

March 3, 2008

Mr. Kent Cole
President and CEO
NAC International, Incorporated
3930 East Jones Bridge Road
Norcross, GA 30092

SUBJECT: U. S. NUCLEAR REGULATORY COMMISSION (NRC) INSPECTION REPORT
NO. 72-1015/2007-201 AND NOTICE OF VIOLATION

Dear Mr. Cole:

This refers to the team inspection conducted from October 29 to November 2, 2007, and January 14 to 17, 2008, at the GE-Hitachi (GEH) Custom Fabrication facility in Canonsburg, PA. GEH is a fabrication contractor for NAC International, Incorporated (NAC), fabricating dry storage cask components for the NAC-UMS spent nuclear fuel cask storage system. The inspection was conducted to determine if fabrication activities were performed in accordance with the requirements of 10 CFR Parts 21, 71, and 72, the applicable Certificate of Compliance and Safety Analysis Report, and NAC's NRC-approved Quality Assurance (QA) program. The enclosed report presents the results of this inspection.

Based on issues identified during the first week of the inspection, related to NAC activities as well as those of Transnuclear Inc. (TN) [simultaneously inspected for cask fabrication activities at the same facility (reference IR 72-1021/2007-201, when issued)] the team elected to conduct an inspection debrief rather than a formal concluding exit meeting. This action was taken due to the team's concern regarding the manner in which NAC's QA program requirements were not being adequately implemented by GEH. Also, NAC had identified an issue regarding procurement of materials and initiated a stop-work order that was still in effect at the start of the inspection. Subsequently, the team informed NAC and GEH personnel of the NRC's concern over the extent of QA programmatic issues at the GEH facility, and that the team would conduct a second week of inspection in January 2008.

During the second week of inspection, the team reviewed NAC and GEH corrective actions to NRC findings from the first week of inspection. The team also reviewed the actions that GEH corporate management had initiated to address both the NRC's concerns as well as the cask vendors', NAC and TN, in improving the implementation of GEH's QA program. In preparation for resuming fabrication activities at the GEH facility in 2007, NAC had performed an audit of GEH in April 2007 that identified a number of concerns including a decline in QA programmatic performance. In a followup audit in early October 2007, NAC identified additional concerns and noted that little progress had been made by GEH in addressing the April 2007 audit issues. The team reviewed several initiatives implemented, or planned, by GEH to improve QA program performance, but was unable to make any assessment as to their effectiveness given the short period of time that most of the actions have been in place, and that others have yet to be implemented.

As a result of the inspections, the NRC is placing the GEH facility on an increased inspection frequency. While GEH has primary responsibility for addressing the QA program concerns identified by the NRC and NAC, the NRC expects that NAC will continue to take appropriate actions to ensure that GEH conducts cask fabrication activities in a manner that conforms to NAC's NRC-approved QA program and that meets 10 CFR Part 71 and 72 QA requirements. The NRC is not aware, to date, of any NAC products delivered to customers from the GEH facility that are not in compliance with NRC regulatory requirements. The NRC will conduct its next inspection at the GEH facility at such time as GEH has had sufficient time to implement its QA program improvement efforts so as to provide for a meaningful assessment.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The two violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notice because they were identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made 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).

Sincerely,

/RA/

David W. Pstrak, Chief
Rules, Inspections, and Operations Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 72-1015

Enclosures:

1. NRC Inspection Report No. 72-1015/2007-201
2. Notice of Violation

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David W. Pstrak, Chief
/RA/
 Rules, Inspections, and Operations Branch
 Division of Spent Fuel Storage and Transportation
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Docket No. 72-1015

Enclosures:

1. NRC Inspection Report No. 72-1015/2007-201
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Distribution:

Docket 72-1015 NRC f/c NMSS r/f SFST r/f RLorson, RI
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NAME:	JPearson		WWheatley		DPstrak	
DATE:	2/28/2008		2/29/2008		2/3/2008/	

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**U.S. NUCLEAR REGULATORY COMMISSION
Office of Nuclear Material Safety and Safeguards
Division of Spent Fuel Storage and Transportation**

Inspection Report

Docket No: 72-1015

Report: 72-1015/2007-201

Certificate Holder: NAC International, Incorporated
3930 East Jones Bridge Road
Norcross, GA 30092

Fabricator: GE-Hitachi (GEH) Custom Fabrication Facility
Canonsburg, PA

Dates: October 29 - November 2, 2007, and January 14 to 17, 2008

Inspection Team: James Pearson, Inspector, SFST
Robert Temps, Senior Inspector, SFST
Earl Love, Inspector, SFST
Ray Kellar, Inspector, Region IV
Thomas Matula, Inspector, HLWRS
Clyde Morell, NRC Contract Inspector, ATL
Felix Gonzalez, NRC Observer

Approved by: David W. Pstrak, Chief
Rules, Inspections, and Operations Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

EXECUTIVE SUMMARY

NRC Inspection Report 72-1015/2007-201

This refers to the team inspection conducted from October 29 to November 2, 2007, and January 14 to 17, 2008, at the GE-Hitachi (GEH) Custom Fabrication facility in Canonsburg, PA. GEH is a fabrication contractor for NAC International, Incorporated (NAC), fabricating dry storage cask components for the NAC-UMS spent nuclear fuel cask storage system. The inspection was conducted to determine if fabrication activities were performed in accordance with the requirements of 10 CFR Parts 21, 71, and 72, the applicable Certificate of Compliance and Safety Analysis Report, and NAC's NRC-approved Quality Assurance (QA) program. The enclosed report presents the results of this inspection.

