

(8-2002)  
10 CFR 2.201

## SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

## 1. LICENSEE/CERTIFICATE HOLDER

Holtec International  
555 Lincoln Drive West  
Marlton, NJ 08053

## 2. NRC/REGIONAL OFFICE

US Nuclear Regulatory Commission  
Division of Spent Fuel Storage and Transportation  
11555 Rockville Pike  
Rockville, MD 20852-2738

REPORT NUMBER(S) 72-1014/2007-201

## 3. LICENSEE/CERTIFICATE NUMBER(S)

72-1014

## 4. INSPECTION LOCATION

Lift Systems, Inc., Moline, IL

## 5. DATE(S) OF INSPECTION

01/22 - 26/2007

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license or Certificate of Compliance (CoC). The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:

- ☒ 1. Based on the inspection findings, no violations or nonconformances were identified.
- ☐ 2. Previous violation(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 Action(s):

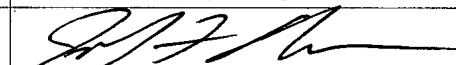
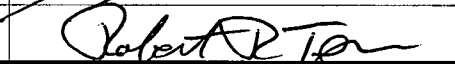
- ☐ 4. During this inspection certain of your activities, as described below and/or attached, were in violation or nonconformance of NRC requirements and are being cited. This form is a NOTICE OF VIOLATION OR NONCONFORMANCE, which may be subject to posting in accordance with 10 CFR 19.11.

(Violations, Nonconformances, and Corrective Actions)


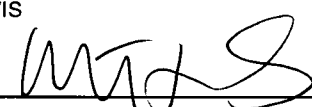
## STATEMENT OF CORRECTIVE ACTIONS

- ☐ 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 is made in accordance with the requirements of 10 CFR 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
Certificate Holder	Joseph E. Reiss		1/26/07
NRC Inspector	Robert R. Temps		01/26/07

## INSPECTOR NOTES COVER SHEET

Certificate Holder (name and address)	Holtec International 555 Lincoln Drive Marlton, NJ 08053
Certificate Holder contact	Joseph Reiss
Docket No.	072-1014
Inspection Report No.	2007201
Inspection Date(s)	January 22 - 26, 2007
Inspection Location(s)	Lift Systems, Inc., Moline, Illinois
Inspectors	Robert Temps, Ray Kellar (Region IV)
Summary of Findings and Actions	<p>This inspection involved a review of the application of Holtec International's (Holtec's) QA Program to the procurement, fabrication, and testing of a vertical cask transporter (VCT) for use at the Diablo Canyon specific licensed ISFSI. The inspection took place at the VCT fabricator's facility, Lift Systems Inc., in Moline, Illinois. Inspection activities focused on management, fabrication and testing controls, and how these activities were controlled under Holtec's NRC-approved QA program.</p> <p>Overall, Holtec's activities were found to be in compliance with NRC Part 72 regulations and with their NRC approved QA Program. Results of the inspection are documented in the attached inspector notes.</p>
Lead Inspector Signature/Date	Robert Temps  02/05/07
Inspector Notes Approval Branch Chief Signature/Date	Robert Lewis  2/7/07

INSPECTOR NOTES: IP 60852 WAS USED IN CONJUNCTION WITH APPLICABLE PARTS OF NUREG/CR 6314. INSPECTION RESULTS USING THE NUREG/CR 6314 FORMAT ARE DOCUMENTED BELOW:

### **Background:**

A specific license has been issued by the NRC for the construction and operation of an ISFSI at the Diablo Canyon Power Plant. Holtec has been contracted by Diablo Canyon to supply the cask system for use at their site as well as to supply certain pieces of ancillary equipment. One such piece of equipment is the vertical cask transporter (VCT) vehicle. In the case of Diablo Canyon, the VCT will also provide the functions of a cask transfer facility (CTF) normally provided by a separate stand-alone facility. As such, the VCT, while being procured and fabricated as a commercial grade item, will have certain portions of it upgraded, through specific controls and testing, to satisfy Important to Safety (ITS) Category B requirements. The purpose of this inspection was to assess Holtec's implementation of their NRC-approved QA program to the procurement, fabrication and testing of the VCT to ensure that the VCT met the above requirements.

### **4.1 Management Controls**

In this area, the team assessed how Holtec's QA program requirements were applied to the procurement, fabrication and testing of the transporter to satisfy its classification as an ITS Category B item. The team determined that the central document governing this process was Holtec procedure HSP-187, "Interface Procedure for Manufacturing of ITS B Transporters at Lift Systems." As stated in that document, while Lift Systems has an ISO 9000 quality assurance program, that program on the whole does not completely address all of the quality attributes needed to meet ITS Category B requirements. Thus, Holtec developed and implemented HSP-187 at Lift System to provide for additional controls in a number of areas. HSP-187 was applied to those items and components designated as ITS Category B and items considered commercial grade or ITS Category C were controlled under Lift System's QA program requirements.

