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U. S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED LICENSE AMENDMENT
NO. 279 FOR UNIT 1 OPERATING LICENSE NO. NPF-14 AND
NO. 248 FOR UNIT 2 OPERATING LICENSE NO. NPF-22
ARTS/MELLLA IMPLEMENTATION - RESPONSE TO
NRC REQUEST FOR ADDITIONAL INFORMATION **Docket Nos. 50-387**
PLA-6130 **and 50-388**

References: 1) *PLA-5931, B. T. McKinney (PPL) to Document Control Desk (USNRC), "Susquehanna Steam Electric Station Proposed License Amendment No. 279 for Unit 1 Operating License No. NPF-14 and 248 for Unit 2 Operating License No. NPF-22 ARTS/MELLLA Implementation," dated November 18, 2005.*

2) *NRC Letter to Britt McKinney, "Request for Additional Information (RAI) – Susquehanna Steam Electric Station, Units 1 and 2 (SSES 1 and 2) – Application to Implement Average Power Range Monitor/Rod Block Monitor/Technical Specifications/Maximum Extended Load Line Analysis (TAC Nos. MC9040 and MC9041)," dated October 19, 2006.*

In accordance with 10 CFR 50.90, PPL Susquehanna, LLC (PPL) submitted a request for a license amendment to the Susquehanna Steam Electric Station (SSES) Unit 1 and Unit 2 Technical Specifications to implement an expanded operating domain resulting from the implementation of Average Power Range Monitor/Rod Block Monitor/ Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA) (Reference 1).

The purpose of this letter is to provide responses to the NRC RAI (Reference 2).

PPL has reviewed the "No Significant Hazards Consideration" and the "Environmental Consideration"submitted with Reference 1 relative to this supplemental information. We have determined that there are no changes required to either of these documents.

A001

PPL respectfully requests that NRC expeditiously complete the review and approval of the proposed ARTS/MELLLA License Amendment Request proposed in Reference 1. PPL continues to plan to implement ARTS/MELLLA for Unit 2 during the startup from the Spring 2007 Outage.

If you have any questions or require additional information, please contact Mr. Michael Crowthers at (610) 774-7766.

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

Executed on: 12/1/06

D. T. Jones for

B. T. McKinney

Attachments:
Attachment - Supplemental Information

Appendix - ARTS/MELLA RBM Calculation

cc: NRC Region I
Mr. A. J. Blamey, NRC Sr. Resident Inspector
Mr. R. V. Guzman, NRC Project Manager
Mr. R. Janati, DEP/BRP

Attachment to PLA-6130

PPL RAI Responses

<u>NRC RAI 1, 1.a, and 1.b</u>

Explain why the existing setpoints, which are being removed or altered by this license amendment, are part of the SSES 1 and 2 design configuration and Technical Specifications (TS), but are not credited in any SSES 1 and 2 safety licensing analyses.

a. Provide a statement as to whether or not the setpoint is a limiting safety system setting (LSSS) for a variable on which a safety limit (SL) has been placed as discussed in Title 10 of the Code of Federal Regulations (10 CFR) Section 50.36(c)(1)(ii)(A).

b. Examples of instrument functions that might have LSSSs included in this subset in accordance with the plant-specific licensing basis are: rod block monitor withdrawal blocks, feedwater and main turbine high water level trip, and end-of-cycle recirculation pump trip. For each setpoint, or related group of setpoints, that you determined not to be SL-related, explain the basis for this determination.

<u>PPL Response to RAI 1, 1.a and 1.b</u>

The setpoints removed or altered by this license amendment are each addressed as follows:

- Existing Technical Specification (TS) 3.2.4, Average Power Range Monitor (APRM) Gain and Setpoints, is being deleted by the proposed change. This specification is no longer needed since improved methodologies provide more effective alternatives to the requirement.

