



CONVERSATION RECORD

02/09/2015

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

Stephen A. Kisan, Radiation Safety Officer

DATE OF CONTACT

02/06/2015

TYPE OF CONVERSATION

E-MAIL

TELEPHONE

INCOMING

OUTGOING

E-MAIL ADDRESS

skisan@bskindustries.com

TELEPHONE NUMBER

(440) 230-9299

ORGANIZATION

BSK Industries, Inc.

DOCKET NUMBER(S)

030-35053

LICENSE NUMBER(S)

34-26538-02

CONTROL NUMBER(S)

584666

SUBJECT

Additional information needed to complete the review of renewal application, dated August 25, 2014
Requested that licensee submit requested information within 7 days of conversation (on or before February 13, 2015).

SUMMARY AND ACTION REQUIRED:

We have reviewed the above referenced renewal application and find that we are unable to continue this action until we have received additional information outlined below and in the attached sheets.

Please direct any questions it has to me at (630) 829-9892 or sara.forster@nrc.gov.

When submitting additional information, please reference Control No. 584666, as listed at the top of this memo. You may FAX a response to my attention at (630) 515-1078 OR scan a response and send to me via email, as a pdf file. Please include a signed and dated cover letter with your response.

We expect to receive a written response on or before the close of business on February 13, 2015.

ADDITIONAL INFORMATION REQUESTED:

1. For unsealed analytical/leak test samples, please revise the 10 mCi/sample and 100 mCi total possession limit, based on experience with wipe test sample activities and a realistic total possession limit. Your written response should address the following items:

1.1 Please list a per-sample and overall total possession limit for each unsealed radionuclide.

1.2 Concerning the Leak test procedure provided in Attachment 10-2, please describe your procedure for collecting and preparing samples. A model procedure is available in Appendix O to NUREG 1556, Vol. 18. (Copy attached for your reference.) Your response should delineate how samples are transferred from NRC to agreement state jurisdiction, including any labeling, inventory control, transfer, or disposal.

NAME OF PERSON DOCUMENTING CONVERSATION

Sara A. Forster, M.S., Health Physicist, Materials Licensing Branch, Region III, 2443 Warrenville Rd., Lisle, IL 60532

SIGNATURE

Sara A. Forster

02/09/2015

CONVERSATION RECORD (continued)

S. Kisan

SUMMARY AND ACTION REQUIRED (continued):

ADDITIONAL INFORMATION REQUESTED (continued):

2. As we discussed, we have been unable to locate a current Sealed Source & Device Registry (SS&D) sheet for the LFE SSL-3 gauging device. From our conversation, we understand that you wish to continue to have this model number listed on the license. Please provide an SS&D Registry number for this device, if available.
3. For the calibration procedure, please confirm that the Ohio 03124550000 and/or Pennsylvania 1379 licenses authorize any needed calibration activities for the licensee, and revise your application responses for the following items:
 - 3.1. For Items P and Q on the license (Q removed per application; P to be removed per 2/4/15 conversation with the licensee), confirm these sources will not be possessed in NRC jurisdiction, and may be removed from the license. Provide the most recent leak test results (or, at a minimum, a confirmation the sources are not leaking), to remove the sources from the license.
 - 3.2. For Section 10.2, "Radiation Detection Instruments and Instrument Calibration," please resubmit your response, including references to OH/PA licenses that authorize your needed calibrations and removing the calibration procedure. In addition, please provide an updated description of available survey instruments, including the number of available instruments.
4. Concerning Section 10.1, "Personnel Monitoring," of your application, please confirm that personnel dosimetry will be provided and processed by a NVLAP-approved dosimetry service.
5. Please update your application to resolve inconsistencies between Item 6.2, "K - O: Authorized Use - Sealed Sources," and Attachment 10-1 to the application by responding to the following items:
 - 5.1. Please add radiometric models 410 & 450 and Betascope model tc2600 devices to Item 6.2 or confirm that servicing procedures, found in Attachment 10-1, for these model devices should be excluded from the license.
 - 5.2. For Data Measurement Corporation models, please add these models to Attachment 10-1, or confirm that you are requesting authorization to conduct leak tests only, covered under the Leak Test procedure, referenced above.
6. Please provide radiation safety precautions to be taken for procedures outlined in Attachments 10-1 and 10-4 to the application, by responding to the following items:
 - 6.1. Please clarify how the licensee will "take care to avoid unshielded beam" (see page 5 of Attachment 10-1) and assure other radiation safety precautions, such as: (a) performing lockout/tagout during service, (b) marking/labeling areas when service is being performed, (c) isolating and controlling areas where work is being performed, (d) using survey meter before/during/after performing service, (e) testing device before releasing for routine use (to ensure it functions properly), (f) performing wipe/leak tests following service to confirm no ruptured sources, and/or (g) other precautions taken. (See also Appendix P, attached.)
 - 6.2 Please confirm use of approved parts and components in performing service.
 - 6.3. Please relate services described in Attachment 10-1 to installations, relocations, initial radiation surveys, leak testing, repair, refurbishing, testing, calibration, etc., listed in Item 6.2 of the Application.
 - 6.4. Please confirm that source handling procedures in Attachment 10-4, are limited to the Loral 5310 and BSK I-1000 devices.
7. Refer to Operating and Emergency procedures listed on NUREG 1556, Vol. 18, pp. C-19 to C-21 and address the following items:
 - 7.1. Confirm that the licensee will have instructions, steps, methods, and procedures for handling and using radioactive materials, as listed on the referenced pages (see attached).
 - 7.2. Please describe, or provide a procedure for obtaining an agreement with customers. The response should confirm that control of the material and activity will be clearly delineated.

