

August 27, 2007

Mr. Britt T. McKinney
Sr. Vice President and Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB3
Berwick, PA 18603-0467

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2, LICENSE
RENEWAL APPLICATION

Dear Mr. McKinney:

By letter dated September 13, 2006, PPL Susquehanna, LLC submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating licenses for Susquehanna Steam Electric Station, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Duane Filchner, and a mutually agreeable date for the response is within 45 days from the date of this letter. If you have any questions, please contact me at 301-415-4029 or via e-mail ehg2@nrc.gov.

Sincerely,

/RA/

Evelyn Gettys, Project Manager
License Renewal Branch A
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosure:
Requests for Additional Information

cc w/encl: See next page

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SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION (RAI)

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).

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).

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).

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).

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).

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.

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.

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.

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)

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)

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.

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.

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.

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.

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.

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.

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.

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

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.

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.

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).

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).

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).

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).

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).

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.

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.

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).

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.

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.

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). 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).

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).

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.

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.

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.

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.

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.

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

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-FP-21343B and upstream pipe to three-inch header.
- Location A2, 2RV-FP-11343A, 1RV-FP-11343A, 2RV-FP-21343A, and 1RV-FP-21343A
- 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

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).

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).

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).

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).

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).

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.

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.

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).

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).

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).

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.

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.

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.

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).

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).

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).

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).

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).

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).

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).

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).

RAI 2.3.4.6-2

License renewal drawings LR-M-141-1, and LR-M-2141-1, locations A-7, upstream of 141-F029A 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).

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.

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).

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).

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 licence 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).

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 licence 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).

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.

Letter to B. McKinney, from E. Gettys, dated August 27, 2007

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2, LICENSE
RENEWAL APPLICATION

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Susquehanna Steam Electric Station,
Units 1 and 2

-2-

cc:

Robert A. Saccone
Vice President - Nuclear Operations
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB3
Berwick, PA 18603-0467

Bryan A. Snapp, Esq.
Associate General Counsel
PPL Services Corporation
Two North Ninth Street, GENTW3
Allentown, PA 18101-1179

Terry L. Harpster
General Manager - Plant Support
PPL Susquehanna, LLC
769 Salem Blvd., NUCSA4
Berwick, PA 18603-0467

Supervisor - Document Control Services
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Rocco R. Sgarro
Manager - Nuclear Regulatory Affairs
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Richard W. Osborne
Allegheny Electric Cooperative, Inc.
212 Locust Street
P.O. Box 1266
Harrisburg, PA 17108-1266

Walter E. Morrissey
Supervising Engineer
Nuclear Regulatory Affairs
PPL Susquehanna, LLC
769 Salem Blvd., NUCSA4
Berwick, PA 18603-0467

Director, Bureau of Radiation Protection
Pennsylvania Department of
Environmental Protection
Rachel Carson State Office Building
P.O. Box 8469
Harrisburg, PA 17105-8469

Michael H. Crowthers
Supervising Engineer
Nuclear Regulatory Affairs
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 35, NUCSA4
Berwick, PA 18603-0035

Steven M. Cook
Manager - Quality Assurance
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB2
Berwick, PA 18603-0467

Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Luis A. Ramos
Community Relations Manager,
Susquehanna
PPL Susquehanna, LLC
634 Salem Blvd., SSO
Berwick, PA 18603-0467

Board of Supervisors
Salem Township
P.O. Box 405
Berwick, PA 18603-0035

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
443 Orlando Avenue
State College, PA 16803

Susquehanna Steam Electric Station,
Units 1 and 2

-2-

cc:

Ms. Julie Keys
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, DC 20006-3708