U.S. NUCLEAR REGULATORY COMMISSION
Office of Nuclear Material Safety and Safeguards
Spent Fuel Project Office

Inspection Report

Docket No.:	72-1004
Report No.:	72-1004/99-202
Certificate Holder:	Transnuclear West, Inc. 39300 Civic Center Drive, Suite 280 Fremont, CA 94538
Dates:	May 10-13, 1999
Inspection Location:	Ranor, Inc. Bella Drive Westminster, MA 01473
Inspection Team:	Thomas Matula, SFPO, Team Leader Kirke Lathrop, SFPO, Inspector James Pearson, SFPO, Inspector Frank Jacobs, SFPO, Inspector
Approved by:	Susan F. Shankman, Deputy Director *Licensing and Inspection Directorate* Spent Fuel Project Office, NMSS

Enclosure

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EXECUTIVE SUMMARY

Transnuclear West, Inc.
NRC Inspection Report No. 72-1004/99-202

On May 10-13, 1999, the U.S. Nuclear Regulatory Commission (NRC) performed an announced inspection of Ranor, Inc. (Ranor), at its facility in Westminster, Massachusetts. Ranor is a subcontractor to Transnuclear West, Inc. (TN West), for the fabrication of Model NUHOMS Dry Storage Canisters (DSCs).

The NRC inspection team inspected activities associated with the fabrication of DSCs to determine whether the activities were performed in compliance with the requirements of 10 CFR Part 21, "Reporting of Defects and Noncompliance," and 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," the applicable safety evaluation report, and the NRC-approved quality assurance (QA) program for TN West. The team also inspected TN West's oversight of Ranor's fabrication activities to determine the effectiveness of TN West's surveillance. Although Ranor does not have an NRC-approved QA program for its fabrication activities, TN West accepted Ranor's QA program and verified implementation of Ranor's QA program through TN West audits of Ranor. The inspection team reviewed TN West's and Ranor's management, design, and fabrication controls.

In the area of management controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements.

In the area of design controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements. During the inspection, Ranor issued one Corrective Active Request (CAR) regarding the lack of a formal design change documentation process, and TN West issued two CARs regarding specification of unacceptable methods for the procurement of ASME Code materials, and issuance of an ECN without obtaining client approval.

In the area of fabrication controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements. During the inspection, TN West issued one CAR regarding additions to Quality Source Surveillance Checklists (QSSCs) that were not reviewed and approved in the same manner as the original QSSCs, and Ranor issued one CAR regarding unmarked and uncontrolled M&TE.

The team determined that TN West's oversight of Ranor's fabrication activities was adequate and that the Ranor QA program was adequately implemented.

INSPECTION PROCEDURE USED

No. 60852, "ISFSI Component Fabrication by Outside Fabricators"

LIST OF ACRONYMS USED

10 CFR	Title 10 of the Code of Federal Regulations
CAR	Corrective Action Request
DSC	Dry Storage Canister
ECN	Engineering Change Notice
M&TE	Measuring and Test Equipment
NRC	U.S. Nuclear Regulatory Commission
PP&L	Pennsylvania Power and Light Company
QA	Quality Assurance
QSSC	Quality Source Surveillance Checklist
Ranor	Ranor, Inc.
TN West	Transnuclear West, Inc.

PERSONS CONTACTED

The team held an entrance meeting on May 10, 1999, to present the scope and objectives of the NRC inspection. On May 13, 1999, the team held an exit meeting to present the preliminary results of the inspection. In addition to the NRC team, individuals present at the entrance and exit meetings are listed below. Names marked with an asterisk (*) indicate participation by teleconference.