- The Allowable Value (AV) for two-loop and single-loop operation specified in TS Table 3.3.1.1-1 for function 2.b, Simulated Thermal Power - High, is being revised. As described in the "Applicable Safety Analyses, LCO, and Applicability" portion of the TS Bases for Table 3.3.1.1-1 function 2.b, Simulated Thermal Power - High, the Average Power Range Monitor Simulated Thermal Power - High Function is not credited in any plant Safety Analyses. The Average Power Range Monitor Simulated Thermal Power - High Function is set above the APRM Rod Block to provide defense in depth to the APRM Fixed Neutron Flux - High Function (function 2.c) for transients where thermal power increases slowly (such as loss of feedwater heating event). During these events, the thermal power increase does not significantly lag the neutron flux response and, because of a lower trip setpoint, will initiate a scram before the fixed high neutron flux scram. For rapid neutron flux increase events, the thermal power lags the neutron flux and the Average Power Range Monitor Fixed Neutron Flux - High Function will provide a scram signal before the Average Power Range Monitor Simulated Thermal Power - High Function setpoint is exceeded. The associated SSES

TS Bases states "Functions not specifically credited in the accident analysis are retained for the overall redundancy and diversity of the RPS as required by the NRC-approved licensing basis." Therefore, this function is part of the Reactor Protective System and is included in the TS since it is part of the RPS design and is part of the existing licensing basis.

- Both flow dependent AVs specified in Table 3.3.2.1-1 for function 1.a, Rod Block Monitor, Low Power Range - Upscale (two-loop operation and single-loop operation) are being replaced by three power dependent AVs. These three power dependent AVs are function 1.a - Rod Block Monitor, Low Power Range - Upscale; function 1.b - Rod Block Monitor, Intermediate Power Range Upscale; and function 1.c - Rod Block Monitor, High Power Range - Upscale. The value for the three power dependent AVs are to be located in the COLR.

- The existing function 1.c, Control Rod Block Monitor – Downscale, is proposed to be deleted.

The existing Control Rod Block function specified in TS Table 3.3.2.1-1, function 1.a, Rod Block Monitor, Low Power Range – Upscale, is not currently credited in any safety analysis. As stated in the existing TS Bases for this function, "The RBM was originally designed to prevent fuel damage during a Rod Withdrawal Error (RWE) event while operating in the power range in a normal mode of operation. FSAR 15.4.2 (Ref. 10) (Rod Withdrawal Error - At Power) originally took credit for the RBM automatically actuating to stop control rod motion and preventing fuel damage during an RWE at power. However, current reload analyses do not take credit for the RBM system. The Allowable Values are chosen as a function of power level to not exceed the APRM scram setpoints." Therefore, this function currently provides defense in depth by preventing a scram, is included in the TS since it is part of the RPS design, and is part of the existing licensing basis.

With implementation of the ARTS/MELLLA license amendment, the rod block function (with three power dependent AVs) will be credited in the accident analysis with protecting the Minimum Critical Power Ratio (MCPR) Safety Limit specified in the TS 2.1.1.2 and will be associated with Limiting Safety System Settings (LSSS). As stated in Attachment 4 to the LAR, "The RBM Downscale Function will detect substantial reductions in the RBM local flux after a 'null' is completed (a 'null' occurs after a new rod selection). This function, in combination with the RBM Inop Function, was intended in the original system to detect problems with or abnormal conditions in the RBM equipment and system. However, no credit is taken for the RBM Downscale Function in the establishment of the RBM upscale trip setpoints or Allowable Values." Therefore, this function is part of the Control Rod Block Instrumentation and was included in the TS since it is part of the RPS design and was also part of the existing license basis. The replacement of the original analog RBM equipment with the NUMAC digital RBM results in the original analog processing being replaced by digital processing. One effect of this change is to eliminate the types of failures that can reasonably be detected by a Downscale Function. In addition, the Inop Function is enhanced in the NUMAC RBM by the use of automatic self-test and other internal logic to increase the detectability of failures and abnormal conditions that can occur in the digital equipment, and to directly include these in the RBM Inop Function. Therefore, in the NUMAC ARTS RBM, there is no incremental value or benefit provided by the RBM Downscale Function. Consistent with the overall thrust of the Improved Technical Specifications to eliminate "no value" requirements, the RBM Downscale Function is being removed from the Technical Specifications and from the related discussion in the Bases. The RBM Inop Function is being retained in Technical Specifications.

Therefore, of the TS functions removed or altered by this license amendment change, the RBM power dependent setpoints are considered Limiting Safety System Settings.

NRC RAI 1.c

If the revised information is related to LSSS setpoints, discuss the setpoint methodology used at SSES 1 and 2 to establish these new values. Provide documentation (including sample calculations) of the methodology used for establishing the limiting setpoint and the limiting acceptable values for the as-found and as-left setpoints as measured in periodic surveillance testing as described below, indicate the related analytical limits and other limiting design values (and the sources of these values) for each setpoint.

PPL Response to RAI 1.c

As discussed, only the RBM function has associated LSSS.