Based on issues identified during the first week of the inspection, related to NAC activities as well as those of Transnuclear Inc. (TN) [simultaneously inspected for cask fabrication activities at the same facility (reference IR 72-1021/2007-201, when issued)] the team elected to conduct an inspection debrief rather than a formal concluding exit meeting. This action was taken due to the team's concern regarding the manner in which NAC's QA program requirements were not being adequately implemented by GEH. Also, NAC had identified an issue regarding procurement of materials and initiated a stop-work order that was still in effect at the start of the inspection. Subsequently, the team informed NAC and GEH personnel of the NRC's concern over the extent of QA programmatic issues at the GEH facility, and that the team would conduct a second week of inspection in January 2008.

During the second week of inspection, the team reviewed NAC and GEH corrective actions to NRC findings from the first week of inspection. The team also reviewed the actions that GEH corporate management had initiated to address both the NRC's concerns as well as the cask vendors', NAC and TN, in improving the implementation of GEH's QA program. The team reviewed several initiatives implemented, or planned, by GEH to improve QA program performance, but was unable to make any assessment as to their effectiveness given the short period of time that most of the actions have been in place, and that others have yet to be implemented.

Based on the results of this inspection, the NRC determined that two Severity Level IV violations of NRC requirements occurred. The violations are summarized in Table 1 below.

Table 1

Summary of Inspection Findings

Regulatory Requirement 10 CFR Section	Subject	Number of Findings	Type of Finding	Report Section(s)
72.150	Inadequate procedure or failure to follow procedure	3	Violation	2.2.2, 2.3.2, and 2.4.2
72.158	Unqualified Welder Control	1	Violation	2.3.2

INSPECTION PROCEDURES USED

60852, "ISFSI Component Fabrication by Outside Fabricators"
 NUREG/CR 6314, "Quality Assurance Inspections for Shipping and Storage Containers"

PERSONS CONTACTED

On October 29, 2007, the team held an entrance meeting with NAC, TN, and GEH to present the scope and objectives of the NRC inspection. An inspection debrief was conducted on November 2, 2007, and on January 17, 2008, the team held separate exit meetings with NAC and TN, with GEH and utility representatives in attendance, to present the preliminary results of the inspection. The individuals present at the entrance, debrief, and exit meetings, are listed below in Table 2.

Table 2

Entrance and Exit Meetings Attendance

NAME	AFFILIATION	ENTRANCE	DEBRIEF	EXIT
Jim Pearson	NRC/NMSS/SFST/RIO	X	X	X
Rob Temps	NRC/NMSS/SFST/RIO	X		X
Ray Kellar	NRC/Region IV	X		
Earl Love	NRC/NMSS/SFST/RIO	X	X	X
Felix Gonzalez	NRC/NMSS/SFST/RIO	X	X	
Thomas Matula	NRC/NMSS/HLW			X
Clyde Morell	NRC Contractor	X	X	X
Tara Neider	Transnuclear		X*	X*
Bob Grubb	Transnuclear		X*	
Steven White	Transnuclear	X	X	X
William Sutherland	Transnuclear	X		X*
Jack Boshoven	Transnuclear	X	X	X
Jeff Gagne	Transnuclear	X	X	
Donald Campbell	Transnuclear	X	X	X
Peter Quinlan	Transnuclear	X	X	X
Jeff Reynolds	GE-Hitachi	X	X	X
Dean Gannon	GE-Hitachi	X	X	X
Robert Glazier	GE-Hitachi	X	X	X
Roy Milliren	GE-Hitachi	X	X	X
Richard Wittmeier	GE-Hitachi	X	*	X
Jeremy Furr	GE-Hitachi	X	X*	X*
Judy Sneedden	GE-Hitachi	X	X*	
Russ Bastyr	GE-Hitachi	X*		X
Peter Wells	GE-Hitachi			X*
Nicole Holmes	GE-Hitachi			X*
Craig Herbster	GE-Hitachi			X*
Justin Byers	GE-Hitachi			X
Frank Corwin	GE-Hitachi			X
Roland Griffin	Dominion	X		X
Tom Brookmire	Dominion		X	

Kent Cole	NAC		X*	X*
Ken Hodeman	NAC		X*	X*
Howard Smith	NAC	3 X	X	X
Roy Bass	NAC			X*
Craig Seaman	NAC		X*	
Jeff Dargis	NAC	X	X*	X
Loren Ernst	Duke		X*	X*
Bill Wilson	Duke			X
Paul Bailey	Duke			X*
Keith Waldrop	Duke			X*
Bruce Giles	APS			X

