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**SUSQUEHANNA STEAM ELECTRIC STATION
REQUEST FOR ADDITIONAL INFORMATION (RAI) FOR THE
REVIEW OF THE SUSQUEHANNA STEAM ELECTRIC STATION
UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (LRA)
SECTIONS 2.2, 2.3.3, 2.3.4
PLA-6276**

**Docket Nos. 50-387
and 50-388**

- References:*
- 1) *PLA-6110, Mr. B. T. McKinney (PPL) to Document Control Desk (USNRC), "Application for Renewed Operating Licenses Numbers NPF-14 and NPF-22," dated September 13, 2006.*
 - 2) *Letter from Ms. E. H. Gettys, (USNRC) to Mr. B. T. McKinney (PPL), "Requests for Additional Information for the Review of the Susquehanna Steam Electric Station, Units 1 and 2, License Renewal Application," dated August 27, 2007.*
 - 3) *PLA-6177, Mr. B. T. McKinney (PPL) to Document Control Desk (USNRC), "Application for Renewed Operating Licenses Numbers NPF-14 and NPF-22, Response to Scoping and Screening RAI's," dated April 17, 2007.*

In accordance with the requirements of 10 CFR 50, 51, and 54, PPL requested the renewal of the operating licenses for the Susquehanna Steam Electric Station (SSES) Units 1 and 2 in Reference 1.

Reference 2 is a request for additional information related to LRA Sections 2.2, 2.3.3, and 2.3.4.

The enclosure to this letter provides the PPL response to each of the NRC RAI'S. Attachments 1 through 28 are hard copies of revised SSES License Renewal boundary drawings. Attachment 29 is a compact disc containing copies of the revised boundary drawings provided as an alternative for NRC review. Please note that in some cases a revised boundary drawing may contain revisions required in response to multiple RAI's.

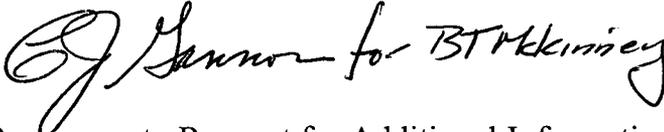
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There are no new regulatory commitments contained herein as a result of these responses.

If you have any questions, please contact Mr. Duane L Filchner at (610) 774-7819.

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on: 10/18/2007

B. T. McKinney 

Enclosure: PPL Responses to Request for Additional Information (Sections 2.2, 2.3.3, 2.3.4)

Attachments: Revised SSES License Renewal Boundary Drawings (hard copy)

- 1 - LR-M-105-2 Condensate
- 2 - LR-M-108-1 Condensate and Refueling Water Storage
- 3 - LR-M-108-2 Condensate and Refueling Water Storage
- 4 - LR-M-110-1 Service Water
- 5 - LR-M-112-1 RHR Service Water
- 6 - LR-M-112-2 RHR Service Water
- 7 - LR-M-113-1 Reactor Building Closed Cooling Water
- 8 - LR-M-120-1 Diesel Oil Storage and Transfer
- 9 - LR-M-134-1 "A-D" Diesel Aux, Fuel Oil, Lube Oil, Air Intake & Exhaust, Jacket Water Cooling
- 10-LR-M-134-7 "E" Diesel Aux, Fuel Oil, Lube Oil, Air Intake & Exhaust, Jacket Water Cooling
- 11-LR-M-141-1 Nuclear Boiler
- 12-LR-M-151-2 Residual Heat Removal
- 13-LR-M-153-1 Fuel Pool Cooling and Cleanup
- 14-LR-M-153-2 Fuel Pool Cooling and Cleanup
- 15-LR-M-154-1 Fuel Pool Filter Demineralizer
- 16-LR-M-166-2 Solid Radwaste Collection
- 17-LR-M-186-1 Control Structure Chilled Water System "A"
- 18-LR-M-186-2 Control Structure Chilled Water System "B"
- 19-LR-M-187-2 Reactor Building Chilled Water
- 20-LR-M-2105-2 Condensate
- 21-LR-M-2112-1 RHR Service Water
- 22-LR-M-2113-1 Reactor Building Closed Cooling Water
- 23-LR-M-2141-1 Nuclear Boiler
- 24-LR-M-2153-1 Fuel Pool Cooling and Cleanup
- 25-LR-M-2153-2 Fuel Pool Cooling and Cleanup
- 26-LR-M-2161-2 Liquid Radwaste Collection
- 27-LR-M-2187-1 Reactor Building Chilled Water
- 28-LR-M-2187-2 Reactor Building Chilled Water
- 29-Compact Disc containing revised SSES License Renewal Boundary Drawings (Att. 1-28)

Copy: NRC Region I

Ms. E. H. Gettys, NRC Project Manager, License Renewal, Safety

Mr. R. V. Guzman, NRC Sr. Project Manager

Mr. R. Janati, DEP/BRP

Mr. F. W. Jaxheimer, NRC Sr. Resident Inspector

Mr. A. L. Stuyvenberg, NRC Project Manager, License Renewal, Environmental

**Enclosure to PLA-6276
PPL Responses to
Request for Additional Information
(Sections 2.2, 2.3.3, 2.3.4)**

NRC RAI 2.2-1:

License renewal application (LRA) Table 2.2-1 defines the Electro-Hydraulic Control and Logic System and the Electro-Hydraulic Control Hydraulic Power System not within the scope of license renewal. Electro-hydraulic control systems assist to provide holdup and plate-out of fission products that may leak through the closed main steam isolation valves (MSIVs). This is a function performed by components located in the main condenser and MSIV leakage pathway. In doing so, they fulfill intended functions for Title 10 of the *Code of Federal Regulations* Part 54.4(a)(2) (10 CFR 54.4(a)(2)). Additionally, applicants with similar plant designs have identified electro-hydraulic control systems within the scope of license renewal based on 10 CFR 54.4(a)(2). Please provide additional information to justify exclusion of the Electro-Hydraulic Control and Logic System and the Electro-Hydraulic Control Hydraulic Power System from scope with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The Electro-Hydraulic Control and Logic System, and the Electro-Hydraulic Control Hydraulic Power System are not within the scope of license renewal and are not subject to Aging Management Review (AMR). Control of fission products that may leak through a closed MSIV is provided by directing the leakage to the condenser prior to release to atmosphere. This function is performed by the Main Steam System, as discussed in LRA Section 2.3.4.6. The Susquehanna FSAR, Section 6.7 states: "The MSIV leakage Isolated Condenser Treatment Method (ICTM) controls and minimizes the release of fission products which could leak through the closed main steam isolation valves (MSIVs) after a LOCA. The treatment method provides this control by processing MSIV leakage prior to release to the atmosphere. This is accomplished by directing the leakage through the main steam drain line to the condenser." The primary path for the ICTM method as used at Susquehanna depends on the drain line pathway to the condenser. The primary path is in scope and subject to AMR and is depicted on LR-M-141/2141-1 and LR-M-205/2105-1. The secondary path depends on the Main Steam line drip legs, is in scope and subject to AMR, and is depicted on LR-M-101/2101-1. The ICTM does not depend on either the Electro-Hydraulic Control and Logic System, or the Electro-Hydraulic Control Hydraulic Power System to maintain any valves open to provide the pathway from the MSIVs to the condenser for either the primary or the secondary paths.

Per FSAR Section 6.7.2.1.1, the primary pathway to the condenser is the main steam drain line through the HV-1(2)41F020 and HV-1(2)41F021 motor-operated valves. The HV-1(2)41F020 valve is normally open and will not need to be operated. The HV-1(2)41F021 valve is normally closed and will need to be opened by an operator by means of a hand switch in the control room. There are three normally open motor-operated valves that will need to be closed by an operator to prevent leakage to other

areas of the turbine building. These boundary valves are: HV-1(2)0107, to steam jet air ejector; HV-1(2)0109, to steam seal evaporator; and HV-1(2)0111, to reactor feed pump turbines. The hand switches for these valves are in the control room.

Per FSAR Section 6.7.2.1.2, alternate orificed pathways (which do not require the opening of any valves) exist as a backup to direct MSIV leakage to the condenser should the HV-1(2)41F021 valve not open as expected. These pathways include: the orificed bypass line around the HV-1(2)041F021 valve; the four orificed drain lines from the main steam line eight inch drip legs; and the one orificed drain line from the main steam line twelve inch drip leg.

The Electro-Hydraulic Control and Logic System and the Electro-Hydraulic Control Hydraulic Power System do not perform any safety-related functions and therefore do not meet the criteria of 10 CFR 54.4(a)(1).

The Electro-Hydraulic Control and Logic System and the Electro-Hydraulic Control Hydraulic Power System do not have the potential to adversely affect safety-related systems or components through spatial interaction and therefore do not meet the criteria of 10 CFR 54.4(a)(2). As stated in LRA Section 2.1.1.2.2, there are no components located in the turbine building that either perform or would prevent a safety-related function from occurring.

The Electro-Hydraulic Control and Logic System and the Electro-Hydraulic Control Hydraulic Power System are not relied upon to demonstrate compliance with, nor satisfy the 10 CFR 54.4(a)(3) scoping criteria for, any regulated event.

NRC RAI 2.2-2:

LRA Table 2.2-1 defines the Circulating Water System as not within the scope of license renewal. Applicants with similar plant designs have identified the Circulating Water System within the scope of license renewal, based on 10 CFR 54.4(a)(2). Please provide additional information to justify exclusion of the Circulating Water System from scope with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As described in Section 10.4.5 of the FSAR, the Circulating Water System for SSES has no safety-related functions and is designed to remove the latent heat from the main condenser and sensible heat from the Service Water System and dissipate both in a hyperbolic natural draft cooling tower. Failure of the Circulating Water System will not prevent the satisfactory accomplishment of any safety-related functions and therefore, does not meet the criteria of 10 CFR 54.4(a)(1).

In addition, failure of the Circulating Water System will not adversely affect any safety-related systems or components through spatial interaction and system piping is not connected to any safety-related piping. There is no potential for spatial interaction of the Circulating Water System with safety-related components, because circulating water piping is not routed in structures or outdoor areas that contain safety-related components. Portions of the Circulating Water System are routed in the Turbine Building. However, as described in Section 2.1.1.2.2 of the LRA (pg. 2.1-6) there are no components located in the Turbine Building that either perform or would prevent a safety-related function from occurring. Therefore, the Circulating Water System does not meet the criteria of 10 CFR 54.4(a)(2).

As evaluated in FSAR Section 10.4.1.3.3, flooding due to the rupture of a circulating water expansion joint in the Turbine Building will not affect any safety-related equipment. The Circulating Water System is not relied upon to demonstrate compliance with any regulated event and, therefore, does not meet the criteria of 10 CFR 54.4(a)(3).

NRC RAI 2.3.3.4-1:

License renewal drawing LR-M-186-1, location A3, shows nonsafety-related piping that has the potential for spatial interaction with safety-related piping, based on criterion 10 CFR 54.4(a)(2) and it is continued on drawing LR-M-186-2, location C5 that is not within the scope of license renewal. Provide additional information on why the continuation on drawing LR-M-186-2 is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The piping in question, 2" JRD-12 from the "T" on LR-M-186-1 through the continuation to LR-M-186-2 to valve 086341, is within the scope of license renewal for 10 CFR 54.4(a)(2) through spatial interaction and because it supports the safety-related functional boundary of the system. The entire pipeline from the 2" JRD-12 "T" on LR-M-186-1 to the HRC/JRD interface at valve 086341 on LR-M-186-2 has been highlighted pink (magenta). LRA changes are not required as the equipment covered by the additional highlighting is included in the existing LRA component/material/environment combinations.

The following table defines the required changes for boundary drawings LR-M-186-1 and LR-M-186-2.

DRAWING	CONDITION	CHANGE
LR-M-186-1	2" JRD-12 at A3 is not highlighted. The pipe is within the scope of license renewal for (a)(2).	Highlight pink (magenta) 2" JRD-12 at A3 to the continuation arrow to "M-186-2 C5".
LR-M-186-2	2" JRD-12 at C4 is not highlighted. The pipe is within the scope of license renewal for (a)(2).	Complete highlighting pink (magenta) 2" JRD-12 from the continuation arrow at C5.

Revised boundary drawings LR-M-186-1 and LR-M-186-2 are provided as Attachments 17 and 18.

NRC RAI 2.3.3.4-2:

License renewal drawing LR-M-186-1, location A2, shows service water eight-inch JRD-12 piping within the scope of license renewal. The line is continued on drawing LR-M-109-2, location E2. The continuation on drawing LR-M-109-2, location E2 from drawing LR-M-186-1 does not indicate that the eight-inch JRD-12 piping is in scope and does not include a license renewal boundary. Provide additional information explaining why the eight-inch JRD-12 piping shown on LR-M-109-2 is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As discussed in LRA Section 2.3.3.31, portions of the Service Water System meet the scoping criteria of 10 CFR 54.4(a)(2) and are therefore in LRA scope and subject to AMR. Based on the "spaces" approach discussed in LRA Section 2.1.1.2.2, the portion of 8" JRD-12 shown on LR-M-186-1 at A2 is located within the control structure and thus is in LRA scope. The portion shown on LR-M-109-2 is in the turbine building and is not in LRA scope. Neither boundary drawing LR-M-186-1 nor LR-M-109-2, depicts the boundary between the two buildings. Therefore, in clarification the highlighting of just the continuation arrow on LR-M-186-1 at A2 "from M-109-2 E2" has been deleted to more clearly show that the portion of 8" JRD-12 on LR-M-186-1, is within the control structure and is in scope and subject to AMR, but the portion continued on LR-M-109-2 is in the turbine building and is not in LRA scope.

The following table defines the required changes for boundary drawing LR-M-186-1.

DRAWING	CONDITION	CHANGE
LR-M-186-1	The continuation arrow to 8" JRD-12 at A2 from "M-109-2 E2" is highlighted, but the corresponding continuation arrow on LR-M-109-2 is not. The pipe in the control structure is within the scope of license renewal for (a)(2).	Delete the pink (magenta) of continuation arrow for 8" JRD-12 at A2. Add an LR note to show only the pipe in the control structure is within the scope of license renewal.

Revised boundary drawing LR-M-186-1 is provided as Attachment 17.

NRC RAI 2.3.3.4-3:

License renewal drawing LR-M-186-1, location A1, shows service water eight-inch JRD-13 piping within the scope of license renewal. The line is continued on drawing LR-M-109-2, location E3. The continuation on drawing LR-M-109-2, location E3 from drawing LR-M-186-1 does not indicate that the eight-inch JRD-13 piping is within scope and does not include a license renewal boundary. Provide additional information explaining why the eight-inch JRD-13 piping shown on drawing LR-M-109-2 is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As discussed in LRA Section 2.3.3.31, portions of the Service Water System meet the scoping criteria of 10 CFR 54.4(a)(2) and are therefore in LRA scope and subject to AMR. Based on the "spaces" approach discussed in LRA Section 2.1.1.2.2, the portion of 8" JRD-12 shown on LR-M-186-1 at A2 is located within the control structure and thus is in LRA scope. The portion shown on LR-M-109-2 is in the turbine building and is not in LRA scope. Neither boundary drawing LR-M-186-1 nor LR-M-109-2, depicts the boundary between the two buildings. Therefore, the highlighting on the continuation arrow on LR-M-186-1 at A1 to "M-109-2 E3" has been deleted to more clearly show that the portion of 8" JRD-13 on LR-M-186-1 is within the control structure and is in scope and subject to AMR, but the portion continued from LR-M-109-2 is in the turbine building and is not in LRA scope.

The following table defines the required changes for boundary drawing LR-M-186-1.

DRAWING	CONDITION	CHANGE
LR-M-186-1	The continuation arrow to 8" JRD-13 at A1 to "M-109-2 E3" is highlighted, but the corresponding continuation arrow on LR-M-109-2 is not. The pipe in the control structure is within the scope of license renewal for (a)(2).	Delete the pink (magenta) of continuation arrow for 8" JRD-13 at A1. Add an LR note to show only the pipe in the control structure is within the scope of license renewal.

Revised boundary drawing LR-M-186-1 is provided as Attachment 17.

NRC RAI 2.3.3.4-4:

License renewal drawings LR-M-186-1 and LR-M-186-2, locations G9 and H9, show the safety-related control structure H/V unit cooling coils (0V103A and 0V103B) within the scope of license renewal, based on criterion 10 CFR 54.4(a)(1). However, these cooling coils were omitted from LRA Table 2.3.3-4 for components subject to an aging management review (AMR). Provide additional information explaining why these cooling coils are not included in Table 2.3.3-4.

PPL Response:

The control structure H/V units 0V103A and 0V103B, including cooling coils 0E146A1 through B2 are within the scope of license renewal and are subject to AMR. Based on PPL's scoping methodology, these cooling coils have been scoped with the Control Structure HVAC Systems and are included in LRA Section 2.3.3.5 and Table 2.3.3-5.

NRC RAI 2.3.3.4-5:

License renewal drawings LR-M-186-1 and LR-M-186-2, locations C10 and D10, show the safety-related control room floor recirculation unit cooling coils (0V117A and 0V117B) within the scope of license renewal, based on criterion 10 CFR 54.4(a)(1). However, these cooling coils were omitted from LRA Table 2.3.3-4 for components subject to an AMR. Provide additional information explaining why these cooling coil components are not included in Table 2.3.3-4.

PPL Response:

The control room floor recirculation units 0V117A and 0V117B, including cooling coils 0E151A1 through B2, are within the scope of license renewal and are subject to AMR. Based on PPL's scoping methodology, these cooling coils have been scoped with the Control Structure HVAC Systems and are included in LRA Section 2.3.3.5 and Table 2.3.3-5.

NRC RAI 2.3.3.4-6:

License renewal drawings LR-M-186-1 and LR-M-186-2, locations A10 and B10, show the safety-related computer room floor recirculation unit cooling coils (0V115A and 0V115B) within the scope of license renewal, based on criterion 10 CFR 50.4(a)(1). However, these cooling coils were omitted from LRA Table 2.3.3-4 for components subject to an AMR. Provide additional information explaining why these cooling coil components are not included in Table 2.3.3-4.

PPL Response:

The control room floor recirculation units 0V115A and 0V115B, including cooling coils 0E150A1 through B2, are within the scope of license renewal and are subject to AMR. Because of PPL's scoping methodology, these cooling coils have been scoped with the Control Structure HVAC Systems and are included in LRA Section 2.3.3.5 and Table 2.3.3-5.

NRC RAI 2.3.3.6-1:

One of the stated purposes of the Cooling Tower System is to supply water to the Fire Protection System and therefore it meets the 10 CFR 54.4(a)(3) scoping criteria. License renewal drawings LR-M-115-1, LR-M-2115-1, and LR-M-109-1 show supply lines from the cooling tower basin to the fire pumps within the scope of license renewal with a pressure boundary intended function. However, connected piping is not within the scope of license renewal up to the first isolation valve, where it connects to the service water and circulating water pumps. Provide additional information explaining why these sections of pipe and components are not within scope for license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a)

PPL Response:

The highlighted piping depicts the supply path for water from the cooling tower basins to the fire protection pumps. This supply path meets the criteria of 10 CFR 54.4(a)(3) for fire protection. Inclusion of the connected piping up to the service water and circulating water pump isolation valves in the scope of license renewal is not necessary to ensure that the intended function is maintained.

As described in Section 2.3.3.6 of the LRA, each cooling tower basin contains 6,000,000 gallons of water, and is capable of meeting the largest expected water demands of the fire protection system. As described in Section 4.1 of the Fire Protection Review Report (FPRR), the largest single (fire protection) demand can be satisfied by one fire pump,

rated at 2500 gpm. Operability of the fire suppression water supply is controlled in accordance with the SSES Technical Requirements Manual (TRM). The TRM ensures at least one flow path capable of taking suction from any two designated water supplies and an available supply of water, from either the Unit 1 or Unit 2 cooling tower basin or the clarified water storage tank, with a minimum volume of 300,000 gallons. Due to the large volume available from a single cooling tower basin, in relation to the fire protection demand, inclusion of the connected piping up to the service water and circulating water pump isolation valves is not necessary to ensure this secondary supply of fire protection water.

As the fire suppression water supply is maintained operable the connected sections of piping will not affect the intended function of the Cooling Tower System. Therefore, the subject piping is not included within the scope of license renewal.

NRC RAI 2.3.3.6-2:

One of the stated purposes of the Cooling Tower System is to supply water to the Fire Protection System and therefore it meets the 10 CFR 54.4(a)(3) scoping criteria. License renewal drawings LR-M-115-1, LR-M-2115-1, and LR-M-109-1 show supply lines from the cooling tower basin to the fire pumps within the scope of license renewal with a pressure boundary intended function. However, drawing LR-M-2115-1, location A4, and the continuation onto drawing LR-M-2109-1, location D1, shows the supply line to the Service Water System is not within the scope of license renewal. Provide additional information explaining why these sections of pipe and components are not within scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a)

PPL Response:

The highlighted piping depicts the supply path for water from the cooling tower basins to the fire protection pumps. This supply path meets the criteria of 10 CFR 54.4(a)(3) for fire protection.

As described in response to RAI 2.3.3.6-1, each cooling tower basin contains a large volume (6,000,000 gallons) of water available for fire protection. This secondary volume is significantly more than is required for fire suppression since the largest single (fire protection) demand can be satisfied by one fire pump, rated at 2500 gpm. As such, the volume contained in the connected piping up to the service water and circulating water pump isolation valves is inconsequential to the fire water supply and only the path from the cooling tower basin to the fire pumps is required for the intended function. Therefore, the path is included in the license renewal evaluation boundary but the connected piping to service water and circulating water pump isolation valves are not.

NRC RAI 2.3.3.7-1:

The injector housing is a component that is usually included within the license renewal scope boundary as a component subject to an AMR for the diesel fuel oil system. The impulse pumps shown in license renewal drawing LR-M-134-1, location E5, and drawing LR-M-134-7, location A2, are not shown within the scope of license renewal and the impulse pump housing is not listed in LRA Table 2.3.3-7 for components subject to an AMR. Provide additional information explaining why the impulse pump housing is not shown within the license renewal scope boundary and why it is not included in Table 2.3.3-7.

PPL Response:

The fuel injection pumps (impulse pumps) are depicted on license renewal drawings LR-M-134-1 and LR-M-134-7 only by arrows indicating flow to and from the pumps. The methodology used in highlighting the drawings for license renewal was to highlight the symbols representing system components. Because the fuel injection pumps are not represented as symbols, no highlighting is provided to indicate whether the components are in scope.

The fuel injection pumps (impulse pumps) and the fuel injectors are included within the scope of license renewal and were determined not subject to aging management review based on being within the diesel engine boundary.

Based on re-evaluation, the fuel injection pumps have been determined to be subject to aging management review. The fuel injectors are mounted in the engine cylinder heads and are considered active parts of the engine and therefore not subject to aging management review.

The License Renewal Application is amended as follows to include the fuel injection pumps as subject to aging management review:

2.3.3.7 Diesel Fuel Oil System

- The following line item is added to Table 2.3.3-7 (on LRA page 2.3-54).

Table 2.3.3-7
Diesel Fuel Oil System
Components Subject to Aging Management Review

Component Type	Intended Function (as defined in Table 2.0-1)
Pump casings (fuel injection pumps)	Pressure Boundary

3.3.3 Conclusions

➤ The following line item is added to Table 3.3.2-7 (on LRA page 3.3-159).

Table 3.3.2-7 Aging Management Review Results – Diesel Fuel Oil System								
Component / Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Pump Casings (fuel injection pumps)	Pressure Boundary	Carbon Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry Program Chemistry Program Effectiveness Inspection	VII.H1-10	3.3.1-20	B, 0324
			Indoor Air (External)	Loss of Material	System Walkdown Program	VII.I-8	3.3.1-58	A

NRC RAI 2.3.3.7-2:

The diesel generator day tank flame arrestors shown on license renewal drawing LR-M-134-1, location F8, and drawing LR-M-134-7, location A8, are within the scope of license renewal, but are not included in LRA Table 2.3.3-7 for components subject to an AMR. The flame arrestor is typically included in the table because it is classified as a component subject to an AMR within the diesel fuel oil tanks. The flame arrestors are shown within the scope of license renewal for different reasons on the two drawings. Provide additional information explaining why the flame arrestors are shown within scope, but not included in Table 2.3.3-7, and why the flame arrestors are shown within scope for different reasons.

PPL Response:

As shown on license renewal drawings LR-M-134-1 and LR-M-134-7-4, the vent line piping for the diesel fuel oil day tanks is within the scope of license renewal.

The vent lines for day tanks for diesels A-D on drawing LR-M-134-1 are shown as cross-hatched, which indicates a safety-related process line per the legend drawing LR-M-100-2. This is supported by the HBC line designation which indicates that the piping is classified as ASME Section III Class 3. Therefore, the vent lines are within the scope of license renewal and are highlighted in green per LR-M-100-4 Note A2.

The flame arrestors on the A-D diesel day tank vent lines on drawing LR-M-134-1 are not classified as safety-related. Drawing LR-M-134-1 has been revised to include the flame arrestors within the scope of license renewal per the criteria of 10 CFR 54.4(a)(2).

The vent lines for the E diesel day tank on drawing LR-M-134-7 are nonsafety-related but are seismically qualified. This is supported by the HBD line designation which indicates that the piping is classified as ANSI B31.1.0. FSAR Table 3.2-1 supports the determination that the day tank vent lines are not safety-related. Per FSAR Section 9.5.4.3, the diesel generator fuel oil system is Seismic Category I. Therefore, the vent lines are within the scope of license renewal and are highlighted in pink (magenta) per LR-M-100-4 Note A2 up to the point where they exit the diesel generator building as they have the potential for spatial interaction with safety-related components. The boundary is extended through the end of the vent piping for the day tank, including the flame arrestor.

The vent piping and flame arrestors perform a structural integrity function and are evaluated under the component type of "piping and piping components". In PPL's response to RAI 2.1-3, LRA Table 2.3.3-7 was amended to include a line item for piping and piping components which perform a structural integrity function. The PPL response

to RAI 2.1-3, (Reference 3), also amended LRA Table 3.3.2-7 to include the aging management evaluation for carbon steel piping and piping components subject to an internal ventilation environment and an external outdoor air environment. No further changes to LRA Table 2.3.3-7 or Table 3.3.2-7 are required in response to this RAI.

Plant specific note 0361 was added to LRA Section 3.3 in the PPL response to RAI 2.1-3. That note is revised as follows to address the response to this RAI. Changes are indicated by bold and italics (additions) and by strikethrough (deletions).

- The following item is revised in the table of plant-specific notes (on LRA page 3.3-351):

Plant-Specific Notes:	
0361	Nonsafety-related vent and fill piping and piping components in the Diesel Fuel Oil System are normally empty and are attached to safety-related components (storage tanks <i>or piping</i>) that are anchored in below grade vaults <i>or within Seismic Category I buildings</i> . As such, degradation of the vent and fill piping <i>or piping components</i> will not result in a loss of support for safety-related components to which they are attached. Also, there is no high pressure, other motive force, or medium in the air to cause degradation.

The following table defines the required changes for boundary drawings LR-M-134-1 and LR-M-134-7.

DRAWING	CONDITION	CHANGE
LR-M-134-1	The flame arrester (FA03476A) for tank 0T528A is not highlighted. The flame arrester is attached to safety-related piping and is within the scope of license renewal per 10 CFR 54.4(a)(2).	Highlight (in pink-magenta) the flame arrester (FA03476A) at drawing location F8.
LR-M-134-7	The vent piping from the diesel generator day tank is highlighted pink (magenta) up to the point at which it exits the Diesel Generator E building into the yard. The piping in the yard up to and including the flame arrester should also be within the scope of license renewal per 10 CFR 54.4(a)(2).	Highlight (in pink-magenta) the piping and flame arrester (FA03476E) at drawing location A8 which continues into the yard from the Diesel Generator E building and is connected to in scope (pink-magenta) piping.

Revised boundary drawings LR-M-134-1 and LR-M-134-7 are provided as Attachments 9 and 10.

NRC RAI 2.3.3.7-3:

Diesel generator fuel oil storage tank flame arrestors are shown on license renewal drawing LR-M-120-1, locations B3, D3, E3, and G3, and on drawing LR-M-120-2, location F3 to C3. The flame arrestors are not shown within the scope of license renewal. Flame arrestors are typically included in scope because they are classified as a component subject to an AMR within the pressure boundary for the diesel fuel oil tanks. Provide additional information explaining why the flame arrestors are not within the scope of license renewal.

PPL Response:

As shown on license renewal drawings LR-M-120-1 and LR-M-120-2, the vent line piping and the associated flame arrestors for the diesel fuel oil storage tanks are not within the scope of license renewal. The vent lines extend from the top of the storage tank within the buried vault to above ground where the piping is goose-necked and provided with flame arrestors. The vent piping is located above the fuel oil level within the storage tanks and therefore does not provide a pressure boundary function.

The vent lines for the diesel fuel oil storage tanks on drawing LR-M-120-1 and LR-M-120-2 are nonsafety-related but are seismically qualified. This is supported by the HBD line designation which indicates that the piping is classified as ANSI B31.1.0. FSAR Table 3.2-1 supports the determination that the storage tank vent lines are not safety-related. Per FSAR Section 9.5.4.3, the diesel generator fuel oil system is Seismic Category I.

The flame arrestors on the diesel storage tank vent lines are not classified as safety-related. FSAR Section 9.5.4.2 states for the fuel oil storage tank vent line that if the above grade section of the vent is damaged, it would not render the fuel oil storage tank inoperable. This determination also applies to the flame arrestors located above grade on the vent piping. The flame arrestors do not perform a license renewal intended function. In addition, the vent line and flame arrestor do not provide any support for the safety-related tank to which they are attached. Therefore, the flame arrestors on the diesel fuel oil storage tank vent lines are not within the scope of license renewal.

NRC RAI 2.3.3.7-4:

The diesel generator storage tank manhole covers shown in drawing LR-M-120-1, locations B2, D2, F3, and G3, are not shown within the scope of license renewal. Provide additional information explaining why the manhole covers are not shown within the license renewal scope boundary.

PPL Response:

The diesel generator storage tank manholes and covers shown on drawing LR-M-120-1 are within the scope of license renewal. A highlighting error resulted in the manholes and covers on drawing LR-M-120-1 not being indicated as within the scope of license renewal.

The manholes and covers are considered to be part of the pressure boundary of the storage tanks. This is reflected by the highlighting of the manholes and covers for the E diesel generator storage tank on drawing LR-M-120-2.

No changes are required to Table 2.3.3-7 or Table 3.3.2-7, the manholes are included in the line item for "Tanks (0T527A-E, 0T528A-E)". The component types are therefore subject to aging management review and have been evaluated with the storage tanks.

The following table defines the clarification changes for boundary drawing LR-M-120-1.

DRAWING	CONDITION	CHANGE
LR-M-120-1	The manholes and covers for tanks 0T527A, B, C, and D are not highlighted. The manholes and covers are required as part of the pressure boundary of the tanks and are within the scope of license renewal.	Highlight (in green) the manholes and covers for tanks 0T527A, B, C, and D.

Revised boundary drawing LR-M-120-1 is provided as Attachment 8.

NRC RAI 2.3.3.7-5:

License renewal drawing LR-M-120-1, locations B7, D7, E7, and G7, indicate that there are manhole covers on top of the diesel generator day tanks A, B, C, and D. However, drawing LR-M-134-1, location F8, does not show a manhole cover on the top of diesel generator day tanks A, B, C, and D. Provide additional information to explain whether or not there actually are manhole covers on the four tanks. If there are manhole covers on these tanks, provide additional information explaining why they are not shown on drawing LR-M-134-1 and why they are not within the scope of license renewal.

PPL Response:

As stated in FSAR Section 9.5.4.2, a manhole is provided on each diesel generator fuel oil day tank for inspection. The manholes are depicted on license renewal drawing LR-M-120-1 due to space limitations on drawing LR-M-134-1. The dashed lines for tanks 0T528A, B, C, and D on drawing LR-M-120-1 indicate that the components are

represented on another drawing (LR-M-134-1). The manholes and covers associated with the diesel generator fuel oil day tanks on LR-M-120-1 are solid lines indicating that they are represented on drawing LR-M-120-1.

It was determined that the diesel generator day tank manholes and covers shown on drawing LR-M-120-1 should be shown as within the scope of license renewal. The manholes and covers are part of the pressure boundary of the storage tanks.

No changes are required to Table 2.3.3-7 or Table 3.3.2-7. The manholes and covers for the diesel generator day tank shown in drawing LR-M-134-7 are shown within the license renewal evaluation boundary. The component types are therefore subject to aging management review and have been evaluated with the tanks.

The following table defines the clarification changes for boundary drawing LR-M-120-1.

DRAWING	CONDITION	CHANGE
LR-M-120-1	The manholes and covers for tanks 0T528A, B, C, and D are not highlighted. The manholes and covers are required as part of the pressure boundary of the tanks.	Highlight (in green) the manholes and covers for tanks 0T528A, B, C, and D to indicate the components are within the scope of license renewal.

Revised boundary drawing LR-M-120-1 is provided as Attachment 8.

NRC RAI 2.3.3.7-6:

License renewal drawing LR-M-134-7, location A6, indicates that there is a manhole cover on top of the diesel generator day tank E and that it is within the scope of license renewal. Provide additional information explaining why the manhole cover is not listed in LRA Table 2.3.3-7 for components subject to an AMR.

PPL Response:

The manhole and cover depicted on license renewal drawing LR-M-134-7 is within the scope of license renewal. The manhole and cover are considered to be an integral part of the tank component. Therefore, the “Tanks (0T527A-E, 0T528A-E)” entry in Table 2.3.3-7 includes the associated manholes and covers. The manhole and cover perform the same pressure boundary function as the tank.

NRC RAI 2.3.3.11-1:

License renewal drawings LR-M-186-3 and LR-M-186-4 depict emergency service water (ESW) piping to and from the ESW bundles (OS117A2 and OS117B2). LRA Section 2.3.3.11, “Emergency Service Water System,” paragraph titled “License Renewal Drawings” does not include LR-M-186-3 or LR-M-186-4 for Unit 1 as

applicable drawings. Clarify that ESW piping to and from the ESW bundles, (OS117A2 and OS117B2) is within the ESW system and whether drawings LR-M-186-3 and LR-M-186-4 are applicable references in LRA Section 2.3.3.11.

PPL Response:

The ESW piping to and from the ESW bundles, (OS117A2 and OS117B2), shown on LR-M-186-3 and LR-M-186-4 respectively, is within the scope of license renewal and is subject to AMR. This ESW piping to and from the ESW bundles is scoped as part of the Control Structure Chilled Water System, rather than as part of ESW, and is included in LRA Section 2.3.3.4 and associated Table 2.3.3-4. Therefore, drawings LR-M-186-3 and LR-M-186-4 are not applicable references for LRA Section 2.3.3.11. The piping containing emergency service water on boundary drawings LR-M-186-1, 2, 3 and 4 is scoped with the Control Structure Chilled Water System and is included in LRA Section 2.3.3.4, except the following portions which are scoped with ESW:

- LR-M-186-1 – HRC-102/HRC-11 from the continuation arrow “from M-111-2 A2” at A4 to and including valve 086014.
- LR-M-186-1 – HRC-105/HRC-12 from, but not including, valve HV08693A to, and including, the continuation arrow “to M-111-2 A5” at A5.
- LR-M-186-2 – HRC-13 from the continuation arrow “from M-111-3 A9” at A4 to and including valve 086114.
- LR-M-186-2 – HRC-14 from, but not including, valve HV08693B to, and including, the continuation arrow “to M-111-3 A9” at A5.

