UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 18, 2010

LICENSEE: Entergy Nuclear Operations, Inc.

FACILITY: Indian Point Nuclear Generating Unit Nos. 2 and 3

SUBJECT: SUMMARY OF JUNE 9, 2010, CONFERENCE CALL WITH ENTERGY ON THEIR PROPOSED RESPONSE TO A REQUEST FOR ADDITIONAL INFORMATION ON GENERIC LETTER 2004-02 (TAC NOS. MC4689 AND MC4690)

On June 9, 2010, a Category 1 public conference call was held between the Nuclear Regulatory Commission (NRC) staff and representatives of Entergy Nuclear Operations, Inc. (Entergy or the licensee) and Entergy's contractors, Enercon and Alion. A list of call participants is provided as Enclosure 1. The purpose of the call was to discuss Entergy's proposed response to the NRC staff's request for additional information (RAI) dated April 29, 2010, which is publicly available in the NRC's Agencywide Documents Access and Management System (ADAMS) under Accession No. ML101170237. The NRC's RAI letter was in response to Entergy's submittals for NRC Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors," for Indian Point Nuclear Generating Unit Nos. 2 and 3 (IP2 and IP3). The NRC staff has been conducting calls with all licensees who are responding to RAIs on GL 2004-02 with the intent of providing NRC guidance in order to reduce the need for additional rounds of RAIs.

The NRC's RAI requested the licensee to be prepared to discuss their proposed responses with the NRC staff prior to formal submittal. The licensee provided draft responses to the 7 questions and the NRC staff discussed each proposed response in detail with the licensee and their contractors. Their responses are outlined on the slides provided as Enclosure 2. The following summarizes the discussion of each proposed response:

RAI 1 - 4 The NRC staff concludes that the draft responses to questions 1 through 4 are acceptable as is.

RAI 5 The NRC staff recommends that the licensee remove the discussion of 3.6% erosion. With that change, the staff will find this response acceptable.

RAI 6 The NRC staff concludes that the draft response to question 6 is acceptable as is.

RAI 7.a The licensee should state that it would typically terminate containment spray within a specified period (estimate the time), as specified in the emergency operating procedures. With that change, the staff will find this response acceptable.

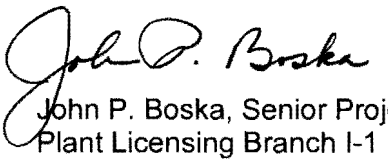
RAI 7.b The licensee should estimate how much debris is expected to accumulate in the instrument tunnel prior to the use of the vapor containment (VC) sump, and explain why the expected flow velocity in the instrument tunnel should be lower than the analyzed flow velocity. Also, clarify the response to indicate the total

debris loading analyzed for the VC sump strainer. It is not clear if 5% is the total loading, or if there is an additional allowance for erosion accumulation. The NRC staff will need to review the revised answer, which the licensee committed to provide by June 25, 2010.

RAI 7.c The licensee stated it would remove the last 2 sentences under the topic "Fully Covered Strainers." The discussion on the collection of 95% of the fine particulate is not needed. With that change, the NRC staff will find this response acceptable.

RAI 7.d, e The NRC staff concludes that the draft responses to questions 7.d and 7.e are acceptable as is.

The licensee will provide its final RAI responses in a letter to the NRC. Please direct any inquiries to me at 301-415-2901, or by email to John.Boska@nrc.gov.



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Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosures:
1. List of Participants
2. Entergy Slides

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List of Participants

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Enclosure 1

Indian Point Energy Center
Generic Letter 2004-02
Responses to RAIs

June 9, 2010

Entergy

Meeting Purpose

Discuss Indian Point's Responses to NRC Request for Request for Additional Information (RAIs) for GL 2004-02

Note: The information contained in this presentation is intended for discussion purposes only and, as such, has not been through a formal verification process.