(* Attendance via telephone)

LIST OF ACRONYMS USED

ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
CAR	Corrective Action Request
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
FCAW	Flux Core Arc Welding
GEH	General Electric-Hitachi
M&TE	Measuring and Test Equipment
NAC	NAC International, Incorporated
NDE	Nondestructive Examination
NMSS	Office of Nuclear Material Safety and Safeguards
NCR	Nonconformance Report
NRC	U.S. Nuclear Regulatory Commission
PO	Purchase Order
PT	Liquid Penetrant Examination
QA	Quality Assurance
QAP	Quality Assurance Program
RCA	Request for Corrective Action
RIC	Receiving Inspection Checklist
SAR	Safety Analysis Report
SAW	Submerged Arc Welding
SMAW	Shielded Metal Arc Welding
TSC	Transportable Storage Canister
TN	Transnuclear, Inc.

REPORT DETAILS

1. Inspection Scope

The inspection team inspected selected fabrication activities for spent fuel dry storage and transportation casks being manufactured at the GEH Custom Fabrication facility in Canonsburg, PA. The inspection verified, through sampling, that spent fuel storage and transportation cask fabrication was being performed in accordance with the CoC, the NRC-approved CoC holder's QA program, and NRC regulations, and that the casks should be capable of performing their intended safety functions.

The work at GEH was being performed for both NAC and TN. To gain efficiencies, the team examined both NAC and TN hardware fabrication, and drew conclusions from those observations that were applicable to NAC and TN in common, where such common conclusions were considered valid. Generally, common conclusions could be drawn about shared fabrication processes, material receipt and handling, inspections, NDE, personnel qualifications, quality assurance, quality control, and testing. The inspection was performed using NRC inspection procedure 60852. The results of the TN inspection are reported separately in NRC Inspection Report 72-1021/2007-201 (when issued).

2. Fabrication Controls

2.1 Fabrication Specifications

2.1.1 Scope

The team examined a sample of fabrication specifications to determine if the specifications were consistent with the design commitments and requirements documented in the SAR and the CoC.

2.1.2 Observations and Findings

The team did not identify any problem areas or discrepancies between the fabrication specifications and the SAR and CoC.

2.1.3 Conclusions

Based on the documents reviewed, the team concluded that fabrication specifications were consistent with the SAR and CoC.

2.2 Corrective actions

2.2.1 Scope

The team examined the procedures for identifying problems and nonconformances, and for implementing corrective actions. Additionally, the team reviewed NAC's response to a 10 CFR Part 21 report issued by TN regarding fabrication work performed at the GEH fabrication facility.

2.2.2 Observations and Findings

GEH Corrective Action Programs

The team reviewed GEH's procedures that control the issuance of Nonconformance Reports (NCRs) and Request for Corrective Actions (RCAs) and noted adequate but minimal procedural guidance in these areas. An in-depth assessment of the adequacy of the implementation of the procedures was not performed as it was apparent to the team, based on the team's findings during the first week of the inspection, and due to NAC and TN audit and surveillance findings, that GEH's corrective action program was not being effectively implemented. In discussions that the team had with GEH managers during the second week of the inspection, GEH essentially agreed that their corrective action program was not performing properly. One immediate response by GEH to the issue was to move up the implementation of a revised corrective action program and on December 18, 2007, a revised QAP-1600, "Corrective Action Program," procedure was issued. The team reviewed the revised procedure and noted that it had gone from four pages to twenty-one pages and that GEH changed the documentation of issues, that were formerly captured in RCAs, to Corrective Action Requests (CARs). The revised procedure aligned the corrective action program at the GEH Custom Fabrication Facility to that used at other GEH Nuclear Energy facilities, and in the team's assessment, provided a structure for a significantly more rigorous approach to implementing the corrective action process. Due to the short time that the revised QAP had been in effect, the team was unable to assess the effectiveness of its implementation.

Review of Corrective Actions

As a result of a NAC surveillance (07-S-14), NAC issued a Stop Work order to GEH on October 17, 2007. One of the issues identified in the surveillance was that GEH had placed purchase orders for Category A materials with a supplier, Allegheny Ludlum, whose approval on the GEH Approved Suppliers List (ASL) had expired. The team reviewed GEH RCA reports that were issued to address the surveillance issues and noted in one of the corrective actions that Allegheny Ludlum had been placed back on the GEH ASL based on a Nuclear Industry Assessment Committee (NIAC) audit. GEH was a member of NIAC at that time and the use of NIAC audits to qualify suppliers is an accepted practice that the team does not take issue with. However, the team noted that GEH did not follow its own QA procedures for using the NIAC audit.

