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U. S. Nuclear Regulatory Commission  
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Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION  
REQUESTS FOR ADDITIONAL INFORMATION (RAI) FOR THE  
REVIEW OF THE SUSQUEHANNA STEAM ELECTRIC STATION,  
UNITS 1 AND 2 LICENSE RENEWAL APPLICATION (LRA)  
SECTIONS 2.2 AND 2.3  
PLA-6257**

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**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 License Numbers NPF-14 and NPF-22,"  
dated September 13, 2006.
  - 2) Letter from Ms. E. 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 July 25, 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 and 2.3.

The enclosure to this letter provides the additional information requested by NRC reviewers. These responses are numbered consistently with the RAI questions in Reference 2.

There are no new regulatory commitments contained herein as a result of the additional information provided in these responses.

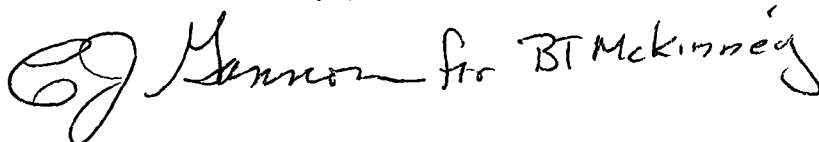
A120

NRR

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: 8/23/2007

A handwritten signature in cursive script, appearing to read "B. T. McKinney", written in dark ink.

B. T. McKinney

Enclosure: PPL Responses to NRC's Request for Additional Information (RAI)

Attachments: Attachment 1- Revised Boundary Drawing LR-M-157 Sheet 4

Attachment 2- Revised LRA Section 2.3.2.5

Attachment 3- Revised LRA Section 2.3.2.6

Attachment 4- Revised Boundary Drawing LR-M-157 Sheet 1

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

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**Enclosure to PLA-6257  
PPL Responses to NRC's  
Request for Additional Information (RAI)**

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**NRC RAI 2.2-1**

License Renewal Application (LRA) Table 2.2-1 lists the following HVAC systems as “Not in Scope” based on the License Renewal Scoping Results:

- Chlorination Building HVAC
- Circulating Water Pump Room HVAC
- Intake Works HVAC
- Service and Administration Building HVAC
- Service Water Pump Room HVAC
- Turbine Building HVAC
- Water Treatment Room HVAC

Provide justification for the exclusion of these systems and their applicable components and passive functions from the scope of license renewal. If these systems and their applicable components are in the scope of license renewal, in accordance with 10 CFR 54.4(a), and subject to an aging management review in accordance with 10 CFR 54.21(a)(1), update the LRA by providing the applicable information in the appropriate LRA Sections, tables, and drawings.

**PPL Response:**

The justifications for the seven HVAC systems being listed as “Not in Scope” are provided below. Based on the justifications, no changes to the LRA are required.

**Chlorination Building HVAC** – The Chlorination Building is part of the structure that is identified in the LRA as the Chlorination and Acid Storage Building. As stated in LRA Table 2.2-3, the Chlorination and Acid Storage Building is not within the scope of license renewal. There are no safety-related components located in the building. Therefore, the HVAC components located in the building are not in-scope based upon the criteria of 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). In addition, no components located in the building support any regulated events for a BWR. Therefore, the HVAC components are also not in-scope based on the criterion of 10 CFR 54.4(a)(3). The Chlorination Building HVAC System does not provide a supporting function applicable to equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**Circulating Water Pump Room HVAC** – The Circulating Water Pump Room is part of the structure identified in the LRA as the Circulating Water Pump House and Water Treatment Building. As stated in LRA Table 2.2-3, the Circulating Water Pump House and Water Treatment Building is within the scope of license renewal. LRA Section 2.4.4 states that the building is relied upon to demonstrate compliance with the regulation 10 CFR 50.48 for Fire Protection by providing physical support and protection to the fire water pumps. There are no safety-related components located in the Circulating Water Pump House and Water Treatment Building, which contains the Circulating Water Pump

Room. Therefore, the HVAC components located in the Circulating Water Pump Room are not in-scope based upon the criteria of 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). While there is fire protection equipment located in Circulating Water Pumphouse and Water Treatment Building that is in-scope, based on criterion of 10 CFR 54.4(a)(3), this equipment does not require support from the Circulating Water Pump Room HVAC. Therefore, the HVAC components located in Circulating Water Pump Room are not in-scope based upon the criterion of 10 CFR 54.4(a)(3). The Circulating Water Pump Room HVAC System does not provide a supporting function for any equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**Intake Works HVAC** – The Intake Works is part of the structure identified in the LRA as the River Intake Structure. As stated in LRA Table 2.2-3, the River Intake Structure is not within the scope of license renewal. There are no safety-related components located in the structure. Therefore, the HVAC components located in the structure are not in-scope based upon the criteria of 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). In addition, no components located in the structure support any regulated events for a BWR. Therefore, the HVAC components are also not in-scope based on the criterion of 10 CFR 54.4(a)(3). The Intake Works HVAC System does not provide a supporting function applicable to equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**Service and Administration Building HVAC** - As stated in LRA Table 2.2-3, the Service and Administration Building is not within the scope of license renewal. There are no safety-related components located in the Service and Administration Building. Therefore, the HVAC components located in the Service and Administration Building are not in-scope based upon the criteria of 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). In addition, no components located in the Service and Administration Building support any regulated events for a BWR. Therefore, the HVAC components are also not in-scope based on the criterion of 10 CFR 54.4(a)(3). The Service and Administration Building HVAC System does not provide a supporting function applicable to equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**Service Water Pump Room HVAC** – The Service Water Pump Room is part of the structure identified in the LRA as the Circulating Water Pumphouse and Water Treatment Building. As stated in LRA Table 2.2-3, the Circulating Water Pumphouse and Water Treatment Building is within the scope of license renewal. LRA Section 2.4.4 states that the building is relied upon to demonstrate compliance with the regulation 10 CFR 50.48 for Fire Protection by providing physical support and protection to the fire water pumps. There are no safety-related components located in the Circulating Water Pumphouse and Water Treatment Building, which contains the Service Water Pump Room. Therefore, the HVAC components located in the Service Water Pump Room are not in-scope based upon the criteria of 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). While there is fire protection equipment located in Circulating Water Pumphouse and Water Treatment Building that is in-scope based on criterion of 10 CFR 54.4(a)(3), this equipment does not

