

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		2. NRC/REGIONAL OFFICE Headquarters U. S. Nuclear Regulatory Commission Mail Stop EBB-3-D-02M Washington, DC 20555-0001	
REPORT NUMBER(S) 71-0939/2012-202			
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 11/13-16/2012	

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:

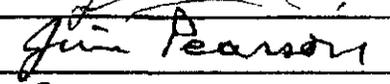
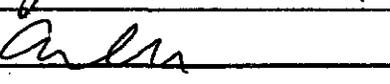
- 1. Based on the inspection findings, no violations were identified.
- 2. Previous violation(s) closed.
- 3. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, and corrective action was or is 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	Steve Ralls		12/4/12
NRC INSPECTOR	Jim Pearson		12/5/12
BRANCH CHIEF	Eric Benner		12/4/12

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	Steve Ralls +44 (0) 1865 409486
Docket No.	071-0939
Inspection Report No.	071-0939/2012-202
Inspection Dates(s)	November 13-16, 2012
Inspection Location(s)	Greensboro, North Carolina
Inspectors	Jim Pearson, Team Leader, Senior Safety Inspector Jon Woodfield, Safety Inspector
Summary of Findings and Actions	<p>The purpose of the inspection was to assess Croft's compliance with 10 CFR Parts 21 and 71, and to verify that Croft was providing adequate oversight of fabrication activities occurring at Columbiana Hi Tech for the SAFKEG-LS transportation packagings. The main focus of the inspection was to verify that the SAFKEG-LS Transport package is built according to the SAFKEG-LS amendment 1 requirements and can be verified to comply with Part 71 design, fabrication, and procurement requirements. Additional efforts during the inspection will review ongoing corrective action activities, recent (since the previous inspection) procurements, audits, and work surveillances, as applicable.</p> <p>INSPECTOR NOTES: APPLICABLE PORTIONS OF 02.01 THROUGH 02.10 OF IP 86001 WERE PERFORMED DURING THE INSPECTION WITH RESULTS DOCUMENTED BELOW:</p> <p>02.02 Verify that the CoC holder's activities related to transportation packagings are being conducted in accordance with the CoC, as well as the NRC-approved QA Program (reference Regulatory Guide 7.10), and that implementing procedures are in place and effective.</p> <p>The inspection team verified that all implementing procedures that were in place during the previous inspections were still in place with no significant changes made by revision. The inspection team was aware at the time of the previous (March, 2012) inspection that Croft was preparing an amendment request to Spent Fuel Storage and Transportation (SFST) for the review and approval of Safety Analysis Report Packaging (SARP), revision 4. When SFST approves the amendment request, revision 1 to SAFKEG-LS Model 3979A CoC 9337 will be issued. The inspection team was aware of the SARP revision 4 changes and associated licensing drawing revisions during the inspection and used the proposed amendment to verify any updated design inputs since the fabrication of the SAFKEG-LS Models had already incorporated the proposed changes at risk. The inspection team reviewed the pending SARP revision 4 changes and drawing changes and determined that the changes could be classified as, either adding additional information, correcting or clarifying previous information, or providing editorial information. The inspection team determined that none of the Croft submitted SARP and drawing changes affected fabrication of the SAFKEG-LS Model 3979A packaging by Columbiana Hi Tech</p>

(CTH). The inspection team is confident that the only significant changes which will be made to the CoC under revision 1 will be the drawing reference revisions and the supplements listed under references. Therefore, the inspection team verified that the CoC holder's activities and its fabricator's activities related to the SAFKEG-LS Model 3979A packaging are being conducted in accordance with the current CoC revision 0, as verified during previous inspections, and the pending CoC revision 1 changes as verified by the inspection team during the current inspection, with no concerns.

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.

On January 9-13 and March 12-16, 2012, the NRC performed an inspection of Croft at their contracted fabrication company CHT near Greensboro, N.C. These previous inspections have verified that both Croft and CHT have processes in place to acceptably perform reporting defects under 10 CFR Part 21.