NRC RAI 2.3.3.11-2:

Table 2.3.3-11, “Emergency Service Water System Components Subject to Aging Management Review,” does not contain flexible connectors as a component type subject to AMR. Provide additional information explaining why the following flexible connectors are not listed as components subject to an AMR in Table 2.3.3-11.

LR-M-111-2, Location B3, Core Spray Pump Room Unit Cooler 1A
LR-M-111-2, Location C3, Core Spray Pump Room Unit Cooler 1C
LR-M-111-2, Location F2, RHR Pump “A” Room Unit Cooler 1A
LR-M-111-2, Location H3, HPCI Pump Unit Cooler 1A
LR-M-111-2, Location H7, RCIC Pump Unit Cooler 1A
LR-M-111-2, Location B7, RHR Pump “D” Room Unit Cooler 1D
LR-M-111-3, Location D1, RHR Pump “B” Room Unit Cooler 1B
LR-M-111-3, Location H4, RHR Pump “C” Room Unit Cooler 1C
LR-M-111-3, Location B6, Core Spray Pump Room Unit Cooler 1D
LR-M-111-3, Location C6, HPCI Pump Unit Cooler 1B

LR-M-111-3, Location B9, Core Spray Pump Room Unit Cooler 1B
LR-M-111-3, Location C9, RCIC Pump Unit Cooler 1B
LR-M-2111-2, Location H3, RHR Pump "C" Room Unit Cooler
LR-M-2111-2, Location C2, RHR Pump "B" Room Unit Cooler
LR-M-2111-2, Location C6, HPCI Pump Room Unit Cooler 2B
LR-M-2111-2, Location B6, HPCI Pump Room Unit Cooler 2D
LR-M-2111-2, Location B9, Core Spray Pump Room Unit Cooler
LR-M-2111-2, Location C9, RCIC Pump Room Unit Cooler

PPL Response:

The room unit coolers listed above are in the scope of license renewal and are subject to AMR. The flexible connections associated with each unit cooler are scoped in the same system as the unit cooler itself, not in the ESW system. Based on PPL's scoping methodology, these unit coolers, including the flexible connections associated with them, are all scoped with the Reactor Building HVAC System. The flexible connections are included in LRA Section 2.3.3.24 and the associated Table 2.3.3-23.

NRC RAI 2.3.3.14-1:

License renewal drawing LR-M-153-1, location G8, shows that a continuation of piping for the one-inch sample piping connected to six-inch HCC-1 is located on drawing LR-M-123-8, location A2. This piping is within the scope of license renewal based on 10 CFR 54.4(a)(2). Review of drawing LR-M-123-8 shows that the one-inch piping appears to be continued at location A5, instead of A2. Provide additional information giving the correct continuation location on drawing LR-M-153-1 for the in-scope one-inch sample piping connected to the six-inch HCC-1 piping.

PPL Response:

There is a typographical error on LR-M-153-1, which will be revised as follows:
The continuation arrow at location G8, from AN-05325, now reads "LR-M-123-8 A5" instead of "LR-M-123-8 A2."

The drawing changes do not affect the scoping results indicated on the license renewal drawing.

The following table defines the changes needed for boundary drawing LR-M-153-1.

DRAWING	CONDITION	CHANGE
LR-M-153-1	The continuation arrow for the one-inch piping from AN 05325, at location G8, indicates that the line is continued on drawing LR-M-123-8 at location A2. The continuation of the line is actually found at location A5 on drawing LR-M-123-8.	Revise the continuation arrow for the one-inch piping from AN 05325, at location G8, to indicate that the piping is continued at location A5 on drawing LR-M-123-8.

Revised boundary drawing LR-M-153-1 is provided as Attachment 13.

NRC RAI 2.3.3.14-2:

License renewal drawing LR-M-153-2, location G8, shows within the scope of license renewal a continuation of six-inch HCD-3024 piping to drawing LR-M-2153 without the drawing sheet number and location provided. The review of drawing LR-M-2153 showed a continuation of the six-inch HCD-3024 piping on drawing LR-M-2153-2 at location G1. Provide additional information to establish the correct continuation drawing, sheet number, and location on drawing LR-M-153-2.

PPL Response:

There is a typographical error on LR-M-153-2, which will be revised as follows: The continuation arrow at location G8, "TO UNIT 2 HBD-2048", now reads "LR-M-2153-2 G1" instead of "LR-M-2153."

The drawing change does not affect the scoping results indicated on the license renewal drawing.

The following table defines the changes needed for boundary drawing LR-M-153-2.

DRAWING	CONDITION	CHANGE
LR-M-153-2	The continuation arrow for the six-inch HCD-3024 piping at location G8 indicates that the line is continued on drawing LR-M-2153 with no sheet or location indicated.	Revise the continuation arrow for the one-inch HCD-3024 piping, at location G8, to indicate that the piping is continued on drawing LR-M-2153-2 at location G1.

Revised boundary drawing LR-M-153-2 is provided as Attachment 14.

NRC RAI 2.3.3.14-3:

License renewal drawing LR-M-154-1, locations C3, C6, and C9, shows the boundary (based on 10 CFR 54.4(a)(2)) at the top of the fuel pool filter demineralizers. Though not within scope, two-inch vent pipes are shown that exit the top of the filter demineralizers and go to the vent header two-inch HBD-87 piping, which also is not within scope. License renewal drawing LR-M-154-1, location A1, shows a continuation from the out-of-scope vent header two-inch HBD-87 piping to drawing LR-M-166-2, location A2, where the two-inch HBD-87 piping is shown within the scope of license renewal. Provide additional information explaining why the two-inch vent piping and two-inch HBD-87 vent header piping are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

License renewal Note E on drawing LR-M-166-2 states that component vents routed to a tank are considered to potentially contain a liquid and are included in the evaluation boundaries.

The vent piping from the fuel pool filter demineralizers on drawing LR-M-154-1 up to the vent header and continuing onto drawing LR-M-166-2 at location A2 and to the connection to the fuel pool backwash receiving tank is within the scope of license renewal per the criteria of 10 CFR 54.4(a)(2). The drawings are revised to highlight the piping as pink (magenta).

No changes are required to LRA Table 2.3.3.-14 as the component types being added by the revised highlighting are piping and valves which are addressed under the “piping and piping components” line item with the function of structural integrity.

The License Renewal Application is amended as follows to address the materials for the components added to the scope of license renewal per this response. The internal environment for the carbon and stainless steel vent piping is evaluated as a ventilation environment. In addition it was noted that there is carbon steel piping subject to the treated water environment. Evaluation of that piping is also added to LRA Table 3.3.2-14.

3.3.3 Conclusions

➤ The following line items are added to Table 3.3.2-14 (on LRA page 3.3-260).

Table 3.3.2-14 Aging Management Review Results – Fuel Pool Cooling and Cleanup System and Fuel Pools and Auxiliaries								
Component / Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Piping Components	Structural Integrity	Carbon Steel	Ventilation (Internal)	Loss of Material	System Walkdown Program	VII.I-8	3.3.1-58	C, 0302
			Indoor Air (External)	Loss of Material	System Walkdown Program	VII.I-8	3.3.1-58	A, 0349
Piping and Piping Components	Structural Integrity	Stainless Steel	Ventilation (Internal)	Loss of Material	Supplemental Piping/Tank Inspection	VII.F-1	3.3.1-27	E, 0303
			Indoor Air (External)	Loss of Material	System Walkdown Program	VII.I-8	3.3.1-58	A, 0349

Component / Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Piping Components	Structural Integrity	Carbon Steel	Treated Water (Internal)	Loss of Material	BWR Water Chemistry Program Chemistry Program Effectiveness Inspection	VII.E3-18	3.3.1-17	A, 0301
			Indoor Air (External)	Loss of Material	System Walkdown Program	VII.I-8	3.3.1-58	A, 0349

The following table defines the changes needed for boundary drawings LR-M-154-1 and LR-M-166-2.

DRAWING	CONDITION	CHANGE
LR-M-154-1	The vent piping from the fuel pool filter demineralizers through the vent header and up to the continuation arrow at A1 is not indicated as within the scope of license renewal. This piping meets the criteria of 10 CFR 54.4(a)(2).	Revise the drawing to highlight the vent piping in the path from the demineralizers up through the continuation arrow to drawing LR-M-166-2 at location A1 in pink (magenta).
LR-M-166-2	The vent piping for the fuel pool filter demineralizers from the continuation arrow at location A2 to the connection to the three-inch HBD-53 piping which connects to the fuel pool backwash receiving tank is not indicated as within the scope of license renewal. This piping meets the criteria of 10 CFR 54.4(a)(2).	Revise the drawing to highlight the vent piping from the continuation arrow at location A2 up to the connection to the three-inch HBD-53 piping in pink (magenta).

Revised boundary drawings LR-M-154-1 and LR-M-166-2 are provided as Attachments 15 and 16.

NRC RAI 2.3.3.14-4:

License renewal drawing LR-M-153-2, location F4, shows the continuation of one-inch HBD piping to drawing LR-M-161-1, location E1, which is within the scope of license renewal based on 10 CFR 54.4(a)(2). The LR-M-153-2 drawing did not provide the complete pipe identification number. Review of the continuation drawing LR-M-161-1, location E1, did not show the one-inch HBD piping specifically identified or show the continuation of the in-scope piping from drawing LR-M-153-2. Provide additional information that includes the complete one-inch HBD pipe identification number on drawings LR-M-153-2 and LR-M-161-1. Explain why the continuation of the in-scope boundary from drawing LR-M-153-2 is not shown within the scope of license renewal on drawing LR-M-161-1 and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The continuation of the 1 inch HBD drain line from the refueling bellows area of the primary containment on drawing LR-M-153-2 is included in the listing of sources draining to the drywell equipment drain tank on drawing LR-M-161-1 at location E1. The line from LR-M-153-2 at location F4 is addressed by the listing “Bellows Drain (M-153)”.

The subject 1 inch drain line on LR-M-153-2 that continues to LR-M-161-1 should not be highlighted pink (magenta). This drain line is located inside primary containment where the equipment is designed to get wet. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for an explanation.

The following table defines the change needed for boundary drawing LR-M-153-2.

DRAWING	CONDITION	CHANGE
LR-M-153-2	The piping inside containment, including the referenced 1" HBD drain line at F4, is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of the 1" drain line at F4 and the rest of the highlighting shown as inside "primary containment".

Revised boundary drawing LR-M-153-2 is provided as Attachment 14.

NRC RAI 2.3.3.14-5:

License renewal drawing LR-M-153-2, location F5, shows the continuation of two-inch HBD-1052 piping to drawing LR-M-161-1, location E1, which is within the scope of license renewal based on 10 CFR 54.4(a)(2). Review of the continuation drawing LR-M-161-1, location E1, did not show the two-inch HBD-1052 piping specifically identified or show the continuation of the in-scope piping from drawing LR-M-153-2. Provide additional information that indicates where the two-inch HBD-1052 pipe continuation is located on drawing LR-M-161-1. Explain why the continuation of the in-scope boundary from drawing LR-M-153-2 is not shown within the scope of license renewal on drawing LR-M-161-1 and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The continuation of the 2 inch HBD-1052 drain line from the refueling bellows area of the primary containment on drawing LR-M-153-2 is included in the listing of sources draining to the drywell equipment drain tank on drawing LR-M-161-1 at location E1. The line from LR-M-153-2 at location F5 is addressed by the listing "Bellows Drain (M-153)".

The subject 2 inch drain line on LR-M-153-2 that continues to LR-M-161-1 should not be highlighted pink (magenta). This drain line is located inside primary containment where the equipment is designed to get wet. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for an explanation.

The following table defines the change needed for boundary drawing LR-M-153-2.

DRAWING	CONDITION	CHANGE
LR-M-153-2	The piping inside containment, including HBD-1052, is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of HBD-1052 and the rest of the highlighting shown as inside "primary containment".

Revised boundary drawing LR-M-153-2 is provided as Attachment 14.

NRC RAI 2.3.3.14-6:

License renewal drawing LR-M-2153-2, location F4, shows the continuation of one-inch HBD piping to drawing LR-M-2161-1, location F1, which is within the scope of license renewal base on 10 CFR 54.4(a)(2). The LR-M-2153-2 drawing did not provide the complete pipe identification number. Review of the continuation drawing LR-M-2161-1, location F1, did not show the one-inch HBD piping specifically identified or show the continuation of the in-scope piping from drawing LR-M-2153-2. Provide additional information that includes the complete one-inch HBD pipe identification number on drawings LR-M-2153-2 and LR-M-2161. Explain why the continuation of the in-scope boundary from drawing LR-M-2153-2 is not shown within the scope of license renewal on drawing LR-M-2161 and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The continuation of the 1 inch HBD drain line from the refueling bellows area of the primary containment on drawing LR-M-2153-2 is included in the listing of sources draining to the drywell equipment drain tank on drawing LR-M-2161-1 at location F1. The line from LR-M-2153-2 at location F4 is addressed by the listing "Bellows Leakage Drain (M-2153)".

The subject 1 inch drain line on LR-M-2153-2 that continues to LR-M-2161-1 should not be highlighted pink (magenta). This drain line is located inside primary containment where the equipment is designed to get wet. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for an explanation.

The following table defines the change needed for boundary drawing LR-M-2153-2.

DRAWING	CONDITION	CHANGE
LR-M-2153-2	The piping inside containment, including the referenced 1" HBD drain line at F4, is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of the 1" HBD drain line at F4 and the rest of the highlighting shown as inside "primary containment".

Revised boundary drawing LR-M-2153-2 is provided as Attachment 25.

NRC RAI 2.3.3.14-7:

License renewal drawing LR-M-2153-2, location F5, shows the continuation of two-inch HBD-2052 piping to drawing LR-M-2161-1, location F1, which is within the scope of license renewal based on 10 CFR 54.4(a)(2). Review of the continuation drawing LR-M-2161-1, location F1, did not show the two inch HBD-2052 piping specifically identified or show the continuation of the in-scope piping from drawing LR-M-2153-2. Provide additional information that indicates where the two-inch HBD-2052 piping continuation is located on drawing LR-M-2161-1. Explain why the continuation of the in-scope boundary from drawing LR-M-2153-2 is not shown within the scope of license renewal on drawing LR-M-2161-1 and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The continuation of the 2 inch HBD-2052 drain line from the refueling bellows area of the primary containment on drawing LR-M-2153-2 is included in the listing of sources draining to the drywell equipment drain tank on drawing LR-M-2161-1 at location F1. The line from LR-M-2153-2 at location F5 is addressed by the listing “Bellows Leakage Drain (M-2153)”.

The subject 2 inch drain line on LR-M-2153-2 that continues to LR-M-2161-1 should not be highlighted pink (magenta). This drain line is located inside primary containment where the equipment is designed to get wet. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for an explanation.

The following table defines the change needed for boundary drawing LR-M-2153-2.

DRAWING	CONDITION	CHANGE
LR-M-2153-2	The piping inside containment, including HBD-2052, is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of HBD-2052 and the rest of the highlighting shown as inside “primary containment”.

Revised boundary drawing LR-M-2153-2 is provided as Attachment 25.

NRC RAI 2.3.3.14-8:

License renewal drawing LR-M-153-2 shows six weirs with screens at locations D1, D2, D3, D5, and D6 at the ends of four-inch HCD-143 piping; diffusers at locations E2 and E6 at the ends of six-inch HCD-158 piping, and location E9 at the end of six-inch HCD-3023 piping; and a grate at location F9 at the start of six-inch HCD-3024 piping are within the scope of license renewal based on 10 CFR 54.4(a)(2). License renewal

drawing LR-M-2153-2 shows six weirs with screens at locations D1, D2, D3, D5, and D6 at the ends of four-inch HCD-243 piping; diffusers at locations E2 and E6 at the ends of six-inch HCD-258 piping; and grates at location E3 at the start of three-inch HBC-220 piping are within the scope of license renewal based on 10 CFR 54.4(a)(2). None of these component types are listed in LRA Table 2.3.3-14 for components subject to an AMR. Provide additional information explaining why these components are not included in Table 2.3.3-14.

PPL Response:

The weirs (with screens) and diffusers on drawing LR-M-153-2 all perform a structural integrity function. As such, they are evaluated as component type “piping and piping components”, which is included with a structural integrity function in LRA Table 2.3.3-14. The grate at location F9 is embedded in the floor of the shipping cask storage pit does not have the potential for affecting safety-related components through spatial interaction and therefore does not meet the criteria of 10 CFR 54.4(a)(2). Drawing LR-M-153-2 has been revised to indicate that the grate at location F9 is not within the scope of license renewal.

The weirs (with screens) and diffusers on drawing LR-M-2153-2 all perform a structural integrity function. As such, they are evaluated as component type “piping and piping components”, which is included with a structural integrity function in LRA Table 2.3.3-14.

The piping within the primary containment, including the grates at location E3, was removed from the scope of license renewal on drawing LR-M-2153-2. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for the explanation.

The following table defines the change needed for boundary drawing LR-M-153-2.

DRAWING	CONDITION	CHANGE
LR-M-153-2	The grate shown at location F9 at the start of the six-inch HCD-3024 piping is shown as within the scope of license renewal. This component is embedded in concrete and cannot affect safety-related components through spatial interaction. Therefore, it should not be identified as within the scope of license renewal.	Remove the highlighting from the grate shown at location F9 at the start of the six-inch HCD-3024 piping.

Revised boundary drawing LR-M-153-2 is provided as Attachment 14.

NRC RAI 2.3.3.14-9:

License renewal drawing LR-M-153-2 shows grates at locations E1, E3, E5, E6, E7, E8, E9, and F9 with only the F9 grate at the start of six-inch HCD-3024 piping shown within the scope of licensing renewal. License renewal drawing LR-M-2153-2 shows grates at locations E1, E3, E5, E6, E7, and E8, with only two of the E3 grates at the start of three-inch HBC-120 piping shown within the scope of license renewal. All of the grates are shown to be located at the entrance to drain piping within the scope of license renewal based on 10 CFR 54.4(a)(2). Provide additional information explaining why some grates are within the scope of license renewal and some are not within the scope of license renewal when they all flow into piping within the scope of licensing renewal.

PPL Response:

Based on the response to RAI 2.3.3.14-8, drawing LR-M-153-2 has been revised to indicate the grate at location F9 at the start of six-inch HCD-3024 piping as not within the scope of license renewal. This change was based on the grate being embedded in the floor of the shipping cask storage pit; therefore, not having the potential for affecting safety-related components through spatial interaction and not meeting the criteria of 10 CFR 54.4(a)(2).

The piping within the primary containment, including the grates at location E3, was removed from the scope of license renewal on drawing LR-M-2153-2. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for the explanation. Note that revised boundary drawing LR-M-2153-2 was prepared in response to RAI 2.3.3.14-11.

All of the grates are embedded in concrete and therefore do not have the potential for affecting safety-related components through spatial interaction. Therefore, the grates do not meet the criteria of 10 CFR 54.4(a)(2) and are not within the scope of license renewal.

The following table defines the change needed for boundary drawing LR-M-2153-2.

DRAWING	CONDITION	CHANGE
LR-M-2153-2	The piping inside containment, including the grates at E3, is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of the grates at E3, and the highlighting shown as inside "primary containment".

Revised boundary drawing LR-M-2153-2 is provided as Attachment 25.

NRC RAI 2.3.3.14-10:

License renewal drawing LR-M-153-2, location E3, shows two grates (which are not within the scope of license renewal) that drain into three-inch HBC-120 piping within the scope of license renewal based on 10 CFR 54.4(a)(2) and draining to the liquid radwaste system. Drawing LR-M-2153-2, also at location E3, shows essentially the same two grates (which are within the scope of licensing renewal) that drain into three-inch HBC-220 piping within the scope of licensing renewal based on 10 CFR 54.4(a)(2) and also draining to the liquid radwaste system. Provide additional information explaining why there is a difference of grate scope classification between Susquehanna Steam Electric Station, Unit 1 and Unit 2, when the grates have essentially the same location, piping size, function, and destination that enables both Units to be within the scope of licensing renewal based on the requirements of 10 CFR 54.4(a).

PPL Response:

The piping within the primary containment, including the grates at location E3 on drawing LR-M-2153-2, was removed from the scope of license renewal. This change to drawing LR-M-2153-2 was identified as Revision 1. The basis for the removal of the piping within primary containment on drawings LR-M-153-2 and LR-M-2153-2 from the scope of license renewal was that safety-related components inside containment are designed for a harsh environment, including spray, and are not plausible targets for spatial interaction. The subject components are not connected to safety-related piping. Refer to LRA Section 2.1.1.2.2 and the enclosed response to RAI 2.3.3.23-3 for the explanation.

The following table defines the change needed for boundary drawings LR-M-153-2 and LR-M-2153-2.

DRAWING	CONDITION	CHANGE
LR-M-153-2	The piping inside containment is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of the highlighting shown as inside "primary containment".
LR-M-2153-2	The piping inside containment, including the 2 grates at E3, is highlighted pink (magenta), but is not within the scope of license renewal and should not be highlighted.	Delete the highlighting of the 2 grates at E3 and the rest of the highlighting shown as inside "primary containment".

Revised boundary drawings LR-M-153-2 and LR-M-2153-2 are provided as Attachments 14 and 25.

NRC RAI 2.3.3.14-11:

License renewal drawing LR-M-2153-2, location H1, shows a continuation of in-scope six-inch HBD-2048 piping to drawing LR-M-2153-1, location C1. The six-inch HBD-2048 piping continuation was not found on drawing LR-M-2153-1. The continuation for six-inch HBD-2084 piping was found at location E1, instead of C1, which may be a typographical error since it shows a continuation back to the only piping shown at the H1 location on drawing LR-M-2153-2. Provide additional information to clarify the correct LR-M-2153-1 drawing location for the continuation of six-inch HBD-2048 piping from drawing LR-M-2153-2 and the continuation from drawing LR-M-2153-1, location E1 for the six-inch-HBD-2084 piping.

PPL Response:

The 6” HBD-2048 piping at location H-1 on drawing LR-M-2153-2 continues on drawing LR-M-2153-1 at location E-1, connecting through valve 253045 to 10” HBC-214 piping.

There is a typographical error on LR-M-2153-2, which is revised as follows:
The continuation arrow at location H1 now reads “M-2153-1 E1” instead of “M-2153-1 C1.”

There is a typographical error on LR-M-2153-1, which is revised as follows:
The line number at location E1 now reads “6” HBD-2048” instead of “6” HBD-2084.”

The drawing changes do not affect the scoping results indicated on the license renewal drawings.

The following table defines the changes needed for boundary drawings LR-M-2153-1 and LR-M-2153-2.

DRAWING	CONDITION	CHANGE
LR-M-2153-1	The piping continuation shown at location E-1 from drawing LR-M-2153-2 is identified as 6” HBD-2084. The piping should be identified as 6” HBD-2048, as identified at the continuation point on drawing LR-M-2153-2, H-1.	Revise the piping number at the continuation arrow located at E-1 from 6” HBD-2084 to 6” HBD-2048.
LR-M-2153-2	The continuation arrow for the six-inch HBD-2048 piping at location H-1 indicates that the line is continued on drawing LR-M-2153-1 at location C-1. The piping is actually continued on drawing LR-M-2153-1 at location E-1.	Revise the continuation arrow for the six-inch HBD-2048 piping, at location H-1, to indicate that the piping is continued on drawing LR-M-2153-1 at location E-1.

Revised boundary drawings LR-M-2153-1 and LR-M-2153-2 are provided as Attachments 24 and 25.

NRC RAI 2.3.3.14-12:

License renewal drawing LR-M-2153-1, location F6, shows orifice FE 25234 highlighted green, indicating it is within the scope of license renewal based on 10 CFR 54.4(a)(1). License renewal drawing LR-M-153-1, location F6, orifice FE 15324 is highlighted pink, indicating it is within the scope of license renewal based on 10 CFR 54.4(a)(2). Provide additional information explaining why different scoping criterion was used for the Unit 1 versus Unit 2 orifices.

PPL Response:

Orifice FE 15324, like FE 25324, is a Q-Class component (i.e., safety-related) and therefore meets the scoping criteria of 10 CFR 54.4(a)(1).

There is a highlighting error on LR-M-153-1, which is revised as follows:
Orifice FE15324 is now highlighted in green instead of pink (magenta).

No changes are required to LRA Table 2.3.3-14 as the component type is already evaluated for a pressure boundary and throttling function based on the Unit 2 component. No changes are required to LRA Table 3.3.2-14 as the material and environment combination for the component type is already evaluated.

The following table defines the changes needed for boundary drawing LR-M-153-1.

DRAWING	CONDITION	CHANGE
LR-M-153-1	Orifice FE 15324 at location F6 is highlighted pink (magenta), indicating it is within the scope of license renewal per 10 CFR 54.4(a)(2). The component is safety-related and should be highlighted green indicating that it is in scope per 10 CFR 54.4(a)(1).	Revise the highlighting at location F6 for the piping symbol indicating orifice FE 15324 from pink (magenta) to green.

Revised boundary drawing LR-M-153-1 is provided as Attachment 13.

NRC RAI 2.3.3.14-13:

License renewal drawings LR-M-153-1, location C6 and drawing LR-M-2153, location C3, show 10-inch HBC-114/214 within the scope of license renewal based on 10 CFR 54.4(a)(2) as nonsafety-related for spatial interaction (highlighted pink-magenta). The piping numbering system of drawing LR-M-100 indicates that these piping components are American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME B&PV) Code, Section III, Class 3. ASME B&PV Code, Section III, Class 3 components are typically safety-related and would be in scope for 10 CFR 54.4(a)(1). Note that there are numerous other similar instances on these drawings. Provide additional information explaining why the portions of ASME B&PV Code, Section III, Class 3 components on drawings LR-M-153/2153-1 are not safety-related and why they are not within the scope of license renewal based on 10 CFR 54.4(a)(1).

PPL Response:

The SSES FSAR Table 3.2-1 under the Fuel Pool Cooling and Cleanup System, shows that the principal construction code for the piping downstream of valve 1(2)53001 (10" HBC-114/214) is ASME Section III, Class 3. The same table shows that this piping is not within the scope of 10 CFR 50, Appendix B. Hence, the pipe is ASME III, Class 3, but is not safety-related. Reference LR-M-100-2 at E3, PPL's drawing convention is to "cross-hatch" pipelines that are safety-related. The lack of "cross-hatching" indicates that HBC-114/214, as well as other similar instances of ASME Section III pipes, are not safety-related.

NRC RAI 2.3.3.19-1:

License renewal drawings LR-M-161-2 and LR-M-2161-2, locations C1 to E1, provides a list of items (components, drains, vents, etc.) that are contained in a non-boundary continuation box that interfaces directly with two four-inch XBD pipelines within the scope of license renewal. The list does not show details about the drawing, sheet, and location numbers for the listed items in order to review and evaluate the license renewal scope boundaries. Provide additional information to identify these license renewal boundaries and to justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The boxes on LR-M-161-2 and LR-M-2161-2 do not represent specific components and are not highlighted. The boxes represent that numerous drain lines from the listed systems and drawings are coming together into the lines continued from the box. Most of the piping making up the drain lines coming into the "box" is embedded in the building's floor and wall concrete. As the concrete forms a tight seal around the embedded drain

line, spatial interaction is not reasonable for embedded piping. Therefore, the embedded portions of the drain lines coming into the box are not subject to AMR. The portions of these drain lines not embedded in concrete are within the scope of license renewal, are subject to AMR and are included in LRA Section 2.3.3.19 and Table 2.3.3.18, as “Piping and Piping Components” with the intended function of “Structural Integrity”. The piping from the box is addressed on LR-M-161-2 and LR-M-2161-2, the liquid radwaste drawings.

NRC RAI 2.3.3.19-2:

License renewal drawings LR-M-161-1 and LR-M-2161-1, locations E5 and F5, and drawings LR-M-161-2 and LR-M-2161-2, locations A4, B4, C4, D4, E4, E5, E3, F3, G3, and H3, show drum traps (e.g., P-25-6, P-29-6, etc.) which are shown within the scope of license renewal. However, the drum trap is not included in LRA Table 2.3.3-19 as a component subject to an AMR. Provide additional information explaining why the drum traps were not included in Table 2.3.3-19.

PPL Response:

As stated in LRA Section 2.1.2.1.3, screening of mechanical components for non-safety affecting safety (NSAS) considerations was performed on a commodity group basis. The commodity group of “piping and piping components” includes all in-line piping components except for major equipment such as tanks and heat exchangers.

The components identified on the Radwaste Liquid System drawings as drum traps are evaluated as the component type of “cleanout” and are included in the Table 2.3.3-19 line item “Piping and piping components – cleanouts and pump casings (1/2P225A/B)”.

NRC RAI 2.3.3.19-3:

License renewal drawings LR-M-161-1 and LR-M-2161-1, location H8, show a cooling coil in the reactor building sump that is connected to two-inch JBD-139 and two-inch JBD-140 piping within the scope of license renewal. However, the cooling coil is not included within scope. Provide additional information explaining why the cooling coil is not within the scope of license renewal.

PPL Response:

The cooling coil does not perform a safety-related function; therefore, is not in scope for criterion 10 CFR 54.4(a)(1). The cooling coil is completely enclosed within the reactor building sump and, therefore, can not have any spatial interaction with safety-related equipment and the sump itself does not perform a safety-related function. Thereby the

cooling coil is not in scope for criterion 10 CFR 54.4(a)(2). The coil does not support any of the regulated event functions and, therefore, the cooling coil is not in scope for criterion 10 CFR 54.4(a)(3).

NRC RAI 2.3.3.19-4:

License renewal drawing LR-M-2161-2, location B1, shows a continuation from demineralized water distribution on drawing LR-M-118-2, location C2. A search for the drawing LR-M-118-2 (in the LRA-provided boundary drawing package) was unsuccessful. The only drawing found from demineralized water distribution was LR-M-118-3 and it included the correct continuation from location C2 to drawing LR-M-2161-2, location B1. Provide additional information to clarify that drawing LR-M-118-3, rather than drawing LR-M-118-2, was the correct continuation drawing to drawing LR-M-2161-2 at location B1.

PPL Response:

The continuation from license renewal drawing LR-M-2161-2, at location B1, should be to drawing LR-M-118-3 at location C2. This is the correct continuation of piping line 1" JDC-207.

PPL piping and instrumentation drawing (P&ID) M118-2 does not contain any components within the scope of license renewal. Therefore, an associated license renewal drawing LR-M-118-2 was not developed.

The following table defines the clarification changes for boundary drawing LR-M-2161-2.

DRAWING	CONDITION	CHANGE
LR-M-2161-2	The continuation flag at location B1 indicates that piping line 1" JCD-207 is continued from drawing M-118-2, location C2. The correct location is drawing M-118-3, location C2.	Revise the continuation flag at location B1 from M-118-2 C2 to M-118-3 C2. No changes are required to the existing license renewal highlighting. The components remain within the scope of license renewal.

Revised boundary drawing LR-M-2161-2 is provided as Attachment 26.

NRC RAI 2.3.3.19-5:

License renewal drawing LR-M-161/2161-1, locations B3 and G3, show nonsafety-related to safety-related piping components at penetrations X72A and X72B. LRA Section 2.1.1.2.2, "Spatial Failures of Nonsafety-Related SSCs," page 2.1-8 states in part: "With respect to nonsafety-related piping that is directly connected to safety-related piping, the seismic Category I design requirements are extended to the first seismic restraint beyond the defined boundaries." Provide the location of the seismic restraint for the nonsafety-related three-inch HBD-157/257 connected to the safety-related three-inch HBB-119/219 piping, which is within the license renewal boundary.

PPL Response:

PPL's response to RAI 2.1-3, part b, (Reference 3), identified nonsafety-related (NSR) piping and components, inside primary containment and connected to safety-related (SR) piping and components, that are required to remain intact to ensure the structural integrity of the attached SR piping and components. The 3" HBD-155/255 line connected to SR containment penetration X-72B and the 3" HBD-157/257 line connected to penetration X-72A are not highlighted. The penetrations themselves serve as anchor points, and the HBD lines inside the drywell are not within the boundaries of the seismic analyses that contain the containment boundary valves.

NRC RAI 2.3.3.22-1:

License renewal drawings LR-M-187-2 and LR-M-2187-2 show several one-inch lines and associated isolation valves not within the scope of license renewal. These lines are directly connected to the reactor building closed-cooling water (RBCCW) lines that are within the scope of license renewal. Provide additional information explaining why the sections of pipe and components listed below are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

Provide information for both drawings unless otherwise noted.

Location A2, valves 187142/287142 and upstream pipe to three-inch headers.

Location B1 and B2, valves 187203/287203 and 187141/287141 and upstream pipe to three-inch headers.

Location C2, valves 187140/287140 and upstream pipe to eight-inch headers.

Location D2, valves 187139/287139 and upstream pipe to eight-inch headers.

Location E2, valves 187138/287138 and upstream pipe to three-inch headers.

Location F1 and F2, valves 187204/287204 and 187137/287137 and upstream pipe to three-inch headers.

Location G2, valves 187136/287136 and upstream pipe to eight-inch headers.

Location H2, valves 187135/287135 and upstream pipe to eight-inch headers.

PPL Response:

PPL's response to RAI 2.1-3, (Reference 3), identified nonsafety-related (NSR) piping and components, inside primary containment and connected to safety-related (SR) piping and components, that are required to remain intact to ensure the structural integrity of the attached SR piping and components. The identified NSR piping and components are in scope for license renewal based on the criteria of 10 CFR 54.4(a)(2). The scoping determination for the NSR piping and components is based upon review of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface to the analytical boundaries of the piping analysis which contains the SR piping and components.

As part of the response to RAI 2.1-3, boundary drawings LR-M-187-2 Revision 1 and LR-M-2187-2 Revision 1 were included to show the revised evaluation boundaries. The piping and valves that are highlighted in pink (magenta) and identified with a reference to LR NOTE D are in scope for the 10 CFR 54.4(a)(2) function discussed above.

The NSR piping and valves identified by this RAI are not included in the piping analyses which include the SR valves HV18792B2/HV28792B2, HV18792B1/HV28792B1, HV18782A2/HV28782A2, HV18782A1/HV28782A1, HV18792A2/HV28792A2, HV18792A1/HV28792A1, HV18782B2/HV28782B2, HV18782B1/HV28782B1. The piping and valves are not included in the analyses because they are small diameter branch lines extending from large diameter headers. In the governing piping analyses, small diameter branch lines, such as vents and drains, may be decoupled from the analysis of the headers. This is an acceptable piping design practice that is employed when it is determined that the small diameter branch lines do not significantly affect the loads and stresses on a large diameter header. Therefore, in all cases, the applicable piping analyses, which are part of the current design basis, support the conclusion that the NSR piping and valves identified by this RAI are not required to remain intact to ensure the structural integrity of the SR valves.

