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Office of Nuclear Material Safety and Safeguards

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Inspection Team: Francis Young, Team Leader, Senior Project Manager
Transportation and Storage Safety Section,
Spent Fuel Project Office (SFPO),
Office of Nuclear Material Safety and Safeguards (NMSS)

Timothy Kobetz, Project Manager,
Spent Fuel Licensing Section, SFPO, NMSS

Thomas Matula, Safety Inspector,
Transportation and Storage Inspection Section, SFPO, NMSS

Ronald Parkhill, Senior Mechanical Engineer,
Spent Fuel Technical Review Section, SFPO, NMSS

Isabelle Schoenfeld, Human Factors Analyst
Office of Nuclear Regulatory Research

Approved by: 
Susan Frant Shankman, Acting Deputy Director
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

ENCLOSURE

EXECUTIVE SUMMARY

Transnuclear West Technologies Inc. NRC Inspection Report 72-1004/98-208

On January 13, 1997, the U.S. Nuclear Regulatory Commission (NRC) issued a Demand for Information (Demand) to VECTRA Technologies, Inc. (VECTRA) as the result of numerous NRC inspection findings involving problems with VECTRA's quality assurance (QA) and design control (DC) programs. Throughout 1997, VECTRA implemented corrective actions to prevent future problems with the QA and DC programs. On November 15, 1997, Transnuclear, Inc. (Transnuclear) purchased the assets owned by VECTRA, which were the subject of the Demand and changed the company name to Transnuclear West (TN West).

On January 20, 1998, NRC concluded in Inspection Report (IR) 72-1004/97-209 that, while TN West had made significant progress toward correcting the problems noted in the Demand, TN West had not fully implemented all of its identified corrective actions and had not completed required design reviews. On April 7, 1998, TN West submitted its response to the findings in IR 72-1004/97-209. The submittal outlined either TN West's actual resolution or proposed resolution of NRC concerns. TN West stated that all issues specifically required to be resolved prior to resumption of fabrication of the Nutech Horizontal Modular Storage (NUHOMS) system are complete. A description of the issues and the pertinent corrective actions was contained in the April 7, 1998, submittal.

From April 20 through May 4, 1998, the NRC conducted an inspection of the TN West April 7, 1998, submittal. The purpose of this inspection was to determine TN West's readiness to resume limited fabrication of the NUHOMS horizontal storage modules (HSM) and the dry shielded canisters (DSC). Consistent with IR 72-1004/98-209, this inspection focused on four programmatic areas: (1) management control; (2) QA program implementation; (3) design and configuration control; and (4) regulatory compliance.

The team concluded that TN West appears to have developed sufficient programs to resolve all NRC concerns associated with its QA and DC programs. The team further concluded that TN West was ready to resume fabrication of the NUHOMS HSM and the DSC. However, at the time of the inspection, TN West had not fully addressed all of the design issues. In addition, the team concluded that follow up NRC inspection(s), during fabrication of NUHOMS system components, would be necessary to assure that implementation of the programs and resolution of all design issues were completed as described in TN West's April 7, 1998, submittal.

LIST OF ACRONYMS

AFR	Audit Finding Report
AR	Action Request
ASME	American Society of Mechanical Engineers
CAI	Corrective Action Items
CAR	Corrective Action Report
CARC	Corrective Action Review Committee
CAT	Corrective Action Task
CAQ	Conditions Adverse to Quality
COC	Certificate of Compliance
CSAR	Consolidated Safety Analysis Report
DCQA	Director Corporative Quality Assurance
DFI	Demand for Information
Demand	Demand for Information
DSC	Dry Shielded Canister
ECN	Engineering Change Notice
FRP	Fabrication Restart Plan
HSM	Horizontal Storage Module
MQI	Management Quality Index
NCR	Non-Conformance Reports
NRC	U.S. Nuclear Regulatory Commission
PII	Performance Improvement International
QA	Quality assurance
QAM	Quality Assurance Manager
RA	Required Action
RAL	Required Action List
SER	Safety Evaluation Report
SCAQ	Significant Conditions Adverse to Quality
SCI	Safety Culture Index
SDR	Supplier Disposition Report
SE	Safety Evaluation
SRC	Safety Review Committee
SRS	Safety Review Screening
SWO	Stop Work Order
TN West	Transnuclear West
VECTRA	VECTRA Technologies, Inc

REPORT DETAILS

1.0 BACKGROUND

On January 13, 1997, the U.S. Nuclear Regulatory Commission (NRC) issued a Demand for Information (Demand) to VECTRA Technologies, Inc. (VECTRA), as the result of numerous NRC inspection findings involving problems with VECTRA's design control and quality assurance (QA) programs. On January 24, 1997, VECTRA voluntarily suspended Nutech Horizontal Modular Storage System (NUHOMS) fabrication activities because of concerns stated in the Demand and additional issues identified by an independent organization contracted by VECTRA to perform an overall assessment of VECTRA's QA program, management implementation of corporate goals, and engineering activities.

