HOLTEC PRESENTATION TO NRC

QUALITY ASSURANCE

AUGUST 7, 2001

AGENDA

- EXECUTIVE OVERVIEW (K. P. SINGH)
- RESPONSE OVERVIEW (M. McNAMARA)
- REASONS FOR IMPLEMENTATION OF A REVISION TO QA PROGRAM BEFORE NRC APPROVAL (M. SOLER)
- RECONCILIATION OF PAST ACTIVITIES PERFORMED UNDER UNAPPROVED PROGRAM (M. SOLER)
- OVERALL EFFECTIVENESS OF HOLTEC QA PROGRAM
  - DESIGN WORK (B. GUTHERMAN)
  - FABRICATION (M. McNAMARA)

QA MANUAL REVISION ISSUE

ISSUE: REVISION 12 OF HOLTEC'S QA PROGRAM MANUAL WAS NOT APPROVED BY THE NRC PRIOR TO ITS IMPLEMENTATION.

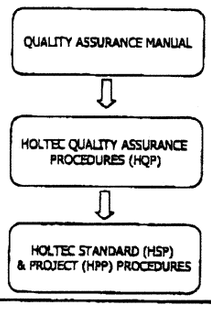
UPON NOTIFICATION BY NRC AND HOLTEC CONFIRMATION OF THE ISSUE, A DEVIATION REPORT WAS INITIATED BY HOLTEC IN ITS CORRECTIVE ACTION PROGRAM.

OVERVIEW OF THE HOLTEC QA PROGRAM

THE HOLTEC QA PROGRAM IS IN FULL REGULATORY COMPLIANCE WITH THE 18 QA CRITERIA OF:

- 10CFR50 APPENDIX B
- 10CFR71, SUBPART H
- 10CFR72, SUBPART G

OVERVIEW OF THE HOLTEC QA PROGRAM



OVERVIEW OF THE HOLTEC QA PROGRAM

- QA PROGRAM IMPLEMENTED AND EVALUATED THROUGH:
  - ANNUAL TRAINING
  - PERIODIC SUPPLEMENTAL TRAINING
  - ELECTRONIC NETWORK
  - INTERNAL AUDITS AND SURVEILLANCES
  - CORRECTIVE ACTION PROGRAM
  - INDUSTRY AUDITS AND SURVEILLANCES

OVERVIEW OF THE HOLTEC QA PROGRAM

EXTERNAL AUDITS OF HOLTEC:

- NUPIC*- SEPTEMBER, 1998
- DSQG**- AUGUST, 1998
- NUPIC/DSQG- MAY, 2000
- NUMEROUS CLIENT AUDITS AND SURVEILLANCES

* - NUCLEAR PROCUREMENT ISSUES COMMITTEE
**- DRY STORAGE QUALITY GROUP

OVERVIEW OF THE HOLTEC QA PROGRAM

- INCREMENTAL CHANGES TO THE QA PROGRAM ARE PERIODICALLY MADE TO ENHANCE THE PROGRAM, ADDRESS NEW REGULATORY REQUIREMENTS AND PROVIDE CLARIFICATIONS.
- QA PROGRAM MANUAL COMPLIANCE WITH 18 QA CRITERIA OF THE REGULATIONS ALWAYS MAINTAINED.

REGULATORY REQUIREMENTS

- 10CFR72.140 (c)(3): " EACH CERTIFICATE HOLDER SHALL OBTAIN COMMISSION APPROVAL OF ITS QUALITY ASSURANCE PROGRAM PRIOR TO COMMENCING FABRICATION OR TESTING OF A SPENT FUEL STORAGE CASK."

ROOT CAUSE AND CORRECTIVE ACTION

BACKGROUND:

1) HOLTEC'S HISTORY OF WORK UNDER 10CFR50 APPENDIX B RELATIVE TO QA PROGRAM MANUAL CONTROLS
2) HOLTEC'S QA PROGRAM WAS SUBMITTED AND APPROVED BY NRC PRIOR TO COMMENCEMENT OF CASK FABRICATION ACTIVITIES AS REQUIRED BY THE REGULATIONS
3) 72.48 DETERMINED NOT TO BE APPLICABLE TO QA PROGRAM CHANGES

ROOT CAUSE AND CORRECTIVE ACTION

ROOT CAUSE:

PERSONNEL OVERLOOKED REGULATORY REQUIREMENT WITH RESPECT TO PRIOR COMMISSION APPROVAL OF REVISIONS TO QUALITY ASSURANCE PROGRAMS.