As discussed in LRA Section 2.1.1.2.2, and further discussed in the response to RAI 2.3.3.23-3, NSR piping inside containment is not required to satisfy the 10 CFR 54.4(a)(2) criteria for spatial considerations since the SR equipment inside containment is designed for all potential spatial interactions. Therefore, the NSR piping and valves identified by this RAI are not in scope for any criteria of 10 CFR 54.4(a)(2).

Revised boundary drawings LR-M-187-2 and LR-M-2187-2 are provided as Attachments 19 and 28.

NRC RAI 2.3.3.23-1:

License renewal drawings LR-M-113-1 and LR-M-2113-1, locations A&B2, A&B3, and A&B4, show RBCCW supply and return to pump seal heat exchangers within the scope of license renewal; however, the RBCCW supply and return piping to the motor bearing coils are not shown within the scope of license renewal. Please provide additional information explaining why the piping upstream/downstream, including valves 113012, 213012, 113009, 213009, 113017, and 113020, is not within the scope of license renewal. In addition, explain why the following sensing lines and root valves connected to the piping bounded by these isolation valves are not within the scope of license renewal. Justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a)(2).

- License renewal drawing LR-M-113, location A3, valve 2RV-FP-11342A
- License renewal drawing LR-M-113, location A3, valve 1RV-FP-11342A
- License renewal drawing LR-M-113, location A4, valve 2RV-FP-11342B
- License renewal drawing LR-M-113, location A4, valve 1RV-FP-11342B
- License renewal drawing LR-M-113, location A3, valve 113010
- License renewal drawing LR-M-113, location A4, valve 113018
- License renewal drawing LR-M-113, location B3, valve 113011
- License renewal drawing LR-M-113, location B4, valve 113019
- License renewal drawing LR-M-2113, location A3, valve 2RV-FP-21342A
- License renewal drawing LR-M-2113, location A3, valve 1RV-FP-21342A
- License renewal drawing LR-M-2113, location A4, valve 2RV-FP-21342B
- License renewal drawing LR-M-2113, location A4, valve 1RV-FP-21342B
- License renewal drawing LR-M-2113, location A3, valve 213010
- License renewal drawing LR-M-2113, location A4, valve 213018
- License renewal drawing LR-M-2113, location B3, valve 213011
- License renewal drawing LR-M-2113, location B4, valve 213019

PPL Response:

PPL's response to RAI 2.1-3, part b, sent to the NRC via PLA-6177 dated April 17, 2007, identified nonsafety-related (NSR) piping and components, inside primary containment and connected to safety-related (SR) piping and components, that are required to remain intact to ensure the structural integrity of the attached SR piping and components. The identified NSR piping and components are in scope for license renewal based on the criteria of 10 CFR 54.4(a)(2). The scoping determination for the NSR piping and components is based upon review of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface

to the analytical boundaries of the piping analysis which contains the SR piping and components.

As part of the response to RAI 2.1-3, boundary drawings LR-M-113-1, Revision 1 and LR-M-2113-1, Revision 1 were included to show the revised evaluation boundaries. The piping and valves that are highlighted in pink (magenta) and identified with a reference to "SEE LR NOTE C" are in scope for the 10 CFR 54.4(a)(2) function discussed above.

The NSR piping and valves identified by this RAI are not included in the piping analyses which include the SR valves HV11345, HV11346, HV21345, and HV21346. The piping and valves are not included in the analyses for one of two possible reasons: 1) the piping and valves are located on the unanalyzed side of a physical pipe support anchor which defines the boundary of the analysis, or 2) the piping and valves are part of small diameter branch lines extending from the 3" HBD-129/229 and 3" HBD-130/230 headers. In the governing piping analyses, the small diameter branch lines, including vents and drains, may be decoupled from the analysis of the headers. This is an acceptable piping design practice that is employed when it is determined that the small diameter branch lines do not significantly affect the loads and stresses on a large diameter header. Therefore, in all cases, the applicable piping analyses, which are part of the current design basis, support the conclusion that the NSR piping and valves identified by this RAI are not required to remain intact to ensure the structural integrity of the SR valves HV11345, HV11346, HV21345, and HV21346.

As discussed in LRA Section 2.1.1.2.2, and further discussed in the response to RAI 2.3.3.23-3, NSR piping inside containment is not required to satisfy the 10 CFR 54.4(a)(2) criteria for spatial considerations since the SR equipment inside containment is designed for all potential spatial interactions. Therefore, the NSR piping and valves identified by this RAI are not in scope for any criteria of 10 CFR 54.4(a)(2).

Revised boundary drawings LR-M-113-1 and LR-M-2113-1 are provided as Attachments 7 and 22.

NRC RAI 2.3.3.23-2:

License renewal drawing LR-M-113-1 and LR-M-2143-1 show several one-inch lines and associated isolation valves not within the scope of license renewal. These lines are directly connected to RBCCW main lines that are within the scope of license renewal. Please provide additional information explaining why the sections of pipe and components listed below are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a). Provide information for both drawings unless otherwise noted.

Location B2, valves 113007 and 213007 and upstream pipe to three-inch header.
Location A2, valves 113006 and 213006 and upstream pipe to three-inch header.
Location B3, valves 113015 and 213015 and upstream pipe to three-inch header.
Location A4, valves 113014 and 213014 and upstream pipe to three-inch header.
Location C3, valves 113076 and 213076 and upstream pipe to four-inch header.
Location C1, valves 113077 and 213077 and upstream pipe to four-inch header.
Location A3, 2RV-FP-11343B, 1RV-FP-11343B, 2RV-FP-21343B, and 1RV-FP21343B and upstream pipe to three-inch header.
Location A2, 2RV-FP-11343A, 1RV-FP-11343A, 2RV-FP-21343A, and 1RV-FP21343A.
License renewal drawing LR-M-2113, location B3, valve 213846 and upstream pipe to three-inch HBB-229.
License renewal drawing LR-M-113, Location B3, valve 113820 and upstream pipe to three-inch HBB-129.
License renewal drawing LR-M-113, location A3, valve 113826.
License renewal drawing LR-M-2113, location A3, valve 213845.

PPL Response:

The RBCCW piping discussed in this RAI is shown on boundary drawings LR-M-113-1 and LR-M-2113-1. The reference to drawing LR-M-2143-1 in the first sentence of the RAI is considered to be a typographical error.

PPL's response to RAI 2.1-3, part b, sent to the NRC via PLA-6177 dated April 17, 2007, identified nonsafety-related (NSR) piping and components, inside primary containment and connected to safety-related (SR) piping and components, that are required to remain intact to ensure the structural integrity of the attached SR piping and components. The identified NSR piping and components are in scope for license renewal based on the criteria of 10 CFR 54.4(a)(2). The scoping determination for the NSR piping and components is based upon review of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface to the analytical boundaries of the piping analysis which contains the SR piping and components.

As part of the response to RAI 2.1-3, boundary drawings LR-M-113-1, Revision 1 and LR-M-2113-1, Revision 1 were included to show the revised evaluation boundaries. The piping and valves that are highlighted in pink (magenta) and identified with a reference to "SEE LR NOTE C" are in scope for the 10 CFR 54.4(a)(2) function discussed above.

The NSR piping and valves identified by this RAI are not included in the piping analyses which include the SR valves HV11345, HV11346, HV21345, and HV21346. The piping and valves are not included in the analyses for one of two possible reasons: 1) the piping and valves are located on the unanalyzed side of a physical pipe support anchor which

defines the boundary of the analysis, or 2) the piping and valves are part of small diameter branch lines extending from the 3" HBD-129/229 and 3" HBD-130/230 headers. In the governing piping analyses, the small diameter branch lines, including vents and drains, may be decoupled from the analysis of the headers. This is an acceptable piping design practice that is employed when it is determined that the small diameter branch lines do not significantly affect the loads and stresses on a large diameter header. Therefore, in all cases, the applicable piping analyses, which are part of the current design basis, support the conclusion that the NSR piping and valves identified by this RAI are not required to remain intact to ensure the structural integrity of the SR valves HV11345, HV11346, HV21345, and HV21346.

As discussed in LRA Section 2.1.1.2.2, and further discussed in the response to RAI 2.3.3.23-3, NSR piping inside containment is not required to satisfy the 10 CFR 54.4(a)(2) criteria for spatial considerations since the SR equipment inside containment is designed for all potential spatial interactions. Therefore, the NSR piping and valves identified by this RAI are not in scope for any criteria of 10 CFR 54.4(a)(2).

Revised boundary drawings LR-M-113-1 and LR-M-2113-1 are provided as Attachments 7 and 22.

NRC RAI 2.3.3.23-3:

License renewal drawing LR-M-113-1, license renewal note B states, "Safety-Related components inside containment (designed for harsh environment) are not plausible targets for spatial interaction." Provide additional information to support the implausibility of safety-related components within containment being impacted by failure of nonsafety-related systems. Justify boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

FSAR Sections 3.6.1.1 and 3.11.1 state that essential systems and equipment required to mitigate the consequences of a design-basis-accident, or to affect a safe shutdown of the reactor, are designed to remain functional after exposure to the applicable accident environmental conditions and are qualified for service in harsh environments, including spray and/or steam. As such, the safety-related components in the primary containment are designed to remain functional for conditions that bound any potential leakage, spray, or flooding and the corresponding environmental effects (e.g., elevated temperatures and pressures), and are not reasonable targets for spatial interaction, upon failure of nonsafety-related components in that structure. Also, based on FSAR Sections 3.6.1.2 – 3.6.2, safety-related components inside containment are protected from the effects of pipe whip and/or jet impingement (from a high-energy line failure) by separation, barriers or pipe whip restraints. The portions of high-energy piping that are inside containment are all safety-related and in the scope of license renewal based on 10 CFR 54.4(a)(1) scoping

criterion. Therefore, nonsafety-related mechanical components inside the containment do not have a plausible potential for failure to impair or prevent the accomplishment of a safety-related SSC's intended function. As such, they do not satisfy 10 CFR 54.4(a)(2), scoping criterion and are not within the scope of license renewal.

NRC RAI 2.3.3.23-4:

License renewal drawing LR-M-113-1, location B2, refers to note "C" which states, "Highlighted nonsafety-related piping is within analytical boundaries of the seismic analyses for the attached safety-related components." Given the placement of the note and the highlighting approach, it is unclear as to what specific components and/or piping is specifically addressed by note "C."

Provide additional information clarifying what specific components/piping is within the analytical boundaries of the seismic analyses. Justify boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As discussed in the responses to RAIs 2.3.3.23-1 and 2.3.3.23-2 above, the evaluation boundaries of the NSR piping and components inside containment are based upon the analytical boundaries of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface to the analytical boundaries of the piping analysis which contains the SR piping and components.

LR Note "C" applies to all of the pink (magenta)-highlighted piping and valves inside the primary containment that are part of the HBD-129 and HBD-130 pipelines. The highlighted piping and valves are required to remain intact to ensure the structural integrity of the attached SR piping and components and are, therefore, in scope for license renewal based on the criteria of 10 CFR 54.4(a)(2).

The note to "SEE LR NOTE C" on drawings LR-M-113-1 and LR-M-2113-1 at location B2 should be closer to the 4" HBD-130 and 4" HBD-230 lines in location B1. This would then be similar to the "SEE LR NOTE C" beside the 4" HBD-129 and 4" HBD-229 lines in location B3 of the drawings.

NRC RAI 2.3.3.23-5:

License renewal drawing LR-M-143-2, location E7 and E8, shows RBCCW three-inch supply to pump seal heat exchangers upstream of a three-inch to two-inch reducer as being within the scope of license renewal. The RBCCW piping and components downstream of the reducer are not within the scope of license renewal. The distinction between the in-scope piping upstream of the reducer and the out-of-scope piping downstream of the reducer is unclear. Provide additional information explaining why the

piping downstream of the three-inch to two-inch reducer is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As discussed in the responses to RAIs 2.3.3.23-1 and 2.3.3.23-2 above, the evaluation boundaries of the NSR piping and components inside containment are based upon the analytical boundaries of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface to the analytical boundaries of the piping analysis which contains the SR piping and components.

The analytical boundary associated with the piping analysis that includes the SR containment boundary valve HV11346 ends at the 3"-to-2" reducer at the end of the run of 3" HBD-129 piping on LR-M-143-2 at location E7. Since the piping downstream of the reducer is not part of the piping analysis that includes valve HV11346, it is not required to remain intact to ensure the structural integrity of the SR valve. Therefore, it is not within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(2).

NRC RAI 2.3.3.23-6:

License renewal drawing LR-M-143-2, location E8, shows RBCCW three-inch supply to pump seal heat exchangers upstream of a three-inch to two-inch reducer as being within scope of license renewal. The same section of piping identified in Unit 2 and shown on drawing LR-M-2143-2, is identified not within the scope of license renewal. The reason for this difference in RBCCW system scope between Unit 1 and Unit 2 is unclear. Provide additional information explaining why boundary locations for these sections of piping are defined differently between Unit 1 and Unit 2 and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As discussed in the response to RAI 2.3.3.23-5 above, the evaluation boundaries of the NSR piping and components inside containment are based upon the analytical boundaries of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface to the analytical boundaries of the piping analysis which contains the SR piping and components.

The analytical boundary associated with the Unit 1 piping analysis that includes the SR containment boundary valve HV11346 ends at the 3"-to-2" reducer at the end of the run of 3" HBD-129 piping on LR-M-143-2 at location E7. The analytical boundary associated with the Unit 2 piping analysis that includes the SR containment boundary valve HV21346 ends at a point just downstream of valve 213008 on the 3" HBD-229

piping on LR-M-2113-1 at location B2. Thus, the pink-(magenta) highlighted boundary for the Unit 2 RBCCW line ends at valve 213008, which correctly reflects the analytical boundary as the evaluation boundary for license renewal.

Since the 3" HBD-229 piping downstream of valve 213008 is beyond the analytical boundary of the piping analysis that includes valve HV21346, it is not required to remain intact to ensure the structural integrity of the SR valve. Therefore, the piping downstream of valve 213008 is not within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(2).

NRC RAI 2.3.3.23-7:

License renewal drawing LR-M-143-2, location E7 and E8, shows RBCCW supply to pump seal heat exchangers pipe section three-inch HBD-129 within the scope of license renewal. The RBCCW pump seal heat exchangers return line identified as three-inch HBD-130 is not within scope for license renewal on drawing LR-M-143, but identified as in scope on drawing LR-M-113, location A2 and A4. It is unclear why three-inch HBD-129, on drawing LR-M-143 is within scope for license renewal: However, three-inch HBD-130 on drawing LR-M-143 is not within the scope of license renewal. Provide additional information explaining why the return piping from the RBCCW pump seal heat exchangers is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

As discussed in the response to RAI 2.3.3.23-5 above, the evaluation boundaries of the NSR piping and components inside containment are based upon the analytical boundaries of the governing piping design analyses. The in-scope portion of the NSR piping extends from the NSR-to-SR interface to the analytical boundaries of the piping analysis which contains the SR piping and components.

The analytical boundaries associated with the piping analysis that includes the SR containment boundary valve HV11345 end just upstream of FE11343A and FE11343B on the 3" HBD-130 piping on LR-M-113-1 at locations A2 and A4. The analytical boundary does not encompass any components shown on LR-M-143-2. Thus, the pink-highlighted boundary ends just upstream of the FE's on LR-M-113-1 and is not continued to any piping represented on LR-M-143-2. The highlighting provides an accurate representation of all piping and piping components that are within the boundaries of the piping analysis and, therefore, within the scope of license renewal.

Since the 3” HBD-130 piping shown on LR-M-143-2 at location E8 is beyond the analytical boundary of the piping analysis that includes valve HV11345, it is not required to remain intact to ensure the structural integrity of the SR valve, and, therefore, it is not within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(2).

NRC RAI 2.3.3.27-1:

License renewal drawing LR-M-112-1, location H3, shows a continuation to LR-M-2112-1, location C3. The continuation to LR-M-2112-1 could not be located. However, there is a continuation from LR-M-112-1, location G3 of drawing LR-M-2112-1. Provide additional information to locate the continuation from drawing LR-M-112-1, location H3, to LR-M-2112-1, location C3.

PPL Response:

The piping at location H3 on drawing LR-M-112-1 continues to Unit 2 RHR Heat Exchanger B on drawing LR-M-2112-1. The continuation of this piping is found at location G3 on drawing LR-M-2112-1.

There is a typographical error on LR-M-112-1, which is revised as follows:
The continuation arrow at location H3 now reads “M-2112-1 G3” instead of “M-2112-1 C3.”

The drawing change does not affect the scoping results indicated on the license renewal drawing.

The following table defines the change needed for boundary drawing LR-M-112-1.

DRAWING	CONDITION	CHANGE
LR-M-112-1	The continuation arrow for the 20-inch HRC-16 piping at location H3 indicates that the line is continued on drawing LR-M-2112-1 at location C3. The continuation on drawing LR-M-2112-1 is actually found at location G3.	Revise the continuation arrow for the 20-inch HRC-16 piping, at location H3, to indicate that the piping is continued on drawing LR-M-2112-1 at location G3.

Revised boundary drawing LR-M-112-1 is provided as Attachment 5.

NRC RAI 2.3.3.27-2:

License renewal drawing LR-M-151-2, location G5, shows a continuation to M-123-7, location A8. Drawing M-123-7 was not provided in the LRA. Provide drawing M-123-7 or sufficient information to locate the license renewal boundary that is continued on M-123-7.

PPL Response:

The tubing at location G5 on drawing LR-M-151-2 continues to the sample station on drawing LR-M-123-10 at location A4. License renewal drawing LR-M-123-10 was provided in the LRA.

There is a typographical error on LR-M-151-2, which is revised as follows: The continuation arrow at location G5 now reads “M-123-10 A4” instead of “M-123-7 A8.”

The drawing change does not affect the scoping results indicated on the license renewal drawing.

The following table defines the change needed for boundary drawing LR-M-151-2.

DRAWING	CONDITION	CHANGE
LR-M-151-2	The continuation arrow for the 1/4-inch SS tubing at location G5 indicates that the line is continued on drawing LR-M-123-7 at location A8. The tubing is actually continued on drawing LR-M-123-10 at location A4.	Revise the continuation arrow for the 1/4-inch SS tubing, at location G5, to indicate that the tubing is continued on drawing LR-M-123-10 at location A4.

Revised boundary drawing LR-M-151-2 is provided as Attachment 12.

NRC RAI 2.3.3.27-3:

License renewal drawing LR-M-2112-1, location F7, depicts pipe sections downstream of PSV21213B and PSV21212B that are not within the scope of license renewal. However, similar components downstream of PSV21213A and PSV21212A are within the scope of license renewal. Provide additional information explaining why these nonsafety-related piping and components connected to safety-related components downstream of PSV21213B and PSV21212B are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The pipe sections downstream of PSV21213B and PSV21212B, labeled as going to “LRW”, are within the scope of license renewal based on 10 CFR 54.4(a)(2) as nonsafety-related for spatial interaction and are subject to AMR. The highlighting was inadvertently missed and these two pipe sections have been highlighted in Revision 1 to drawing LR-M-2112-1. Since this is a highlighting omission, and the materials and environments are already included in LRA Section 2.3.3.27, no LRA changes are needed.

The following table defines the change needed for boundary drawing LR-M-2112-1.

DRAWING	CONDITION	CHANGE
LR-M-2112-1	Highlighting of the piping downstream of PSV21213B and PSV21212B was inadvertently missed. This piping is within the scope of license renewal and is subject to AMR and should have been highlighted pink (magenta).	Highlight pink (magenta) the portions of pipe downstream of PSV21213B and PSV21212B.

Revised boundary drawing LR-M-2112-1 is provided as Attachment 21.

NRC RAI 2.3.3.27-4:

License renewal drawing LR-M-112-2, locations D3 and D8, show RHRSW piping from three-inch JRD-31 and three-inch JRD-32 to the vault sump and to valves 012029 and 012041, respectively, not within the scope of license renewal. Provide additional information explaining why these sections of piping are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

In PPL’s response to RAI 2.1-3, we determined that the JRD-31 piping from valves 012029 and 012030 through to valve 012028, including pump casing 0P513A, and JRD-32 from valves 012032 and 012033 through to valve 012039, including pump casing 0P513B, is in license renewal scope based on 10 CFR 54.4(a)(2), because it is connected to safety-related piping. Drawing LR-M-112-2 was updated as Revision 1 and now shows the pipe segments and the pumps as in-scope and highlighted pink (magenta). The PPL response to RAI 2.1-3, (Reference 3), also updated Table 2.3.3-26 to include the appropriate component type and intended function. No further LRA changes are necessary.

Revised boundary drawing LR-M-112-2 is provided as Attachment 6.

NRC RAI 2.3.3.31-1:

License renewal drawing LR-M-110-1, locations G2 and G3, show Pipe Tunnel Coolers (1A, 1B, 1C, and 1D) that are not within the scope of license renewal. Provide additional information explaining why these Pipe Tunnel Coolers are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The pipe tunnel coolers (1A, 1B, 1C, and 1D) are within the scope of license renewal under criteria 10 CFR 54.4(a)(2). The components which are subject to aging management review are those that may contain a liquid and have the potential for spatial interaction. Therefore, the channels/heads for the unit coolers are subject to aging management review. The pipe tunnel unit cooler channels/head are addressed as components of the Reactor Building HVAC System and are included in LRA Table 2.3.3-23 under the line item “Unit coolers, drain pans, drain piping, channels/heads” with an intended function of structural integrity.

Drawing LR-M-110-1 is revised to highlight the Pipe Tunnel Coolers (1A, 1B, 1C, and 1D) in pink (magenta) to indicate that they are within the scope of license renewal.

The following table defines the change needed for boundary drawing LR-M-110-1.

DRAWING	CONDITION	CHANGE
LR-M-110-1	The pipe tunnel unit coolers (1A, 1B, 1C, and 1D) shown at locations G2 and G3 are not indicated as within the scope of license renewal. The components are required to be within the scope of license renewal under criteria 10 CFR 54.4(a)(2).	Revise the drawing to highlight pipe tunnel coolers 1A, 1B, 1C, and 1D in pink (magenta) to indicate that they are within the scope of license renewal.

Revised boundary drawing LR-M-110-1 is provided as Attachment 4.

NRC RAI 2.3.3.31-2:

License renewal drawing LR-M-2110-1, location E3, shows a continuation to LR-M-2187-1, location C8. The continuation to LR-M-2187-1 could not be located. However, there is a continuation from LR-M-2110-2, location C8, on drawing LR-M-2187-1. Provide additional information to locate the continuation from drawing LR-M-2110-1, location E3, to LR-M-2187-1, location C8.

PPL Response:

The 12-inch JRD-226 piping on drawing LR-M-2110-1 at location E3 is continued to the reactor building chillers on drawing LR-M-2187-1 at location C8. The continuation arrow on drawing LR-M-2187-1 at location C8 should indicate that the piping is continued from drawing LR-M-2110-1, not LR-M-2110-2.

There is a typographical error on LR-M-2187-1, which is revised as follows: The continuation arrow at location C8 now reads “M-2110-1 E3” instead of “M-2110-2 E3.”

The drawing change does not affect the scoping results indicated on the license renewal drawing.

The following table defines the change needed for boundary drawing LR-M-2187-1.

DRAWING	CONDITION	CHANGE
LR-M-2187-1	The continuation arrow for the 12-inch JRD-226 piping at location C8 indicates that the line is continued from drawing LR-M-2110-2 at location E3. The continuation is actually from drawing LR-M-2110-1 at location E3.	Revise the continuation arrow for the 12-inch JRD-226 piping, at location C8, to indicate that the piping is continued from drawing LR-M-2110-1 at location E3.

Revised boundary drawing LR-M-2187-1 is provided as Attachment 27.

NRC RAI 2.3.3.31-3:

License renewal drawing LR-M-2110-1, locations G2 and G3, show Pipe Tunnel Coolers (2A, 2B, 2C, and 2D) that are within the scope of license renewal. LRA Table 2.3.3-30, “Service Water System Components Subject to Aging Management Review,” does not list coolers as a component subject to an AMR. Provide additional information explaining why these Pipe Tunnel Coolers are not included in Table 2.3.3-31.

PPL Response:

Pipe Tunnel Coolers (2A, 2B, 2C, and 2D), shown on drawing LR-M-2110-1 at G2 and G3, are within the scope of license renewal and are subject to AMR. Based on PPL’s scoping methodology, these cooling coils have been scoped as part of the Reactor Building HVAC Systems and are included, based on 10 CFR 54.4(a)(2), in LRA Section 2.3.3.24 and associated Table 2.3.3-23. These pipe tunnel coolers are included on LRA page 2.3-99 as part of the last line item of Table 2.3.3-23, with a component type of “Unit Coolers, drain pans, drain piping, channels/heads” with an intended function of “Structural Integrity”.

NRC RAI 2.3.3.33-1:

The Turbine Building Closed Cooling Water System was determined to meet the scoping criteria of 10 CFR 54.4(a)(2) to maintain the integrity of nonsafety-related piping components required to support the safety-related functional boundary of the interfacing system (Service Water System). This is shown in Service Water System drawings LR-M-109-2 and LR-M-2109-2. However, drawings defining the license

renewal boundaries and components subject to an AMR were not provided. Provide license renewal drawings or documentation for the Turbine Building Closed Cooling Water System boundaries and components identified in LRA Section 2.3.3.33.

PPL Response:

The only components in scope for the TBCCW system are the heat exchanger shell (including channels/heads), connected piping and bolting which provide a non-safety affecting safety anchor for the Emergency Service Water System. The TBCCW components within the scope of license renewal (highlighted pink (magenta)) are depicted on Service Water System boundary drawings LR-M-109-2 and on LR-M-2109-2 which best illustrates the connection to the Emergency Service Water System Piping 4" HRC-114/214 and 4" HRC-134/234.

NRC RAI 2.3.4.3-1:

License renewal drawing LR-M-108-1, location C6, shows piping 10-inch HCD-114 from Unit 1 high-pressure coolant injection (HPCI) and reactor core isolation coolant (RCIC) to Condensate Storage Tank 0T522A within the scope of license renewal. The piping is continued from drawing LR-M-108-2, location H3, where it is indicated not within the scope of license renewal after it exits Reactor Building Unit 1. Provide additional information explaining why this section of pipe is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The inconsistency in highlighting the portion of piping 10" HCD-114 located on LR-M-108-2 at H3 was identified during a previous drawing review and the highlighting has been corrected. LR-M-108-2 at H3 now shows piping 10" HCD-114 from and including the continuation arrow to the point at which it goes underground as within the scope of license renewal and subject to AMR based on 10 CFR 54.4(a)(2) and is highlighted pink (magenta). This was a highlighting correction, does not add any component types or materials and, therefore, requires no changes to the LRA.

The following table defines the change for boundary drawing LR-M-108-2.

DRAWING	CONDITION	CHANGE
LR-M-108-2	Highlighting of 10" HCD-114 was inadvertently missed. This piping is within the scope of license renewal, subject to AMR and should have been highlighted pink (magenta).	Highlight 10" HCD-114 from the continuation arrow to the point at which it goes underground.

Revised boundary drawing LR-M-108-2 is provided as Attachment 3.

NRC RAI 2.3.4.3-2:

License renewal drawing LR-M-108-1, location C7, shows piping 10-inch HCD-214 from Unit 2 HPCI and RCIC to Condensate Storage Tank 0T522B within the scope of license renewal. The piping is continued from drawing LR-M-108-2, location H6, where it is indicated not within the scope of license renewal after it exits Reactor Building Unit 2. Provide additional information explaining why this section of pipe is not within the scope for license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response

The inconsistency in highlighting the portion of piping 10” HCD-214 located on LR-M-108-2 at H6 was identified during a previous drawing review and the highlighting has been corrected. LR-M-108-2 at H6 now shows piping 10” HCD-214 from, and including, the continuation arrow to the point at which it goes underground as within the scope of license renewal and subject to AMR based on 10 CFR 54.4(a)(2) and is highlighted pink (magenta). This was a highlighting correction, does not add any component types or materials and, therefore, requires no changes to the LRA.

The following table defines the change for boundary drawing LR-M-108-2.

DRAWING	CONDITION	CHANGE
LR-M-108-2	Highlighting of 10” HCD-214 was inadvertently missed. This piping is within the scope of license renewal, subject to AMR and should have been highlighted pink (magenta).	Highlight 10” HCD-214 from the continuation arrow to the point at which it goes underground.

Revised boundary drawing LR-M-108-2 is provided as Attachment 3.

NRC RAI 2.3.4.3-3:

License renewal drawing LR-M-118-3, location A7, shows demineralized water piping four-inch JCD-59 not within the scope of license renewal. Its continuation on drawing LR-M-108-1, location C10, is shown within the scope of license renewal. Provide additional information explaining why this section of pipe is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The inconsistency in highlighting the portion of piping 4” JCD-59 located on LR-M-108-2 at C10 was identified during a previous drawing review and the highlighting has been corrected. The portion of 4” JCD-59 that is within the scope of license renewal and subject to AMR extends from condensate storage tank 0T522B, shown on LR-M-108-1 at B8, back to the penetration from the turbine building, shown at C9. The portion upstream of that penetration, back to the continuation arrow from “M-118-3 A7”, shown at C10, is in the turbine building and therefore, as described in LRA Section 2.1.1.2.2, is not within the scope of license renewal. The portion of JCD-59 between the continuation arrow and the penetration from the turbine building should not have been highlighted. 4” JCD-59, from and including the continuation arrow on LR-M-108-1 at C10 to the penetration at C9, is no longer highlighted.

The following table defines the change for boundary drawing LR-M-108-1.

DRAWING	CONDITION	CHANGE
LR-M-108-1	This portion of JCD-59 is not within the scope of license renewal and should not have been highlighted pink (magenta).	Delete the highlighting of JCD-59 between the continuation arrow and the penetration from the turbine building..

Revised boundary drawing LR-M-108-1 is provided as Attachment 2.

NRC RAI 2.3.4.3-4:

License renewal drawing LR-M-108-1, location B2, includes license renewal Note C regarding the Refueling Water Storage Tank 0T501. It states, “Refueling Water Storage Tank could flood the adjacent condensate storage area containing safety-related instruments.” The tank is shown within the scope of license renewal, however, none of the piping penetrations or piping connected to the tank are within the scope of license renewal. Provide additional information on why piping penetrations and connected piping are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The refueling storage area and Unit 1 condensate storage area are located outdoors and surrounded by walls that form a common berm/retention basin. The berm/retention basin is designed to retain the total volume of water contained in both the refueling water storage tank (RWST) and the Unit 1 condensate storage tank (CST) if both tanks rupture simultaneously. The basin includes a sump along the west wall, near the RWST, and the safety-related SCs in the condensate storage area (i.e., level instrumentation associated with HPCI/RCIC supply) are located in the southeast corner, with the CST between them

and the RWST and associated piping. As such, spray or leakage from the RWST and associated piping in the storage areas will not impair or prevent the accomplishment of a safety-related function, but would drain to the sump. However, rupture of the RWST would flood the retention basin to a level that could, conservatively, result in spatial interaction with the safety-related SCs in the condensate storage area.

NRC RAI 2.3.4.3-5:

License renewal drawing LR-M-108-1, locations G6 and H6, shows condensate transfer pump discharge lines as being within the scope of license renewal; however, the recirculation lines, two-inch HCD-13, between check valves 008043 and 008053 and piping four-inch HCD-13 are shown not within the scope of license renewal. Provide additional information explaining why these pipe sections are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The condensate transfer pumps and the associated discharge lines are within the scope of license renewal because they are required to supply the ECCS and RCIC keep fill system to prevent water hammer whenever operation of these systems is initiated for mitigation of fire and station blackout events, thus meeting the scoping criteria of 10 CFR 54.4(a)(3). However, the flowpath from the condensate transfer pumps back to the condensate storage tank (0T522A) is not required to support this (a)(3) function. It has also been determined that failure of this flowpath will not prevent the accomplishment of an (a)(1) function, as it is not connected to nor located near safety-related SSCs.

NRC RAI 2.3.4.3-6:

License renewal drawing LR-M-108-1, location H5, shows piping one-inch HCD-9 from six-inch HCD-9 to valve 008051 as being outside the scope of license renewal. Provide additional information explaining why this section of pipe is not within the scope for license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The one-inch HCD piping from the six-inch HCD-9 piping line to valve 008051 is within the scope of license renewal. The piping supports the condensate transfer pump function of supplying the ECCS and RCIC keep fill system to prevent water hammer whenever operation of these systems is initiated for mitigation of fire and station blackout events, thus meeting the scoping criteria of 10 CFR 54.4(a)(3).

No change is required to LRA Table 2.3.4-3 as the component types of piping and valve bodies are already evaluated for a pressure boundary function.

The following table defines the change needed for boundary drawing LR-M-108-1.

DRAWING	CONDITION	CHANGE
LR-M-108-1	The one-inch HCD piping at location H5 between the six-inch HCD-9 piping and valve 008051 is not indicated as within the scope of license renewal. The piping and valve should be within the scope of license renewal.	Revise the drawing to highlight valve 008051 and the one-inch HCD piping connecting the valve to the six-inch HCD-9 piping line at location H5 green.

Revised boundary drawing LR-M-108-1 is provided as Attachment 2.

NRC RAI 2.3.4.4-1:

One of the stated purposes of the Condenser and Air Removal System is to support MSIV leak-off and direct it to the condenser. Drawing LR-M-141-1 (2141-1), location E9, shows this line highlighted in green as it exits the steam tunnel and enters the turbine building. However, the downstream line is not highlighted on LR-M-105-2 (2105-2), location B1, where it connects to condenser shell 1A (penetration 88). Provide additional information explaining why these pipe sections and components are not within the scope for license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

PPL Response:

The piping in question, 4" EAD-114 on drawing LR-M-105-2, from continuation arrow "M-141-1 E9" located at B1 to HP Condenser Shell -1A, penetration 88 is within the scope of license renewal and is subject to AMR. That portion of piping was inadvertently not highlighted, but should have been highlighted. LR-M-105-2 now shows that portion of piping highlighted "green". A similar highlighting change was made to LR-M-2105-2. The additional highlighting did not result in any new component types or materials and no changes to the LRA are required.

The following table defines the change needed for boundary drawings LR-M-105-2 and LR-M-2105-2.

DRAWING	CONDITION	CHANGE
LR-M-105-2	4" EAD-114, at B1, was inadvertently not highlighted, but is within the scope of license renewal and should have been highlighted green.	Highlight 4"EAD-114, at B1, green from the continuation arrow and to the condenser.
LR-M-2105-2	4" EAD-214, at B1, was inadvertently not highlighted, but is within the scope of license renewal and should have been highlighted green.	Highlight 4"EAD-214, at B1, green from the continuation arrow and to the condenser.

Revised boundary drawings LR-M-105-2 and LR-M-2105-2 are provided as Attachments 1 and 20.

