NRC FORM 591S PART 1
(8-2002)
10 CFR 2.201

U.S. NUCLEAR REGULATORY COMMISSION

SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

1. LICENSEE/CERTIFICATE HOLDER	2. NRC/REGIONAL OFFICE
Holtec International 555 Lincoln Drive West Marlton, NJ 08053 REPORT NUMBER(S) 72-1014/2010-202	Division of Spent Fuel Storage and Transportation U. S. NRC M/S EBB-3D-02M Washington, DC 20555-0001

3. LICENSEE/CERTIFICATE NUMBER(S)	4. INSPECTION LOCATION	5. DATE(S) OF INSPECTION
72-1014	HMD, Turtle Creek, PA	12/6-9/2010

The inspection was an examination of the activities conducted under your NRC-approved 10 CFR Part 71 Quality Assurance Program approval as they relate to safety and compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your Certificate of Compliance (CoC). The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspectors. The inspection findings are as follows:

☒ 1. Based on the inspection findings, no violation or nonconformances were identified.

☐ 2. Previous violations(s) or nonconformance(s) closed.

☐ 3. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified non-repetitive, and corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy, NUREG-1600, to exercise discretion, were satisfied.

_____ Non-Cited Violation(s) was/were discussed involving the following requirement(s) and Corrective Actions(s):

☐ 4 During this inspection certain of your activities, as described below and/or attached, were in violation or nonconformance with NRC requirements and are being cited. This is a NOTICE OF VIOLATION which may be subject to posting in accordance with 10 CFR19.11.

STATEMENT OF CORRECTIVE ACTIONS

☐ I hereby state that, within 30 days, the actions described by me to the inspector will be taken to correct the violations identified. This statement of corrective actions I made in accordance with the requirements of 10 CRF 2.201 (corrective steps already taken, corrective steps which will be taken date when full compliance will be achieved). I understand that no further written response to NRC will be required, unless specifically requested; OR

☐ Written Response requested in 30 days ☐ Yes ☐ No

TITLE	PRINTED NAME	SIGNATURE	DATE
LICENSEE	Mark Soler	Mark Soler	12/22/10
NRC INSPECTOR	Robert Temps	Robert Temps	12/22/10

INSPECTOR NOTES COVER SHEET

Licensee/Certificate Holder (name and address)	Holtec International 555 Lincoln Drive West Marlton, NJ 08053
Licensee/Certificate Holder contacts	Greg Miller, Quality Manager - Holtec Manufacturing Division Mark Soler, Holtec Corporate Quality Assurance (QA) Manager
Docket No.	72-1014
Inspection Report No.	2010-202
Inspection Date(s)	December 6 – 9, 2010
Inspection Location(s)	Holtec Manufacturing Division (HMD)
Inspectors	Robert Temps Earl Love Clyde Morell NRC Observers: Jon Woodfield Juan Montesinos
Summary of Findings and Actions	This inspection involved a review of Holtec's wholly owned fabrication facility, HMD, located in Turtle Creek, PA. At the time of the inspection, cask storage system fabrication activities were ongoing for multiple 10 CFR Part 50 licensees. Overall, HMD's fabrication activities, and Holtec's oversight of the fabrication activities, were assessed to be adequate in meeting their QA Program requirements as well as NRC QA requirements. Overall quality of welding and other fabrication activities was assessed to be good. No cited violations of NRC requirements were identified. Several observations with regard to fabrication activities were noted by the team and discussed with Holtec/HMD personnel for their consideration and action.
Lead Inspector Signature/Date 12/23/10	Robert R. Temps
Inspector Notes Approval Branch Chief Signature/Date 12/23/10	David W. Pstrak for J. Raymond Wharton

INSPECTOR NOTES: APPLICABLE PORTIONS OF 02.01 THROUGH 02.07 OF IP 60852 WERE PERFORMED DURING THE INSPECTION WITH RESULTS DOCUMENTED BELOW:

02.01: Determine whether the fabrication specifications are consistent with the design commitments and requirements documented in the SAR, and, as applicable, the CoC or the site-specific license and technical specifications.

The team's focus in addressing this inspection element was on the process HMD uses 1) to control procedure distribution and 2) to translate vendor supplied design information into controlled HMD procedures and drawings for fabrication activities.