From October 27 through November 6, 1997, the NRC conducted a team inspection at the VECTRA offices in San Jose, California, to assess the company's implementation of the corrective actions as outlined in VECTRA's submittal of June 5, 1997. This NRC Inspection Report 72-1004/97-209 documented the NRC's assessment of VECTRA's management oversight of its QA program and procedures. Specifically, the inspection focused on four programmatic areas: (1) management control; (2) QA program implementation; (3) design and configuration control; and (4) regulatory compliance. From this inspection, the team determined that VECTRA was not ready to resume either limited or full fabrication of the NUHOMS system. On November 15, 1997, Transnuclear, Inc., purchased the assets owned by VECTRA and changed the company name to Transnuclear West (TN West).

On April 7, 1998, TN West submitted its response to IR 72-1004/97-209 outlining either TN West's actual resolution or proposed resolution for those NRC concerns that must be completed prior to resuming limited fabrication. In the submittal, TN West stated that all corrective actions specifically required to be resolved prior to resuming limited fabrication of the horizontal storage modules (HSMs) portion of the NUHOMS system were complete. A description of these corrective actions was contained in the submittal. TN West's submittal also indicated that all QA programs and processes necessary for limited fabrication had been developed and were in the process of being implemented. The only major issue needing resolution prior to limited fabrication of DSCs was the DSC design calculation to ensure that the design met the licensing basis.

From April 20 through May 4, 1998, the NRC conducted at its office an inspection of TN West's April 7, 1998, submittal.

2.0 INSPECTION OBJECTIVES AND SCOPE

This inspection assessed the corrective actions taken by TN West in response to the Demand and reviewed the resolution of concerns identified in Inspection Report 72-1004/97-209. Specifically, the team reviewed those issues that had to be resolved prior to resuming limited fabrication. The inspection review concentrated on four programmatic areas: (1) management control; (2) QA program implementation; (3) design and configuration control; and (4) regulatory compliance. In reviewing each of these areas, the team evaluated the description of the effectiveness of TN West's programs and procedures in controlling the design, fabrication, and testing activities for dry storage systems. As in IR 72-1004/97-209, the team's review and findings are listed and addressed for each corrective action item (CAI).

3.0 MANAGEMENT CONTROL

a. Inspection Scope (36800)

The inspectors assessed TN West's response to the observations and findings of Section 3.0 of Inspection Report 72-1004/97-209 for adequacy and completeness. During the inspection, the team reviewed the following documents:

- TN West's Response to NRC Inspection Report 72-1004/97-209, Attachment 1, "Resolution of Four Concerns in Executive Summary," for Concern 1 and Concern 2.
- TN West's Response to NRC Inspection Report 72-1004/97-209, Attachment 4, "CAI Corrective Action Completion."
- TN West's Response to NRC Inspection Report 72-1004/97-209, Enclosures 2, 10, 12, 23, 26, 27, 28, 29, 30, 31, 33, 34, 35, 44.

The inspectors interviewed the TN West Department managers by telephone to obtain an understanding of the implementation schedules and details of specific processes described in TN West's submittal.

b. Observations and Findings

CAI 30 - Human Error Reduction Training for VECTRA and Selected Vendor Personnel (Inspector Follow-up Item (IFI) 72-1004/97-209-01, Closed)

Inspection Report 72-1004/97-209 noted that 12 employees had either not attended or had not completed human error reduction training. TN West committed that these employees were to receive the necessary training before the company resumes limited fabrication. The inspectors concluded that VECTRA, now TN West, had established a human error reduction training program; however, training classes were inconsistent in length and no feedback mechanism was in place to ensure that all trainees obtain a consistent understanding of management expectations related to safety culture. As indicated in the previous inspection report, VECTRA needed to determine whether this reduced training was effective.

TN West's response to NRC Inspection Report 72-1004/97-209, stated that TN West has provided training to all employees who had not received the original training. Further, TN West has provided an extensive amount of information in TN West QA guideline documents QA-06 and QA-07 for new and continuing training. The inspectors noted that the materials appear comprehensive. The inspectors considered this item closed.

The inspectors, however, were not able to determine the effectiveness of the training. As discussed in the conclusion of this section, additional follow-up inspections to verify the implementation and effectiveness of this training will be performed at a later date.