Current Status of Plant Modifications – Unit 2

- **Summary of physical changes completed**
  - IR sump screen area increased from 48 sq ft to 3200 sq ft
  - VC sump screen area increased from 14 sq ft to 1200 sq ft
  - Flow barriers over the incore tunnel
  - Gates at personnel entrances through crane wall
  - Screens on crane wall penetrations
  - Buffer change out (TSP to NaTB)
  - Vortex suppressors installed over the IR and VC sump strainers
  - MOV-745A/B Mod to de-energize and add CR position indication
  - All planned modifications are complete

Current Status of Plant Modifications – Unit 3

- **Summary of physical changes completed**
  - IR sump screen area increased from 48 sq ft to 3200 sq ft
  - VC sump screen area increased from 36 sq ft to 1000 sq ft
  - Flow barriers over the incore tunnel
  - Gates at personnel entrances through the crane wall
  - Screens on crane wall penetrations
  - New Internal Recirculation pumps
  - Buffer change out (NaOH to NaTB)
- **Summary of physical changes to be completed by Spring 2011 Refueling Outage**
  - Vortex suppressors installed over the IR and VC sump strainers

IPEC RAI History

- NRC Audit December 2007
- Submittal of Supplemental Response to Generic Letter 2004-02 in February 2008
- NRC Audit Report, July 2008
- NRC RAIs (23) on Supplemental Response included Audit Open Items, November 19, 2008
- Submittal of Updated Supplemental Response to Generic Letter 2004-02 November 19, 2009
- NRC RAIs (7) on Updated Supplemental Response, April 29, 2010
- NRC has agreed to the proposed responses to RAIs 1, 3, 4, and 6

RAI #1 Extrapolation of test data

RAI #1 - In RAI 12 of the NRC staff's letter dated November 19, 2008 (ADAMS Accession No. ML083230054), the staff requested information that provides traceability between the test results presented as final values in the supplemental response and the raw test data. The RAI requested that the licensee provide the methodology for deriving the final values and the assumptions used in the evaluation. In its response letter dated November 19, 2009, the licensee provided descriptions of the tests that linked each break case to one or more tests that were used to evaluate the strainer performance for each particular scenario. This answered the staff's question regarding the ability to determine how each break was covered by the test program. However, the staff could not determine how the test cases were extrapolated to the plant conditions listed in Tables 3f.10-13 and 14. Please provide the methodology (the equations used) and the assumptions used to extrapolate the test cases to each plant case listed in Tables 3f.10-13 and 14.

Response

- Entergy's GL 2004-02 response of November 19, 2009 did not present all intermediate steps.
- Test case data was extrapolated and final results were presented in Tables 3f.10-13 and -14.

RAI #1 Extrapolation of test data

The following steps were performed in the analyses.

- Test data was extrapolated to 30 days
- Raw test data is adjusted as applicable for:
  - Decreased temperature & decreasing flow
  - Increased flow & decreased temperature
  - Decreased flow & increased temperature
  - Increasing flow & increasing temperature

- Laminar & turbulent flow fraction was considered
- Variations in test flow rate considered
- Screen area was reduced for an assumed 3% void fraction
- Viscosity of the fluid for the temperature is determined
- Total head loss is determined by considering:
  - Corrected debris head losses,
  - Reflective Metal Insulation (RMI) losses,
  - Clean Strainer Head Losses (CSHL) are calculated

A full example case is to be presented in the written response to this RAI.

RAI #2 Voiding and NPSH Margin Calculation

RAI #2 - Please provide the results of an evaluation of the potential effect of voids (possibly resulting from deaeration of coolant) on the pumps' net positive suction head required (NPSHR) values as discussed in Regulatory Guide 1.82, Appendix A, and adjust the NPSHR values as described in that guidance. Please explain how the results of the evaluation affect the NPSH margin calculation.

Response

IP2 & IP3 Recirculation and Containment Sump Void Fractions Re-Evaluation

- IPEC had conservatively calculated bounding void fractions for the Recirculation and Containment Sumps for each unit.
- The NRC Staff requested that for non-zero void fraction values, guidance in Regulatory Guide 1.82 be used which applies a multiplier to the NPSH required for the pump.

RAI #2 Voiding and NPSH Margin Calculation

Prior to applying the RG 1.82 methodology, IPEC re-calculated the strainer void fractions reducing excess conservatisms, thereby obtaining more realistic values.

- Void fraction averaging for the different elevations of the strainer.
- Compression of any voids calculated prior to entering the pump.
- Appropriate water levels are applied.
- Actual strainer head loss values will be used.
- 30-Day mission time is applied.

Applying the RG 1.82 Appendix A guidance, it is shown that there is adequate NPSH margin to accommodate the adjusted NPSHR values for the IP-2 IR Sump, IP-2 VC Sump, and the IP-3 VC Sump.

RAI #2 Voiding and NPSH Margin Calculation

Calculated void fraction IP-3 IR Pump of 0.084%. Applying the conservative RG 1.82 formula, the IP-3 IR sump calculated NPSH margin is -0.41 feet.