The associated analytical limits for the Rod Block Monitor power dependent functions are established by the SSES fuel vendor using their methodology. Limits are calculated on a cycle specific basis. The associated setpoints (Allowable Value (AV), Nominal Trip Setpoint (NTSP), and Process Setpoint) were determined using GE setpoint methodology. The GE setpoint methodology is described in NEDC-31336 P-A, General Electric Setpoint Methodology, September 1996 and has been approved by the NRC as documented in the associated SER.

The new SSES RBM setpoints were calculated using this methodology and the results provided to PPL in GE document "0000-0039-3825 Susq A-M-T506-RBM-Calc-2005, Revision Number 0, dated October 2005." This document is attached as an Appendix to this RAI response.

NRC RAI 2

For setpoints that are determined to be SL-related, the NRC letter to Nuclear Energy Institute's Setpoint Methods Task Force, "Technical Specification for Addressing Issues Related to Setpoint Allowable Values," dated September 7, 2005 (Agency-wide Documents Access and Management System Accession No. ML052500004), describes setpoint-related TSs (SRTSs) that are acceptable to the NRC for instrument settings associated with SL-related setpoints. Specifically, part "A" of the enclosure to the letter provides limiting condition for operation notes to be added to the TSs, and part "B" includes a check list of the information to be provided in the TS Bases related to the proposed TS changes.

a. Describe whether and how you plan to implement the SRTSs suggested in the September 7, 2005, letter. If you do not plan to adopt the suggested SRTSs, explain how you will ensure compliance with 10 CFR 50.36 by addressing items 2b and 2c, below.

b. As-Found Setpoint Evaluation: Describe how surveillance test results and associated TS limits are used to establish operability of the safety system. Show that this evaluation is consistent with the assumptions and results of the setpoint calculation methodology. Discuss the plant corrective action processes (including plant procedures) for restoring channels to operable status when channels are determined to be "inoperable" or "operable but degraded." If the criteria for determining operability of the instrument being tested are located in a document other than the TSs (e.g., plant test procedure), explain how the requirements of 10 CFR 50.36 are met.

c. As-Left Setpoint Control: Describe the controls employed to ensure that the instrument setpoint is, upon completion of surveillance testing, consistent with the assumptions of the associated analyses. If the controls are located in a document other than the TSs (e.g., plant test procedure) explain how the requirements of 10 CFR 50.36 are met.

PPL Response to RAI 2a

For the setpoints associated with an LSSS that are proposed to be altered by this LAR (Power Dependent Rod Block Monitor Function), PPL does not plan to implement the setpoint related TSs described in the September 7, 2005, letter. The application of the suggested notes to this instrument function is unnecessary due to the specific nature of this instrumentation. A description of the operation of the Rod Block Monitor (RBM) as well as an explanation of compliance with 10 CFR 50.36 is provided in item 2.b and 2c.

The Rod Block Monitor Trip Function which is associated with protecting the fuel cladding during the Rod Withdrawal Error Analysis is provided by a digital device.

The digital device utilizes a Nominal Trip Setpoint (NTSP) that has no additional conservatisms added to account for testing and calibration error. There are no margins applied to the RBM nominal trip setpoint calculations which could mask RBM degradation. There is no As-Left Tolerance (ALT) and no As-Found Tolerance (AFT) associated with this Digital Trip Setting.

With implementation of ARTS/MELLLA a more direct trip logic than is currently provided is implemented (See Figure 4-4 in Attachment 3 to PLA-5931). The RBM takes input from the Local Power Range Monitors (LPRMs) surrounding the rod that is selected for withdrawal and an average of these readings at the time of rod selection is calculated. A "nulling" operation is then performed which establishes the pre-rod motion value. This value is normalized to 100. This nulling establishes the fixed reference level (100) identified on Figure 4-4 inputting to the "calibration" box. As the rod is pulled, the LPRM readings increase and subsequent average values from the same set of LPRMs are calculated. The "calibration" box in the Figure represents that the value is then divided by the average at the time of nulling and is multiplied by 100 to give the instantaneous RBM readings (signal that is shown exiting the "calibration" box). If this RBM reading exceeds the trip setpoint a rod block is issued that protects against rod-withdrawal errors. Since the RBM reading is a ratio relative to the value just before rod pull, LPRM drift and calibration errors from the previous LPRM calibration are of no real significance because they cancel out when the ratio is taken. The reference level is the level the RBM is automatically calibrated to upon control rod selection.