CAI 31 - Conduct Root Cause Training for Professional Staff (IFI 72-1004/97-209-02-Closed)

As part of VECTRA's corrective action, Performance Improvement International (PII) conducted a root cause training course designed to provide an introduction to root cause and common-cause analysis techniques. Inspection Report 72-1004/97-209 noted that the managers of Engineering and Projects had not completed the training.

TN West issued operating guideline QA-04, "Guideline on Root Cause and Apparent Cause," Enclosure 10. The TN West response indicated that the training previously taken, coupled with reading the guidance document, would provide sufficient training for these managers. The inspectors considered this item closed.

Although TN West's response addressed the training administration, it did not address the evaluation of the effectiveness of the training. Therefore, additional follow-up inspections to verify the implementation and effectiveness of this training will be performed at a later date.

CAIs 32, 33, and 34 - Establishment of Events Analysis Monitoring and Trending Programs, Root Cause and Common-Cause Analysis Program and Process, and Tools to Monitor Effectiveness of Corrective Action Programs (IFI 72-1004/97-209-03)

At the time this inspection (72-1004/97-209) was conducted, VECTRA was in the process of implementing events analysis monitoring and trending programs, and root cause and common-cause assessment programs. In addition, VECTRA was developing tools to monitor the effectiveness of its corrective actions. The inspectors noted that VECTRA had initiated a new event reporting system. The inspectors concluded that VECTRA needed to validate and modify the new procedures to reflect user feedback and, where appropriate, train affected personnel before actually implementing the final procedures.

TN West's April 7, 1998, submittal contained a description of the corrective actions already taken and those that will be completed before full fabrication in the CAI Corrective Action Summary. The Corrective Action Summary states that four procedures are being prepared: Event Reporting, Root Cause and Common Cause Analysis, Events Analysis and Trending, and Corrective Actions Implementation. QA-04 "Guideline on Root Cause and Apparent Cause", was issued on December 12, 1997. Two new guidelines entitled "Common Cause Guideline" and "Trending Guideline" are scheduled to be issued by July 17, 1998, and May 31, 1998, respectively. In the interim, TN West has revised the corrective action reporting and nonconformance reporting system procedures. Training has been conducted on the revised procedures. The inspectors determined that the procedures needed for limited fabrication had been issued. The inspectors considered IFI 72-1004/97-209-03a closed. As discussed in the conclusion of this section, additional follow-up inspections to verify the implementation and effectiveness of these procedures will be performed at a later date.

The inspectors also noted that TN West's response did not contain a clear schedule or plan for the development and evaluation of the effectiveness of the corrective action plan; nor did it provide a plan or schedule for independent reviews of the procedures associated with event analysis monitoring and trending. The procedures will need to be

validated during limited fabrication and revised, if necessary, prior to full fabrication. As a result, CAIs 33 and 34 will remain open until TN West presents a clear milestone schedule and detailed plans for the company's development and implementation, including periodic independent reviews of the process before full fabrication.

CAI 36 - Establish Objective Self-Assessment Program (IFI 72-1004/97-209-04, Closed)

At the time inspection 72-1004/97-209 was conducted, VECTRA had not yet established an objective self-assessment program for use in periodic reviews of key work processes. Such reviews are necessary to enable management to initiate needed modifications before significant problems develop. VECTRA committed to develop a schedule and plan for implementation of their self assessment program before resuming limited fabrication.

TN West's response to Inspection Report 72-1004/97-209 indicated that two interim guidelines on self-assessment were issued. These documents will be issued as final documents by June 1998. The inspectors determined that TN West actions for this CAI needed before limited fabrication were complete and the inspectors considered this item closed. The inspectors noted that the interim guidance for self-assessment is simply a list of characteristics of these three areas and may not constitute sufficient guidance for monitoring these areas over time.

The inspectors also noted that TN West's response to CAI 36 does not refer to QA-06, "Guideline for Establishing and Maintaining a Safety Culture," and Attachment A, "Handbook for Establishing and Maintain a Safety Culture," or to QA-07, "Guideline for Human Error Reduction," and Attachment A, "Handbook for Human Error Reduction." During development of any guidance, information from QA-06 and QA-07 should be incorporated into the guideline. This would provide specific factors to monitor these areas and would provide specific acceptance criteria to evaluate against each of the characteristics and elements in each of the areas.

CONCERN 1 - Short-Term Process to Assess, Nurture, and Reinforce the New Safety Culture

In Inspection Report 72-1004/97-209, the inspectors noted that comprehensive procedures and programs were not in place to continuously cultivate and support the organization's safety culture. The inspectors also noted that management expectations for ensuring that all activities are focused on supporting the safety culture were not incorporated into the tools used to assess the performance of all levels of the organization, from senior management down to individual work units or employees.