NRC RAI 2.3.4.6-1:

License renewal drawings LR-M-141-1, LR-M-101-1, LR-M-101-3 and LR-M-2141-1, LR-M-2101-1, LR-M-2101-3, show several ASME III Section 2 lines that are identified within the scope for license renewal; however, they are not shown as safety-related in accordance with the notation legend on drawing LR-M-100 -4, Note A2. Provide additional information to clarify if these lines are within scope based on 10 CFR 54.4(a)(1). If not, provide additional information explaining why they are not within scope based on 10 CFR 54.4(a)(1).

PPL Response:

The piping noted in this RAI on license renewal drawings LR-M-141-1, LR-M-101-1, and LR-M-101-3 includes the 4 main steam lines from the outermost isolation valves to the turbine stop valves, 24" DBB-101, 102, 103 & 104, and the turbine bypass lines, 24"DBB-105 and 18" DBB-105. License renewal drawings LR-M-2141-1, LR-M-2101-1, LR-M-2101-3 include 24" DBB-201, 202, 203 & 204, and the turbine bypass lines, 24"DBB-205 and 18" DBB-205. Reference LR-M-100-2 at E3, PPL's drawing convention is to "cross-hatch" pipelines that are safety-related. Note, the lack of "cross-hatching" indicates that these lines are not safety-related.

As stated in FSAR Section 10.3.1, Design Bases, the main steam supply system has no safety-related function, but is designed to supply required steam to the turbine generator and bypass steam to the condenser. FSAR Section 10.3.2 states the main steam piping is designed to ASME Section III Class 2. FSAR Table 3.2-1 classifies the main steam piping beyond the outermost isolation valve to the turbine stop valves as ASME Section III, Class 2, but shows that this piping is not within the scope of 10 CFR 50 Appendix B.

FSAR Section 10.4.4 likewise notes the bypass system has no safety-related function and the piping is designed in accordance with ASME Section III, Class 2.

Therefore, as indicated in the FSAR, the main steam piping, through to the main stop valves and to the bypass valve chest is designed as ASME Section III, Class 2, but is not classified as safety-related.

NRC RAI 2.3.4.6-2:

License renewal drawings LR-M-141-1, and LR-M-2141-1, locations A-7, upstream of 141F029A and 241-F029A show sections of ASME Section III Class 3 pipe as within scope of license renewal for 10 CFR 54.4(a)(2) (nonsafety-related spatial effects) as described in Note A2 on Sheet 4 of license renewal drawing LR-M-100. Since, ASME Class 3 components are safety-related (Regulatory Guide 1.26 Quality Group C), provide additional information explaining why these sections of pipe are not within scope for 10 CFR 54.4(a)(1).

PPL Response:

FSAR Table 3.2-1 under the “Nuclear Boiler System” heading indicates the air supply check valves and the piping downstream of the air supply check valves is safety-related. The piping upstream of the air supply check valves is not safety related and has no safety-related function. The short section of stainless steel piping attached to the air supply check valve allows use of an insulating flange to connect two different materials. A portion of the non safety-related piping upstream of the check valve is in scope as it contains an anchor that provides support for the safety-related valve and is thus within the scope of license renewal based on 10 CFR 54.4(a)(2), and subject to AMR. This change was made to LR-M-141/214-1 in response to RAI 2.1-3a sent to the NRC by PLA-6177 dated April 17, 2007.

Revised boundary drawings LR-M-141-1 and LR-M-2141-1 are provided as Attachments 11 and 23.

NRC RAI 2.3.4.6-3:

License renewal drawing LR-M-101-1, locations A6, C6, E6, F6, and G-2, and LR-M-2101-1, locations A6, C6, E6, F6, and G-2 show one-inch instrumentation pipes and the first normally open manual isolation valve within the scope for license renewal. Note A2 on LR-M-100 Sheet 4 suggest that the intended function of these pipes is pressure boundary. However, the connecting downstream piping is not shown

as in scope for license renewal. Since failure of the downstream pipe will have the same effect as failure of the in-scope piping, provide additional information explaining why the downstream piping is not also included in the scope of license renewal.

PPL Response:

The main stop valves on license renewal drawings LR-M-101-1 and LR-M-2101-1 form the boundary associated with providing an alternate pathway for main steam isolation valve (MSIV) leakage, as described in LRA Section 2.3.4.6. The MSIV Leakage Isolated Condenser Treatment Method (ICTM) directs any leakage through a closed MSIV to the main condenser. This is a nonsafety-related function in accordance with 10 CFR 54.4(a)(2).

The intended function is to provide a flow path rather than a pressure boundary. Therefore, the ICTM boundary is established at the first isolation valve associated with instrumentation for the stop valves, drip legs, and sensing lines in order to depict the boundaries of the path. Flow is not expected in the instrument lines and any leakage from the instrument lines would be inconsequential to the overall volume available for hold-up and plate-out of fission products.

NRC RAI 2.3.4.6-4:

License renewal drawing LR-M-101-1, locations B-8, D-8, E-8, and G-8, and LR-M-2101-1, locations B-8, D-8, E-8, and G-8, show the 28-inch lines as nonsafety-related and are considered within the scope of license renewal for spatial effects. However, no portion of the nonsafety-related lines, connecting the 28-inch lines to Control Valve Main Steam Lead Drain, are shown as within the scope for license renewal for the same spatial effects. Provide additional information to explain why these lines are not included within the scope for licensing renewal based on the requirements of 10 CFR 54.4(a)(2).

PPL Response:

LRA Section 2.3.4.7, Main Turbine, states that the High Pressure (HP) Turbine Casing and associated bolting are in scope. The HP Turbine Casing and bolting are in scope because they provide structural support (anchor to plant structure) for Main Steam System piping extending from the reactor building into the turbine building. As such, the casing of the HP turbine has the potential for interaction (connected to) with safety-related components and is in scope based on 10 CFR 54.4(a)(2). Because the HP Turbine Casing serves as an anchor, the Main Steam System piping is brought into scope based on the seismic analysis boundary extending all the way back to the containment penetration. The small branch piping off the Main Steam System was not included in the seismic evaluation of the Main Steam piping because this piping is non-Q and by specification, Bechtel Specification M406, Piping Stress Analysis for SSES, Section 5.11) it is too

small to have a significant effect. Also, refer to boundary drawing LR-M-101-1, LR Note D which addresses anchors for pipelines less than 2 ½” in diameter. In addition, the Main Steam System small branch piping is not in scope due to spatial interaction (wetting, spray, leakage, flooding) based on SSES LRA Section 2.1.1.2.2.

NRC RAI 2.3.4.6-5:

License renewal drawing LR-M-101-1, locations B-7, C-7, E-7, and F-7, and LR-M-2101-1, locations B-7, C-7, E-7, and F-7, show CV-1, CV-2, CV-3, and CV-4 as nonsafety-related and within the scope of licensing renewal for spatial effects. There are several non-safety related lines that are connected to the CV-1, CV-2, CV-3, and CV-4 valve pressure boundaries; however, no portion of these connecting lines are shown as within the scope of license renewal for similar spatial effects. Provide additional information explaining why these lines are not included within the scope of license renewal based on the requirements of 10 CFR 54.4(a)(2).

PPL Response:

LRA Section 2.3.4.7, Main Turbine, states that the High Pressure (HP) Turbine Casing and associated bolting are in scope. The HP Turbine Casing and bolting are in scope because they provide structural support (anchor to plant structure) for Main Steam System piping extending from the reactor building into the turbine building. As such, the casing of the HP turbine has the potential for interaction (connected to) with safety-related components and is in scope based on 10 CFR 54.4(a)(2). Because the HP Turbine Casing serves as an anchor, the Main Steam System piping is brought into scope based on the seismic analysis boundary extending all the way back to the containment penetration. The small branch piping off the Main Steam System was not included in the seismic evaluation of the Main Steam piping because this piping is non-Q and by specification, Bechtel Specification M406, Piping Stress Analysis for SSES, Section 5.11, it is too small to have a significant effect. Also, refer to boundary drawing LR-M-101-1, LR Note “D” which addresses anchors for pipelines less than 2 ½” in diameter. In addition, the Main Steam System small branch piping is not in scope due to spatial interaction (wetting, spray, leakage, flooding) based on SSES LRA Section 2.1.1.2.2.

NRC RAI 2.3.4.6-6:

License renewal drawings LR-M-141-1 and LR-M-2141-1, Revision 1, location C-8, shows piping downstream of normally closed manual isolation valves 141010A and 241010A as ASME Section III Class 2 pipe. However, this piping is identified as within the scope for license renewal as a nonsafety-related pipe for spatial considerations. Provide additional information explaining why these sections of pipe are not within the scope for licensing renewal based on 10 CFR 54.4(a)(1).

PPL Response:

As stated in FSAR Section 10.3.1, Design Bases, the main steam supply system has no safety-related function, but is designed to supply required steam to the turbine generator and bypass steam to the condenser. FSAR Section 10.3.2 states the main steam piping is designed to ASME Section III Class 2. FSAR Table 3.2-1 classifies the main steam piping beyond the outermost isolation valve to the turbine stop valves, including the piping to and the normally closed isolation valves 141010A and 241010A, as ASME Section III, Class 2, but shows that this piping is not within the scope of 10 CFR 50 Appendix B.

FSAR Section 10.4.4 likewise notes the bypass system has no safety-related function and the piping is designed in accordance with ASME Section III, Class 2.

The piping downstream of normally closed manual isolation valves 141010A and 241010A is ASME Section III Class 2 pipe, and has no safety-related function. Therefore, this piping does not meet 10 CFR 54.4(a)(1) scoping criteria. This piping could contain water and is therefore within the scope of license renewal based on 10 CFR 54.4(a)(2), due to the potential for spatial interaction.

NRC RAI 2.3.4.6-7:

License renewal drawings LR-M-141-1, and LR-M-2141-1, Revision 1, locations C-7 and F-7, show piping downstream of normally closed manual isolation valves 14138A/24138A, 14101A/24101A, and 14101B/24101B that appear to be ASME Section III Class 2 pipe. However, these piping components are identified within the scope of license renewal as nonsafety-related for spatial considerations. Provide additional information explaining why these sections of pipe are not within the scope for license renewal based on 10 CFR 54.4(a)(1).

PPL Response:

As stated in FSAR Section 10.3.1, Design Bases, the main steam supply system has no safety-related function, but is designed to supply required steam to the turbine generator and bypass steam to the condenser. FSAR Section 10.3.2 states the main steam piping is designed to ASME Section III Class 2. FSAR Table 3.2-1 classifies the main steam piping beyond the outermost isolation valve to the turbine stop valves, including the piping to and the normally closed isolation valves 14138A/24138A, 14101A/24101A, and 14101B/24101B, as ASME Section III Class 2, but shows that this piping is not within the scope of 10 CFR 50 Appendix B.

FSAR Section 10.4.4, likewise, notes the bypass system has no safety-related function and the piping is designed in accordance with ASME Section III Class 2.

The piping downstream of normally closed manual isolation valves 14138A/24138A, 14101A/24101A, and 14101B/24101B is ASME Section III Class 2 pipe, and has no safety-related function. Therefore, this piping does not meet 10 CFR 54.4(a)(1) scoping criteria. This piping could contain water and is therefore within the scope of license renewal based on 10 CFR 54.4(a)(2), due to the potential for spatial interaction.

NRC RAI 2.3.4.6-8:

License renewal drawings LR-M-141-1 and LR-M-2141-1, location A-7, shows the non-safety related (line class JDD) ANSI B31.1 piping connected to safety related (line class HCC) ASME Section III Class 3 piping not within the scope of license renewal. LRA Section 2.1.1.2.2, "Spatial Failures of Nonsafety-Related SSCs," page 2.1-8 states in part: "With respect to nonsafety-related piping that is directly connected to safety-related piping, the seismic Category I design requirements are extended to the first seismic restraint beyond the defined boundaries." Provide the location of the license renewal boundary (seismic restraint) for the nonsafety-related piping connected to the safety-related piping.

PPL Response:

PLA-6177 dated April 17, 2007 revised LR-M-141-1 and LR-M-2141-1 to show the location of the seismic anchor. Refer to the response to RAI 2.1-3, page 15 of 58. The seismic anchor is located between the check valve and insulating flange.

Revised boundary drawings LR-M-141-1 and LR-M-2141-1 are provided as Attachments 11 and 23.

Attachment 1 to PLA 6276

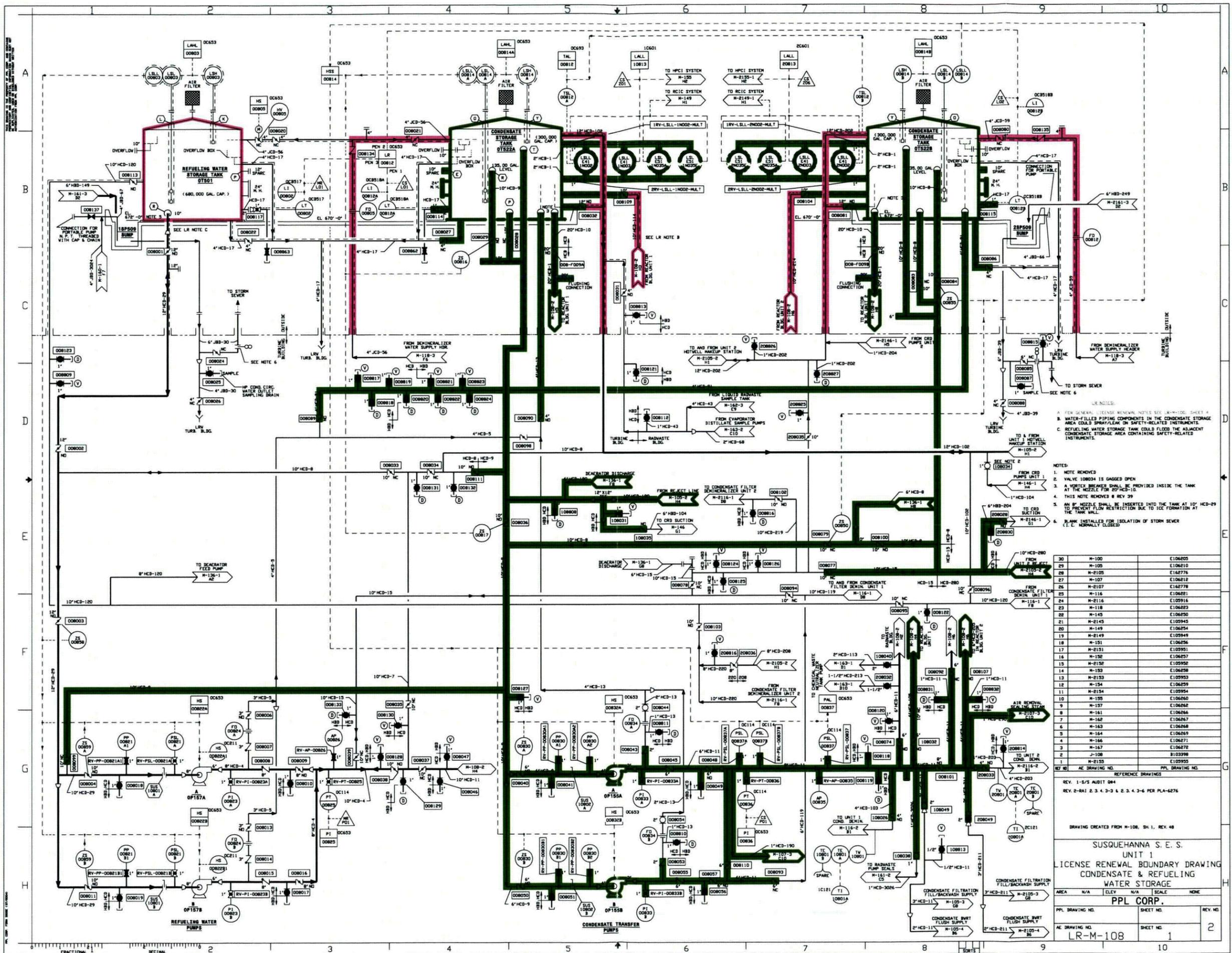
LR-M-105-2

Condensate

Attachment 2 to PLA 6276

LR-M-108-1

Condensate and Refueling Water Storage



REVISIONS:

- FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
- WATER-FILLED PIPING COMPONENTS IN THE CONDENSATE STORAGE AREA SHALL BE INSTALLED ON SAFETY-RELATED INSTRUMENTS.
- REFUELING WATER STORAGE TANK COULD FLOOD THE ADJACENT CONDENSATE STORAGE AREA CONTAINING SAFETY-RELATED INSTRUMENTS.

NOTES:

- NOTE REMOVED
- VALVE 100034 IS GAGES OPEN
- A VORTEX BREAKER SHALL BE PROVIDED INSIDE THE TANK AT THE NOZZLE FOR 80\"/>

20	M-100	E106205
21	M-105	E106210
22	M-2105	E162776
23	M-107	E106212
24	M-2107	E162778
25	M-116	E106221
26	M-2116	E109916
27	M-118	E106223
28	M-145	E106250
29	M-2145	E109945
30	M-149	E106254
31	M-2149	E109949
32	M-151	E106256
33	M-2151	E109951
34	M-152	E106257
35	M-2152	E109952
36	M-153	E106258
37	M-2153	E109953
38	M-154	E106259
39	M-2154	E109954
40	M-155	E106260
41	M-2155	E109955

REV. 1-2/5 ADIT 044
 REV. 2-8/1 2, 3, 4, 3-3 & 2, 3, 4, 3-6 PER PLA-6276

DRAWING CREATED FROM M-108, SH. 1, REV. 48

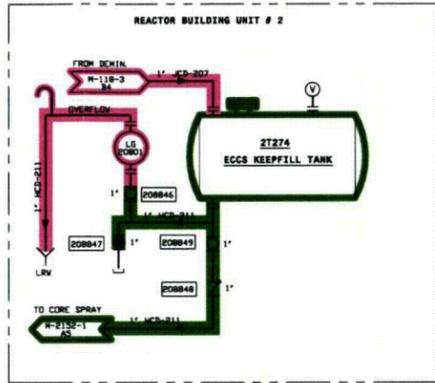
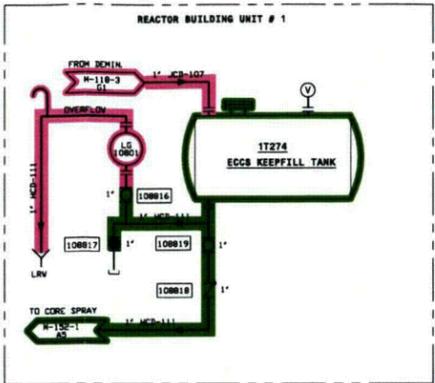
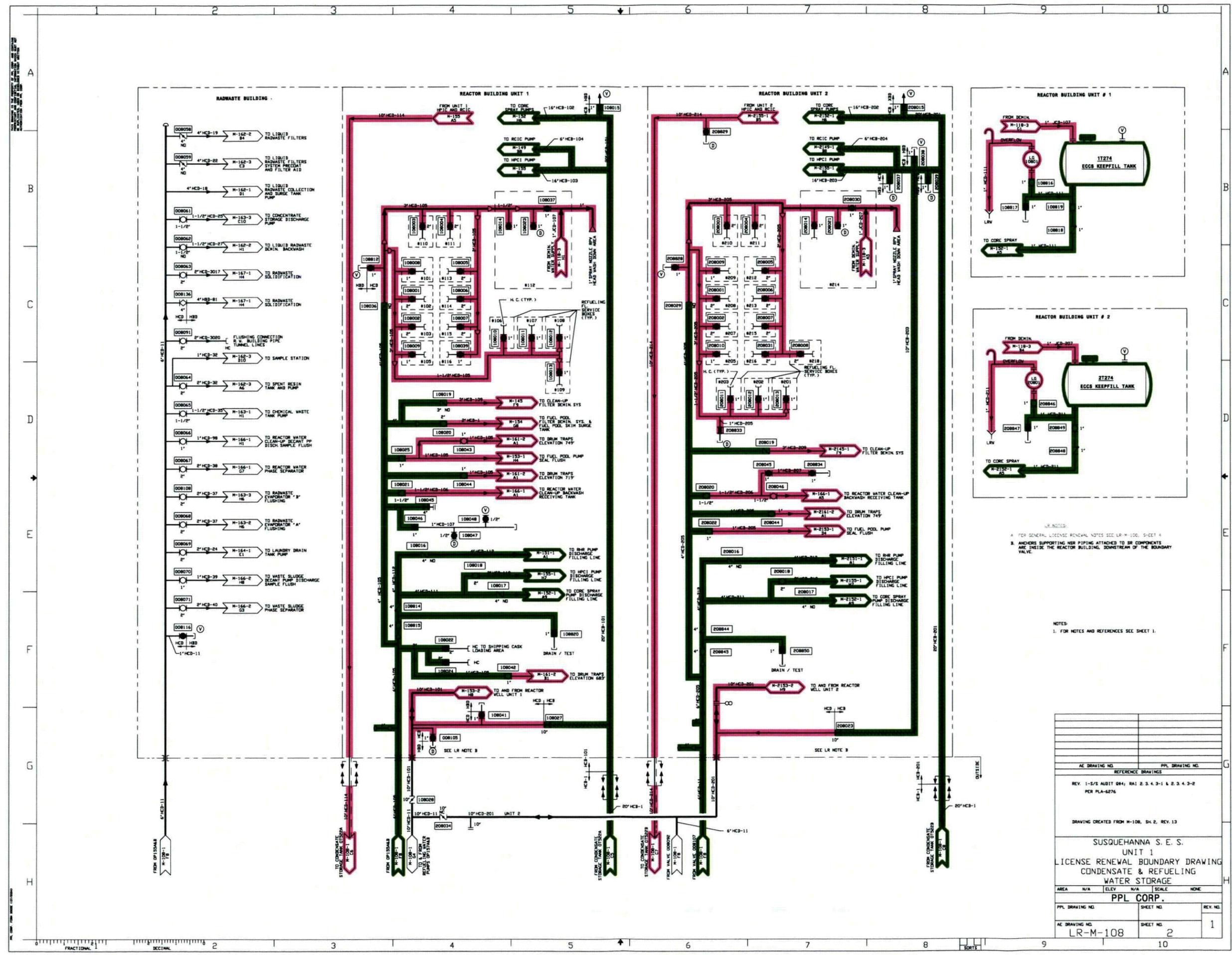
SUSQUEHANNA S. E. S.
 UNIT 1
 LICENSE RENEWAL BOUNDARY DRAWING
 CONDENSATE & REFUELING
 WATER STORAGE

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.		SHEET NO.		REV. NO.	
AC DRAWING NO.	LR-M-108	SHEET NO.	1	REV. NO.	2

Attachment 3 to PLA 6276

LR-M-108-2

Condensate and Refueling Water Storage



NOTES:
 1. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
 2. AND/OR SUPPORTING NDR PIPING ATTACHED TO SR COMPONENTS ARE INSIDE THE REACTOR BUILDING, DOWNSTREAM OF THE BOUNDARY VALVE.

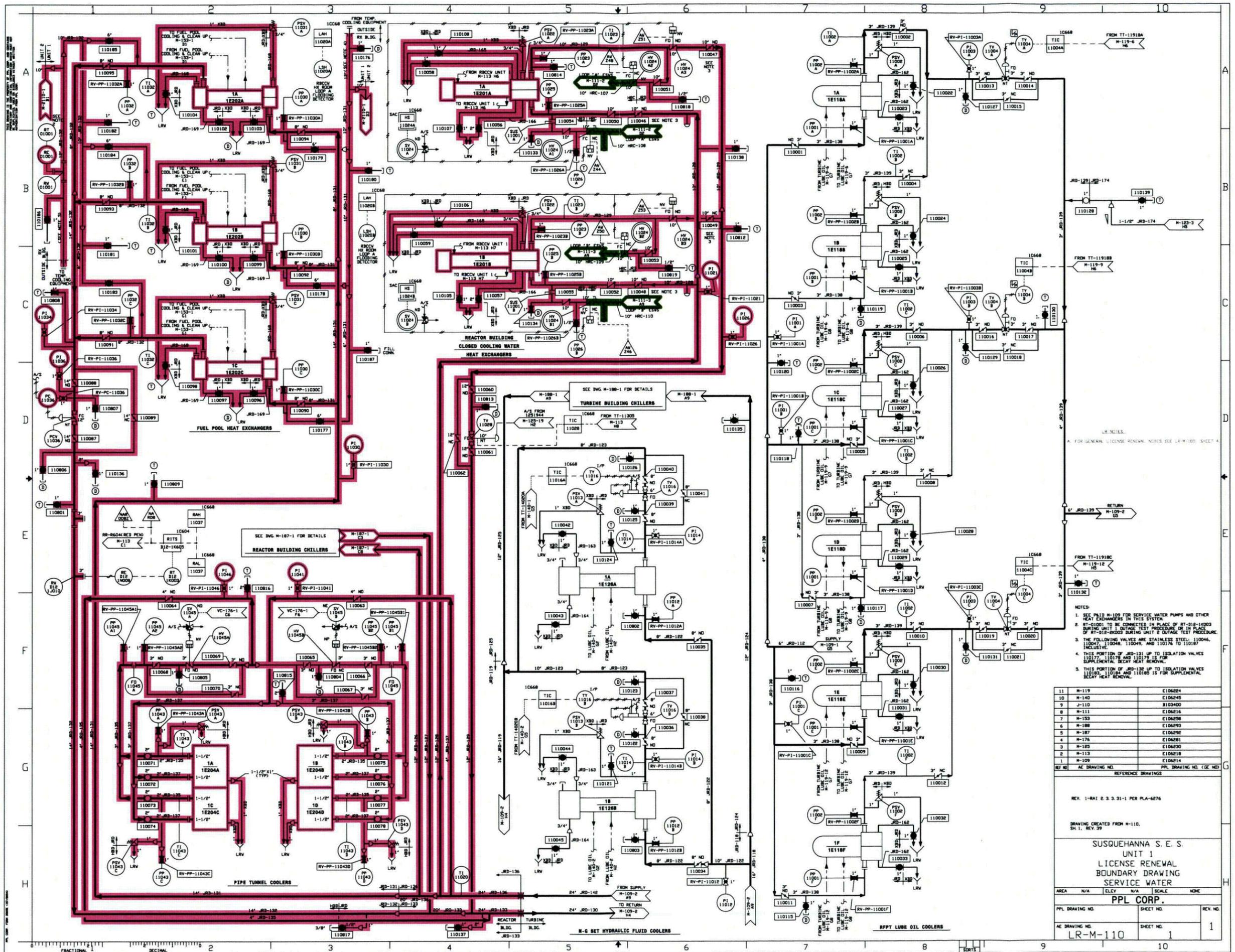
NOTES:
 1. FOR NOTES AND REFERENCES SEE SHEET 1.

AE DRAWING NO.	PPL DRAWING NO.
REFERENCE DRAWINGS	
REV. 1-5/S/AUBIT 084; RAI 2.3.4.3-1 & 2.3.4.3-2 PER PLA-6276	
DRAWING CREATED FROM M-108, SH-2, REV. 13	
SUSQUEHANNA S. E. S. UNIT 1 LICENSE RENEWAL BOUNDARY DRAWING CONDENSATE & REFUELING WATER STORAGE	
AREA	N/A
ELEV	N/A
SCALE	NONE
PPL CORP.	
PPL DRAWING NO.	SHEET NO.
AE DRAWING NO.	SHEET NO.
LR-M-108	2
REV. NO.	1

Attachment 4 to PLA 6276

LR-M-110-1

Service Water



- NOTES:
1. SEE P110 M-109 FOR SERVICE WATER PUMPS AND OTHER HEAT EXCHANGERS IN THIS SYSTEM.
 2. RV-11001 TO BE CONNECTED IN PLACE OF RT-512-10003 STARTING UNIT 1 DURING TEST PROCEDURE OR IN PLACE OF RT-512-80003 DURING UNIT 1 OUTAGE TEST PROCEDURE.
 3. THE FOLLOWING VALVES ARE STAINLESS STEEL: 110046, 110047, 110048, 110049, AND 110176 TO 110187 INCLUSIVE.
 4. THIS PORTION OF JRD-131 UP TO ISOLATION VALVES 110177, 110178 AND 110179 IS FOR SUPPLEMENTAL HEAT REMOVAL.
 5. THIS PORTION OF JRD-132 UP TO ISOLATION VALVES 110180, 110181 AND 110182 IS FOR SUPPLEMENTAL HEAT REMOVAL.

NO.	DESCRIPTION	REFERENCE DRAWING
11	M-119	E106284
10	M-140	E106245
9	J-110	E103400
8	M-111	E106216
7	M-153	E106258
6	M-188	E106293
5	M-187	E106296
4	M-176	E106281
3	M-125	E106230
2	M-113	E106218
1	M-109	E106214

REV. 1-RA1 2 & 3 31-1 PER PLA-6276

DRAWING CREATED FROM M-110, SH 1, REV. 39

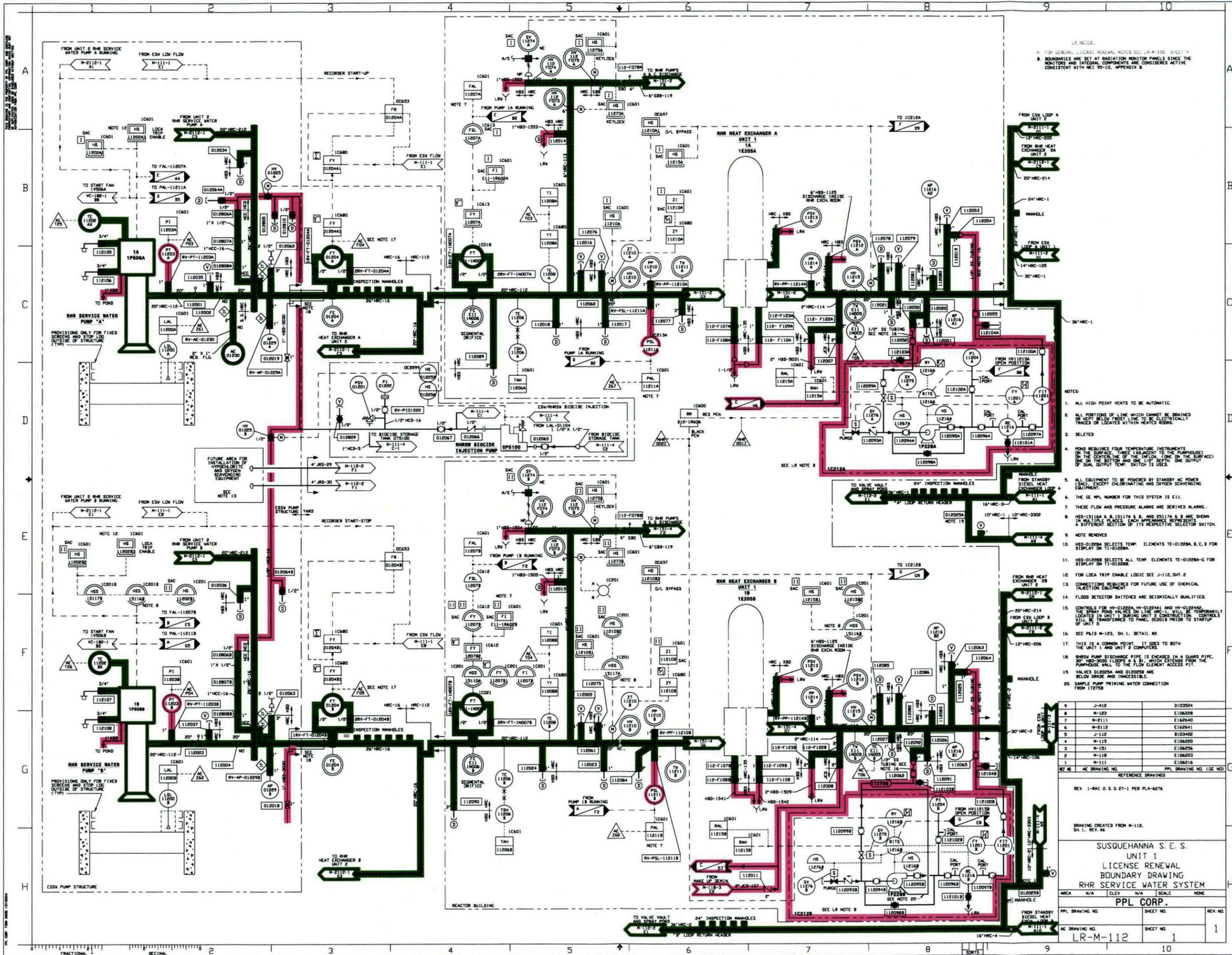
SUSQUEHANNA S. E. S.
UNIT 1
LICENSE RENEWAL
BOUNDARY DRAWING
SERVICE WATER

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.		SHEET NO.		REV. NO.	
AC DRAWING NO.		SHEET NO.		REV. NO.	
LR-M-110		1		1	

Attachment 5 to PLA 6276

LR-M-112-1

RHR Service Water



LR NOTES:
 A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4.
 B. BOUNDARIES ARE SET AT RADIATION MONITOR PANELS SINCE THE MONITORS AND INTEGRAL COMPONENTS ARE CONSIDERED ACTIVE CONSISTENT WITH NEI 95-10, APPENDIX B.

- NOTES:
1. ALL HIGH POINT VENTS TO BE AUTOMATIC.
 2. ALL PORTIONS OF LINE WHICH CANNOT BE DRAINED OR NOT BELOW FLOOR LINE TO BE ELECTRICALLY TRACED OR LOCATED WITHIN HEATED ROOMS.
 3. DELETED.
 4. POND REQUIRES FOUR TEMPERATURE INSTRUMENTS ON THE SURFACE, THREE (ADJACENT TO THE PUMPHOUSE) ON THE CENTERLINE OF THE INFLOW, ONE ON THE SURFACE ON THE BOTTOM AND ONE 1/2' DEPTH. ONE OUTPUT OF SIGNAL OUTPUT TEMP. SWITCH IS USED.
 5. ALL EQUIPMENT TO BE POWERED BY STANDBY AC POWER (SAC), EXCEPT CALORIMATING AND OXYGEN SCANNING EQUIPMENT.
 6. THE GE MPL NUMBER FOR THIS SYSTEM IS E11.
 7. THESE FLOW AND PRESSURE ALARMS ARE DERIVED ALARMS.
 8. HSS-15116A & B, 15117A & B, AND 25117A & B ARE SHOWN IN MULTIPLE PLACES. EACH APPEARANCE REPRESENTS A DIFFERENT SECTION OF ITS RESPECTIVE SELECTOR SWITCH.
 9. NOTE REMOVED.
 10. HSS-01898A SELECTS TEMP. ELEMENTS TE-01898A-G FOR DISPLAY ON TI-01898A.
 11. HSS-01898B SELECTS ALL TEMP. ELEMENTS TE-01898A-G FOR DISPLAY ON TI-01898B.
 12. FOR LOCA TRIP ENABLE LOGIC SEE J-112, SH. 2.
 13. CONNECTIONS REQUIRED FOR FUTURE USE OF CHEMICAL INJECTION EQUIPMENT.
 14. FLOOD DETECTOR SWITCHES ARE SEISMICALLY QUALIFIED.
 15. CONTROLS FOR HY-01898A, HY-01898B AND HY-01898C THE BRAN POND VALVES (ON LINE HRS-1), WILL BE TEMPORARILY LOCATED IN UNIT 1 BURNING UNIT 2 CONSTRUCTION. CONTROLS WILL BE TRANSFERRED TO PANEL 20018 PRIOR TO STARTUP OF UNIT 2.
 16. SEE P&ID M-125, SH. 1, DETAIL 82.
 17. THIS IS A COMMON POINT. IT GOES TO BOTH THE UNIT 1 AND UNIT 2 COMPUTERS.
 18. RHR SW PUMP DISCHARGE PIPE IS ENCASED IN A GUARD PIPE, 30" HDB-3005 (COUPLER A & B), WHICH EXTENDS FROM THE PUMPHOUSE WALL TO THE FLOW ELEMENT ACCESS PIT.
 19. VALVES 012055A AND 012055B ARE BELOW GRADE AND INACCESSIBLE.
 20. SAMPLE PUMP PRIMING WATER CONNECTION FROM 11275B.

