

Murnahan, Colleen

From: Lawrence Jacobi [rjacobi@jacobiconsulting.net]
Sent: Tuesday, May 21, 2013 2:17 PM
To: Murnahan, Colleen; Hill, Carol
Cc: Cook, Jackie; John Turner; David Dogan; Amanda Phelps
Subject: Transfer of Control in accordance with 10 CFR 30.34(b) - License 42-29371-01
Attachments: Transfer of Control USNRC 05_20_2013-2.pdf; ATT00001.htm

Attached is a request pursuant to 10 CFR 30.34(b) to transfer control of the above referenced license from GeoScience Services USA, Inc., Transferor, to Geoinstruments Logging, LLC, Transferee. Geoinstruments Logging, LLC is purchasing all the assets of GeoScience Services USA, Inc. After the sale, Transferee will continue to do business as Geoinstruments Logging LLC. John Turner, as the Managing Member of Geoinstruments Logging, LLC, will continue as the Managing Member of the acquired company. Business will be conducted at the existing facility in Nacogdoches, Texas. The physical location of the company will not change. The new mailing address is 3801 Broadmoor Boulevard, Nacogdoches, Texas 75965.

The information required by the above mentioned rule is included in the attached application. The pertinent rules, NUREG 1556, Volume 15, Appendix F, and helpful guidance received from Jackie Cook at Region IV have been consulted and followed in the preparation of this request.

Your prompt review of this application is appreciated. If you have any questions, please contact Mr. Lawrence Jacobi at _____ or at rjacobi@jacobiconsulting.net.

Lawrence R. Jacobi, Jr., P.E., J.D.
Jacobi Consulting
10807 Bonaparte Bend
Austin, TX 78750-2801

PUBLIC

- ☐ Immediate Release
☒ Normal Release

NON-PUBLIC

- ☐ A.3 Sensitive-Security Related
☐ A.7 Sensitive Internal
☐ Other: _____

Reviewer: gpc

Date: 6/4/13

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Your prompt review of this application is appreciated. If you have any questions, please contact Mr. Lawrence Jacobi at 512-656-4765 or at rjacobi@jacobiconsulting.net.

Lawrence R. Jacobi, Jr., P.E., J.D.
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10807 Bonaparte Bend
Austin, TX 78750-2801
(512) 656-4765 cell
(512) 335-4006 fax

PUBLIC

- ☐ Immediate Release
☒ Normal Release

NON-PUBLIC

- ☐ A.3 Sensitive-Security Related
☐ A.7 Sensitive Internal
☐ Other: _____

Reviewer: JJC

Date: 6/4/13

GeoInstruments Logging, LLC.

3081 Broadmoor Blvd · Nacogdoches, Texas 75965 · Telephone (936) 559-3972 · www.geoinstrumentsinc.com

May 20, 2013

Nuclear Materials Licensing Branch
United States Nuclear Regulatory Commission, Region IV
1600 East Lamar Boulevard
Arlington, Texas 76011-4511



Re: Transfer of Control in accordance with 10 CFR 30.34(b)
License 42-29371-01

Gentlemen:

Attached is a request pursuant to 10 CFR 30.34(b) to transfer control of the above referenced license from GeoScience Services USA, Inc., Transferor, to GeoInstruments Logging, LLC, Transferee. GeoInstruments Logging, LLC is purchasing all the assets of GeoScience Services USA, Inc. After the sale, Transferee will continue to do business as GeoInstruments Logging LLC. I, as the Managing Member of GeoInstruments Logging, LLC will continue as the Managing Member of the acquired company. Business will be conducted at our existing facility in Nacogdoches, Texas. The physical location of the company will not change. The new mailing address is 3801 Broadmoor Boulevard, Nacogdoches, Texas 75965.

The information required by the above mentioned rule is appended to this transmittal letter. The pertinent rules and guidance in NUREG 1556, Volume 15, Appendix F have been consulted and followed in the preparation of this request.

Your prompt review of this amendment is appreciated. If you have any questions, please contact Mr. Lawrence Jacobi at 512-656-4765, or me at the number above.