However, the IP-3 IR pump is operable based on the following abbreviated points:

- Pump performance capabilities

  Flowserve has supporting information that the IR Pump is capable of operating under NPSH deficient conditions for an extended period of time.

- NUREG-0897

  Provides applicable data for the IR pump type and operating characteristics:
  - "Pump materials are generally highly resistant to erosion, corrosion, and cavitation damage."
  - "…pumping performance is only slightly degraded when air ingestion is less than 2%. This value would be a conservative estimate for acceptable performance…"

- GL 2004-02

  Region II LBLOCA analysis allows vendor data to be applied to pumps without NPSH margin for a limited duration. (IPEC doesn't apply Region II analysis)

- GL-2008-01

  Draft NRC info notes up to a 1% void would be well within the capability of pumps to accept and pass without detriment to the pump. (IP-3 case is less than a tenth of a percent.)

RAI #2 Voiding and NPSH Margin Calculation

CONCLUSIONS

- IP-2 IR and VC sumps, and IP-3 VC sump have adequate NPSH margin to cover the higher RG NPSHR values.
- IP-3 IR sump can accommodate the adjusted NPSHR values when credit is taken for pump performance capabilities under the predicted gas void conditions.
- IP-3 IR Pump void fraction (0.084%) is expected to pass w/o affect.

Note - IPEC does not currently credit any Containment accident over pressure in performing NPSH calculations.

RAI #3 ZOI for IOZ

RAI #3 …… Please clarify and justify the ZOI for untopcoated IOZ without the use of the WCAP16568P reduction, or describe impacts on strainer performance as a result of a decision to use a larger ZOI.

Response

Current IPEC Debris Generation analyses applied the following coating ZOIs:

- 4D ZOI for Epoxy coating systems
- 4.28D ZOI for un-topcoated Inorganic Zinc (IOZ)

Based on testing issues associated with WCAP-16568, the NRC now endorses the following coating ZOIs:

- 4D ZOI for Epoxy coating systems
  (Sufficient test conservatism allows the 4D ZOI of the WCAP to remain)
- 10D ZOI for un-topcoated Inorganic Zinc (IOZ)
  (Previous 5D ZOI of the WCAP refuted, default 10D ZOI is endorsed)

RAI #3 ZOI for IOZ

- New calculations evaluate the revised 10D ZOI for IOZ.
- Volume of coating debris is based on applicable surface areas for the two coating types.
- Volume, not mass, is the critical characteristic for head loss.

Unit	Original quantities in Debris Generation (4D Epoxy)	Revised quantities in Debris Generation (4D Epoxy and 10D IOZ)
IP-2	**5.32 cuft**	**5.20 cuft**
IP-3	**4.67 cuft**	**4.63 cuft**

CONCLUSION

The results in existing Debris Generation calculations are bounding and therefore, the strainer qualification (pump NPSH determinations) remain bounding and acceptable.

RAI #4 Chemical Precipitation Temperature

RAI #4 – Since the minimum containment temperatures are lower than the calculated threshold temperature for precipitation based on an equation developed by Argonne National Laboratory, the NRC staff does not understand how the temperatures shown above demonstrate any margin.

Response

- Submitted text:

  Based on plant-specific aluminum concentrations and pH, aluminum is predicted to precipitate at 118°F for IP-2 and 121°F for IP-3 [Ref. 46]. The minimum possible temperature at 7 hours after a LOCA is **110°F** *and* **116°F** *for IP-2 and IP-3, respectively [Ref. 48].*

- Corrected text:

  Based on plant-specific aluminum concentrations and pH, aluminum is predicted to precipitate at 118°F for IP-2 and 121°F for IP-3 [Ref. 46]. The minimum possible temperature at 7 hours after a LOCA is **122°F** *and* **123°F** *for IP-2 and IP-3, respectively [Ref. 48].*

RAI #4 Chemical Precipitation Temperature

The following conservative assumptions were made in the cooldown calculation:

- Containment Fan Cooler Units operating at maximum performance capabilities with maximum heat transfer rate
- Conservative calc of heat transfer through the Containment wall/liner
- Heat transfer through Containment uses larger outer building diameter
- Entire inner surface of Containment assumed equal to the sump temp
- Entire outer surface of Containment assumed equal to minimum design basis external air temperature
- CCW System is assumed to be at and remain at its lowest temp 70°F
- Sump fluid density assumed to be at 125°F for RHRHX calculations
- Maximized flow applied during recirc spray mode (suction from sump)
- Minimum sump temperature calculated for 7 hours into the event
- RWST temperature is taken at Tech. Spec. minimum

RAI #4 Chemical Precipitation Temperature

CONCLUSION

Based on above conservatisms, and that the ANL methodology is a conservative predictor of precipitation point temperatures for IPEC, it is reasonable to conclude there is a larger margin between the precipitation and sump pool temperatures than is conservatively calculated.