Document Control

The team reviewed the documentation control process to verify it was being properly implemented at HMD. The following procedures were reviewed:

Holtec Quality Procedure #	Revision	Title
6.0	10	Document Control
6.1	8	Project Document Transmittal and Control

HMD personnel showed the team how new project documents or changes to ongoing project documents are generated at the Corporate Division and transmitted to the manufacturing division (HMD) via a Document Transmittal Form (DTF). These documents, namely reports, procedures, specifications, drawings, etc..., are reviewed and approved by the designated Project Manager (PM). After review, the PM approves the distribution of the documents to locations within the HMD facility where needed. When changes/revision to drawings are made, the PM issues a DTF to a designated HMD employee to physically replace the paper drawings, located at documentation areas in each fabrication shop, with the latest revision. The team reviewed several DTFs used to replace existing drawings in the fabrication shop and verified that the process had been properly implemented.

HMD uses a computerized system for all its projects to archive, distribute, process and track revisions for all associated projects. The system is effectively implemented at the document areas within each fabrication shop by having paper copies of drawings available and a computer terminal available that allows HMD personnel to retrieve the most updated document information. The team spot verified that the revision number of paper fabrication drawings provided at the document area in the North fabrication shop were current, and verified that travelers being used on the fabrication shop floor were incorporated into the computerized system.

Control of Design Information

The team noted that the design development process for Holtec occurs at their corporate offices in New Jersey. The translation of the intended design at the fabrication level and from the corporate design drawings was verified by the team. The team used samples of materials from the shop floor and traced them back to their associated purchase orders and applicable design drawings. In each case, the team verified that the material samples conformed to the requirements of the associated design drawings.

The team also reviewed various statements made in Section 9 of the Final Safety Analysis Report (FSAR) for the HI-STORM system (CoC 72-1014) to verify they were properly implemented in appropriate fabrication or test procedures used at HMD. The results of this review are discussed below.

The team reviewed the following relevant design parameters and verified that they were appropriately translated from the FSAR licensing drawings to the HMD fabrication drawings:

Requirement	FSAR Location	HMD Document/drawing
Fuel cell pitch	CoC #1014 Appendix B 3.2.5 DWG 3927 Sheet 3 Rev 16	DWG 3752 MPC-32 FUEL BASKET ASSEMBLY Rev 13
MPC Lifting Holes Min. Depth	DWG 3923 Sheet 7 Rev 25	DWG 3753 MPC SHELL Rev 28
Overpack Shielding Thickness	DWG 4116 sheet 2 Rev 19	DWG 3996 HI-STORM 100S VERSION B Rev 33

FSAR Section 9.1.1 [Fabrication and Nondestructive Examination (NDE)], paragraph 4, states that the MPC, HI-STORM Overpack, and HI-TRAC cask welds shall be visually examined in accordance with ASME Code, Section V, Article 9 with acceptance criteria per ASME Code, Section III, Subsection NF, Article NF-5360, except the MPC fuel basket cell plate-to-cell plate welds and fuel basket support-to-canister welds which shall have acceptance criteria to ASME Code Section III, Subsection NG, Article NG-5360. It is further stated in paragraph 4 that FSAR Table 9.1.4 identifies additional nondestructive examination (NDE) requirements to be performed on specific welds, and the applicable codes and acceptance criteria to be used in order to meet the inspection requirements of the applicable ASME Code, Section III. Acceptance criteria for NDE shall be in accordance with the applicable Code for which the item was fabricated. These additional NDE criteria are also specified on the design drawings for the specific welds.

The team requested copies of the MPC and HI-TRAC fabrication drawings to determine if the NDE requirements for specific welds were properly incorporated from FSAR Table 9.1.4 to the fabrication drawings. Drawing 4838, Sheets1-9, revision 16 (Standard MPC-Shell and Details for MPC-24, 32, & 68) and drawing 7464, Sheets 1-3, revision 1 (Sub-assembly, HI-TRAC 125D Version A) were provided. The team reviewed the drawings and determined that the NDE requirements for specific welds shown in FSAR Table 9.1.4 had been properly incorporated into the fabrication drawings.

FSAR Section 9.1.2.1 (Lifting Trunnions) requires that the HI-TRAC lifting trunnions be tested at 300% of the maximum design (service) lifting load and that the load shall be applied for a minimum of 10 minutes. The accessible parts of the trunnions and the adjacent HI-TRAC cask trunnion attachment area shall then be visually examined to verify no deformation. The team reviewed procedure HSP-113, revision 8, "Trunnion Load Test Procedure for HI-TRAC 100 and 125 Systems," and determined that the FSAR requirements for a 300% load test, 10 minute minimum hold period, and post test inspections, had been properly incorporated.

