

**SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION**

1. CERTIFICATE/QUALITY ASSURANCE PROGRAM (QAP) HOLDER:

Croft Associates, (UK) Limited  
F4 Culham Science Center  
Abingdon  
Oxfordshire, England, OX14 3DB

REPORT NUMBER(S) 71-0939/2012-201

2. NRC/REGIONAL OFFICE

Headquarters  
U. S. Nuclear Regulatory Commission  
Mail Stop EBB-3-D-02M  
Washington, DC 20555-0001

3. CERTIFICATE/QAP DOCKET NUMBER(S)

71-0939 (QA)  
71-9337 (CoC)

4. INSPECTION LOCATION

Columbiana HI-TECH, 1802 Fairfax  
Rd., Greensboro, NC, 27407

5. DATE(S) OF INSPECTION

01/09-13 & 03/12-16/2012

**CERTIFICATE/QUALITY ASSURANCE PROGRAM HOLDER:**

The inspection was an examination of the activities conducted under your QAP as they relate to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your QAP Approval and/or Certificate(s) of Compliance. 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 were identified.
- 2. Previous violation(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, 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 of NRC requirements and are being cited in accordance with NRC Enforcement Policy. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.  
(Violations 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

TITLE	PRINTED NAME	SIGNATURE	DATE
CERTIFICATE/QAP REPRESENTATIVE	Rodney Clayton	<i>R Clayton</i>	4/10/12
NRC INSPECTOR	Jim Pearson	<i>Jim Pearson</i>	4/3/12
BRANCH CHIEF	Christian Araguas	<i>Christian Araguas</i>	4/5/12

### INSPECTOR NOTES COVER SHEET

Licensee/Certificate Holder (name and address)	Croft, Inc. (UK) Ltd. F4 Culham Science Center Abingdon Oxfordshire, England, OX14 3DB	
Licensee/Certificate Holder contact and phone number	Rodney Clayton +44 (0) 1865 407740	
Docket No.	071-0939	
Inspection Report No.	071-0939/2012-201	
Inspection Dates(s)	January 9-13 and March 12-16, 2012	
Inspection Location(s)	Columbiana Hi Tech, Greensboro, North Carolina	
Inspectors	<p>Jim Pearson, Team Leader, Senior Safety Inspector                      Rob Temps, Senior Safety Inspector (January Inspection only)                      Jack Parrott, Safety Inspector (January Inspection only)                      Earl Love, Safety Inspector (January Inspection only)                      Clyde Morell, Safety Inspector (March Inspection only)                      Jon Woodfield, Inspector in training (March Inspection only)</p>	
Summary of Findings and Actions	<p>On January 9-13 and March 12-16, 2012, the United States (U.S.) Nuclear Regulatory Commission (NRC) performed an inspection of Croft Inc. Ltd. United Kingdom (Croft) at their contracted fabrication company [Columbiana Hi Tech (CHT)] near Greensboro, N.C. Croft was granted an NRC 10 CFR Part 71 Quality Assurance (QA) Program Approval as a prerequisite to its submittal of a Type B radioactive material packaging design for which it was seeking an NRC Certificate of Compliance (CoC). Croft has since received an NRC CoC for its design. Croft has designed two Safkeg models which will be used for transportation of medical and industrial isotopes from the University of Missouri research reactor. This inspection was performed to verify the oversight of Croft as the CoC holder, at the CHT facility and to ensure that CHT was meeting Part 71 requirements under Croft's oversight. No findings of significance were identified.</p>	
Lead Inspector Signature/Date	<i>Jim Pearson</i>	4/03/2012
Inspector Notes Approval Section Chief Signature/Date	<i>Christopher Ceyn</i>	4/5/2012

INSPECTOR NOTES: IP 86001 WAS USED IN CONJUNCTION WITH APPLICABLE PARTS OF NUREG/CR 6314. INSPECTION RESULTS USING THE 86001 FORMAT ARE DOCUMENTED BELOW:

#### **INSPECTION BACKGROUND:**

On May 14-20, 2008, the U.S. Nuclear Regulatory Commission (NRC) performed a team inspection of Croft, Inc. (Croft), at its facility at the Culham Science Center, Abingdon, Oxfordshire, England. The purpose of the inspection was to determine if Croft's activities associated with the transportation of radioactive material were being performed in accordance with the requirements of 10 CFR Parts 21 and 71, applicable certificates of compliance, related Safety Analysis Reports (SARs), and the NRC - approved quality assurance (QA) program. The team inspected Croft's management, design, fabrication, and maintenance activities. During the inspection the NRC team assessed that, overall, as presently developed and implemented, Croft's QA program and procedures do not acceptably meet the QA requirements of 10 CFR Part 71. The team identified multiple examples where Croft personnel were not following QA procedures, where QA procedures did not contain sufficient details with regard to quality activities, and where the QA procedures did not support requirements in 10 CFR Part 71, Subpart H, or in the QA Program Description submitted to the NRC that formed the basis of the NRC's approval of the Croft QA program. The term "observation" as used in the report for this 2008 inspection means a non-conforming condition or activity that had it concerned packagings with an NRC CoC, the observation would have been a violation of the applicable requirement in 10 CFR Part 71. However, no adverse safety impacts existed at the time of the 2008 inspection as Croft had yet to submit their packaging design to the NRC for certification. However, the issues identified in this enclosed report will need to be addressed by Croft management prior to the issuance of an NRC Certificate of Compliance (CoC) or the start of packaging fabrication.

On December 7-10, 2009, the NRC conducted a follow-up inspection of Croft to assess Croft's progress in addressing concerns identified in the May 2008 NRC inspection of Croft's QA program in that the 2008 inspection identified that Croft's QA program, as implemented at that time, did not meet the NRC's 10 CFR Part 71 QA program requirements. At the time of the 2009 inspection Croft was seeking an NRC CoC approval for two packaging designs and plans to commence fabrication in early 2010. The 2009 inspection identified that overall, Croft adequately addressed the concerns identified in the 2008 inspection and that Croft's NRC-approved QA program, as presently developed and implemented, adequately meets the QA requirements of 10 CFR Part 71; however, the team determined that two issues identified in the 2008 inspection were not properly addressed. The team also determined that Croft's plans for packaging fabrication need further development and strengthening, particularly with regard to Croft's QA oversight plans and the commercial grade dedication process. Specifically, 10 CFR 71.133, "Corrective action," states, in part, that an applicant for a Certificate of Compliance (CoC) shall establish measures to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, during the 2009 inspection, NRC identified that Croft did not implement adequate corrective action to define what significant conditions adverse to quality are and how they are to be processed, and Croft did not implement adequate corrective action to provide proper procedural guidance for controlling the commercial grade dedication process. Specifically, these findings resulted in the issuance of a Severity Level IV violation.

**02.02 Verify that the CoC holder's activities related to transportation packagings are being conducted in accordance with the CoC, as well as NRC-approved QA Program, and that implementing procedures are in place and effective.**

The team noted that Croft's QA Program was approved by the NRC on 1/31/2008 under

Approval Number 0939. During the inspection it was reviewed and found to include adequate procedures; however, the team focused primarily on the review of the Columbiana Hi Tech LLC (CHT) Nuclear Quality Assurance Manual, dated 4/4/05, as it was being implemented to perform fabrication activities for Croft Ltd. The CHT Manual contained a Statement of Policy and Authority that was signed by the President of CHT and the Vice President of Quality showing management support and direction for implementation. CHT's Manual and implementing procedures were reviewed by the team and noted to be written so as to satisfy the requirements of ASME NQA-1, 10 CFR Part 50 Appendix B, and 10 CFR Part 71 and 72 subparts H and G, respectively. Separate from Croft's qualification of CHT to fabricate packagings, CHT holds an NRC-approved 10 CFR Part 71 Subpart H Quality Assurance Program Approval as CHT is an NRC Certificate of Compliance (CoC) holder. The team concluded from review of a sample of implementing procedures, as well as other documents, and interviews with Croft and CHT staff; that Croft had supplied a variety of design documents to CHT to support and guide the fabrication of the Safkeg transport packages. The team interviewed the Safkeg CHT Project Manager and noted that he develops the work travelers for the project and the CHT Vice President of Quality reviews and signs off on the travelers also. The PM also controls all revisions to work travelers. The team found both traveler preparation and review at CHT met the QA program, CoC, and was adequate. No findings of significance were identified.