RAI #5 50% Holdup

RAI #5 – In RAI 1, the NRC staff asked the licensee to provide an adequate technical basis to support the assumption that some percentage of small pieces of fibrous debris will be captured on gratings in the upper containment. The licensee's response stated that the retention percentage assumed 50 percent holdup of small pieces on grating as an input. This assumption in turn was based on drywell debris transport study information (NUREG/CR 6369) which showed for each test case the washdown fraction was less than 50 percent. The response continued with a detailed discussion of associated assumptions, testing, and plant-specific information. The staff considers the licensee response did not adequately address this issue for the following reasons: …….

Response

- Current analyses assumed 50% holdup of small fiber pieces in upper Containment post LOCA based on data for flow rates greater than IPEC presented in NUREG/CR-6369.

- Sump transport is based on maximum flow rates early on in recirculation:
  - 3,700 gpm for the IP2/IP3 VC sumps
  - 7,100 gpm for the IP2 IR sump
  - 5,400 gpm for the IP3 IR sump

- Alignment is switched to the Hot Leg path by 6.5 hours. Flow is reduced to ≤1,350 gpm for remaining 30 days.

RAI #5 50% Holdup

Two alternative approaches are presented to:

- **To determine head loss sensitivity to washdown**
- **To demonstrate reasonableness of current 50% small fiber pieces holdup assumption.**

- **<u>Alternate Method 1</u> assumes 100% washdown from upper Containment**
- **<u>Alternate Method 2</u> determine the limiting washdown fraction from upper Containment**

RAI #5 50% Holdup

ALTERNATE METHOD 1

- **Revised debris transport fractions (small fiber pieces), and the logic tree values re-calculated.**
- **For the "Upper Containment" branch of the logic tree:**
  - **"retained on structures" fraction changed from 0.40, to 0.0**
  - **"washed down annulus" changed from 0.13, to 0.53.**

Increased transport fractions for small fiberglass pieces is seen below:

	Original, 50% Washdown from Upper Containment	Revised, 100% Washdown from Upper Containment
IP2 IR Sump Nukon	0.15	0.330
IP2 IR Sump Temp-Mat	0.15	0.352
IP2 VC Sump Nukon	0.09	0.115
IP2 VC Sump Temp-Mat	0.14	0.343
IP3 IR Sump Nukon	0.13	0.284
IP3 IR Sump Temp-Mat	0.15	0.352
IP3 VC Sump Nukon	0.08	0.107
IP3 VC Sump Temp-Mat	0.14	0.343

IR is Internal Recirculation Sump, and VC is Vapor Containment Sump

RAI #5 50% Holdup

ALTERNATE METHOD 1 (cont)

Reactor Cavity Breaks

- All four IPEC Reactor Cavity breaks have a sump fiber mass less than that required to form a thin-bed.
- Therefore, these new 100% washdown cases bounded and acceptable.
- All Reactor Cavity break cases compared to test data performed to NRC recommended March 2008 protocol.

RAI #5 50% Holdup

ALTERNATE METHOD 1 (cont)

IR LBLOCA and VC 6" LOCA Breaks

Comparing the fiber amounts with tests of similar amounts, consider existing margin, if case is thin bed or full load.

- Cases were compared to test data performed to NRC recommended March 2008 protocol.
- Only IP3 IR Sump LBLOCA case used earlier IPEC test data since no Full Load test cases from the 2008 protocol testing had sufficient fiber quantity to compare.
- However, since this is not a critical thin bed case, the fiber preparation is considered prototypical and test acceptable to use.

There is supporting evidence to concluded that all these cases would be acceptable while assuming a full 100% washdown.

RAI #5 50% Holdup

ALTERNATE METHOD 2

- **This method determines what fraction would be supported if only the later 2008 protocol IP testing data is applied.**

Table 2 - Maximum Washdown Fractions to be Bounded by IPEC's 2009 Prototypical Head Loss Testing

	IP-2	IP-3
IR Sump LBLOCA	**95.5%**	**50% (1)**
VC Sump 6" LOCA	**100%**	**93.5%**

(1) Since the IP3 IR Sump LBLOCA is the limiting case tested under the current analysis, it matches the existing 50% washdown assumption case.