Specifically, the GEH Commercial Nuclear Quality Assurance Manual, Section 7.0, Rev. 9, "Control of Purchased Material, Items, and Services," step 7.4.C.1., states, in part, that auditing services may be performed by approved third party auditing organizations provided the auditing organization has been audited and approved by GEH and is identified on the GEH ASL as an auditing organization. Contrary to this requirement, the team identified on October 30, 2007, that NIAC, considered a third party auditor, was not listed on GEH's ASL as an approved auditing organization. This failure to follow QA procedures is a Violation of 10 CFR 72.150, "Instructions, procedures, and drawings," and is one of the examples cited in the enclosed Notice (Enclosure 2). GEH captured the team's finding in RCA 2007-053. The team noted that GEH and NAC had failed to identify this non-conformance while implementing corrective actions for the NAC surveillance finding.

NAC Response to TN Part 21 Issues at GEH Fabrication Facility

On September 26, 2007, TN provided notification to the NRC Document Control Desk of a failure to comply with the provisions of 10 CFR Part 21. The notification was associated with temporary weld attachment documentation and described deficiencies that included a lack of documentation for the use of qualified welders, approved welding procedures, approved weld filler material and compatible temporary weld attachment base metal, and lack of the required penetration test (PT) examination report following removal of the attachment. This condition was discovered at the GEH fabrication facility (reference IR 72-1021/2007-201, when issued, for further details on the review of this Part 21 issue).

During October 9-11, 2007, NAC personnel conducted a surveillance of the fabrication activities being conducted at GEH. The purpose of the surveillance included a review of the recently noted 10 CFR Part 21 issues regarding the use of temporary weld attachments at GEH. The surveillance documented two distinctly different potential problems associated with the temporary weld attachments. The first potential problem was where the production traveler specified the use of a temporary weld attachment and the documentation substantiating their use was missing. The second potential problem was where temporary weld attachments were used but not documented.

A representative sampling of the NAC travelers from previous and current projects was reviewed during the surveillance. No indications of missing documentation at any place where the traveler specified the use of a temporary weld attachment was found. The surveillance noted that the travelers were reviewed by GEH, NAC, and the utility customers prior to acceptance and missing documentation would be easily noted. Production and QA personnel concluded that based on their review of the NAC fabrication process, there were no production sequences where it would be logical to use temporary weld attachments that are not already identified on the travelers.

As part of the GEH corrective action extent of conditions, a review of the records associated with the NAC orders 1000, 1109, 1339, 1339A, and 1339B associated with hardware fabricated for Maine Yankee and Arizona Public Service was conducted. The review was documented in the RCA 2007-035. Two methods were employed by GEH during the investigation. The first method consisted of a review of selected travelers that included Quality Category A items that required complete item traceability. The second method utilized interviews with quality and production personnel that were knowledgeable regarding the fabrication processes for NAC components.

The documentation review focused on the production travelers that contained components of a sufficient size that would require attachments for lifting, handling, or fixturing, and travelers that contained welding operations. The travelers reviewed included records associated with units 790-001, 790-026, 790-040, 790-054, 407-001, 407-005, 407-010, 407-011, 407-020, 407-025, 407-026, 407-039, 407-047, 407-053, 407-054, 407-055, and 407-056. The traveler sequences for the NAC canisters included specific operations for the installation of temporary welded attachments as well as sequences for their removal and examination of the weld removal areas. The traveler sequences were reviewed to ensure that required records had been generated, were available, complete, and included in the documentation packages. Based on reviews of the documents associated with the completed units listed above, there were no indications of any missing documentation. Two of the units were still in production and thus the fabrication inspections had not been completed on these units.

Interviews were performed with the responsible GEH Production Advisor, the Quality Control Specialist, and the NDE Level III, who had experience with the fabrication and inspection processes required to fabricate the NAC components. The interviews determined that other than those pre-planned fabrication sequences listed on the fabrication travelers, there were no other operations where it would be logical or helpful to use temporary weld attachments.

A review was performed of one of the travelers associated with a NAC UMS canister that had been approved before the 10 CFR Part 21 notification was submitted by TN. The sequence steps on the traveler clearly stipulated the use of temporary weld attachments as well as the removal of the temporary weld attachments. Instructions included in the traveler specified an inspection of the weld removal area and a PT examination.

2.2.3 Conclusions

The team assessed that at the time of the inspection, the GEH corrective action program was not being adequately implemented. A Violation was issued for failing to follow QA procedures for the use of third party audits. Based on the results of a NAC surveillance, extent of conditions conducted by GEH, and the details included in the NAC fabrication travelers, the team concluded that there was no indication of problems with the use of temporary weld attachments on NAC components.

2.3 Training and Certification

2.3.1 Scope

The team reviewed applicable procedures and records to determine if individuals performing quality-related activities were trained and certified where required. The team sampled training and qualification records for quality assurance, quality control, welding, nondestructive examination (NDE), and leak and pressure testing personnel.

