December 15, 1999

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LICENSEE: STP NUCLEAR OPERATING COMPANY (STPNOC)

FACILITY: South Texas Project, Units 1 and 2 (STP)

SUBJECT: JUNE 2-3, 1999, MEETING ON STPNOC'S LOW POWER AND SHUTDOWN ACTIVITIES AT STP

On June 2 - 3, 1999, a site visit was conducted to obtain information about low power and shutdown (LPSD) activities at STP. The NRC is currently funding an LPSD program to provide (or develop, as necessary) an understanding of the risk associated with LPSD operations sufficient to support decisionmaking for risk-informed regulation. Development of this understanding involves the gathering of information on LPSD risk.

STPNOC discussed how LPSD risk is managed and controlled at STP. As part of the discussion, Sandia National Laboratory and Brookhaven National Laboratory personnel asked questions to help clarify and/or confirm the information presented by STPNOC. This information is summarized in Attachment 1 (Completed LPSD Questionnaire from Site Visit: South Texas). Attachment 2 is STPNOC's response to a questionnaire that was prepared for a public workshop on April 27, 1999, in Rockville, Maryland. In addition, STP provided two additional handouts (Attachments 3 and 4) with LPSD-related information on risk profiles and references. A list of meeting attendees is provided as Attachment 5.

ORIGINAL SIGNED BY

Thomas W. Alexion, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Attachments: As stated (5)

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

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Completed LPSD Questionnaire from Site Visit: South Texas

General Questions

1. How is LPSD risk controlled or managed at your facility?

   For planned outages ORAM (Outage Risk Assessment and Management) software is used to plan and assess risk as follows:
   - Outage Management develops a proposed schedule.
   - The schedule is analyzed for risk by the Shut-Down Risk Assessment Group (SRAG).
   - The SRAG is composed of Operations, Outage, and the PRA group.
   - Schedule is first analyzed by ORAM for Defense-in-Depth.
     - STP refuses to accept ORAM Red states.
     - Orange can be accepted, but must be justified, and are tolerated only for short periods of time.
     - Schedule changed as needed and negotiate with SRAG.
   - Schedule is analyzed for risk using ORAM probabilistic shutdown safety assessment (PSSA) module to get CDF estimates.
     - Schedule is changed as needed and negotiate with SRAG to achieve "acceptable" level of risk.
   - Outage Risk Assessment report is written by the Outage Manager based on ORAM Defense-in-Depth and PSSA analyses.

   If unplanned outage occurs, lists of pre-identified actions that need to be performed are available. An ORAM analysis may or may not be performed; however, a meeting of the SRAG may be called.

   Shutdown risk assessment "checklists" are used to ensure that all NRC/Industry/Plant requirements for an outage are met.

2. What resources are allocated to controlling LPSD risk?

   Resources include individuals from
   - Outage,
   - Operations, and
   - PRA group.

   During the planning stage of an outage, approximately 2 staff persons are devoted to planning the outage with input from all affected organizations. Once the outage is underway, approximately 1/2 staff person is devoted full-time to controlling outage risk, again with input from all affected organizations.

Scope and Level of Detail Questions

1. What is the scope of your LPSD analyses (e.g., transients, loss of coolant, fire, flood, seismic, planned outages, unplanned outages, plant operating state transitions, others)?

Completed LPSD Questionnaire from Site Visit: South Texas (Continued)

- Planned outages
- Modes 5 and 6 currently
- No transition states
- No fire, flood, seismic, or other external events
- No unplanned outages, although ORAM could be run during an outage if desired.
- Initiating events include:
  - Loss of decay heat cooling (e.g., primary and support system failures)
  - Loss of inventory (e.g., large rapid drain downs, small LOCAs inside and outside containment)
  - Loss of offsite power

2. What are the bases for your current decisions to include or exclude:
   - initiating events (e.g., loss of decay heat removal, loss of support system, fire, and flood),

     Initiating events include those identified in the ORAM basis documents (NSAC-175L and NSAC-176L), supplemented by any plant specific information.

     Slow moving events (i.e., those that take a long time to develop) are not included in the list of initiating events. If it approaches 24 hours the event is not worth analyzing because the is so much time for help to arrive. This is based on time-of-detection.

