



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064**

August 15, 2000

Ms. Beverly A. Cook, Manager
Idaho Operations Office
U.S. Department of Energy
850 Energy Drive
Idaho Falls, ID 83401-1563

SUBJECT: NRC INSPECTION REPORT 72-20/00-01

Dear Ms. Cook:

A Nuclear Regulatory Commission (NRC) inspection was conducted June 19-22, and July 5-9, 2000, at your Three Mile Island Unit 2 (TMI-2) Independent Spent Fuel Storage Installation (ISFSI). The enclosed report presents the scope and results of this inspection. On July 19, and August 3, 2000, followup telephonic exit briefings were held between the Region IV inspectors and your staff. During these discussions, additional information was provided concerning the loading and closure of the second TMI-2 dry shielded canister (DSC).

The purpose of this inspection was to conduct an annual program inspection and to observe loading and transfer of the second TMI-2 DSC. Areas reviewed during the inspection included monthly surveillances required by your technical specifications, changes to the organization, the 1999 annual radiological environmental monitoring program report, changes to the emergency plan, quality assurance audits and surveillances, and implementation of the 10 CFR 72.48 screening process. Additionally, an NRC inspector observed the drying and loading of TMI-2 core debris canisters into a DSC, and welding of the shield and structural lids onto the DSC in preparation for transfer to the ISFSI pad.

As a result of this inspection, the NRC has determined that one violation of regulatory requirements occurred. This Severity Level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the Enforcement Policy. This NCV is described in Section 1.2.b of the subject inspection report.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

U.S. Department of Energy
Idaho Operations Office

-2-

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/D Blair Spitzberg Acting for/

Dwight D. Chamberlain, Director
Division of Nuclear Material Safety

Docket No.: 72-20
License No.: SNM-2508

Enclosure:
NRC Inspection Report
72-20/00-01

cc w/enclosure:
Mr. Jan Hagers
TMI/FSV Licensing Project Manager
U. S. Department of Energy
Idaho Operations Office
850 Energy Drive
Idaho Falls, Idaho 83401-1563

Mr. Mark Gardner
TMI/FSV Facility Manager
Idaho Operations Office
U. S. Department of Energy
850 Energy Drive
Idaho Falls, Idaho 83401-1563

Mr. Doug Walker, NRC Liaison
State of Idaho INEEL Oversight Program
900 N. Skyline Drive, Suite C
Idaho Falls, Idaho 83402

Mr. George Freund
Coalition 21
P. O. Box 51232
Idaho Falls, Idaho 83405

Mr. Wayne Pierre
Federal Facility Section
U. S. Environmental Protection Agency
(M/S HW-124)
Seattle, Washington 98101

Mr. Blake Hall, Chairman
INEEL Committee
Idaho Falls Chamber of Commerce
P. O. Box 50498
Idaho Falls, Idaho 83405-0498

Chairman, Tribal Business Council
The Shoshone-Bannock Tribes
P. O. Box 306
Fort Hall, Idaho 83203

Mr. Chuck Broscious
Environmental Defense Institute
P. O. Box 220
Troy, Idaho 83843

Ms. Gail Willmore
INEEL Technical Library
1776 Science Center Drive
Idaho Falls, Idaho 83402

U.S. Department of Energy
Idaho Operations Office

-3-

Mr. Charles M. Rice
Chairman, INEEL EM Site Specific Advisory Board
c/o Jason Associates Corp.
477 Shoup
Idaho Falls, Idaho 83402

Snake River Alliance
310 E. Center
Pocatello, Idaho 83201

U.S. Department of Energy
Idaho Operations Office

-4-

E-mail report to D. Lange (DJL)

bcc w/enclosure to DCD (IE08)

bcc w/enclosure (ADAMS via-e-mail distrib)::

EWMerschhoff

JCook, NMSS/SFPO (013D13)

PNarbut, NMSS/SFPO (013D13)

ELeeds, NMSS/SFPO (013D13)

MDWaters, NMSS/SFPO (013D13)

VLTharpe, NMSS/SFPO (013D13)

DDChamberlain

DBSpitzberg

LLHowell

JVEverett

DLRice

DGReid

FCDB File

MIS System

RIV Docket File (5th floor) (Part 72)

DOCUMENT NAME: Draft: S:\dnms\fcdb\dir\0720002001.wpd Final: r:_dnms\DOE\

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:DNMS:FCDB	FCDB	C:FCDB	D:DNMS
DLRice	DGReid	DBSpitzberg	DDChamberlain
08/08/00	08/08/00	08/14/00	08/15/00
/RA/	/RA/	/RA/	/DBSpitzberg for/