The team noted from a review of the Croft Safety Analysis Report and NRC Safety Evaluation Report that the Croft committed to meet the heat-treating requirements of ASME Section III, Subsection NB. The team reviewed Croft's drawing 1C-6060 and noted a requirement that the Containment Vessel (CV) Body Shell be heat treated at 1050 +/-10 °C for one hour minimum. The team noted that CHT had outsourced the heat treatment to East Carolina Metal Treating and that CHT provided adequate instructions within their procurement documents satisfying the requirements of Subsection NB. Specifically, the team noted that heat treatment was performed in temperature calibrated furnaces using calibrated thermocouples as well as conformance to the heat treatment temperature and time noted above. The team found that the heat treating was being performed in accordance with the CoC, QA Program. No findings of significance were identified.

#### **02.03 Verify that provisions are in place for reporting defects which could cause a substantial safety hazard, as required by 10 CFR Part 21.**

The team determined that CHT has appropriate procedures in place for the identification, evaluation and reporting of defects and non-compliances that could cause a substantial safety hazard, and that the Part 21 requirements were posted in the facility. The team noted that non-conformance and corrective actions requests are screened for Part 21 reportability, and that purchase orders, when appropriate, imposed Part 21 reportability requirements. No findings of significance were identified with regard to CHT's compliance with 10 CFR Part 21 requirements.

#### **02.04 Interview selected personnel and review selected design documentation to determine that adequate design controls are implemented.**

The team reviewed the design specifications associated with the following QA category A components and identified in the SAR (as incorporated by reference in the CoC): 1) the keg assembly (outer cork material); 2) the packaging assembly (inner and top cork material); and 3) the containment vessel (inner and outer o-rings for containment vessel lid and the containment vessel lid itself) to see if the requirements were carried through to the fabrication specifications and acceptance tests. All reviews were verified to be adequate. No findings of significance were identified.

The team interviewed the CHT Project Manager (PM) for the Safkeg Project to determine the design controls in place for handling the fabrication drawings provided by Croft which showed welding details and inspection criteria. The team was told by the CHT PM that the first official Safkeg fabrication drawings provided to CHT from Croft were part of the original Purchase Order. CHT had not received any revisions to the original Croft drawings transmitted as of the date of the inspection. Any fabrication drawing changes would be transmitted by a Purchase Order change from Croft. No findings of significance were identified.

The team noted that the PM is responsible for ensuring the shop fabricators/welders and quality inspectors have the latest revisions to work procedures, NDE procedures, etc., in the procedure book at the project work station in the shop for the Safkeg project. Croft must approve all procedure revisions prior to their use in the field.

The team verified the drawing revisions were adequately controlled at the Safkeg fabrication work station against the master drawing list. All drawings in controlled copy 3 were found to be at the correct revisions.

The team found the design controls for the Safkeg Project at CHT to be adequate and the PM essentially responsible for controlling design revisions once the design has been accepted for fabrication. Although the CHT project design control was totally concentrated with the PM, the team found the PM's process of controlling documents at CHT to be functionally adequate. The team noted that no CHT individual that verifies the PM's design/document control work in real time, the CHT QC department performs periodic audits of the design/document controls for the Safkeg project. The team found the CHT design/document controls in place for the Safkeg Project to meet the requirements of the regulations. No findings of significance were identified.

**02.05 Review selected drawings, procedures and records, and review selected planned activities to determine that the fabrication, test, and maintenance activities meet SARP design commitments and requirements documented in the CoC.**

Containment vessel lid

The team reviewed various GTAW Welding Procedure Specifications (WPS), Procedure Qualification Records (PQRs) and welder qualification records for compliance to ASME Section IX, 2007 edition, 2009 addenda and found them acceptable. In addition, the team reviewed various CHT fabrication procedures and determined that they provided adequate quantitative or qualitative acceptance criteria for determining important activities have been accomplished.

The team reviewed the weld symbols, weld sizes, Non Destructive Examination (NDE) weld inspection requirements, and weld inspection notes on the drawings listed in Section 5.(a)(3) of the Model Number 3979A Safkeg-LS Packaging CoC 9337, Revision 0, and compared them to what was shown on the official Croft fabrication drawings provided to CHT. The team determined that the weld symbols, weld sizes, weld inspection requirements, and weld inspection notes from the licensing drawings provided in the SAR and referenced in the CoC were properly transferred to the actual Safkeg fabrication drawings.