require support from the Service Water Pump Room HVAC. Therefore, the HVAC components located in the Service Water Pump Room are not in-scope based upon the criterion of 10 CFR 54.4(a)(3). The Service Water Pump Room HVAC System does not provide a supporting function applicable to equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**Turbine Building HVAC** - As stated in LRA Table 2.2-3, the Turbine Building is within the scope of license renewal. LRA Section 2.4.8 provides the reasons for the building being in-scope. There are no safety-related components located in the Turbine Building. Therefore, the HVAC components located in the Turbine Building are not in-scope based upon the criterion of 10 CFR 54.4(a)(1). While there is equipment in the Turbine Building that is in-scope based on the criteria of 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3), this equipment does not require support from the Turbine Building HVAC. Therefore, the HVAC components located in the Turbine Building are not in-scope based upon the criteria of 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3). The Turbine Building HVAC System does not provide a supporting function for the equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**Water Treatment Room HVAC** - The Water Treatment Room is part of the structure identified in the LRA as the Circulating Water Pumphouse and Water Treatment Building. As stated in LRA Table 2.2-3, the Circulating Water Pumphouse and Water Treatment Building is within the scope of license renewal. LRA Section 2.4.4 states that the building is relied upon to demonstrate compliance with the regulation 10 CFR 50.48 for Fire Protection by providing physical support and protection to the fire water pumps. There are no safety-related components located in the Circulating Water Pumphouse and Water Treatment Building, which contains the Water Treatment Room. Therefore, the HVAC components located in the Water Treatment Room are not in-scope based upon the criteria of 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). While there is fire protection equipment located in the Circulating Water Pumphouse and Water Treatment Building that is in-scope based on criterion of 10 CFR 54.4(a)(3), this equipment does not require support from the Water Treatment Room HVAC. Therefore, the HVAC components are also not in-scope based on the criterion of 10 CFR 54.4(a)(3). The Water Treatment Room HVAC System does not provide a supporting function applicable to equipment within the scope of license renewal, therefore it is not within the scope of license renewal.

**NRC RAI 2.3.2.5 - 1**

Drawing No. LR-M-157, Sheet 4, 1-inch valve 157011 at penetration X-234A and 1-inch valve 157023 at penetration X-232A which belong to suppression pool level monitoring system are shown as not in scope for license renewal.

Provide justification for the exclusion of these valves from the scope of license renewal. If these valves are in the scope of license renewal, in accordance with 10 CFR 54.4(a), and subject to an aging management review in accordance with 10 CFR 54.21(a)(1), update the LRA by providing the applicable information in the appropriate LRA Sections, tables, and drawings.

**PPL Response:**

Boundary drawing LR-M-157 sheet 4 contained an error related to highlighting. Valve 157011 at penetration X-234A and valve 157023 at penetration X-232A are both in-scope and subject to aging management review, but they were inadvertently not highlighted. Both valves have been highlighted in green on the revised boundary drawing LR-M-157 sheet 4, included as Attachment 1.

In the course of addressing this RAI, it was also noticed that the highlighting at penetration X-90D for 1-inch line HCB-112 was slightly different from the highlighting for the other pipelines at penetrations X-90A and X-90D. The short length of piping between valve 157077 and the penetration should have been highlighted. This piping is in-scope and subject to aging management review, but was inadvertently not highlighted. This piping has been highlighted in green on the revised boundary drawing LR-M-157 sheet 4, included as Attachment 1.

No changes to the LRA are required as valves 157011 and 157023 are addressed in Table 2.3.2-5 and the material/environment combinations for the valve bodies are addressed in Table 3.2.2-5. The additional piping component associated with 1-inch line HCB-112 belongs to the Containment Atmosphere Control System. No changes to the LRA are required as the piping is included in Table 2.3.2-6 and the material/environment combinations for the piping are addressed in Table 3.2.2-6.

**NRC RAI 2.3.2.5 - 2**

LRA Section 2.3.2.5, "Containment and Suppression System" under "License Renewal Drawings" lists drawings LR-M-151 sheet 1, and LR-M-155 sheet 1 for Susquehanna Steam Electric Station (SSES) Unit 1, and LR-M-2151 sheet 1, and LR-M-2155 sheet 1 for SSES Unit 2.

It is not clear as to which functions or items belonging to the containment and suppression system are covered in these drawings. Please provide information as to which functions or items shown in these drawings belong to the containment and suppression system. In case these drawings do not cover any items belonging to the containment and suppression system, delete these from LRA Section 2.3.2.5.

**PPL Response:**

The evaluation boundaries of the Containment and Suppression System that are shown on drawing LR-M-151 sheet 1 for Unit 1 (LR-M-2151 sheet 1 for Unit 2) are within the Non Safety Affecting Safety (NSAS) boundaries highlighted in magenta and extend from valve 151089 in zone B-1 for Unit 1 (valve 251088 in zone B-1 for Unit 2) through 4-inch pipeline HBD-173 (4-inch HBD-273 for Unit 2) and continuing on drawing LR-M-157 sheet 1 for Unit 1 (LR-M2157 sheet 1 for Unit 2). Components within these boundaries, subject to aging management review, are included as piping and piping components with a structural integrity function, as listed in Table 2.3.2-5 in LRA Section 2.3.2.5.

The evaluation boundaries of the Containment and Suppression System that are shown on drawing LR-M-155 sheet 1 for Unit 1 (LR-M-2155 sheet 1 for Unit 2) extend from penetrations X-219A and X-219B in zone G-3/H-3 to and including level switches LSH-E41-1N015A & B for Unit 1 (E41-2N015A & B for Unit 2) and continuing to drawing LR-M-157 sheet 8 for Unit 1 (LR-M-2157 sheet 8 for Unit 2). Components within these boundaries, subject to aging management review, include condensing pots, piping, tubing, and valve bodies, all of which are listed in Table 2.3.2-5 in LRA Section 2.3.2.5 with a pressure boundary function.

Based on the discussion above, no changes to the LRA are required.

