

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 72-00011/95-02

License: None

Licensee: Sacramento Municipal Utility District
Rancho Seco Nuclear Generating Station
14440 Twin Cities Road
Herald, California 95638-9799

Facility Name: Rancho Seco Nuclear Generating Station

Inspection At: Utility Vault, Pleasanton, California and
Rancho Seco Nuclear Generating Station
Herald, California 95638-9799

Inspection Conducted: July 10-12, 1995

Inspectors: Joseph I. Tapia, Reactor Engineer, Operations Branch
Division of Reactor Safety

J. Vincent Everett, Radiation Specialist
Fuel Cycle and Decommissioning Branch
Division of Radiation Safety and Safeguards

Approved:

Dale A. Powers

Dr. Dale A. Powers, Chief, Maintenance Branch
Division of Reactor Safety

07/28/95
Date

Inspection Summary

Areas Inspected: Routine, unannounced inspection of concrete placement activities for the horizontal dry spent fuel storage modules and of the effectiveness of the corrective action program.

Results:

- The horizontal dry spent fuel storage modules were being constructed appropriately in accordance with design and quality assurance requirements (Section 2).
- Appropriate levels of quality assurance and quality control were in place and very effectively being implemented (Section 2).
- Reinforcing steel and concrete placement and inspection activities were resulting in high quality structures (Section 2).

- The licensee was effectively implementing a corrective action process that was identifying and correcting conditions adverse to quality (Section 3).
- The licensee's response to information notices was very good and indicated a pro-active approach to quality (Section 3).

Summary of Inspection Findings:

- None.

Attachments:

- Attachment - Persons Contacted and Exit Meeting

DETAILS

1 Introduction

During an inspection of Utility Vault Company, Pleasanton, California, on April 17-21, 1995 (see NRC Inspection Report 72-00011/95-01), the inspector was unable to observe construction activities in progress. The purpose of this inspection was to determine whether the reinforced concrete horizontal storage modules for the dry storage of spent nuclear fuel were being constructed in accordance with the design drawings and specifications and with applicable quality assurance (QA) requirements. The inspection also provided an opportunity to verify that the licensee was effectively implementing a corrective action process that was identifying and correcting conditions adverse to quality.

2 Horizontal Storage Module (60848)

The inspectors determined that appropriate levels of quality assurance and quality control were in place. There were three levels involved in assuring quality: a Utility Vault American Concrete Institute (ACI) certified inspector, a Vectra ACI certified QA engineer, and a licensee QA surveillance inspector. Interviews with these individuals disclosed that they had extensive experience in nuclear project related QA programs. The technical knowledge level of these individuals was very high and they exhibited a very good understanding of the design requirements and their bases.

The inspectors observed the placement of reinforcing steel for the floor of Module No. 9 and the walls of Module No. 8. A comparison of the as-installed reinforcing steel with the design drawings was performed by the inspectors and provided verification of the adequacy of the as-installed steel. The inspectors also observed the Utility Vault QC inspector performing the required reinforcing steel inspection prior to concrete placement. The QC inspector was thorough and systematic in his inspection. The Vectra QA engineer also performed an independent inspection and was also very effective in assuring quality. The licensee representative provided another level of quality assurance by conducting a surveillance of the Vectra inspection activities.

The placement of concrete in both modules was also observed by the inspectors. The observed placement activities were in conformance with the provisions of the standards of the ACI. The concrete consolidation techniques were adequate to preclude the formation of voids and indicated that the construction crew was very experienced in the placement of concrete. An inspection of previously constructed modules disclosed that the concrete placement practices were resulting in high quality structures.

The inspectors also witnessed the QC testing of the concrete prior to placement in the forms. This testing included air content, slump, unit weight, temperature, and the making of compressive strength cylinders. The tests were conducted in accordance with the requirements of the standards of

the American Society for Testing and Materials. A tour of the on-site concrete testing laboratory was also performed. The laboratory facilities were of good quality and the calibration of measuring and testing equipment was current. A review of documentation required by the design specification disclosed that adequate records were being maintained and that they indicated quality materials were being purchased and produced. Results of compressive strength tests of concrete showed that the concrete that was placed in manufactured modules exceeded the specified minimum strength.

During the previous inspection at Utility Vault (NRC Inspection Report 72-00011), the documentation of training for personnel performing work on the horizontal dry spent fuel storage modules could not be provided. During this inspection, the training program and certification records for personnel performing work were reviewed. The records were complete and indicated that personnel were adequately trained and certified to perform the individual tasks necessary to construct the modules.

3 Corrective Action (92720)

A review of the nonconformance reports generated during the construction of the horizontal dry spent fuel storage modules was performed. This review served to verify that problems were being identified and documented. The disposition of the nonconforming conditions included the appropriate level of review and assessment by the licensee. None of the reviewed nonconformances were related to significant issues affecting the overall quality of the components.

The inspection included a visit to the Rancho Seco site to review the licensee's actions in response to Information Notices 95-28, "Emplacement of Support Pads for Spent Fuel Dry Storage Installations at Reactor Sites," and 95-29, "Oversight of Design and Fabrication Activities for Metal Components Used in Spent Fuel Dry Storage Systems."

The licensee adequately evaluated the potentially hazardous geologic conditions in response to Information Notice 95-28. The slab for the horizontal dry spent fuel storage modules was designed in accordance with the loading requirements of the 1991 uniform building code. This document requires that lateral loading from a seismic event in either of two directions be taken into account in the design. The design of the slab fulfilled this requirement by taking into consideration a seismic event with a ground acceleration of 0.25g. This value is the same as specified in the licensee's updated safety analysis report. A complete geotechnical study was performed prior to the construction of the slab and included an assessment of specific geologic hazards such as slope stability, seismicity, ground failure, and liquefaction potential.

A review of the licensee's response to Information Notice 95-29 disclosed that the licensee had been pro-active in assuring the quality of metal components to be used in their spent fuel storage system. The information notice was issued on June 7, 1995. The licensee's vendor audit supervisor had issued a

memorandum to the Vectra project manager on March 23, 1995, discussing the problems being encountered at other cask fabrication facilities. The supervisor was cognizant of issues that were being identified during NRC inspections and audits at the other facilities. The memorandum stressed the need to assure quality by avoiding the issues being identified. This pro-active approach to quality was considered a strength. The licensee's schedule for future oversight activities was reviewed and found to be extensive. The licensee's oversight of fabrication activities of metal components was very good.

ATTACHMENT

PERSONS CONTACTED AND EXIT MEETING

1 PERSONS CONTACTED

1.1 Licensee Personnel

- *J. Field, Nuclear Plant Support Engineering Manager
- O. House, Quality Assurance Surveillance Inspector
- *R. Jones, Senior Licensing Engineer
- J. Meyer, Vendor Audit Supervisor
- *S. Redeker, Nuclear Plant Manager

1.2 Vectra Technologies, Inc.

- G. Williams, Quality Assurance Engineer
- S. Shakir, Project Engineer

1.3 Utility Vault Company, Inc.

- R. Strand, Engineer

1.4 American Concrete Institute

- G. Waite, Inspector

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

*Denotes those persons with whom the inspectors conducted an exit meeting.

2 EXIT MEETING

An exit meeting was conducted on July 12, 1995. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee previously identified proprietary information provided to, or reviewed by, the inspectors. The inspectors previously informed the licensee that any proprietary information given for review would be destroyed upon completion of review.