     For internal fires, the belief is that sufficient controls are in place during welding and cutting activities such that the risk from fires caused by these shutdown activities is minimal (to many controls in place). For other "random" fires, the risk should also be minimal –might be able to scale results from full power analysis.

     Seismic would probably be screened out due to STP low seismic zone.

     Flood - (both internal and external) is currently not included in their model but they are talking about it.

   - operational states,

     New state created for each equipment change; however, only Modes 5 and 6 are included in the current ORAM model. Mode 2 could be modeled using a modification to the current full power model. Modes 3 and 4 could not be readily modeled with ORAM.

   - outage types (i.e., planned, unplanned, forced, unforced, etc.)

     Currently, only planned outages are considered, but analyses for unplanned outages can be performed on as needed basis.

   - fuel pool cooling, fuel handling, and/or fuel misloading, and

Completed LPSD Questionnaire from Site Visit: South Texas (Continued)

- Fuel pool cooling is done if relevant
- Fuel handling is not done. There are so many controls, and it is unlikely that public health and safety would be compromise if a fuel assembly were dropped.
- Fuel misloading in the core is very well controlled and the loading of fuel into a core is well understood activity. However, fuel mishandling for Spent Fuel re-raking should be investigated. Fuel loading in spent fuel pools is becoming increasingly complex as utilities store more and more fuel.

- transitions between operational states.

  - Transition states are highly controlled, and are really just a matter of following procedures to get to from mode to mode (e.g., Mode 5 to 6).
  - One area where transition might be important is the transition from Mode 3 to Mode 4.
  - Plant configuration (i.e., equipment requirements) for Modes 1 to 4 are basically the same.
  - Mode 2 could be modeled with full power model.

3. Are there any scope issues that you believe should be included that are not now included in your analyses?

   - Internal/External flood.
   - Wind.
   - "Normal" random fire.
   - Verification/Validation of comparison of Full Power risk estimates to Low Power risk estimates (e.g., RISKMAN vs. ORAM) with the goal of being able to evaluate on-line maintenance vs. shutdown maintenance.
   - Some sort of release analysis and risk metric.
   - Spent fuel recriticality caused by complex geometry required to store the fuel

4. What additional research or guidance (if any) would be required before these issues could be efficiently addressed?

   Issues associated with the development of a release risk metric.

5. What is the level of detail used in your analyses? Is it the same as or different from the level of detail used in your full power analyses?

   - Different levels of detail are used depending on the analysis.
   - ORAM models are roughly 75% of a Shutdown PSSA (whose level of detail is comparable to that of the full power analysis). The ORAM system models are less detailed than RISKMAN, but ORAM fault tree structure is very similar to RISKMAN.

6. How did (or how do) you decide what level of detail is appropriate?

   If it is assumed that the full power analysis represents an appropriate level of detail and if the comparison of ORAM and RISKMAN results proves favorable, then the current level of detail in

ORAM may be adequate. If significant (and unexplainable) differences exist between ORAM, the additional level of detail may be warranted.

7. Are there any instances where you think the level of detail currently used might prove inadequate? If so, where?

   One area that may need additional level of detail is the model for DC power (currently modeled as either available or unavailable). Otherwise, only if inadequately modeled or if needed to correct differences between ORAM and RISKMAN results.

8. What guidance, if any, should be provided on the appropriate level of detail for an analysis?

   Guidance should be provided so that the analyses can be standardized and to make sure that time and resources are not wasted in unnecessary detail or insufficient detail.

9. How does your LPSD risk assessment scope meet the guidelines of NUMARC 91-06?

   When the SFATS (Safety Function Status Assessment Trees) for the ORAM defense-in-depth analysis are developed, the NUMARC 91-06 guidelines are factored directly into the tree structure. Thus, if a path through an SFATS violates the guidelines, then that information is display in ORAM.

Methods and Assumptions Questions

1. What are the basic methods and approaches (e.g., ORAM, EOOS, Safety Monitor, defense-in-depth, or probabilistic risk assessment) that are used to manage LPSD risk at you facility?

   - ORAM defense-in-depth and PSSA modules
   - A full scale RISKMAN LPSD PSSA model is being upgraded to reflect the current plant.
   - A comparison of results from ORAM and RISKMAN will be performed. Results from this comparison will be used to judge whether both ORAM and RISKMAN models will maintained at South Texas.
   - Currently, RISKMAN is not used for outage risk management.