The team reviewed the category A containment vessel lid as part of the containment boundary. As such, the stainless steel vessel lid top has a requirement to be helium leak tested before machining of the containment boundary surface (the under-side of the lid inside the inner O-ring) as specified in SAR Section 8.1.5.3 and on licensing drawing 1C-6045. Review of the lid leak testing procedure, CP 373, Issue E, issued by Croft and approved by CHT; contained a diagram of the placement of an O-ring intended to isolate the containment boundary of the lid material from the helium in the testing apparatus. However, review of the diagram and the test

specifications in the procedure indicated a lack of specificity as to where the O-ring was to be placed relative to the various penetrations through the lid and the exact surface to be isolated, nor did the procedure explain the objective of the test (i.e., isolation and testing of the lid area within the containment vessel inner O-ring). The helium leak test specifications were then passed on to the leak testing vendor who produced a test procedure, MSLT-CV3980-CHT, Rev. 2265-0277-00, that diagrammed the location of the O-ring that would have incorrectly isolated the portion of the lid to be tested. This test procedure already approved by CHT, had been forwarded to the Croft for review and was in final review by Croft. Overall, the team verified the CHT implementing instructions, procedures, and drawings reviewed during the inspection provided adequate controls for the Croft fabrication activities. Croft's final review of the leak test procedure recognized the weakness and issued Request for Corrective Action (CAR) 049 to review and amend CP-373 Procedure "Helium Leakage Testing during Manufacture of Containment Vessel 3980" to correct the issue.

**02.06 Observe activities affecting safety aspects of the packaging (such as fabrication, assembly, and testing) to verify that they are performed in accordance with approved methods, procedures, and specifications.**

The team observed a welding process that included tack welding and final weldment of the Safkeg containment vessel/cavity wall to the containment vessel outer walls and noted compliance to Croft drawing no. 1C-6046 and CHT traveler number 18091. The team noted that the welder (Stamp No. CHT-666) correctly implemented the essential welding variables identified within the WPS (No. 08081-109) for the welding operation observed. In addition, the team observed that the CHT Penetrant Tester Level II inspector (Stamp No. CHT-4) conducted Liquid Penetrant Examinations on the completed weldments in accordance with the CHT – Inspection Procedure, No. QIP-PT, Revision 5, dated 12/15/10, "Nondestructive Examination Procedure – Penetrant Inspection". The team found the traveler, weld procedure specifications, and NDE procedures all to be current revisions. No findings of significance were identified.

As part of this inspection element, the team reviewed CHT controls on the use of measuring and test equipment (M&TE). The team reviewed a sample of M&TE either in use or available for use. The team determined that CHT uses Q-01, "Control of Measuring and Test Equipment," dated 10/23/09, to control the use of M&TE. The procedure provides requirements for the identification and entry of M&TE into CHT's system, including controls on use of employee owned tools. The procedure specifies calibration frequencies and methods for calibrating various M&TE for CHT performed calibrations. The procedure also provides controls on tracking the use of M&TE. Based on a sampling of M&TE reviewed by the team, it was concluded that overall, CHT was in compliance with the requirements of Q-01. However, the team did identify a weakness when they observed the procedure did not have a written requirement to ensure that employee owned tools are calibration checked before such tools exit the CHT calibration system (such as on an employee's departure), although CHT stated it was their policy to perform such a check. During the team's second visit to CHT, the team reviewed the CAR 12-003 and corrective action training written by CHT dealing with this issue. The review indicated that the CAR had adequately identified the issue and that corrective actions (procedure modification and training) had been completed and the newly revised procedure was in place for use.

The team also identified a question with regard to the tracking and trending of M&TE found out of calibration. When questioned on this topic, the team received three differing responses from three CHT personnel. The team requested that CHT review this issue and provide further information to the team upon its planned return to observe fabrication activities. From the second part of the inspection of Croft at CHT, the team noted adequate guidance and training was provided for tracking and trending M&TE in CHT procedures (PP-Q-01, dated 10/23/09,

“Control of Measuring and Test Equipment,” and PP-Q-05 , “Control of Nonconforming Items and Services,” dated 5/17/02,).