2.3.2 Observations and Findings

The team reviewed a sampling of GEH personnel NDE certification records to ascertain that they were certified in accordance with ASNT-TC-1a -1992 editions and the following QA GEH implementing procedures:

- QAP 210, Revision 4, "Inspection and Test Personnel Qualifications"
- QAP 220, Revision 7, "Training and Indoctrination"
- QAP 900, Revision 3, "Qualification and Certification of NDE Personnel"

The team compared GEH QAP 900 to the Recommended Practice No. ASNT-TC-1a –1992 requirements for qualification and certification of Nondestructive Testing (NDT) personnel and found that the GEH procedures were compliant. The team noted that GEH had outsourced the responsibility and duties of the radiographic testing (RT) Level III to Industrial Testing Laboratory Services and for the RT Level II to Analytical Services. The team verified that GEH had imposed, via purchase orders, the requirement to implement the GEH QA program and implementing procedures on Industrial Testing Laboratory Services and Analytical Services for providing NDT services. The team selected, at random, 6 of 18 GEH NDT personnel records with NDT Level II & III qualifications, as well as the two NDT subcontractor's records, to determine if they were qualified and certified in accordance with QAP 900; no concerns were identified.

Welder Qualifications

The team interviewed the GEH Welding Engineer to determine what systems were being used to control production welding in regards to:

- Welding production drawing and changes,
- Determining the correct WPS for fabrication use,
- Assigning of qualified welders,
- Tracking welder qualifications, and
- Issuing of welding materials and tracking usage.

The Welding Engineer indicated that GEH used a computer-based production routing system as identified in GEH procedure 540, Revision 5, "Work Instruction (Travelers, Drawings and Level III Procedures)," to control the first two activities above. The team reviewed several fabrication travelers and was able to verify that the requirements of the procedure were being maintained. For the remaining three activities above, the Welding Engineer explained that they were controlled through the use of a computer-based system.

The team determined that a hand-written log, used for issuing welding materials and usage control, maintained in the Welding Materials controls area, was the input basis used to generate the computer-generated welder tracking/continuity qualification welder log. The welder continuity qualification welder log is required by American Society of Mechanical Engineers (ASME) Section IX, paragraphs QW300.2 & QW322.1, and states that any welder and or weld operator who has not welded in a specific process for a period of 6 months needs to be re-qualified to the process. The team noted that a computer system is also used for tracking welding materials usage and for assigning qualified welders. The team reviewed the computer-generated welder tracking/continuity qualification log and selected, randomly, the names of 11 of 36 welders to determine if they had continuously welded in all the processes they were qualified to in the past 6 months. The team's review identified several instances where the qualification logs showed input typing errors, such as the identification of nonexistent welding processes.

The team's review also identified that one of the 36 welders was unqualified. Even though the welder did not perform any NAC-related welding during this time, he was carried on the GEH list of qualified welders for NAC Shop Order #1339B (dated September 19, 2007). The welder had lost his qualification on the Flux Core Arc Welding (FCAW) process on May 11, 2006, and the Shielded Metal Arc Welding (SMAW) process on September 8, 2006. During the time the welder was unqualified, there was a possibility that he could have performed work while technically not qualified per the ASME Code requirements. The team discussed the identified errors with the GEH Welding Engineer and GEH QA Manager and GEH initiated RCAs 2007-51 & 2007-55 to document the team's findings.

The failure of the GEH welder to meet the requirements of the ASME Boiler and Pressure Vessel Code, Chapter IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operations, Sections QW300.2 & QW322.1, is considered a Violation of 10 CFR 72.158, "Control of special processes," and is cited in the enclosed Notice (Enclosure 2).

During the second week of the inspection, the team reviewed GEH's corrective actions to the above non-conformances, as captured in GEH RCA 2007-055, dated November 1, 2007, titled "Failure to Maintain Control of Welder Continuity Records as Required by ASME IX."

The RCA identified the following corrective actions to resolve to the identified deficiencies:

- The origination and implementation of a computer data base welder continuity program to track the issuance of weld wire issuance to the qualified welders. The system would also be used to track welder production continuity,
- Revise GEH procedure QAP 960, "Welding Process Control" to incorporate instructions on how to utilize the computer data base welder continuity program, and
- Conduct training for the individuals responsible for issuing welding materials and supervising welding related work.

The team interviewed the GEH Welding Engineer responsible for maintaining the welding program and found him to be quite knowledgeable in the process of entering welder qualification requirements into the computer data base. The team reviewed the computer data base welder continuity log and concurred that the welder qualification errors had been corrected. The team also reviewed QAP 960, Revision 5, dated January 7, 2008, to determine if instructions on how to input data and maintain procedural control of the new computer data base welder continuity program had been incorporated. The team found that the procedure was unclear as to how to input data and maintain procedural control of the new computer data base welder continuity program. The team discussed this finding with the GEH Welding Engineer and the GEH QA Manager, and they agreed that the revised QAP 960 did not provide adequate procedural controls to maintain the computer data base welder continuity program. They also agreed to issue a revision to the RCA to address the procedural inadequacy issue. This failure to implement an adequate procedure for an activity affecting quality is a Violation of 10 CFR 72.150, "Instructions, procedures, and drawings," and is one of the examples cited in the enclosed Notice (Enclosure 2).