OFFICIAL RECORD COPY

T=Telephone E=E-mail F=Fax

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 72-20
License No.: SNM-2508
Report No.: 72-20/00-01
Licensee: United States Department of Energy
Facility: TMI-2 Independent Spent Fuel Storage Installation
Location: Idaho Operations Office
850 Energy Place
Idaho Falls, Idaho 83401
Dates: June 19-22 and July 5-9, 2000
Inspectors: D. L. Rice, CHP, Health Physics Inspector, Region IV
D. G. Reid, Quality Assurance Inspector, Spent Fuel Project
Office
Approved By: D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle & Decommissioning Branch, Region IV
Attachment: Supplemental Information

EXECUTIVE SUMMARY

United States Department of Energy
NRC Inspection Report 72-20/00-01

The Energy Reorganization Act of 1974 requires the Nuclear Regulatory Commission (NRC) to regulate Department of Energy (DOE) facilities which are primarily used for the receipt and storage of high level wastes, including spent nuclear fuel, resulting from activities licensed under the Atomic Energy Act of 1954. Therefore, activities associated with the TMI-2 fuel stored at the independent spent fuel storage installation (ISFSI) fall under NRC regulations.

On March 19, 1999, Special Nuclear Material License SNM-2508 was issued to DOE Idaho Operations Office (DOE-ID) for the TMI-2 ISFSI. On March 31, 1999, the first cask containing TMI-2 core debris was successfully loaded into a storage container at the ISFSI.

An inspection of the TMI-2 ISFSI was conducted June 19-22 and July 5-9, 2000. The NRC inspection included a review of monthly surveillances required by various technical specifications, changes to the organization, the 1999 Annual Radiological Environmental Monitoring Program Report, changes to the emergency plan, quality assurance audits and surveillances, and implementation of the 10 CFR 72.48 screening process. Additionally, an NRC inspector observed the drying and loading of TMI-2 canisters into a dry shielded canister (DSC), and welding of the shield and structural lids onto the DSC in preparation for transfer to the ISFSI pad. This was the second DSC to be loaded into the TMI-2 ISFSI. Loading was completed July 10, 2000.

Operation of an ISFSI (60855)

- The TMI-2 pad and area immediately around the perimeter fence were being maintained in good physical condition. Positive access control was observed at the pad (Section 1.2.a.).
- The loading, transportation and storage of the DSC No. DOE-12T-003 was successfully accomplished. Both the licensee and contractor exhibited a strong emphasis on safety. Coordination between the various organizations involved with the loading operation was exemplary. The contractor's quality assurance organization was actively engaged in all aspects of the operation for the loading, welding, movement, and storage of the DSC into the Horizontal Storage Module (HSM). Issues identified by the licensee or licensee's contractor during the activities were documented in the DOE-ID tracking system and corrective actions were being completed in a timely manner (Section 1.2.b.).
- The licensee identified a failure to follow documented procedures related to welding of the shield plug and DSC cover plate. Specifically, the improper attachment of a grounding connector resulted in multiple arc strikes on a lifting trunnion and at several locations on the side of the overpack. Failure to follow the procedure resulted in a non-cited severity level IV violation of 10 CFR 72.150 (Section 1.2.b.).

- Monthly surveillances concerning dose rates around the vent system HEPA filter housings and DSC hydrogen gas concentrations were being performed as required (Section 1.2.c.).
- DOE had replaced the management and operations contractor for the TMI-2 ISFSI, effective October 1, 1999. A review of the current organization and changes that had been made since October 1999, revealed an improved upper management reporting chain and a clear understanding by the TMI-2 ISFSI staff of the responsibilities of the various groups within the new organization (Section 1.2.c.).
- The radiological environmental monitoring report for 1999 was reviewed. Radiation levels around the pad during 1999 were being monitored and maintained in accordance with the technical specifications (Section 1.2.d.).
- The quality assurance organization was actively performing audits and surveillances of TMI-2 ISFSI activities. Findings were being entered into a tracking system and corrective actions were being completed (Section 1.2.e.).
- Changes to the TMI-2 ISFSI emergency response plan during the past year were reviewed and determined to not have reduced the effectiveness of the program. The process used by the licensee to review and evaluate proposed changes to the emergency plan was determined to be effective (Section 1.2.f.).

Design Control of ISFSI Components (60851)

- Design change reviews were found to be in compliance with the requirements in 10 CFR 72.48 (Section 2.2.).

Report Details

Summary of Facility Status

The TMI-2 ISFSI is located at the Idaho Nuclear Technology and Engineering Center (INTEC) approximately 42 miles west of Idaho Falls, Idaho. INTEC is part of the Idaho National Engineering and Environmental Laboratory operated by Bechtel BWXT Idaho, LLC (BBWI), the management and operations contractor (M&O), for the Department of Energy Idaho Operations Office. The ISFSI consists of a concrete pad with 30 horizontal storage modules. The first loaded dry shielded canister (DSC) was stored at the ISFSI on March 31, 1999. The second DSC was placed into storage on July 10, 2000. The remaining 27 DSCs are scheduled to be placed into storage on or before June 2001.