Sincerely,

John Turner
Managing Member

LRJ/
Attachment

580872

NRC FORM 313
(03-2013)
10 CFR 30, 32, 33,
34, 35, 36, 39, and 40



U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIALS LICENSE

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 05/31/2015

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Information Services Branch (T-6 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to InfoCollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (3150-0120), 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.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW. *AMENDMENTS/RENEWALS THAT INCREASE THE SCOPE OF THE EXISTING LICENSE TO A NEW OR HIGHER FEE CATEGORY WILL REQUIRE A FEE.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

OFFICE OF FEDERAL & STATE MATERIALS AND
ENVIRONMENTAL MANAGEMENT PROGRAMS
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA,
KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY,
NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH
CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA.

SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

IF YOU ARE LOCATED IN:

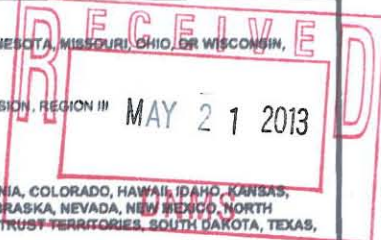
ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN,
SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
Lisle, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,
LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH
DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS,
UTAH, WASHINGTON, OR WYOMING.

SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
1800 E. LAMAR BOULEVARD
ARLINGTON, TX 76011-4511



PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

☐ A. NEW LICENSE

☒ B. AMENDMENT TO LICENSE NUMBER

42-29371-01

☐ C. RENEWAL OF LICENSE NUMBER

2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

John Turner
Geoinstruments Logging, LLC
38091 Broadmoor Blvd
Nacogdoches, TX 75965

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Material will be possessed and stored at the existing field station
at 8061 Highway 59 South, Nacogdoches, TX 75965, pursuant to
Texas RML L-06160. Licensed material will be used at
temporary job sites throughout NRC jurisdiction.

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Lawrence R. Jacobi, Jr., P.E., J.D.

BUSINESS TELEPHONE NUMBER

(512) 656-4765

BUSINESS CELLULAR TELEPHONE NUMBER

(512) 656-4765

BUSINESS EMAIL ADDRESS

rjacobi@jacobiconsulting.net

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number; b. chemical and/or physical form; and c. maximum amount
which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

**7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR
TRAINING EXPERIENCE.**

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

**12. LICENSE FEES (Fees required only for new applications, with few exceptions*)
(See 10 CFR 170 and Section 170.31)**

FEE CATEGORY

change of control

**AMOUNT
ENCLOSED \$**

0.00

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 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.

CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE

John Turner, Managing Member

SIGNATURE

DATE

5/20/2013

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
APPROVED BY				DATE	

№ 580872

USNRC Region IV

Licensee Contact: John Turner

Licensee Telephone No: (936) 559-3972

Licensee Fax No: None

Information Needed for Transfer of Control

1. Provide a complete description of the transaction (transfer of stocks or assets, or merger). Indicate whether the name has changed and include the new name. Include the name and telephone number of a licensee contact who NRC may contact if more information is needed.

Geoinstruments Logging, LLC, Transferee, will purchase all of the assets of the Transferor, GeoScience Services USA, Inc. After the sale, Transferee will continue to do business as Geoinstruments Logging LLC. John Turner, the Managing Member of the Transferee Company will continue as the Managing Member of the company. The company's new mailing address will be 3801 Broadmoor Boulevard, Nacogdoches, Texas 75965-6613. The existing telephone number (936) 559-3972 will not change.

2. Describe any changes in personnel or duties that relate to the licensed program. Include training and experience for new personnel.

There will be no changes in personnel or duties that relate to the licensed program, including training and experience of existing personnel.

3. Describe any changes in the organization, location, facilities, equipment or procedures that relate to the licensed program.

Geoinstruments Logging LLC will remain a limited liability company organized under the laws of the State of Texas. John Turner will continue to be the Managing Member of the LLC. James Turner will continue to be the Licensee's Radiation Safety Officer.

There will be no changes in the physical location, facilities, procedures or equipment that relate to the licensed program. Organizationally, following the sale, Mr. Turner, as Managing Member of Geoinstruments Logging, LLC, will no longer report to Mr. David W. Dogan, III, who is the Member of the Board of Directors of the Transferor. Mr. Turner will assume the power and authority to determine corporate policy and thus the direction of the activities under the license.

4. Describe the status of the surveillance program (surveys, wipe tests, quality control) at the present time and the expected status at the time that control is to be transferred.