The team interviewed personnel issuing welding materials and supervising welding related work on all shifts and found them to be knowledgeable on the process of inputting welder qualification requirements into the computer data base.

2.3.3 Conclusions

The team concluded that overall, the qualification and certification of personnel was adequate. A Violation was identified for the lack of an up-to-date certification record for a welder and a separate Violation was identified for an inadequate procedure for an activity affecting quality.

2.4 Material and Procurement Specifications

2.4.1 Scope

The team reviewed samples of material purchase orders (POs) to determine if the associated materials met the design requirements and procurement specifications. Additionally, the team sampled procurement specifications to verify the specifications conformed to the requirements contained in the SAR and the CoC.

2.4.2 Observations and Findings

The team observed shop material in use at different shop production stages and noted that adequate measures were established and implemented for release and distribution to shop

work stations. The team noted that the items were properly identified as to the inspection and/or production status and that components were adequately staged and/or stored, as applicable. The team noted material controls were adequate and that no deficiencies were noted for a sampling of items that were being used in production at the time of the inspection. The team reviewed PO 728846 for NAC-UMS vertical concrete cask (VCC) liners and ancillary parts and PO 728847 for a NAC-UMS TSC (Assembly 795-085-96). The team noted that the POs required the work to be done in accordance with the GEH QA program as audited and approved by NAC, and that the provisions of 10 CFR Part 21 applied. The team also reviewed PO 1339B-01 issued for the purchase of ASME SA-693 plate steel. The team verified that the supplier (Industeel USA, Inc.) was acceptably listed on GEH's ASL. The team reviewed the vendor audit plan and report to determine that Industeel had been properly evaluated to supply plate for NAC Fabrication at GEH.

The team also reviewed applicable portions of the NAC specification No.: 790-S-06, Revision 14, "Procurement/Fabrication Specification, NAC-UMS Vertical Concrete Cask Steel Weldments and Components." This specification provides technical requirements and information for the procurement and /or fabrication for the UMS VCC.

The team reviewed receiving inspection reports specific to Important to Safety, Category A, aluminum basket spacer disk material manufactured according to ASME SB209, 6061-T651. The team noted that procurement of this material was placed with a supplier (Pierce Aluminum) listed on GEH's ASL as commercial grade. Upon further review, the team noted that the material was ASME "upgraded" by GEH according to the guidelines of GEH's QAM, Revision 9, Section 8.5. The team noted that the material in question satisfied the critical attributes defined as part of GEH's Receiving Inspection Checklist (RIC) No. 1339B-35. Specifically, each piece of unqualified source material was tested by an independent, approved laboratory. In addition, it was noted that GEH re-certified the material to meet the requirements of ASME Section III, Subsection NG-2400, 1995 edition, including 1995 addenda. The team noted, however, that GEH's actual process to "upgrade" the material per ASME guidelines was not defined or controlled by an approved QA procedure. This failure to provide procedural controls for an activity affecting quality is a Violation of 10 CFR 72.150, "Instructions, procedures, and drawings," and is one of the examples cited in the enclosed Notice (Enclosure 2).

The team also noted that the supplier's ASL listing, as currently stated, could be misleading in that the ASL, and associated restrictions, imply that procurement of material is commercially dedicated according to QAP-730, Revision 2, "Commercial Dedication Procedure," when, in fact, it is not. GEH issued Commitment Tracking No. 44304 to reevaluate its procurement controls specific to procuring material from unqualified sources intended for ASME upgrade. In addition, GEH will consider enhancing its ASL to differentiate and document restrictions specific to ASME upgrades of commercial material for use as Safety Related.

2.4.3 Conclusions

Overall, the team concluded that the sampled material and procurement specifications conformed to the requirements contained in the SAR and CoC. However, the team identified one Violation for failure to have a procedure for an activity affecting quality.

2.5 Fabrication

2.5.1 Scope

The team observed fabrication, inspection, testing and NDE in progress, and examined selected specifications, procedures, and records to determine if components were being fabricated in accordance with procedures, specifications, drawings, and NRC requirements.

2.5.2 Observations and Findings

Control of Special Processes

The team witnessed a Submerged Arc Welding (SAW) process pertaining to a Transportable Storage Container (TSC) Shell Weldment (s/n: 282-99-57). More specifically, the team witnessed welding of a circumferential weld according to shop traveler AZ3100B, Revision 0, sequences 230 and 250, and approved welding procedure WPS1109-3, Revision 1, dated February 12, 2002, "FCAW/SAW." The team noted that traceability of items (i.e., materials, parts, weld filler material, etc.) was satisfactorily maintained as required throughout the observed operation.