FSAR Section 9.1.5.2 (Shielding Effectiveness Tests) requires that effectiveness of the lead plates in the HI-TRAC pool lid (all transfer cask designs) and transfer lid (HI-TRAC 125 and 100 only) shall be verified during fabrication by performing an ultrasonic test (UT) on the lead plates. The UT is performed before the installation of the plates. The team reviewed procedure

SC-240, revision 0, "Ultrasonic Examination of Lead Based Plate," and a material dedication report for lead plate to be used in a HI-TRAC Pool lid. The team determined that UT thickness testing on lead plates prior to installation in HI-TRAC pool lids was being performed as stated in the FSAR.

FSAR Section 9.1.5.2 (Shielding Effectiveness Tests) permits, as an alternative to poured lead in the HI-TRAC 125D transfer cask body, the use of individual lead sheets layered together. FSAR Section 9.1.5.2 specifies that, "All sheets regardless of thickness shall be measured for thickness in at least four corner locations, at a minimum of two inches from any edge." The team reviewed procedure HSP-336, revision 9, "Lead Installation Procedure for HI-TRAC." While there were detailed instructions in the procedure for inspecting and installing the lead sheets, there was no specific step for measuring the thickness of the individual lead sheets at their four corners. The discrepancy between the FSAR statement and the fabrication procedure was brought to the attention of the HMD QA Manager and the issue was documented in Quality Program Violation (QPV) 854. Further discussion with Holtec/HMD personnel indicated that the intent of these measurements was for use on thicker lead sheets and that the thinner sheets being used did not require this measurement.

FSAR Section 9.1.2.2.1 (HI-TRAC Transfer Cask Water Jacket) provides hydrostatic pressure requirements for testing the HI-TRAC transfer cask water jacket. The section states that the testing shall be in accordance with written and approved procedures with the test pressure gauge installed on the water jacket having an upper limit of approximately twice that of the test pressure. The team reviewed procedure HSP-112, revision 6, "Hydro-test Procedure for HI-TRAC 100 and 125 Transfer Casks," and determined that the procedure step addressing pressure gauges stated that, "Analog type gauges shall be graduated over a range not less than 1.5 times nor more than 4 times the required test pressure." Therefore, the procedure requirement for pressure gauges did not match the FSAR statement. This discrepancy was brought to the attention of the HMD QA Manager and it was included on QPV 854, written for the previous issue discussed above.

The two issues documented in the QPV were discussed with the Holtec Corporate QA Manager. The team was informed that the FSAR Section 9 discrepancies would be addressed through the 10 CFR 72.48 process and that a full review of FSAR Section 9 would be undertaken by Holtec to ensure there were no other statements that were not being implemented in HMD fabrication or testing procedures. The team assessed that there was no safety significance to the differences between the FSAR statements and the actual fabrication and testing procedures. This failure to comply with 10 CFR 72.146, "Design control," constituted a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

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 Holtec Quality Procedure (HQP) 15.2, "Nonconformances," the procedure that is part of the problem identification and corrective action program, used by HMD/Holtec, applicable to nonconformances. The team reviewed a representative sampling of nonconformance reports. Resolution of the issues documented in the various reports was assessed to be appropriate with the reports closed in a timeframe commensurate to their importance. In the few cases where human performance or programmatic issues appeared as

contributory causes to an NCR, the team noted that these issues were appropriately documented through the higher level Quality Program Violation corrective action program process. The team also verified that for NCRs that were in open status, the affected components in the shop had been tagged as required by HQP 15.2.

The team noted that the Quality Manager (QM) is required to perform tracking and trending of all NCRs. The team discussed with the Corporate QA Manager how trending is performed and the results presented to Holtec management. The team was provided copies of the last two HMD Quarterly NCR Reports (2nd and 3rd Quarter - 2010) from which the team verified appropriate trending of NCRs was occurring, as required by HQP 15.2, and that this information was presented for Holtec management review.

Overall, no concerns were identified in the manner in which HMD resolves nonconformances.

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

The team reviewed NDE personnel certification records to ascertain that they were certified in accordance with ASNT-TC-1a -1992 editions and Holtec procedure HQP-9.1, revision 11, "Written Practice for Qualification of NDE Personnel." The team reviewed qualification records of a PT Level II Inspector and an RT Level II Inspector and determined they were both qualified and certified in accordance with HMD HCP-9-1.

02.05a: Determine whether materials, components, and other equipment received by the fabricator meet DCSS (dry cask storage system) 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.