The surveillance program is described in Geoinstruments Logging LLC's Operating, Safety and Emergency Procedures Manual. The Transferor and Transferee have reviewed all pertinent surveillance records and have determined they are current. The Transferor commits that they will be current at the time of transfer.

All required surveillance as described in the Manual or required by License conditions has been performed, documented, and reviewed. There are no corrective actions pending or uncompleted.

5. Confirm that all records concerning the safe and effective decommissioning of the facility will be transferred to the transferee or to NRC, as appropriate. These records include documentation of surveys of ambient radiation levels and fixed and/or removable contamination, including methods and sensitivity.

All records concerning the inventory, control, maintenance and handling of radioactive material will be maintained at the existing field station located at 8061 Highway 59 South, Nacogdoches, TX 75965, and at temporary job sites as described in the Operating, Safety and Emergency Procedures Manual. These records include documentation of surveys of ambient radiation levels, including method and sensitivity.

6. Confirm that the transferee will abide by all constraints, conditions, requirements and commitments of the transferor or that the transferee will submit a complete description of the proposed licensed program.

Transferee, Geoinstruments Logging, LLC confirms that they will abide by all constraints, conditions, requirements and commitments made to the NRC and identified in and attributed to the existing license of GeoScience Services USA, Inc., Transferor, including, but not limited to, information submitted in support of the license and the documents itemized in tie-down conditions of the license.

The Transferee confirms that it is reviewed all inspection and enforcement records and has confirmed that there are no open inspection items and/or any resulting enforcement actions pending against the Transferor.

For the Transferor:



David W. Dogan, III, Director
GeoScience Services USA, Inc.
120 North Congress Street, Suite 800
Jackson, MS 39201

State of Mississippi)
County of Hinds)

Sworn to and subscribed before me, the undersigned authority, on the 21st day of May, 2013, by David W. Dogan, III.



Amanda C. Phelps
Notary Public

For the Transferee:



John Turner, Managing Member
Geoinstruments Logging, Inc.
3801 Broadmoor Blvd
Nacogdoches, TX 75965

State of Texas
County of Nacogdoches

)(
)(

Sworn to and subscribed before me, the undersigned authority, on the 20th day of
April May, 2013, by John Turner.


Notary Public



OPERATING, SAFETY AND EMERGENCY PROCEDURES

Geoinstruments Logging, LLC
Nacogdoches, Texas

Prepared by
Lawrence R. Jacobi, Jr., P.E., J.D.
Austin, Texas

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Revision 1, March 2010
Revision 2, April 2013

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OPERATING, SAFETY AND EMERGENCY PROCEDURES

A. Management Structure and Responsibilities

Management Structure

Geoinstruments Logging, LLC is organized as a Texas limited liability company whose address is 3801 Broadmoor Boulevard, Nacogdoches, TX 75965.

Company Address and Physical Location

Logging tools are stored in a 9,900 square foot commercial building at 8061 Highway 59 South, Nacogdoches, TX 75965. The owner of the building has consented to the storage of radioactive material at that location.

Company Management

The managing member of the company is John D. Turner.

Radiation Safety Officer

The Radiation Safety Officer for the company is James L. Turner. John Turner has delegated to James L. Turner the specific authority and responsibility to implement the radiation safety program.

Logging Supervisor

James L. Turner is the Logging Supervisor. James Turner has attended the *Radiation Consultants* training course and successfully completed the course by examination. He has also completed two months of on-the-job training under the supervision of a logging supervisor and has demonstrated through a field evaluation competence in the use of sources of radiation, related handling tools, and the type of radiation survey instruments that will be used in the job assignment.

Prior to supervising the operation of any logging tool that employs a source of radiation, all logging supervisors must meet the following minimum requirements:

(A) Successfully complete a well logging radiation safety training course accepted by the Texas Department of State Health Services, or a course recognized by another agreement or licensing state, or the NRC,

(B) Review or receive instruction in the requirements of the US Nuclear Regulatory Commission set out in 10 CFR Part 39, or the Department of State Health Services rules for radiation control, including 25 TAC §289.253, and the applicable subsections of §§289.201-203 and §289.231; the conditions of the Geoinstruments Logging radioactive materials license; and the Geoinstruments Logging's operating, safety, and emergency procedures;

(C) Demonstrate understanding of the requirements by successfully completing a written examination administered by Geoinstruments Logging, or an entity specifically licensed by the US Nuclear Regulatory Commission, the Texas Department of State Health Services or another Agreement State to provide such training and examination;

(D) Complete two months of on-the-job training under the supervision of a logging supervisor; and

(E) Demonstrate through a field evaluation, competence in the use of prompt fission neutron logging tools, related handling tools, and the type of radiation survey instruments that will be used in the job assignment.