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	<p>RADIATION SAFETY PROGRAM (Cont'd.)</p> <p>Occupational Dosimetry (Cont'd.)</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Contract with an outside group for bioassay services. Provide a commitment that each vendor is licensed or otherwise authorized by NRC or Agreement State to provide required bioassay services. <p>Public Dose</p> <p>The applicant is not required to, and should not, submit a response to the public dose section during the licensing phase. This matter will be addressed during an inspection.</p> <p>Operating and Emergency Procedures</p> <ul style="list-style-type: none"> → • Procedure for obtaining an agreement with customers outlining the responsibilities of both the customer and service provider, when performing service operations at a customer's facility → • Instructions for handling and using licensed materials. • Instructions for maintaining security during storage and transportation. • Instructions to keep licensed material under control and immediate surveillance during use. • Steps to take to keep radiation exposures ALARA. • Steps to maintain accountability during use. • Steps to control access to work sites. • Steps to take and whom to contact when an emergency occurs. • Instructions for using remote handling tools when handling sealed sources, except low-activity calibration sources. • Methods and occasions for conducting radiation surveys, including surveys for detecting contamination. 				☐
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Please confirm the licensee's procedures will include items at right, as noted. (Include a copy only of the procedure for obtaining customer agreements.)

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	RADIATION SAFETY PROGRAM (Cont'd.)				
	Operating and Emergency Procedures (Cont'd.)				
	<ul style="list-style-type: none"> • Procedures to minimize personnel exposure during routine use and in the event of an incident, including exposures from inhalation and ingestion of licensed unsealed materials. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> • Methods and occasions for locking and securing stored licensed materials. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> • Procedures for the implementation and adherence to good health physics practices while performing service operations: 				
	<ul style="list-style-type: none"> - Minimization of distance to areas, to the extent practicable, where licensed materials are used and stored 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> - Maximization of survey frequency, within reason, to enhance detection of contamination 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> - Segregation of radioactive material in waste storage areas 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> - Segregation of sealed sources and tracer materials to prevent cross-contamination 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> - Separation of radioactive material from explosives 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> - Separation of potentially contaminated areas from clean areas by barriers or other controls. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> • Personnel monitoring, including bioassays, and the use of personnel monitoring equipment. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> • Transportation of licensed materials to temporary job sites, packaging of licensed materials for transport in vehicles, placarding of vehicles when needed, and physically securing licensed materials in transport vehicles during transportation to prevent accidental loss, tampering, or unauthorized removal. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> • Procedures for picking up, receiving, and opening packages containing licensed materials, in accordance with 10 CFR 20.1906. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> • Instructions for maintaining records in accordance with the regulations and the license conditions. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Model Leak Test Program

Training

Before allowing an individual to perform leak test analysis independently, the RSO will ensure that this individual has sufficient classroom and on-the-job training to show competency in performing leak test analysis.

Classroom training in the performance of leak test analysis may be provided in the form of lecture, videotape, or self-study. This classroom training and should cover the following subject areas:

- Principles and practices of radiation protection;
- Radioactivity measurements, monitoring techniques, and using instruments;
- Mathematics and calculations basic to using and measuring radioactivity;
- Biological effects of radiation.