**NRC RAI 2.3.2.6 - 1**

LRA Section 2.3.2.6 identifies the Combustible Gas Control System described in final safety analysis report (FSAR) Section 6.2.5 as Containment Atmosphere Control System for license renewal. The description and functions of Containment Atmospheric Control System as described in LRA Section 2.3.2.6 is not consistent with the description given in SSES Units 1 and 2, FSAR Section 6.2.5. According to FSAR Section 6.2.5.2, the combustible gas control depends on the following functions and subsystems:

- a. Hydrogen mixing
- b. Hydrogen and oxygen monitoring system
- c. Hydrogen recombiner system
- d. Containment hydrogen purge system
- e. Containment nitrogen inerting system



The LRA Section 2.3.2.6 does not mention the Containment Nitrogen Inerting System which maintains the primary containment inerted with nitrogen during power operation with oxygen concentration not to exceed 4% by volume. It is requested to either add the description of Containment Nitrogen Inerting System either in LRA Section 2.3.2.6 or add another Section to the LRA describing this system and its license renewal function.

**PPL Response:**

While FSAR Section 6.2.5 identifies containment nitrogen inerting as a function of the combustible gas control system, identified as Containment Atmosphere Control in the LRA, nitrogen inerting is not an engineered safety feature (ESF) function.

The Nitrogen and Hydrogen System is described in LRA Section 2.3.3.16. As stated in Section 2.3.3.16, a nonsafety-related portion of this system is identified as in-scope based on the scoping criteria of 10 CFR 54.4(a)(2). This is illustrated on license renewal drawings LR-M-157 sheet 1 for Unit 1 and LR-M-2157 sheet 1 for Unit 2 at zone C-8 by the piping and components shown in magenta.

The piping and components related to the function of containment nitrogen inerting and makeup that are highlighted in green on LR-M-157 sheet 1 and LR-M-2157 sheet 1 have a safety-related function to provide primary containment isolation and maintain containment integrity. These components are addressed in LRA Section 2.3.2.6 as in-scope based on the scoping criteria of 10 CFR 54.4(a)(1) because they support either the functional or structural integrity of the primary containment. Both LRA Sections 2.3.3.16 and 2.3.2.6 reference drawings LR-M-157 sheet 1 and LR-M-2157 sheet 1 which depict the in-scope portions of the Nitrogen and Hydrogen System and the Containment Atmosphere Control System.

Based on a teleconference between PPL and the NRC Staff on July 10, 2007, revisions discussed for LRA Sections 2.3.2.5 and 2.3.2.6 are provided in Attachments 2 and 3. The revisions to both attachments consist of added text which is shown in ***bold italics***.

**NRC RAI 2.3.2.6 - 2**

FSAR Table 6.2-12, "Containment Penetration Data" shows the 24-inch butterfly valve HV15722 as a containment isolation safety-related valve located at drywell penetration X-25. This valve located in zone C-5 of drawing No. LR-M-157 Sheet No. 1 is shown as not in scope of license renewal.

Provide justification for the exclusion of this valve from the scope of license renewal. If this valve is in the scope of license renewal, in accordance with 10 CFR 54.4(a), and subject to an aging management review in accordance with 10 CFR 54.21(a)(1), update the LRA by providing the applicable information in the appropriate LRA Sections, tables, and drawings.

**PPL Response:**

Boundary drawing LR-M-157 sheet 1 contained an error related to highlighting. Valve 157022 and the short length of piping between the valve and penetration X-25 are in-scope and subject to aging management review, but they were inadvertently not highlighted. The valve and the piping have been highlighted in green on the revised boundary drawing LR-M-157 sheet 1, included as Attachment 4.

No changes to the LRA are required as the valve and piping are included Table 2.3.2-6 and the material/environment combinations for the valve and piping are addressed in Table 3.2.2-6.

**NRC RAI 2.3.2.6 - 3**

LRA Section 2.3.2.6, "Containment Atmosphere Control System," under the heading "License Renewal Drawings," lists LR-M-157 sheets 6 and 7 for SSES Unit 1, and LR-M-2157 sheets 6 and 7 for SSES Unit 2. These drawings provide containment radiation monitoring details and it appears that they do not have any item described in LRA Section 2.3.2.6.

Provide justification for listing these drawings in LRA Section 2.3.2.6. If any of the system components in these drawings belong to the LRA Section 2.3.2.6, provide a list of these components and revise Table 2.3.2-6 as required. Please note that suppression pool level and temperature functions are covered in containment and suppression system in LRA Section 2.3.2.5 which lists these drawings under "License Renewal Drawings." Please note that containment radiation monitoring system is covered in LRA Section 2.3.3.18 which lists these under the heading "License Renewal Drawings."

**PPL Response:**

The Containment Radiation Monitoring (CRM) Panels (1C291A/B for Unit 1 and 2C291A/B for Unit 2) and all components within them (shown on drawings LR-M-157 sheets 6 and 7 for Unit 1 and LR-M-2157 sheets 6 and 7 for Unit 2) are within the evaluation boundaries of the Process and Area Radiation Monitoring System. In accordance with the guidance provided in NEI 95-10 Appendix B, radiation monitors are considered to be active components and, therefore, not subject to aging management review. This conclusion is presented, along with a description of the Process and Area Radiation Monitoring System and reference to the above mentioned drawings, in LRA Section 2.3.3.18.

Drawings LR-M-157 sheets 6 and 7 for Unit 1 (LR-M-2157 sheets 6 and 7 for Unit 2) are also included in LRA Section 2.3.2.6 because components that are within the evaluation boundaries of the Containment Atmosphere Control (CAC) System are depicted. The CAC System evaluation boundaries extend from penetrations X-5 and X-91A for Unit 1 (X-5 and X-31B for Unit 2) to the pipe-to-tubing interface at CRM Panels 1C291A/B for Unit 1 (2C291A/B for Unit 2), and include the piping and valve bodies. The piping and valve bodies are evaluated in LRA Section 2.3.2.6, and the tubing is evaluated with the Process and Area Radiation Monitoring System in LRA Section 2.3.3.18.

Based on the discussion above, no changes to the LRA are required.

