

### INSPECTOR NOTES COVER SHEET

Licensee/Certificate Holder (name and address)	Transnuclear, Inc. 7135 Minstrel Way Columbia, MD 21045
Licensee/Certificate Holder contact and phone number	Steven C. White 410-910-6900
Docket No.	0721004
Inspection Report No.	2006201
Inspection Date(s)	January 9-12, 2006
Inspection Location(s)	SONGS Mesa Facility, CA
Inspectors	Robert Temps      Jim Pearson Bill Bezanson (ATL)
Summary of Findings and Actions	<p>This inspection involved the review of a Transnuclear, Inc. (TN) fabricator, Southern California Edison (SCE), at their fabrication facility located at the SONGS Mesa facility. At the time of the inspection, fabrication activities were ongoing for canisters to be used at SONGS Unit 2 and 3.</p> <p>Overall, SCE continues to perform fabrication activities with high attention to detail and conformance to quality standards. TN's oversight of SCE's fabrication activities were assessed to be appropriate and adequate.</p>
Lead Inspector Signature/Date	Robert R. Temps  01/31/06
Inspector Notes Approval Section Chief Signature/Date	Robert J. Lewis  2/3/06

**INSPECTOR NOTES: APPLICABLE SECTIONS OF IP 60852 WERE PERFORMED DURING THE INSPECTION WITH RESULTS DOCUMENTED BELOW:**

**Inspection Background:**

SCE built and operates their own cask fabrication facility located at the Mesa Facility at SONGS. The facility is under contract to TN to perform cask fabrication activities. The facility initially fabricated canisters to the Standardized Advanced NUHOMS System for Unit 1 spent fuel. The Unit 1 fabrication activities were reviewed during the initial NRC inspection of the facility in March 2003. That inspection assessed that overall, the fabrication facility was doing high quality work. Since that initial inspection, all fabrication work for Unit 1 fuel has been completed. The NUHOMS Advanced System design was amended in 2004 to add a new canister design, designated 24PT4-DSC, licensed to hold spent fuel used by the SONGS operating units (Units 2&3). At the time of this inspection, the fabrication facility was in the process of fabricating the first batch (13 total) of the 24PT4-DSC design canisters for use at the SONGS ISFSI.

**02.02: Determine whether corrective actions for identified fabrication deficiencies have been implemented in a time frame commensurate with their significance, and whether nonconformance reports documenting the deficiencies have been initiated and resolved.**

The team reviewed procedures used for the various problem reporting mechanisms, reviewed a sample of problem reports, and interviewed personnel responsible for the monitoring and trending of problem reports.

The team determined that SCE uses several methods to document and resolve fabrication related deficiencies depending upon the source of the identified deficiency. Non-conformances may be identified by material suppliers, during material receipt inspection, or during fabrication itself. All deficiencies, regardless of their classification, are entered into the Action Request (AR) system for documentation and resolution. The AR process is controlled by procedure SO123-XX-1 ISS2, "Action Request/Maintenance Order Initiation and Processing." Items entered into the AR system are tracked for resolution and are analyzed for trends. For example, ARs generated as a result of material receipt inspections are tracked against each supply vendor and a quarterly trend report is prepared that graphically displays each vendor with its associated number of ARs. The graphical presentation allows for easy identification of apparent performance outliers and prompts further analysis of the ARs for underlying trends. This information is also used by the vendor auditors in preparing vendor audit plans. The team reviewed a sample of various issues entered into the AR system and determined that corrective actions taken were appropriate and timely with respect to the identified issues. Overall, the team assessed that SCE was implementing appropriate controls for the identification and resolution of fabrication deficiencies.

**02.03: Determine whether individuals performing quality-related activities are trained and certified where required.**

The team reviewed portions of procedure SO123-XII-2.18, "Certification of Inspection, Examination and Test Personnel." The procedure described job requirements for certification of personnel performing inspection, examinations and tests. The team noted that the

procedure was developed and implemented to satisfy training and certification requirements defined in the SONGS ASME QA Manual and in ANSI-45.2.6-1978.

