United States Department of the Interior

BUREAU OF RECLAMATION
PO Box 25007
Denver, Colorado 80225-0007

IN REPLY REFER TO:

TAKE PRIDE IN AMERICA

86-68330
SAF-1.10

JUL 12 2007

Mr. Jim Montgomery
Nuclear Materials Licensing Section
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-4005

Subject: Application for Material License

Dear Mr. Montgomery:

Enclosed is a copy of NUREG1556, Vol. 14, Appendix C. This is in response to your telephone request in reference to an application for renewal of license No. 05-02678-05.

If more information is needed or if you have questions, please contact me at the above address, attention: Mr. Jerry Wright, 86-68330, 303-445-3161.

Sincerely,

Jerry W. Wright, Manager
Seismotectonics and Geophysics Group

Enclosure

471378

Suggested Format for Providing Information Requested in Items 5 through 11 of NRC Form 313

Item No.	Title and Criteria	Use Table Below	Description Attached
5	**RADIOACTIVE MATERIAL** **Sealed Sources and Devices**		
	Identify each radionuclide that will be used in sealed sources	[X]	[ ]
	Identify each radionuclide that will be used in energy compensation sources	N/A	[ ]
	Identify each radionuclide that will be used as tracer materials in single wells	N/A	[ ]
	Identify each radionuclide that will be used as tracer materials in field flood studies in multiple wells	N/A	[ ]
	Identify any depleted uranium that is used as shielding material or sinker bars.	N/A	[ ]

Well Logging Sealed Sources

Radioisotope	Manufacturer/Model No.	Quantity
Americium241	Gamma Ind. NB-HP Amersham AMN.CR4	Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.
Cesium 137	Gamma Ind. VD-HP Amersham CDC.CR8	Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.
		Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.

Neutron Generators

Radioisotope	Manufacturer/Model No.	Quantity
N/A		

Electronic Compensation Sources

Radioisotope	Manufacturer/Model No.	Quantity
N/A		Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.
		Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.

Tracer Materials

Radioisotope	Chemical or Physical Form			Millicuries Per Injection	Total Quantity Requested
N/A	[ ] Gas	[ ] Liquid	[ ] Labeled Frac Sands		
	[ ] Gas	[ ] Liquid	[ ] Labeled Frac Sands		
	[ ] Gas	[ ] Liquid	[ ] Labeled Frac Sands		

Depleted Uranium

Radioisotope	Manufacturer/Model No.	Kilograms Requested
Depleted Uranium (DU)	N/A	

Sealed Sources Not Used in Well Logging Operations

Radioisotope	Manufacturer/Model No.	Quantity
	N/A	Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.
		Not to exceed the maximum activity per source as specified in the Sealed Source and Device Registration Sheet.

Commitment:	Yes	N/A
Confirm that each sealed source used in above ground devices is registered as an approved sealed source or device by NRC or an Agreement State and will be possessed and used in accordance with the conditions specified in the registration certificate.	[ ]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
	RADIOACTIVE MATERIAL			
	Financial Assurance and Record Keeping for Decommissioning			
	Pursuant to 10 CFR 30.35(g), we shall maintain drawings and records important to decommissioning and transfer these records to a new licensee before licensed activities are transferred, or assign the records to the appropriate NRC Regional Office before the license is terminated.	[✓]	[ ]	
	OR			
	If financial assurance is required, submit evidence.	[ ]	[ ]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
6	**PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED**			
	Oil and Gas Well Logging.	[ ]	[ ]	
	Mineral Well Logging.	[ ]	[ ]	
	Geophysical Well Logging.	[✓]	[ ]	
	Tracer Studies in Single Wells.	[ ]	[ ]	
	Field Flood or Enhanced Recovery Studies in Multiple Wells.	[ ]	[ ]	
	OR			
	Specify the purposes for which the sources and device(s) will be used other than those included in the manufacturer's recommendations, and as specified on the SSD Registration Certificate.			[ ]
	AND			
	We plan to perform in ***fresh water*** aquifers:			
	– Tracer Studies	[ ]	[ ]	
	Well logging using sealed sources	[✓]	[ ]	
	– Well logging using neutron generator.	[ ]	[ ]	