**NRC RAI 2.3.2.6 - 4**

LRA Section 2.3.2.6, "Containment Atmosphere Control System," under the heading "License Renewal Drawings," lists LR-M-157 sheet 8 for SSES Unit 1, and LR-M-2157 sheet 8 for SSES Unit 2. These drawings provide details of suppression pool level and pressure monitoring and it appears they do not have any items described in Section 2.3.2.6.

Provide justification for listing the above drawings in LRA Section 2.3.2.6. If any of the system components in these drawings belong to the LRA Section 2.3.2.6, provide a list of these components and revise LRA Table 2.3.2-6 as required. Please note that suppression pool level and temperature functions are covered in containment and suppression system in LRA Section 2.3.2.5 which lists these drawings under the heading "License Renewal Drawings."

**PPL Response:**

All tubing and valve bodies associated with level transmitters LT-15775A and LT-25775A, as shown on drawings LR-M-157 sheet 8 and LR-M-2157 sheet 8, respectively, are within the evaluation boundaries of the Containment and Suppression System and are

listed in Table 2.3.2-5 in LRA Section 2.3.2.5. All other components that are shown on drawings LR-M-157 sheet 8 and LR-M-2157 sheet 8 are within the evaluation boundaries of the Containment Atmosphere Control (CAC) System and are listed in Table 2.3.2-6 in LRA Section 2.3.2.6 (tubing and valve bodies).

Based on the discussion above, no changes to the LRA are required.

#### **NRC RAI 2.3.2.6 - 5**

Drawing LR-M-157, sheet 1, zone F-3, at primary containment penetration X-221A shows the piping component at the upstream side of valve 157201 as not in scope for license renewal.

Provide justification for the exclusion of this piping component from the scope of license renewal. If this component is in the scope of license renewal, in accordance with 10 CFR 54.4(a), and subject to an aging management review in accordance with 10 CFR 54.21(a)(1), update the LRA by providing the applicable information in the appropriate LRA Sections, tables, and drawings.

#### **PPL Response:**

Boundary drawing LR-M-157 sheet 1 contained an error related to highlighting. Valve 157201 at penetration X-221A has a 2-inch by 1-inch reducer that is in-scope and subject to aging management review, but it was inadvertently not highlighted. The reducer has been highlighted in green on the revised boundary drawing LR-M-157 sheet 1, included as Attachment 4.

No changes to the LRA are required as the reducer is included in Table 2.3.2-6 and the material/environment combinations for the reducer are addressed in Table 3.2.2-6.

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**Attachment 1 to PLA-6257**

**Revised Boundary Drawing LR-M-157 Sheet 4**

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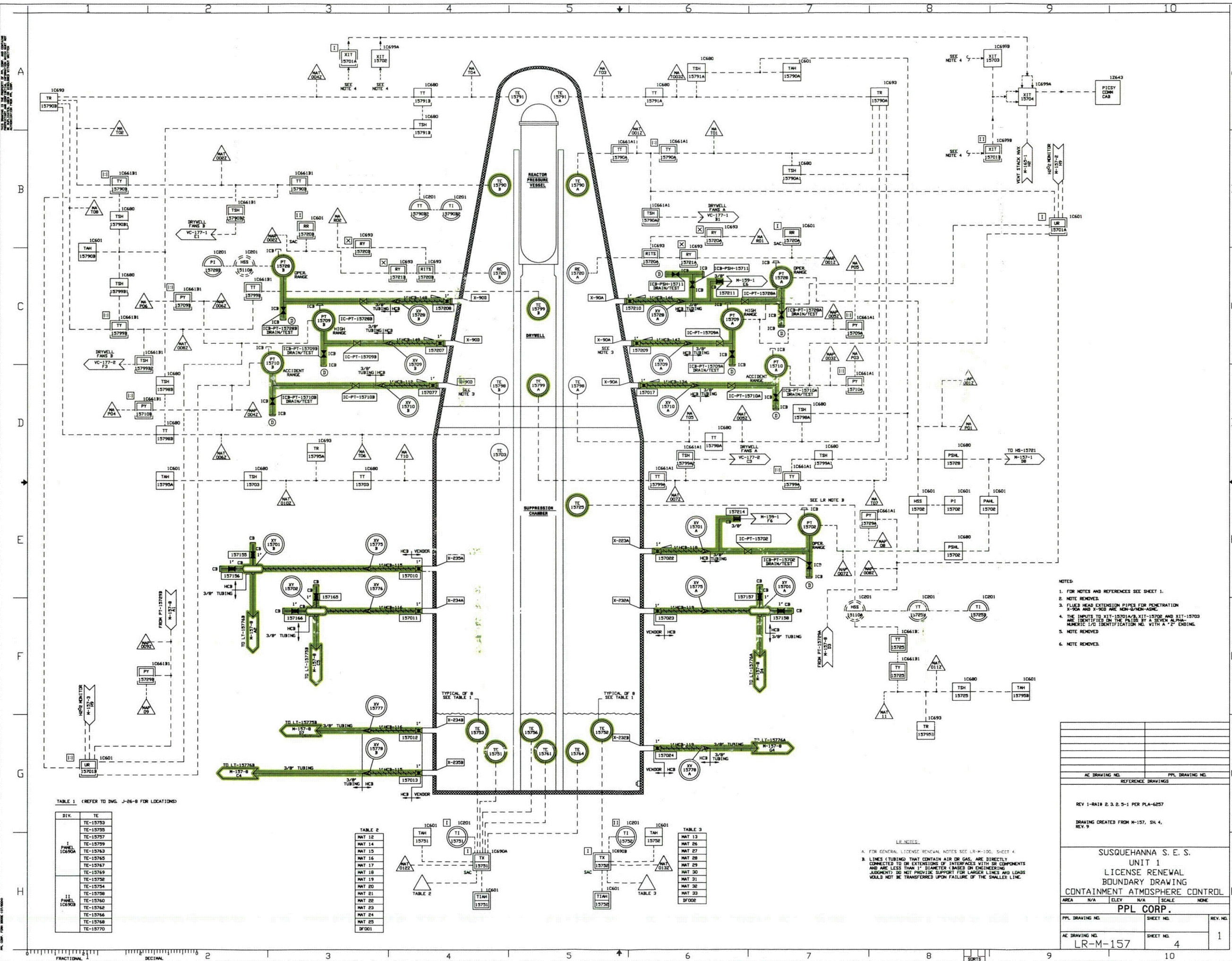