The team reviewed portions of procedures SO123-XII-2.19, "Qualification and Certification of Auditing Personnel" and SO123-XII-2.20, "Certification Documentation Processing for Personnel Involved in Audits, Inspections, and Examinations." The team noted that the procedures described the certification processes for Lead Auditors and various SCE qualified nondestructive examination (NDE) personnel. The team reviewed the SCE Lead Auditor Annual Evaluation Listing for 2005 and, based on a sample review of the records of lead auditor qualifications, assessed that all lead auditors chosen in the review were qualified and certified acceptably. The team also reviewed samples of receipt inspector's annual evaluation records, and ASME mechanical inspector annual evaluation records and qualifications for ASME III fabrication welders, and no discrepancies were identified.

The QC/NDE Lead demonstrated use of the electronic qualification information system (EQIS) for the team in locating specific qualification records and information on personnel chosen by the team for sampling. The team discussed the use of EQIS with the QC/NDE Lead, questioned the correlation of system information with hard copy records, and determined that EQIS functioned as a useful tool for fabrication personnel records.

The team reviewed procedure SO123-V-7.3, "Administrative Controls of Welding, Brazing, and Soldering Performance Qualifications" and procedure SO123-V-7.20.3, "ASME Welder Performance Qualification," and determined they provided adequate requirements regarding qualification and certification of welders.

The team reviewed samples of certification records, as well as associated eye exams, for mass spectrometer leak testing and bubble leak testing personnel. The team initially questioned SCE's practice of allowing Level I inspectors to perform interpretation of examination results without the supervision of Level II inspectors. Further review indicated this was acceptable as the 1992 ASME Boiler and Pressure Vessel Code, Article 5000, "Examinations," NB-5520, "Personnel Qualification, Certification, and Verification," Sub-step NB-5521, "Qualification Procedure," note a-5, makes provisions for this and SCE conformed to those provisions.

**02.04: Determine whether the offsite fabricator's personnel are familiar with the specified design, designated fabrication techniques, testing requirements, and quality controls associated with the construction of the DCSS.**

#### Procedure Use

The program established by SCE at their fabrication facility requires all individuals to verify that each document being used is the latest revision. The team reviewed various documents (drawings, maintenance orders, and various fabrication, inspection, NDE, and welding procedures) during the inspection and determined that they were adequately identified and controlled and that the documents being used were the correct revisions. All required procedures reviewed were available at the various work locations. A sample of documents, reviewed during the inspection, indicated that changes to those documents had been properly reviewed and approved. Overall, the team verified that SCE's program requirements for document control were satisfactorily implemented.

## Fabrication Processes

The inspection results for the fabrication and assembly process indicated that the procedures and documents being used were approved and their requirements were satisfactorily implemented. Applicable codes, standards, and drawings were specified and implemented when required. Applicable Hold Points were identified and implemented. It was also verified that required tools, equipment, and measurement instructions were identified in the above documents when required.

## Cleaning

Although no cleaning processes were being performed during this inspection, the applicable cleaning procedure was specified in the various Maintenance Orders (MOs) reviewed. One cleaning procedure reviewed, SO1-XXVII-5.38, "Dry Shielded Container Internal Cleanliness," was considered adequate for that stage of the fabrication cleaning process. It was also noted that SCE invoked foreign material exclusion (FME) controls on the canisters up to and including the loading of spent fuel into them.

## Special Processes

The team verified that the processes for welding, NDE, rolling, etc., were well documented and approved by appropriate personnel. The two welding processes, controlled under weld procedures 8-AGT-DSC-316 and 8-GT-DSC-316, observed by the team indicated that both procedures met applicable Code requirements. The procedural requirements specified (e.g.; base materials, filler metal size and type, amperage, voltage, etc.) were satisfactorily implemented. The requirements for the control, issuance, and storage of welding filler material are specified in procedure SO1-XXVIII-5.5, and the team verified that requirements specified in that procedure were implemented as required. In addition, it was noted that the personnel (rod room attendant, welder and welding supervisor) responsible for implementing the requirements were very knowledgeable about their duties and responsibilities. It was also verified that the weld procedure and welders were qualified.

The team noted that required Hold Points were specified in the applicable MOs that included required signoffs by various individuals and that acceptance criteria were specified in the applicable procedures as referenced in the MOs or the drawings. The team determined that for the processes observed during the inspection (welding, visual and NDE), the required acceptance criteria were met.