Procurement

The team reviewed procurement procedures, reviewed various approved vendor audits and surveillances, and traced the procurement history of components undergoing fabrication to verify that they were procured from qualified suppliers and met specifications.

As discussed in 02.01 above, the team obtained a sampling of materials in use on the shop floor for use in evaluating HMD's material procurement process. HMD staff demonstrated traceability for each of the materials selected back to the applicable purchase order and the associated heat/lot numbers.

The team also noted that 10 CFR Part 21 (Part 21) requirements were included, when required, on the purchase orders reviewed. An observation was noted in that one procurement order required a foreign supplier to take on Part 21 reporting responsibility and a copy of the Part 21 regulation was included with the purchase order; however, the purchase order also required that all NCRs generated by the supplier and their sub-suppliers be submitted to Holtec for their review, so that in actuality, Holtec was maintaining Part 21 reportability responsibility. Given that a review of the supplier's audit report indicated that the supplier did not have a formal Part 21 program or procedures in effect, Holtec's action in the purchase order to require submittal of NCRs for review was the correct and appropriate method for meeting Part 21 reportability requirements, although the purchase order made it appear that the supplier was responsible for

Part 21 reportability. The team discussed this observation with the Corporate QA Manager and requested that Holtec review their practice for how Part 21 reportability is imposed on suppliers to ensure that purchase orders clearly reflect when Holtec is maintaining reporting responsibility.

Receipt Inspection

The team verified, for those items that had been received by HMD for fabrication, that the appropriate green tag associated with an acceptable completion of a receipt inspection was affixed to the materials.

Approved Vendors List

The team reviewed a sample of vendor audits/surveillances performed by or for HMD for procured materials. All materials sampled were verified to have been procured from companies listed on Holtec's Approved Vendor List (AVL), also used by HMD, and audit or surveillance reports were within their required periodicity for maintaining the subject companies on the AVL. Audit findings were documented in the reports along with corrective actions taken by those audited. No concerns were identified in this review.

Control of Consumable Materials

The team reviewed the following procedures that establish methods for consumable materials to be used in cleaning components during fabrication and prior to final packaging.

HMD Procedure #	Revision	Title
HSP-314	5	Cleaning of Fabricated Components and Finished Products
QCP-13.2	7	Cleaning
QCP-13.4	4	Detrimental Material Control

The team determined that all consumables other than water were controlled by the tool room in each fabrication shop. Personnel retrieve consumables such as tape, markers, and solvent cleaners from the tool room. The chemical certifications of markers used in the shops and certified as nuclear grade with low halogen content were reviewed by the team and found acceptable. Fresh water is an accepted cleaning agent with a maximum concentration allowance of chloride, fluoride, sulfide and total dissolved solids. HMD personnel explained that water from the public supply goes through filters in each fabrication shop before it is made available for self service use at a dipping station in each shop. Personnel in each shop are trained in what available water can be used for cleaning and made aware of the location of the dipping station filtered water. Use of non-filtrated water for cleaning is not allowed, and the filtered water is chemically analyzed every year. The results of the water analysis performed on November 2, 2010 for the three workshops were found to be satisfactory. Overall, no concerns were identified with HMD's control of consumable materials.

Conclusion

Overall, the team concluded that HMD's procurement activities were being performed in accordance with their controlling procedures. Methods used to approve addition of suppliers to the AVL were appropriate and the audits and surveillances used to qualify and maintain suppliers on the AVL were adequate. Where issues identified in the audits required response

by the supplier, documentation of supplier corrective action was included in the audit files. An observation with regard to the imposition of Part 21 reporting requirements on suppliers was discussed with Holtec/HMD for their consideration.

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

The team examined a sample of manufacturing drawings, work control procedures, and job travelers to determine that fabrication of cask storage systems met the requirements of the CoC. The team observed fabrication activities, special processes, and applicable personnel qualification and certification records to determine that fabrication satisfied requirements and was accomplished by qualified personnel. Further, the team reviewed a sample of in-process job travelers and examination reports to assess work that had been completed prior to the inspection. The team noted that in all cases manufacturing drawings job travelers and inspection and welding procedures were adequately identified and at various work locations and the documents reflected the correct revisions, as applicable.