Name	Title	Entrance Meeting	Exit Meeting
J. Axline	TN West, Component Manager	X	X
R. Ayres	TN West, Quality Assurance Manager	X	X
N. Banville	Ranor, Project Manager	X	X
S. Belskis	Ranor, Quality Assurance Manager	X	X
D. Campbell	TN West, Quality Assurance Engineer	X	X
J. Cook	NRC, Transportation Specialist		X
J. Delezenski *	Sacramento Municipal Utility District, Licensing Manager		X
R. Demers	Baltimore Gas and Electric, Senior Assessor		X
D. Dibert *	Toledo Edison, Project Manager		X
J. Duffy	Ranor, Sales	X	X
P. Eng	NRC, Section Chief		X
R. Grenier *	TN West, President		X
R. Hudelson *	TN West, Quality Assurance Engineer		X
T. Jankauskas	Ranor, Quality Engineer	X	X
R. Jones *	Sacramento Municipal Utility District, Licensing		X
K. Kelenski *	Pennsylvania Power and Light Company, Project Manager		X
D. Kierpa	GPU Nuclear Corporation		X
R. Matthews	Pennsylvania Power and Light Company, Senior Analyst	X	X
K. Miller *	Sacramento Municipal Utility District, Project Manager		X
P. Moore	TN West, Quality Assurance Engineer	X	X
David Normandin	Ranor, Vice President Engineering	X	X
Dennis Normandin	Ranor, President	X	X
P. Normandin	Ranor, Vice President Manufacturing	X	X
L. Peterson	TN West, Oversight Supervisor	X	X
M. Thomas *	TN West, Project Manager		X
D. Wahlers *	Toledo Edison, Quality Assurance		X
G. Walden *	Duke Power Company, Project Manager		X
P. Watts	Ranor, Manager Quality Audits and Staff Services	X	X

* Participated by teleconference.

REPORT DETAILS

1. Inspection Scope

The NRC inspected TN West's oversight of Ranor's activities associated with the fabrication of Model NUHOMS DSCs to determine whether the activities were performed

in accordance with the requirements of 10 CFR Parts 21 and 72, the applicable safety evaluation report, and TN West's NRC-approved QA program.

The team evaluated Ranor's DSC fabrication activities through review of procedures and instructions; inspection of selected documents, records, and drawings; verification of personnel training and qualifications; and interviews with personnel responsible for various activities. The team also inspected TN West's oversight of Ranor's fabrication activities. The team focused on TN West's and Ranor's management, design, and fabrication controls.

2. Management Controls

2.1 General

To determine the effectiveness of management controls, the team reviewed TN West's and Ranor's practices, procedures, and related documentation regarding QA program implementation, nonconformance controls, documentation controls, and audit programs. In addition, the team reviewed Ranor's actions taken to prevent computer software problems resulting from the change to the year 2000.

2.2 Quality Assurance Program

2.2.1 Scope

The team reviewed TN West's and Ranor's QA program implementing procedures to determine the effectiveness of the QA programs. The team reviewed QA program goals, objectives, and practices; personnel responsibilities; QA organizational independence; delegations of authority; management involvement; and staffing levels.

2.2.2 Observations and Findings

The team determined that implementation of the TN West and Ranor QA programs in this area meets regulatory requirements.

2.3 Nonconformance Control

2.3.1 Scope

The team reviewed Ranor's nonconformance control program to assess the effectiveness of Ranor's measures established to control materials, parts, or components that did not conform to design requirements. The team reviewed the effectiveness of Ranor's nonconformance control program in identifying, segregating, tracking, and controlling nonconforming items and program deficiencies.

The team also reviewed Ranor's training records, implementing procedures, internal postings, supplier notifications, reporting processes, and program controls in accordance with the provisions of 10 CFR Part 21.

2.3.2 Observations and Findings

The team determined that implementation of the Ranor QA program in this area meets regulatory requirements.

The team noted that TN West's Procedure No. QP 16-2, "Reporting of Deficiencies (10CFR21)," Revision 1, January 8, 1999, uses terminology that is not consistent with 10 CFR Part 21. Specifically, TN West's Procedure No. QP 16-2 discusses reporting of "deficiencies" while 10 CFR Part 21 requires reporting of "defects and noncompliance." TN West stated that it will update its Procedure No. QP 16-2 by June 30, 1999, to use terminology consistent with 10 CFR Part 21.

2.4 Documentation Controls

2.4.1 Scope

The team reviewed Ranor's documentation control program to determine the effectiveness of the Ranor QA program in controlling quality-related documentation. The team inspected Ranor's instructions, procedures, and drawings, including revisions, for adequacy, approval signatures, release by authorized personnel, and availability at work locations. The team examined Ranor documents including engineering drawings and change notices, inspection and test procedures, maintenance and test results, nonconformance reports, QA procedures, and fabrication documents.

2.4.2 Observations and Findings

The team determined that implementation of the Ranor QA program in this area meets regulatory requirements.

2.5 Audit Program

2.5.1 Scope

The team reviewed TN West's and Ranor's audit programs to determine whether audit plans, procedures, and records were available. The team examined the audit programs to determine whether: (1) internal audits and vendor audits were scheduled and performed in accordance with approved procedures or checklists; (2) the audits were performed by qualified personnel independent of the area audited; (3) the audit results were reviewed by management; and (4) appropriate follow-up actions were taken in areas found to be deficient.