Logging Assistants

Prior to operating any logging tool, logging assistants must meet the following minimum requirements:

(A) Receive copies of and instruction in the requirements of the US Nuclear Regulatory Commission set out in 10 CFR Part 39, or where applicable, the Texas Department of State Health Services rules for radiation control, including 25 TAC §289.253, and the applicable subsections of §§289.201-203, and §289.231; the conditions of the Geoinstruments Logging radioactive materials license; and the Geoinstruments Logging's operating, safety, and emergency procedures, as appropriate;

(B) Successfully complete a written examination administered by the logging supervisor or radiation safety officer; and

(C) Demonstrate competence to use, under the personal supervision of the logging supervisor, prompt fission neutron logging tools, related handling tools, and radiation survey instruments that will be used in the job assignment.

B. Radiation Protection Organization and Responsibilities

The Radiation Safety Officer for the company is James Turner. Mr. Turner reports directly to the Managing Member of the company, John Turner. James Turner has complete authority and independence to implement the radiation safety program and to stop work for any cause.

The radiation protection organization is illustrated below.

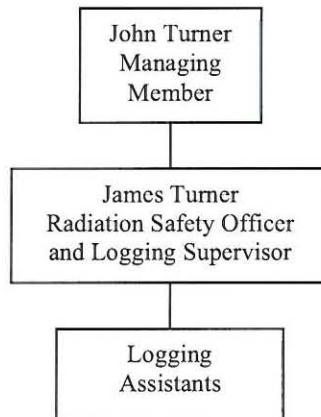


Figure 1 – Radiation Protection Organization

C. Radiation Safety Officer's Duties

James L. Turner's duties include, but are not limited to, the following:

- Establishing and overseeing operating, safety, and emergency, and as low as reasonably achievable (ALARA) procedures, and to review them regularly to ensure that the procedures are current and conform with requirements of 10 CFR §39.63 or, where applicable, 25 TAC §289.253;
- Overseeing and approving all phases of the training program for well logging service operations personnel so that appropriate and effective radiation protection practices are taught;
- Ensuring that required radiation surveys are performed and documented in accordance with 10 CFR §39.67, or where applicable, 25 TAC §289.253(aa), including any corrective measures when levels of radiation exceed established limits;
- Ensuring that personnel monitoring is used properly by occupationally exposed personnel, that records are kept of the monitoring results, and that timely notifications are made as required by 10 CFR §39.65, or where applicable, 25 TAC §289.203;
- Investigating and reporting to the agency each known or suspected case of radiation exposure to an individual or radiation level detected in excess of limits established by 10 CFR Part 20, Subpart C, or where applicable, 25 TAC §289.202, and each theft or loss of sources of radiation, to determine the cause, and to take steps to prevent its recurrence;
- Having a thorough knowledge of management policies and administrative procedures of Geoinstruments Logging LLC;

- Assuming control and having the authority to institute corrective actions including shutdown of operations when necessary in emergency situations or unsafe conditions;
- Maintaining records as required by 10 CFR §§39.73-75, or where applicable, 25 TAC §289.253(dd)(5);
- Ensuring the proper storing, labeling, transport, and use of sources of radiation, storage, and/or transport containers;
- Ensuring that inventories are performed in accordance with 10 CFR §39.37, or where applicable, 25 TAC §289.253(j);
- Ensuring that personnel are complying with this chapter, the conditions of the license or the registration, and the operating, safety, and emergency procedures of the licensee or registrant; and
- Serving as the primary contact with the agency.

D. Personnel Monitoring

All personnel operating the logging tools, including the logging supervisor and all logging assistants, are required to wear personnel dosimeters.

Dosimeters are optically stimulated dosimeters such as the Landauer Luxel® dosimeter, or equivalent, incorporating the Neutrak® 144 neutron detector. The dosimeter provider is NVLAP-approved.

The minimum dosimeter detection efficiency for gamma radiation shall be 10 μ Sv (1 mrem).