Appropriate on-the-job training consists of:

- Observing authorized personnel collecting and analyzing leak test samples;
- Collecting and analyzing leak test samples under the supervision and in the physical presence of an individual authorized to perform leak tests and leak test analysis.

Facilities and Equipment

To ensure the required sensitivity of measurements, leak tests will be analyzed in a low-background area.

Before leak test swipes are analyzed, individuals conducting leak tests will use a calibrated and operable survey instrument to check leak test samples for gross contamination. If the sensitivity of the counting system is unknown, the minimum detectable activity (MDA) needs to be determined. The MDA may be determined using the following formula:

$$MDA = \frac{3 + 4.65(BR)^{1/2}}{Et}$$

where MDA = activity level in disintegrations per minute (dpm)
 BR = background rate in counts per minute (cpm)
 t = counting time in minutes
 E = detector efficiency in counts per disintegration (cpd)

APPENDIX O

APPENDIX O

For example:

$$\text{MDA} = \frac{3 + 4.65(200 \text{ cpm})^{1/2}}{(0.1 \text{ cpd})(2 \text{ minutes})}$$

where

$$\begin{aligned} \text{BR} &= 200 \text{ cpm} \\ \text{E} &= 0.1 \text{ cpd (10\% efficient)} \\ \text{t} &= 2 \text{ minutes} \end{aligned}$$

An NaI(Tl) well counter system with a single or multi-channel analyzer will be used to count samples from sealed sources containing gamma-emitters (e.g., cesium-137, cobalt-60).

A liquid scintillation, gas-flow proportional, or solid state counting system will be used to count samples containing alpha-emitters (e.g., americium-241).

→ **Procedure for Performing Leak Testing and Analysis**

- For each source to be tested, list identifying information such as the manufacturer's name, model number, serial number, radionuclide, activity of the sealed source(s).
- Prepare a separate wipe sample (e.g., cotton swab or filter paper) for each source.
- Number each wipe to correlate with identifying information for each source.
- If available, use a survey meter to monitor exposure.
- Wipe the most accessible area (but not directly from the surface of the source) where contamination would accumulate if the sealed source were leaking, e.g., the leak test can be taken of the part that connects to the source or the inside of the transport container that has recently transported the source.
- Select an instrument that is sensitive enough to detect 185 Bq (0.005 mCi) of the radionuclide of the sealed source.
- Using the selected instrument, count and record background count rate.
- Check the instrument's counting efficiency using a standard source of the same radionuclide as the source being tested or one with similar energy characteristics. Accuracy of standards should be within 5% of the stated value and traceable to primary radiation standard such as those maintained by the National Institutes of Standards and Technology (NIST).
- Calculate efficiency. For example:

$$\frac{[(\text{cpm from std}) - (\text{cpm from bkg})]}{\text{activity of std in Bq}} = \text{efficiency in cpm/Bq}$$

where

$$\begin{aligned} \text{cpm} &= \text{counts per minute} \\ \text{std} &= \text{standard} \\ \text{bkg} &= \text{background} \\ \text{Bq} &= \text{Becquerel} \end{aligned}$$

- Count each wipe sample; determine net count rate.
- For each sample, calculate and record estimated activity in Bq (or mCi). For example:
$$\frac{[(\text{cpm from wipe sample}) - (\text{cpm from bkg})]}{\text{efficiency in cpm/Bq}} = \text{Bq on wipe sample}$$
- Sign and date the list of sources, data and calculations. Retain records for 3 years (10 CFR 20.2103(a)).
- If the wipe test activity is 185 Bq (0.005 microcurie) or greater, notify the RSO, so that the source can be withdrawn from use and disposed of properly. Also notify NRC.

Information Needed to Support Applicant's Request to Perform Non-Routine Maintenance Checklist

Applicants should review the section in this document on "Maintenance," which discusses, in general, licensee responsibilities before any maintenance or repair is performed.

Non-routine operations include installation of the sealed source/device, initial radiation survey, repair or maintenance involving or potentially affecting components, including electronics, related to the radiological safety (e.g., the source, source holder, source drive mechanism, shutter, shutter control, or shielding), relocation, replacement, and disposal of sealed sources, alignment, removal of a sealed source/device from service, and any other activities during which personnel could receive radiation doses exceeding NRC limits.