**02.07 Review selected drawings and records, and interview selected personnel, to verify that the procurement specifications for materials, equipment, and services received by the QA Program holder meet the design requirements.**

The team reviewed CHT Procedure No. P-01, revision 1, dated 7/1/03, “Procurement of Materials, Items or Services” and noted that the procedure assures that applicable specification, contract, drawing, regulatory and code requirements meet design requirements and that technical and quality requirements are properly invoked within CHT POs for materials, items or services. The team noted that the procedure provides for the preparation, placement, and distribution of CHT POs and the evaluation of supplier performance. The CHT Procedure does not require under the conditions of Category B material for vendors to invoke Part 21; instead, CHT requires vendors to submit all non-conforming conditions for processing under CHT quality program.

The team reviewed CHT Submittal (DK-11-103) to Croft and verified appropriate material traceability and examinations by reviewing TW Metals Certificate of Conformance dated 9/23/2011, TW’s material supplier (Valbruna Stainless, Inc. Fort Wayne, IN), ITLS independent material test report (Chemical/Mechanical/Grain Size), ITLS report of liquid penetrant (LP) (NB2546.3) and ITLS report of ultrasonic examination (NB2542.2). The team also reviewed ITLS LP Test Procedures, #815 Rev. 3, NB2546, and #816 Rev. 4, Ultrasonic Examination for compliance to CHT imposed technical requirements noted above. No findings of significance were identified.

The team reviewed CHT Submittal (DK-11-116) of Hex Socket Head Cap Screws and reviewed the supplier’s (Nova Machine Products) Certificate of Conformance/Certified Material Test Report (CMTR) dated 11/3/2011, for compliance to CHT PO #20110234, Line Item 1, Qty. 480. The team verified that the material met the requirements of ASTM A320 Grade L43 Alloy Steel.

The team reviewed CHT Submittal (DK-11-095) of CV Lid Shielding Casing and the supplier’s (Edgen Murray) Certificate of Conformance dated 9/2/2011, Stork Materials Technologies, Material Test Report dated 8/30/2011 (Chemical/Mechanical/Grain Size) and CMTR (Outokumpu Stainless Bar Inc, Richburg, SC) to CHT PO #20110219, LI 1. The team verified that the material was procured as Important To Safety (ITS) Cat A and met the requirements of ASTM A479 Type 304L SS.

The team reviewed CHT’s Approved Vendors List and noted that 31 of 40 vendors were approved based on CHT’s assessment/use of Nuclear Industry Assessment Committee (NIAC) assessment reports. The team reviewed a sample of these reports and noted the audits were comprehensive and contained sufficient objective evidence to assure that purchased material conform to procurement documents. The team discussed the heavy reliance of CHT on the NIAC Process. No findings of significance were identified.

Keg and packaging assemblies cork material

The team reviewed the Safkeg SAR, SER, purchase order, material specifications and design drawings for the cork material. The design of the Croft packaging requires a composite material made from agglomerated cork particles held together with a polyurethane binder. The cork material is processed into three separate pieces that fit inside the keg liner portion of the packaging and surround the containment vessel. The cork is designed to reduce impact loads on the keg liner and containment vessel and provide thermal insulation.

The cork material specifications, included by reference into the CoC from Section 8.1.5.5 of Rev. 2 of the SARP, were for defined ranges of specific weight (density), tensile strength, compression and recovery (from compression) of the material. However, the cork material specification in Section 5(a)(3) of the CoC states "The packaging is constructed and assembled in accordance with Croft Associates Limited Drawing Nos.: 0C-6043, Rev. A, Cork Set for Safkeg LS (Licensing Drawing)..." This drawing only lists a specification of "[s]pecific weight 250 to 290 Kg/m<sup>3</sup> to ISO 7322" for the cork inserts and this specification is the only one evaluated in the SER. This discrepancy between different parts of the SAR and between the SAR and the SER was identified by Croft in November 2011, when reviewing all the requirements in Rev. 2 of the SAR for an update, but had not been updated at the time of the inspection. The cork for the inserts was obtained commercially and dedicated for use. Croft identified specific weight as the critical characteristic to be verified (using Croft Procedure 438, Issue B) before being supplied to CHT for assembly of the packages. The SAR Rev. 2, Section 8.1.5.5, specifications for tensile strength, compression, and recovery are to be removed in the update to the SAR leaving specific weight as the only required property of the cork. Croft's recognition of this issue prompted them to issue CAN 550 to review and revise the procedures, specifically CP438, "Procedure for Checking Cork Composite Critical Characteristic for LS 3979A and HS 3977A Safkegs," which describes a non-destructive test for determining specific density. While the Croft Safkeg package is (at the time of this report) being built at risk, the amended SAR, drawings, etc. will have to be reviewed and approved by the NRC prior to any use of the Safkeg transport packagings.