RAI #5 50% Holdup

ALTERNATE METHOD 2

- **It can be seen that for the other 3 cases, a much higher percentage of washdown than currently analyzed for IP is supported as acceptable by the 2008 protocol testing.**

- **It is not unreasonable to expect some percentage of fiber holdup in the upper Containment.**

RAI #5 50% Holdup

General observations

- RAI #5 focuses solely on washdown through gratings.
- Does not consider that debris must also transport to the grating.
- Debris must pass: equipment / piping / walls / floors / inactive areas / other miscellaneous items before it washes down.

Therefore:

- The 100% washdown assumption evaluated above is a conservative methodology
- Assumes the unlikely post LBLOCA condition of the upper Containment area being completely fiber-free.

RAI #5 50% Holdup

CONCLUSION

- Transport fractions used to determine debris loads contain considerable conservatism.
  - The erosion fraction is assumed to be 10%, ~3 times greater than the average erosion fraction of 3.59% determined through testing.
  - Recirculation transport is based on short term maximum flow rates for the beginning of recirculation.
  - IPEC assumes much higher flowrates, even though ECCS alignment is switched to the Hot Leg path by 6.5 hours and the flow rate is $\leq$ 1,350 gpm for the remaining 30 days.

Reactor Cavity Cases

- All are bounded by thin bed data.

Analytical Debris Generation Cases

- Test data for comparable fiber loads indicate thin-bed debris loads still give the bounding head losses, rather than the revised full Load cases.

RAI #5 50% Holdup

CONCLUSION

- Alternate methodology shows 3 of the 4 Analytical Debris Generation cases can accommodate a washdown fraction near to or at 100% to obtain a fiber quantity that is bounded by the latest “Test-for-Success” data.
- The 4th Analytical Debris Generation case, using the 100% washdown fraction, is bounded by previous IPEC testing data.
- A conservative 100% washdown fraction for debris from upper containment versus the 50% would not significantly change debris head losses and the existing analysis used to certify the strainer is valid.

RAI #6 10% Fiber Erosion

RAI #6 – In RAI 2, the NRC staff asked the licensee to provide an adequate technical basis to support its assumption of 10 percent fibrous debris erosion in the containment pool. The response stated that this was a reasonable assumption and provided justification. To further support the assumption, the licensee is participating in an industry program to generate additional erosion test results, with a report expected in April 2010. Please provide a description of the test and the test results once completed in order to demonstrate the adequacy of the assumed erosion percentage.

Response

- Testing results support the existing 10% fiber erosion value in IPEC's analyses as bounding and conservative.
- The ALION report is available to the staff in ADAMS as ML#101090490

RAI #7 Time-dependent Debris Transport

RAI #7 – The licensee is crediting time-dependent debris transport for qualification of the vapor containment (VC) sump. In RAI 5, the NRC staff asked the licensee to provide adequate technical justification that the time-dependent model is conservative. The response provided an analysis that noted the effect of each staff concern was quite small, and that only a small fraction of the debris would remain in the pool after one day (0.5 percent for IP2 and 0.7 percent for IP3). After reviewing this information, the staff still has questions concerning the adequacy of the head loss test assumption of less than 5 percent fiber transport to the VC sump. The staff considers that the licensee's response did not adequately address this issue for the following reasons: …….

Response

There are 5 individual items identified in RAI #7. A response to each items is provided followed by a combined response.

- This RAI applies:
  - to the pool turnover method for the Vapor Containment (VC) Sump
  - only after a single failure occurs (24hrs into event)
  - after the IR sump has operated for the 1st 24Hrs of event

RAI #7 Time-dependent Debris Transport

A) Delayed Washdown

- Previously all washdown assumed complete at start of recirculation.