Inspection & Test

The team witnessed a longitudinal and shear wave Ultrasonic Examination of bottom plate to shell weld specific to a TSC Shell Weldment (s/n 282-99-58). The team noted that the inspection was performed according to examination procedure UT-1339, Revision 0, dated March 3, 2003. Further, the team noted that the traveler was properly sequenced and that it adequately described test documents, and contained clear instructions that defined the examination to be performed, characteristics to be inspected, acceptance criteria, measurement and test equipment (M&TE) required, test prerequisites, and results reporting.

VCC Outlet Fit-Up

On November 1, 2007, the team witnessed the fit-up and match mark operations for VCC outlet 64A to cask liner serial number 262-99-64. The fit-up was being conducted in accordance with the instructions in Sequence 70 of Traveler AZ 1000D, Revision 3. The fit-up process consisted of placing each of the outlet liner assemblies to the cask liner and verifying that the proper clearances were present. Feeler gage numbers C-0790 and C-0789 along with caliper C-510 were in use and the calibration for all three pieces of equipment was verified to be current. The team found that GEH conducted the fit-up and match mark operations for VCC outlet 64A of cask liner serial number 262-99-64 in accordance with applicable procedures.

Review of GEH Welding Procedure Specifications

The team reviewed the following GEH Welding Procedure Specifications (WPSs) to verify compliance with the ASME Section IX requirements:

WPS No.	WPS Process	Rev.	Date
1000-21	FCAW (Semi-auto)	0	7/19/02
1109-7	FCAW (Semi-auto)	0	8/01/01
1109-9	GTAW -Manual	0	8/01/01
1142-1	FCAW, SAW	0	7/24/01

The team reviewed the WPS variables identified in the respective WPSs against the WPS variables identified in ASME Section IX, Paragraphs QW-254 through QW-256. The WPSs were found to be in compliance with the ASME Section IX welding Code for the identified processes.

2.5.3 Conclusions

The team concluded that overall, NAC fabrication were being properly controlled through approved procedures and processes.

2.6 Part 21 Implementation

2.6.1 Scope

The team examined GEH's implementing procedures, observed postings of 10 CFR Part 21 requirements at the fabrication facility, and interviewed fabrication personnel.

2.6.2 Observations and Findings

The team noted the applicability of Part 21 in purchase orders from NAC to GEH and in the procurement/fabrication specification for NAC-UMS VCC Steel Weldments and Components, No: 790-S-06, Revision 13, Steps 2.2.3 and 4.2.1.7. Applicability of Part 21 was also as noted on the GEH Technical Software Checklist, Form No.: 1064, Revision 3, and the procurement/fabrication specification, NAC-UMS Transportable Storage Canisters, Basket Assemblies and Fuel Cans, No.: 790-S-05, Revision 13, Steps 2.2.11 and 4.2.1.6.

The team verified that the Energy Reorganization Act, Part 21, and GEH Part 21 procedures were posted at various locations throughout the GEH facility.

2.6.3 Conclusion

The team concluded that GEH had adequately implemented 10 CFR Part 21 requirements.

2.7 Audits and Oversight

2.7.1 Scope

The team examined selected audits and surveillances to determine if GEH had implemented its QA program with regard to internal audits and if GEH had been audited, or had surveillances performed, by NAC and site licensees, and to determine if any resulting corrective actions from these activities had been implemented in a time frame commensurate with their safety significance.

2.7.2 Observations and Findings

The team reviewed the qualifications and certifications for the sole GEH Lead Auditor and noted acceptable initial qualification supporting experience and education, and acceptable continued proficiency as documented in GEH records.

The team did identify several concerns with the internal audits reviewed. The team noted that the calendar year (CY) 2005 and 2006 Internal Audit Program did not include monitoring of in-process operations (such as welding, heat treating, assembly, and testing), nor did the audit process include independent re-inspection and re-testing of characteristics found unacceptable. In addition, the GEH audit process for CY 2006 included a review of 33 quality procedures that resulted in no identified deficiencies. The team considered this an indication of a lack of depth of the applied audit process.

The team reviewed GEH's annual Internal Audits for 2006 and 2007. The team noted that during the October inspection, the 2007 Internal Audit had been performed but final reviews and approvals had not been completed. The team noted that for the results of the 2006 audit, no corrective actions were issued and three observations were identified. During the January 2008 portion of the inspection, the team reviewed the 2007 GEH Internal Audit (that was now reviewed and approved by GEH) and verified that the contracted Lead Auditor was on the GEH current ASL and that the qualification and certification records for the contracted Lead Auditor were adequate. The team noted that the use of the quality requirements criteria for the audit of the Lead Auditor's company (including supply of lead auditors to GEH) was unclear. The team noted that the requirements are indicated on GEH Form 1043, Revision 4, for the "Supplier Qualification Evaluation Report," as implemented according to QAP 700, Revision 6, "Supplier Qualification and Oversight." However, the GEH procedure description of how the criteria are to be marked was not completely clear.