The storage system currently used by DOE-ID at the ISFSI is the NUHOMS® -12T cask system. The NUHOMS® -12T cask system consists of concrete horizontal storage modules containing carbon steel DSCs. Each DSC can hold 12 TMI-2 canisters. The concrete horizontal storage modules provide a self-contained modular structure for storage of the DSCs. The licensee had constructed 30 concrete horizontal storage modules on the ISFSI pad. This provided for one spare storage module.

At the time of the inspection, approximately 25 core debris canisters had been dried, but had not been fully accepted for loading. Three horizontal storage modules had been accepted for use. The remaining 27 storage modules had nonconformance issues that needed to be addressed before final acceptance. There were three DSCs onsite that had been fully accepted for loading. Several other DSCs were onsite, awaiting completion of the acceptance process.

1 Operation of an ISFSI (60855)

1.1 Inspection Scope

The inspection included observation of the activities associated with welding of DSC No. DOE-12T-003, confirmation of TMI-2 canister identification, and preparations for transportation of the cask to the ISFSI. Additional items reviewed included confirmation of compliance with technical specifications concerning horizontal storage module dose rates, performance of monthly surveillances on the vent system HEPA filters and DSC hydrogen concentrations, changes to the management organization and the emergency plan, review of the 1999 radiological environmental monitoring report, and review of various quality assurance audits and surveillances.

1.2 Observations and Findings

a. Facility Condition

A tour of the ISFSI, including the ISFSI pad and the area outside of the security fence, was completed by the inspectors. Three horizontal storage modules had been fully accepted for use. The remaining 27 storage modules had nonconformance issues that needed to be addressed before final acceptance could be completed. The pad area was clean and in good physical condition. The area outside of the security fence was

clear of obstructions.

b. Loading, Closure and Transport of DSC No. DOE-12T-003

The inspector observed the following activities: welding of shield plug and cover plate; welding of the purge and vent port housings; nondestructive examinations (NDE) of shield plug, cover plate, and purge and vent port housings; helium leak test of vent & purge port seals, and the collection of smear samples for the evaluation of removable contamination prior to placing the loaded transport cask onto the trailer. Additionally, the inspector verified welder and QA inspector qualifications; reviewed Test Area North (TAN) records to verify locations of canisters in DSC No. DOE-12t-003, and toured the ISFSI pad.

Loading of DSC No. DOE-12T-003 occurred before arrival of the inspector. However, a review of the data package showed that the licensee maintained detailed records of the storage location of each canister placed into the DSC. The storage data had been recorded on two sets of data sheets which were developed in accordance with Technical Procedure TPR-1215, "DSC Loading with TMI-2 Canisters," Revision 5. The data sheets provided a complete traceability of the canister storage locations before and after loading into the DSC, including drying cycles. For example, one data sheet, TPR-1215, Appendix E, which lists the TMI-2 canisters to be loaded, showed that Canister D-159 had been stored at Position #1 in a 125B-1 cask prior to being loaded into the DSC, and that it had been dried in accordance with Canister Drying Work Package #4. The other data sheet, TPR-1215, Appendix F, showed the weight of Canister D-159 and indicated that it had been placed into DSC No. DOE-12T-003, at Location #1. This type of information was recorded and verified by quality assurance for each of the 12 canisters before they were loaded into the DSC.

The welding operations were performed in accordance with Technical Procedure TPR-1216, "DSC Seal Welding," Revision 5. The procedure was comprehensive and had the appropriate levels of approval. Although there were a number of delays in the implementation of the DSC seal welding procedure, all welding and related non-destructive evaluations (NDE) were successfully completed. The procedure was detailed and provided for the documentation of completed tasks and included all related witness, hold, and quality verification points which were signed as required.

The BBWI quality assurance system was applied throughout the operations observed. A review of the procedures indicated that QA was an integral part of all activities associated with the loading, welding, movement, and storage of the DSC. During the welding of the DSC, three issues were documented by QA. One issue related to paint on the top surface of the shield plug that intruded into the seal weld areas of the purge and vent port. The issue was documented on nonconformance report (NCR) No. 13368. A second issue related to the top cover plate weld which interfered with the sealing of the purge and vent filter assemblies. Procedure TPR-1216, provided inadequate acceptance criteria for the sealing surface after welding. Deficiency Report No. 13375 was issued to address this inadequacy. A third issue related to the machined surfaces of the purge and vent ports. These surfaces were inspected by the licensee's quality inspector and found to have scratches on the seal seating areas that violated surface finish requirements. As a result, NCR No. 13374 was generated. Each of these

issues were entered into the licensee's tracking system and were being dispositioned as required by the QA program.