New RAI evaluation:

- A time dependant washdown curve developed from NUREG/CR-6369 data
- To Minimize pool turnovers:
  - Conservatively low flow rate for pool applied (3 different flow rates applied)
  - Flow for applicable time period applied (i.e 1000 gpm 5.5 to 24 hrs)
- All debris is considered (i.e. smalls & fines)
- Calculation shows only 0.9% of total debris remains in pool

RAI #7 Time-dependent Debris Transport

B) Fiberglass Erosion

- Previously, 5% of the 10% erosion stated to occur after 24hrs: 0.5% (0.1* 0.05)

New RAI evaluation:

- Is by ratio for ALION test data, 81% erosion is after 24Hrs,
- Specific low velocity data for VC is applied where fiber settled
- Scaling is applied w/ Safety factor of 3
- Equation correlating erosion to velocity from ALION report used
- Test value of 3.59% raised to the accepted 10% erosion value
- Multiplied by the 81% (total erosion after 24Hrs)
- Concluded an erosion of 0.86%, less that 1% in current debris transport analysis

RAI #7 Time-dependent Debris Transport

C) Strainer Bypass

New RAI evaluations consider clean & fully covered strainer screens

- Clean Strainer case:
  - Significant clean screen present per testing
  - Particulate either settles or passes thru clean section
  - Tested data suggests head loss not strongly dependant on particulate
  - IR strainer area ~3 x size VC, yet VC debris load 1/3 of IR
  - IR is not covered, then VC should not be covered & particulate is not a problem.

- Fully Covered Strainer case:
  - Tests show full load is effective filter
  - IP turbidity data from testing demonstrates effective filtering
  - Testing turbidity reduction time was compared to VC pool turnovers
  - Evaluation shows sufficient IR pool turnovers exist to remove particulate.

RAI #7 Time-dependent Debris Transport

D) Debris Movement after Securing IR Pump

Alternative points (in addition to previously submitted):

- Top level of 9 level IR strainer represents ~11% (1/9 *100%)
- Strainer is in a pit, only top level susceptible to movement out of pit
- Assume 20% fine fiberglass from the top level could be released
- Represents 2.2% of total fine fiberglass
- Amount is evaluated in the total fraction (see item E)
- Small amount of particulate does not affect head loss (see item C)

RAI #7 Time-dependent Debris Transport

E) Pool Fill transport to VC Sump

- Fluid/debris must fill Reactor Cavity 1st before traveling out In-Core tunnel and to sump
- IP-2 VC pit is 232 ft3 or 0.7% volume (at min water volume)
- IP-3 VC pit is 496 ft3 or 1.7% volume (at min water volume)
- Large % of fine debris in upper VC during sump fill-up
- Conservative transport of 1.7% is evaluated in the total fraction

RAI #7 Time-dependent Debris Transport

A) thru E) Combined

- Conservative transport fraction of 4.8% for fine debris presented in table below
- Total Time-Dependent Debris Transport Fraction for Fine Debris

ITEM	Transport Fraction
Delayed Washdown	0.9%
Strainer Bypass	0%
Debris Movement after Securing Pumps	2.2%
Pool Fill-up transport to VC Sump	1.7%
TOTAL	**4.8%**

Recall, the VC sump pool turnover case is only required when a failure has occurred and after 24Hrs of IR Sump operation.

RAI #7 Time-dependent Debris Transport

CONCLUSION

- Conservative inputs of minimum flow and maximum pool volume for turnover calc.
- 4.8% fraction of debris is bounded by current evaluation (5%).
- Testing supports pool filtration.
- Particulate not found to be strainer head loss driver.
- Very low velocity in pool indicates erosion fraction of less than 1% for post 24hr period.
- Existing analysis has NPSH margins of 2.51 ft (IP-2) and 4.41 ft (IP-3).

Overall Summary

There are numerous conservatisms in the overall approach and approved guidance that in combination with the plant modifications performed, the existing analyses provide reasonable assurance that the ECCS pumps will perform their accident mitigating functions in a safe and effective manner.

- **Questions?**

debris loading analyzed for the VC sump strainer. It is not clear if 5% is the total loading, or if there is an additional allowance for erosion accumulation. The NRC staff will need to review the revised answer, which the licensee committed to provide by June 25, 2010.

RAI 7.c The licensee stated it would remove the last 2 sentences under the topic "Fully Covered Strainers." The discussion on the collection of 95% of the fine particulate is not needed. With that change, the NRC staff will find this response acceptable.

RAI 7.d, e The NRC staff concludes that the draft responses to questions 7.d and 7.e are acceptable as is.

The licensee will provide its final RAI responses in a letter to the NRC. Please direct any inquiries to me at 301-415-2901, or by email to John.Boska@nrc.gov.

/RA/

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Docket Nos. 50-247 and 50-286

Enclosures:
1. List of Participants
2. Entergy Slides

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