BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PP&L, INC. :

Docket No. 50-387

PROPOSED AMENDMENT NO. 219
FACILITY OPERATING LICENSE NO. NPF-14
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 1

Licensee, PP&L, Inc., hereby files proposed Amendment No. 219 to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

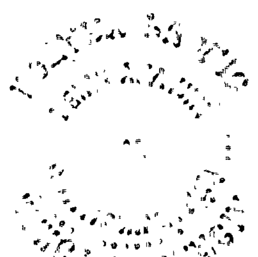
PP&L, INC.
BY:

G. T. Jones
Vice President - Nuclear Operations

Sworn to and subscribed before me
this 5th day of February, 1998.

Notary Public

Notarial Seal
Nancy L. Garcia, Notary Public
Salem Twp., Luzerne County
My Commission Expires May 31, 1999
Member, Pennsylvania Association of Notaries



BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PP&L, INC. :

Docket No. 50-388

PROPOSED AMENDMENT NO. 181
FACILITY OPERATING LICENSE NO. NPF-22
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 2

Licensee, PP&L, Inc., hereby files proposed Amendment No. 181 to its Facility Operating License No. NPF-22 dated March 23, 1984.

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PP&L, INC.
BY:

G. T. Jones
Vice President - Nuclear Operations

Sworn to and subscribed before me this 5th day of February, 1998.

Notarial Seal
Nancy L. Garcia, Notary Public
Salem Twp., Luzerne County
My Commission Expires May 31, 1999
Member, Pennsylvania Association of Notaries

Notary Public

ATTACHMENT 1 TO PLA-4846

SAFETY ASSESSMENT

SAFETY ASSESSMENT

INSTRUMENT LINE LEAKAGE TESTING

BACKGROUND

Technical Specification Surveillance Requirement 4.6.1.2 requires that primary containment leakage be demonstrated in accordance with Specification 6.8.5, "Primary Containment Leakage Rate Testing Program," for Type A tests. Specification 6.8.5 states that the applicable leakage rate acceptance criterion, L_a, must be established at P_a, the peak calculated containment internal pressure for the DBA LOCA, which is 45.0 psig.

PP&L identified a number of instrument line penetrations on each unit that have been designated as "extensions of containment," but a portion of each instrument line including the instrument was isolated from P_a during the Type A test. Based on this conclusion, PP&L on February 3, 1998, at 0005 hours, Specification 4.0.3 was entered on SSES Units 1 and 2 due to the identification of a missed surveillance requirement.

DESCRIPTION OF PROPOSED CHANGE

The proposed Unit 1 and Unit 2 Technical Specification changes reflect the NRC's authorization of enforcement discretion on February 3, 1998 at 1730 hours. The proposed change annotates the requirement for Type A testing to indicate the penetrations to which it will not apply for the duration of the proposed enforcement discretion. Draft marked-up pages of this Technical Specification change were included in the follow-up written request for enforcement discretion (Reference No. 1). Attachment 3 provides final versions of these marked-up pages.

Note that the final versions of the marked-up pages provided in Attachment 3 utilizes a double asterisk notation. This correction from the marked-up pages provided in Reference 1 was necessary to distinguish the note from an existing note in Section 3/4.6.1.2 which uses a single asterisk.

Specifically, the proposed changes are as follows:

2.1 Current Technical Specifications

Unit 1 and Unit 2 TS Surveillance Requirement 4.6.1.2 states, in part:

> The primary containment leakage rates shall be demonstrated in accordance with Specification 6.8.5, Primary Containment Leakage Rate Testing Program, for the following:
>
> a. Type A Test...