The inspectors reviewed TN West's cited CAIs, Enclosures 2, 33, 34, and 35, contained in the TN West response. These documents indicate that TN West has taken steps toward implementing a number of actions related to Concern 1, as follows:

- TN West has developed Guidelines and Handbooks for Safety Culture and Human Error Reduction that will be used for both new and continuing training.

- TN West is developing department objectives to meet company goals; scheduled to be completed by May 15, 1998. In addition, TN West is completing individual performance objectives as noted in CAI 28 and in TN West's inspection report response, Enclosure 28.
- TN West has developed a Management Quality Index (MQI) Action Plan as cited in CAI 25 and in TN West's inspection report response, Enclosure 26. The MQI Action Plan identified the key MQI issues and associated actions. TN West stated in an internal memorandum dated October 23, 1997, "These actions will be integrated into each manager's objectives, as appropriate, in order to establish performance measurements and clearly assign accountability." The inspectors note that the action plan items for the key issues under Management Aptitude, Management Skills, and Management Technical Knowledge are written as organizational actions as opposed to specific actions for the individual managers who were the focus of the MQI. It was unclear whether the MQI Action Plan would ensure that the attributes described in MQI were addressed at manager level. As part of subsequent on-site inspection(s), the NRC plans to confirm that these action plan items have been translated into individual performance goals and that they address each manager's cited weaknesses as identified in the MQI. This new item is being tracked as IFI 72-1004/98-208-01

c. Conclusions

Based on TN West's response to the observations and findings of Section 3.0 of Inspection Report 72-1004/97-209, the inspectors concluded that TN West had satisfactorily completed all actions affecting the Management Control Programs for resuming limited fabrication. Therefore, the inspectors further concluded that TN West does not need to take any additional action in this area before starting limited fabrication. Because these managerial processes and training need to be implemented before evaluating their effectiveness, the inspectors were unable to verify implementation of TN West's final corrective action. These programs, processes and training as stated for each CAI, will be assessed during a subsequent inspection before TN West resumes full fabrication. Verification that the new Management Control Program has been implemented and evaluation of the effectiveness of the training will be tracked as part of IFI 72-1004/98-208-01.

4.0 QUALITY ASSURANCE

a. Inspection Scope (97201)

The inspectors assessed TN West's response to the observations and findings of Section 4.0 of Inspection Report 72-1004/97-209 for adequacy and completeness. The inspectors reviewed the following documents:

- Memorandum WB-98-033, Revision 1, "Generic Impact Review of NCR/SDR," April 7, 1998.
- Memorandum WB-98-029, "Corrective Action Report (CAR).96.006 Generic Review," March 20, 1998.

- "Supplier QA Oversight Policy," February 2, 1998.
- "Vendor QA Oversight Staffing Plan," April 6, 1998.
- Quality procedure QP 18-2, "Audits, Surveillance, and Surveys," Revision 3, February 25, 1998.
- Audit Reports:
 - IPA.0038, Regarding Document Control; Control of Measuring and Test Equipment; and Quality Records, January 12, 1998.
 - IPA.0039, Regarding Control of Special Processes; Test Control; and Handling, Storage, and Shipping, January 12, 1998.
 - IPA.0040, Regarding Quality Assurance Program; Procurement Document Control; Procedures, Instructions, and Drawings; and Identification and Control of Materials, Parts, and Components, March 6, 1998.
 - IPA.0041, Regarding Design Control; Software Usage/Control; and Fuel Services Licensing, January 11, 1998.
 - IPA.0042, Regarding Control of Purchased Items and Services; Inspection; and Inspection and Test Status, January 27, 1998.
 - 97-CQA-02, Regarding Management QA Audit, January 23, 1998.
- Memorandum RR98-003, "Response to AFR.97.066," February 18, 1998.
- Procedure QA-05, "Guideline for Field Observation Techniques," Revision 0, March 31, 1998.
- "Quality Assurance Training Record" regarding Guidelines for Field Observation Techniques, April 6, 1998.
- Various HSM and DSC QA Checklists for Sacramento Municipal Utility Department, Duke and General Public Utilities Nuclear projects.

The inspectors interviewed key personnel by telephone to develop a better understanding of the actual implementation schedules and specific details associated with the resolution of the QA Management Audit as described in TN West's submittal.

b. Observations and Findings

CAI 5 - Perform CAR Generic Impact and Corrective Action Review (IFI 72-1004/97-209-08, Closed)

Inspection Report 72-1004/97-209 stated that VECTRA did not perform generic impact reviews for CAR Nos. 96.006 and 96.016. The inspectors reviewed Memoranda WB-98-029 and WB-98-033 regarding the disposition of CAR Nos. 96.006 and 96.016, respectively. These documents show that the generic impact reviews for CAR Nos. 96.006 and 96.016 have been completed and that no generic implications were identified.