Any non-manufacturer/non-distributor supplied replacement components or parts, or the use of materials (e.g., lubricants) other than those specified or recommended by the manufacturer or distributor need to be evaluated to ensure that they do not degrade the engineering safety analysis performed and accepted as part of the device registration. Licensees also need to ensure that, after maintenance or repair is completed, the sealed source/device is tested and functions as designed, before the unit is returned to routine use.

If non-routine operations are not performed properly with attention to good radiation safety principles, the sealed source/device may not operate as designed and personnel performing these tasks could receive radiation doses exceeding NRC limits.

Thus, applicants wishing to perform non-routine operations must use personnel with special training and follow appropriate procedures consistent with the manufacturer's or distributor's instructions and recommendations that address radiation safety concerns (e.g., use of radiation survey meter, shielded container for the source, and personnel dosimetry (if required)). Accordingly, provide the following information.

Describe the types of work, maintenance, cleaning, or repair that involve:

- Installation, relocation, or alignment of the sealed source/device;
- Components, including electronics, related to the radiological safety of the gauge (e.g., the source, source holder, source drive mechanism, shutter, shutter control, or shielding);
- Replacement and disposal of sealed sources;
- Removal of a sealed source/device from service;
- A potential for any portion of the body to come into contact with the primary radiation beam;
or
- Any other activity during which personnel could receive radiation doses exceeding NRC limits.

The principal reason for obtaining this information is to assist in the evaluation of the qualifications of individuals who will conduct the work and the radiation safety procedures they will follow.

- Identify who will perform non-routine operations and their training and experience. Acceptable training would include manufacturer's or distributor's courses for non-routine operations or equivalent.
- • **Submit procedures for non-routine operations. These procedures should ensure the following:**
 - **Doses to personnel and members of the public are within regulatory limits and ALARA (e.g., use of shielded containers or shielding);**
 - **The source is secured against unauthorized removal or access or under constant surveillance;**
 - **Appropriate labels and signs are used;**
 - **Manufacturer's or distributor's instructions and recommendations are followed;**
 - **Any non-manufacturer/non-distributor supplied replacement components or parts, or the use of materials (e.g., lubricants) other than those specified or recommended by the manufacturer or distributor are evaluated to ensure that they do not degrade the engineering safety analysis performed and accepted as part of the device registration; and**
 - **Before being returned to routine use, the sealed source/device is tested to verify that it functions as designed and source integrity is not compromised.**
- Confirm that individuals performing non-routine operations will wear both whole body and extremity monitoring devices or perform a prospective evaluation demonstrating that unmonitored individuals performing non-routine operations are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits.
- Verify possession of at least one survey instrument that meets the criteria in "Radiation Safety Program – Instruments in NUREG-1556, Vol. 18, 'Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Service Provider Licenses,' dated November 2000."
- • **Describe steps to be taken to ensure that radiation levels in areas where non-routine operations will take place do not exceed 10 CFR 20.1301 limits. For example, applicants can do the following:**
 - **Commit to performing surveys with a survey instrument (as described above);**
 - **Specify where and when surveys will be conducted during non-routine operations; and**
 - **Commit to maintaining, for 3 years from the date of the survey, records of the survey (e.g., who performed the survey, date of the survey, instrument used, measured radiation levels correlated to location of those measurements), as required by 10 CFR 20.2103.**

Forster, Sara

From: Forster, Sara
Sent: Monday, February 09, 2015 10:15 AM
To: 'skisan@bskindustries.com'
Subject: Additional Information Request for BSK Industries, Inc., NRC Lic. No. 34-26538-02
Attachments: 03225.584666.34-26538-02 telecon signed.pdf

Dear Mr. Kisan:

See the attached file for information needed to complete the review of the renewal application referenced above. Note that the attached conversation record requests that all information be received in our office on or before the close of business Friday, February 13, 2015. Additional guidance may be found in NUREG 1556, Vol. 18, "Program Program-Specific Guidance About Service Provider Licenses," which may be found at:

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v18/>.

Submission of your responses as a pdf file attached to an email or via facsimile will allow for the quickest processing. Do not hesitate to call me with any questions you may have, or if you will need additional time to complete your response.

Sincerely,

Sara A. Forster, Health Physicist Licensing Reviewer

U.S. Nuclear Regulatory Commission - Region III

Division of Nuclear Materials Safety

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