2.1 Proposed Technical Specifications (emphasis added *only* to illustrate changes)

It is proposed that the Type A test requirement in Unit 1 TS Surveillance 4.6.1.2 (see excerpt above) be annotated with a note that reflects the enforcement discretion, as follows:

The primary containment leakage rates shall be demonstrated in accordance with Specification 6.8.5, Primary Containment Leakage Rate Testing Program, for the following:

a. Type A Test**

** *These requirements do not apply to penetrations X-32A and X-3B consistent with the conditions cited in the NRC Notice of Enforcement Discretion issued on February 3, 1998.*

It is proposed that the Type A test requirement in Unit 2 TS Surveillance 4.6.1.2 (see excerpt above) be annotated with a note that reflects the enforcement discretion, as follows:

The primary containment leakage rates shall be demonstrated in accordance with Specification 6.8.5, Primary Containment Leakage Rate Testing Program, for the following:

a. Type A Test**

** *These requirements do not apply to penetrations X-32A, X-3B, X-90A, X-90D and X-223A consistent with the conditions cited in the NRC Notice of Enforcement Discretion issued on February 3, 1998.*

SAFETY ANALYSIS

The safety analysis presented below expands upon that presented in Reference No. 1. Specifically, the analysis repeats much of the information provided in Reference No. 1, but includes the results of supplemental dose calculations information.

The impact to safety of continued operation without leakage rate testing for the affected instrumentation has been evaluated. This evaluation is comprised of an assessment of the safety significance and potential consequences of this instrumentation not being leak rate tested, as well as, a discussion of the potential risk associated with this condition. The following discussion demonstrates the safety significance, potential consequences and risk associated with continued operation without leakage rate testing of the affected instrumentation are low.

The instrumentation of concern includes:

- PS-E11-1(2)N011A,B,C,D (Drywell Hi pressure ECCS actuation)
- PS-E11-1(2)N010A,B,C,D (Drywell Hi pressure ADS permissive, vacuum breaker & RCIC isolation)
- PSH-C72-1(2)N002A,B,C,D (Primary containment Hi pressure reactor auto scram trip logic)
- PSH-1(2)5120C,D (Drywell cooling LOCA isolation - drywell pressure)
- PSHL-C72-1(2)N004 (Primary containment high/low pressure alarm)
- PT25702 (Suppression pool pressure - operating range)
- PT25728A (Drywell pressure - operating range)
- PT25728A1 (Drywell pressure - operating range).

Of the preceding list of instrumentation, the last four bulldots provide only indication and alarm functions. Therefore, their only safety function is to maintain their pressure boundary to ensure primary containment integrity. The safety function of the remaining instrumentation falls into two categories: actuation of ESF functions, and maintaining primary containment integrity via their pressure boundary. The safety functions associated with ESF initiation and RPS actuation, due to Hi Drywell pressure, are not impacted by the lack of leakage rate testing for the affected instrumentation. The trip and initiation functions of these instruments, however, are verified during quarterly surveillance testing at pressures higher than the trip setpoint per Technical Specifications not Appendix J. Therefore, failing to include these instruments in the Appendix J program does not impact the reliability of these instruments as inputs to RPS or ECCS system actuation.

Based on the preceding discussion, the safety function of concern is associated with maintaining primary containment integrity. In particular, the safety significance of this condition is determined by the potential for leakage to occur and the consequences of such leakage. The consequences of leakage from the affected instruments manifests itself as an impact to offsite dose as a result of leakage from primary to secondary containment. This leakage will be treated and filtered by SGTS prior to release to the environment. While this leakage would be treated by SGTS, leakage beyond that assumed in the DBA LOCA dose analysis could result in an increase in offsite dose identified in the FSAR, assuming a design basis (Reg. Guide 1.3) source term.

The typical containment penetration consists of a one inch connection to the primary containment up to an excess flow check valve. From there, the line changes to 3/8" tubing up to the instrument. The portion of tubing which has not been Type A tested is a small portion located between the instrument root valve and the instrument. While the potential leakage from the untested instrumentation and associated tubing has not been quantified, some insight into its potential magnitude can be gained from calibration testing of the instruments and consideration of the potential leak paths. The calibration of these instruments is performed quarterly using a small hand held air pump which pressurizes the affected volume to approximately 2.5 psig. During such testing, the I&C personnel have experienced tight systems and are able to maintain test pressure for calibration. The successful performance of this quarterly surveillance testing indicates that no significant leakage exists at any of the affected instruments. This is consistent with the small size of the tubing and fittings (3/8") and the seal provided by the fittings. This is also consistent with the safety function of the associated instruments in being able to detect a pressure of 1.72 psig for

Hi Drywell pressure. While significant leakage would not be expected, an assessment of the potential maximum leakage and its consequences has been performed by PP&L.