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

During recently performed inspections, personnel had been extensively interviewed and design documentation closely reviewed from Croft and Columbiana Hi Tech (CHT) and from the interviews and reviews it was determined that adequate design controls were being implemented. The current inspection team asked the Croft and CHT personnel if there were any design changes to the SAFKEG-LS Model 3979A fabrication drawings due to the SARP revision 4 changes and licensing drawing changes. The Croft personnel stated that there were no design changes submitted to CHT since fabrication at risk to the SARP revision 4 changes and proposed licensing drawing changes had already been implemented. A separate interview with CHT personnel verified that CHT had not received any design change documents from Croft due to the SARP and drawing revisions.

To confirm that none of the changes made to the SARP and licensing drawings resulted in design changes that affected the actual SAFKEG-LS Model 3979A fabrication, the inspection team performed an itemized review of two Croft documents. Croft itemized the changes it had made to the SARP and licensing drawings in Croft documents CTR 2012/06 (SARP Update Document for NRC Review) and CTR 2012/10 (SAFKEG-LS Response Matrix to the First Request for Additional Information from the Nuclear Regulatory Commission). The documents contained justification for the changes or responses to SFST RAIs. The inspection team reviewed every itemized change listed in these two documents to verify the changes would not result in a design change that would affect fabrication of the SAFKEG-LS Model 3979A. While the inspection team eventually determined that the itemized changes would not result in a significant design change to the package fabrication, the inspection team initially did identify concerns with two of the itemized changes as noted below:

A requirement for the packaging lead shielding to meet British

Standard BS 3909/2 was removed in several places in the SARP revision. The inspection team reviewed the fabrication drawings for the lead shielding to determine if this requirement was shown on the fabrication drawings and therefore needed to be removed. However, the requirement for the lead to meet British Standard BS 3909/2 was still shown on the fabrication drawings. The inspection team questioned Croft and CHT personnel about the requirement still being on the fabrication drawing. Croft personnel then provided additional non drawing documents transmitted to CHT identifying the removal of the lead standard requirement and tracking its removal. The Croft personnel stated that by tracking the change, the requirement for the BS standard on the fabrication drawing would be removed at project completion and closeout. The inspection team verified that CHT had received the additional documentation on the removal of the lead standard requirement. The inspection team determined that the additional documentation and correspondence addressing the removal of the lead standard requirement was adequate design control.

The second issue the inspection team identified with the Croft itemized change list was a change identified for SARP section 2.3.1 to change the NB paragraph standard for ultrasonic testing to 2542 from 2532.1. However, the inspection team could not identify this change to SARP section 2.3.1. The Croft personnel investigated the issue and determined that the reference to SARP section 2.3.1 for the change was incorrect and the actual change was made on licensing drawing 1C-6045. The inspection team verified that the change was indeed made to drawing 1C-6045 and found it acceptable and not a design change.

After resolving the two concerns, the team found the design controls in place for the SAFKEG Project to meet the requirements of the regulations with no concerns.

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.

As stated in 02.04 above, the inspection team performed an itemized review of two Croft documents. Croft had itemized the changes it made to the SARP and licensing drawings with justification for the changes or responses to NRC RAIs in Croft documents CTR 2012/06 (SARP Update Document for NRC Review) and CTR 2012/10 (SAFKEG-LS Response Matrix to the First Request for Additional Information from the Nuclear Regulatory Commission). The inspection team reviewed every itemized change listed in these two documents to verify the changes would not result in a design change that would affect fabrication of the SAFKEG-LS Model 3979A. The inspection team agreed that none of the itemized changes would result in a design change to the packaging fabrication.

However, the inspection team did identify a concern with one of the itemized changes. A requirement for the packaging lead shielding to meet British Standard BS 3909/2 was removed in several places in the SARP revision. The inspection team reviewed the fabrication drawings for the lead shielding to determine if this requirement was shown on the fabrication drawings and therefore needed to be

removed. The requirement for the lead to meet British Standard BS 3909/2 was still shown on the fabrication drawings. The inspection team questioned Croft and CHT personnel about the requirement still being on the fabrication drawing. The Croft personnel then provided additional non-drawing documents transmitted to CHT identifying the removal of the lead standard requirement and tracking it. The Croft personnel stated that by tracking the change, the requirement for the BS standard on the fabrication drawing would be removed at project completion and closeout. The inspection team verified that CHT had received the additional documentation on the removal of the lead standard requirement. The inspection team determined that the additional documentation and correspondence addressing the lead standard requirement was adequate in that the latest information in the SARP had been adequately communicated to the fabrication activities.