The team reviewed the following Holtec fabrication-related procedures and no concerns were identified:

Procedure #	Revision	Title
HQP-9.1	13	Written Practice for Qualification of NDE Personnel
HQP-9.2	6	Welder Qualification Requirements
HQP-9.4	7	Qualification and Performance of Welding Activities
HQP-9.6	1	Control and Qualification of NDE Procedures
QCP-9.2	20	Control and Issuance of Weld Filler for GTAW and GMAW/FCAW Weld Processes
QCP- 9.2A	8	Control and Issuance of SMAW and SAW Weld Filler Metal and Flux

The team reviewed the following Holtec procedures for compliance to ASME Section V, Article 1, and no concerns were identified:

Procedure #	Revision	Title
QCP-9.6	15	Liquid Penetration Examination (Water Washable)
QCP- 9.7	8	Magnetic Particle Examination (Dry Particle Method)
QCP-10.5 H	15	Visual Weld Examination for Holtec Product Lines

Control of Special Processes

The team witnessed welding of basket support plates to the inside of the shell wall for the Hatch project in accordance with Job Traveler No. 2200-369, Revision 22, "MPC-68 Basket Support Structure Assembly" and manufacturing drawing no. 1402, revision 51, dated 05/17/10, "MPC-68 Enclosure Vessel Construction." The team noted proper issuance and control of the weld wire through use of Weld Wire Release Form (WWRF) 9905-188, assigned to Welder No. 432. The team noted that the release form contained pertinent information such as the weld procedure (WPS-47) and flux/wire (WS-313) in use at the time and verified by observation

compliance to those documents. The team verified that the weld equipment used was calibrated and that the filler wire diameter and electrical characteristics (voltage and amperage) and the type of weld (fillet) were compliant to the weld procedure and manufacturing drawing.

The team witnessed welding of basket support plates to the inside of the shell wall for the Byron project in accordance with Job Traveler No. 3252-129, Revision 13, "MPC-32 Basket Support Structure Assembly" and manufacturing drawing no. 3753, revision 28, dated 05/13/2010, "MPC-32 Enclosure Vessel Construction Coversheet." The team noted proper issuance and control of the weld wire through use of WWRF 9905-183, assigned to Welder No. 739. The team noted that the release form contained pertinent information such as the weld procedure (WPS-77) and flux/wire (WS-308) in use at the time and verified by observation compliance to those documents. Further the team verified that the weld equipment used was calibrated and that the filler wire diameter and electrical characteristics (voltage and amperage) and the type of weld (fillet) were compliant to the weld procedure and manufacturing drawing.

The team witnessed welding of a Braidwood (serial No. 7) MPC standard shell sub-assembly. Specifically the team witnessed welding of a top shell to bottom shell segment (weld no. 2) according to Weld Procedure Specification No. 227, Revision 4, "Submerged Arc Welding." The team noted the use of WWRF- 9905-156 that controlled the use of ER308/ER308L coil wire (WS-284) and flux (FS-284). The team verified that the weld equipment used was calibrated and that the filler wire diameter, electrical characteristics (voltage and amperage), and weld type (groove) were compliant with the weld procedure and manufacturing drawing.

The team reviewed various welding Procedure Qualification Records (PQRs) and Welding Procedure Specification (WPSs) to verify compliance with Section IX of the ASME Code. The team noted an observation with regard to WPS 77 with regard to the listing of amps/volts for various filler wire diameters in that the same diameter filler wires had two separate amp/volt ranges. The HMD QC Engineer stated the different amps/volts for the same filler wire diameters were meant to differentiate between the globular and spray arc mode of welding. However, the WPS did not clearly differentiate this nor was it clear to several welders who were questioned as to which range applied to globular mode versus spray arc mode. The HMD QC supervisor initiated QPV 855 to address the observation that the WPS was not clear and HMD's planned corrective action was to rewrite the WPS to prevent any confusion. The team noted that the WPS as written was not in violation of ASME Code Section IX requirements. No concerns were identified with the other WPSs and PQRs reviewed by the team.

The team observed an HMD NDE subcontractor Level II RT inspector performing radiographic testing (RT) on fabrication welds in the radiography area pit. During setup for the RT, the team reviewed the work request for the activity and noted that it specified the use of Revision 20 of the applicable RT procedure; however, the technician was using Revision 17 of the procedure. This issue was brought to the attention of the HMD QC Supervisor and Vendor Nonconformance Report (VNCR) No. 190 was issued to document the issue. A reconciliation of the two revisions was performed and did not reveal any significant technical differences between the two revisions; therefore, had Revision 17 been used for the entire RT, the results would not have been adversely affected. However, this issue revealed a lack of attention by the RT contractor. The Inspector reviewed the completed RT report and verified that the RT process was documented in accordance with the requirements of ASME Section V, Articles 1 and 2. The team assessed that there was no safety significance to the initial use of the incorrect procedure revision and that this failure to comply with 10 CFR 72.150, "Instructions, procedures and drawings," constituted a violation of minor significance that is not subject to

enforcement action in accordance with the NRC's Enforcement Policy.