2.5.2 Observations and Findings

The team determined that implementation of the TN West and Ranor QA programs in this area meets regulatory requirements.

2.6 Year 2000 Problem Assessment

2.6.1 Scope

The team reviewed Ranor's actions taken to prevent computer software problems in the fabrication process resulting from the change to the year 2000.

2.6.2 Observations and Findings

Ranor told the team that it had tested all software-controlled systems and determined that there would be no impact on operations resulting from the year 2000.

2.7 Conclusions on Management Controls

In the area of management controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements.

3. Design Controls

3.1 General

The team reviewed the design controls to determine whether the design control processes, including design development and modifications, were properly controlled and performed in accordance with procedures. The team inspected design activities to determine whether appropriate controls were implemented for QA documentation, deviation control, design interfaces, and design changes. The team focused on the review of design development and modifications.

3.2 Design Development

3.2.1 Scope

The team reviewed TN West's and Ranor's design processes used to document the design and design changes. The team inspected TN West's and Ranor's design activities to determine whether controls were implemented for QA documentation, deviation control, and design changes.

3.2.2 Observations and Findings

The team determined that implementation of the TN West and Ranor QA programs in this area meets regulatory requirements.

The team noted that TN West DSC Fabrication Specification NUH-03-105, Revision 8, specifies optional methods for the procurement of ASME Code Category "B" materials that are not acceptable methods for the procurement of ASME Code materials. Specifically, of the four material procurement options listed in Section 9.1.2 of Fabrication Specification NUH-03-105, only one method is valid for procuring ASME

Code Category "B" material in that the material would be procured from an ASME certified supplier. The remaining three methods are not applicable because material vendors under these options would not be qualified to provide ASME certified material. TN West took immediate corrective action and issued CAR 99.109 to document this condition in its corrective action system.

3.3 Modifications

3.3.1 Scope

The team reviewed TN West's and Ranor's design modification controls to determine whether the modifications received the same level of review as the original designs, and whether the modifications were correctly reflected and described in the design documentation. The team inspected TN West's and Ranor's engineering changes, design reviews, drawing changes, and document changes to determine whether the design modification process was controlled and effective.

3.3.2 Observations and Findings

The team determined that implementation of the TN West and Ranor QA programs in this area meets regulatory requirements.

The team noted that Ranor did not have a formal process for documenting changes made to design documents. Specifically, Ranor used previous revisions of design drawings to document prior configurations of items. This method of documenting engineering changes to design drawings was not controlled by Ranor's QA program and the superceded drawings were not controlled by a written procedure. Ranor took immediate corrective action and issued CAR 99-029 to review the design change control process to assure that the design change documentation process is described and controlled.

The team also noted that TN West's Pennsylvania Power and Light Company (PP&L) Project Plan, Revision 5, December 15, 1998, states that drawings developed by TN West shall be submitted to PP&L for review and acceptance prior to implementation. The team noted that TN West issued Engineering Change Notice (ECN) 99-0557 for PP&L Drawing 16-77-4035 without receiving prior PP&L approval. TN West took immediate corrective action and issued CAR 99.110 to obtain PP&L approval of the ECN and confirm that all other issued ECNs have been approved by the respective clients.

3.4 Conclusions on Design Controls

In the area of design controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements.

During the inspection, Ranor issued one CAR regarding the lack of a formal design change documentation process, and TN West issued two CARs regarding specification

of unacceptable methods for the procurement of ASME Code materials, and issuance of an ECN without obtaining client approval.

4. Fabrication Controls

4.1 General

The team reviewed Ranor's fabrication controls to determine whether all phases of the fabrication process were properly controlled, implemented, and verifiable from the start of design activities through the completion of the manufacturing process. The team focused on the review of material procurement, fabrication and assembly, test and inspection, and tools and equipment.

4.2 Material Procurement

4.2.1 Scope

The team reviewed Ranor's procurement process to determine whether materials were controlled, verifiable, and traceable from the time of purchase through the life of the product. The team reviewed Ranor's procurement documents, the receipt inspection program, material traceability documentation, drawings and procedures, and shelf life of safety-related components.

4.2.2 Observations and Findings

The team determined that implementation of the Ranor QA program in this area meets regulatory requirements.