NO.	DESCRIPTION	DATE
9	J-412	010324
8	M-123	010628
7	M-211	012640
6	M-212	012641
5	J-312	010348
4	M-119	010680
3	M-153	010625
2	M-118	010623
1	M-111	010616

REF NO. AE DRAWING NO. PPL DRAWING NO. (SEE NO.)

REFERENCE DRAWINGS

REV. 1-RAI 2.3.2 27-1 PER PLA-8276

DRAWING CREATED FROM M-112, SH. 1, REV. 46

SUSQUEHANNA S. E. S.
 UNIT 1
 LICENSE RENEWAL
 BOUNDARY DRAWING
 RHR SERVICE WATER SYSTEM

AREA N/A ELEV N/A SCALE NONE

PPL CORP.

PPL DRAWING NO. SHEET NO. REV. NO.

AE DRAWING NO. SHEET NO. REV. NO.

LR-M-112 1 1

Attachment 6 to PLA 6276

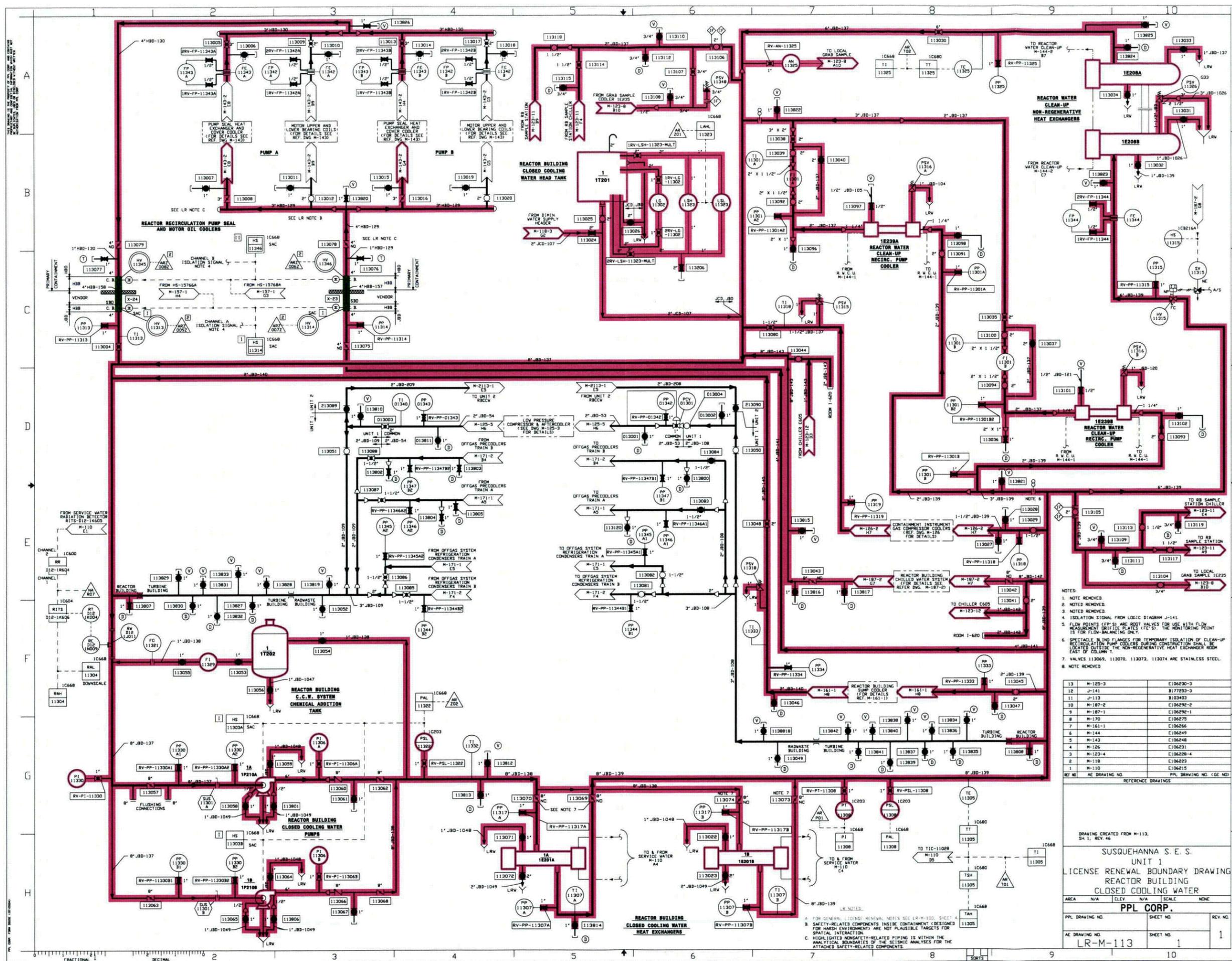
LR-M-112-2

RHR Service Water

Attachment 7 to PLA 6276

LR-M-113-1

Reactor Building Closed Cooling Water



- NOTES:
- NOTE REMOVED
 - NOTE REMOVED
 - NOTE REMOVED
 - ISOLATION SIGNAL FROM LOGIC DIAGRAM J-141
 - FLOW POINTS (FPP'S) ARE ROOT VALVES FOR USE WITH FLOW MEASUREMENT DRIFTE PLATES (FDS). THE MONITORING POINT IS FOR FLOW-BALANCING ONLY.
 - SPECTACLE BLIND FLANGES FOR TEMPORARY ISOLATION OF CLEAN-UP REGENERATION PUMP COOLERS DURING CONSTRUCTION SHALL BE LOCATED OUTSIDE THE NON-REGENERATIVE HEAT EXCHANGER ROOM EAST OF COLUMN 1.
 - VALVES 113069, 113070, 113073, 113074 ARE STAINLESS STEEL.
 - NOTE REMOVED

REF NO	AE DRAWING NO	REFERENCE DRAWING	PPL DRAWING NO. (G.E. NO.)
13	M-125-3	E106230-3	
12	J-141	B177253-3	
11	J-113	B103403	
10	M-187-2	E106292-2	
9	M-187-1	E106291-1	
8	M-170	E106275	
7	M-161-3	E106266	
6	M-144	E106249	
5	M-143	E106248	
4	M-126	E106231	
3	M-123-4	E106228-4	
2	M-118	E106223	
1	M-110	E106215	

DRAWING CREATED FROM M-113, SH. 1, REV. 46

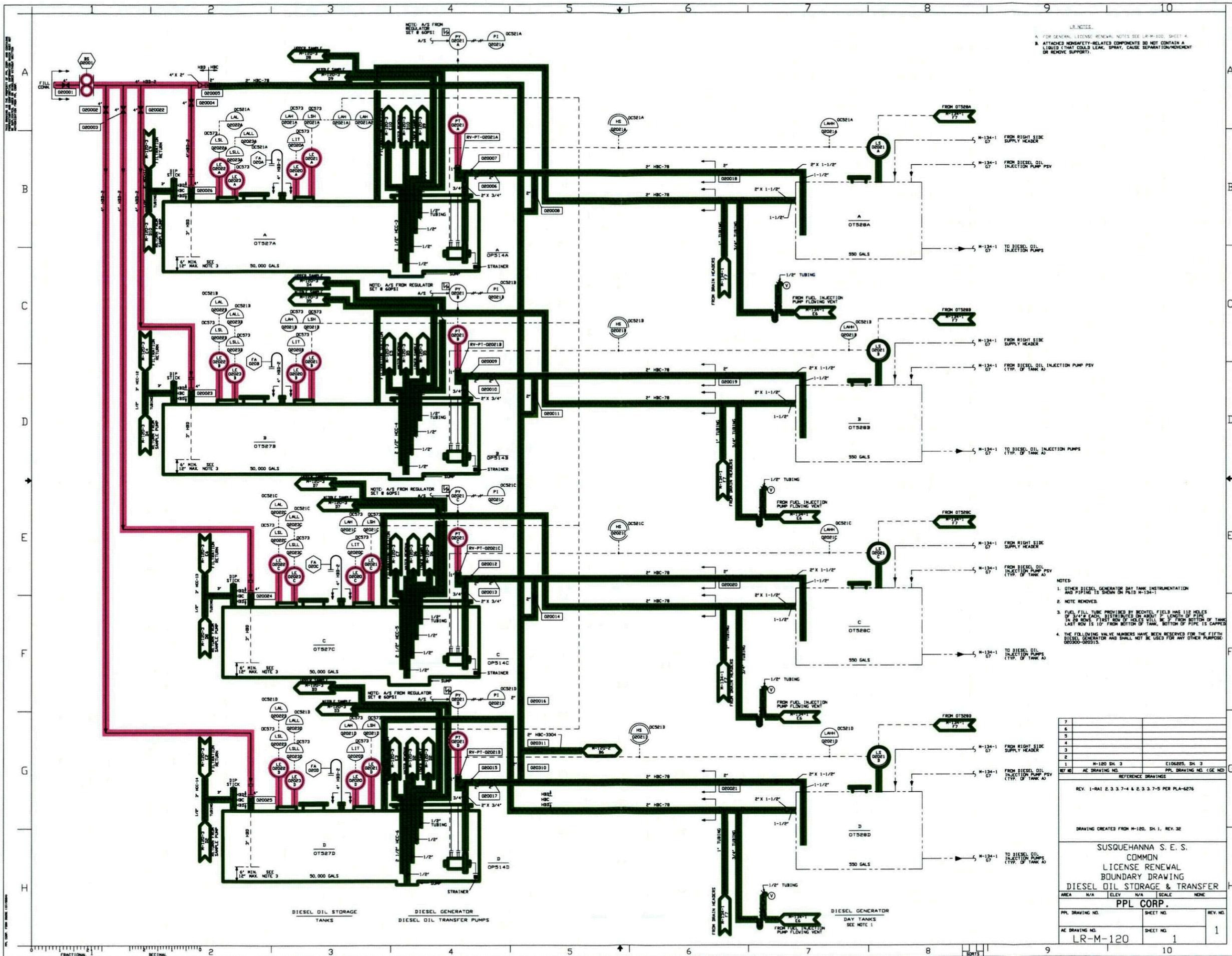
SUSQUEHANNA S. E. S.
UNIT 1
LICENSE RENEWAL BOUNDARY DRAWING
REACTOR BUILDING
CLOSED COOLING WATER

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.		SHEET NO.		REV. NO.	
AE DRAWING NO.	LR-M-113	SHEET NO.	1	REV. NO.	1

Attachment 8 to PLA 6276

LR-M-120-1

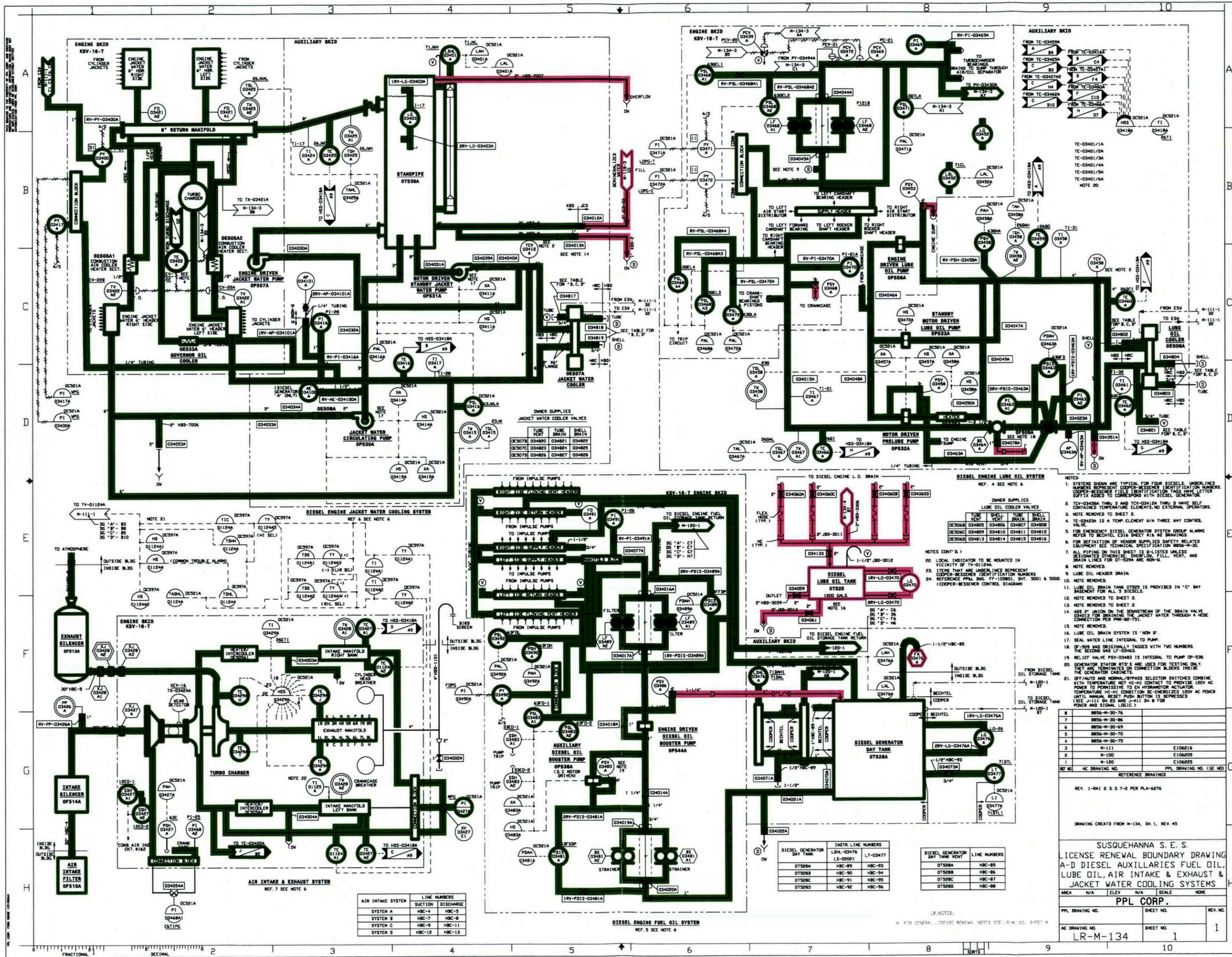
Diesel Oil Storage and Transfer



Attachment 9 to PLA 6276

LR-M-134-1

**“A-D” Diesel Aux, Fuel Oil, Lube Oil Air Intake
& Exhaust, Jacket Water Cooling**



- NOTES:
- SYSTEMS SHOWN ARE TYPICAL FOR FOUR DIESELS. UNDERLINED COOPER-BESSMER IDENTIFICATION NUMBERS REFER TO SHEET E-111-1. UNLINED COOPER-BESSMER IDENTIFICATION TAGS HAVE LETTER SUFFIX ASSIGNED TO CORRESPOND WITH DIESEL GENERATOR.
 - NOTE REMOVED TO SHEET 2.
 - TE-03403A IS A TEMP. ELEMENT W/A THREE WAY CONTROL VALVE.
 - FOR EMERGENCY DIESEL GENERATOR SYSTEM GROUP ALARMS REFER TO SHEET E-111-1 SHEET #12 BRANCHED.
 - FOR DEFINITION OF VENDOR SUPPLIED SAFETY RELATED EQUIPMENT SEE TECHNICAL SPECIFICATION 8056-N-30.
 - ALL PARTS ON THIS SHEET IS B-LISTED UNLESS OTHERWISE NOTED.
 - NOTE REMOVED.
 - LUBE OIL HEADER DRAIN.
 - NOTE REMOVED.
 - LUBE OIL DRAIN TANK OTS25 IS PROVIDED IN 'C' BAY BASED ON FOR ALL 3 DIESELS.
 - NOTE REMOVED TO SHEET 2.
 - NOTE REMOVED TO SHEET 2.
 - ADD 1/2" UNION ON THE DOWNSTREAM OF THE DRAIN VALVE OTS25 FOR BRANCHED THE JACKET WATER THROUGH A HOSE CONNECTION PER PWR-BE-751.
 - NOTE REMOVED.
 - LUBE OIL BRAIN SYSTEM IS 1" NON D".
 - SEAL WATER LINE INTEGRAL TO PUMP.
 - OP-309 WAS ORIGINALLY TAGGED WITH TWO NUMBERS THE SECOND WAS UF-03463.
 - RELIEF VALVE PSV-03483 IS INTEGRAL TO PUMP OP-338.
 - GENERATOR STATOR RTV-S ARE USED FOR TESTING ONLY. THEY ARE TERMINATED AT CONNECTION BLOCKS INSIDE THE GENERATOR CABINETS.
 - DEFYAULT AND NORMAL/STANDBY SELECTOR SWITCHES COMBINE WITH TEMPERATURE NOT HI-HI CONTACT TO PROVIDE LEV AC POWER TO PERMISSIVE TO EN HYDROMOTOR ACTUATOR. TEMPERATURE HI-HI CONDITION DE-ENERGIZES LEV AC POWER UNTIL MANUAL RESET PUSH BUTTON IS DEPRESSED. (SEE E-111-1 SH 23 AND E-111-1 SH 6 FOR POWER AND SIGNAL LOGIC.)

NO	REV	DESCRIPTION
8	8056-N-30-76	
7	8056-N-30-66	
6	8056-N-30-59	
5	8056-N-30-70	
4	8056-N-30-75	
3	M-111	E106216
2	M-100	E106205
1	M-120	E106225

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.		SHEET NO.		REV. NO.	
AC DRAWING NO.	LR-M-134	SHEET NO.	1	REV. NO.	1

AIR INTAKE SYSTEM	LINE NUMBERS
SYSTEM A	HBC-3
SYSTEM B	HBC-7
SYSTEM C	HBC-9
SYSTEM D	HBC-12

DIESEL GENERATOR DAY TANK	INSTR. LINE NUMBERS
OTS28A	HBC-89
OTS28B	HBC-90
OTS28C	HBC-91
OTS28D	HBC-92

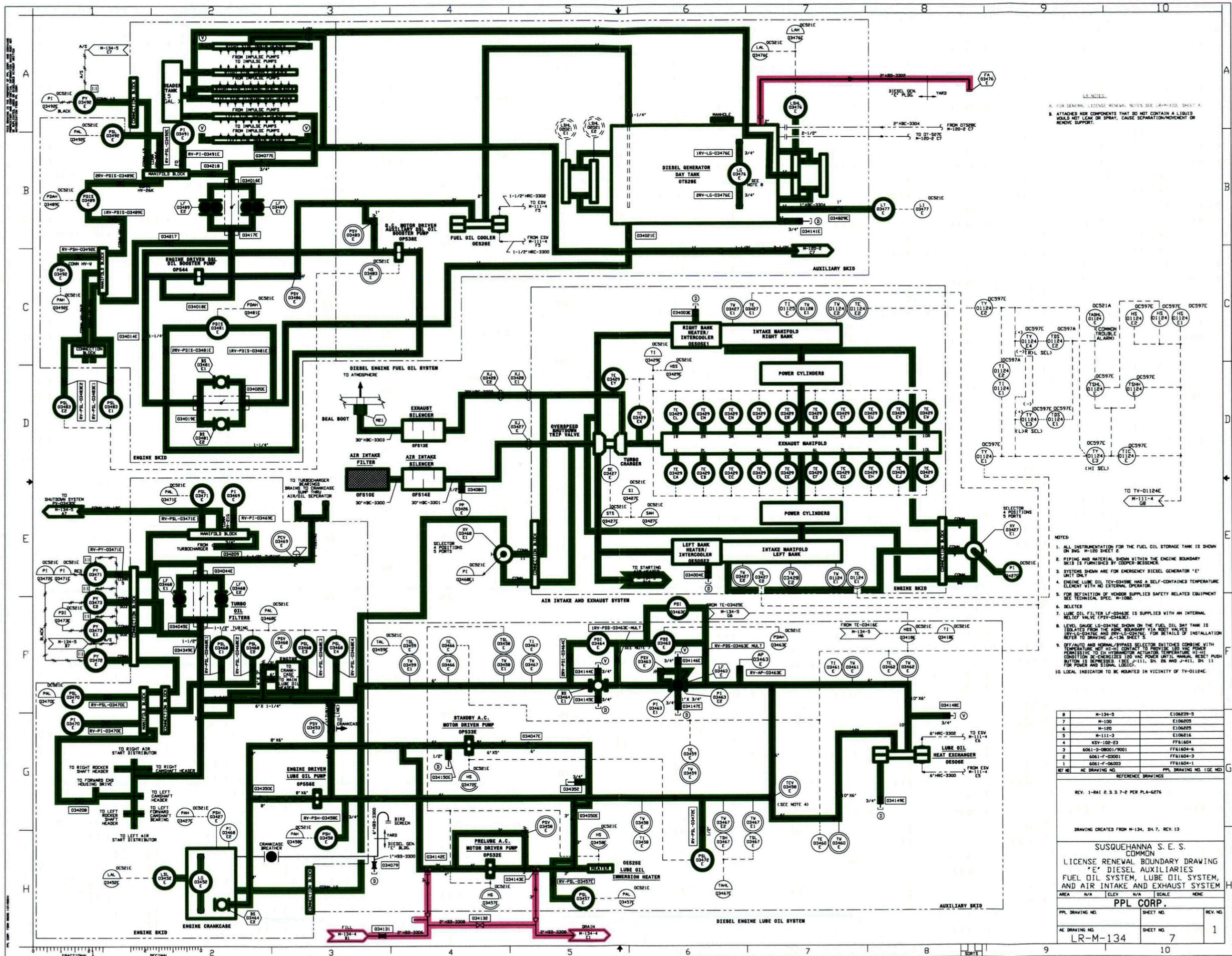
DIESEL GENERATOR DAY TANK VENT	LINE NUMBERS
OTS28A	HBC-85
OTS28B	HBC-86
OTS28C	HBC-87
OTS28D	HBC-88

UNLINED: A FOR GENERAL LICENSE RENEWAL NOTES SEE URM-100, SHEET 4

Attachment 10 to PLA 6276

LR-M-134-7

**“E” Diesel Aux, Fuel Oil, Lube Oil Air Intake &
Exhaust, Jacket Water Cooling**



NOTES:
 A. FOR GENERAL LICENSE RENEWAL NOTES, SEE LR-M-100, SHEET 4.
 B. ATTACHED FOR COMPONENTS THAT DO NOT CONTAIN A LIQUID WOULD NOT LEAK OR SPRAY, CAUSE SEPARATION/MOVEMENT OR REMOVE SUPPORT.

- NOTES:
1. ALL INSTRUMENTATION FOR THE FUEL OIL STORAGE TANK IS SHOWN ON M-100 SHEET 2.
 2. PIPING AND MATERIAL SHOWN WITHIN THE ENGINE BOUNDARY SKID IS FURNISHED BY COOPER-BESSEMER.
 3. SYSTEMS SHOWN ARE FOR EMERGENCY DIESEL GENERATOR 'E' UNIT ONLY.
 4. ENGINE LUBE OIL TCV-03458E HAS A SELF-CONTAINED TEMPERATURE ELEMENT WITH NO EXTERNAL OPERATOR.
 5. FOR DEFINITION OF VENDOR SUPPLIED SAFETY RELATED EQUIPMENT SEE TECHNICAL SPEC. M-100E.
 6. DELETED.
 7. LUBE OIL FILTER LF-03463E IS SUPPLIED WITH AN INTERNAL RELIEF VALVE (PSV-03463E).
 8. LEVEL GAUGE LG-03476E SHOWN ON THE FUEL OIL DAY TANK IS ISOLATED FROM THE ASME BOUNDARY VIA ROOT VALVES RYV-LG-03476E AND RYV-LG-03476E FOR DETAILS OF INSTALLATION REFER TO DRAWING J-136 SHEET 5.
 9. OFF/AUTO AND NORMAL/BYPASS SELECTOR SWITCHES COMBINE WITH TEMPERATURE NOT HI-HI CONTACT TO PROVIDE 100% POWER PERMISSIVE TO CH HYDRANTION ACTIVATOR. TEMPERATURE HI-HI CONDITION DE-ENERGIZES 100% VMC POWER UNTIL MANUAL RESET PUSH BUTTON IS DEPRESSURED. (SEE J-111, DR. 28 AND J-411, DR. 11 FOR POWER AND SIGNAL LOGIC).
 10. LOCAL INDICATOR TO BE MOUNTED IN VICINITY OF TY-01124E.

NO.	DESCRIPTION	QUANTITY
8	M-134-3	E106239-5
7	M-100	E106205
6	M-120	E106205
5	M-111-3	E106216
4	KEY-102-23	FF61604
3	6061-S-08001/9001	FF61604-6
2	6061-F-03001	FF61604-3
1	6061-F-06003	FF61604-1

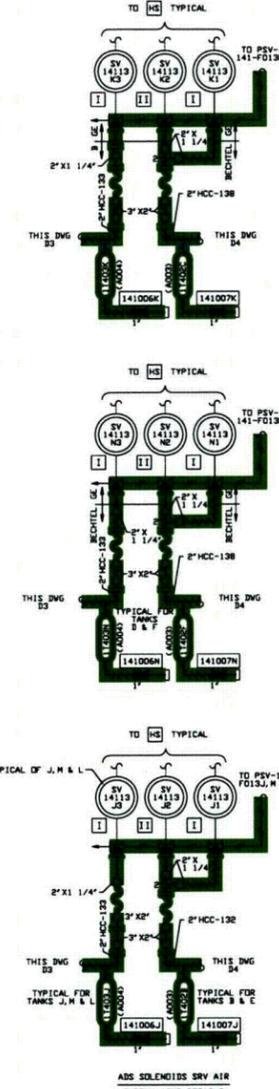
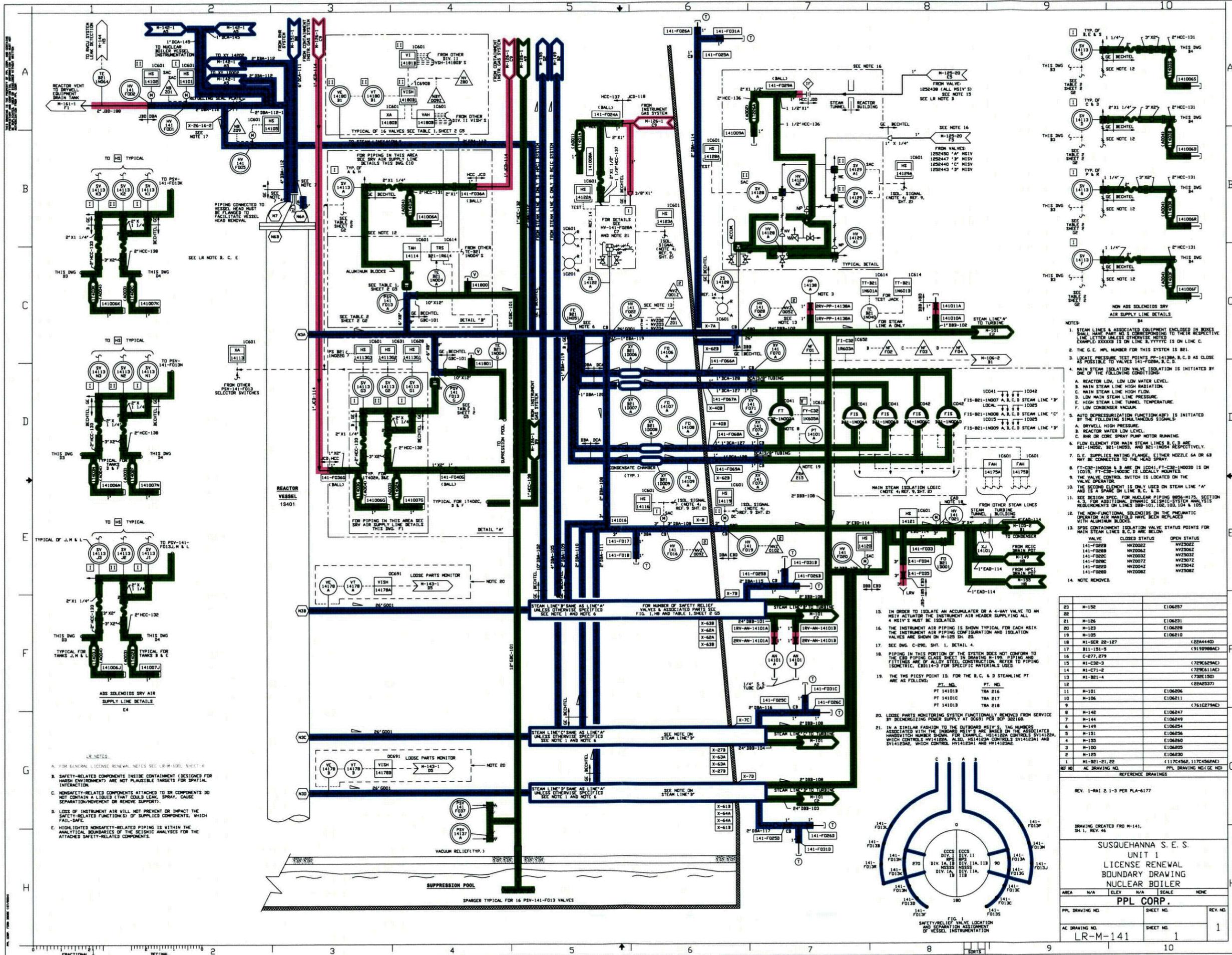
REFERENCE DRAWINGS:
 REV. 1-RA1 2.3.3.7-2 PER PLA-6276
 DRAWING CREATED FROM M-134, SH. 7, REV. 13

SUSQUEHANNA S. E. S. COMMON LICENSE RENEWAL BOUNDARY DRAWING 'E' DIESEL AUXILIARIES FUEL OIL SYSTEM, LUBE OIL SYSTEM, AND AIR INTAKE AND EXHAUST SYSTEM		
PPL CORP.		
PPL DRAWING NO.	SHEET NO.	REV. NO.
LR-M-134	7	1

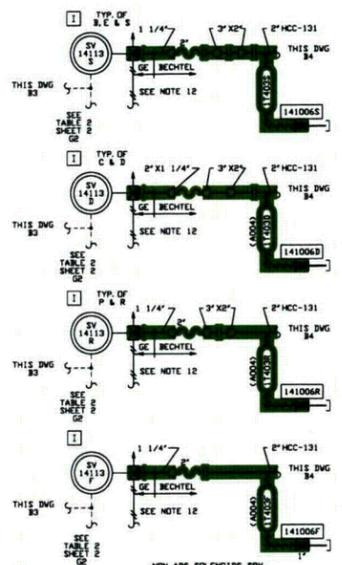
Attachment 11 to PLA 6276

LR-M-141-1

Nuclear Boiler



- LR NOTES:
- FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
 - SAFETY-RELATED COMPONENTS INSIDE CONTAINMENT (DESIGNED FOR HIGH ENVIRONMENT) ARE NOT PLASIBLE TARGETS FOR SPATIAL INTERACTION.
 - NONSAFETY-RELATED COMPONENTS ATTACHED TO SR COMPONENTS DO NOT CONTAIN A LIQUID THAT COULD LEAK, SPRAY, CAUSE SEPARATION/MOVEMENT OR REMOVE SUPPORT.
 - LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIED COMPONENTS, WHICH FAIL-SAFE.
 - HIGHLIGHTED NONSAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARIES OF THE SEISMIC ANALYSES FOR THE ATTACHED SAFETY-RELATED COMPONENTS.