Each individual dosimeter shall be assigned to and worn by only one individual. Only the designated person shall wear each dosimeter. Dosimeters may not be shared or worn by another person for any reason.

Dosimeters must be worn on the trunk of the body, preferably at or near the waist.

Dosimeters shall not be intentionally exposed to radiation. Intentional tampering with dosimeters is a very serious matter.

Dosimeters shall not be worn during medical x-ray procedures or other medical radiation treatment. Assigned dosimeters are intended to document occupational dose, not medical dose.

Dosimeters should not be left in hot locations, such as on the dash of a car or near a stove or heater, or immersed in liquids because this could cause the dosimeter to record false positives.

If a dosimeter is lost or damaged, contact the radiation safety office immediately. Do not discard a dosimeter even if it is substantially damaged.

Dosimeters are exchanged quarterly by the radiation safety officer, who will return them to the laboratory for processing as soon as practicable, but not more than 14 days after exchange.

Personnel monitoring records are maintained as specified in Section L of these procedures.

E. Labeling Logging Tools and Containers

Each transport container bears a durable, legible, and clearly visible label that has the standard radiation caution symbol and the wording CAUTION, RADIOACTIVE -- DO NOT HANDLE. NOTIFY CIVIL AUTHORITIES.

F. Posting and Access Control

The facility storage bunker will be posted "CAUTION, RADIOACTIVE MATERIALS" as required by 10 CFR §20.1902, or where applicable, 25 TAC §202(aa)(5). In addition, the building exterior doors will be locked. Only the company principals, John Turner and Jim Turner, or trusted individuals personally known to the principals, will have keys to the facility. In addition, logging tools will be stored on the logging trucks and locked in place when not in use.

Posting the restricted area is not required if radiation-producing machines are employed for less than 8 hours. Therefore, the following access control procedure will be followed at temporary job locations:

When setting up over a well bore, the radiation safety officer or logging supervisor will ascertain the area around the logging tool where radiation exposure might exceed 0.02 mSv per hour (2 mrem per hour) during logging operations, and will delineate that area as a "Restricted Area."

While a logging tool is set up over a well, the logging tools will constantly attended by the radiation safety officer or the logging supervisor who will control access to the restricted area, and will take the precautions necessary to prevent the exposure of individuals to radiation in excess of 0.02 mSv per hour (2 mrem per hour).

G. Handling Procedures

Operating the Logging Tool

The PFN tool can, when properly activated, electronically generate neutrons for neutron activation and assay of uranium. The following safety features have been implemented to reduce the likelihood of radiation exposure:

The main 400 Hz power supply must be switched on and also switched from the standby position to the enabled position. This will apply power to the tool, but cannot cause the tool to generate neutrons unless anode power is also on.

The logging software that controls the tool must be launched and running properly. The software must be communicating with the PFN tool so that it can command the tool to generate neutrons. The tool will not produce neutrons unless it continuously receives commands from the logging software to do so and will automatically cease production if communication with the logging software fails.

The software doesn't automatically command the tool to produce neutrons – it only sends the command if the operator clicks the command button AND the depth measurement system is reporting the top of the tool is at least 10 feet below the surface.

Neutron production requires a DC voltage from a second power supply at the surface. This power supply must be turned on by the operator and the DC voltage increased to a level that would cause the tool to produce neutrons provided the above conditions have been established.

In summary, to produce neutrons all of the following must occur simultaneously:

1. Main power must be applied.
2. The logging software must be running properly and communicating with the tool.
3. The top of the tool must be at least 10 feet below ground level.
4. The operator must have instructed the software to send the command to produce neutrons.
5. The assay voltage from the surface power supply must be on and set to the level required for neutron production.

Operation Aboveground for Maintenance Purposes

Above-ground testing of the logging tools that results in the production of radiation may only be conducted in areas or facilities controlled or shielded to reduce the total dose in any unrestricted area to less than .02 mSv per hour (2 mrem per hour).

Source Security

Logging tools in storage shall be secured to prevent tampering or removal by unauthorized individuals.

When in the shop, the tools will be stored in the locked building. When at temporary job sites the tool(s) will be stored in the truck.

The logging tools may be secured in two types of logging trucks. One type of logging truck is a Ford utility van. In this van, the tool(s) will be stored inside the locked vehicle. The other logging truck is an F-450 cab and chassis with a custom 11' instrument box. In this truck, the tool(s) will be stored in a locked compartment under the floor and above the frame rails.