SCE does not perform lead burning or pouring at the fabrication facility. Instead, they purchase blank lead shielding plugs to the required thickness, and then machine it to size. Prior to the machining process, a UT inspection is performed to verify the lead is free of any rejectable voids.

Various NDE inspections were observed during the inspection which included visual, penetrant and ultrasonic inspections. The results indicated the NDE inspection requirements were documented, approved, and properly implemented. A review of available records indicated the personnel performing the NDE inspections were qualified and certified. The various pieces of equipment used to perform those inspections were suitable for the process being used and

their calibration status was current.

### Machining

The team reviewed various MOs, drawings and procedures that specified machining requirements. The team also reviewed Machining Guidelines OBC (dated 7/25/05) and TSP (dated 1/10/06) that specified the equipment, computerized program, and required tools to accomplish machining. The program specifies the feed rate, cutting rates and depths and the drawings and procedures specify the surface finish and acceptance criteria. The machining computer program, drawings and procedures had been properly reviewed and approved. The team reviewed various completed inspection reports and determined that machining requirements were being satisfactorily implemented.

### Assembly

The inspection results for the fabrication and assembly identification process as specified in procedure SO1-XXVIII-5.46, "ASME Section III Material Identification," indicated that the material was adequately identified, controlled and traceable by documentation or markings on each component inspected. Several purchase order numbers or tracking numbers were recorded from various components and those numbers were traceable to the original procurement documentation. The various MO's and procedures reviewed were properly approved and implemented. There were no finished 24PT4-DSC storage containers available to observe during the inspection; however, the various components that comprise a finished container were inspected and assessed to be satisfactory.

### Test and Inspection

The team reviewed various drawings, MOs, procedures and inspection reports and various mechanical and NDE inspections were observed. Documents utilized for these activities were verified to have been properly reviewed and approved. The procedures reviewed were verified to have been performed in accordance with the latest approved procedures and by certified personnel. Acceptance criteria and test conditions were specified in the applicable documents and were implemented. Test results were documented on the applicable inspection reports. It was verified that required inspection hold points were documented on the applicable MOs, and that the hold point requirements were implemented. A review of the various MOs being implemented during this inspection indicated no manufacturing or inspection hold point had been bypassed, and the inspection, manufacturing and test status was adequately documented on the MO. The acceptance inspections observed indicated they were performed by individuals other than those who performed the activity. Although no pressure/bubble testing was performed, the applicable Canister Pressure [Nitrogen Gas] Test procedure (SO23-XXVIII-5.59) was reviewed. The review results indicated the procedure complied with those requirements specified in ANSI N14.5 1997, "American National Standard for Radioactive Materials-Leakage Tests on Packages for Shipment."

### M&TE

The inspector interviewed the SONGS Shop Tool Room Attendant who is responsible for the issuance and collection of measuring and test equipment (M&TE) for shop personnel to use

during dry cask storage system fabrication activities. The team provided a sample of three M&TE items to test the effectiveness of the SONGS Test Equipment Management System (STEMS) as used by the Tool Room Attendant. The system contained all three sampled items and provided evidence of current control and calibration for the items. The calibration reports, printed from STEMS by the Tool Room Attendant, listed the standard specification used for calibration. The team noted that, where applicable, the calibration reports also provided information on the functions verified during the calibration process. The Tool Room Attendant described how any tools and equipment found to be out of calibration or nearing a calibration due date were handled to ensure they are not used until timely re-calibration occurs. The team also noted that the tools and equipment ranges and sensitivities were noted on the calibration reports, as applicable. The team reviewed portions of procedure SO123-XV-1, "Calibration and Control of Measure and Test Equipment." Overall, the team assessed that the control of M&TE was acceptable.

### Overall Observation

The team assessed that overall, all the SCE fabrication personnel contacted were very familiar with the specified design, designated fabrication techniques, testing requirements, and quality controls associated with the construction of the DCSS.

**02.05a: Determine whether materials, components, and other equipment received by the fabricator meet DCSS design procurement specifications.**

**02.05b: Determine whether the procurement specifications conform to the design commitments and requirements contained in the SAR and, as applicable, the CoC or the site-specific license and technical specifications.**

The team reviewed procurement procedures, interviewed procurement QA personnel, observed a receipt inspection of purchased goods, reviewed various approved vendor audits, and traced the procurement history of components undergoing fabrication to verify that they were procured from qualified suppliers and met specifications. Six components that were being used at the time of fabrication were reviewed for traceability to their purchase order (PO) specifications and design requirements.