The RBM trip setpoints (low, intermediate, or high) are enabled at three simulated thermal power levels from the APRM (shown coming into the comparator from the left). The Surveillances for enabling simulated thermal power values are covered by the APRM Technical Specifications and are not part of the RBM.

The RBM trip setpoints are determined by use of NRC-approved setpoint methodology. Using the GE setpoint methodology, based on ISA setpoint calculation method 2, the RBM Allowable Values are determined from the analytical limit corrected for RBM input signal calibration error, process measurement error, primary element accuracy and instrument accuracy under trip conditions. The error due to the neutron flux measurement is accounted for in the non-linearity error from the LPRM detectors and is referred to in the setpoint calculation as the ARPM Primary Element Accuracy (APEA). There is both a bias and random component to this APEA error. There is also an error due to tracking and neutron flux noise, and that is labeled as Process Measurement Accuracy (PMA). The RBM trip setpoint has no drift characteristic with no as-left or as-found tolerances since it only performs digital calculations on digitized input signals.
The NTSP includes a drift allowance over the interval from rod selection to rod movement, which is not the surveillance interval. As mentioned earlier, drift of RBM channel components between surveillance intervals does not apply to the normalized RBM reading.

Surveillance procedures are used to establish operability of the RBM. The surveillance procedures include appropriate steps to ensure the RBM is functioning properly and that the proper setpoint values are established in the hardware. Other self-test functions are performed automatically and routinely in the RBM hardware modules (CPU, Power Supplies, etc.) The periodic RBM calibration in the Technical Specifications (SR 3.3.2.1.7 in Table 3.3.2.1-1, items 1a, 1b, and 1c) requires a verification of only the trip setting. The trip setpoints are stored in computer memory as fixed numerical values and thus cannot drift due to the nature of the RBM instrument (digital hardware). The calibration method in the Technical Specification surveillance procedures ensures that the trip setting is set properly. Since the trip setpoint is a numerical value stored in the digital hardware and not subject to drift, the as-found and as-left tolerance values for the setpoint are the same as the setpoint (i.e., there is no tolerance band). The surveillance procedures also perform a channel functional test, which assures the RBM is functioning properly.

The corrective action process used to restore channels to operable status when channels are determined to be "inoperable" or "operable but degraded" is the same process used for all corrective action at SSES. Operability determination follows the normal process as with any other plant component. Details regarding this process are provided in response to RAI 3.

The requirements of 10 CFR 50.36 are met without the application of the TSTF notes as follows:

10 CFR 50.36 requires that Technical Specification include Limiting Safety System Settings (LSSS). 10 CFR 50.36 further specifies that LSSS for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions. Where a limiting safety system setting is specified for a variable on which a safety limit has been placed, the setting must be so chosen that automatic protective action will correct the abnormal situation before a safety limit is exceeded.

As previously identified in the response to RAI 1, the RBM trip setpoint is an LSSS. The RBM trip settings have been determined to assure the automatic protective action will correct an abnormal situation before a safety limit has been exceeded. The trip setting determination has been accomplished by the use of the NRC-approved GE setpoint methodology as described in NEDC 31336 P-A. This methodology defines the allowable value (AV) as the limiting value of the sensed process variable at which the trip setpoint may be found during instrument surveillance and that the AV is usually prescribed as a license condition (i.e., specified in the TS). The methodology defines the Nominal Trip Setpoint (NTSP) as the limiting value of the sensed variable at which a trip action may be set at the time of calibration.

The specific relationship of these setpoint terms is also defined in the methodology. The methodology describes the difference between the Analytical Limit (AL) and the AV of the setpoint as that which allows for channel instrument accuracy, calibration accuracy, process measurement accuracy, and primary element accuracy.

The methodology further describes the margin between the Allowable Value (AV) and the Nominal Trip Setpoint (NTSP) as that which allows for instrument drift that might occur during the established surveillance period. If, during the surveillance period, an instrument setpoint drifts in a non-conservative direction but not beyond the allowable value, instrument performance is still within the requirements of the plant Safety Analysis.

The RBM trip setpoints comply with 10 CFR 50.36 by use of the NRC-approved setpoint methodology to establish the setpoint trip values, the incorporation of these values into appropriate procedures and implementation of appropriate administrative controls consistent with the PPL Quality Assurance program. Consistent with the proposed license amendment request, the allowable values for the RBM trip setpoints are to be specified in the Core Operating Limits Report (COLR). The COLR is part of the Technical Requirements Manual (TRM) and is incorporated by reference as Section 16.3 of the FSAR. In addition to their inclusion in the TRM, the trip setpoints will be included in the appropriate surveillance procedures, SSES Technical Specification (TS) 5.4.1 requires that written procedures shall be established, implemented, and maintained including the applicable procedures recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A, February 1978. Appendix A to this RG includes procedures for surveillance tests including calibrations. The TS specifically requires that surveillance procedures including calibrations be established, implemented and maintained.