The logging tools may not be stored in residential locations unless the logging tools are safely secured in a vehicle while in transit for use at temporary job sites.

A logging supervisor must always be physically present at a temporary jobsite whenever the logging tool is being handled or is not stored and locked in a vehicle or storage place. The logging supervisor may leave the jobsite in order to obtain assistance if a device becomes lodged in a well.

During well logging, except when the logging tools are below ground or in shipping or storage containers, the logging supervisor or another qualified individual designated by the logging supervisor will maintain direct surveillance of the operation to prevent unauthorized entry into a restricted area, as defined in Section E of this manual.

Quarterly Inventory

A physical inventory of all logging tools is conducted at intervals not to exceed three months. Inventory records include the following:

- (1) The number of logging tools;
- (2) The location where logging tools are assigned;
- (3) A unique identification of each logging tool;
- (4) The date of the inventory; and
- (5) The name of the individual conducting the inventory.

H. Transportation Procedures

Transport containers will be locked and physically secured to the transporting vehicle to prevent shifting during transport, accidental loss, tampering, or unauthorized removal of logging tools.

I. Radiation Surveys

Receipt Surveys

Upon receipt of the PFN well logging tool, a visual inspection shall be conducted to ascertain that the tool was not damaged in transit.

Job Site Survey Procedure

When a PFN logging tool is deployed at a job site, a functioning survey instrument will be available and operable at all times. In the event that a survey instrument is not available or determined to be inoperable, logging operations shall cease until an operable survey instrument has been secured.

Any time a logging tool is connected to the power supply and is configured in such a manner that it may produce neutron radiation (as described in Section G), a survey instrument will be on and visually monitored or set to alarm mode.

PFN logging tools are interlocked such that they will cut off if raised from a depth nominally ten feet below the top of the well. However, the aluminum housing and the

neutron accelerator tube will emit short-lived radiation from activation products after a logging run. Therefore, appropriate care should be taken when handling the tool after withdrawal from the well.

J. Contamination Control

There are little or no concerns about contamination from these logging tools because the small quantity of Tritium gas is sealed within the logging tool which is then sealed with a one-quarter inch aluminum tool barrel.

K. Emergency Procedures

In the event of an emergency, the radiation safety officer should be notified immediately. Personnel shall take immediate action to secure the area and to minimize radiation exposure.

Responder	Phone Number	Emergency Number
James Turner	936-371-3804	936-371-3804
Texas Department of State Health Services	512-834-6688	512-458-7460
US Nuclear Regulatory Commission Region IV	817-860-8100	301-816-5100

Lost or Stolen Logging Tools

In the event that a logging tool is lost or stolen, the radiation safety officer must be contacted immediately. A concerted effort will be made to find or retrieve the logging tool. Should the tool not be recovered, local law enforcement will be contacted and the Regional Office of the US Nuclear Regulatory Commission will be notified in accordance with 10 CFR §39.77. If the incident occurs while operating in Texas, the Texas Department of State Health Services will be notified in accordance with 25 TAC §289.202(w).

Overexposure

If an overexposure is suspected, the radiation safety officer must be contacted immediately. The radiation safety officer will determine or validate the potential for an overexposure and will take corrective action, including immediate medical attention, if warranted. Overexposures will be reported to the US Nuclear Regulatory Commission in accordance with 10 CFR §20.2203. If the overexposure occurs while operating in Texas,

the Texas Department of State Health Services shall be notified, as required by 25 TAC §289.202(yy).

Logging Tool Lost Downhole

In the event that a tool is stuck or lost downhole, the radiation safety officer and logging supervisor will be notified immediately. If the tool must be abandoned, the US Nuclear Regulatory Commission will be notified in accordance with 10 CFR §39.77. If the loss or abandonment occurs in Texas, the Texas Department of State Health Services will be notified, as required by 25 TAC §289.253(cc).

Ruptured Tube

In the event that the neutron accelerator tube is ruptured, the Radiation Safety Officer shall be notified immediately. If it is determined that there is any potential for exposure to the Tritium (H-3) target, the tube shall be double-bagged and returned to the manufacturer for repair or disposal. Each person who might be potentially exposed during the incident shall be monitored by urine bioassay for Tritium exposure.