Due to the schedule of events, the inspector was unable to observe the movement of the cask from the TAN facility to the ISFSI and insertion of the DSC into the Horizontal Storage Module (HSM). However, on July 11, 2000, DOE-ID reported that both the transfer of the DSC and its insertion into the HSM were conducted successfully. The licensee provided information, as documented in procedure INTEC-TPR-P3.6-G1, Revision 7, showing that technical specification (TS) requirement 3.2.1 for HSM dose rates was met.

After the DSC was placed into the storage module at the ISFSI, the overpack, Model No. OS-197, was returned to the TAN facility for reuse. BBWI performed a receipt inspection of the overpack in preparation for another loading. During the receipt inspection, BBWI noticed a number of welding arc strikes at several areas along the outer surface of the overpack, including one of the trunnions. The overpack, including the trunnions, are classified as components important-to-safety in the SAR. Consequently, a stop work order was issued by the licensee and the issue was entered into the licensee's corrective action system as deficiency report (DR) 13200. A subsequent investigation by the licensee identified that Steps 4.1.8 and 4.5.4 of procedure TPR-1216, "DSC Seal Welding," Revision 5, required the welding operator to attach the welding ground to the shield plug and to the DSC cover plate during their respective welding. Instead, the welding ground connector had been attached to a trunnion throughout the welding operation. At some time during welding, the ground connector was inadvertently dislocated from the trunnion and fell to the ground. Arcing occurred as the connector bounced off the side of the overpack during the fall.

The licensee had started an investigation into the circumstances surrounding the procedure violation. Additionally, the licensee had contacted the owner of the overpack to obtain their assistance in evaluating the damage. The initial results of the damage evaluation indicated that the arc strikes on the overpack were superficial. However, the licensee and the overpack owner were continuing to evaluate the metallurgical impact of the event.

10 CFR 72.150 requires the licensee to prescribe activities affecting quality by documented instructions, procedures, or drawings and that these instructions, procedures, or drawing be followed. Welding of the DSC cover plate and shield plug is considered an activity affecting quality. Therefore, failure to follow the procedure concerning placement of the grounding connector constituted a violation of 10 CFR 72.150. In that the violation was licensee identified, non-repetitive, and was entered into the licensee's corrective action system, it is being treated as a Non-Cited Severity Level IV Violation, consistent with Section VI.A of the Enforcement Policy (72-20/0001-01).

c. Technical Specifications

Technical Specification 3.2.2 required that the surface dose rate of each HSM rear access door not exceed 100 millirem per hour (mrem/hour) gamma and that the surface dose rate of each HEPA filter housing not exceed 1200 mrem/hr gamma. The subject dose rates were to be monitored monthly during the first year in accordance with

Surveillance Requirement (SR) 3.2.2.1. The TS was implemented through Technical Procedure INTEC-TPR-P3.6-G3, Revision 1. Surveillance documentation for the period 04/99 through 4/00 was reviewed by the inspector. The documentation indicated that the surveillances had been performed monthly as required by SR-3.2.2.1 and that the dose rate at the HSM rear access door and at each HEPA filter housing had not exceeded 0.2 mrem/hour.

Technical Specification 3.2.3 required that the hydrogen gas concentration inside each DSC at the ISFSI not exceed 0.5 percent by volume. Surveillance Requirement 3.2.3.1 required the hydrogen gas concentration to be monitored monthly during the first year. Surveillance documentation for the period 04/99 through 4/00 was reviewed by the inspector. The documentation indicated that the surveillances had been performed as required and that the hydrogen gas concentration had not exceeded the TS requirement.

Technical Specification 5.2.1, Onsite and Offsite Organizations, established the requirement for the organizational lines of authority and delineation of positions documented in the safety analysis report. The safety analysis report (SAR), Revision 2a, dated March 22, 2000, Section 9.1.3.1, Onsite Organization and Section 9.1.4, Personnel Qualification Requirements, established the organizational lines of authority and minimum qualification requirements. The SAR included an organizational chart of the BBWI's operations organization which functions as the M&O contractor for both the Fort St. Vrain and TMI-2 facilities. The current operations organization was a new entity resulting from the merger of the two former ISFSI organizations. This was conducive for communications between the M&O contractor and DOE management. Procedure PLN-565, Fort St. Vrain & TMI-2 ISFSI Management Reorganization, Rev. 0, documented the new organizational structure. The procedure identified key positions and responsibilities. Through discussions with personnel and operations management, the NRC inspector determined that the new organization was effectively implementing the required ISFSI programs and was receiving adequate support from DOE.

The safety review committee membership and responsibilities were delineated in TS 5.2.1, Onsite and Offsite Organizations. The safety review committee had been reappointed subsequent to the change in the M&O contractor. One safety review committee had been established to provide oversight of licensed activities for both Fort St. Vrain and the TMI-2 ISFSI. A review of the qualifications of the new membership revealed that the newly appointed members and alternates met or exceeded the minimum qualifications as required by TS 5.3, Facility Staff Qualifications. The first meeting of the new safety review committee was held on April 11, 2000.

d. Environmental Monitoring Program

The TMI-2 ISFSI annual environmental monitoring report for 1999 was submitted to the NRC on February 28, 2000, for the period March 31 through December 31, 1999. Environmental monitoring for 1999 included direct radiation and airborne monitoring.