- NOTES:
- STEAM LINES & ASSOCIATED EQUIPMENT ENCLOSED IN BOXES SHALL HAVE PART NO. & CORRESPONDING TO THEIR RESPECTIVE LETTER UNLESS OTHERWISE NOTED. EXAMPLE: XXXXXX IS ON LINE B & FITTING IS ON LINE C.
 - THE G.C. MPL NUMBER FOR THIS SYSTEM IS 801.
 - LOCATE PRESSURE TEST POINTS PP-14120A, B, C, D AS CLOSE AS POSSIBLE TO VALVES 141-F020A, B, C, D.
 - MAIN STEAM ISOLATION VALVE ISOLATION IS INITIATED BY ONE OF THE FOLLOWING CONDITIONS:
 - REACTOR LOW, LOW LOW WATER LEVEL.
 - MAIN STEAM LINE HIGH RADIATION.
 - MAIN STEAM LINE HIGH FLOW.
 - LOW MAIN STEAM LINE PRESSURE.
 - HIGH STEAM LINE TUNNEL TEMPERATURE.
 - LOW CONDENSER VACUUM.
 - AUTO DEPRESSURIZATION FUNCTION(S) IS INITIATED BY THE FOLLOWING SIGNAL(S):
 - DRYWELL HIGH PRESSURE.
 - REACTOR WATER LOW LEVEL.
 - RHW OR COND SPRAY PUMP MOTOR RUNNING.
 - FLOW ELEMENT FOR MAIN STEAM LINES B, C, D ARE BEI-1N02, BEI-1N03, AND BEI-1N04 RESPECTIVELY.
 - G.C. SUPPLIES WATING FLANGES EITHER NOZZLE 64 OR 48 MAY BE CONNECTED TO THE HEAD SPRAY.
 - FT-C2B-1N03A & B ARE ON IC041, FT-C2B-1N03B IS ON IC015. FT-C2B-1N03C IS LOCALLY MOUNTED.
 - THE VALVE CONTROL SWITCH IS LOCATED ON THE VALVE OPERATOR.
 - THE SECOND ELEMENT IS ONLY USED ON STEAM LINE 'A' AND IS A SPARE ON LINE B, C, & D.
 - SEE DESIGN SPEC. FOR NUCLEAR PIPING 8026-H175, SECTION 3. FOR ADDITIONAL DYNAMIC SEISMIC SYSTEM ANALYSIS REQUIREMENTS ON LINES 200-101, 102, 103, 104 & 105.
 - THE NON-FUNCTIONAL SOLENOIDS ON THE PNEUMATIC OPERATOR AIR MANIFOLD HAVE BEEN REPLACED WITH ALUMINUM BLOCKS.
 - SPSS CONTAINMENT ISOLATION VALVE STATUS POINTS FOR MAIN STEAM LINES B, C, D ARE BELOW:

VALVE	CLOSED STATUS	OPEN STATUS
141-F022B	NV2002Z	NV2002Z
141-F022B	NV2006Z	NV2006Z
141-F020C	NV2003Z	NV2003Z
141-F020C	NV2007Z	NV2007Z
141-F022E	NV2004Z	NV2004Z
141-F022E	NV2008Z	NV2008Z

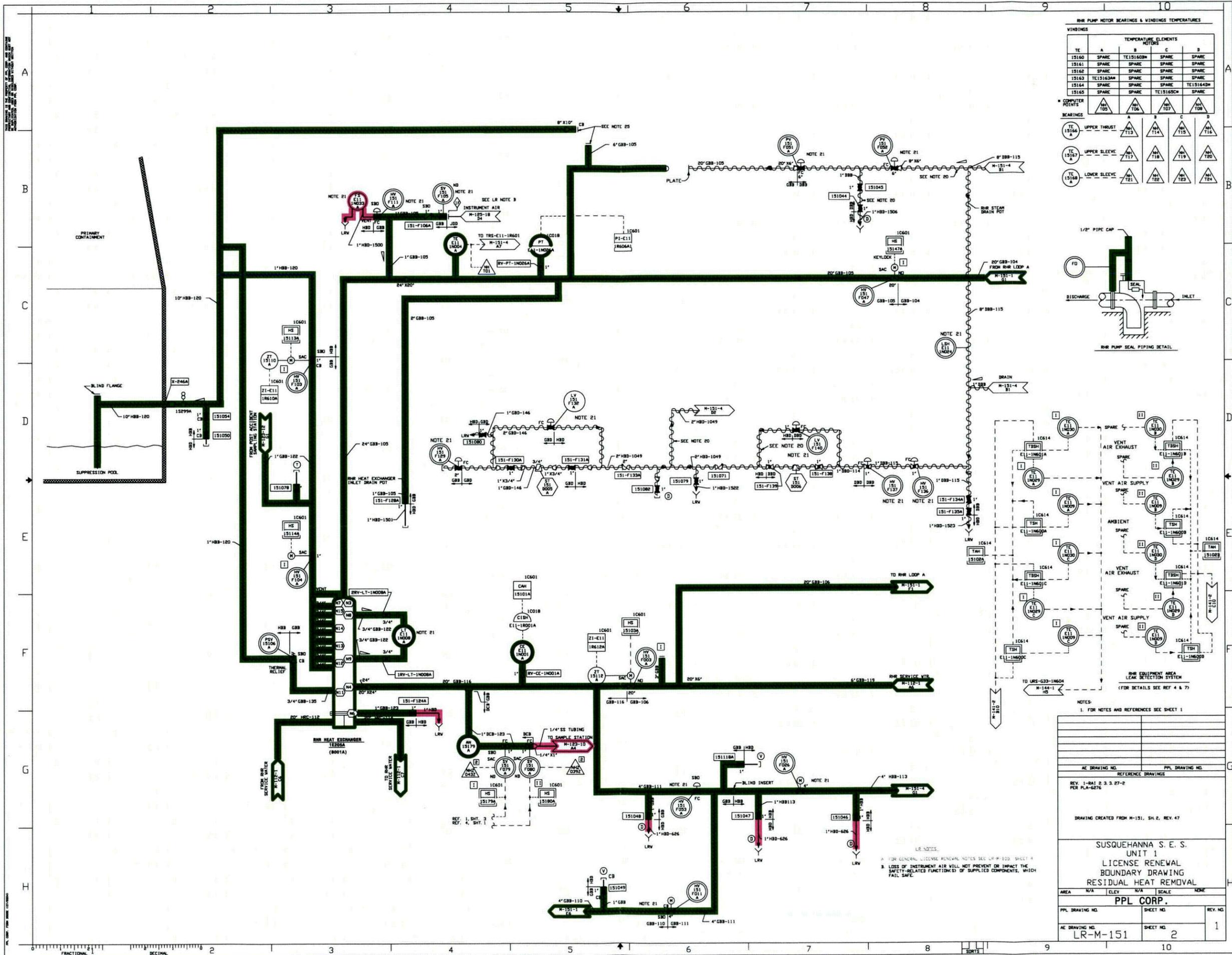
REV	DESCRIPTION	DATE
23	M-15E	E106257
22	M-126	E106231
21	M-126	E106231
20	M-123	E106208
19	M-105	E106210
18	M1-SER 22-127	(22A4440)
17	B11-151-5	(919998A)
16	C-277, 279	
15	M1-C2E-3	(726659A)
14	M1-C71-2	(726611A)
13	M1-201-4	(732E150)
12	M1-201-4	(22A2537)
11	M-101	E106206
10	M-106	E106211
9		(761E279A)
8	M-142	E106247
7	M-144	E106249
6	M-149	E106254
5	M-151	E106256
4	M-155	E106260
3	M-100	E106205
2	M-125	E106230
1	M1-201-21, 22	(117C452, 117C452A2)

LR-M-141 1

Attachment 12 to PLA 6276

LR-M-151-2

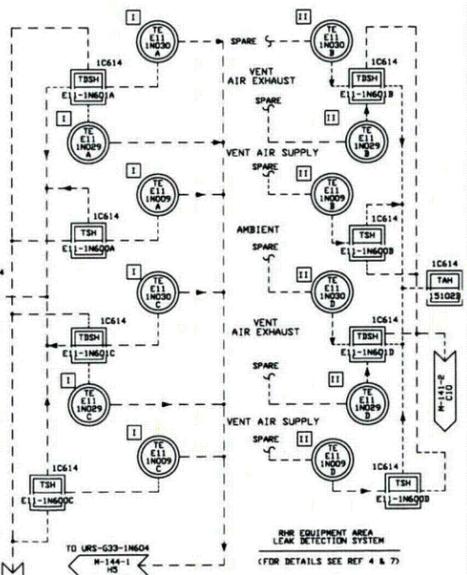
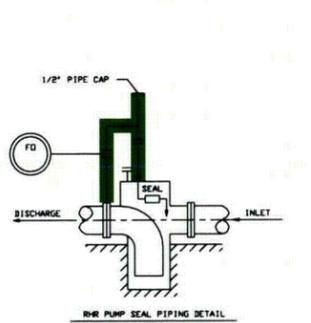
Residual Heat Removal



RHR PUMP MOTOR BEARINGS & WINDINGS TEMPERATURES

WINDINGS	TEMPERATURE ELEMENTS			
	A	B	C	D
15160	SPARE	TE15160BM	SPARE	SPARE
15161	SPARE	SPARE	SPARE	SPARE
15162	SPARE	SPARE	SPARE	SPARE
15163	TE15163AM	SPARE	SPARE	SPARE
15164	SPARE	SPARE	SPARE	TE15164DM
15165	SPARE	SPARE	TE15165CM	SPARE

BEARINGS	TEMPERATURE ELEMENTS			
	A	B	C	D
TE 15166 A	△	△	△	△
TE 15167 A	△	△	△	△
TE 15168 A	△	△	△	△



NOTES:
1. FOR NOTES AND REFERENCES SEE SHEET 1

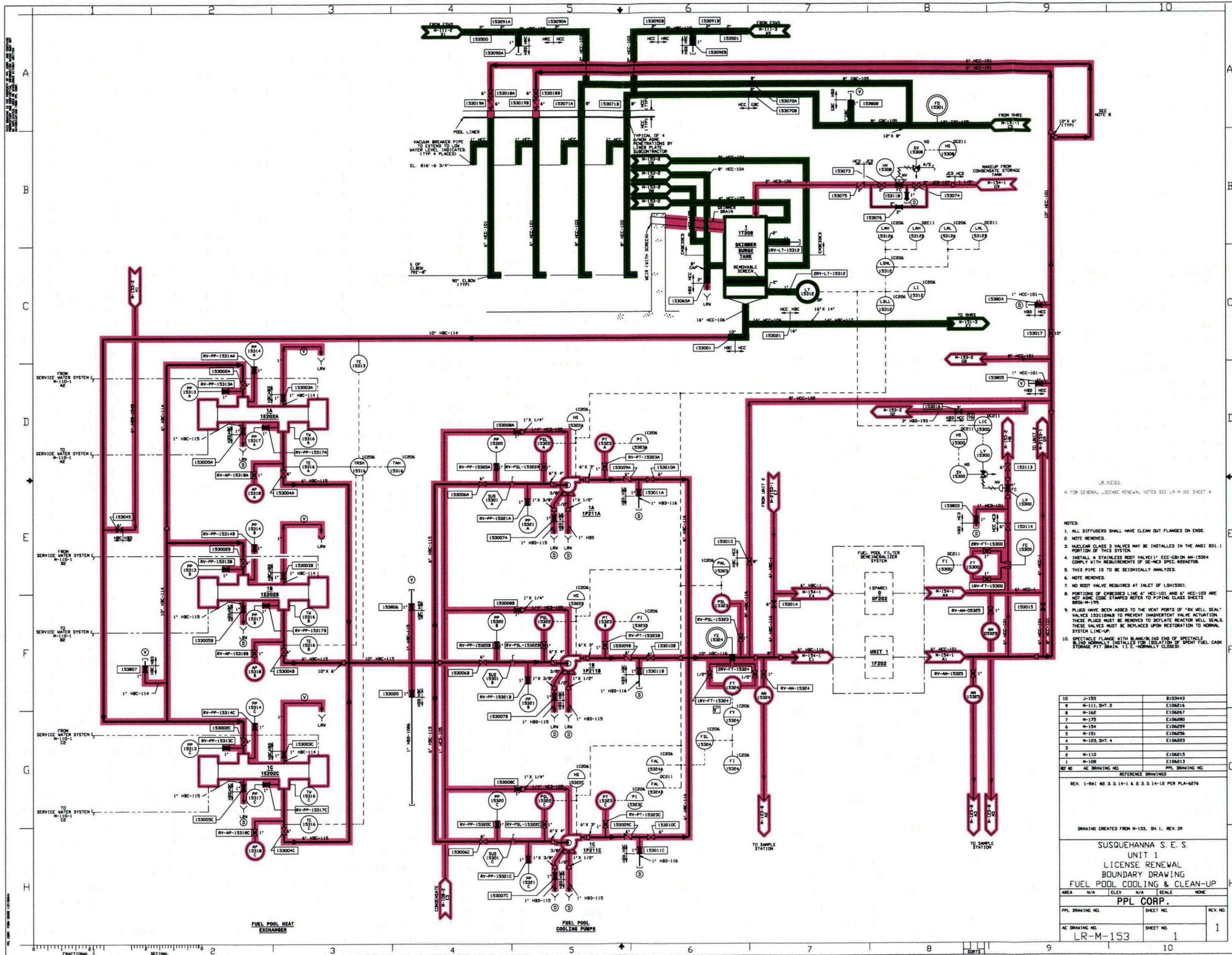
AE DRAWING NO.	PPL DRAWING NO.				
REV. 1-001 2 3 3 27-2	PER PLA-6276				
DRAWING CREATED FROM M-151, SH. 2, REV. 47					
SUSQUEHANNA S. E. S. UNIT 1 LICENSE RENEWAL BOUNDARY DRAWING RESIDUAL HEAT REMOVAL					
AREA	N/A	ELEV	N/A	SCALE	NONE
PPL DRAWING NO.	LR-M-151	SHEET NO.	2	REV. NO.	1

LR NOTES:
A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100 SHEET 4
B. LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIED COMPONENTS, WHICH FAIL SAFE.

Attachment 13 to PLA 6276

LR-M-153-1

Fuel Pool Cooling and Cleanup



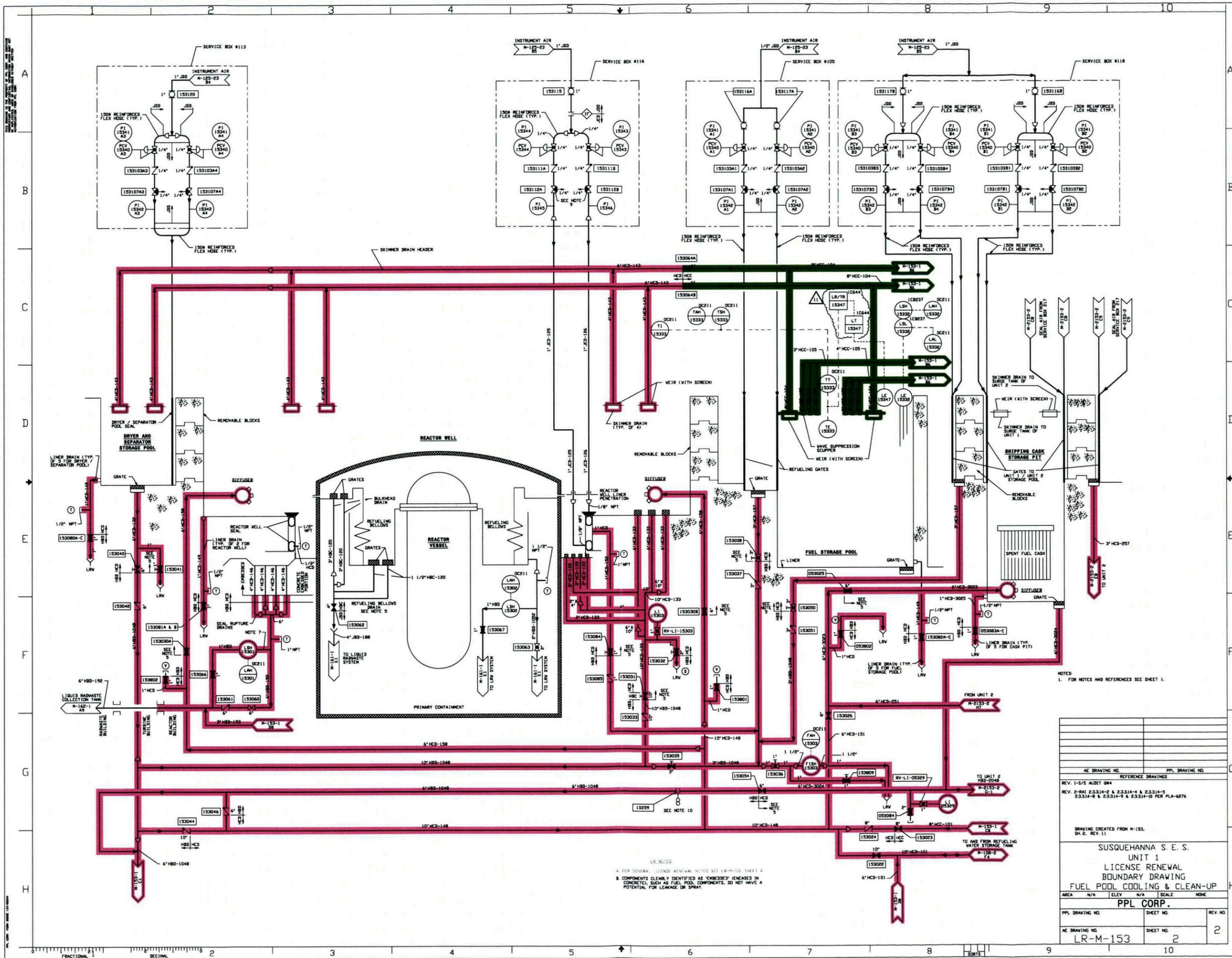
- LR NOTES
A FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-105 SHEET 4
- NOTES
1. ALL DIFFUSERS SHALL HAVE CLEAN OUT FLANGES ON ENDS.
 2. NOTE REMOVED.
 3. NUCLEAR CLASS 3 VALVES MAY BE INSTALLED IN THE ANSI 501.1 PORTION OF THIS SYSTEM.
 4. INSTALL A STAINLESS ROOT VALVE 1" ECC-6000 AN-15204 COMPLY WITH REQUIREMENTS OF GE-NEE SPEC. 06220708.
 5. THIS PIPE IS TO BE SEISMICALLY ANALYZED.
 6. NOTE REMOVED.
 7. NO ROOT VALVE REQUIRED AT INLET OF LSH15301.
 8. PORTIONS OF EMBEDDED LINE 6" HCC-101 AND 6" HCC-103 ARE NOT ASME CODE STAMPED REFER TO PIPING CLASS SHEETS BR96-M-195.
 9. PLUGS HAVE BEEN ADDED TO THE VENT PORTS OF "RX WELL SEAL" VALVES 153118A/B TO PREVENT INADVERTENT VALVE ACTUATION. THESE PLUGS MUST BE REMOVED TO ISOLATE REACTOR WELL SEALS. THESE VALVES MUST BE REPLACED UPON RESTORATION TO NORMAL SYSTEM LINE-UP.
 10. SPECTACLE FLANGE WITH BLANK/R END OF SPECTACLE FLANG NORMALLY INSTALLED FOR ISOLATION OF SPENT FUEL CASK STORAGE PIT DRAIN. (I.E. NORMALLY CLOSED).

NO	DESCRIPTION	DATE
10	J-153	8/03/44
9	M-111, SHT. 2	E106216
8	M-162	E106267
7	M-175	E106280
6	M-154	E106259
5	M-151	E106256
4	M-125, SHT. 4	E106283
3		
2	M-110	E106215
1	M-108	E106213
REF NO	AE DRAWING NO.	PPL DRAWING NO.
REFERENCE DRAWINGS		
REV. 1-RA1 02.3.14-1 & 2.3.14-12 PER PLA-6276		
DRAWING CREATED FROM M-153, SH. 1, REV. 39		
SUSQUEHANNA S. E. S.		
UNIT 1		
LICENSE RENEWAL		
BOUNDARY DRAWING		
FUEL POOL COOLING & CLEAN-UP		
AREA	ELEV	SCALE
N/A	N/A	NONE
PPL CORP.		
PPL DRAWING NO.	SHEET NO.	REV. NO.
AE DRAWING NO.	SHEET NO.	1
LR-M-153	1	

Attachment 14 to PLA 6276

LR-M-153-2

Fuel Pool Cooling and Cleanup



NOTES:
 1. FOR NOTES AND REFERENCES SEE SHEET 1.

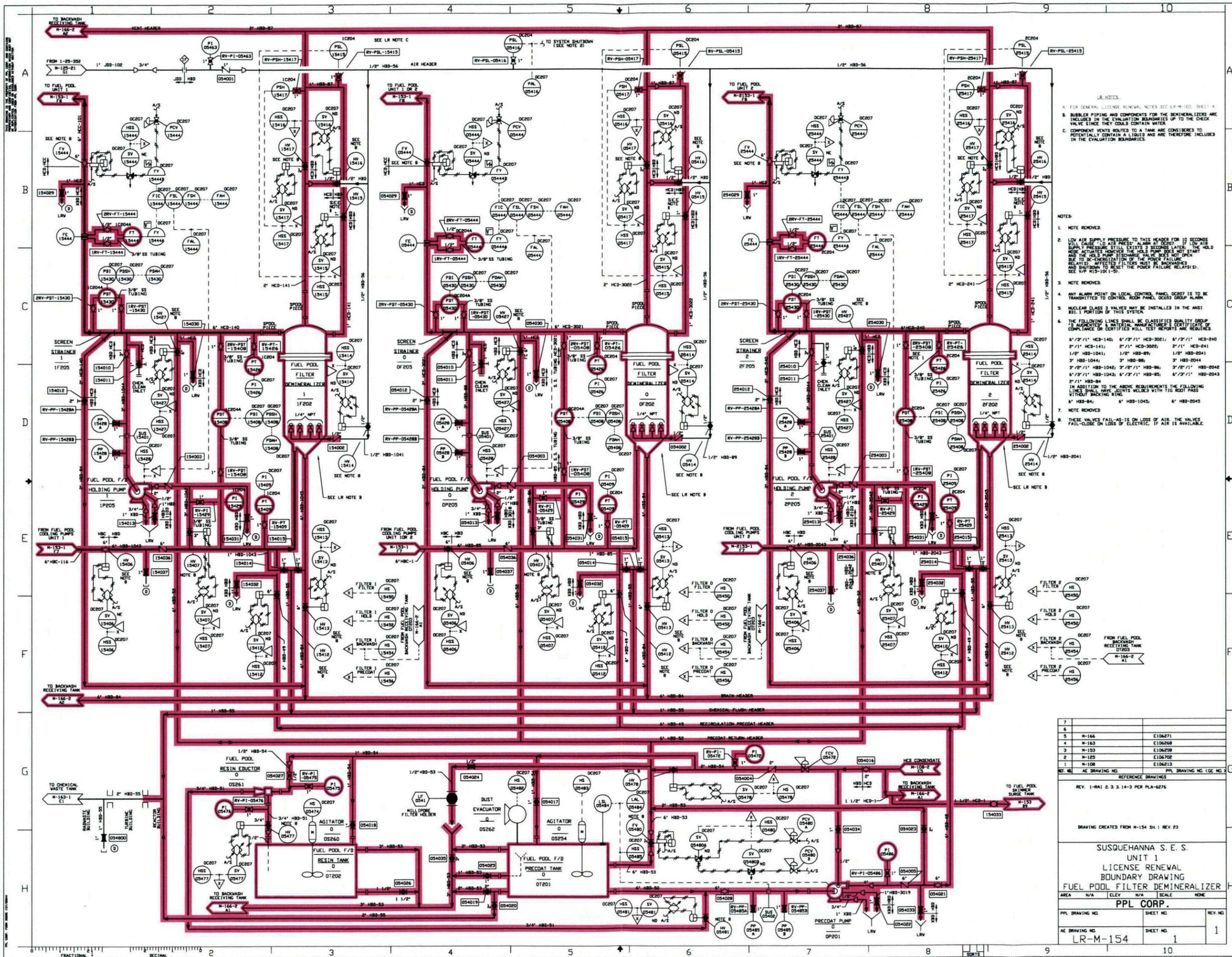
AC DRAWING NO.	PPL DRAWING NO.		
REFERENCE DRAWINGS			
REV. 1-5/S AUBIT 084			
REV. 2-RAI 2-3314-2 & 2-3314-3			
REV. 2-3314-8 & 2-3314-9 & 2-3314-10 FOR PLA-4274			
DRAWING CREATED FROM H-153, SH 2, REV. 11			
SUSQUEHANNA S. E. S. UNIT 1 LICENSE RENEWAL BOUNDARY DRAWING FUEL POOL COOLING & CLEAN-UP			
AREA	ELEV	SCALE	NONE
PPL CORP.			
PPL DRAWING NO.	SHEET NO.	REV. NO.	
LR-M-153	2	2	

LEGEND:
 A. FOR GENERAL LEGEND REMOVAL NOTES SEE LRV-100 SHEET 4
 B. COMPONENTS CLEARLY IDENTIFIED AS 'EMBEDDED' (ENCASED IN CONCRETE), SUCH AS FUEL POOL COMPONENTS, DO NOT HAVE A POTENTIAL FOR LEAKAGE OR SPRAY.

Attachment 15 to PLA 6276

LR-M-154-1

Fuel Pool Filter Demineralizer



LR NOTES:
 A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-1500, SHEET 4.
 B. BUBBLER PIPING AND COMPONENTS FOR THE DEMINERALIZERS ARE INCLUDED IN THE EVALUATION BOUNDARIES UP TO THE CHECK VALVE SINCE THEY COULD CONTAIN WATER.
 C. COMPONENT VENTS ROUTED TO A TANK ARE CONSIDERED TO POTENTIALLY CONTAIN A LIQUID AND ARE THEREFORE INCLUDED IN THE EVALUATION BOUNDARIES.

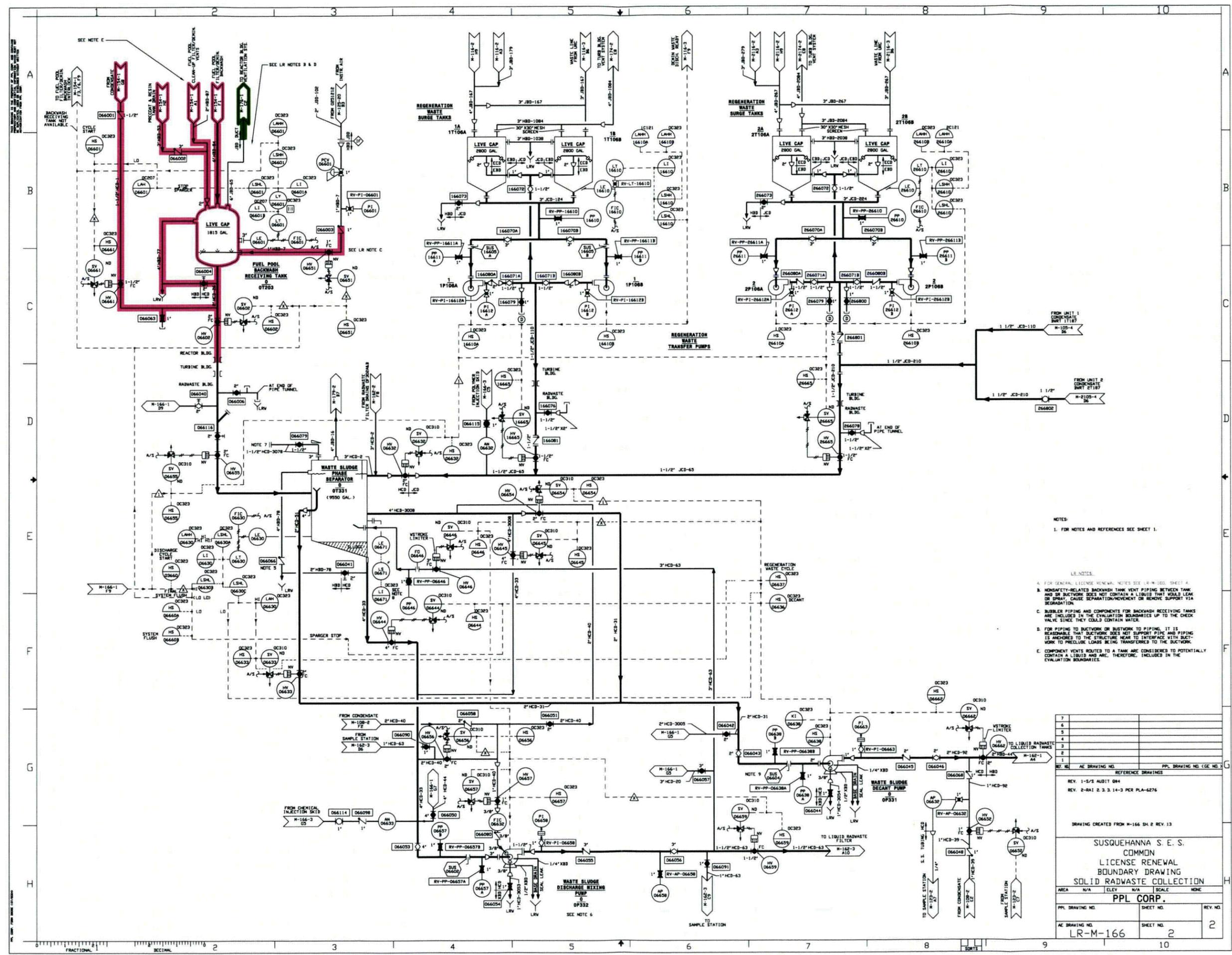
- NOTES:
 1. NOTE REMOVED.
 2. LOW AIR SUPPLY PRESSURE TO THIS HEADER FOR 10 SECONDS WILL CAUSE LOW AIR PRESS. ALARM AT DC207. LOW AIR SUPPLY PRESSURE STILL EXISTS 3 SECONDS LATER, THE HOLD RELAY ACTUATES, MOVING THE HOLD PUMP DISCHARGE VALVE NOT START AND THE HOLD DISCHARGE VALVE DOES NOT OPEN DUE TO DE-ENERGIZATION OF THE POWER FAILURE RELAY. AFFECTED FILTERS MUST BE BACKWASHED AND SHUTDOWN TO RESET THE POWER FAILURE RELAY. SEE V/P HIS-10-1-S.
 3. NOTE REMOVED.
 4. ANY ALARM POINT ON LOCAL CONTROL PANEL DC207 IS TO BE TRANSMITTED TO CONTROL ROOM PANEL OCA53 GROUP ALARM.
 5. NUCLEAR CLASS 3 VALVES MAY BE INSTALLED IN THE ANSI 331.1 PORTION OF THIS SYSTEM.
 6. THE FOLLOWING LINES SHALL BE CLASSIFIED QUALITY GROUP 2 AS DEFINED BY MATERIAL MANUFACTURER'S CERTIFICATE OF COMPLIANCE OR CERTIFIED MILL TEST REPORTS ARE REQUIRED:
 6" 3/4" HCB-140; 6" 3/4" HCB-3081; 6" 3/4" HCB-240
 2" 1" HCB-141; 2" 1" HCB-3082; 2" 1" HCB-241
 1/2" HCB-1041; 1/2" HCB-89; 1/2" HCB-2041
 3" HCB-1044; 3" HCB-88; 3" HCB-2044
 3" 3/8" HCB-1048; 3" 3/8" HCB-86; 3" 3/8" HCB-2048
 6" 3/4" HCB-1043; 6" 3/4" HCB-85; 6" 3/4" HCB-2043
 2" 1" HCB-84
 IN ADDITION TO THE ABOVE REQUIREMENTS THE FOLLOWING VALVE MANUFACTURER'S CERTIFICATE WITH T100 PASS WITHOUT BACKING KING:
 6" HCB-84; 6" HCB-1043; 6" HCB-2043
 7. NOTE REMOVED.
 8. THESE VALVES FAIL-AS-IS ON LOSS OF AIR. THE VALVES FAIL-CLOSE ON LOSS OF ELECTRIC, IF AIR IS AVAILABLE.

7		
6		
5	M-166	E106871
4	M-163	E106869
3	M-153	E106859
2	M-125	E106792
1	M-108	E106813
REF. NO.	AE DRAWING NO.	PPL DRAWING NO. (SEE NO.)
REFERENCE DRAWINGS		
REV. 1-RA1 2.3.3.14-3 PER PLA-6276		
DRAWING CREATED FROM M-154 SH. 1 REV. 23		
SUSQUEHANNA S. E. S.		
UNIT 1		
LICENSE RENEWAL		
BOUNDARY DRAWING		
FUEL POOL FILTER DEMINERALIZER		
AREA	N/A	ELEV. N/A
SCALE NONE		
PPL DRAWING NO.		
CORP.		
AE DRAWING NO.	SHEET NO.	REV. NO.
LR-M-154	1	1

Attachment 16 to PLA 6276

LR-M-166-2

Solid Radwaste Collection



NOTES:
1. FOR NOTES AND REFERENCES SEE SHEET 1.

- REVISIONS:
- | | |
|---|--|
| 7 | |
| 6 | |
| 5 | |
| 4 | |
| 3 | |
| 2 | |
| 1 | |
- REVISIONS:
- | | | |
|----------|---------|--------------|
| REV. NO. | DATE | DESCRIPTION |
| 1 | 1-5-75 | AUDIT DM |
| 2 | 2-23-76 | PER PLR-6276 |
- DRAWING CREATED FROM M-166 SH 2 REV. 13

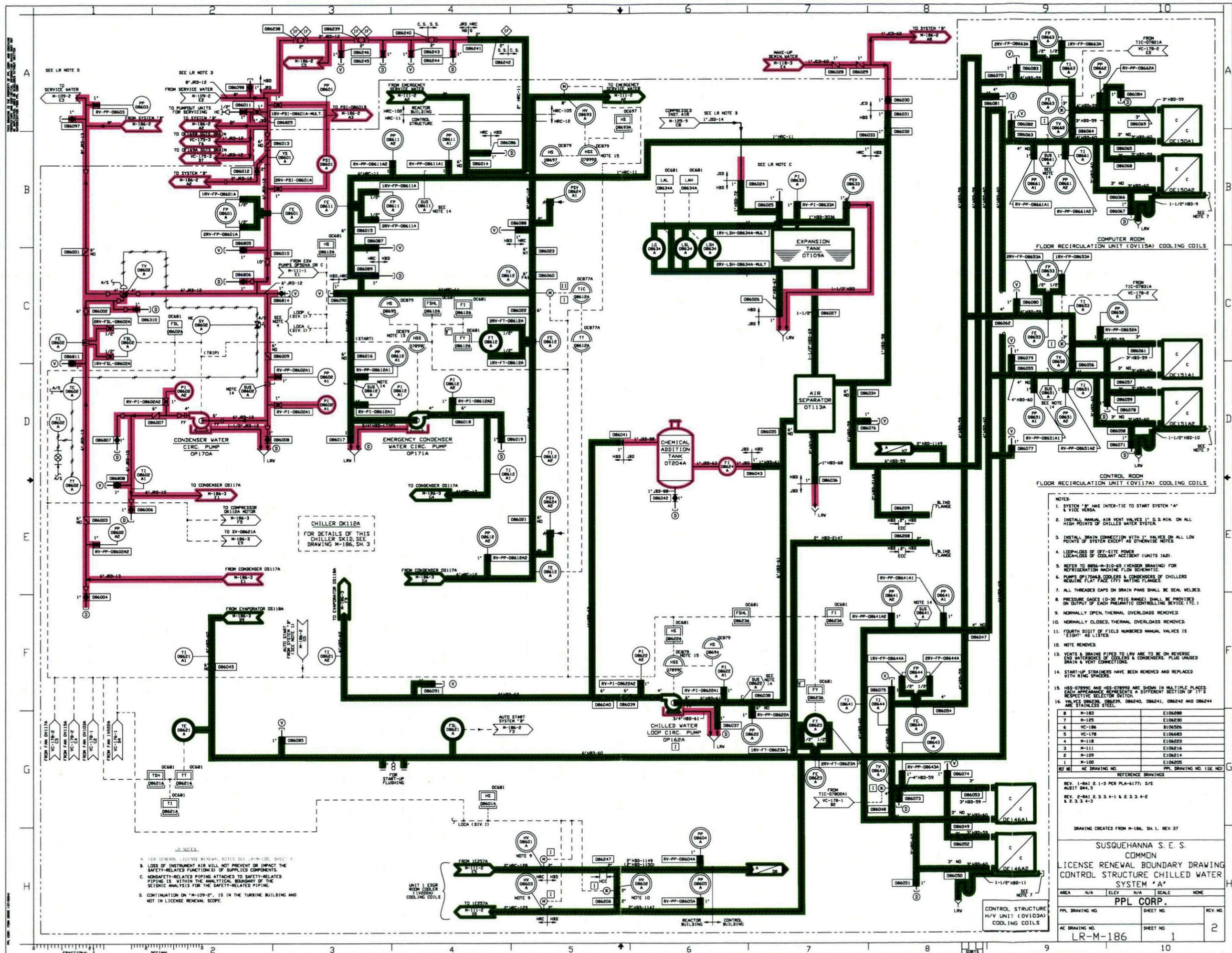
SUSQUEHANNA S. E. S. COMMON LICENSE RENEWAL BOUNDARY DRAWING SOLID RADWASTE COLLECTION

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL DRAWING NO.		SHEET NO.		REV. NO.	
AE DRAWING NO.	LR-M-166	SHEET NO.	2	REV. NO.	2

Attachment 17 to PLA 6276

LR-M-186-1

Control Structure Chilled Water System “A”



SEE LR NOTE D

SEE LR NOTE B

SEE LR NOTE C

SEE LR NOTE E

SEE LR NOTE G

SEE LR NOTE I

SEE LR NOTE K

SEE LR NOTE M

SEE LR NOTE O

CHILLER OK112A
FOR DETAILS OF THIS
CHILLER SKID, SEE
DRAWING M-186, SH. 3

- NOTES:
- A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4.
 - B. LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIER COMPONENTS.
 - C. NONSAFETY-RELATED PIPING ATTACHED TO SAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARY OF THE SEISMIC ANALYSIS FOR THE SAFETY-RELATED PIPING.
 - D. CONTINUATION ON "M-109-2" IS IN THE TURBINE BUILDING AND NOT IN LICENSE RENEWAL SCOPE.