The 10 CFR 50, Appendix J limit for Type B and C tests (LLRT) leakage is $0.6L_a$ (190,745 sccm), while the leakage limit for the Type A test (ILRT) is 0.75 L_a (217,500 sccm). The DBA LOCA dose analysis assumes containment leakage of 1% per day or L_a (317,908 sccm), which is comprised of the total leakage from primary to secondary containment, as well as Secondary Containment Bypass Leakage (SCBL) (assumed as 4248 sccm). Subtracting SCBL from L_a leaves 313,660 sccm available for leakage from primary to secondary containment (i.e., Type B and C leakage). Since the leakage integrity of these components has not been quantified, it is possible that their leakage, when combined with that from other Type B & C penetrations could exceed the value assumed in the accident analysis. However, the possibility of this occurring is low, given the amount of leakage that would be required to cause the dose analysis assumptions to be exceeded, but 10 CFR 100 and 10CFR50, Appendix A, GDC 19 limits will not be exceeded as explained below.

For Unit 1, the 15 instruments are associated with the 2 penetrations listed in Table 1, while Unit 2 has 18 instruments associated with the 5 penetrations listed in Table 1. Penetrations X-32A and X-3B each contain 2 instrument headers which are routed to panels which contain the affected instruments. This results in a total of 4 potential leakage pathways on each unit for these penetrations which comprise 15 instruments. Each of these pathways has a tubing run of approximately 50 to 110 feet between the excess flow check valve and the root valve of the first instrument that was not Appendix J tested on that instrument header (i.e., the tubing between the excess flow check valve and the instrument root valve has been Appendix J, Type A tested). Unit 2 has 3 additional penetrations (X-90A, X-90D, & X-223A), each of which contains a single instrument line. These represent 3 additional leakage pathways for Unit 2. The tubing length between the excess flow check valve and the root valve for these additional pathways varies from approximately 5 to 30 feet. The combination of the excess flow check valves and the 3/8" tubing results in a configuration which affords a significant pressure drop for any potential leakage which may occur from the untested instrumentation.

In order to assess the potential impact of leakage from the untested instruments, calculations were performed to determine the maximum expected leakage from the leak paths and the resulting dose consequences. The calculation assumed a complete simultaneous failure of each instrument header/line described Table 1, i.e., 4 pathways on Unit 1, and 7 pathways on Unit 2. This represents an extremely conservative assumption, since the tubing/instrumentation is designed to remain intact post-accident, and the leakage would actually be limited to that which could escape through the fittings in each untested instrument pressure boundary. The conservatism of this assumption is further supported by the successful quarterly calibrations performed on the non-Appendix J leak rate tested instruments. Additionally, the leakage rate calculation also assumes a conservatively low resistance through the internal passages of the excess flow check valve, thereby further over-predicting the potential leakage. The leakage rate calculation was performed using a constant 45 psig pressure in primary containment, as well as, peak drywell temperature.

Given these conservative assumptions, the leakage rate calculation determined that the worst case leakage from these additional pathways would be 578,694 sccm for Unit 1 and 1,208,313 sccm for Unit 2. It should be noted that leak rate testing of the 3 individual penetrations on Unit 2 (X-90A, X-90D, & X-223A) will be performed in the near future (approximately 7-10 days). Once this testing has been completed, the Unit 2 leakage from the remaining untested instruments will be bounded by that for Unit 1. This leakage was then combined with the current Type A and minimum pathway Type B & C leakage for each Unit (135,206 sccm and 99457 sccm for Unit 1 and Unit 2, respectively). This results in a total worst case leakage of 713,900 sccm or 2.3L_a for Unit 1 and 1,307,770 sccm or 4.1L_a for Unit 2.