2. How or why do you choose methods and approaches for use in a particular analysis?

   - The EPRI ORAM approach was the standard at the time when South Texas sought to develop a LPSD model to actively control shutdown risk.
   - Experience with and the financial investment in ORAM would also play a part in the selection of any process to manage shutdown risk.

3. What are the strengths and weaknesses (if any) of the methods and approaches that you use?

   - Weaknesses

  - It is not yet clear if ORAM yields risk estimates and insights commensurate with those that could be produced by a more detailed PRA. This is being assessed.
  - Standard report format is poor, but that is not a technical issue.
  - There is only one contractor who does ORAM modeling (ERIN). South Texas is striving to develop the in-house expertise to be independent of ERIN.
  - Codes that do thermal hydraulic calculations efficiently while not discounting thermal sinks.
- Strengths
  - Flexibility of a spread sheet. If an equation can be translated into an IF-THEN-ELSE format, it can be implemented into ORAM. Thus ORAM can be very comprehensive.
  - Its easy to get the Outage Management to use ORAM because they get quick results. If it took hours to get an analysis done, then they wouldn't use it.

4. If there are any weaknesses, can these weaknesses be minimized by additional research? If so, what additional research would you suggest?

   - South Texas is currently in the process of comparing probabilistic results obtained from ORAM to those that can be obtained from RISKMAN. The results from these comparisons will be used by South Texas to decide whether both models are necessary. This information could be used by NRC to make judgments on what is an appropriate level of detail.
   - There is no MAAP equivalent for shutdown. Are the time-to-core damage, the time-to-boiling calculations from ORAM valid?
   - Mode 4 and transitions models for ORAM could be developed with research.
   - Release metric.

5. What are the major assumptions (e.g., development of success criteria, human performance, and appropriate data sources) used in your analyses?

   - Thermal hydraulic analyses are somewhat conservative. More realistic analyses might indicate that the operators have additional time to respond to certain events.
   - HRA - Only one source for ORAM analysis–EPRI TR-100259
   - Data - started with EPRI data for shutdown: NSAC-156, 52, and AEOD/S93-05, but moving to specialized data for South Texas.

6. What are the bases for these assumptions?

7. What method(s) do you use to identify and quantify potential human errors?

   Emergency procedures are used to identify potential human actions. These actions are then quantified using the approach discussed in EPRI TR-100259 (i.e., the HCR/ORE methodology).

8. Do theses methods have any limitations that you would like to see corrected? If so, what are they?

Completed LPSD Questionnaire from Site Visit: South Texas (Continued)

For thermal hydraulics, it is not known whether the simplified models used in ORAM produce time to core damage or time to boil that would be significantly different from that produced by more detailed thermal hydraulic models. The only way to know would be to perform a comparison. Additionally, It is not clearly understood whether or not that changes in the time to core damage or time to boil would impact risk. Probably depends on each initiating event.

For HRA, since only one method is used, it is unclear whether application of additional methods would produce the same results.

For data, no limitations, beyond those accepted in full power analyses, exist.

9. For the data included in your analyses (e.g., initiating events, equipment failure rates, and maintenance unavailabilities) what are your sources and how do you analyze the information?

   HRA values obtained from EPRI TR-100259.

   Initiating event data started with information in NSAC-156 and -52 and AEOD/S93-05. Moving to specialize data to South Texas.

   Failure data same as used in full power analysis.

   Unavailability data is outage specific.

10. As a result of your data analysis, are there any specific data needs that you have identified? If so, what are they?

    None, except possibly human errors.

11. Based on your current LPSD analyses, are there any areas that require additional research (e.g., boron dilution, maintenance or testing induced drain-down events, nuclear grade crane failures, impact of the definition of "Success Terms" on the selection of computational tools, fire and flood initiators, cold overpressurization, and impact of plant procedures (both emergency and administrative) on LPSD modeling assumptions)?

    - Nuclear grade crane failures - Probably not worth the effort.
    - Fire, flood, and wind - Not sure these require additional research.
    - Drain-down - no. This is covered in the data on initiating events.
    - Boron Dilution - There are many other events that would get the plant in trouble before sufficient unborated water could be injected.
    - Cold pressurization as an initiator is modeled explicitly.