- NOTES:
1. SYSTEM "B" HAS INTER-TIE TO START SYSTEM "A" & VICE VERSA.
 2. INSTALL MANUAL AIR VENT VALVES 1/2" O.D. MIN. ON ALL HIGH POINTS OF CHILLED WATER SYSTEM.
 3. INSTALL DRAIN CONNECTION WITH 1" VALVES ON ALL LOW POINTS OF SYSTEM EXCEPT AS OTHERWISE NOTED.
 4. LOSS-OF-POWER OR OFF-SITE POWER UNAVAILABLE OF COOLANT ACCIDENT (UNITS 1&2).
 5. REFER TO M&S-M-310-ES (VENDOR DRAWING) FOR REFRIGERATION MACHINE FLOW SCHEMATIC.
 6. PUMPS OP170&B, COOLERS & CONDENSERS OF CHILLERS REQUIRE FLAT FACE (TF) MATING FLANGES.
 7. ALL THREADED CAPS ON DRAIN PANS SHALL BE SEAL WELDED.
 8. PRESSURE GAUGES (0-30 PSIG RANGE) SHALL BE PROVIDED ON OUTPUT OF EACH PNEUMATIC CONTROLLING SERVICE (T.C.).
 9. NORMALLY OPEN, THERMAL OVERLOADS REMOVED.
 10. NORMALLY CLOSED, THERMAL OVERLOADS REMOVED.
 11. FOURTH DIGIT OF FIELD NUMBERED MANUAL VALVES IS EIGHT AS LISTED.
 12. NOTE REMOVED.
 13. VENTS & DRAINS PIPED TO LRV ARE TO BE ON REVERSE END WATERBODIES OF COOLERS & CONDENSERS. PLUS UNUSED DRAIN & VENT CONNECTIONS.
 14. START-UP STRAINERS HAVE BEEN REMOVED AND REPLACED WITH RING SPACERS.
 15. HSS-07899C AND HSS-07899B ARE SHOWN IN MULTIPLE PLACES. EACH APPEARANCE REPRESENTS A DIFFERENT SECTION OF RESPECTIVE SELECTOR SWITCH.
 16. VALVES O8629, O8629B, O8624, O86241, O86242 AND O86244 ARE STAINLESS STEEL.

REF NO	AE DRAWING NO.	PPL DRAWING NO. (GE. NO.)
8	M-183	E104888
7	M-125	E104830
6	VC-186	B106526
5	VC-178	E106483
4	M-118	E106229
3	M-111	E106216
2	M-109	E106214
1	M-100	E106205

REFERENCE DRAWINGS
REV. 1-84) 2. 1-3 PER PLA-6177) 2/5
A0174 2. 3
REV. 2-84) 2. 3. 3. 4-1 & 2. 3. 3. 4-2
& 2. 3. 3. 4-3

DRAWING CREATED FROM M-186, SH. 1, REV. 37

SUSQUEHANNA S. E. S.
COMMON
LICENSE RENEWAL BOUNDARY DRAWING
CONTROL STRUCTURE CHILLED WATER
SYSTEM "A"

AREA N/A ELEV N/A SCALE NONE

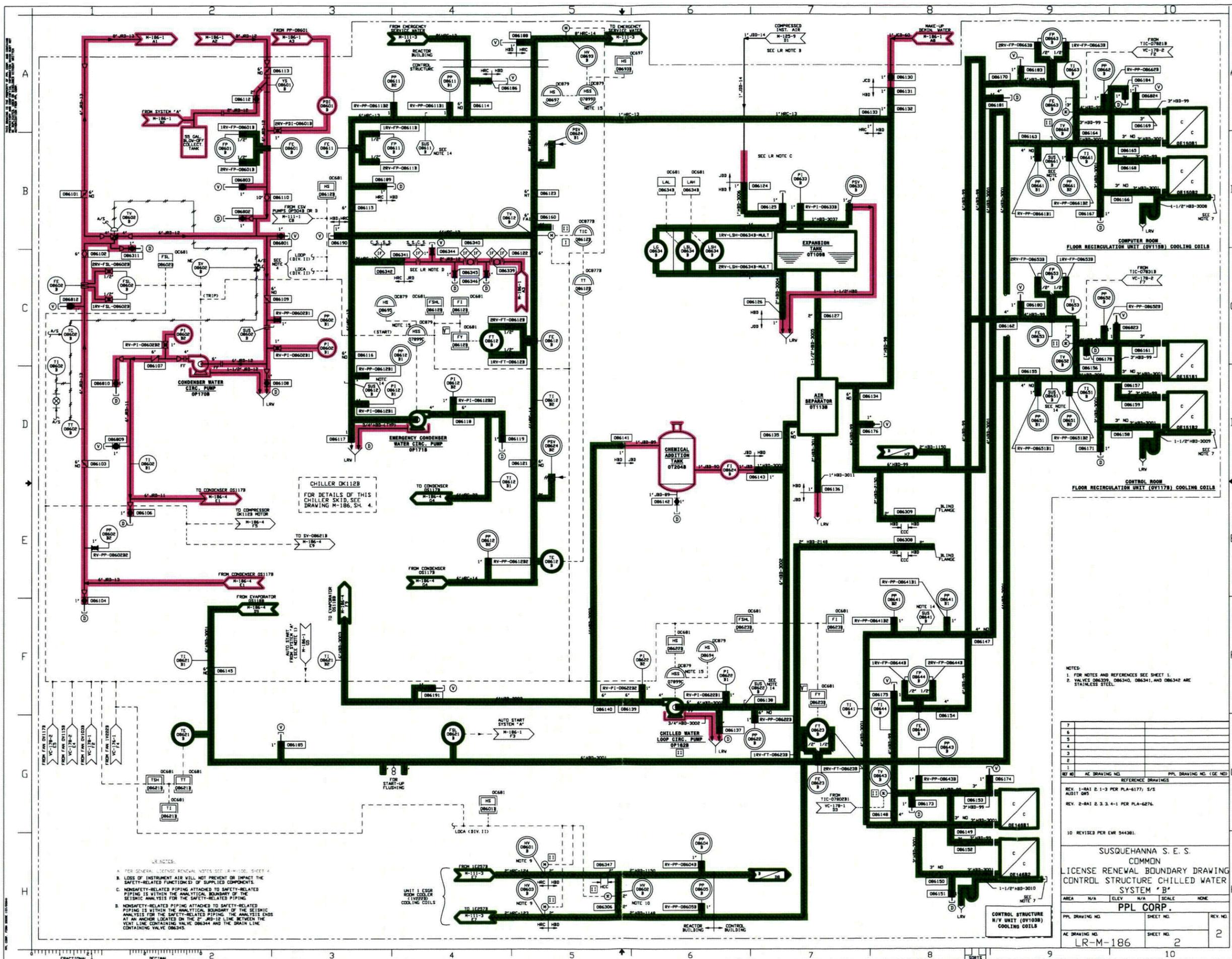
PPL CORP.

PPL DRAWING NO. SHEET NO. REV. NO.
LR-M-186 1 2

Attachment 18 to PLA 6276

LR-M-186-2

Control Structure Chilled Water System “B”



REVISIONS:

- A. PER GENERAL LICENSE RENEWAL NOTES, SEE LR-M-186, SHEET 4.
- B. LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTIONS OF SUPPLIED COMPONENTS.
- C. NONSAFETY-RELATED PIPING ATTACHED TO SAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARY OF THE SEISMIC ANALYSIS FOR THE SAFETY-RELATED PIPING.
- D. NONSAFETY-RELATED PIPING ATTACHED TO SAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARY OF THE SEISMIC ANALYSIS FOR THE SAFETY-RELATED PIPING. THE ANALYSIS ENDS AT AN ANCHOR LOCATED ON THE 2" JD-12 LINE BETWEEN THE VENT LINE CONTAINING VALVE DB6344 AND THE DRAIN LINE CONTAINING VALVE DB6345.

NOTES:

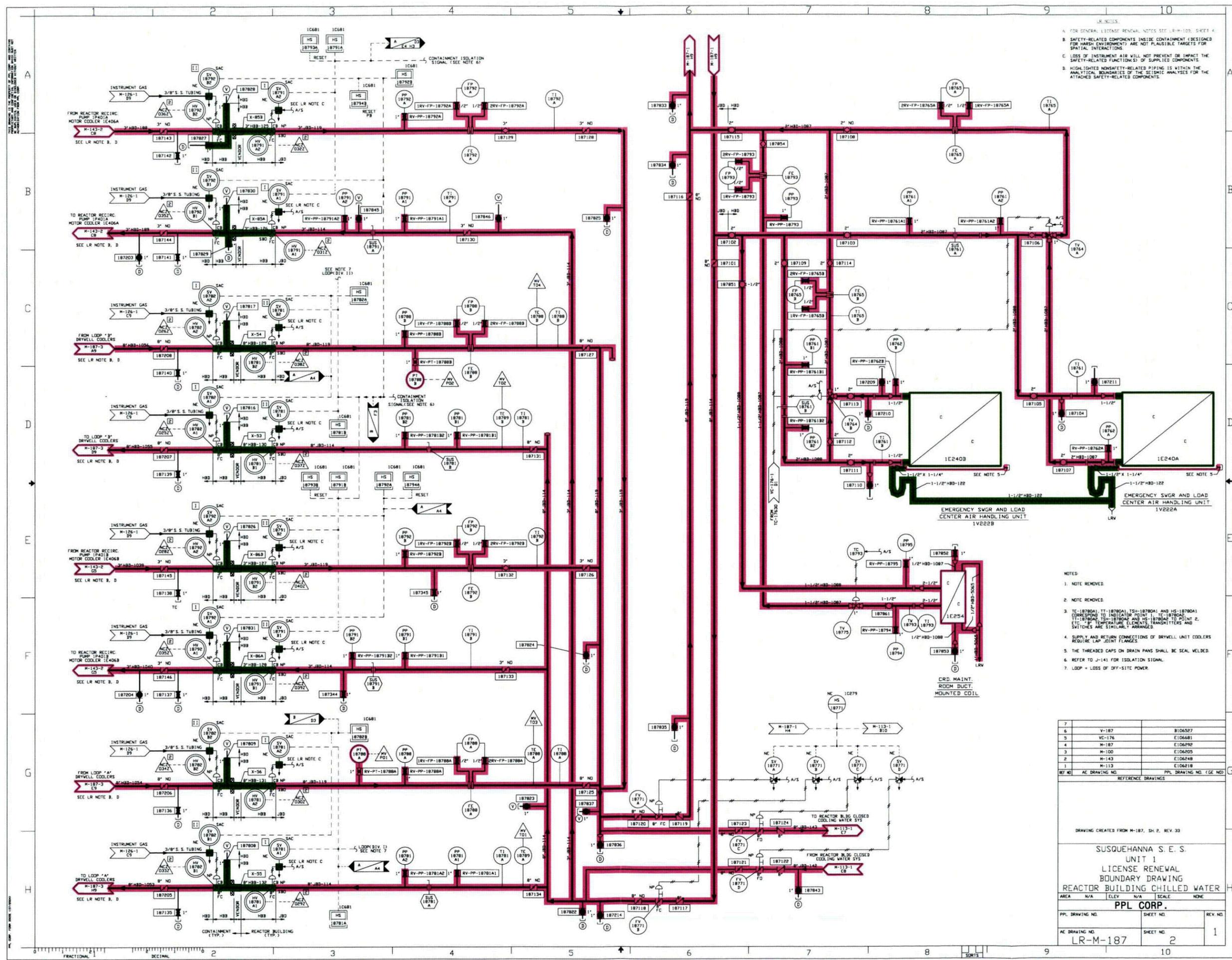
1. FOR NOTES AND REFERENCES SEE SHEET 1.
2. VALVES DB6329, DB6340, DB6341, AND DB6342 ARE STAINLESS STEEL.

7			
6			
5			
4			
3			
2			
1			
REF NO	AE DRAWING NO.	PPL DRAWING NO. (SEE INDEX)	
REFERENCE DRAWINGS			
REV. 1	BA1 2.1-3 PER PLA-6177; S/S	AUDIT 085	
REV. 2	BA1 2.3.3.4-1 PER PLA-6276		
10 REVISED PER EWR 544380.			
SUSQUEHANNA S. E. S. COMMON LICENSE RENEWAL BOUNDARY DRAWING CONTROL STRUCTURE CHILLED WATER SYSTEM "B"			
AREA	N/A	ELEV	N/A
SCALE NONE			
PPL DRAWING NO.		SHEET NO.	REV. NO.
AE DRAWING NO.	LR-M-186	SHEET NO.	2

Attachment 19 to PLA 6276

LR-M-187-2

Reactor Building Chilled Water



NOTES:

- A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4.
- B. SAFETY-RELATED COMPONENTS INSIDE CONTAINMENT (DESIGNED FOR HAZARDOUS ENVIRONMENT) ARE NOT PLAIN TARGETS FOR SPATIAL INTERACTIONS.
- C. LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIED COMPONENTS.
- D. HIGH-LIGHTED NONSAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARIES OF THE SEISMIC ANALYSES FOR THE ATTACHED SAFETY-RELATED COMPONENTS.

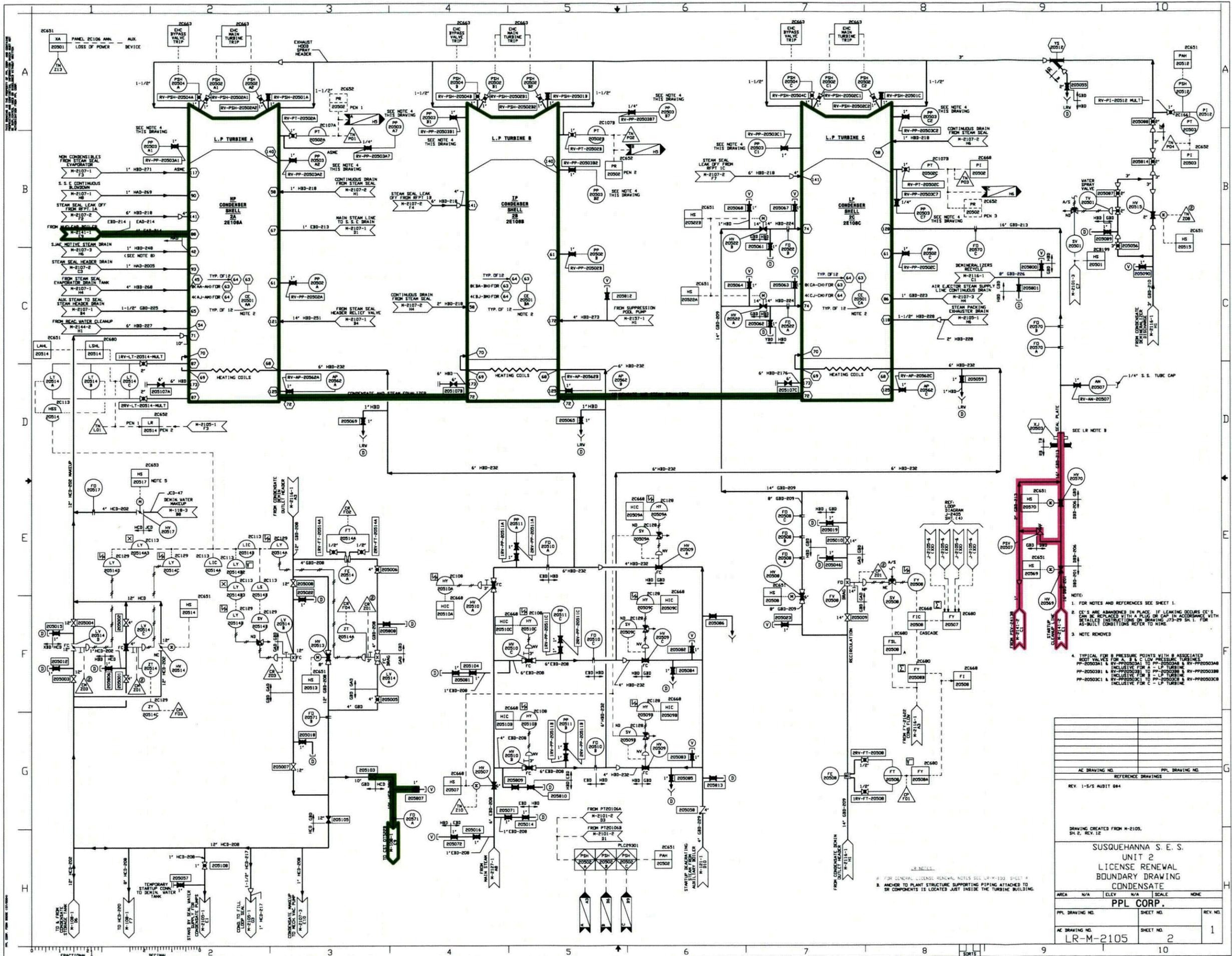
- NOTES:
1. NOTE REMOVED.
 2. NOTE REMOVED.
 3. TC-18780A1, TT-18780A1, ISH-18780A1 AND HS-18780A1 CORRESPOND TO INDICATOR POINT 1; TC-18780A2, TT-18780A2, ISH-18780A2 AND HS-18780A2 TO POINT 2, ETC. "B" TEMPERATURE ELEMENT TRANSMITTERS AND SWITCHES ARE SIMILARLY ARRANGED.
 4. SUPPLY AND RETURN CONNECTIONS OF DRYWELL UNIT COOLERS REQUIRE LAMP JOINT FLANGES.
 5. THE THREADED CAPS ON DRAIN PANS SHALL BE SEAL WELDED.
 6. REFER TO J-141 FOR ISOLATION SIGNAL.
 7. LOOP = LOSS OF DRY-SITE POWER.

7	V-187	B106287
6	VC-176	E106481
5	M-187	E106292
4	M-100	E106205
3	M-143	E106248
2	M-113	E106218
1		
REF NO	AE DRAWING NO.	PPL DRAWING NO. (SEE NG)
REFERENCE DRAWINGS		
DRAWING CREATED FROM M-187, SH. 2, REV. 33		
SUSQUEHANNA S. E. S.		
UNIT 1		
LICENSE RENEWAL		
BOUNDARY DRAWING		
REACTOR BUILDING CHILLED WATER		
AREA	N/A	ELEV
	N/A	SCALE
		NONE
PPL CORP.		
PPL DRAWING NO.	SHEET NO.	REV. NO.
AE DRAWING NO.	SHEET NO.	
LR-M-187	2	1

Attachment 20 to PLA 6276

LR-M-2105-2

Condensate



- NOTE:
- FOR NOTES AND REFERENCES SEE SHEET 1.
 - CE'S ARE ABANDONED IN PLACE IF LEAKING OCCURS CE'S CAN BE REPLACED WITH A PLUG OR CAP IN ACCORDANCE WITH DETAILED INSTRUCTIONS ON DRAWING 73-29 SH. 1. FOR AS-BUILT CONDITIONS REFER TO NINE.
 - NOTE REMOVED
 - TYPICAL FOR B PRESSURE POINTS WITH B ASSOCIATED ROOT VALVES FOR A, B & C LOW PRESSURE TURBINES. PP-20503A1 & RV-PP-20503A1 TO PP-20503A4 & RV-PP-20503A4 INCLUSIVE FOR A - L.P. TURBINE. PP-20503B1 & RV-PP-20503B1 TO PP-20503B4 & RV-PP-20503B4 INCLUSIVE FOR B - L.P. TURBINE. PP-20503C1 & RV-PP-20503C1 TO PP-20503C4 & RV-PP-20503C4 INCLUSIVE FOR C - L.P. TURBINE.

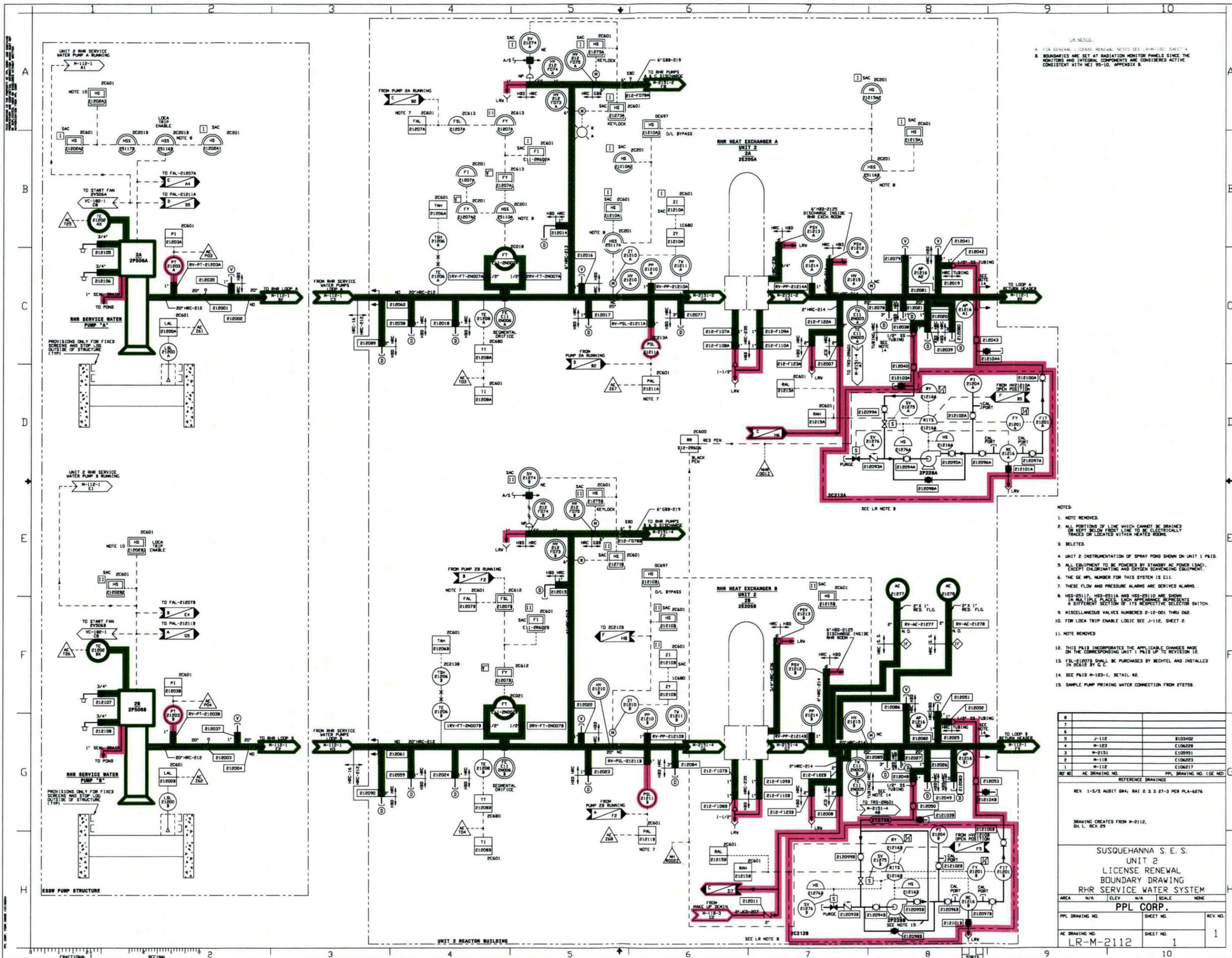
AC DRAWING NO.	PPL DRAWING NO.				
REV. 1-5/3 AUDIT 844					
DRAWING CREATED FROM N-2105, SH. 2, REV. 12					
SUSQUEHANNA S. E. S. UNIT 2 LICENSE RENEWAL BOUNDARY DRAWING CONDENSATE					
AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.		SHEET NO.		REV. NO.	
AC DRAWING NO.	LR-M-2105	SHEET NO.	2	REV. NO.	1

1. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100 SHEET 4
 2. ANCHOR TO PLANT STRUCTURE SUPPORTING PIPING ATTACHED TO SE COMPONENTS IS LOCATED JUST INSIDE THE TURBINE BUILDING.

Attachment 21 to PLA 6276

LR-M-2112-1

RHR Service Water



LR NOTES:
 A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-1100, SHEET 4.
 B. BOUNDARIES ARE SET AT RADIATION MONITOR PANELS SINCE THE MONITORS AND INTERNAL COMPONENTS ARE CONSIDERED ACTIVE, CONSISTENT WITH NEI 95-10, APPENDIX B.

- NOTES:
- NOTE REMOVED.
 - ALL PORTIONS OF LINE WHICH CANNOT BE DRAINED OR KEPT BELOW FIRST LINE TO BE ELECTRICALLY TRACED OR LOCATED WITHIN HEATED ROOM.
 - DELETED.
 - UNIT 2 INSTRUMENTATION OF SPRAY POND SHOWN ON UNIT 1 P&ID.
 - ALL EQUIPMENT TO BE POWERED BY STANDBY AC POWER (SAC), EXCEPT CALIBRATING AND OXYGEN SCANNING EQUIPMENT.
 - THE GE MPL NUMBER FOR THIS SYSTEM IS E11.
 - THESE FLOW AND PRESSURE ALARMS ARE DERIVED ALARMS.
 - HSS-20117, HSS-20116 AND HSS-20110 ARE SHOWN IN MULTIPLE PLACES. EACH REPRESENTS A DIFFERENT SECTION OF ITS RESPECTIVE SELECTOR SWITCH.
 - MISCELLANEOUS VALVES NUMBERED 2-12-001 THRU 062.
 - FOR LOCA TRIP ENABLE LOGIC SEE J-112, SHEET 2.
 - NOTE REMOVED.
 - THIS P&ID INCORPORATES THE APPLICABLE CHANGES MADE ON THE CORRESPONDING UNIT 1 P&ID TO REVISION 12.
 - FSL-212078 SHALL BE PURCHASED BY BECHTEL AND INSTALLED IN SCALE BY G.C.
 - SEE P&ID M-123-1, DETAIL #2.
 - SAMPLE PUMP PRIMING WATER CONNECTION FROM 212758.

REFERENCE DRAWINGS	
REV. 1-5/S AUDIT 044; RAT 2.3.27-3 PER PLA-6276	
DRAWING CREATED FROM M-2112, DL 1, REV. 29	
SUSQUEHANNA S. E. S. UNIT 2 LICENSE RENEWAL BOUNDARY DRAWING RHR SERVICE WATER SYSTEM	
AREA N/A	ELEV N/A
SCALE NONE	
PPL DRAWING NO.	SHEET NO.
REV. NO.	REV. NO.
AE DRAWING NO.	SHEET NO.
LR-M-2112	1

Attachment 22 to PLA 6276

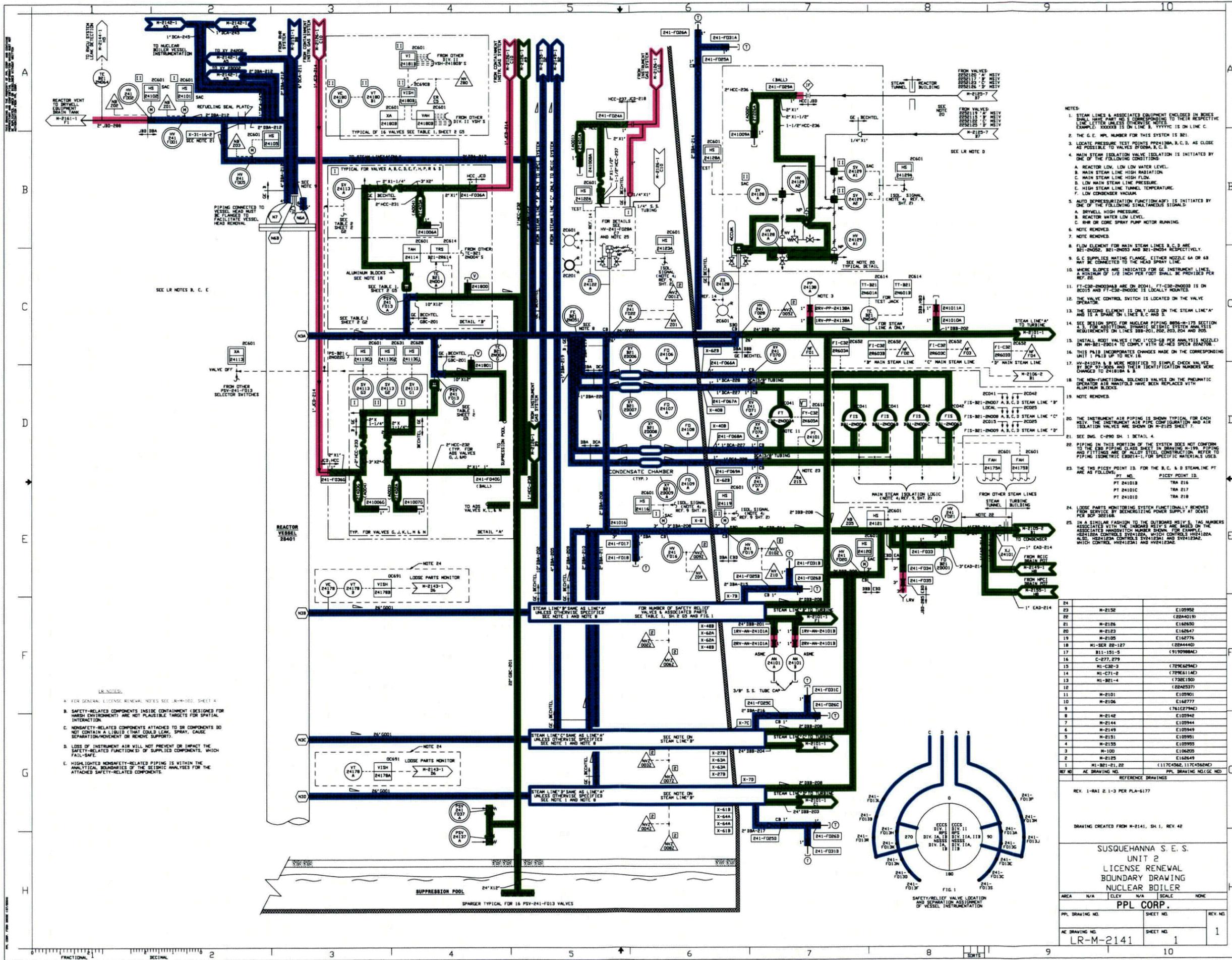
LR-M-2113-1

Reactor Building Closed Cooling Water

Attachment 23 to PLA 6276

LR-M-2141-1

Nuclear Boiler

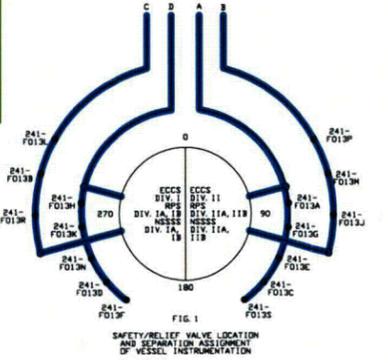


- NOTES:
- STEAM LINES & ASSOCIATED EQUIPMENT ENCLOSED IN BOXES SHALL HAVE PART NO. & CORRESPONDING TO THEIR RESPECTIVE LINE LETTER UNLESS OTHERWISE NOTED. EXAMPLE: XXXXXX IS ON LINE B, YYYYYY IS ON LINE C.
 - THE G.E. MPL NUMBER FOR THIS SYSTEM IS B21.
 - LOCATE PRESSURE TEST POINTS (P2100A, B, C, D) AS CLOSE AS POSSIBLE TO VALVES P2100A, B, C, D.
 - MAIN STEAM ISOLATION VALVE IS INITIATED BY ONE OF THE FOLLOWING CONDITIONS:
 - REACTOR LOW, LOW LOW WATER LEVEL.
 - MAIN STEAM LINE HIGH RADIATION.
 - MAIN STEAM LINE HIGH FLOW.
 - LOW MAIN STEAM LINE PRESSURE.
 - HIGH MAIN STEAM LINE TUNNEL TEMPERATURE.
 - LOW CONDENSER VACUUM.
 - AUTO DEPRESSURIZATION FUNCTION (ADP) IS INITIATED BY ONE OF THE FOLLOWING SIMULTANEOUS SIGNALS:
 - DRYWELL HIGH PRESSURE.
 - REACTOR WATER LOW LEVEL.
 - RHW OR CORIE SPRAY PUMP MOTOR RUNNING.
 - NOTE REMOVED.
 - NOTE REMOVED.
 - FLOW ELEMENT FOR MAIN STEAM LINES B, C, D ARE B21-2802, B21-2803 AND B21-2804 RESPECTIVELY.
 - G.C. SUPPLIES MATING FLANGE, EITHER NOZZLE 6A OR 6B MAY BE CONNECTED TO THE HEAD SPRAY LINE.
 - WHERE SLOPES ARE INDICATED FOR GE. INSTRUMENT LINES, A MINIMUM OF 1/8" PER FOOT SHALL BE PROVIDED PER REF. 22.
 - FT-C30-2803/2804 ARE ON RC41, FT-C30-2803 IS ON RC015 AND FT-C30-2803C IS LOCALLY MOUNTED.
 - THE VALVE CONTROL SWITCH IS LOCATED ON THE VALVE OPERATOR.
 - THE SECOND ELEMENT IS ONLY USED ON THE STEAM LINE 'A' AND IS A SPARE ON LINES B, C AND D.
 - SEE DESIGN SPEC. FOR NUCLEAR PIPING, NPS-41-175 SECTION 4.3, FOR ADDITIONAL DYNAMIC BEHAVIOR SYSTEM ANALYSIS REQUIREMENTS ON LINES B21-201, 202, 203, 204 AND 205.
 - INSTALL ROOT VALVES (TWO 1" CO2-68 PER ANALYSIS NOZZLE) ON AN-B21-2801A TO COMPLY WITH GE-HES SPEC. REACTOR.
 - THIS REV. INCORPORATES CHANGES MADE ON THE CORRESPONDING UNIT 1 P&ID UP TO REV. 18.
 - HY-24107A & B WERE MODIFIED TO SIMPLE CHECK VALVES BY REV. 17-2008 AND THEIR IDENTIFICATION NUMBERS WERE CHANGED TO 24107A & B.
 - THE NON-FUNCTIONAL SOLIDOR VALVES ON THE PNEUMATIC OPERATOR AIR MANIFOLD HAVE BEEN REPLACED WITH ALUMINUM BLOCKS.
 - NOTE REMOVED.
 - THE INSTRUMENT AIR PIPING IS SHOWN TYPICAL FOR EACH UNIT. THE INSTRUMENT AIR PIPE CONFIGURATION AND AIR ISOLATION VALVES ARE SHOWN ON M-2125 SHEET 7.
 - SEE DWG. C-290 SH. 1 DETAIL 4.
 - PIPING IN THIS PORTION OF THE SYSTEM DOES NOT CONFORM TO THE ERW PIPING CLASS SHEET IN BRANING M-19. PIPING AND FITTINGS ARE OF ALLOY STEEL CONSTRUCTION. REFER TO PIPING ISOMETRIC E80214-1, FOR SPECIFIC MATERIALS USED.
 - THE TMS P&ID POINT ID. FOR THE B, C, & D STEAMLINE PT ARE AS FOLLOWS:

PT. NO.	P&ID POINT ID.
PT 24101B	TRA 216
PT 24101C	TRA 217
PT 24101D	TRA 218
 - LOOSE PARTS MONITORING SYSTEM FUNCTIONALLY REMOVED FROM SERVICE BY DEENERGIZING POWER SUPPLY AT OC491 PER BCP 28216A.
 - IN A SIMILAR FASHION TO THE OUTBOARD RELIEF, TAG NUMBERS ASSOCIATED WITH THE UNBOARD RELIEF 2, BASED ON ASSOCIATED HANDWRITTEN NUMBER SHOWN. FOR EXAMPLE, 241012A CONTROL SYSTEM, WHICH CONTROLS H24102A, ALSO, H24102A CONTROLS SV24102A1 AND SV24102A2, WHICH CONTROL, H24102A1 AND H24102A2.