#### Containment vessel lid and inner and outer O-rings

The containment vessel lid inner O-ring helps seal the lid to the containment vessel and is therefore part of the containment boundary. The containment vessel lid outer O-ring is part of the system that tests the containment boundary at the inner O-ring seal. Both O-rings are category A components and their material specifications are the same, as identified in the SAR Section 8.1.5.2, and licensing drawing 1C-6044. The team verified that these O-rings were procured commercial grade and dedicated as category A components by CHT. The team noted that the material specifications of base polymer and hardness, and dimensional specifications are traceable from the CoC, through SAR licensing drawing 1C-6044, to the specifications in the Croft PO# 7013id, to CHT, and to the CHT commercial grade dedication certificates of conformance for the inner and outer O-rings. No findings of significance were identified.

The team reviewed procurement controls of ITS, Category A, Hex Socket Head Cap Screws that included a Nova Machine Products Certificate of Conformance and noted compliance to design drawing No. 1C-6050, revision E, "GA Containment Vessel Design No. 3980," and CHT PO #20110234. Based on a review of the documentation the team noted that the material met the requirements of ASTM A320 Grade L43 Alloy Steel.

The team reviewed procurement controls of ITS, Category A, Bar Stock, 3 3/8" Diameter x 12' random length used on CV Lid Shielding Casing that included a Edgen Murray Nuclear Operations (EMNO) Certificate of Conformance and various material test reports and noted compliance to design drawing No. 3C-6054, revision D, "CV Lid Shielding Casing" and CHT PO #20110219. Based on a review of the documentation the team noted that the material met the requirements of ASTM A479 Type 304L SS.

The team reviewed procurement controls of ITS, Category A, Bar Stock, 7 1/4" Dia. X 14' long and verified appropriate material traceability, as well as, conformance to ASTM A479/A479M Type 304L Round Bar SS. Specifically, the team reviewed TW Metals (TWM) Certificate of Conformance/Compliance and certified material test report, as well as Industrial Testing Laboratory Services, LLC (ITLS) test reports for material chemical analysis, tensile, and grain

size testing. Further, the team reviewed ITLS's report of liquid penetrant for compliance to NB2546.3; and report of ultrasonic examination for compliance to NB2542.2. In addition, the team reviewed nondestructive examination procedures, 815, revision 3, liquid penetrant and 816, revision 4, ultrasonic examination, for compliance to Croft's design and CHT's purchase order (20110228, change number 2) and noted that the UT testing requirement deviated from Croft's design drawing 2C-6061. Specifically, the drawing requires a straight beam UT test to be performed in accordance with ASME Section III, subsection NB2532.1. Contrary to this requirement, the team noted that the drawing was in error and that the correct requirement is NB2542. Based on the teams review of TWM's test reports it was noted that the actual test performed complied to NB2542. Both the drawing (2C-6061) and SAR (section 2.1.4 and 2.3.2) are in error. The team noted that Croft self-identified this issue and is in the process of amending its design to reference the correct ASME Code requirement. No findings of significance were identified.

#### Heli-Coil Free Running Insert

The team reviewed procurement controls of ITS, Category A, Heli-Coil Free Running Insert and reviewed the supplier's (Emhart Teknologies) certificate of conformance as well as Trust Manufacturing Material Test report for compliance to CHT PO 20110224. The team noted that the stainless steel Heli-Coil Free Running Inserts were compliant to SAE MA3279 and other quality requirements consistent with Category A type procurements, as invoked.

Lastly, the team reviewed Croft approval (DK-11-095) of 1/16" dia. X 36" ER308/308L (dual) TIG wire per Steel Framing Alliance (SFA) 5.9 and reviewed Arcos Industries CMTR for compliance to CHT PO #20110218. The team noted compliance to ASME Sec II Part C SFA 5.9, ASME Sec III Sub NB2400, 2007 edition, 2009 addenda and that the material was supplied as a single heat lot. No findings of significance were identified.