LPSD Risk Analysis Results Questions

1. What are the results from your LPSD analyses?

Completed LPSD Questionnaire from Site Visit: South Texas (Continued)

See information in South Texas Handout #2 and the viewgraph presentation made at the April 27, 1999 LPSD Workshop.

2. What core damage frequency and release metrics do you use?

   CDF per hour (instantaneous) and per outage (cumulative)

   Boiling risk per hour and per outage for core and spent fuel pool

   No release metric

3. Why do you think these are the appropriate metrics to use?

   They are familiar, and we (and others) understand them.

4. If you do not currently use a release metric (e.g., large early release frequency), what is your bases for not doing so?

   No appropriate metric exist.

   It would require effort to establish an appropriate metric.

5. What characteristics should a release metric possess to be useful in LPSD analyses?

   It should be similar to LERF, and it should include:
   - time-of-release, and
   - isotopic species released.

6. Are there other metrics that should be considered for LPSD analyses? If so, what are they?

   - What should be done for dropped fuel rods. This is for internal plant use only since a dropped fuel rod is unlikely to affect public health and safety.
   - A metric to measure fuel damage in the spent fuel pool.

Structure and Format of LPSD Standard Questions

1. Is a LPSD Standard needed? Please explain your answer.

   - Yes. This should be done to bring the entire industry up to a higher standard of protecting public safety. A shutdown incident could devastate the industry.
   - It would also allow opportunities for reassessing licensing requirements.

2. If a LPSD Standard is needed:

Completed LPSD Questionnaire from Site Visit: South Texas (Continued)

- what should be its scope and structure,
  - Should include a standard set of initiating events
  - Should estimate risk for different modes of operation
  - Should contain, or refer to, acceptable data sets
  - Should be similar to a standard ORAM (or equivalent) model.
  - Should provide for screening of initiating events (e.g., screen seismic initiators if in low seismic area, screen on long time duration events)
  - Not sure if IPE level-of-detail is needed. This is in regard to outage control risk management.
  - There should be work on fire/flood/wind/release metric issues.
  - It is not yet clear if shutdown risk can be done with a full scale PSSA or just ORAM.

- what are the appropriate risk metrics, and
  - CDF (instantaneous and cumulative)
  - boiling
  - release

- should it endorse any specific methods or techniques for analyzing LPSD risk?
  - No. As long as criteria are specified that ensure consistent and comparable results are obtained, there is no need to specify methods or techniques.

WORKSHOP DISCUSSION TOPICS

1. Are LPSD core damage frequency (CDF) and large early release frequency (LERF) comparable to full power CDF and LERF? What methods and assumptions should be used to answer this question?

Response:

The CDF values are somewhat comparable, within an order of magnitude. LERF has not been determined for STP.

Methods - Shutdown PRA and/or Sentinel Shutdown Probabilistic Shutdown Safety Assessment (PSSA). Benchmark exercise indicates the results can be comparable.

2. Are the LPSD CDF and LERF dominant contributors comparable to the contributors from full power? What are the methods and assumptions should be used to answer this question?

Response:

CDF dominant contributors are not comparable. Decay heat removal is the most important function during shutdown, options are limited to residual heat removal (RHR) during modes 5 and 6. LERF is not calculated for shutdown.

Methods - See response to item 1 above.

3. Is LERF an appropriate metric for meeting the Safety Goal Policy Statement for all POS? If not, what metrics should be used? For example, should there be a metric on long term release frequency to supplement LERF? What should it be based on?

Response:

No.

Something similar to LERF should be developed. The plant and containment conditions in shutdown and the time since shutdown are important considerations.

4. How many plant operational states (POS) are needed to adequately represent the risk associated with LPSD operations?

Response:

For PWRs, probably 3, Modes 4, 5, and 6

5. Should the scope of LPSD analyses include fuel handling and storage, e.g., full offloading? What methods and assumptions should be used to answer this question?

Response:

Fuel pool boiling is very low risk event with a full core offload.

6. Is their sufficient technical basis (knowledge of core melt phenomena, source terms, varying containment configurations, etc.) Available to support LERF analysis for LPSD? If not, what

issues require additional study? If a sufficient technical basis exists, what information sources can be cited to support the assertion?

Response:

Not yet.

Very little has been done or is available that discusses release during shutdown conditions.

7. Is the CDF and LERF associated with the transition from one operational state to another important? What methods and assumptions should be used to answer this question?