The suggested notes which are intended to assure that the trip setpoints are verified to be within predefined limits, so appropriate actions can be taken if found to be outside the predetermined limits, cannot be applied to the RBM. The suggested notes cannot be applied to the RBM since the trip setpoints are keyed into the RBM module via a keyboard and are displayed and stored as digital values in computer memory. As such, the RBM trip setpoint is therefore not subject to drift, is not calibrated in the traditional sense, and does not have as-found and as-left tolerance bands. The calibration of the RBM verifies the trip setpoint is as it was set. No range of values is acceptable, only the exact keyed in values, thus assuring that the Susquehanna SES RBM trip will be within safety limits and that the limiting condition for operation will be met. The TS Bases insert B2 has been revised to identify in the TS Bases that the RBM Allowable Value is the Limiting Safety System Setting since the RBM has no drift characteristic. The text of the revised insert is provided below.

The controls employed for an as-left setpoint are those established by the surveillance procedure and are controlled under the Surveillance and Preventative Maintenance Programs. Additional details regarding the Surveillance and Preventative Maintenance Programs and the associated corrective action process are provided in the response to RAI 3.

TS Bases Insert ARTS B2 (Revised)

Trip setpoints are those predetermined values of output at which an action should take place. The trip setpoints are compared to the actual process parameter, the calculated RBM flux (RBM channel signal). When the normalized RBM flux value exceeds the applicable trip setpoint, the RBM provides a trip output.

The analytic limits are derived from the limiting values of the process parameters. Using the GE setpoint methodology, based on ISA RP 67.04, Part II " Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation" setpoint calculation Method 2, the RBM Allowable Values are determined from the analytical limits using the statistical combination of the RBM input signal calibration error, process measurement error, primary element accuracy and instrument accuracy under trip conditions. Accounting for these errors assures that a setpoint found during calibration at the Allowable Value has adequate margin to protect the analytical limit thereby protecting the Safety Limit.

For the digital RBM, there is a normalization process initiated upon rod selection, so that only RBM input signal drift over the interval from the rod selection to rod movement needs to be considered in determining the nominal trip setpoints. The RBM has no drift characteristic with no as-left or as-found tolerances since it only performs digital calculations on the digitized input signals provided by the APRMs.

The Allowable Value is the Limiting Safety System Setting since the RBM has no drift characteristic. The RBM Allowable Value demonstrates that the analytic limit would not be exceeded, thereby protecting the safety limit. The trip setpoints and Allowable Values determined in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and environment errors are accounted for and appropriately applied for the RBM. There are no margins applied to the RBM nominal trip setpoint calculations which could mask RBM degradation.

NRC RAI 3

For setpoints that are not determined to be SL-related, describe the measures to be taken to ensure that the associated instrument channel is capable of performing its specified safety functions in accordance with applicable design requirements and associated analyses. Include in your discussion, information on the controls you employ to ensure the as-left trip setting after completion of periodic surveillance is consistent with your setpoint methodology. Also, discuss the plant corrective action processes (including plant procedures) for restoring channels to operable status when channels are determined to be "inoperable" or "operable but degraded." If the controls are located in a document other than the TSs (e.g., plant test procedure), describe how it is ensured that the controls will be implemented.

PPL Response to RAI 3

For setpoints that are not determined to be SL-related, the SSES Setpoint Control Program ensures that the associated instrument channel is capable of performing its specified safety functions in accordance with applicable design requirements and associated analyses.

The Setpoint Control Program at SSES is implemented utilizing engineering process controls, plant procedural controls, and the corrective action process.

As-left trip settings are controlled under the Surveillance and Preventative Maintenance Programs. As-found settings found to be outside acceptable tolerances are controlled through the SSES 10 CFR 50, Appendix B, Criterion XVI, corrective action program. Operability and Reportability determination are integral to the corrective action program.

The as-found and as-left tolerances specified in calculations are incorporated into appropriate surveillance procedures. The Surveillance Testing Program establishes the administrative controls for Surveillance Testing. Requirements include the following:

- Specifies requirements for preparation and control of surveillance test procedures.
- Specifies the requirement to generate a Condition Report for any failed calibration activity that references a surveillance procedure.

