



August 13, 2003

US Nuclear Regulatory Commission  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, GA 30303-8931

USNRC,

Shield Engineering, Inc. requests a reciprocity agreement for the Federal facility at Oak Ridge National Laboratory in Oak Ridge, Tennessee. The following are attached:

NRC Form 241  
North Carolina License (4 copies)  
Check for \$1,600

We appreciate your assistance in this matter and if there are any questions, please contact me at (704) 394-6913.

Sincerely,

**SHIELD ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read "Keith A. Anthony", is written over the typed name.

Keith A. Anthony, PE  
Principal Engineer  
Radiation Safety Officer

**Attachments**

H:\Engineering (0110)\Nuclear Gages\NRC Reciprocity.doc



<b>NRC FORM 241</b> (7-1999)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	
<b>REPORT OF PROPOSED ACTIVITIES IN NON-AGREEMENT STATES, AREAS OF EXCLUSIVE FEDERAL JURISDICTION, OR OFFSHORE WATERS</b> <i>(Please read the instructions before completing this form)</i>			
<b>1. NAME OF LICENSEE</b> (Person or firm proposing to conduct the activities described below)  <b>Shield Engineering, Inc.</b>		<b>APPROVED BY OMB: NO. 3150-0013</b> <b>EXPIRES: 07/31/2002</b> <small>Estimated burden per response to comply with this mandatory collection request: 15 minutes. This notification is required so that NRC may schedule inspection of the activities to ensure that they are conducted in accordance with requirements for protection of the public health and safety. Send comments regarding burden estimate to the Records Management Branch (T-6 ES), U.S. Nuclear Regulatory Commission, Washington, DC 20565-0001, or by Internet e-mail to bje1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOS-10202, (3150-0013), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.</small>	
<b>2. TYPE OF REPORT</b> <input checked="" type="checkbox"/> INITIAL <input type="checkbox"/> REVISION <input type="checkbox"/> CLARIFICATION		<b>3. ADDRESS OF LICENSEE</b> (Mailing address or other location where licensee may be located)  <b>4301 Taggart Creek Road Charlotte, NC 28208</b>	
<b>4. LICENSEE CONTACT AND TITLE</b> <b>Keith A. Anthony Principal Engineer</b>		<b>5. TELEPHONE NUMBER</b> (Include Area Code) <b>(704) 394-6913</b>	
<b>6. FACSIMILE NUMBER</b> (Include Area Code) <b>(704) 394-6968</b>		<b>7. ACTIVITIES TO BE CONDUCTED UNDER THE GENERAL LICENSE GIVEN IN 10 CFR 150.20</b> <input type="checkbox"/> WELL LOGGING <input type="checkbox"/> LEAK TESTING AND/OR CALIBRATIONS <input type="checkbox"/> THERAPY/IRRADIATOR SERVICE <input checked="" type="checkbox"/> PORTABLE GAUGES <input type="checkbox"/> OTHER (Specify) $\Rightarrow$ _____ <input type="checkbox"/> RADIOGRAPHY $\Rightarrow$ <u>REGISTERED AS USER OF PACKAGING (CERTIFICATES OF COMPLIANCE NUMBERS)</u>	
<b>8. CLIENT NAME, ADDRESS, CITY/COUNTY, STATE, ZIP CODE</b> <b>Donal Xiques Bechtel Jacobs P. O. Box 4699 Oak Ridge, TN 37831</b>		<b>9. ACTUAL PHYSICAL ADDRESS OF WORK LOCATION</b> (Street and Number or other location. Give as complete an address or directions as possible.) <b>Shield Engineering, Inc. Building CT1 2500 1st Street, ORNL Oak Ridge, TN 37830</b>	
<b>10. CLIENT TELEPHONE NUMBER</b> (Include Area Code) <b>865-574-9558</b>		<b>11. WORK LOCATION TELEPHONE NUMBER</b> (Include Area Code) <b>865-310-9114</b>	
<b>12. DATES SCHEDULED</b> FROM <b>8/25/03</b> TO <b>12/31/03</b>		<b>13. NUMBER OF WORK DAYS</b> <b>129</b>	
<b>14. ADD</b> -		<b>15. DELETE</b> -	
<b>16. LOCATION REFERENCE NUMBER</b> NUMBER TO BE ASSIGNED BY NRC <b>000 945</b>		<b>LIST ADDITIONAL WORK SITES ON SEPARATE SHEET(S) TO INCLUDE ALL INFORMATION CONTAINED IN ITEMS 9-16 ABOVE.</b>	