Inspection Report 72-1004/97-209 also stated that VECTRA issued a total of 73 action requests (ARs) identifying actions necessary to resolve the remaining restart issues. At the time of the inspection (72-1004/97-209), VECTRA had completed 55 of the 73 ARs. In TN West's April 16, 1998, response to the previous inspection report, the company stated that the 18 remaining ARs will be completed prior to resuming full fabrication.

In TN West's response to the inspection report, the company also stated that it issued CARs in 1997 and 1998, that the CARs are being tracked for completion, and that the CARs have been prioritized based on whether they must be completed prior to resuming full fabrication.

The inspectors concluded that TN West's CAR review process for generic impact was acceptable. The inspectors considered this item closed. However, the inspectors determined that, as discussed in Section 7 of this report, additional NRC follow-up regarding the process for disposition of the 18 ARs that are still open and the CARs generated in 1997 and 1998 is needed.

CAI 13 - Supplement QA/QC Staff to Achieve 100 Percent TN West Vendor Oversight for Category Q and B Items (IFI 72-1004/97-209-0, Closed)

Inspection Report 72-1004/97-209 stated that VECTRA's emphasis on providing effective vendor oversight will require the presence of trained personnel at suppliers' facilities during the fabrication process. In TN West's response to the inspection report, the company provided its Supplier QA Oversight Policy and its Vendor QA Oversight Staffing Plan to NRC. The inspectors reviewed these documents and concluded that they seem comprehensive and acceptable. The inspectors considered this item closed.

However, TN West stated in its response to the inspection report that all vendor oversight personnel would receive the Field Observation training before performing any oversight activities. Therefore, the inspectors determined that, as discussed in Section 7 of this report, additional follow-up inspection is needed to verify that Field Observation training was provided to all oversight personnel and to determine the effectiveness of this training.

CAI 16 - Establish Audit Schedule to Baseline TN West Internal Performance, Including Inspection/Surveillance (IFI 72-1004/97-209-10, Closed)

Inspection Report 72-1004/97-209 stated that VECTRA had not yet performed the required audits for 1997, had not developed its audit plans for the internal and management audits, and had not identified the independent organization to perform the management audits. In TN West's response to the inspection report, the company provided revised Procedure QP 18-2, "Audits, Surveillance, and Surveys." This procedure describes TN West's audit process and appears comprehensive and acceptable. TN West also provided six reports for the remaining audits scheduled for 1997. All but one of the audits were performed by TN West personnel. The Management QA Audit was performed by an independent organization, Project Assistance Corporation. The audit reports appear comprehensive. TN West also issued audit finding reports (AFRs) for the identified findings and will track each AFR until the findings are corrected. The inspectors considered this item closed.

As discussed in Section 7 of this report, verification of audit findings and their resolution will be inspected in a subsequent inspection prior to resuming full fabrication activities.

CAI 19 - Update/Upgrade Inspection Plans, Surveillance Plans, and Checklists (IFI 72-1004/97-209-11, Closed)

In CAI 19, VECTRA committed to perform 100-percent oversight of all supplier activities for Category "A" and "B" items (referenced in NUREG/CR-6407). To accomplish this activity, TN West stated that it would upgrade and update its inspection and surveillance plans and checklists. During the 1997 inspection at VECTRA, the inspectors reviewed sample plans and checklists and determined that they appeared acceptable. In TN West's response to Inspection Report 72-1004/97-209, the company stated that this action is project dependent and that specific plans and checklists will be issued for each vendor for each project before initiating limited fabrication activities. The inspectors considered this item closed. As discussed in Section 7 of this report, the inspectors determined that additional follow-up inspection would be conducted during limited fabrication to verify that updated and comprehensive inspection and surveillance plans and checklists are developed.

CAI 29 - Conduct Field Observation Training for QA/QC, Project Managers, Project Engineers, Component Engineers, and Selected Vendors (IFI 72-1004/97-209-12, Closed)

Inspection Report 72-1004/97-209 stated that VECTRA identified individuals who had not yet taken the required Field Observation training and that VECTRA had not yet scheduled training for these individuals. In TN West's response to Inspection Report 72-1004/97-209, the company provided Procedure QA-05, "Guideline for Field Observation Techniques." This procedure requires that all TN West inspectors and contractors performing field observation activities be either trained in field observation techniques or be directly supervised by a trained inspector until they have received the appropriate training. TN West inspectors and contractors may satisfy training requirements by reading Attachment A, "Field Observation Handbook for Transnuclear West," of Procedure QA-05 and discussing it with their supervisors. TN West provided a Quality Assurance Training Record, dated April 6, 1998, showing that the individuals who did not receive the Field Observation training class had subsequently read the Field Observation Handbook. The inspectors considered this item closed.