The team noted that in the revised SARP an additional helium leakage rate test had been added to be performed on the containment vessel lid top after machining. CHT had contracted an outside vendor to perform helium leakage rate testing. The inspection team reviewed the procurement documents for the outside vendor performing leakage testing and verified that the additional testing requirement had been added.

Since the fabrication had already been determined to meet the proposed changes of SAFKEG-LS amendment 1, the inspection team saw no reason for the proposed changes to be communicated to fabrication, test, and maintenance activities. While the team had no concerns that the SARP changes and pending CoC requirements were not being communicated currently, any future fabrication may require a review in this area by the fabricator and Croft.

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.

On January 9-13 and March 12-16, 2012, the NRC performed an inspection of Croft at their contracted fabrication company CHT near Greensboro, N.C. These previous inspections have verified that both Croft and CHT have processes in place to satisfactorily control activities affecting safety aspects of the packaging (such as fabrication, assembly and testing).

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 noted that in the revised SARP an additional helium leakage rate test had been added to be performed on the containment vessel lid top after machining. CHT had contracted an outside vendor to perform helium leakage rate testing. The inspection team discussed the helium leakage testing with CHT personnel and reviewed the procurement documents for the outside vendor performing the leakage testing and verified that the additional testing requirement had been added.

The inspection team had no concerns.

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 Croft's procedures; QMS-CA05-01, Issue L, "Manufacturing Control" and QMS-CAP05-06 Product Non-conformance Control (CAP), Issue L, as well as interviewing Croft staff in regard to control and processing of non-conformances and corrective actions associated with the design and fabrication of the SAFKEG-LS. The team noted that both procedures had been recently modified to include changes required by Croft's CAR No.: 52. This CAR required development of direction for handling a third party approval for QA documents (such as; NCRs, Concession requests, etc.). The team also reviewed the following CHT nonconformance reports under CHT Job No.: 09-34 (SAFKEG-LS)

2046, O-Ring, BS45180036-24
2048, O-Ring, BS45180895-30 and BS45181045-30
2049, CV Lid Top – nicks

The team also reviewed Product Deviation Report (PDR) No.: 63, Fuse plug low melting point. This identified that lead used in the fabrication of the SFAEKEG-LS was purchased in accordance with ASTM B774 requirements. Indications from the material purchase documents noted low lead and bismuth in the overall composition of the material. However, during the timeframe that the material differences were noted, Croft simultaneously changed the material requirements needed for the SAFEKEG-LS when they determined that the lead and bismuth was not an issue for the design requirements because the melting point was the only critical characteristic required for the category "C" material.

The team also reviewed Quality Assurance Reports; 230, Investigation of the bond failure of MURR Outer Cork (NCR-339); 223, Oversight Report – Welding (Croft Fabrication); 231, Oversight Plan and Report for Helium Leakage Testing carried out in accordance with CP-427, dated May 9, 2012.

The team determined that no concerns 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 quality assurance (QA) staff are cognizant and provide appropriate oversight.

On January 9-13 and March 12-16, 2012, the NRC performed an inspection of Croft at their contracted fabrication company CHT near Greensboro, N.C. These previous inspections have verified that both Croft and CHT have records and procedures supporting activities affecting the safety aspects of the packaging that verify that individuals performing activities affecting quality are properly trained and qualified, and that Croft and CHT management and quality assurance (QA) staff are cognizant and provide appropriate

oversight.

In addition, the team noted during this inspection from the review of training records for a recently hired employee that the training provided the employee for leak testing and detection on May 18 & 19, 1998 was acceptable to show initial qualification for the noted type of testing.

From the review, the team found the training as well as the management and quality oversight in place for the SAFKEG Project to meet the requirements of the regulations with no concerns.

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

On January 9-13 and March 12-16, 2012, the NRC performed an inspection of Croft at their contracted fabrication company CHT near Greensboro, N.C. These previous inspections have verified that both Croft and CHT have processes in place to schedule, perform as scheduled, and identify deficiencies with satisfactorily resolve of those deficiencies in a timely manner.

Lead Inspector Signature/Date

Jim M. Woodfield for Tim Pearson

12/11/2012

Inspector Notes Approval
Section Chief Signature/Date

[Signature]

12/11/12