<b>17. LIST RADIOACTIVE MATERIAL, WHICH WILL BE POSSESSED, USED, INSTALLED, SERVICED, OR TESTED</b> (Include description of type and quantity of radioactive material, sealed sources, or devices to be used.) <b>Portable Moisture/Density Gauge Troxler Model 3430 or 3440 Both have cesium 137 (8mCi) &amp; americium 241 (40mCi)</b>			
<b>18. AGREEMENT STATE SPECIFIC LICENSE WHICH AUTHORIZES THE UNDERSIGNED TO CONDUCT ACTIVITIES WHICH ARE THE SAME, EXCEPT FOR LOCATION OF USE, AS SPECIFIED IN ITEM 9, ABOVE. (Four copies of the specific license must accompany the Initial NRC Form 241.)</b>		<b>LICENSE NUMBER</b> <b>060-0992-1</b>	
<b>STATE</b> <b>NC</b>		<b>EXPIRATION DATE</b> <b>10/31/04</b>	
<b>19. CERTIFICATION (MUST BE COMPLETED BY APPLICANT)</b> <b>I, THE UNDERSIGNED, HEREBY CERTIFY THAT:</b> <ol style="list-style-type: none"> <li>All information in this report is true and complete.</li> <li>I have read and understand the provision of the general license 10 CFR 150.20 reprinted on the instructions of this form; and I understand that I am required to comply with these provisions as to all byproduct, source, or special nuclear material which I possess and use in non-Agreement States or offshore waters under the general license for which this report is filed with the U.S. Nuclear Regulatory Commission.</li> <li>I understand that activities, including storage, conducted in non-Agreement States under general license 10 CFR 150.20 are limited to a total of 180 days in calendar year. With the exception of work conducted in off-shore waters, which is authorized for an unlimited period of time in the calendar year.</li> <li>I understand that I may be inspected by NRC at the above listed work site locations and at the Licensee home office address for activities performed in non-Agreement States or offshore waters.</li> <li>I understand that conduct of any activities not described above, including conduct of activities on dates or locations different from those described above or without NRC authorization, may subject me to enforcement action, including civil or criminal penalties.</li> </ol>			
<b>CERTIFYING OFFICER - RSD or Management Representative (Name and Title)</b> <b>Keith A. Anthony, Principal Engineer</b>		<b>SIGNATURE</b> <i>Keith A. Anthony</i>	
<b>DATE</b> <b>8-13-03</b>		<b>WARNING: False statements in this certificate may be subject to civil and/or criminal penalties. NRC regulations require that submissions to the NRC be complete and accurate in all material respects. 18 U.S.C. Section 1001 makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.</b>	
<b>FOR NRC USE ONLY</b>		<b>REVIEWING OFFICIAL (Typed/Printed Name and Title)</b> <b>David J. Collins, Health Physicist</b>	
<b>SIGNATURE</b> <i>David J. Collins</i>		<b>DATE</b> <b>8/14/2003</b>	
<b>TOTAL USAGE - DAYS TO DATE</b> <b>129</b>		<b>PRINTED ON RECYCLED PAPER</b>	

**RADIOACTIVE MATERIALS SECTION  
DIVISION OF RADIATION PROTECTION  
N. C. DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
RADIOACTIVE MATERIALS LICENSE**

Pursuant to North Carolina Regulations for Protection Against Radiation and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer, and import radioactive materials listed below; and use such radioactive material for the purpose(s) and at the place(s) designated below. This License is subject to all applicable rules and regulations of the North Carolina Department of Environment and Natural Resources now and hereafter in effect and to any conditions specified below.