(CAUSAL FACTOR: WORK PRACTICES)

CONTRIBUTING CAUSE

NO PROCEDURAL OR QA MANUAL CONTROLS EXISTED TO OBTAIN NRC APPROVAL OF QA PROGRAM REVISIONS PRIOR TO IMPLEMENTATION.

(CAUSAL FACTOR: MISSING BARRIER)

ROOT CAUSE AND CORRECTIVE ACTION

CORRECTIVE ACTIONS:

1) EVALUATE QA PROGRAM CHANGES BETWEEN REVISION 11 AND REVISION 12 TO DETERMINE EFFECT ON PART 71/72 ACTIVITIES RELATIVE TO REVISION 11.
   - COMPLETED ON JULY 9, 2001
   - LIST OF CHANGES SUBMITTED TO NRC TO ASSIST IN REVIEWING REVISION 12

ROOT CAUSE AND CORRECTIVE ACTION

CORRECTIVE ACTIONS :

2) RECONCILIATION OF PAST AND PRESENT ACTIVITIES.
   - HOLTEC'S QA ORGANIZATION TO REVIEW LATEST REVISION OF ALL PART 71/72 HOLTEC DESIGN DOCUMENTS GENERATED UNDER REVISION 12 OF THE QA MANUAL
   - DRAWINGS AND DESIGN REPORTS COMPLETED ON JULY 23, 2001
   - BALANCE OF DESIGN DOCUMENTS BY 8/31/01
3) REVIEW PART 71 AND 72 REGULATIONS BY 8/31

ROOT CAUSE AND CORRECTIVE ACTION

ACTIONS TO PREVENT RECURRENCE:

1) HOLTEC QUALITY PROCEDURE TO BE REVISED TO INCORPORATE REQUIREMENT THAT REVISIONS TO QA MANUALS BE APPROVED BY THE NRC PRIOR TO IMPLEMENTATION BY HOLTEC.
   - DRAFT REVISION COMPLETE.

ROOT CAUSE AND CORRECTIVE ACTION

INTERIM CORRECTIVE ACTIONS:

2) ALL PART 71/72 ACTIVITIES TO BE PERFORMED UNDER REVISION 11 OF THE QA MANUAL UNTIL NRC APPROVAL OF REVISION 12 IS RECEIVED.

IMPACT ON PAST AND PRESENT WORK

1) NO IMPACT ON HI-STORM AMENDMENT REQUEST 1014-1
2) NO IMPACT ON PAST OR PRESENT FABRICATION
3) ISSUANCE OF REVISION 11 AND REVISION 12 OF THE QA MANUAL TO CONTROLLED HOLDERS VERIFIED.

OVERALL QA PROGRAM EFFECTIVENESS

- Design Work
  - Design control procedures in place to control implementation of design work
  - 72.48 process embedded in applicable design processes
    - Holtec was the primary cask designer involved in developing NEI 72.48 guidance and working with NRC for endorsement
    - Dedicated procedure to govern 72.48 implementation
    - Based on NEI guidance as endorsed by NRC (R.G. 3.72)
    - Initial training and supplemental training provided

OVERALL QA PROGRAM EFFECTIVENESS

- Design Work (cont'd)
  - 72.48 Process (HQP 19.2)
    - Process owned by Licensing
    - Implemented by Engineering
    - Licensing oversight of implementation
    - QA surveillance
    - Client reviews

OVERALL QA PROGRAM EFFECTIVENESS

- Design Work (cont'd)
  - HI-STORM Overpacks for J.A. Fitzpatrick
    - Followed the design control/72.48 process
    - 50.59-experienced personnel from Holtec and Fitzpatrick reviewed proposed changes
      - Cumulative 70 yrs 50.59 experience
    - Team concluded that changes for Fitzpatrick could be implemented under 72.48

