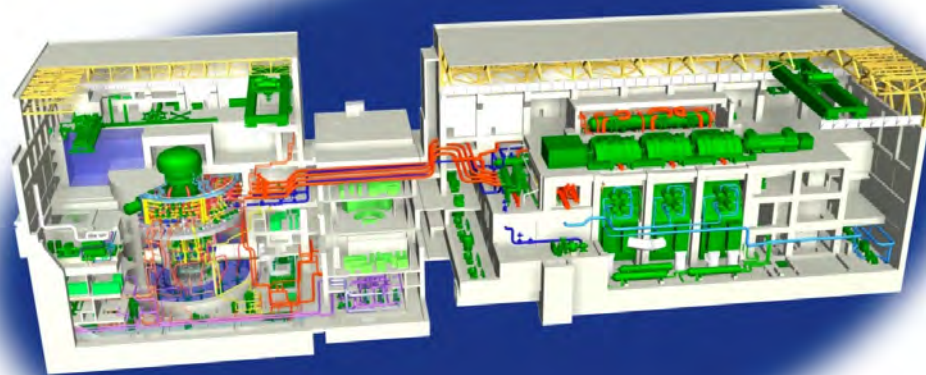
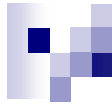


South Texas Project Units 3 & 4 Presentation to NRC September 18, 2013 Spent Fuel Storage Racks





Attendees

Scott Head	NINA
Steve Thomas	NINA
Dick Bense	NINA
James Fisicaro	TANE
Charles Bullard II	HOLTEC
Evrin Kalfazade	HOLTEC
Al Gutterman	ML&B



Agenda

- Introductions
- Objectives
- First Steps
- Lessons Learned
- HOLTEC Rack Design and Analysis Results
- Pre-Submittal Conclusions
- Looking Forward
- Available Information
- Strategy Going Forward
- NRC Questions and Proposed Resolution



Objective

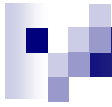
Although we will provide a point-by-point discussion of staff issues and an explanation of our rationale for the format, content, and level of detail of the submittal, our objective has been and remains to provide the staff with all the detailed information required to complete the review in an efficient manner.

First Steps

- Our first step was to change vendors to Holtec in order to prepare a submittal for STP 3&4 that was as close as possible to SFR submittals previously approved by the NRC.
- Although the Holtec design and analytical methodology are completely different than the initial submittal, we wanted to incorporate lessons learned from the first effort. Many of the RAI's did not seem to be germane to Holtec.

Lessons Learned

1. Since it is difficult to put all the information in the report necessary to support a comprehensive technical review, plan for alternate access to design drawings and analytical packages.
2. Provide a comprehensive description of time history development which fully complies with regulatory requirements.
3. Avoid new or unique design features which challenge convention and analytical capabilities.
4. Address potential damage from fuel impacts for the DCD fuel.
5. Provide a design with sufficient margins for the relatively large seismic demand.
6. Pattern the submittal after previously approved submittals and provide references to precedents in order to focus on more recent issues.



Holtec Design and Analysis Results:

1. Standard Holtec design enhanced with:
 - Thicker Baseplate
 - Bumper Bars
 - Fifth Pedestal
 - Larger Diameter Pedestal
 - Thicker Cell Walls
2. Maximum base plate displacement: 4.70 inches
3. Maximum top of rack displacement: 6.78 inches
4. Maximum stress factor: 0.546
5. Fuel integrity maintained

Pre-Submittal Conclusions

1. The design and analysis are consistent with current industry practice and meet regulatory requirements.
2. Lessons learned have been incorporated into the design and analysis and can be addressed with the staff in an audit with supplemental information, if not addressed in the report.



Looking Forward

- We are committed to providing all necessary information to facilitate NRC review.

Available Information

Required information is available:

- Report summarizes key design parameters, acceptance criteria, methodology and results
- Calculation provides analytical details, comprehensive results, additional parameters, calculation details
- Design drawings provide complete dimensions and fabrication/welding details

Strategy Going Forward:

The following will facilitate the review:

- Design drawings are available at WEC Twinbrook office
- Structural calculations are available at WEC Twinbrook office
- NINA will support audit at any location convenient to staff
- NINA will provide supplemental information on topics identified in today's meeting

NRC Questions and Proposed Resolution in Structural Area:

1. Figures 2.1 through 2.16 provide details of the Spent Fuel Rack (SFR) components. Tie bar width and various weld sizes are not included in the report. (RAI 09.01.02-2, Item 'a')
2. The report does not include any information about the gap considered in design between the fuel and cell wall. (RAI 09.01.02-2, Item 'b')
3. The report did not include discussion of any evaluation or results for stuck fuel assembly loading. (RAI 09.01.02-3, Item 'c')
4. The report did not include consideration of out-of-phase movement of fuel assemblies for determining maximum impact loads on fuel assembly. (RAI 09.01.02-10, Item 'a')

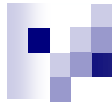
NRC Questions and Proposed Resolution in Structural Area:

5. Evaluation of cell-to-cell welds in the report does not include any discussion of how shear is transferred from one cell to the next through the tie bars, including stresses in the tie bars.
(RAI 09.01.02-5, Item 'i'; RAI 09.01.02-31)
6. Information included in the report for design check of the cell wall for rattling of fuel assembly and rack-to-rack impact do not describe how the evaluations were done in order for the staff to determine adequacy of the evaluations. Also, the report does not include any information about how the base plate and the bearing plate stresses are evaluated, or the acceptance criteria used for these evaluations.
(RAI 09.01.02-6)
7. The report does not include a comprehensive description of how the stiffness for the various impact springs is determined, and their values. (RAI 09.01.02-5, Item 'c')

NRC Questions and Proposed Resolution in Structural Area:

8. The accidental fuel drop analysis presented in Chapter 7 of the report does not clearly describe all the drop locations used in the evaluation. Fuel drop locations must be known to determine adequacy of fuel drop evaluation.

9. In Chapter 7 of the report, it states that energy balance method is used to carry out the accidental fuel drop analysis using the computer program Mathcad. The report needs to include a description of the energy balance method used, including how it was benchmarked, in order for the staff to evaluate its adequacy.



NRC Questions and Proposed Resolution in Structural Area:

10. The dynamic analysis of the racks assumes that sliding occurs at the interface of the rack pedestal and the bearing pads. There is no discussion of why sliding at the interface of the bearing pads and the pool liner need not be considered.
11. Reported maximum rack displacement relative to the floor is 4.7 inches, which is close to the minimum distance to the edge of the bearing pad, and occurs for analysis run number 2. However, there is no sensitivity study performed for this loading case to confirm that the rack displacements will be within limits of the bearing pads for partial loading, empty rack, or reduced integration time steps.