TABLE 1 (REFER TO DWG. J-26-B FOR LOCATIONS)

DIV.	TE
TE-15753	TE-15753
TE-15755	TE-15755
TE-15757	TE-15757
TE-15759	TE-15759
TE-15763	TE-15763
TE-15765	TE-15765
TE-15767	TE-15767
TE-15769	TE-15769
TE-15773	TE-15773
TE-15775	TE-15775
TE-15777	TE-15777

TABLE 2

MAT 12
MAT 14
MAT 15
MAT 16
MAT 17
MAT 18
MAT 19
MAT 20
MAT 21
MAT 22
MAT 23
MAT 24
MAT 25
DF001

TABLE 3

MAT 13
MAT 26
MAT 27
MAT 28
MAT 29
MAT 30
MAT 31
MAT 32
MAT 33
DF002

- NOTES:
1. FOR NOTES AND REFERENCES SEE SHEET 1.
  2. NOTE REMOVED.
  3. FILLED HEAD EXTENSION PIPES FOR PENETRATION X-90A AND X-90B ARE NON-SWAP-ABLE.
  4. THE INPUTS TO TIT-15701A/B, TIT-15702 AND TIT-15703 ARE IDENTIFIED ON THE PIPES BY A SEVEN ALPHABETIC 1/2 IDENTIFICATION NO. WITH A "2" ENDING.
  5. NOTE REMOVED.
  6. NOTE REMOVED.

LR-NOTES

A. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-H-100, SHEET 4.

B. LINES (TUBING) THAT CONTAIN AIR OR GAS, ARE DIRECTLY CONNECTED TO OR EXTENSIONS OF INTERFACES WITH SR COMPONENTS AND ARE LESS THAN 1" DIAMETER BASED ON ENGINEERING JUDGMENT) DO NOT PROVIDE SUPPORT FOR LARGER LINES AND LOADS WOULD NOT BE TRANSFERRED UPON FAILURE OF THE SMALLER LINE.

SUSQUEHANNA S. E. S.	
UNIT 1	
LICENSE RENEWAL	
BOUNDARY DRAWING	
CONTAINMENT ATMOSPHERE CONTROL	
AREA	N/A
ELEV	N/A
SCALE	NONE
PPL CORP.	
PPL DRAWING NO.	SHEET NO.
LR-M-157	4
REV. NO.	1

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**Attachment 2 to PLA-6257**

**Revised LRA Section 2.3.2.5**

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(Added text shown in ***bold italics***)

### 2.3.2.5 Containment and Suppression System

#### System Description

The Containment and Suppression System maintains the structural and functional integrity of the primary containment during and following a design basis loss of coolant accident (LOCA). The design features of the system prevent over-pressurization of the containment structure to ensure the integrity of the protective barrier between the Reactor Coolant System and the secondary containment. Through the five wetwell vacuum breakers, the system limits the differential pressure and allows for the distribution of noncondensable gases between the drywell and the suppression chamber following the reactor vessel depressurization phase of a LOCA. The system also provides for suppression pool level, pressure, and temperature monitoring, and provides for suppression pool cleanup.

The major components of the Containment and Suppression System are the downcomers.

***Containment isolation valves and related piping and components for safety-related 10 CFR 54.4(a)(1) systems are included in the scope of their system. The suppression pool cleanup and drain line from the containment penetration to the outermost containment isolation valve is scoped as part of the Containment and Suppression System in accordance with the criteria of 10 CFR 54.4(a)(1).***

#### Reason for Scope Determination

The Containment and Suppression System contains and suppresses the steam and steam pressure resulting from a LOCA; provides direct containment isolation (e.g., suppression pool cleanup line valves) and containment isolation signals to containment isolation valves in other systems; provides a means of equalizing pressure across the drywell floor through the use of downcomers and wetwell vacuum breakers; provides a protective barrier to limit radiological releases; and provides for suppression pool level and temperature monitoring. These safety functions meet the scoping criteria of 10 CFR 54.4(a)(1).

The Containment and Suppression System is required to maintain the integrity of nonsafety-related components that have the potential to adversely affect safety-related equipment through spatial interaction and nonsafety-related piping components required to support the safety-related functional boundary of the system. This function meets the scoping criteria of 10 CFR 54.4(a)(2).



The Containment and Suppression System is relied upon to demonstrate compliance with, and meets the 10 CFR 54.4(a)(3) scoping criteria for, the Fire Protection (10 CFR 50.48), Environmental Qualification (10 CFR 50.49), Anticipated Transients Without Scram (10 CFR 50.62), and Station Blackout (10 CFR 50.63) regulated events.

#### FSAR References

Section 6.2.1 of the SSES FSAR describes the pressure suppression containment system, identified for license renewal as the Containment and Suppression System.

***Section 6.2.4 of the SSES FSAR describes the suppression pool cleanup and drain line, which is included in the Containment and Suppression System.***

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**Attachment 3 to PLA-6257**

**Revised LRA Section 2.3.2.6**

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(Added text shown in ***bold italics***)

### 2.3.2.6 Containment Atmosphere Control System

#### System Description

The Containment Atmosphere Control System is designed to control the concentration of hydrogen within the primary containment following a loss-of-coolant accident (LOCA). To accomplish this function, the system monitors the concentrations of hydrogen and oxygen within the containment, maintains the hydrogen concentration below combustible limits using hydrogen recombiner systems (primary) and hydrogen purging systems (back-up), and provides containment mixing to prevent local hydrogen concentration buildup. ***The system also provides for containment nitrogen inerting and makeup during power operation.***

***The Containment Atmosphere Control System lines which penetrate the containment structure provide for containment isolation to maintain the functional integrity of the primary containment during and following a design basis loss of coolant accident (LOCA).***

The major components of the Containment Atmosphere Control System are the hydrogen recombiners and the hydrogen and oxygen analyzers which include diaphragm pumps, heat exchangers, and moisture separators.