The team noted that the 2007 audit checklist was comprehensive and the resulting 45 corrective action requests indicated adequate implementation of the audit plan and checklist. The findings included a concern on the clarity of the use of the quality requirements categories noted in GEH procedures and forms. Clarity of the GEH procedures on the use of the quality categories was admitted to be a weak area as discussed with the GEH QA Manager after discussion of the team's observation in this area. An existing CAR (44282) was revised to address the team's concern on the application of the GEH quality requirements. No other issues or findings were noted.

The team reviewed a Naval Nuclear Quality Performance Evaluation of the GEH Custom Fabrication facility that was conducted in August 2007. The evaluation was accomplished by reviewing GEH compliance with applicable contract requirements imposed on work for the Naval Nuclear Propulsion Program. The team noted the evaluation was performed by a twelve person team and that the evaluation included a review of the GEH QA manual, procedures and work instructions. The Navy's evaluation resulted in 3 findings in the following areas:

- Detrimental material control
- Contract review practices
- Internal audits

The team noted that the evaluation noted that a pervasive condition throughout many of the areas reviewed was the lack of strict compliance to operating procedures. The team also noted that a separate and special assessment was warranted, as indicated in the Navy report, for inadequate controls of numerous abrasive cutting wheels and grinding discs. Essentially, the Navy evaluation indicated that GEH was not in compliance with the GEH procedural processes.

The team also reviewed multiple surveillance report samples performed by NAC personnel over a period of time starting April 17, 2007, up to and including October 11, 2007. Documents reviewed were identified as follows:

- Quality Assurance Surveillance Report 07-S-03
- NAC Surveillance Report 07-S-05
- NAC Surveillance Report 07-S-06
- NAC Surveillance Report 07-S-09
- NAC Surveillance Report 07-S-12
- NAC Surveillance Report 07-S-14
- NAC Surveillance Report 07-S-15

The team noted that in preparation for resuming fabrication activities at the GEH facility in 2007, NAC performed a surveillance (07-S-03) of GEH in April 2007 that identified a number of concerns including a decline in QA programmatic performance. In a followup surveillance (07-S-14) in early October 2007, NAC identified additional concerns and noted that little progress had been made by GEH in addressing the April 2007 surveillance issues.

2.7.3 Conclusions

The team concluded that GEH internal audit controls were adequate. The team also noted that NAC surveillances conducted in 2007, as well as a Naval Nuclear audit, identified programmatic issues and concerns with GEH's implementation of its QA program requirements, similar to those identified by the NRC during the course of the two-week inspection.

3. Exit Meeting

On November 2, 2007, the team held a debrief with NAC and GEH representatives. The preliminary results of the inspection to that date were discussed. An exit meeting was held at the end of the inspection on January 17, 2008. No proprietary information was discussed at the exit meeting.

NOTICE OF VIOLATION

NAC International
Norcross Georgia

Docket No. 72-1015

During an NRC inspection conducted at the GE-Hitachi (GEH) Custom Fabrication Facility, in Canonsburg, PA, on October 29 to November 2, 2007, and January 14 to 17, 2008, violations of NRC requirements were identified. GEH fabricates spent fuel storage casks for NAC International (NAC), an NRC certificate holder under 10 CFR Part 72. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violations are listed below:

- A. 10 CFR 72.150, "Instructions, procedures, and drawings," states, in part, that the certificate holder shall prescribe activities affecting quality by documented procedures and shall require that these procedures be followed.

Contrary to the above, the following instances were identified by the NRC where activities affecting quality were not prescribed in documented procedures, or where procedures for activities affecting quality were not followed:

- 1) GEH Commercial Nuclear Quality Assurance Manual, Section 7.0, Revision 9, "Control of Purchased Material, Items, and Services," step 7.4.C.1., states, in part, that auditing services may be performed by approved third party auditing organizations provided the auditing organization has been audited and approved by GEH and is identified on the GEH Approved Suppliers List (ASL) as an auditing organization. The NRC identified that NIAC, a third party auditor, was not listed on GEH's ASL as an approved auditing organization.
- 2) The NRC identified that Quality Assurance Procedure 960, Revision 5, did not provide proper procedural controls to maintain the computer data base welder continuity program. Specifically, the procedure did not adequately prescribe how to input data and maintain procedural control of the new computer data base welder continuity program.
- 3) The NRC identified that the GEH process used to "upgrade" material under American Society of Mechanical Engineers (ASME) guidelines was not prescribed in an approved Quality Assurance Procedure.

This is a Severity Level IV violation (Supplement VI).

- B. 10 CFR 72.158, "Control of special processes," states, in part, that the certificate holder shall establish measures to ensure that special processes, including welding, are accomplished by qualified personnel.

Contrary to the above, the NRC identified that a welder was shown as qualified to perform two separate welding processes, yet his qualification to do so had actually lapsed.

This is a Severity Level IV violation (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, NAC is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to David W. Pstrak, Chief, Rules, Inspections and Operations Branch, Division of Spent Fuel Storage and Transportation, Office of Nuclear Material Safety and Safeguards, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made 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), <http://www.nrc.gov/NRC/ADAMS/index.html> to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, (the Public Electronic Reading Room). If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 3rd day of March, 2008.