<b>Licensee</b>		<b>3. License No:</b>	060-0992-1
<b>1. Name:</b>	Shield Engineering, Inc.	<b>4. Expiration Date:</b>	October 31, 2004
<b>2a. Mailing Address:</b>	4301 Taggart Creek Road Charlotte, NC 28208	<b>5. Amendment No.:</b>	11
<b>b. Physical Address:</b>	4301 Taggart Creek Road Charlotte, NC 28208		

<b>6. Radioactive Material (element and mass no.)</b>	<b>7. Chemical and/or Physical Form</b>	<b>8. Maximum Amount of Radioactivity and/or Quantity of Radioactive Material which Licensee May Possess at Any One Time.</b>
A. Radium 226/Beryllium	A. Sealed Source	A. No single source to exceed 4.5 millicuries.
B. Cesium 137	B. Sealed Source	B. No single source to exceed 9 millicuries.
C. Americium 241/Beryllium	C. Sealed Source	C. No single source to exceed 44 millicuries.

**9. Authorized Use:**

A. To be used in a Seaman Nuclear Corporation nuclear gauge to test for density and moisture content in construction materials.

B. & C. To be used in a Troxler 3400 series nuclear density gauge for soil moisture and density measurements.

**CONDITIONS**

10. A. The authorized place of receipt and storage of radioactive material is the licensee's address stated in item 2b. above
- B. Radioactive materials may be used at temporary jobsites of the licensee throughout the State of North Carolina in areas not under exclusive Federal jurisdiction (Federal installations such as military bases, V.A. Hospitals, etc.). Authorization for the use of radioactive materials at temporary jobsites under exclusive Federal Jurisdiction shall be obtained either by (1) filing a NRC Form 241 [10 CFR 150.20(b)], or (2) applying for reciprocity, or (3) applying for a specific license from the NRC if the length of the job is to exceed six (6) months.
- C. This condition does not prohibit the use of radioactive materials in other states; however, before radioactive materials can be used at a temporary jobsite in another state, authorization must be obtained from the State, if it is an Agreement state, or from the Nuclear Regulatory Commission for any non-Agreement State, either by filing for reciprocity or applying for a specific license.
11. The licensee shall comply with the provisions of 15A NCAC 11 .1600 "Standards for Protection Against Radiation," and 15A NCAC 11 .1000 "Notices, Instructions, Reports and Inspections." (The North Carolina Regulations for Protection Against Radiation are contained in 15A NCAC 11.)

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**Supplementary Sheet**

**CONDITIONS (continued):**

12.
  - A. Licensed material shall only be used by Jeff Becken, Christopher Hardin, Kevin Simpson, Samson Abudu, James Alexander, Danny Zakary, Thomas Vick, Kevin Horton, Christopher Reynolds, Mark Battiste, Michael Herzog, or individuals who (1) are employees of the licensee, (2) have successfully completed a manufacturers training program for gauge users, (3) have been instructed in the licensee's routine operating and emergency procedures and (4) have been designated in writing as having completed these requirements by the Radiation Safety Officer.
  - B. Records of these designations shall be maintained for three (3) years after the company no longer employs the individual.
  - C. The licensee shall establish a method of identification and documentation of training for the persons authorized in Condition A above. This shall be made available for review by the agency at the time of either a field or home office inspection.
  - D. The Radiation Safety Officer for the activities authorized under this license shall be **Keith A. Anthony**.
13.
  - A. Each sealed source containing radioactive material shall be tested for leakage and/or contamination at intervals not to exceed six (6) months. In the absence of a certificate from the transferor indicating that a test has been made within six (6) months prior to the transfer, the sealed source shall not be put into use until tested.
  - B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the agency.
  - C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with agency regulations. A report shall be filed within five (5) days of the test with the Radioactive Materials Section, Division of Radiation Protection, Department of Environment and Natural Resources, 3825 Barrett Drive, Raleigh, NC 27609-7221, describing the equipment involved, the test results, and the corrective action taken.
  - D. Tests for leakage and /or contamination shall be performed by persons specifically authorized by the agency to perform such services.
14. The licensee may transport licensed material or deliver licensed material to a carrier for transport in accordance with the provision of Section 71.5, Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Material For Transport."
15. Sealed sources containing radioactive material shall not be opened or removed from their respective source holders by the licensee.
16. Gauges that are equipped with a sliding block which require servicing shall be cleaned and lubricated only by personnel who are authorized in the license to use the gauge and who have received training on how to remove, clean and lubricate the sliding block properly. The sliding block may be removed provided:
  - A. Personnel removing the sliding block wear appropriate personnel monitoring equipment; and
  - B. Personnel removing the sliding block stay on the opposite side of the gauge from the sliding block and use a mirror to view the removal and reinstallation of the sliding block in order to minimize exposure.
17. The radioactive source rod containing radioactive material which requires servicing may be removed from the gauge for cleaning and lubrication only in accordance with procedures contained in the gauge manual and only by persons who are authorized in the license to use the gauge and who have received training on how to remove, clean, and lubricate the source rod properly. The source rod may be removed provided:
  - A. Personnel removing the source rod wear appropriate personnel monitoring equipment;