Test Control

The team witnessed a trial-fit of an MPC Lid Assembly (Serial No. 2532-55) with the drain line attached in a Byron MPC shell (Serial No. 14). Prior to the insertion, the team observed inspection of the MPC at the enclosure vessel opening while unconstrained (enclosure vessel out of rounding fixture). The team noted that six straight line tape measurement diameters were mapped with the MPC unit in the vertical position and out of the rounding fixture. The inspection was performed in accordance with manufacturing drawing No. 3753, revision 28, 05/13/2010, "MPC-32 Enclosure Vessel Construction Coversheet" and Sequence Nos. 150 and 160 as defined within HMD Job Traveler No. 3250-128, Revision 12, "MPC-32 Final Assembly." Concerning the trial-fit of the lid, the team noted recording of as-built measurements between the edge of the lid and shell wall as well as any vertical mismatch between surface of lid at the weld prep and top edge of the shell. Results of both inspections were acceptable with measurements recorded on an Inspection Report Data Sheet (IRDS) specific to Traveler No. 3250-128 and Project No. 0176 (Byron). Afterwards, the team observed the performance of a fit verification of the MPC with installed basket into a HI-TRAC Mock-up Fixture. The test determined that the MPC fit unobstructed into the HI-TRAC system. No deficiencies were noted.

The team witnessed a helium leak test of a Hatch MPC-68 shell assembly (serial no. 51) according to Job traveler No. 2700-443, Revision 21, "MPC Standard Shell Sub-Assembly," Sequence No. 100 and manufacturing drawing No. 1402, Revision 51, "MPC-68 Enclosure Vessel Construction." The test was performed by a contracted Level II ASNT certified leak test technician in accordance with Industrial Testing Laboratory Services, LLC (ILTS) Procedure No. 204, Revision 13, and witnessed by the Licensee's (Hatch) on-site inspector. The team noted the use of a pre-test set-up check sheet and the wrapping of the shell in plastic with minimal free space between the MPC outer surface and noted that the extent of the test was to the MPC shell and MPC shell to baseplate welds. The team observed pre/post-test instrument calibration checks as required by procedure and noted the equipment (i.e., calibrated leak standard, temperature gauge, and oxygen analyzer) used to perform the leak test was appropriately calibrated. The team reviewed the test results as documented in MPC Helium Leak Test Report No. 9925-2700-443 and noted that the MPC test satisfied the acceptance criteria of equal to or less than 2.0×10^{-7} std-cc^3/sec He with an actual result of 7.08×10^{-9} std- cc^3/sec He .

Control of Measuring and Test Equipment

The team verified that appropriate procedures were implemented for control of measuring and test equipment (M&TE). The team reviewed various M&TE used on both current and completed work to assess the control and traceability of measuring and test equipment. Specifically, the team reviewed calibration records of a densitometer, thread plug gauges, pi tape, caliper, ultrasonic thickness gauge, various welding equipment, oxygen analyzer, calibrated helium leak standard, and various other mechanical measuring devices. The team noted appropriate labeling and identification of M&TE, including the person who performed calibration, calibration of M&TE at periodic intervals, use of reference standards traceable to a national standard, and documented "As-Found" / "As-Left" information. No concerns were identified.

Inspection, Test and Operating Status

The team observed the use of markings such as tags and routing cards indicating the status of inspections and tests performed on numerous items in various production stages. Specifically, the team noted the inspection status of MPC top and bottom ½ shell segments, baseplates, fuel basket, lid, and shell assemblies. The team noted the assemblies and components satisfactorily passed their required inspections and tests, where required, and that inadvertent bypassing of the inspections of tests had not occurred. No concerns were identified.

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

HMD, as a wholly owned subsidiary of Holtec, uses Holtec's QA Program which is an NRC-approved 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.

The team determined that HMD uses procedure HQP 15.1, "Reporting of Defects and Noncompliances per 10 CFR 21," that governs the reporting of defects.

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

The team verified that the Part 21 requirements were posted in multiple accessible locations at the various fabrication shops that comprise the HMD fabrication facility.