- LR NOTES:
- FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4.
 - SAFETY-RELATED COMPONENTS INSIDE CONTAINMENT (DESIGNED FOR WASH ENVIRONMENT) ARE NOT PLAUSIBLE TARGETS FOR SPATIAL INTERACTION.
 - NONSAFETY-RELATED COMPONENTS ATTACHED TO SR COMPONENTS DO NOT CONTAIN A LIQUID THAT COULD LEAK, SPRAY, CAUSE SEPARATION/MOVEMENT OR BLOCKING SUPPORT.
 - LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIED COMPONENTS, WHICH FAIL-SAFE.
 - HIGHLIGHTED NONSAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARIES OF THE SEISMIC ANALYSES FOR THE ATTACHED SAFETY-RELATED COMPONENTS.

REV. NO.	AC DRAWING NO.	REFERENCE DRAWING
24	M-2152	E105952
23		(2244015)
22	M-2126	E162650
21	M-2123	E162647
20	M-2105	E162776
19	MI-SER 22-127	(2244440)
18	B11-151-5	(9190986A)
17	C-277, 279	(7296494C)
16	MI-C28-3	(7296494C)
15	MI-C71-2	(7296494C)
14	MI-281-4	(7326150)
13		(2244337)
12	M-2101	E105901
11	M-2106	E162777
10		(7612796C)
9	M-2142	E105942
8	M-2144	E105944
7	M-2149	E105949
6	M-2151	E105951
5	M-2153	E105953
4	M-100	E106205
3	M-2125	E162649
2	MI-281-22	(1174562, 1174562A)
1	MI-281-22	(1174562, 1174562A)



REV. 1-RA1 2-1-3 PER PLA-6177

DRAWING CREATED FROM M-2141, SH. 1, REV. 42

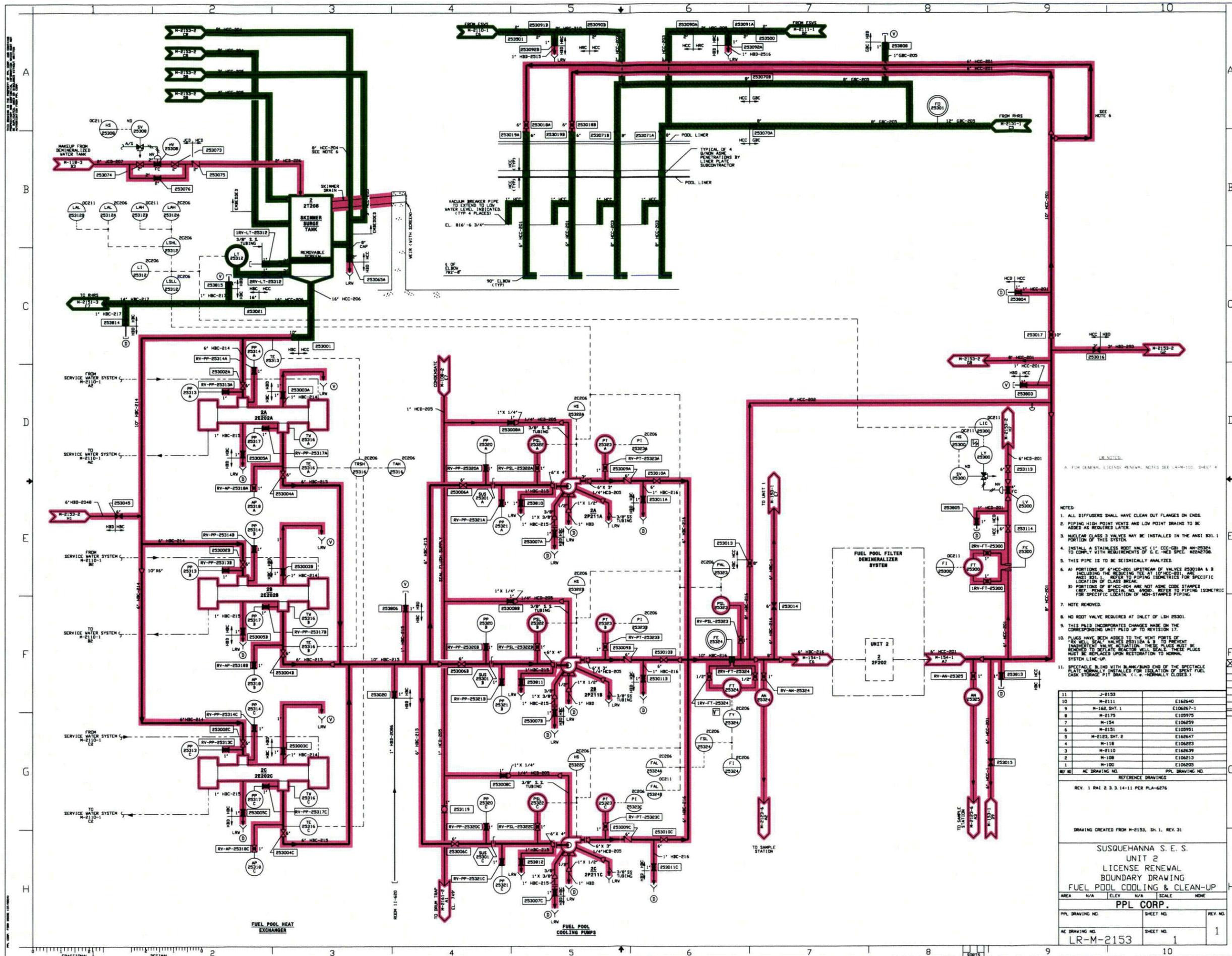
SUSQUEHANNA S. E. S. UNIT 2 LICENSE RENEWAL BOUNDARY DRAWING NUCLEAR BOILER

ARCA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.	SHEET NO.			REV. NO.	
AC DRAWING NO.	SHEET NO.			REV. NO.	
LR-M-2141	1			1	

Attachment 24 to PLA 6276

LR-M-2153-1

Fuel Pool Cooling and Cleanup



- NOTES:
1. ALL DIFFUSERS SHALL HAVE CLEAN OUT FLANGES ON ENDS.
 2. PIPING HIGH POINT VENTS AND LOW POINT DRAINS TO BE ADDED AS REQUIRED LATER.
 3. NUCLEAR CLASS 3 VALVES MAY BE INSTALLED IN THE ANSI 831.1 PORTION OF THIS SYSTEM.
 4. INSTALL A STAINLESS ROOT VALVE (1" ECC-GB) ON AN-25304 TO COMPLY WITH REQUIREMENTS OF G.C. HEB SPEC. REACTOR.
 5. THIS PIPE IS TO BE SEISMICALLY ANALYZED.
 6. A) PORTIONS OF 6" HBC-201 UPSTREAM OF VALVES 25301A & B INCLUDING THE RELIEF TEE AT 10" HBC-251 ARE ANSI 831.1. REFER TO PIPING ISOMETRIC FOR SPECIFIC LOCATION OF CLASS BREAK.
B) PORTIONS OF 8" HBC-204 ARE NOT ASME CODE STAMPED (SEE P&ID SPEC. NO. 6900). REFER TO PIPING ISOMETRIC FOR SPECIFIC LOCATION OF NON-STAMPED PIPING.
 7. NOTE REMOVED.
 8. NO ROOT VALVE REQUIRED AT INLET OF LSH 25301.
 9. THIS P&ID INCORPORATES CHANGES MADE ON THE CORRESPONDING UNIT PAID UP TO REVISION 17.
 10. PLUGS HAVE BEEN ADDED TO THE VENT PORTS OF "B" WELL SEAL VALVES 25318A & B TO PREVENT INADVERTENT VALVE ACTUATION. THESE PLUGS MUST BE REMOVED TO REPLACE REACTOR WELL SEALS. THESE PLUGS MUST BE REPLACED UPON RESTORATION TO NORMAL SYSTEM LINE-UP.
 11. SPECTACLE BALLS WITH BLANK/BAND END OF THE SPECTACLE PLATE NORMALLY INSTALLED FOR ISOLATION OF SPENT FUEL CASK STORAGE PIT DRAIN. (I.E., NORMALLY CLOSED).

11	J-2153	
10	M-2111	E162640
9	M-162, SHT. 1	E106267-1
8	M-2175	E109979
7	M-154	E106259
6	M-2151	E109951
5	M-2123, SHT. 2	E162647
4	M-118	E106283
3	M-2110	E162639
2	M-108	E106213
1	M-100	E106205

REV. 1 RAI 2.3.3.14-11 PER PLA-6276

DRAWING CREATED FROM M-2153, SH. 1, REV. 31

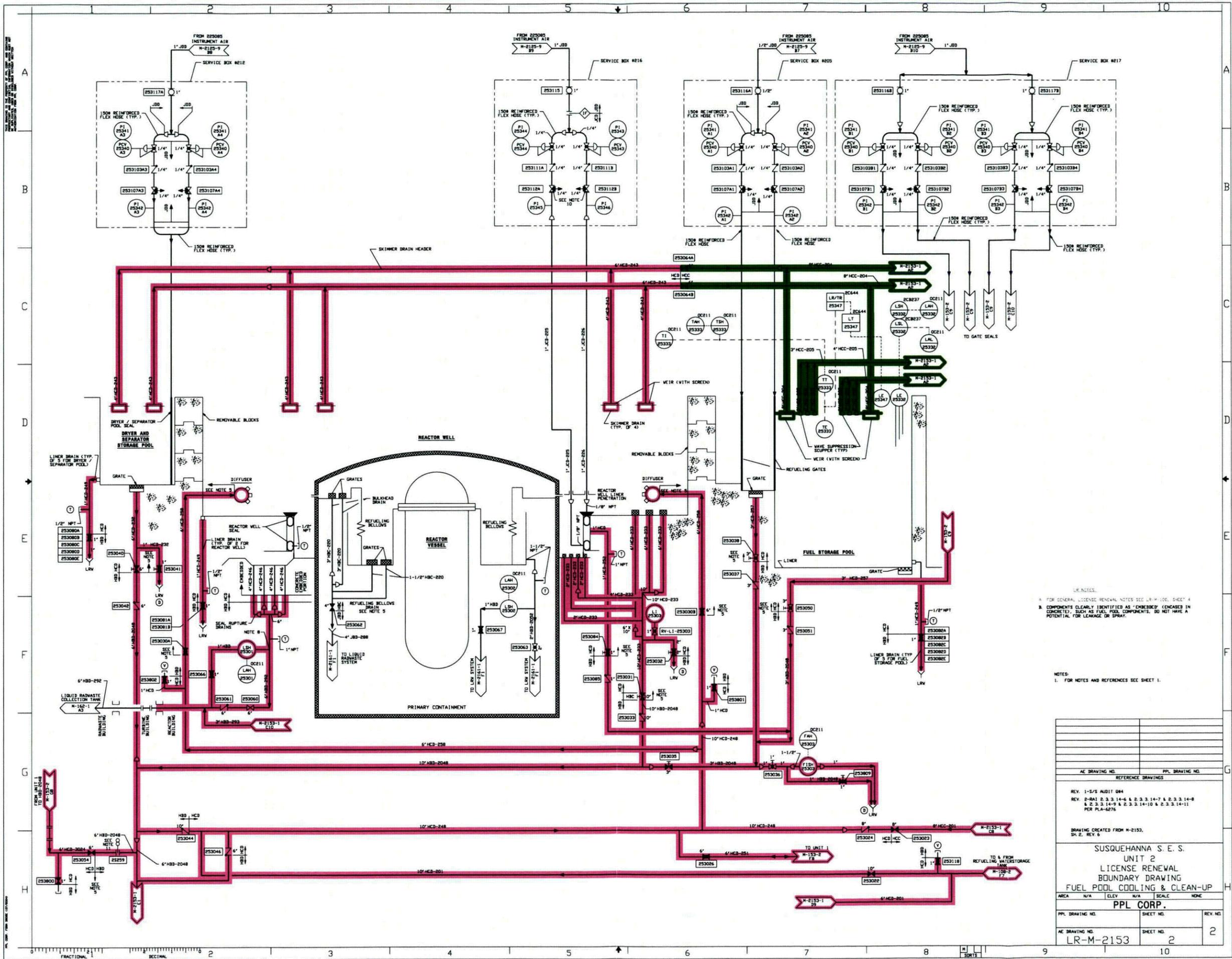
SUSQUEHANNA S. E. S.
UNIT 2
LICENSE RENEWAL
BOUNDARY DRAWING
FUEL POOL COOLING & CLEAN-UP

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.	SHEET NO.		REV. NO.		
AC DRAWING NO.	SHEET NO.		REV. NO.		
LR-M-2153	1		1		

Attachment 25 to PLA 6276

LR-M-2153-2

Fuel Pool Cooling and Cleanup



LR NOTES:
 A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
 B. COMPONENTS CLEARLY IDENTIFIED AS "DIBEDDED" (ENCASED IN CONCRETE), SUCH AS FUEL POOL COMPONENTS, DO NOT HAVE A POTENTIAL FOR LEAKAGE OR SPILL.

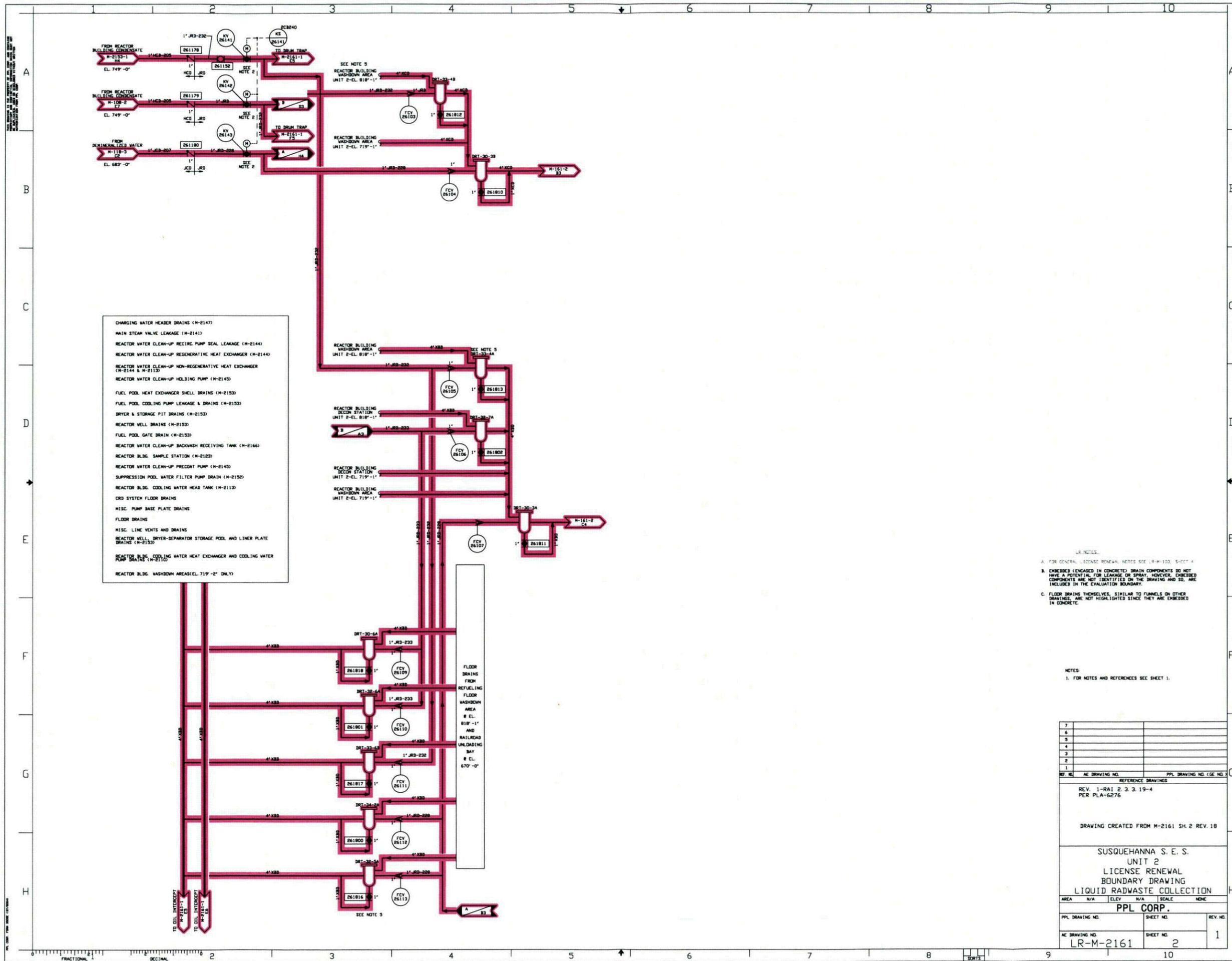
NOTES:
 1. FOR NOTES AND REFERENCES SEE SHEET 1.

AE DRAWING NO.	PPL DRAWING NO.				
REFERENCE DRAWINGS					
REV. 1-S/S AUDIT 084					
REV. 2-RA1 2.3.3.14-6 & 2.3.3.14-7 & 2.3.3.14-8 & 2.3.3.14-9 & 2.3.3.14-10 & 2.3.3.14-11 PER PLA-6276					
DRAWING CREATED FROM H-2153, SK 2, REV. 6					
SUSQUEHANNA S. E. S. UNIT 2 LICENSE RENEWAL BOUNDARY DRAWING FUEL POOL COOLING & CLEAN-UP					
AREA	N/A	ELEV	N/A	SCALE	NONE
PPL CORP.					
PPL DRAWING NO.	SHEET NO.		REV. NO.		
AE DRAWING NO.	SHEET NO.		2		
LR-M-2153		2			

Attachment 26 to PLA 6276

LR-M-2161-2

Liquid Radwaste Collection



- CHARGING WATER HEADER DRAINS (M-2147)
- MAIN STEAM VALVE LEAKAGE (M-2141)
- REACTOR WATER CLEAN-UP RECIRC. PUMP SEAL LEAKAGE (M-2144)
- REACTOR WATER CLEAN-UP REGENERATIVE HEAT EXCHANGER (M-2144)
- REACTOR WATER CLEAN-UP NON-REGENERATIVE HEAT EXCHANGER (M-2144 & M-2133)
- REACTOR WATER CLEAN-UP HOLDING PUMP (M-2145)
- FUEL POOL HEAT EXCHANGER SHELL DRAINS (M-2153)
- FUEL POOL COOLING PUMP LEAKAGE & DRAINS (M-2153)
- DRYER & STORAGE PIT DRAINS (M-2153)
- REACTOR WELL DRAINS (M-2153)
- FUEL POOL GATE DRAIN (M-2153)
- REACTOR WATER CLEAN-UP BACKWASH RECEIVING TANK (M-2166)
- REACTOR BLDG. SAMPLE STATION (M-2122)
- REACTOR WATER CLEAN-UP PRECIPITATION PUMP (M-2145)
- SUPPRESSION POOL WATER FILTER PUMP DRAIN (M-2152)
- REACTOR BLDG. COOLING WATER HEAD TANK (M-2113)
- CRD SYSTEM FLOOR DRAINS
- MISC. PUMP BASE PLATE DRAINS
- FLOOR DRAINS
- MISC. LINE VENTS AND DRAINS
- REACTOR WELL, DRYER-SEPARATOR STORAGE POOL AND LINER PLATE DRAINS (M-2153)
- REACTOR BLDG. COOLING WATER HEAT EXCHANGER AND COOLING WATER PUMP DRAINS (M-2113)
- REACTOR BLDG. WASHDOWN AREAS (EL. 719'-2" DNLY)

- LR NOTES:
- A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
 - B. ENCASED (ENCASED IN CONCRETE) DRAIN COMPONENTS DO NOT HAVE A POTENTIAL FOR LEAKAGE OR SPILL, HOWEVER, ENCASED COMPONENTS ARE NOT IDENTIFIED ON THE DRAWING AND SO, ARE INCLUDED IN THE EVALUATION BOUNDARY.
 - C. FLOOR DRAINS THEMSELVES, SIMILAR TO TANKS ON OTHER DRAWINGS, ARE NOT HIGHLIGHTED SINCE THEY ARE ENCASED IN CONCRETE.

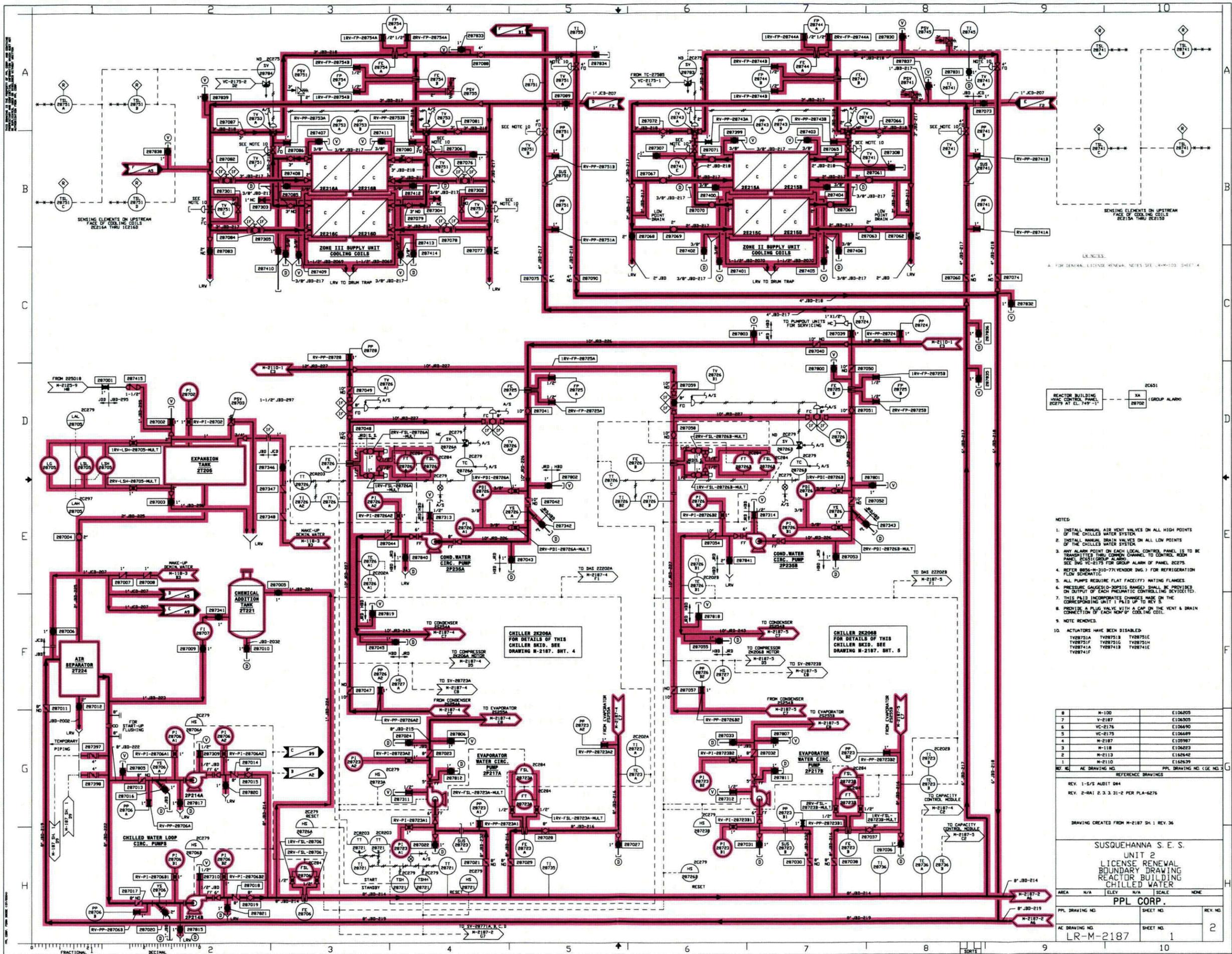
NOTES:
1. FOR NOTES AND REFERENCES SEE SHEET 1.

7		
6		
5		
4		
3		
2		
1		
REF. NO.	AE DRAWING NO.	PPL DRAWING NO. (GE NO.)
REFERENCE DRAWINGS		
REV. 1-RA1 2.3.3.19-4 PER PLA-6276		
DRAWING CREATED FROM M-2161 SH 2 REV. 18		
SUSQUEHANNA S. E. S. UNIT 2 LICENSE RENEWAL BOUNDARY DRAWING LIQUID RADWASTE COLLECTION		
AREA	N/A	ELEV. N/A SCALE NONE
PPL CORP.		
PPL DRAWING NO.	SHEET NO.	REV. NO.
AE DRAWING NO.	SHEET NO.	1
LR-M-2161	2	

Attachment 27 to PLA 6276

LR-M-2187-1

Reactor Building Chilled Water



- NOTES
1. INSTALL MANUAL AIR VENT VALVES ON ALL HIGH POINTS OF THE CHILLED WATER SYSTEM.
 2. INSTALL MANUAL DRAIN VALVES ON ALL LOW POINTS OF THE CHILLED WATER SYSTEM.
 3. ANY ALARM POINT ON EACH LOCAL CONTROL PANEL IS TO BE TRANSMITTED THRU COMMON CHANNEL TO CONTROL ROOM PANEL SC251 (GROUP ALARM). SEE DWG. VC-2173 FOR GROUP ALARM OF PANEL SC275.
 4. REFER BOM-M-210-77 VENDOR DWG. 3 FOR REFRIGERATION FLOW SCHEMATIC.
 5. ALL PUMPS REQUIRE FLAT FACE (FF) MATING FLANGES.
 6. PRESSURE GAUGES (0-30PSIG RANGE) SHALL BE PROVIDED ON OUTPUT OF EACH PNEUMATIC CONTROLLING DEVICES.
 7. THIS P&ID INCORPORATES CHANGES MADE ON THE CORRESPONDING UNIT 1 P&ID UP TO REV. 5.
 8. PROVIDE A PLUG VALVE WITH A CAP ON THE VENT & DRAIN CONNECTION OF EACH HOD OF COOLING COIL.
 9. NOTE REMOVED.
 10. ACTUATORS HAVE BEEN DISABLED:
 TV28731A TV28731B TV28731C
 TV28731D TV28731E TV28731F
 TV28741A TV28741B TV28741C
 TV28741D TV28741E TV28741F

NO.	REV.	DESCRIPTION	DATE
8	M-100	E106205	
7	V-2187	E106305	
6	VC-2173	E106400	
5	VC-2173	E106409	
4	M-2187	E109987	
3	M-118	E106223	
2	M-2113	E162542	
1	M-2110	E162639	

NO.	REV.	REFERENCE DRAWING	P&ID DRAWING NO.	DATE
1	1-S/S AUDIT 084			
2	RAI 2.3.3.21-2 PER PLA-6276			

DRAWING CREATED FROM M-2187 SH. 1 REV. 36

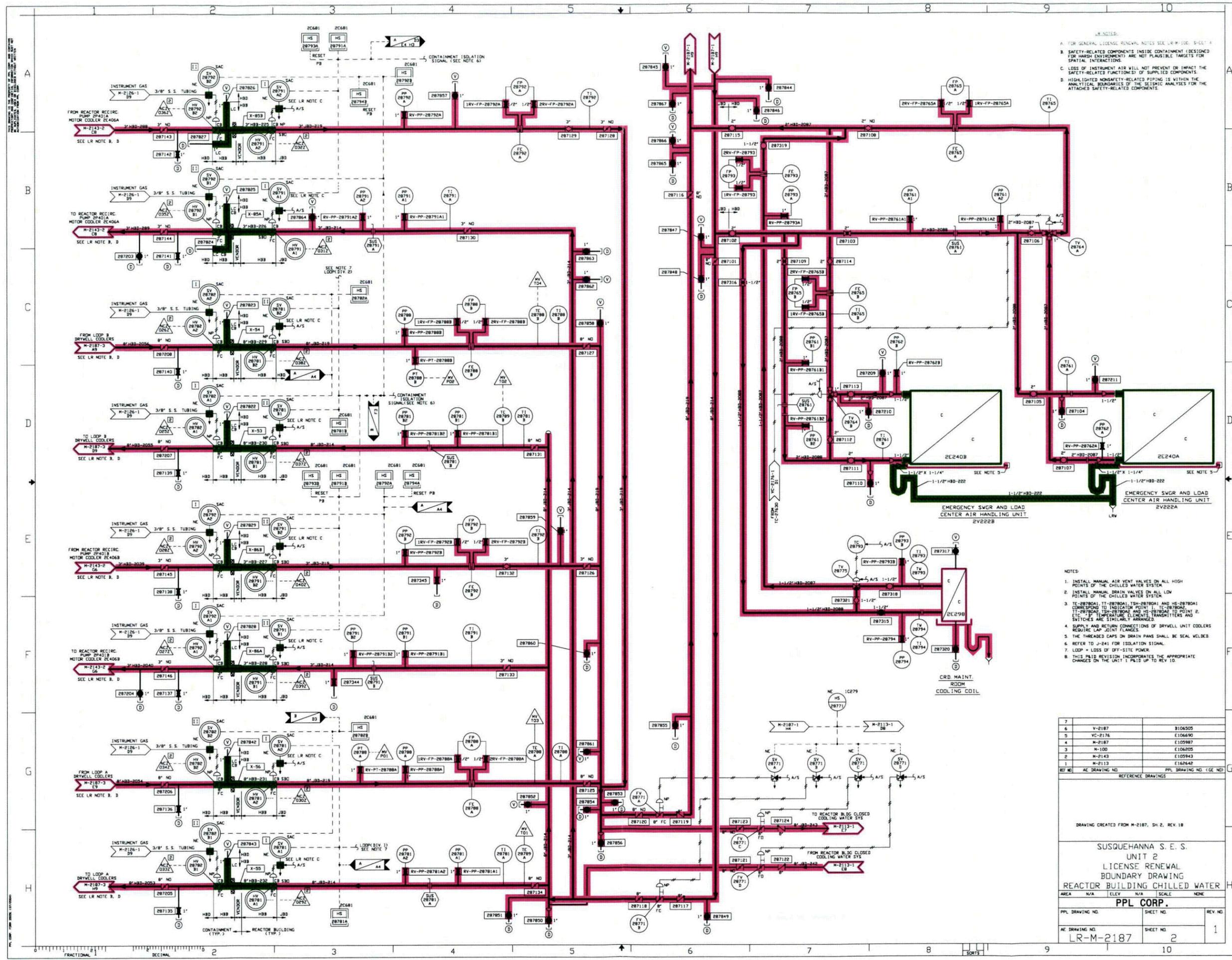
SUSQUEHANNA S. E. S.
 UNIT 2
 LICENSE RENEWAL
 BOUNDARY DRAWING
 REACTOR BUILDING
 CHILLED WATER

AREA	N/A	ELEV.	N/A	SCALE	NONE
PPL DRAWING NO.					
AE DRAWING NO.					
SHEET NO.					
REV. NO.					

Attachment 28 to PLA 6276

LR-M-2187-2

Reactor Building Chilled Water



- NOTES:
- FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
 - SAFETY-RELATED COMPONENTS INSIDE CONTAINMENT (DESIGNED FOR HARSH ENVIRONMENT) ARE NOT PLAUSIBLE TARGETS FOR SPATIAL INTERACTIONS.
 - LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIED COMPONENTS.
 - HIGHLIGHTED NONSAFETY-RELATED PIPING IS WITHIN THE ANALYTICAL BOUNDARIES OF THE SEISMIC ANALYSIS FOR THE ATTACHED SAFETY-RELATED COMPONENTS.

- NOTES:
- INSTALL MANUAL AIR VENT VALVES ON ALL HIGH POINTS OF THE CHILLED WATER SYSTEM.
 - INSTALL MANUAL DRAIN VALVES ON ALL LOW POINTS OF THE CHILLED WATER SYSTEM.
 - TC-28780A, TT-28780A, TSH-28780A AND HS-28780A CORRESPOND TO INDICATOR POINT, TC-28780A2, TT-28780A, TSH-28780A AND HS-28780A TO POINT 2, ETC. BY TEMPERATURE ELEMENTS TRANSMITTERS AND SWITCHES ARE SIMILARLY ARRANGED.
 - SUPPLY AND RETURN CONNECTIONS OF DRYWELL UNIT COOLERS REQUIRE LAP JOINT FLANGES.
 - THE THREADED CAPS ON DRAIN PANS SHALL BE SEAL WELDED. REFER TO J-241 FOR ISOLATION SIGNAL.
 - LOOP = LOSS OF DRY-SITE POWER.
 - THIS P&ID REVISION INCORPORATES THE APPROPRIATE CHANGES ON THE UNIT 1 P&ID UP TO REV 10.

REV NO	DESCRIPTION	DATE	BY
7	V-2187		B106505
6	VC-2176		E106490
5	M-2187		E105987
4	M-100		E106205
3	M-2143		E105943
2	M-2113		E162442
1			

REFERENCE DRAWINGS

DRAWING CREATED FROM M-2187, SH 2, REV 18

SUSQUEHANNA S. E. S.
 UNIT 2
 LICENSE RENEWAL
 BOUNDARY DRAWING
 REACTOR BUILDING CHILLED WATER

AREA	N/A	ELEV	N/A	SCALE	NONE
PPL DRAWING NO.					
SHEET NO.					
REV. NO.					

PPL CORP.

AE DRAWING NO.	SHEET NO.	REV. NO.
LR-M-2187	2	1

Attachment 29 to PLA 6276

**Compact Disc containing revised SSES License
Renewal Boundary Drawings (Att. 1-28)**