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**Supplementary Sheet**

**CONDITIONS (continued):**

17.    B.       The source rod is removed while in an appropriate area away from other people;
- C.       After the source rod is cleaned and lubricated, a calibration check is made to confirm the source rod is in the proper location and instrument readings are normal;
- D.       Records show the location, date, and name of the person performing the cleaning, lubrication, and calibration check; and
- E.       The above records are maintained for a period of three (3) years or until the agency authorizes their disposal.
18.    The licensee shall keep records for each device authorized in this license showing which authorized user has the device, the time and date the device was removed from storage, job where device was used and the time and date the device was placed back into storage. Records of use shall be kept for two (2) years for inspection by the agency or until they have been reviewed by the agency and if the records are determined to be satisfactory, then they may be disposed of.
19.    The licensee shall conduct a physical inventory of all sealed sources received and possessed under this license at intervals not to exceed six (6) months. Records of the inventories shall be maintained for inspection by the agency and shall include the quantities and kinds of radioactive material, location of sources and the date of the inventory.
20.    In addition to the possession limits in Item 8 above, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 15A NCAC 11 .0353 for establishing decommissioning financial assurance.
21.    The licensee shall annually review its Radiation Protection Program for content and implementation [Reference 15A NCAC 11 .1603(c)]. Documentation of the Radiation Protection Program reviews shall be retained for inspection by the agency [Reference: 15A NCAC 11 .1636].
22.    The licensee shall institute the provisions of 15A NCAC 11 .1610 when an occupationally exposed woman voluntarily informs her supervisor, in writing, of the pregnancy and the estimated date of conception.
23.    The licensee shall ensure that no individual "member of the public" [Reference: 15A NCAC 11 .0104(64)] receives a radiation dose in excess of the limits specified in 15A NCAC 11 .1611(a) while conducting licensed activities.
24.    The licensee shall ensure that no occupational worker exceeds the dose limits specified in 15A NCAC .1604.
25.    Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in:
  - A.       Application with attachments dated September 7, 1999, signed by Christopher D. Hardin, President, R.S.O.
  - B.       Letter with attachments dated April 7, 2000, signed by Jeffrey K. Becken, EIT, Program Manager and Christopher D. Hardin, P.E., R.S.O.
  - C.       Letter with attachments dated July 26, 2001, signed by Christopher D. Hardin, PE, RSO.
  - D.       Application for Amendment with attachments dated October 11, 2001, signed by Keith A. Anthony, Principal.

**Date of Issuance:**        **October 16, 2001**

  
**For: Richard M. Fry, CHP**  
**Director, Division of Radiation Protection**



August 13, 2003

US Nuclear Regulatory Commission  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, GA 30303-8931

USNRC,

Shield Engineering, Inc. requests a reciprocity agreement for the Federal facility at Oak Ridge National Laboratory in Oak Ridge, Tennessee. The following are attached:

NRC Form 241  
North Carolina License (4 copies)  
Check for \$1,600

We appreciate your assistance in this matter and if there are any questions, please contact me at (704) 394-6913.

Sincerely,

**SHIELD ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read "Keith A. Anthony", is written over the typed name.

Keith A. Anthony, PE  
Principal Engineer  
Radiation Safety Officer

**Attachments**

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