Since this conservative, worst case bounding leakage is greater than that assumed in the current SSES DBA LOCA Dose Analysis, it was necessary to perform a dose calculation in order to determine the dose consequences. The dose calculation determined the values in Table 2 based upon the leakage rate calculation described above.

The dose values demonstrate that the worst case leakage from the headers/lines which are assumed to be sheared, will result in doses which are less than 10CFR100 and 10CFR50, Appendix A, GDC 19 limits. As noted previously, upon the successful near term completion of the leakage rate testing of penetrations X-90A, X-90D, & X-223A committed to in PLA-4844, dated 2/3/98, "*Request for Enforcement Discretion: Instrument Line Leak Testing*", the Unit 2 Doses would be bounded by those on Unit 1. Given that the actual leakage would be expected to be far less than that determined by assuming a total failure of the untested lines, it is reasonable to conclude that the actual dose will be within that previously analyzed in the FSAR, or at most an increase of only a small fraction of 10CFR100 and 10CFR50, Appendix A, GDC 19 limits. Therefore, given that leakage will be through fittings rather than a sheared line, the consequences of an accident previously evaluated in the FSAR will not be significantly increased and the margin of safety will remain unaffected.

Risk Impact of Not Performing 10 CFR 50 Appendix J Leak Rate Test on Drywell Pressure Instruments

10 CFR 50 Appendix J testing on these pressure instruments has a negligible impact on the risk to the health and safety of the general public and the plant employees. Failure to perform these test, (1) does not increase the frequency of an Initiating Event, (2) does not degrade the response of equipment used to maintain core integrity, and (3) has at most a minor increase in the radiological source term released from the primary containment should the event proceed to core damage. Since each of the components of risk is either unaffected or only marginally impacted by this lack of testing, no discernible increase in risk can be detected.

Impact on the Frequency of Initiating Events

The failure to include these drywell pressure instruments in the Appendix J testing cannot affect the frequency of Initiating Events. These instruments measure the drywell pressure, including the Hi Drywell Pressure input to the Reactor Protection System (RPS). Hi Drywell Pressure is used to detect the release of steam into the drywell from a leak or break in the Primary Coolant Pressure Boundary (PCPB). However a loss of drywell cooling will also cause a Hi Drywell Pressure and cause a reactor trip and HPCI initiation and other ESF actuations. The failure mode

Appendix J testing is designed to detect is leakage of the primary containment pressure boundary. Therefore failure to include these instruments in Appendix J testing has no impact on the frequency of Hi Drywell inputs to the RPS system, and thus cannot increase the frequency of an initiating event.

Impact on Containment Integrity

Failure to include these instruments in the Appendix J program will not impact the Large Early Release Frequency (LERF) of radioactivity, as the result of a nuclear accident. LERF can only be impacted by failures which result in core damage and early containment rupture. Core damage can occur due to an unmitigated failure to control reactivity or an unmitigated core melt accident. As described previously, failure to include these instruments in the Appendix J testing program does not impact either reactivity control or core cooling. Since neither of these outcomes are affected, LERF is not affected. Therefore, failing to incorporate these instruments into the Appendix J program does not impact LERF.

In the unlikely event that core damage does occur, failure to incorporate the potential leakage from these instruments into the Appendix J program may have the potential to result in a slight increase in the release of radioactivity for those sequences in which the core is damaged but, containment rupture does not occur. Taken together, the flow area for the associated penetrations on either unit is much less than a single 2.5" penetration. This is significant since the containment isolation function for penetrations of less than 3" were excluded from consideration in the Station Blackout Rule, based on the lack of risk significance[1]. Therefore this potential increase in the release of radioactivity is not discernible using current PRA models.

Not including these drywell pressure instruments in the Appendix J testing has no impact on the Core Damage and Large Early Release Frequencies. Should core damage occur without containment rupture, only a slight increase in the noble gas source term is expected. Therefore, extending the duration to perform Appendix J testing of these instruments has a negligible impact on risk, and does not increase the consequences of an accident previously evaluated in the FSAR.