Direct radiation monitoring around the ISFSI included 22 thermoluminescent dosimeters (TLDs) located at the ISFSI perimeter fence. Four additional TLDs were located outside occupied buildings within 100 meters of the ISFSI. The mean gamma exposure rate

for the TLDs around the perimeter of the facility varied between 0.5 and 1.1 mrem/day. The dosimetry results indicated that there had been no measurable increase in ambient radiation levels outside the TMI-2 ISFSI perimeter fence attributable to storage of TMI-2 core debris.

The annual report documented the air sampling results for the period from March 30 through December 15, 1999. The report documented that there had been no measurable release of radioactive material from the DSC stored in HSM No. 16 during the monitoring period.

e. Quality Assurance/Surveillance/Problem Reports/Non-Conformance Reports

The licensee conducted a number of surveillances and audits of the TMI-2 ISFSI during 1999 and 2000. The following surveillances and audits completed in 1999 and 2000 were reviewed during this inspection:

- Surveillance 99-NSNF-S-046, In-process Work to Repair Horizontal Storage Modules
- Surveillance 99-NSNF-S-063, Supplier Evaluation of Techalloy Company, Inc.
- Audit 99-NSNF-AU-047, TMI-2 ISFSI
- Audit 99-NSNF-AU-071, Technical Safety Audit of TMI-2 ISFSI
- Surveillance 00-ISFSI-S-003, DOE-ID Licensing Management Procedures and Document and Records Control Process
- Surveillance 00-ISFSI-S-005, FSV and TMI-2 Physical Protection Plans
- Surveillance 00-ISFSI-S-006, Implementation of 10 CFR 21
- Surveillance 00-ISFSI-S-007, Observe BBWI Audit of TransNuclear West, Inc., QA Program
- Surveillance 00-ISFSI-S-008, Corrective Action Program Implementation (FSV and TMI-2)

Each surveillance and audit focused on a sufficiently small topical area to allow for a thorough review. Observations were documented and deficiencies were entered into the corrective action program. Examples of concerns identified included: 1) ineffective implementation of the TMI-2 ISFSI program organization, 2) applicability of the quality assurance requirements and description (QARD) program to the dewatering and vacuum drying system, and 3) ineffective 10 CFR 72.48 process concerning addition of a radiological control tent to the ISFSI.

f. Emergency Planning

The TMI-2 ISFSI emergency response plan is Addendum 10 to the INEEL Emergency Plan/RCRA Contingency Plan. The licensee had updated the TMI-2 ISFSI emergency response plan, Addendum 10, since the last inspection. The changes were reviewed and determined to affect only the TMI-2 emergency response plan and to be primarily editorial in nature. The changes were documented in document action request DAR-18486. An evaluation of the changes for regulatory compliance and reduction in plan effectiveness had been performed and documented by BBWI in Licensing Evaluation No. TMI-00-007, dated May 2000. The licensing evaluation concluded that the changes would not result in a decrease in program effectiveness,

and that full implementation of the requirements of 10 CFR 72.32(a) would be retained. The licensee approved the licensing evaluation in a letter from the FSV/TMI-2 Facility Director to BBWI, dated June 12, 2000.

1.3 Conclusion

The TMI-2 pad and area immediately around the perimeter fence were being maintained in good physical condition. Positive access control was observed at the pad.

The loading, transportation and storage of the DSC No. DOE-12T-003 was successfully accomplished. Both the licensee and contractor exhibited a strong emphasis on safety. Coordination between the various organizations involved with the loading operation was exemplary. The contractor's quality assurance organization was actively engaged in all aspects of the operation for the loading, welding, movement, and storage of the DSC into the HSM. Issues identified by the licensee or licensee's contractor during the activities were documented in the DOE-ID tracking system and corrective actions were being completed in a timely manner.

The licensee identified a failure to follow documented procedures related to welding of the shield plug and DSC cover plate. Failure to follow the procedure resulted in a non-cited severity level IV violation of 10 CFR 72.150.

Monthly surveillances concerning dose rates around the vent system HEPA filter housings and DSC hydrogen gas concentrations were being performed as required.

The radiological environmental monitoring report for 1999 was reviewed. Radiation levels were being monitored and maintained in accordance with the technical specifications.

The quality assurance organization was actively performing audits and surveillances of TMI-2 ISFSI activities. Findings were being entered into a tracking system and corrective actions were being completed.

DOE had replaced the management and operations contractor for the TMI-2 ISFSI, effective October 1, 1999. A review of the current organization and changes that had been made since October 1999 revealed an improved upper management reporting chain and a clear understanding by the TMI-2 ISFSI staff of the responsibilities of the various groups within the new organization.