***Containment isolation valves and related piping and components for safety-related 10 CFR 54.4(a)(1) systems are included in the scope of their system. The containment nitrogen inerting and makeup lines from the containment penetrations to the outermost containment isolation valves are scoped as part of the Containment Atmosphere Control System in accordance with the criteria of 10 CFR 54.4(a)(1).***

#### Reason for Scope Determination

The Containment Atmosphere Control System provides hydrogen and oxygen analyzers to monitor the containment atmosphere, heats a continuous stream of containment atmosphere following a LOCA for the spontaneous recombination of hydrogen and oxygen, ***provides direct containment isolation (all Containment Atmosphere Control System lines which penetrate containment, including the containment nitrogen inerting and makeup lines, containment purge lines, and atmosphere monitoring and sampling lines)***, and monitors drywell and suppression chamber pressure and temperature. These safety functions meet the scoping criteria of 10 CFR 54.4(a)(1).

The Containment Atmosphere Control System is required to maintain the integrity of nonsafety-related components that have the potential to adversely affect safety-related equipment through spatial interaction and nonsafety piping/ducting components required to support the safety-related functional boundary of the system. This function meets the scoping criteria of 10 CFR 54.4(a)(2).

The Containment Atmosphere Control System is relied upon to demonstrate compliance with, and meets the 10 CFR 54.4(a)(3) scoping criteria for, the Fire Protection (10 CFR 50.48), Environmental Qualification (10 CFR 50.49), and Station Blackout (10 CFR 50.63) regulated events.

#### FSAR References

Section 6.2.5 of the SSES FSAR describes the combustible gas control system, identified for license renewal as the Containment Atmosphere Control System.

*Section 6.2.4 of the SSES FSAR describes the containment purge lines and the post-LOCA atmosphere sampling lines, which are included in the Containment Atmosphere Control System.*

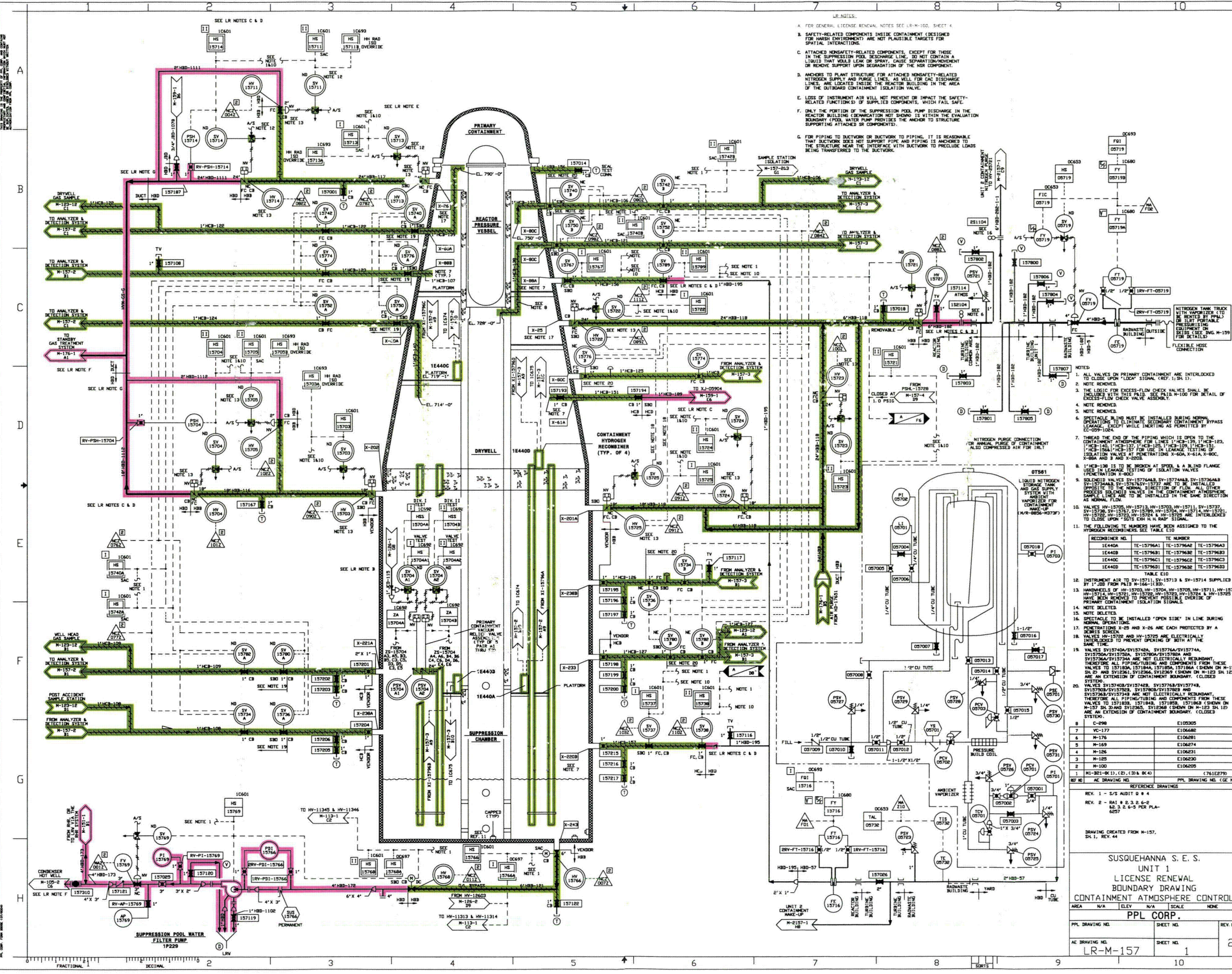
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**Attachment 4 to PLA-6257**