CAI 35 - Define Technical and Managerial Requirements for the QA Manager and Fill Position With Qualified Candidate (IFI 72-1004/97-209-13, Closed)

Inspection Report 72-1004/97-209 stated that VECTRA required that the position description for its QA Manager includes the requirement for commercial nuclear industry experience. However, the inspectors found that this requirement was not reflected in the position description. TN West's response to the Inspection Report 72-1004/97-209 provided the company's revised position description for the QA Manager which contained the requirement for nuclear industry experience. The inspectors considered this item closed.

c. Conclusions

Based on TN West's response to the observations and findings of Section 4.0 of Inspection Report 72-1004/97-209, the inspectors concluded that TN West had satisfactorily completed all actions affecting the QC Programs. Therefore, the inspectors further concluded that TN West did not need to take any additional action in this area before starting limited fabrication.

5.0 DESIGN AND CONFIGURATION CONTROL PROGRAMS

a. Inspection Scope (97201)

The inspectors assessed TN West's response to the observations and findings of Section 5.0 of Inspection Report 72-1004/97-209, for completeness and adequacy. The inspectors reviewed the following documents:

- Memorandum WB-98-033, Revision 1, "Generic Impact Review of Non-Conference Reports (NCR), Supplier Disposition Report (SDR)," dated April 7, 1998.
- Memorandum WB-98-041, Revision 1, "Engineering Change Notice (ECN) Review (DFI Task No. 6)," dated April 3, 1998.
- Operating Guideline QA-04, "Guidelines on Root Cause and Apparent Cause," Revision 0.
- QP 15-1, "Nonconformances," Revision 3.
- QP 3-6, "Engineering Change Notices," Revision 3.

The inspectors interviewed key engineering managers by telephone to develop a better understanding of the specific details associated with the resolution of select NCRs, SDRs, and DSC calculations as described in TN West's submittal.

b. Observations and Findings

CAI 4 - Generic Impact Review of Nonconformance Reports and Supplier Reports (IFI 72-1004/97-209-14, Closed)

Inspection Report 72-1004/98-209 identified that the evaluation of all non-conformance reports (NCRs) and supplier disposition reports (SDRs) had not been completed. The inspectors, as stated in Inspection Report 72-1004/98-209, determined that the technical evaluations of those NCRs and SDRs that were completed at the time of the inspection were adequate. The inspectors reviewed TN West Memorandum WB-98-033, Revision 1, (Subject: Generic Impact Review of NCR/SDR), dated April 7, 1998. This memorandum documented that all outstanding NCRs and SDRs issued through March 28, 1998, had been reviewed for both possible recurrence and potential generic implications, and were appropriately dispositioned. The memorandum noted that several NCRs and SDRs remained open because the uncompleted action was specifically associated with an individual project. The inspectors determined that TN West's review of outstanding NCRs

and SDRs issued through March 28, 1998, for generic impact was adequate and this item was considered closed. However, as discussed in Section 7 of this report, additional follow-up of project specific disposition of open items, including NCRs and SDRs, will be performed during inspections of limited fabrication.

CAI 6 - Generic Impact Review of Engineering Change Notices (IFI 72-1004/97-209-16, Closed)

Inspection Report 72-1004/98-209 noted that an evaluation of all ECNs had not been completed. The inspectors reviewed TN West Memorandum WB-98-041, Revision 1, "ECN Review (DFI Task No. 6)", dated April 3, 1998. The memorandum documented that the historical review of all ECNs was complete and identified, by project, which ECNs had generic implications. The memorandum further stated that 81 ECNs are open for various projects and that the ECNs will be closed on a project-specific basis before the restart of the particular project. Previously, in Inspection Report 97-209, the inspectors determined that the technical evaluation of ECNs that were completed was adequate. This item is considered closed. As discussed in Section 7 of this report, additional follow-up inspection during limited fabrication will be performed to ensure that the dispositioning of any other ECNs were properly implemented.

CAI 10 - Improve NCR and Corrective Action Report (IFI 72-1004/97-209-17, Closed)

Inspection Report 72-1004/97-209 identified that guidance on root cause evaluation needed to be implemented before limited fabrication of NUHOMS components resumed. The inspectors reviewed Operating Guideline QA-04, "Guidelines on Root Cause and Apparent Cause," Revision 0. The inspectors determined that QA-04 provided sufficient detail to address the required corrective actions identified in CAI 10. The inspectors consider this item closed.

