

Information Bulletin

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Title: New Hanford Site-Specific Seismic Information Affects Existing Safety Basis

Lessons Learned Summary: Upon discovery of new Hanford seismic information, Fluor Hanford was successful in identifying that the new data could affect assumptions made in existing safety basis documents. We need to continue to be alert for new technology and data and be aggressive in evaluating the effects of new information on our existing safety bases.

Discussion of Activities: As part of designing the Waste Treatment Plant (WTP), the DOE Office of River Protection reviewed the Hanford site seismic spectra being used. New information and a desire to bound greater uncertainty resulted in increasing the Hanford site-specific seismic response spectra that should be applied for this facility. Subsequent analysis performed by Geomatrix identified that it was appropriate to apply this increased spectra at the Hanford Tank Farms in the 200E and 200W areas. In order to comply with Supplemented Contractor Requirements Document (SCRD) DOE O 420.1A (Revision 2) for a potential new facility in the 200W area, Fluor Hanford had Geomatrix evaluate this new information. With minor modifications to reflect actual site conditions, Geomatrix concluded that the Hanford site-specific seismic response spectra developed for the WTP should be applied to this new facility.

Analysis: Current Hanford facility safety basis documents used seismic information contained in WHC-SD-W236A-TI-002, Probabilistic Seismic Hazard Analysis, DOE Hanford Site, Washington (October 1996), which was based on an assumption that Hanford soils were similar to California soils. This report had undergone review and concurrence from DOE-RL, DOE-HQ, DNFSB, academia, and discipline-specific experts. It represented state-of-the-art information at the time.

New information from deep bore hole tests indicates Hanford soils are not as similar to California soils as was previously thought. This, coupled with a desire for greater conservatism, resulted in new seismic spectra for specific areas on the Hanford site. The new seismic spectra indicate that the evaluation basis earthquake may have discernibly increased from that assumed earlier.

As required by 10 CFR 830, this new information was evaluated in the Fluor Hanford Unreviewed Safety Question (USQ) process. The new seismic information was found to constitute a Potential Inadequacy in the Safety Analysis (PISA) and a positive USQ for some Central Plateau Surveillance and Maintenance facilities, the Plutonium Finishing Plant Closure Project facilities, and some of the K Basins Closure Project facilities. A positive USQ was declared December 7, 2005.

The existing hazard control systems of the affected facilities were evaluated and it was determined that no new operational restrictions were required. All related DOE and Fluor

Hanford processes were followed appropriately.

Recommendations: As required by 10 CFR 830, the positive USQ will be addressed with revisions to the affected safety bases documents to acknowledge the new seismic information.

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References: Occurrence Report: EM-RL--PHMC-GENERAL-2005-0007

Related Occurrence Reports:

EM-RL--WCH-DND-2005-0003 (for Washington Closure Hanford's 324 and 327 Buildings)

SC--PNSO-PNNL-PNNLNUCL-2005-0012 (for PNNL's Radiochemical Processing Laboratory)

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