PCV0211A	PCV0211B	PCV0211C	PCV0211D	PCV0211E	V0211	V0231	V0251	V0271	V0291	V0311	V0331	V0351	V0371	211	231	251	271	291	311	331	F10211A	F10211B	F10211C	F10211D	F10211E	P10211	P10211A	P10211B	P10211C	P10211D	P10211E	PSL0211	PAL0211					
12	PCV0212A	PCV0212B	PCV0212C	PCV0212D	PCV0212E	V0212	V0232	V0252	V0272	V0292	V0312	V0332	V0352	V0372	212	232	252	272	292	312	332	F10212A	F10212B	F10212C	F10212D	F10212E	P10212	P10212A	P10212B	P10212C	P10212D	P10212E	PSL0212	PAL0212					
13	PCV0213A	PCV0213B	PCV0213C	PCV0213D	PCV0213E	V0213	V0233	V0253	V0273	V0293	V0313	V0333	V0353	V0373	213	233	253	273	293	313	333	F10213A	F10213B	F10213C	F10213D	F10213E	P10213	P10213A	P10213B	P10213C	P10213D	P10213E	PSL0213	PAL0213					
14	PCV0214A	PCV0214B	PCV0214C	PCV0214D	PCV0214E	V0214	V0234	V0254	V0274	V0294	V0314	V0334	V0354	V0374	214	234	254	274	294	314	334	F10214A	F10214B	F10214C	F10214D	F10214E	P10214	P10214A	P10214B	P10214C	P10214D	P10214E	PSL0214	PAL0214					
15	PCV0215A	PCV0215B	PCV0215C	PCV0215D	PCV0215E	V0215	V0235	V0255	V0275	V0295	V0315	V0335	V0355	V0375	215	235	255	275	295	315	335	F10215A	F10215B	F10215C	F10215D	F10215E	P10215	P10215A	P10215B	P10215C	P10215D	P10215E	PSL0215	PAL0215					
16	PCV0216A	PCV0216B	PCV0216C	PCV0216D	PCV0216E	V0216	V0236	V0256	V0276	V0296	V0316	V0336	V0356	V0376	216	236	256	276	296	316	336	F10216A	F10216B	F10216C	F10216D	F10216E	P10216	P10216A	P10216B	P10216C	P10216D	P10216E	PSL0216	PAL0216					
17	PCV0217A	PCV0217B	PCV0217C	PCV0217D	PCV0217E	V0217	V0237	V0257	V0277	V0297	V0317	V0337	V0357	NOTE 5	217	237	257	277	297	317	337	F10217A	F10217B	F10217C	F10217D	F10217E	P10217	P10217A	P10217B	P10217C	P10217D	P10217E	PSL0217	PAL0217					
18	PCV0218A	PCV0218B	PCV0218C	PCV0218D	PCV0218E	V0218	V0238	V0258	V0278	V0298	V0318	V0338	V0358	V0378	218	238	258	278	298	318	338	F10218A	F10218B	F10218C	F10218D	F10218E	P10218	P10218A	P10218B	P10218C	P10218D	P10218E	PSL0218	PAL0218					
19	PCV0219A	PCV0219B	PCV0219C	PCV0219D	PCV0219E	V0219	V0239	V0259	V0279	V0299	V0319	V0339	V0359	V0379	219	239	259	279	299	319	339	F10219A	F10219B	F10219C	F10219D	F10219E	P10219	P10219A	P10219B	P10219C	P10219D	P10219E	PSL0219	PAL0219					
20	PCV0220A	PCV0220B	PCV0220C	PCV0220D	PCV0220E	V0220	V0240	V0260	V0280	V0300	V0320	V0340	V0360	V0380	220	240	260	280	300	320	340	F10220A	F10220B	F10220C	F10220D	F10220E	P10220	P10220A	P10220B	P10220C	P10220D	P10220E	PSL0220	PAL0220					
21	PCV0221A	PCV0221B	PCV0221C	PCV0221D	PCV0221E	V0221	V0241	V0261	V0281	V0301	V0321	V0341	V0361	V0381	221	241	261	281	301	321	341	F10221A	F10221B	F10221C	F10221D	F10221E	P10221	P10221A	P10221B	P10221C	P10221D	P10221E	PSL0221	PAL0221					
22	PCV0222A	PCV0222B	PCV0222C	PCV0222D	PCV0222E	V0222	V0242	V0262	V0282	V0302	V0322	V0342	V0362	V0382	222	242	262	282	302	322	342	F10222A	F10222B	F10222C	F10222D	F10222E	P10222	P10222A	P10222B	P10222C	P10222D	P10222E	PSL0222	PAL0222					
23	PCV0223A	PCV0223B	PCV0223C	PCV0223D	PCV0223E	V0223	V0243	V0263	V0283	V0303	V0323	V0343	V0363	V0383	223	243	263	283	303	323	343	F10223A	F10223B	F10223C	F10223D	F10223E	P10223	P10223A	P10223B	P10223C	P10223D	P10223E	PSL0223	PAL0223					
24	PCV0224A	PCV0224B	PCV0224C	PCV0224D	PCV0224E	V0224	V0244	V0264	V0284	V0304	V0324	V0344	V0364	V0384	224	244	264	284	304	324	344	F10224A	F10224B	F10224C	F10224D	F10224E	P10224	P10224A	P10224B	P10224C	P10224D	P10224E	PSL0224	PAL0224					
25	PCV0225A	PCV0225B	PCV0225C	PCV0225D	PCV0225E	V0225	V0245	V0265	V0285	V0305	V0325	V0345	V0365	V0385	225	245	265	285	305	325	345	F10225A	F10225B	F10225C	F10225D	F10225E	P10225	P10225A	P10225B	P10225C	P10225D	P10225E	PSL0225	PAL0225					
26	PCV0226A	PCV0226B	PCV0226C	PCV0226D	PCV0226E	V0226	V0246	V0266	V0286	V0306	V0326	V0346	V0366	V0386	226	246	266	286	306	326	346	F10226A	F10226B	F10226C	F10226D	F10226E	P10226	P10226A	P10226B	P10226C	P10226D	P10226E	PSL0226	PAL0226					



TYPICAL HOSE STATION



NOTES

1. FOR PIPING AND INSTRUMENT DIAGRAM SYMBOLS AND LEGEND REFER TO SNUPPS DRAWINGS M-12A01, M-12A02, M-02A03 AND M-02A04.
2. HORIZONTAL AIR SUPPLY PIPING SHALL SLOPE AT A MINIMUM 1/16" PER FOOT TOWARDS A LOW POINT DRAIN.
3. DRAIN LINES CARRY THE LINE SEQUENCE NUMBER OF THE LINE THEY ARE BRANCHING FROM UNLESS OTHERWISE INDICATED.
4. ELEVATIONS SHOWN REFER TO ACCESS FLOOR OR GRATING ELEVATION BENEATH EACH HOSE STATION.
5. LOW POINT DRAIN NOT REQUIRED FOR HOSE STATION NO. 17.

USAR FIG. 9.5.10-03

ESSENTIAL DRAWING

☒ REVISED ☐ ISSUED	INCORPORATED DAC DOC	CHANGE PKG. NO.
THIS DWG. SUPERSEDES MY	DATED	THIS DWG. SUPERSEDES M-12KB03 REV. 00
REVISION NOTES	ELECTRONICALLY CONVERTED PER AP-26-01.0	

WOLF CREEK NUCLEAR OPERATING CORPORATION

ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM
BREATHING AIR SYSTEM

SCALE	DRAWING NUMBER	SHEET	REV
NONE	M-12KB03		01

36X44 E SIZE