CAI 15 - Elimination of Verbal Approvals in the NCR and SDR Procedures (IFI 72-1004/97-209-18, Closed)

Inspection Report 72-1004/97-209 noted that guidance to prevent the verbal approval of the ECN evaluation had not been implemented. The inspectors subsequently verified that QIP 15-1, "Nonconformances," Revision 3, and QP 3-6, "Engineering Change Notices," Revision 3, had been revised specifically to prohibit the use of verbal approvals for NCRs, SDRs and ECNs. The inspectors consider this item closed.

DISC Calculations (Unresolved Item (URI) 72-1004/97-209-19)

Inspection Report 72-1004/97-209 stated that TN West had identified that original design calculations associated with the DSC may not meet the licensing basis as described in both the Safety Evaluation Report (SER) and the Certificate of Compliance (COC). At the time of this inspection, TN West had not completed its evaluations; therefore, this URI remains open. Upon TN West's completion of these evaluations, the NRC will perform an inspection to assess the adequacy of the COC, Condition 9, Safety Evaluations and the supporting calculations.

c. Conclusions

Based on TN West's response to the observations and findings of Section 5.0 of Inspection Report 72-1004/97-209, the inspectors concluded that, TN West has satisfactorily completed all corrective actions associated with the Design and Configuration Control Programs deemed necessary prior to limited fabrication of the HSM portion of the NUHOMS system. However, several project-specific NCRs, SDRs, and ECNs remain outstanding. Inspectors will verify the process to close these items during subsequent inspection(s). In addition, the inspectors concluded that TN West would be ready to resume limited fabrication of the DSCs after completion of the design review of the DSCs and associated COC, Condition 9, Safety Evaluations.

6.0 REGULATORY COMPLIANCE PROGRAMS

a. Inspection Scope (60851 and 92701)

The inspectors assessed TN West's response to the observations and findings of Section 6.0 of Inspection Report 72-1004/97-209, for completeness and adequacy. The inspectors reviewed the following documents:

- QP 2-8, "Program Management Review," Revision 1.
- QP 3-12, "Certified Storage Systems [10 CFR 72, Subpart L] General License Design Changes," Revision 0.
- QP 7.4, "Fabrication Readiness Review," Revision 0.
- QP 16-1, "Condition Reporting and Corrective Action Process," Revision 2.
- QP 18-2, "Audits, Surveillance and Surveys," Revision 3.

The inspectors interviewed key managers by telephone to develop an understanding of the specific details associated with license requirements and selected corrective action processes as described in TN West's submittal.

b. Observations and Findings

CAI 2 - Issue Fabrication Stop Work (IFI 72-1004/97-209-20, Closed)

Inspection Report 72-1004/97-209 noted that TN West's inspection of its vendors to adequately implement an approved QA program (baseline surveillance) had not been completed. The inspectors reviewed selected baseline surveillances to assess their quality and effectiveness. The inspectors determined that for the surveillances reviewed, TN West had appropriately documented the findings. The inspectors further determined that TN West management focused appropriate attention on open findings until vendors implemented corrective actions. The inspectors consider this item closed.

However, in CAI 2 TN West committed to develop and implement a "QA checklist for lifting Stop Work Order SWO-97-01. The checklist identifies all work that must be complete prior

to resuming limited fabrication for a specific project. The checklist will not be completed until work is ready to proceed on a specific project. Therefore, the inspectors determined that as discussed in Section 7 of this report, additional follow-up of project-specific disposition of open items and inspection of the checklist will be performed during inspections of limited fabrication.

CAI 18 - Establish Corrective Action Review Committee Chaired by the QA Manager to Review and Approve Corrective Actions from CARs and AFRs (URI 72-1004/97-209-21b, Closed)

The inspectors reviewed QP 16-1, "Condition Reporting and Corrective Action Process," Revision 2; and determined that TN West had updated the procedure to clearly define the responsibilities of the Corrective Action Review Committee (CARC) and to include all checklists used by the CARC to evaluate the adequacy of CARs.

Inspection Report 72-1004/97-209 noted that the Quality Assurance Manager (QAM) may not have sufficient independence from the line organization in accordance with 10 CFR 72.142. Specifically, the positions of QAM and the Director, Corporate Quality Assurance (DCQA) were filled by the same individual. The inspectors concluded that sufficient independence within the QA Organization did not exist because both QP 2-8, "Program Management Review," and QP 18-2, "Audits, Surveillance, and Surveys," Revision 3, periodically required the DCQA to audit himself as the QAM. In response to this finding, TN West revised both QP 2-8 and QP 18-2 to require that management audits be performed by an organization independent of the TN West organization being audited. Based on the revisions to these procedures, the inspectors consider this item closed.