Changes to the TMI-2 ISFSI emergency response plan during the past year were reviewed and determined to not have reduced the effectiveness of the program. The process used by the licensee to review and evaluate proposed changes to the emergency plan was determined to be effective.

2 Design Control of ISFSI Components (60851)

2.1 Inspection Scope

The inspection included a review of changes and screening evaluations conducted in accordance with 10 CFR 72.48. Additionally, a review of the annual report required by 10 CFR 72.48(b)(2) was performed.

2.2 Observations and Findings

The licensee performed reviews of changes to procedures, equipment and the facility using Management Control Procedure MCP-2925, "ISFSI Changes, Tests and Experiments," Revision 7. Screenings were conducted to determine if a 10 CFR 72.48 safety evaluation was required for a proposed change. Procedure MCP-2925 provided criteria for performing both screenings and safety evaluations. Definitions of key terms were provided and responsibilities of requesters, evaluators and screeners were identified. The procedure also listed record requirements. The licensee had established three categories of personnel trained to implement portions of Procedure MCP-2925. These categories included trained screeners, qualified screeners and qualified evaluators. Trained screeners filled out the screening forms. Qualified screeners completed the screening process and signed-off on the forms. Qualified evaluators performed 10 CFR 72.48 evaluations that were determined to be necessary as a result of the screening process. A list of personnel trained to perform the 10 CFR 72.48 screening and evaluation processes was maintained by the licensee.

The inspector reviewed 23 document action requests (DARs) and the associated 10 CFR 72.48 screenings that had been completed since February 1999. The screening documentation was determined to contain the necessary information, in both depth and scope to support the final conclusions.

The annual report required by 10 CFR 72.48(b)(2) was reviewed. The report dated March 16, 2000, had been submitted to the NRC as required. The report indicated that no changes, tests, or experiments, nor changes to the TS bases had been performed pursuant to 10 CFR 72.48(a).

2.3 Conclusion

Design change reviews performed were found to be in compliance with the requirements in 10 CFR 72.48.

3 Inspection Followup Items

- 3.1 (Closed) IFI-72-20/9901-01 Interface between LMITCO and DOE for employee concerns: Lockheed Martin Idaho Technology Company (LMITCo) procedures established requirements to interface with the licensee concerning the receipt, investigation, resolution and closure of employee concerns received by LMITCo, the previous M&O contractor. However, since the two programs were separate and independent, the opportunity existed for inconsistent resolution of allegations between

the two organizations. In addition, information known by one organization may be relevant to the closure of allegations received by the other organization. Subsequent to the 9901 inspection, LMITCO had been replaced by BBWI and an interoffice memorandum, "Ethic/Employee Concerns Desktop Procedure #1 - NRC Employee Concerns-DDP-003-00," dated June 15, 2000, had been issued directing the contractor employee concerns program staff to "immediately" notify the DOE-ID employee concerns program manager of any employee concerns involving FSV or TMI-2 activities. The intent of the notification was to ensure that any employee concerns involving NRC licensed activities would be immediately brought to the attention of the licensee. The DOE-ID facility director and the DOE-ID employee concerns program manager indicated that the memorandum would provide an effective process to ensure employee concerns involving NRC licensed activities were quickly brought to their attention.

- 3.2 (Closed) IFI-72-20/9901-02 Implementation of records management process: An informally developed LMITCo procedure for processing new records was being used as a "desktop procedure." Since this procedure affects the quality assurance of records, a formally written and approved procedure was required. On November 30, 1999, the licensee issued Management Control Procedure INTEC-MCP-3045, "NRC ISFSI Records Management," Revision 1, to provide formal instructions for managing records associated with operations of the ISFSI. The inspector toured the records center and interviewed the staff. The records center was well organized, the staff was aware of the procedure and had been following the procedure when processing ISFSI records. There was no apparent backlog of records to be processed.
- 3.3 (Closed) IFI-72-20/9901-03 Role of licensee in NCR/PDR process: Corrective actions for problems were being completed by the contractor before the licensee was aware of the problem and had an opportunity to review or provide input into the corrective actions. This resulted in the licensee being left out of the process as an active member to ensure problems were being properly addressed before it was too late to affect the outcome of the corrective action. The licensee developed a corrective action plan, CAR 99-NSNF-TMI/NRC-001 to address this issue. The corrective action plan called for modification of procedure PMP-201, "Quality Assurance Program Information Management," to be revised to include periodic meetings with the contractor to review quality assurance issues related to the ISFSI and generation of correspondence to the contractor to establish a meeting regimen which included NCRs, PDRs and other forms of deficiency documents generated by the contractor. Procedure MCP-538, "Control of Nonconforming Items," had also been changed to ensure NCRs were sent to DOE-ID quality assurance within 7 days of completion of the preliminary validation. Seven meetings had been held since November 1999 between DOE-ID quality assurance and its contractor.
- 3.4 (Closed) IFI-72-20/9901-04 Procedures for documenting minor receipt inspection discrepancies: Development of a procedural process for documenting and resolving minor issues related to receipt inspection was needed. Procedure TPR-4960, "Receiving Inspection," Revision 3, dated April 19, 1999, formalized the process by which minor receipt inspection discrepancies would be handled.
- 3.5 (Closed) IFI-72-20/9901-05 QA oversight of contractors: Numerous examples of inadequate oversight by the licensee of its contractors indicated that strengthening of