Response:

If the transition periods are short, the risk is extremely small in relation to at-power and shutdown risk, no benefit is gained for the complexity of the models. If the plant routinely remains in Mode 3 (PWR), a mode specific PRA is probably required.

At-power model at STP is used to address Mode 2questions, the shutdown PSSA and PRA are used for models 5 and 6 (working on adding Mode 4).

8. Is a traditional PRA approach needed to provide an understanding of LPSD for risk-informed regulatory decision-making? If not, what other approaches are available? What are their strengths and limitations?

Response:

Not sure what this question means.

9. Currently, the staff is supporting efforts to produce a nation consensus standard on full power PRA to support risk-informed decision-making, Is there an adequate technical basis to develop a standard on LPSD?

Response:

Given the amount of work performed by the industry in conjunction with EPRI on shutdown models, and adequate technical basis is probably very near.

10. Draft NUREG-1602 provides reference material on the scope and quality of a LPSD PRA. Is the information in this draft complete and correct? Is it useful as reference material in making assessments on an application-specific basis on the scope and quality of a LPSD risk assessment to support that particular application? How could it be improved?

Response:

Currently reviewing NUREG-1 602 (shutdown).

11. Given the lack of experience in performing LPSD PRAs, should a standard for LPSD PRA provide both (1) requirements for what activities should be performed and (2) detailed information/instructions on how those activities should be performed?

Response:

See the response to item 8 above. The industry appears to be far ahead of the NRC in the consideration of shutdown issues.

12. Can NUREG/CR-6595 be used to calculate LERF for LPSD conditions? If not, what additional guidance should be added to the report to support LERF calculations for LPSD conditions?

Response:

"Have to find the NUREG to answer the question.

13. Are average equipment unavailabilities during LPSD conditions (resulting in average CDF and LERF estimates) sufficient to support risk-informed decision-making?

Response:

*Absolutely not. There are no standard plant configurations. Each outage is very different. At STP, with our **AGGRESSIVE** on-line maintenance program, a lot of the traditional shutdown maintenance activities are no longer in the outage. In spite of this, each of our outages provide us with new and unique challenges.*

14. Is the following definition of an initiating event during LPSD adequate: "An event that causes loss of the function(s) necessary to maintain the plant in its existing operating state?" If not, then what changes should be made to enhance the definition?

Response:

Yes.

15. Are there generic data sources for the identification and quantification of LPSD initiating events? If so, are the data sources publicly available? Are these generic data sources consistent?

Response:

EPRI has published studies for almost all of the ORAM/Sentinel evaluations performed.
EPRI reports are not publically available.
The generic data sources are consistent (prepared by the same contractor in most cases).

16. Do certain LPSD operational states have the potential to have more human failures than full power operation? If event trees and fault trees are used to model the response of a plant to LPSD initiating events, where is the more appropriate place to model these human failures? What is the basis for this choice?

Response:

Yes. Examples - Mid-Loop and Reduced Inventory.
We model operator errors and recovery in the PSSA event trees.
Logical placement.

17. What improvements are required to ensure an adequate representation of human actions during LPSD conditions?

Response:

PSSA, if performed correctly, adequately represents operator interface with the plant during LPSD conditions.

18. What are the important uncertainties (parameter, model completeness) that should be considered in LPSD analysis? How should these uncertainties be evaluated in LPSD analyses?

Response:

STP only - we have both a PSSA (ORAM/Sentinel) and a shutdown PSA. These models have been compared with each other and we are in the process of resolving modeling differences. The results indicate that the models are comparable. Parameter uncertainty can be quantified using the Shutdown PSA. Model completeness issues are being addressed by review and use of the shutdown model by the plant operating staff and by periodic review of shutdown experience from other plants.

19. Are there any other issues related to Level 1 and 2 analyses that are important to the development of LPSD risk (CDF and LERF)?

Response:

External events (Example, we are required to shutdown upon approach of a hurricane. The At-power PRA does not include this initiator. The shutdown PRA does not include this or any other external event).