The team reviewed HSP-187 and noted that it provided appropriate and comprehensive controls to ensure that items and components classified as ITS Category B met those requirements. Specific controls in the following quality areas were noted:

- Organization
- QA Program
- Design
- Procurement Documents
- Instructions, Procedures and Drawings
- Documents
- Purchased Items
- Identification and Control of Material
- Special Processes
- Inspections
- Testing
- Measuring and Test Equipment
- Inspection and Test Status
- Nonconforming Material and Parts

The team reviewed activities in all of the above areas and determined that overall, the HSP-187 requirements were being properly implemented and that Holtec's oversight and control of the procurement, fabrication and testing of the Diablo Canyon transporter was adequate and met Part 72 QA program requirements. No significant concerns or observations were identified.

#### **4.3 Fabrication Controls**

The team reviewed fabrication activities and documentation associated with the VCT including material procurement, welding, non-destructive examinations (NDE), control of calibrated equipment and factory testing of the VCT. At the time of the inspection, the fabrication activities for the VCT had been substantially completed and the equipment was undergoing factory acceptance testing in accordance with the requirements contained in HPP-1073-6.

Holtec Report HI-2002501, "Functional Specification for the Diablo Canyon Cask Transporter," Revision 6, classified the VCT as ITS. The report further specified seven of the major VCT components that were categorized as ITS, with the remaining components specified as Not Important To Safety (NITS). The team selected a sub-component from six of the major ITS component groups to review procurement and receipt documentation. The representative ITS components chosen for review were the cask restraint system, the lifting towers, the MPC downloader system, the overhead beam, the seismic restraints and the vehicle frame. The documentation for each of the selected sub-components indicated that the material had been procured from approved sources and that appropriate material testing as well as receipt inspections had been performed. Qualifications for two of the receipt inspectors were also reviewed by the inspectors. The material procurement and receipt inspection processes were adequate.

Lift Systems utilized a Gas Metal Arc Weld (GMAW) process to perform the welds on the VCT. Holtec had approved various Lift Systems weld procedures for use on the VCT. Each heat number of weld wire used to fabricate the VCT was required to be independently tested to verify chemistry and mechanical properties. Three weld wire heat numbers were used during VCT fabrication activities. The tests of the weld wire chemistry had been conducted at Quad City Metallurgical Laboratory, a Holtec approved test laboratory. The weld wire was maintained inside a locked storage area inside the fabrication facility.

Lift Systems provided the completed welding inspection forms associated with the VCT component fabrication. Seven of the welders documented as performing welding activities on the VCT were selected for review. The weld qualifications for the selected welders indicated that each of the welders had been properly qualified by an American Welding Society (AWS) Certified Welding Educator/Certified Welding Inspector.

The NDE procedures used for VCT weld inspections consisted of visual testing (VT) and magnetic particle testing (MT). Holtec had approved the Quad City Testing Laboratory Weld Examination VT and MT procedures for use. Two inspectors were identified as responsible for performing the VT and MT examinations of the VCT welds. The certifications for the inspectors were reviewed and found to meet current Level II VT and MT requirements. The vision examinations for the inspectors had been conducted within the past year and met Jaeger I visual acuity requirements. Both of the NDE inspectors met the inspection personnel requirements specified in HSP-187. The welding and NDE programs were determined to be adequate.

Calibrated equipment used during the fabrication and factory testing of the VCT included the welding machines, the test weights and a pressure gage. The welding machines were required to be calibrated every six months. A documentation review of the welding machine calibration conducted on October 4, 2006, indicated that all the machines were within the required amperage and voltage ranges. Calibrations were verified to be current on randomly selected welding machines at the fabrication facility during the inspection.

The test weights used during the VCT 100% functional test and the 125% static test had been individually calibrated and tagged with an unique number along with the appropriate weight. The pressure gage that was used on the hydraulic system to measure the force exerted during the VCT seismic restraint test had been recently calibrated on December 19, 2006. The controls of calibrated equipment were adequate.

As part of the VCT dedication process, factory acceptance testing was specified in Holtec procedure HPP-1073-6, "VCT Factory Test Procedure," Revision 1. The factory acceptance testing included dimensional verifications, unloaded functional test, 100% functional load test, 125% static load test, 150% MPC downloader test and 125% load test of the seismic restraint lugs. Portions of the specified testing activities were observed by the inspectors over the course of the week including the VCT unloaded functional test, 100% functional test, 125% seismic restraint lug test and 125% static load tests. The specified weight for the 100% functional load test was 185 tons (+20 tons, -0 tons) with an actual test weight of approximately 202 tons. The specified weight for the 125% static test was 231.5 tons (+20 tons, -0 tons) with an actual test weight of approximately 250 tons. The specified test load for the 125% seismic restrain lug test was 112,500 pounds (+10,000 pounds, -0 pounds) with an actual test load of approximately 114,000 pounds.

The remaining portions of the factory acceptance testing including the MPC downloader tests, NDE of the critical welds conducted after the load tests, appropriate cask restraint system testing, and the inclined functional testing will be reviewed prior to use at Diablo Canyon.

#### **4.4 Maintenance Controls**

Maintenance controls specified in NUREG CR-6314 were not complete at the time of the inspection and will be reviewed during the Diablo Canyon ISFSI inspection.