#### **02.08 Review selected records and interview selected personnel to verify that a nonconformance control program is effectively implemented, and that corrective actions for identified deficiencies are technically sound and completed in a timely manner.**

The team reviewed the procedures controlling the problem identification and corrective action program used by CHT; this included Q-05, "Control of Nonconforming Items and Services," dated 5/17/02, and Q-11, "Corrective Action Procedure," dated 4/24/02. In addition, the procedure also requires trending of NCRs. Discussions were held with the Quality Assurance Manager, who controls the program and the team also reviewed a sample of Non-conformance Reports (NCRs) and Corrective Actions Requests (CARs). CHT's resolution of the issues, documented in the various reports, was assessed to be appropriate and the reports were closed in a timeframe commensurate to their importance. No findings of significance were identified.

The team noted that CHT can also write Problem Deficiency Reports (PDRs) against documents supplied by Croft and recommend a disposition. PDRs are used under Croft's corrective action program. Croft must approve the final disposition of the PDR. Once a PDR against a Croft supplied document has final Croft approval, the master copy of the document held by the CHT PM has the PDR number listed on the title page and in the body of the document where the change was made. The team noted that the PDR Number on the title page has the CHT identification stamp of the individual that added the PDR number to the master document by it. The PDR process used by CHT provides the ability to make changes to a Croft document without making an official revision. Once a number of PDRs have been made against a Croft document, Croft will incorporate them into an official document revision. The team found this to be an effective method of making changes to Croft documents at the CHT facility. No findings of significance were identified.

**02.09 Review selected records and procedures, interview selected personnel, and observe selected activities affecting the safety aspects of the packaging to verify that individuals performing activities affecting quality are properly trained and qualified, and to verify that management and QA staff are cognizant and provide appropriate oversight.**

The team reviewed QAR 173, Issue B, titled: Quality Assurance Oversight, Safkeg-LS Fabrication (A sample document for oversight) from Croft prior to the inspection describing a plan for oversight by Croft. During the inspection the team noted some changes in the oversight document and discussed them in an interview with Croft's Quality Manager (QM) and a Croft Project Engineer. The QM described the reasoning for the changes and provided the first oversight report (QAR-206, Issue A, Titled: Oversight-CHT-OCT-2011) dated 10/27-28/11, which was reviewed by the team and was noted as describing the oversight objective, scope and the results of the oversight evaluation. Follow-on reports dated 11/21/2011 and 12/12/2011 were also reviewed. From the team's review, items identified in an early report and referenced to be reviewed at the next reporting period, were in some cases not reviewed in the next report. During the second part of the inspection, the team reviewed a later oversight report (QAR 222) from Croft's oversight process and noted that all items previously identified in need of a follow-up review, had been reviewed. No findings of significance were identified.

The team noted that Croft's Lead Auditor qualifications and certifications had been verified as adequate on an earlier inspection at Croft. In addition, the team reviewed ITLS Certificate of Qualifications of Level II PT and UT examiners and noted adequate certifications according to the recommended practice of ASNT-TC-IA, 2001 edition.

**02.10 Verify that audits of the QA Program and activities affecting the safety aspects of the packaging are scheduled, have been performed as scheduled, and that identified deficiencies have been satisfactorily resolved in a timely manner.**

The team reviewed the Croft supplier audit dated 3/22-25/2010, performed at CHT in preparation for the Safkeg fabrication. The team noted that Croft audited and reported on 14 specific areas and identified one observation of minor documentation errors. The errors were immediately corrected during the audit. The team reviewed the CHT Internal audit checklist dated 8/9/11 for the CHT QA Manual Section N-10 "Inspection." The team noted that the checklist was comprehensive and no unsatisfactory items/issues were identified. The team also reviewed CHT procedure Q-08, revision 0, dated 4/9/02, as well as CHT's internal audit checklists for N-17, revision 1, dated 4/4/05 "Quality Assurance records" and N-18, Revision 1, dated; 4/4/05, "Audits." At the time the audits were performed no issues were noted for the Quality Assurance records audit and one corrective action (CAR-11-009) request was issued for the Audits area. No findings of significance were identified.