The Maintenance and Calibration of Installed Plant Instrumentation Process controls maintenance and calibration of installed plant instrumentation. This procedure defines the responsibilities and controls for I&C activities affecting installed plant instrumentation and applies to activities associated with testing, calibration, corrective maintenance, and modification.

Calibration corrective action is controlled under this procedure. This procedure requires, "(1) If an instrument is found outside of the as-found tolerance, it shall be Calibrated and left within the Final tolerance, and (2) An Action Request (AR) shall be generated for any equipment exceeding as-found tolerances or any other condition considered adverse to quality." The AR is then processed as required by the corrective action process, "Action Request and Condition Report Process."

Process setpoints changes at the SSES are controlled by the Engineering Change Process. Under this process, any setpoint change is an engineering change. This procedure defines a setpoint change as "An Engineering Change to the designed actuation point in process units for a bistable or adjustable device, where the value at which the actuation takes place assures design bases requirements are met." Requirements for performing design calculations for setpoints are specified by procedure and design standards.

The Setpoint Calculation Methodology, provides requirements for the calculation of certain instrument setpoints, including the consideration of instrument and instrument calibration uncertainties, to ensure compliance with applicable guides and standards as specified in the SSES Final Safety Analysis Report (FSAR). Specifically, FSAR 3.13, Instrument Spans and Setpoints, states that the plant design meets the provisions of Reg. Guide 1.105, Revision 1, November 1976, with exceptions as noted in that section. This Design Standard provides a discussion of the instrument setpoint methodologies of General Electric and the Instrument Society of America (ISA). Use of the GE Setpoint Methodology is required unless deviation from that methodology is specifically justified. Among the concepts discussed in this required standard are: accuracy and its constituents, Allowable Value, Analytic Limits, "As-Found" Tolerance, "As-Left" Tolerance, Calibration Accuracy, Design Drift, Design Limit, Design Tolerance, Design Value, Device Setpoint, Drift, Instrument accuracy, Instrument Loop Accuracy, Process Setpoint, Safety Limit, and Trip Setpoint.

Use of the GE Setpoint Methodology ensures that applicable uncertainties, specifically including As-Left and As-Found tolerances, are accounted for and applied appropriately (random vs. bias error, etc.).

NRC RAI 4

In Attachment 4 of your November 18, 2005, submittal, item (e) provides the modification of the Multi-Vendor Data (MVD) as a specific equipment change for ARTS logic implementation. The NRC staff requests the following information with regards to the safety-related MVD equipment and the anticipated changes to it:

a. Please explain the complete functional capabilities of the MVD as provided by the equipment manufacturer.

b. By functional description, identify the functions by which PPL anticipates using the MVD.

c. Explain what functions will change, and the procedural steps to incorporate the modifications to the MVD for the ARTS logic implementation.

PPL Response to RAI 4

The Power Range Neutron Monitoring System (PRNMS) Multi-Vendor Data (MVD) Acquisition unit is not safety related. The MVD provides the data path interface between PRNMS and the plant computer. As outlined in PLA-6012, Susquehanna Steam Electric Station Proposed License Amendment Numbers 272 for Unit 1 Operating License No. NPF-14 and 241 for Unit 2 Operating License No. NPF-22 Power Range Neutron Monitor System digital Upgrade Response to NRC Questions Supplemental Information No. 2, dated February 28, 2006, NRC Question 2, PPL Response 2B, the data path from the plant computer, via the MVD and RBM, to the APRM is over fiber-optic links from the MVD to the RBM, and from the RBM to the APRM which provide the electrical isolation between the MVD and the APRM. GE LTR NEDC-32410P-A Sections 5.3.2.7 and 5.3.5.1 further outlines the electrical and data interface and isolations methods that allow for the non-safety-related MVD communication.

a. The MVD is a component supplied by GE as part of the NUMAC PRNMS. It provides the capability for downloading data from the Core Monitoring System (CMS) to the PRNMS and for uploading certain PRNMS data sets for viewing and processing by the CMS graphical user interface.

b. The MVD is the interface between the NUMAC PRNMS and the plant computer.

c. Changes to the MVD that enable the ARTS/MELLLA operation require only "user assignable" parameter changes. These changes are needed to support the new ARTS/MELLLA setpoint setting changes and unit base change from flow-biased to power based. There are no changes to the fundamental software structure, requirements, and operational configuration.