CAI 22 - Update Readiness Review Checklist (URI 72-1004/97-209-21a, Closed)

Inspection Report 72-1004/97-209 noted that the QAM did not have sufficient independence from the line organization in accordance with 10 CFR 72.142. The inspectors reviewed QP 7.4, "Fabrication Readiness Review," Revision 0, and confirmed that TN West had replaced the QAMs approval authority to begin work with outstanding items in the "Fabrication Readiness Review Checklist," to an approval by the President, TN West. The inspectors determined that in so doing TN West eliminated the QAM from line activity functions and established the independence of the QAM from cost and scheduling decisions. Based on this revision and the revision to QP 2-8 and QP 18-2, as previously discussed in the closeout of URI 72-1004/97-209-21b, the inspectors consider this item closed.

CAI 24 - Establish Safety Review Committee (SRC) for Safety Review Screening (SRS)/SE (URI 72-1004/97-209-21c, Closed)

Inspection Report 72-1004/97-209 noted a concern in which the QAM did not have sufficient independence from the line organization in accordance with 10 CFR 72.142. The inspectors reviewed changes that TN West made to QP 3-12 (formerly QP 3-6.3) to remove the QAM from the SRC. The SRC membership was revised to delete the QAM as a member. In addition, TN West revised QP 2-8 and QP 18-2, as previously noted in the closeout of URI 72-1004/97-209-21b, above, to require an organization independent of the

TN West QA Department to audit the QAM. Therefore, the inspectors consider this item closed.

CAI 44 - Perform SRS/SE Review for COC Compliance (June 1995 through Present) (IFI 72-1004/97-209-22, Closed)

Inspection Report 72-1004/97-209 noted that TN West had not completed reviewing all SRSs and SEs for compliance with the COC. The inspectors reviewed Memorandum WB-98-040, from W. Bak to R. Ayres, and confirmed that TN West had completed its review of SRSs/SEs for COC compliance. The inspectors consider this item closed.

c. Conclusions

Based on TN West's response to the observations and findings of Section 6.0 of Inspection Report 72-1004/97-209, the inspectors concluded that TN West had satisfactorily completed all actions affecting the Regulatory Compliance Programs for resuming limited fabrication. Therefore, the inspectors further concluded that TN West does not need to take any additional action in this area prior to starting limited fabrication. As previously discussed, review of the completed QA checklist that lifts the SWO will be performed during a follow-up inspection(s) during limited fabrication.

7.0 VERIFICATION OF KEY WORK PROCESSES AND TRAINING

This inspection focused on ensuring that TN West had developed the programs and processes necessary to resume limited fabrication of the NUHOMS systems. These programs were to be implemented either before or during limited fabrication. The inspectors determined that for CAIs 5, 6, 13, 15, 16, 18, 19, 22, 29, 30, 31, and 32, TN West had developed the necessary programs and processes to address the concerns. Because these processes must be implemented before their effectiveness can be evaluated, the inspectors were unable to verify their effectiveness. These programs, processes, and training, as stated for each CAI, will thus be inspected during a subsequent inspection during limited fabrication. The combined issue will be tracked as IFI 72-1004/98-208-02.

8.0 EXIT MEETING SUMMARY

The team presented its inspection findings via tele-conference call to TN West on May 4, 1998. Principle meeting participants are listed in Table 1. Overall, the team concluded that Transnuclear West was ready to resume limited fabrication of the HSM portion of the NUHOMS system with no limitations. Transnuclear West was also ready to resume limited fabrication of DSC of NUHOMS system after the completion of the evaluation of the original DSC design calculations. The evaluation is to ensure that the original design calculations associated with the DSC meets the licensing basis as described in the Safety Evaluation Report and the COC. The team identified several corrective actions that should be evaluated during limited fabrication to ensure that the processes or procedures described were implemented properly. The NRC staff stated that an NRC inspection would be conducted to assure that implementation of the programs and resolution of all design issues were completed as described in TN West's April 7, 1998 submittal.

Transnuclear West's management acknowledged the inspection team's findings and affirmed that the DSCs constructed during limited fabrication would not be certified by TN West for release until completion of the DSC calculation evaluation. Transnuclear West's management stated that, based on this inspection, that the company plans to resume limited fabrication.

TABLE 1

PARTICIPANTS IN EXIT MEETING

NRC

Susan Shankman, Acting Deputy Director, SFPO, NMSS
Francis Young, Team Leader, SFPO, NMSS
Timothy Kobetz, Project Manager, SFPO, NMSS
Thomas Matula, Safety Inspector, SFPO, NMSS
Ronald Parkhill, Senior Mechanical Engineer, TRS, SFPO, NMSS
Isabelle Schoenfeld, Human Factors Analyst, Office of Nuclear Regulatory Research

TN West

Allen Hanson, President
David Dawson, Vice President
Walter Bak, Vice President, Engineering
Richard Ayres, Manager of Programs and Audits