L. Records Management

The following records shall be maintained at the field station (headquarters):

Record	Retention Period
Agreement with well operator, owner drilling contractor or land owner	5 years following completion of the well logging service operation
Survey Instrument Calibration	3 years
Quarterly Inventory	3 years
Utilization Record (Record of Material Use)	3 years
Certification Records	3 years
Inspection and Maintenance	3 years
Training and Testing	3 years after employee terminates employment
Current Operating, Safety and Emergency Procedures	Until termination of license
Personnel Monitoring	Until disposal is authorized by the agency
Radiation Surveys	3 years after completion of the survey
Current NRC and Texas Licenses	Until termination of license
Receipt, Transfer or Disposal	Until disposal is authorized by the agency
Current copy of the following Rules and Regulations: 10 CFR §§19, 20 and 39 25 TAC §§289.201-203, §289.231 and §299.253	Until termination of license

The following records must be maintained at each temporary job site:

Record	Retention Period
Current Operating, Safety and Emergency Procedures	Until the logging operation is completed
Current copy of any relevant Agreement State licenses	Until the logging operation is completed
Latest Radiation Survey Records	Until the logging operation is completed
Latest Survey Instrument Calibration	Until the logging operation is completed
Shipping Papers (if necessary)	Until the logging operation is completed

Utilization records

Utilization records will be maintained and will include the following information:

- A. The make and model number and/or serial number (or if absent, a description) of each PFN tool; or
- B. The identity of the logging supervisor or individual who is responsible for receiving sources of radiation, to whom assigned; and
- C. The locations where used and dates of use.

M. Equipment Maintenance and Inspection

Description of the Logging Tool

A prompt fission neutron-logging tool is 2.75 inches in diameter and approximately 10 feet long. It is comprised of various electronic assemblies and a neutron generator assembly. The neutron generator assembly is a stainless steel tube approximately 30 inches long and 2 inches in diameter and contains the neutron generator tube (Thermo-MF Physics Model A-3062) and high voltage circuits. The generator is completely sealed.

The generator assembly and all electronics components are sealed in the tool barrel which is an aluminum tube with a 1/4" thick wall.

Inspection

A visual inspection of the following shall be conducted each 6-month period to assure proper labeling and physical condition:

- Logging tools
- Logging tool electronics
- Storage bunkers
- Transport containers

During each day of use, a visual inspection or test of the following shall be conducted and recorded to assure that the equipment is in good working condition and is properly labeled:

- Logging tool
- Logging tool handling equipment
- Logging electronics

If any inspection reveals damage to labeling or components critical to radiation safety, the logging tool will be removed from service at the time the damage is discovered and until repairs have been made.

Records of inspection and maintenance will be made and maintained accordance with section L of these procedures.

Maintenance

Prompt fission logging tools are sealed units and should be returned to the manufacturer for maintenance.

N. Radiation Detection Instrumentation

Each logging truck is equipped with a Ludlum model 3 survey meter with a model 44-6 NaI detector. The range on these instruments is 0 to 200 mR per hour.

Radiation Consultants, Inc. or an equivalent service licensed by the Texas Department of State Health Services, calibrates these instruments every six months to within +/- 20% of the true radiation level. Instruments must also be re-calibrated when major maintenance or repairs have been performed.

O. Leak Testing

There is no requirement to leak test neutron generators contained in PFN logging tools.

P. Reporting Defects and Non-compliances

Identifying Defects and Non-compliances

If a defect or noncompliance in a device or an activity that results or could result in a substantial safety hazard is identified, the Radiation Safety Officer shall be notified immediately. For this section, a substantial safety hazard is defined as the unintended or unexpected exposure or potential exposure of any person to high energy neutrons exceeding the limits set out in 10 CFR 20, Subparts C or D, during operation of the logging tool.

Reporting Responsibility

Upon notification and verification of a defect or non-compliance that results or could result in a substantial safety hazard, the Radiation Safety Officer shall notify the US Nuclear Regulatory Commission as required by 10 CFR §21.21.

Records

Records of defects or non-compliances shall be maintained as required by 10 CFR §21.51.

Q. Radiation Detection Instrumentation

Each logging truck is equipped with a Ludlum model 3 survey meter with a model 44-6 NaI detector, or equivalent. The range on these instruments is 0 to 200 mR per hour.