PLANNED TEST ACTIVITIES

Based on the analysis above, PP&L proposes the following conditional approach to completion of the missed surveillances:

- Testing of the untested portions of Unit 2 penetrations X-90A, X-90D, and X-223A will be performed first. The instruments associated with the untested portions of these penetrations are stand alone, and have no active safety functions. (The balance of the penetrations combine several instruments with active functions on the same instrument line, and present a risk for backfeeding pressure to other instruments during on-line testing. This could create a false signal that in turn could cause a plant transient.) This will provide an initial indication of the leak tightness of the

[1] Exclusion # 5. Regulatory Guide 1.155 Station Blackout, USNRC, August 1988.

untested portions of the instrument lines. New test procedures must be written, and are currently under expedited development; precautions must be taken to ensure that the instruments are not adversely impacted by the tests. If it is determined that the instruments may be adversely affected during testing, PP&L will develop and submit an alternate plan to the NRC. PP&L will keep the NRC resident inspectors informed of our progress and actual implementation of these tests. If the results are not acceptable in accordance with our program, PP&L plans to perform a controlled shutdown of each unit and perform the required tests.

- If the above Unit 2 results are acceptable in accordance with our program, PP&L proposes to test the untested portions of the Unit 1 penetrations X-32A and X-3B in the upcoming Unit 1 10th RFIO, which is currently planned to begin on April 14, 1998. If these results are not acceptable in accordance with our program, PP&L will perform a controlled shutdown of Unit 2 and perform the required tests.

- If the Unit 1 results are acceptable in accordance with our program, PP&L proposes to test the untested portions of the Unit 2 penetrations X-32A and X-3B in the Spring 1999 RFIO.

Should a forced outage occur on either unit prior to the proposed testing milestones outlined above, PP&L will perform the required testing on the outage unit.

Table 1: Affected Penetrations and Instrument Functions

Penetration No.*	Unit 1 Instrument Functions	Unit 2 Instrument Functions
X-32A	• Drywell High Pressure (ECCS Actuation) • Drywell High Pressure (ADS permissive, vacuum breaker isolation, and RCIC isolation) • Primary Containment High/Low pressure alarm • Primary Containment High Pressure Reactor Auto Scram trip logic • Drywell Cooling LOCA isolation - Drywell Pressure	• Drywell High Pressure (ECCS Actuation) • Drywell High Pressure (ADS permissive, vacuum breaker isolation, and RCIC isolation) • Primary Containment High/Low pressure alarm • Primary Containment High Pressure Reactor Auto Scram trip logic • Drywell Cooling LOCA isolation - Drywell Pressure
X-3B	• Drywell High Pressure (ECCS Actuation) • Drywell High Pressure (ADS permissive, vacuum breaker isolation, and RCIC isolation) • Primary Containment High/Low pressure alarm • Primary Containment High Pressure Reactor Auto Scram trip logic • Drywell Cooling LOCA isolation - Drywell Pressure	• Drywell High Pressure (ECCS Actuation) • Drywell High Pressure (ADS permissive, vacuum breaker isolation, and RCIC isolation) • Primary Containment High/Low pressure alarm • Primary Containment High Pressure Reactor Auto Scram trip logic • Drywell Cooling LOCA isolation - Drywell Pressure
X-90A		• Drywell Pressure - Operating Range (Indication / alarm only)
X-90D		• Drywell Pressure - Operating Range (Indication / alarm only)
X-223A		• Suppression Pool Pressure - Operating Range (Indication / alarm only)

* Reference FSAR Table 6.2-22

Table 2: Worst-Case Dose Consequences

	DBA LOCA Dose Analysis (Rem)	Unit 1 (Rem)	Unit 2 (Rem)
Offsite Dose*:			
2-hour Thyroid (300 Rem):	41.44	44.6	52.85
30 Day LPZ Thyroid (300 Rem):	20.59	22.38	26.10
2-hour Whole Body (25 Rem):	2.18	4.53	10.597
30 Day LPZ Whole Body (25 Rem):	0.36	0.78	1.81
Control Room**:			
Thyroid (30 Rem):	8.78	9.79	12.05
Whole Body (5 Rem):	0.744	1.20	2.31
Beta Skin (75 Rem):	11.9	26.42	59.9