the licensee's quality assurance program was necessary. The inspector reviewed several licensee audits and surveillances of contractor activities performed since the last inspection. The level of licensee oversight of its contractors had increased significantly. The depth of the audits and inspections was adequate to ensure the licensee was aware of the contractor and subcontractor activities and performance.

- 3.6 (Discussed) URI-72-20/9901-06 Applicability of 10 CFR 72.48 to activities outside the ISFSI: The activities at Test Area North, for the most part, did not have a direct relationship to compliance with the safety aspects committed to in the SAR or the ISFSI technical specifications. These activities were conducted under the rules and orders established by DOE and included activities such as radiological controls, security, operational controls, and criticality. Changes to these programs were reviewed under the DOE-ID safety review program, which differed from the requirements of 10 CFR 72.48. However, there were a number of activities performed at Test Area North that directly related to compliance with technical specifications or safety provisions established in the SAR. On November 23, 1999, and April 19, 2000, DOE-ID committed to revise the SAR to address the activities conducted outside the ISFSI that would be subject to the provisions of 10 CFR 72.48. This unresolved item (URI) remains open until the TMI-2 SAR is changed.
- 3.7 (Closed) IFI-72-20/9901-07 Comparison of radiological control manual to 10 CFR 20: A review of the licensee's RADCON manual found several instances where minor differences existed between the requirements and definitions in 10 CFR Part 20. The licensee completed a comparison of the DOE RADCON manual and 10 CFR Part 20 and documented the relevant differences in an interdepartmental communication dated July 27, 1999, "Subject: NRC Inspection Report 72-20/99-01, June 18, 1999." Procedure MCP-3047, "ISFSI Radiation Protection, Safety and Health, and Environmental Protection Programs," was revised effective May 12, 2000, to incorporate the necessary changes to correct the differences.
- 3.8 (Closed) IFI-72-20/9901-08 Adequacy of airflow into DSC during HEPA filter replacement: The licensee is no longer planning to use a HEPA vacuum system to control possible movement of contamination during HEPA filter replacement. The plan had been changed to use a containment tent and protective clothing to control the possibility of contamination during filter change-out. The new process removes the concern about airflow adequacy.
- 3.9 (Closed) VIO-72-20/9901-09 Failure to include Part 21 requirements in procurement documents: Licensee corrective actions, as documented in a letter from the licensee to the NRC dated August 5, 1999, were reviewed to evaluate implementation and effectiveness in preventing a similar violation. Procedure changes had been made to the relevant procedures (MCP-590 and -592) and training on the revised procedures had been completed and documented.
- 3.10 (Discussed) VIO-72-20/9901-10 Failure to verify implementation of suppliers QA program: Licensee corrective actions, as documented in a letter from the licensee to the NRC dated August 5, 1999, were reviewed to evaluate implementation and effectiveness in preventing a similar violation. The corrective actions had been

completed as committed to by the licensee. The licensee performed a supplier evaluation (Supplier Evaluation Report 99-089, dated December 22, 1999) to address the issue concerning the quality of the weld wire used on the first DSC. The evaluation concluded that the weld wire met the quality requirements. The licensee had completed a review to determine if any procurement conducted by BBWI failed to require adherence to 10 CFR 21.31. The review identified one currently open procurement that did not include 10 CFR Part 21 requirements. The licensee was in continuing discussions with the contractor, Newport News Shipbuilding, concerning modification of the contract to come into compliance with the requirements of 10 CFR Part 21.