Containment conditions during shutdown need to be reviewed against a consistent guideline. (Fuel movement is a low risk evolution in terms of public safety and the containment is required to be closed, RCS inventory concerns (except for Reduced Inventory) and train maintenance outages have no requirement for containment closure)

ORAM Risk Profiles

The risk profiles generated by ORAM for 1RE08 were reviewed by the Risk and Reliability Analysis group to develop risk insights that can be transmitted to site personnel. Figure 1 presents the core damage risk profile for 1RE08 and Figure 2 presents the RCS boiling risk profile. In terms of plant risk, the front-end mid-loop is the most significant risk contributor during the outage by almost an order of magnitude and by comparison is approximately equal to two months of 100% power operation using the current South Texas Project Probabilistic Risk Assessment.

By integrating the results of the risk profile curve for the mid-loop, total core damage likelihood for the mid-loop can be determined. Assuming we are in mid-loop for seven hours, from 21:00 on March 29 to approximately 04:00 on March 30, total core damage likelihood is approximately 6.2E-06. The cumulative risk for 1RE08 is approximately 4.2E-05 and the planned duration is approximately 670 hours. The front-end mid-loop contributes 15% to the total risk in 1% of the total planned outage duration time.

In order to put the risk associated with 1RE08 into perspective, a comparison was performed between recent Unit 1 and Unit 2 refueling outages. The risk per hour for 1RE08 is lower than the risk per hour from the two previous outages because of the longer duration of the **Defueled** state when no risk is accumulated. The cumulative core damage risk and the boiling risk for the three outages are comparable however. The following table summarizes the risk information from ORAM.

Outage Number	Duration (hours)	Core Damage Risk (per hour)	Core Damage Risk (Cumulative)	Boiling Risk (per hour)	Boiling Risk (Cumulative)
1RE08	667	6.29E-08	4.2E-05	4.03E-06	2.7E-03
2RE06	447	8.73E-08	3.9E-05	5.91E-06	2.6E-03
1RE07	492	8.25E-08	4.1E-05	7.00E-06	3.4E-03

Based on the risk seen in the previous refueling outages, the risk imposed during 1RE08 is not considered unusual.

Note: The absolute value calculated for core damage risk is not directly comparable to the At- Power core damage frequency reported in the South Texas Project PRA. The operator recovery terms in the shutdown Probabilistic Shutdown Safety Assessment (PSSA) are based on generic operator failure rates rather than detailed operator response surveys and are conservative and the **Loss of Coolant** frequencies used in PSSA are also conservative. The conclusion based on the comparison between the outages of core damage frequency and boiling risk is valid.

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MEETING WITH STP NUCLEAR OPERATING COMPANY (STPNOC) ON

LOW POWER AND SHUTDOWN ACTIVITIES AT SOUTH TEXAS PROJECT

June 2-3, 1999

Name	Organization
S. Rosen	STPNOC
R. Grantom	STPNOC
B. Stillwell	STPNOC
T. L. Chu	Brookhaven National Laboratory
A. Camp	Sandia National Laboratory
T. Wheeler	Sandia National Laboratory
D. Whitehead	Sandia National Laboratory

December 15, 1999

LICENSEE: STP NUCLEAR OPERATING COMPANY (STPNOC)

FACILITY: South Texas Project, Units 1 and 2 (STP)

SUBJECT: JUNE 2-3, 1999, MEETING ON STPNOC'S LOW POWER AND SHUTDOWN ACTIVITIES AT STP

On June 2 - 3, 1999, a site visit was conducted to obtain information about low power and shutdown (LPSD) activities at STP. The NRC is currently funding an LPSD program to provide (or develop, as necessary) an understanding of the risk associated with LPSD operations sufficient to support decisionmaking for risk-informed regulation. Development of this understanding involves the gathering of information on LPSD risk.

STPNOC discussed how LPSD risk is managed and controlled at STP. As part of the discussion, Sandia National Laboratory and Brookhaven National Laboratory personnel asked questions to help clarify and/or confirm the information presented by STPNOC. This information is summarized in Attachment 1 (Completed LPSD Questionnaire from Site Visit: South Texas). Attachment 2 is STPNOC's response to a questionnaire that was prepared for a public workshop on April 27, 1999, in Rockville, Maryland. In addition, STP provided two additional handouts (Attachments 3 and 4) with LPSD-related information on risk profiles and references. A list of meeting attendees is provided as Attachment 5.

ORIGINAL SIGNED BY

Thomas W. Alexion, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Attachments: As stated (5)

cc w/atts: See next page

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