**Revised Boundary Drawing LR-M-157 Sheet 1**

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1. FOR GENERAL LICENSE RENEWAL NOTES SEE LR-M-100, SHEET 4
2. SAFETY-RELATED COMPONENTS INSIDE CONTAINMENT (DESIGNED FOR HARSH ENVIRONMENT) ARE NOT PLAUSIBLE TARGETS FOR SPATIAL INTERACTIONS.
3. ATTACHED NONSAFETY-RELATED COMPONENTS, EXCEPT FOR THOSE IN THE SUPPRESSION POOL DISCHARGE LINE, DO NOT CONTAIN A LIQUID THAT WOULD LEAK OR SPILL, CAUSE SEPARATION MOVEMENT OR REDUCE SUPPORT UPON DEGRADATION OF THE NSR COMPONENT.
4. ANCHORS TO PLANT STRUCTURE FOR ATTACHED NONSAFETY-RELATED NITROGEN SUPPLY AND PURGE LINES, AS WELL AS FOR CAC DISCHARGE LINES, ARE LOCATED INSIDE THE REACTOR BUILDING IN THE AREA OF THE OUTBOARD CONTAINMENT ISOLATION VALVE.
5. LOSS OF INSTRUMENT AIR WILL NOT PREVENT OR IMPACT THE SAFETY-RELATED FUNCTION(S) OF SUPPLIED COMPONENTS, WHICH FAIL SAFE.
6. ONLY THE PORTION OF THE SUPPRESSION POOL PUMP DISCHARGE IN THE REACTOR BUILDING (DEMARCATION NOT SHOWN) IS WITHIN THE EVALUATION BOUNDARY (POOL WATER PUMP PROVIDES THE ANCHOR TO STRUCTURE SUPPORTING ATTACHED OR COMPONENTS).
7. FOR PIPING TO DUCTWORK OR DUCTWORK TO PIPING, IT IS REASONABLE THAT DUCTWORK DOES NOT SUPPORT PIPE AND PIPING IS ANCHORED TO THE STRUCTURE NEAR THE INTERFACE WITH DUCTWORK TO PRECLUDE LOADS BEING TRANSFERRED TO THE DUCTWORK.

NOTES:

- ALL VALVES ON PRIMARY CONTAINMENT ARE INTERLOCKED TO CLOSE UPON "LOCAL" SIGNAL (REF. 1.54.1).
- NOTE REMOVED.
- THE LOGIC FOR EXCESS-FLOW CHECK VALVES SHALL BE INCLUDED WITH THIS PAID. SEE PAID M-100 FOR DETAIL OF EXCESS-FLOW CHECK VALVE ASSEMBLY.
- NOTE REMOVED.
- NOTE REMOVED.
- SPECTACLE BLIND MUST BE INSTALLED DURING NORMAL OPERATIONS TO ELIMINATE SECONDARY CONTAINMENT BYPASS LEAKAGE, EXCEPT WHILE INERTING AS PERMITTED BY E2-009-1024.
- THE END OF THE PIPING WHICH IS OPEN TO THE CONTAINMENT ATMOSPHERE FOR LINES 15713, 15714, 15715, 15716, 15717, 15718, 15719, 15720, 15721, 15722, 15723, 15724, 15725, 15726, 15727, 15728, 15729, 15730, 15731, 15732, 15733, 15734, 15735, 15736, 15737, 15738, 15739, 15740, 15741, 15742, 15743, 15744, 15745, 15746, 15747, 15748, 15749, 15750, 15751, 15752, 15753, 15754, 15755, 15756, 15757, 15758, 15759, 15760, 15761, 15762, 15763, 15764, 15765, 15766, 15767, 15768, 15769, 15770, 15771, 15772, 15773, 15774, 15775, 15776, 15777, 15778, 15779, 15780, 15781, 15782, 15783, 15784, 15785, 15786, 15787, 15788, 15789, 15790, 15791, 15792, 15793, 15794, 15795, 15796, 15797, 15798, 15799, 15800, 15801, 15802, 15803, 15804, 15805, 15806, 15807, 15808, 15809, 15810, 15811, 15812, 15813, 15814, 15815, 15816, 15817, 15818, 15819, 15820, 15821, 15822, 15823, 15824, 15825, 15826, 15827, 15828, 15829, 15830, 15831, 15832, 15833, 15834, 15835, 15836, 15837, 15838, 15839, 15840, 15841, 15842, 15843, 15844, 15845, 15846, 15847, 15848, 15849, 15850, 15851, 15852, 15853, 15854, 15855, 15856, 15857, 15858, 15859, 15860, 15861, 15862, 15863, 15864, 15865, 15866, 15867, 15868, 15869, 15870, 15871, 15872, 15873, 15874, 15875, 15876, 15877, 15878, 15879, 15880, 15881, 15882, 15883, 15884, 15885, 15886, 15887, 15888, 15889, 15890, 15891, 15892, 15893, 15894, 15895, 15896, 15897, 15898, 15899, 15900.
- VALVES 15713, 15714, 15715, 15716, 15717, 15718, 15719, 15720, 15721, 15722, 15723, 15724, 15725, 15726, 15727, 15728, 15729, 15730, 15731, 15732, 15733, 15734, 15735, 15736, 15737, 15738, 15739, 15740, 15741, 15742, 15743, 15744, 15745, 15746, 15747, 15748, 15749, 15750, 15751, 15752, 15753, 15754, 15755, 15756, 15757, 15758, 15759, 15760, 15761, 15762, 15763, 15764, 15765, 15766, 15767, 15768, 15769, 15770, 15771, 15772, 15773, 15774, 15775, 15776, 15777, 15778, 15779, 15780, 15781, 15782, 15783, 15784, 15785, 15786, 15787, 15788, 15789, 15790, 15791, 15792, 15793, 15794, 15795, 15796, 15797, 15798, 15799, 15800, 15801, 15802, 15803, 15804, 15805, 15806, 15807, 15808, 15809, 15810, 15811, 15812, 15813, 15814, 15815, 15816, 15817, 15818, 15819, 15820, 15821, 15822, 15823, 15824, 15825, 15826, 15827, 15828, 15829, 15830, 15831, 15832, 15833, 15834, 15835, 15836, 15837, 15838, 15839, 15840, 15841, 15842, 15843, 15844, 15845, 15846, 15847, 15848, 15849, 15850, 15851, 15852, 15853, 15854, 15855, 15856, 15857, 15858, 15859, 15860, 15861, 15862, 15863, 15864, 15865, 15866, 15867, 15868, 15869, 15870, 15871, 15872, 15873, 15874, 15875, 15876, 15877, 15878, 15879, 15880, 15881, 15882, 15883, 15884, 15885, 15886, 15887, 15888, 15889, 15890, 15891, 15892, 15893, 15894, 15895, 15896, 15897, 15898, 15899, 15900.
- THE FOLLOWING TE NUMBERS HAVE BEEN ASSIGNED TO THE HYDROGEN RECOMBINER: SEE TABLE E10