- 3.11 (Closed) IFI-72-20/9901-11 Additional procurement personnel training: Procedural guidance and training of procurement personnel were identified as needed. The licensee had developed and conducted training concerning 10 CFR Part 21 requirements. The training had been provided to procurement personnel, quality engineers, license and compliance engineers and management associated with licensed facilities. The training covered 10 CFR Part 21 reporting requirements for defects and noncompliances. The licensee had documented attendance at the training.
- 3.12 (Closed) IFI-72-20/9901-12 Adequacy of training for 10 CFR 19.12: A more formal process of ensuring that employees are trained on 10 CFR Part 19 and have an opportunity to ask questions to an informed instructor was identified to the licensee. The licensee had developed a formal training plan, NRCLF001, Revision 0, to standardize the 10 CFR 19.12 training. The training plan and associated handout covered all topics required by 10 CFR 19.12. The training had been provided to the ISFSI personnel.
- 3.13 (Closed) Licensee Event Report 00-001 Reduction in Effectiveness of Confinement System: The licensee submitted an event report on February 16, 2000, indicating they had determined that a spent fuel storage confinement system in use had a potential for a significant reduction in effectiveness. The determination had been made after a rubber plug had "popped out" of a filter canister during a drying process. The licensee determined that there were no formalized procedures in place to verify that these plugs were properly torqued. Therefore, the potential existed for the plugs to fail during transport. The plugs in the DSC that had been previously placed into storage on the ISFSI pad had been verified (by video) to have been in place during loading. In a letter dated March 15, 2000, the licensee indicated that the potential condition discussed in the February 16, 2000, LER would not pose any additional safety or health risks to the public or site workers and presented four corrective actions to address the issues. Corrective action Number 1 had been completed at the time of the inspection (decision to leave the previously loaded DSC in storage). Corrective action Number 2 (preparation of a safety analysis and license amendment) was changed during a telephone call on July 26, 2000, between the licensee and Region IV to performance of a SAR change using the 10 CFR 72.48 process, thereby, removing the need for an amendment. Corrective action Numbers 3 and 4 concerning determination and implementation of closure requirements for each TMI-2 canister type had been completed for the fuel canisters (Engineering Design File, EDF-1442, Revision 0, dated May 10, 2000), but not the knockout or filter canisters. Closure of corrective actions for

the knockout and filter canisters will be documented in the licensee's corrective action program.

4 Exit Meeting

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on June 22, 2000, and during subsequent telephone conversations on July 19, 2000, and August 3, 2000. The licensee acknowledged the findings presented. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors that had been incorporated into this inspection effort.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

P. Dirkmaat, Director, INTEC Director
M. Gardner, TMI-2 Facility Director
J. Hagers, TMI/FSV Licensing Manager
C. Maggart, Deputy TMI/FSV Licensing Manager
C. Ogilvie, Emergency Director
H. Bohrer, Quality Assurance Director
K. Grooms, Quality Assurance

Contractors

J. Barker, Project Quality Engineer, BBWI
G. Hall, TMI-2 NRC Operations, BBWI
J. Kaylor, NRC Operations Manager, BBWI
S. Schum, Emergency Coordinator, BBWI
M. Watts, Procurement Quality Manager, BBWI

INSPECTION PROCEDURES USED

60851 Design Control
60855 Operations of an ISFSI

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

72-20/0001-01 NCV Failure to follow procedures for welding of the shield plug and DSC cover plate.

Closed

72-20/9901-01 IFI Interface Between LMITCo and DOE for Employee Concerns
72-20/9901-02 IFI Implementation of the Records Management Process
72-20/9901-03 IFI Role of Licensee in the NCR/PDR Process
72-20/9901-04 IFI Procedures for Documenting Minor Receipt Inspection Discrepancies
72-20/9901-05 IFI Quality Assurance Oversight of Contractors
72-20/9901-07 IFI Comparison of RADCON Manual against 10 CFR Part 20
72-20/9901-08 IFI Adequacy of Airflow into DSC During HEPA Replacement
72-20/9901-09 VIO Failure to Include 10 CFR Part 21 Requirements in Procurement Documents
72-20/9901-11 IFI Additional Procurement Personnel Training
72-20/9901-12 IFI Adequacy of Training for 10 CFR 19.12
72-20/0001-01 NCV Failure to follow procedures for welding of the shield plug and DSC cover plate.

LER 00-001 LER TMI-2 Thaxton Plug

Discussed

72-20/9901-06 URI Applicability of 10CFR72.48 to Activities Outside the ISFSI
72-20/9901-10 VIO Failure to Verify Implementation of Supplier's QA program

LIST OF ACRONYMS

ASME	American Society of Mechanical Engineers
BBWI	Bechtel BWXT Idaho, LLC
CFR	Code of Federal Regulations
DOE	Department of Energy
DOE-ID	Department of Energy-Idaho Operations Office
DSC	dry shielded canister
GMAW	gas-metal-arc welding
HEPA	high efficiency particulate filter
HSM	horizontal storage module
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
ISFSI	Independent Spent Fuel Storage Installation
LCO	limiting condition of operation
LMP	Licensing Management Procedures
MCP	Management Control Procedures
NCR	non-compliance report
NDE	non-destructive examination
NRC	Nuclear Regulatory Commission
NSNF	National Spent Nuclear Fuel
PDR	process deficiency report
PMP	Program Management Procedures
QA	Quality Assurance
QARD	quality assurance requirements and description
SAR	safety analysis report
SNM	Special Nuclear Material
TLD	thermoluminescent dosimeters
TMI-2	Three Mile Island Nuclear Power Plant Unit 2
TPR	technical procedure requirement