Item No.	Title and Criteria	Yes	N/A	Description Attached
7	**INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE**			
	Radiation Safety Officer (RSO)			
	The name of the proposed RSO and other individuals who will be responsible for the radiation protection program. Name: Jeeer Wright	[ ]		
	Demonstrate that the RSO has sufficient independence and direct communication with responsible management officials by providing a copy of an organizational chart by position, demonstrating day-to-day oversight of the radiation safety activities			[✓]
	AND EITHER			
	The specific training and experience of the RSO			[✓]
	OR			
	Alternative information demonstrating that the proposed RSO is qualified by training and experience, e.g., listed by name as an authorized user or the RSO on an NRC or Agreement State license that requires a radiation safety program of comparable size and scope.		[ ]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
8	**TRAINING FOR LOGGING SUPERVISORS AND LOGGING ASSISTANTS**			
	Submit an outline of the training to be given to prospective logging supervisors and logging assistants.			[ ]
	Submit your procedures for experienced logging supervisors who have worked for another licensee.			[ ]
	Provide a copy of a typical examination and the correct answers to the examination questions. State the passing grade %.			[ ]
	Specify the qualifications of your instructors.	[ ]	[✓]	[ ]
	If training will be conducted by someone outside the applicant's organization, identify the course by title and provide the name and address of the company providing the training.			[ ]
	Describe the field (practical) examination that will be given to prospective logging supervisors and logging assistants.			[ ]
	Describe the annual refresher training program, including topics to be covered and how the training will be conducted.			[ ]
	Submit a description of your program for inspecting the job performance of each well logging supervisor or logging assistant at intervals not to exceed 12 months, as described in 10 CFR 39.13.			

Item No.	Title and Criteria	Yes	N/A	Description Attached
9	FACILITIES AND EQUIPMENT			
	Submit a drawing or sketch of the proposed facility, identifying areas where radioactive materials, including radioactive wastes, will be used or stored.		[ ]	[✓]
	Drawings should show, where applicable, adjacent buildings, boundary lines, security fences, and lockable storage areas.		[ ]	[✓]
	Illustrate area(s) where explosive, flammable, or other hazardous materials may be stored.		[✓]	[ ]
	Drawings should also show the relationship and distance between restricted areas and adjacent unrestricted areas.		[ ]	[✓]
	Drawings should specify shielding materials (concrete, lead, etc.) and means for securing radioactive materials from unauthorized removal.		[ ]	[✓]
	Submit a drawing or sketch of the proposed tracer material storage facilities, including rooms, buildings, below ground bunker storage areas, or containers used for storage of both tracer and tracer waste materials, if appropriate. Specify the types and amount of shielding materials (concrete, lead, etc.) and means for securing tracer materials from unauthorized removal.		[✓]	[ ]
	Describe protective clothing (such as rubber gloves, coveralls, respirators, and face shields), auxiliary shielding, absorbent materials, injection equipment, secondary containers for waste water storage for decontamination purposes, plastic bags for storing contaminated items, etc. that will be available at well sites when using tracer materials.		[✓]	[ ]
	Describe proposed laundry facilities, if applicable, used for contaminated protective clothing. Specify how the contaminated waste water from the laundry machines or sinks is disposed. Operating and emergency procedures should address decontamination of the laundry area and equipment.		[✓]	[ ]
	Describe proposed decontamination facilities for trucks, tracer injection tools, or other equipment contaminated by tracer materials, if applicable. Specify how the contaminated waste water for these decontamination facilities is disposed. Operating and emergency procedures should address decontamination of these types of equipment and facilities.		[✓]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
9	FACILITIES AND EQUIPMENT *(Cont'd)* Describe, if applicable, equipment for "repackaging" gaseous, volatile, or finely divided tracer material. Most tracer users do not repackage materials and acquire their injections in precalibrated amounts or "ready to use" forms. However, should an applicant request the ability to repackage tracer, volatile, or finely divided material, the following equipment should be considered when repackaging tracer materials: sinks, trays with absorbent material, glove boxes, fume hoods with charcoal filtration, filtered exhaust, special handling equipment including special tools, rubber gloves, etc.		[✓]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	RADIATION SAFETY PROGRAM The applicant is required to establish and submit its radiation protection program. The format use for providing information should be developed by the applicant. No specific format is required by NRC for submitting a radiation safety program.			[✓]
	Radiation Safety Program Audit: The applicant is *not* required to, and should not, submit its audit program to the NRC for review during the licensing phase.	Need Not Be Submitted With Application		
	Well Owner Operator/Agreement			[✓]
	Instruments A description of the instrumentation (as described above) that will be used to perform required surveys. **OR**			[✓]
	We will use instruments that meet the radiation monitoring instrument specifications published in Appendix N to NUREG-1556, Vol. 14, 'Program-Specific Guidance About Well Logging, Tracer and Field Flood Studies,' dated May 2000. **AND**	[ ]		
	We will implement the model survey meter calibration program published in Appendix N to NUREG-1556, Vol. 14, 'Program-Specific Guidance About Well Logging, Tracer and Field Flood Studies,' dated May 2000. We reserve the right to upgrade our survey instruments as necessary. **OR**	[✓]	[ ]	
	A description of alternative equipment and/or procedures for ensuring that appropriate radiation monitoring equipment will be used during licensed activities and that proper calibration and calibration frequency of survey equipment will be performed. Further, the statement "We reserve the right to upgrade our survey instruments as necessary" should be added to the response.		[ ]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Material Receipt and Accountability			
	Physical inventories will be conducted and documented at intervals not to exceed six months, to account for all byproduct materials (sealed sources and tracer materials) and devices containing depleted uranium received and possessed under the license.	[✓]		
	Occupational Dosimetry			
	Film badge, TLD, or OSL dosimeter will be processed and evaluated by a NVLAP-accredited entity, exchanged at the approved frequency, and worn by well logging supervisors and logging assistants.	[✓]	[ ]	
	AND/OR			
	Individual logging supervisors and logging assistants using more than 50 millicuries of iodine-131 at any one time or in any 5-day period will be provided a bioassay.	[ ]	[ ]	
	Bioassay plan attached.			[ ]
	Individual logging supervisors and logging assistants will not use more than 50 millicuries of iodine-131 at any one time or in any 5-day period at field stations or at temporary job sites.	[ ]	[ ]	
	We will contract with an outside group for bioassay services.	[ ]	[ ]	
	Each vendor is licensed or otherwise authorized by NRC or an Agreement State to provide required bioassay services.	[ ]	[ ]	
	Public Dose	Need Not Be Submitted With Application		
	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 inspected during an inspection.			