4.3 Fabrication and Assembly

4.3.1 Scope

The team reviewed Ranor's fabrication procedures to determine whether the procedures were documented, approved, and implemented for each step of the fabrication process, and whether the appropriate codes, standards, and drawings were identified and implemented. The team also reviewed Ranor's activities regarding fabrication processes and special processes including welding, machining, and assembly.

4.3.2 Observations and Findings

The team determined that implementation of the Ranor QA program in this area meets regulatory requirements.

The team noted the effectiveness of the Ranor fabrication routers. These routers provide a sequenced listing of the fabrication process steps used by Ranor personnel for fabrication, assembly, test, and control of components and assemblies. The team found that the routers were detailed, included appropriate hold and witness points, and

provided excellent material traceability to material certification documentation. This was considered to be a strength in the Ranor fabrication process.

4.4 Test and Inspection

4.4.1 Scope

The team reviewed TN West's surveillance procedures and records to determine whether TN West's oversight of Ranor's fabrication activities was adequate. The team also reviewed Ranor's procedures and surveillance and inspection records, observed work practices, and interviewed personnel to determine whether tests and inspections were controlled, verifiable, and traceable. The team inspected the procedures controlling testing and inspection to determine whether they were documented, approved, and implemented. The team also reviewed TN West's and Ranor's inspection requirements, acceptance criteria, test conditions, test documentation, nondestructive examination controls, and QA hold points.

4.4.2 Observations and Findings

The team determined that implementation of the TN West and Ranor QA programs in this area meets regulatory requirements.

The team noted that TN West did not approve changes to its QSSCs as required by its procedures. Specifically, TN West Procedure No. 10-3, "Source Surveillance," Revision 1, requires that a change to a QSSC receives the same level of approval as the original QSSC. However, Revision 0 of QSSC Nos. 52Br10, 52Br16, 52Br18, 52Br25, and 52Br27 had handwritten changes made to them with no indication of approval by TN West. TN West took immediate corrective action and issued CAR 99.108 to review and approve all of the QSSC changes.

4.5 Tools and Equipment

4.5.1 Scope

The team reviewed Ranor's procedures regarding the control of tools and equipment to determine whether the procedures were documented, approved, and implemented. The team reviewed Ranor's use of tools and equipment to determine whether the proper ranges and sensitivities were maintained, the necessary physical controls were in place, and whether the tools and equipment were calibrated and traceable to the national standards.

4.5.2 Observations and Findings

The team determined that implementation of the Ranor QA program in this area meets regulatory requirements.

The team noted that a Sine Bar, Serial No. SB1QCI, and a Taper Gage, Serial No. TPG1QCI, in Ranor's Measuring and Test Equipment (M&TE) control system were not permanently identified with unique serial numbers as required by Ranor Procedure No. RQCP-16, Revision 7, May 1, 1998. Additionally, a 3/4 inch-14 NPT pipe thread gage was not recorded in Ranor's M&TE control system, yet it was found stored with controlled pipe thread gages. Ranor took immediate corrective action to control these items and issued CAR 99-028. These three pieces of M&TE were determined to not have been used in the fabrication of DSCs. Review of a sample of M&TE used in the fabrication of DSCs revealed no discrepancies for those items.

4.6 Conclusions on Fabrication Controls

In the area of fabrication controls, the team determined that implementation of TN West's and Ranor's QA programs meets regulatory requirements.

During the inspection, TN West issued one CAR regarding additions to QSSCs that were not reviewed and approved in the same manner as the original QSSCs, and Ranor issued one CAR regarding unmarked and uncontrolled M&TE.

5. Overall Conclusions

In the area of management controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements.

In the area of design controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements. During the inspection, Ranor issued one CAR regarding the lack of a formal design change documentation process, and TN West issued two CARs regarding specification of unacceptable methods for the procurement of ASME Code materials, and issuance of an ECN without obtaining client approval.

In the area of fabrication controls, the team determined that implementation of the TN West and Ranor QA programs meets regulatory requirements. During the inspection, TN West issued one CAR regarding additions to QSSCs that were not reviewed and approved in the same manner as the original QSSCs, and Ranor issued one CAR regarding unmarked and uncontrolled M&TE.

The team determined that TN West's oversight of Ranor's fabrication activities was adequate and that the Ranor QA program was adequately implemented.

6. Exit Meeting

On May 13, 1999, at the conclusion of the inspection, the team held an exit meeting with TN West and Ranor management to present the preliminary results of the inspection. Representatives from six utilities attended the exit meeting in person or by

teleconference as observers. TN West and Ranor management acknowledged the results presented by the team.