RECOMBINER NO.	TE NUMBER
15713	TE-15796A1
15714	TE-15796A2
15715	TE-15796A3
15716	TE-15796A4
15717	TE-15796A5
15718	TE-15796A6
15719	TE-15796A7
15720	TE-15796A8
15721	TE-15796A9
15722	TE-15796A10
15723	TE-15796A11
15724	TE-15796A12
15725	TE-15796A13
15726	TE-15796A14
15727	TE-15796A15
15728	TE-15796A16
15729	TE-15796A17
15730	TE-15796A18
15731	TE-15796A19
15732	TE-15796A20
15733	TE-15796A21
15734	TE-15796A22
15735	TE-15796A23
15736	TE-15796A24
15737	TE-15796A25
15738	TE-15796A26
15739	TE-15796A27
15740	TE-15796A28
15741	TE-15796A29
15742	TE-15796A30
15743	TE-15796A31
15744	TE-15796A32
15745	TE-15796A33
15746	TE-15796A34
15747	TE-15796A35
15748	TE-15796A36
15749	TE-15796A37
15750	TE-15796A38
15751	TE-15796A39
15752	TE-15796A40
15753	TE-15796A41
15754	TE-15796A42
15755	TE-15796A43
15756	TE-15796A44
15757	TE-15796A45
15758	TE-15796A46
15759	TE-15796A47
15760	TE-15796A48
15761	TE-15796A49
15762	TE-15796A50
15763	TE-15796A51
15764	TE-15796A52
15765	TE-15796A53
15766	TE-15796A54
15767	TE-15796A55
15768	TE-15796A56
15769	TE-15796A57
15770	TE-15796A58
15771	TE-15796A59
15772	TE-15796A60
15773	TE-15796A61
15774	TE-15796A62
15775	TE-15796A63
15776	TE-15796A64
15777	TE-15796A65
15778	TE-15796A66
15779	TE-15796A67
15780	TE-15796A68
15781	TE-15796A69
15782	TE-15796A70
15783	TE-15796A71
15784	TE-15796A72
15785	TE-15796A73
15786	TE-15796A74
15787	TE-15796A75
15788	TE-15796A76
15789	TE-15796A77
15790	TE-15796A78
15791	TE-15796A79
15792	TE-15796A80
15793	TE-15796A81
15794	TE-15796A82
15795	TE-15796A83
15796	TE-15796A84
15797	TE-15796A85
15798	TE-15796A86
15799	TE-15796A87
15800	TE-15796A88
15801	TE-15796A89
15802	TE-15796A90
15803	TE-15796A91
15804	TE-15796A92
15805	TE-15796A93
15806	TE-15796A94
15807	TE-15796A95
15808	TE-15796A96
15809	TE-15796A97
15810	TE-15796A98
15811	TE-15796A99
15812	TE-15796A100

TABLE E10

INSTRUMENT NO.	TE NUMBER
15713	TE-15796A1
15714	TE-15796A2
15715	TE-15796A3
15716	TE-15796A4
15717	TE-15796A5
15718	TE-15796A6
15719	TE-15796A7
15720	TE-15796A8
15721	TE-15796A9
15722	TE-15796A10
15723	TE-15796A11
15724	TE-15796A12
15725	TE-15796A13
15726	TE-15796A14
15727	TE-15796A15
15728	TE-15796A16
15729	TE-15796A17
15730	TE-15796A18
15731	TE-15796A19
15732	TE-15796A20
15733	TE-15796A21
15734	TE-15796A22
15735	TE-15796A23
15736	TE-15796A24
15737	TE-15796A25
15738	TE-15796A26
15739	TE-15796A27
15740	TE-15796A28
15741	TE-15796A29
15742	TE-15796A30
15743	TE-15796A31
15744	TE-15796A32
15745	TE-15796A33
15746	TE-15796A34
15747	TE-15796A35
15748	TE-15796A36
15749	TE-15796A37
15750	TE-15796A38
15751	TE-15796A39
15752	TE-15796A40
15753	TE-15796A41
15754	TE-15796A42
15755	TE-15796A43
15756	TE-15796A44
15757	TE-15796A45
15758	TE-15796A46
15759	TE-15796A47
15760	TE-15796A48
15761	TE-15796A49
15762	TE-15796A50
15763	TE-15796A51
15764	TE-15796A52
15765	TE-15796A53
15766	TE-15796A54
15767	TE-15796A55
15768	TE-15796A56
15769	TE-15796A57
15770	TE-15796A58
15771	TE-15796A59
15772	TE-15796A60
15773	TE-15796A61
15774	TE-15796A62
15775	TE-15796A63
15776	TE-15796A64
15777	TE-15796A65
15778	TE-15796A66
15779	TE-15796A67
15780	TE-15796A68
15781	TE-15796A69
15782	TE-15796A70
15783	TE-15796A71
15784	TE-15796A72
15785	TE-15796A73
15786	TE-15796A74
15787	TE-15796A75
15788	TE-15796A76
15789	TE-15796A77
15790	TE-15796A78
15791	TE-15796A79
15792	TE-15796A80
15793	TE-15796A81
15794	TE-15796A82
15795	TE-15796A83
15796	TE-15796A84
15797	TE-15796A85
15798	TE-15796A86
15799	TE-15796A87
15800	TE-15796A88
15801	TE-15796A89
15802	TE-15796A90
15803	TE-15796A91
15804	TE-15796A92
15805	TE-15796A93
15806	TE-15796A94
15807	TE-15796A95
15808	TE-15796A96
15809	TE-15796A97
15810	TE-15796A98
15811	TE-15796A99
15812	TE-15796A100

REV. 1 - 5/5 AUGUST 84

REV. 2 - REV. 1 & 3 & 4

REV. 3 - REV. 2 & 4 & 5 PER PL-6257

DRAWING CREATED FROM M-157, SH. 1, REV. 44

SUSQUEHANNA S. E. S.

UNIT 1

LICENSE RENEWAL

BOUNDARY DRAWING

CONTAINMENT ATMOSPHERE CONTROL

PPL CORP.

AREA N/A ELEV N/A SCALE NONE

PPL DRAWING NO. SHEET NO. REV. NO.

AC DRAWING NO. SHEET NO.

LR-M-157 1