Overall, the team concluded that SCE's procurement activities were being performed in accordance with their controlling procedures. All the components reviewed were traceable to POs, and the material specification in the POs agreed with those specified in the various Material Specification documents. Procurement personnel understood the procurement process and the procedures used. Methods used to approve addition of vendors to the list of approved suppliers were appropriate and the audits and surveillances used to qualify and maintain approved suppliers were adequate. Where issues identified in the audits required response by the supplier, documentation of supplier corrective action was included in the audit files.

**02.06: Determine whether DCSS components are being fabricated per approved QA and 10 CFR Part 21 implementing procedures and fabrication specifications.**

The team reviewed SONGS procedure SO123-XXX-3.5, "Evaluation and Reporting of problems to the NRC pursuant to 10 CFR 21." The team also reviewed several material specifications

and determined that each referenced Part 21. The results of the sample review indicate that Part 21 is one of many considerations required when purchasing many of the components, parts, and materials for fabrication activities.

**02.07a: With regard to fabrication activities, determine whether they are conducted under an NRC-approved QA program (10 CFR 72.140).**

From the team's review of multiple sample documents and observation of fabrication activities, it was determined that fabrication activities were conducted in accordance with the SCE ASME Section III Quality Assurance Manual and in accordance with TN's NRC approved QA program.

**02.07b: With regard to fabrication activities, determine whether the provisions of 10 CFR Part 21, "Reporting of Defects and Noncompliance," for reporting defects that could cause a substantial safety hazard have been implemented.**

**02.07c: With regard to fabrication activities, determine whether the fabricator's personnel are familiar with the reporting requirements of 10 CFR Part 21.**

The team reviewed Part 21 postings located in multiple locations and discussed the application and reporting of Part 21 items with SCE personnel. Included with the Part 21 postings was the SONGS procedure SO123-XXX-3.5, "Evaluation and Reporting of problems to the NRC pursuant to 10 CFR 21." From the reviews and discussions, the team concluded that SCE's personnel are familiar with the reporting requirements of 10 CFR Part 21.

**02.07d: With regard to fabrication activities, determine whether the fabricator has complied with 10 CFR 21.6, "Posting requirements."**

The team reviewed Part 21 postings at five locations and determined that each location included the complete 10CFR21 section, the SONGS procedure for handling potential Part 21 occurrences, and a reference to Section 206 of The Energy Reorganization Act of 1974.

**02.08a: With regard to quality assurance activities, determine whether the fabricator has been audited by either the licensee or CoC holder.**

The team noted that the fabricator had been audited by an outside contractor in September 2005. This was the second audit of the year and was performed by contracted support personnel to provide independence for the quality assurance audited activities. The team noted that the first audit of the year was performed by SCE and covered all of the sections of the SCE ASME QA Program. The checklist for the second audit was reviewed by the team. The checklist review revealed an acceptable description of checklist items, adequate level of detail of verifications for each checklist item, as well as detailed listings of audit references, personnel contacted and documents audited. The team noted that each checklist item included any audit findings and a description of the actual assessment process for that portion of the audit.

**02.08b: With regard to QA activities, determine whether for selected audits and inspection findings from QA audit or surveillance and/or inspection reports issued in the previous 2 years, the findings were appropriately handled with corrective actions implemented in a time frame commensurate with their safety significance.**

The team reviewed portions of procedure SO1-XXVIII-6.3.5, "ASME QA Audit Planning, Performance and Documentation," and also reviewed several audits and their associated findings. No concerns were identified with the procedure or the audit reports that were reviewed. Audit findings were all appropriately tracked and resolved for closure.

**02.08c: With regard to quality assurance activities, determine whether supervision and quality control/quality assurance personnel perform appropriate oversight during fabrication activities.**

The team reviewed samples of both internal audits and surveillances performed of SCE fabrication activities. Both processes provided examples of appropriate oversight by quality assurance personnel. The team also reviewed schedules for the SCE ASME Audit Program for 2005 and 2006. These schedules also include surveillance activities for both years. The team noted that these schedules are approved by the manager, nuclear oversight and assessment.