Radiation Consultants, Inc., or an equivalent service licensed by the Texas Department of State Health Services, calibrates these instruments every six months to within +/- 20% of the true radiation level. Instruments are also re-calibrated when major maintenance or repairs have been performed.

R. Training and Experience

Orientation Training

Prospective employees must possess a high school diploma or a GED, and have passed a drug test prior to being hired. Once hired, all new employees must have the following minimum training in the fundamentals of radiation safety that include:

- Characteristics of radiation;
- Units of radiation dose (rem) and activity;
- Significance of radiation dose specifying radiation protection standards and biological effects of radiation;
- Levels of radiation from sources of radiation;
- Methods of controlling radiation dose specifying time, distance, and shielding;
- Radiation safety practices, specifying prevention of contamination and methods of decontamination; and
- Discussion of ingestion, inhalation pathways.
- Radiation detection instrumentation to be used that includes:
 - Use of radiation survey instruments specifying operation, calibration, and limitations;
 - Survey techniques; and
 - Use of individual monitoring devices;
- Equipment to be used that specifies;
- Handling equipment and remote handling tools;
- Sources of radiation;
- Storage control, disposal, and transport of equipment and sources of radiation;
- Operation and control of equipment; and
- Maintenance of equipment.
- Pertinent federal and state requirements;
- Written operating, safety, and emergency procedures;
- Record-keeping procedures; and
- Case histories and potential consequences of accidents in well logging service operations.

Field Testing and Training

Upon completion of orientation training, new employees will be required to demonstrate by their knowledge and ability to perform logging activities and related tasks in compliance with the operating and emergency procedures and regulatory requirements.

Logging Assistants

Individuals who will assist in logging work but are not classified as logging supervisors, must be under the direct supervision of a logging supervisor at all times while they are handling or assisting in the handling of logging tools. These individuals are required to read or receive instruction in the operating and emergency procedures and must demonstrate that they understand them.

For an individual without previous training and experience to be designated as a logging assistant, the following training and evaluation must be conducted:

- A. Instruction in the applicable rules of the Texas Department of State Health Services and the licensee's operating and emergency procedures.
- B. Demonstration of understanding of applicable rules and operating and emergency procedures by successfully completing a written examination.
- C. Demonstration of competence to use sources of radiation and related equipment.

Logging Supervisors

For an individual to be designated as a logging supervisor, the individual must have successfully completed the following training and experience:

- A. Classroom instruction in the topics in the rules of the US Nuclear Regulatory Commission or the Texas Department of State Health Services
- B. A minimum of two months of on-the-job training as a logging assistant.
- C. Pass a field examination given at the end of on-the-job training to assure that the individual is competent to perform all radiographic operations.

Previously Trained Logging Supervisors and Assistants

For an individual who has been a logging supervisor for another licensee, the individual will receive formal initial orientation instruction and testing similar to that given to a prospective logging assistant, including instruction in the operating and emergency procedures, the license conditions and the use of the well logging equipment.

Periodic and On the Job Training

In addition to the radiation safety training required above, all personnel must undergo annual refresher training followed by a written examination. The radiation safety officer will conduct annual refresher training.

Periodic refresher training will be conducted at least annually. Periodic training will include a review of radiation safety principles, US Nuclear Regulatory Commission and Texas rules and regulations, GeoInstruments Logging's procedures, company policies on radiation safety practices and a discussion of any new regulatory requirements. Records containing the names of the attendees, subject matter, instructor and date will be maintained for this training.

S. Waste Disposal

Logging tools will be returned to the manufacturer for disposal.

BETWEEN:

Accounts Receivable/Payable
and
Regional Licensing Branches

[FOR ARPB USE]
INFORMATION FROM WBL

Program Code: 03111
Status Code: Pending Amendment
Fee Category: 5A
Exp. Date: 05/31/2020
Fee Comments:
Decom Fin Assur Req: N

License Fee Worksheet - License Fee Transmittal

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: GEOINSTRUMENTS LOGGING, LLC
Received Date: 05/21/2013
Docket Number: 3038202
Mail Control Number: 580872
License Number: 42-29371-01
Action Type: Amendment

2. FEE ATTACHED

Amount: _____

Check No.: _____

3. COMMENTS

Signed: _____

Colleen Murnaghan

Date: _____

5-21-13

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered / /)

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:

Amendment: _____

Renewal: _____

License: _____

3. OTHER _____

Signed: _____

Date: _____