OVERALL QA PROGRAM EFFECTIVENESS

- Design Work (cont'd)
  - Final HI-STORM 100S design submitted as part of license amendment request
  - Contains design feature requiring NRC approval (e.g., lid rotation)
  - Reflects fuel changes
    - Higher TS dose rate limits needed
  - 100S becomes bounding overpack for dose rate

FABRICATION ISSUES RELEVANT TO QA PROGRAM EFFECTIVENESS

- Dresden Cask Transfer Facility
- Hatch MPC vent cap galling
- Weld repairs at Dresden
- Aluminum debris in MPC

CASK TRANSFER FACILITY

- Issues raised regarding weld documentation
  - Welds made per approved drawings and travelers
  - Welds inspected per written procedures
  - Inspection reports and surveillance records show results of inspections

CASK TRANSFER FACILITY

- Issues raised regarding weld documentation (cont'd)
  - NCRs generated for dimensional discrepancies discovered during inspection
  - Permanent QA records of weld inspections document inspection results according to weld size or type (i.e., fillet weld size, plug welds, full penetration welds)
  - Working copies of manufacturing records and drawings not required to be retained as permanent QA records

CASK TRANSFER FACILITY

- CTF Documentation Issue
  - Scope of fabrication work
    - 5 welders
    - 2 weld wire lots
    - 2 welding procedure specifications (SAW & GMAW)
    - Fillet welds (1/8" to 7/16" in size)
    - 84 1-inch plug welds
    - Full penetration – ¾" thick
    - Partial penetration welds

CTF DOCUMENTATION

- Holtec controls over CTF fabrication
  - Shop traveler per Holtec fabrication specification PS-50438-1
  - Inspection plan and weld data sheet per Holtec project procedure HPP-50438-1
  - Inspection by shop QC inspectors and QC manager
  - Oversight by Holtec QA manager

CASK TRANSFER FACILITY

- Holtec controls over CTF fabrication
  - Surveillance by Holtec QA manager
  - 3rd party inspection by utility inspector
  - Engineering oversight by Holtec PM and engineering staff
  - Load test performed at 125% of rated CTF load and all primary structural welds inspected per Holtec's procedure "D-1 CTF Structural Adequacy Test", HPP-50438-8

MPC VENT AND DRAIN CAP

- MPC vent and drain caps at Plant Hatch became stuck after two rotations
- Root cause showed no Holtec QA program violations
- Enhancements to Holtec procedure to highlight lubrication will be made
- Also, design enhancements to be implemented:
  - Thread changes
  - Cap stiffening
  - Material change to reduce galling potential

MPC LID WELD REPAIR

- MPC lid (Serial No. 006) was noted to contain discontinuities in a base metal repair after acceptance of the repaired area
- Indications discovered after PT examination of lid-to-shell weld at Dresden
- Root cause review to date has determined that there were no QA program violations. However, additional controls will be implemented

MPC LID WELD REPAIR

- Additional controls
  - Welder re-training regarding inter-pass inspections
  - Inter-pass inspections by visual and PT methods will be added to ASME NB base metal repairs
  - PT method of NDE will be changed from water washable to solvent removable
- Weld repair of another MPC lid will be re-inspected with the solvent removable method following light grinding of the repaired area.

DAMAGE TO MPC HEAT CONDUCTION ELEMENT (HCE)

- An MPC heat conduction element (1 of 24) was discovered to be damaged after shipment to Dresden site.
- Damage apparently occurred during final insertion of the MPC basket into the MPC, due to HCE presence during basket installation (a single HCE must be pre-installed)

DAMAGE TO MPC HEAT CONDUCTION ELEMENT (HCE)

- No QA program inadequacies found. However, measures have been instituted until the HCEs are eliminated from the design:
  - HCE width reduced to minimize potential for interference
  - Remote visual inspection equipment will be used to inspect and record results of inspections
  - New and revised procedures for conducting the visual inspections will be issued
- 10 CFR 21 evaluation showed that a damaged HCE does not present a substantial safety hazard