*10CFR100 limits are in parenthesis

**10CFR50, Appendix A, GDC 19
limits are shown in parentheses

ATTACHMENT 2 TO PLA-4846

NO SIGNIFICANT HAZARDS CONSIDERATIONS

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ANALYSIS

INSTRUMENT LINE LEAKAGE TESTING

NO SIGNIFICANT HAZARDS CONSIDERATIONS

Pennsylvania Power and Light Company has evaluated the proposed Technical Specification change in accordance with the criteria specified by 10 CFR 50.92 and has determined that the proposed change does not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

1. **The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

    As described in Attachment 1, the safety analysis included an assessment of the safety significance and potential consequences of this instrumentation not being leak rate tested, as well as a discussion of the potential risk associated with this condition.

    The dose values demonstrate that the worst case leakage from the headers/lines which are assumed to be sheared, will result in doses which are less than 10CFR100 and 10CFR50, Appendix A, GDC 19 limits. As noted previously, upon the successful near term completion of the leakage rate testing of penetrations X-90A, X-90D, & X-223A committed to in PLA-4844, dated 2/3/98, "*Request for Enforcement Discretion: Instrument Line Leak Testing*", the Unit 2 Doses would be bounded by those on Unit 1. Given that the actual leakage would be expected to be far less than that determined by assuming a total failure of the untested lines, it is reasonable to conclude that the actual dose will be within that previously analyzed in the FSAR, or at most an increase of only a small fraction of 10CFR100 and 10CFR50, Appendix A, GDC 19 limits. Therefore, given that leakage will be through fittings rather than a sheared line, the consequences of an accident previously evaluated in the FSAR will not be significantly increased and the margin of safety will remain unaffected.

    Furthermore, the analysis included a risk assessment. It concluded that 10 CFR 50 Appendix J testing on the pressure instruments in question has a negligible impact on the risk to the health and safety of the general public and the plant employees. Failure to perform these tests: (1) does not increase the frequency of an Initiating Event, (2) does not degrade the response of equipment used to maintain core integrity, and (3) has at most a minor increase in the radiological source term released from the primary containment should the event proceed to core damage. Since each of the components of risk is either unaffected or only marginally impacted by this lack of testing, no discernible increase in risk can be detected.

2. *The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

Leakage through the untested portion of the subject instrument lines is a potential consequence of an accident; it does not create the possibility of a new or different type of accident from any previously evaluated. The consequences are discussed in the evaluation of consideration 1 above.

3. *The proposed change does not involve a significant reduction in the margin of safety.*

As described in the evaluation of consideration 1 above, even if one were to assume the untested instrumentation and tubing were open to atmosphere, the maximum leakage would be expected to be within the margin available between the current minimum pathways Appendix J test results and that assumed in the DBA LOCA Dose Analysis. Even if leakage were to exceed that assumed in the dose analysis, significant additional leakage into secondary containment could be accommodated without exceeding 10 CFR 100 limits. Based upon these circumstances, it is reasonable to conclude that leakage through the fittings would be far less than that needed to exceed the DBA LOCA Dose Analysis or 10 CFR 100 limits. Consequently, the consequences of an accident previously evaluated in the FSAR will not be increased and the margin of safety will not be significantly reduced.

ENVIRONMENTAL ANALYSIS

An environmental assessment is not required for the proposed change because the requested change conforms to the criteria for actions eligible for categorical exclusion as specified in 10 CFR 51.22(c)(9). PP&L has performed an evaluation which has established our expectation that the potential leakage associated with the affected penetrations would be bounded by that assumed in the DBA LOCA dose analysis. Therefore, no environmental consequences that have not been previously evaluated are anticipated.