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	RADIATION SAFETY PROGRAM *(Cont'd)*			
	Leak Tests			
	Leak tests, when required by the license, will be performed at intervals approved by the NRC or an Agreement State and specified in the Sealed Source and Device Registration Sheet. Leak tests will be performed either by an organization authorized by NRC or an Agreement State to provide leak testing services to other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the kit supplier's instructions.	[✓]		
	Leak testing and analysis will be done by the applicant, and the information in Appendix R supporting a request to perform leak testing and sample analysis is attached.	[ ]		[ ]
	We will follow alternate procedures, and our specific procedures are enclosed for review.	[ ]	[ ]	[ ]
	Daily Maintenance			
	A description of procedure(s) for conducting daily visual inspection is submitted.			[✓]
	OR			
	Visual daily inspections will be conducted and records maintained in accordance with Section 8.10.9.1 of NUREG-1556, Vol. 14 to ensure that well logging equipment is in good working condition and that required labeling is present.	[ ]	[ ]	

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Semi-Annual Maintenance			
	Procedure(s) for conducting semi-annual inspections and routine maintenance of source holders, logging tools, injection tools, source handling tools, storage containers, transport containers, and uranium sinker bars to ensure that the labeling required by 10 CFR Part 39 is legible and that no physical damage is visible, is attached.			[✓]
	OR			
	Semi-annual inspections and routine maintenance will be conducted and records maintained for source holders, logging tools, injection tools, source handling tools, storage containers, transport containers, and uranium sinker bars in accordance with Section 8.10.9.2 of NUREG 1556, Vol. 14, to ensure that well logging equipment is in good working condition with no physical damage evident and that the required labeling is present.	[ ]	[ ]	
	Maintenance Requiring Special Authorization			
	Prohibited activities described in Section 8.10.9.3 of NUREG-1556, Vol. 14 will not be conducted unless approved by the NRC.	[ ]	[ ]	
	OR			
	Detailed procedures for any prohibited activities, including radiation safety precautions that individuals will be expected to follow when performing these tasks and the minimum qualifications of these individuals, are attached. Each different task must is. Should a procedure require the removal of the sealed source from the holder before performing any maintenance on the holder, applicants should describe the removal procedures.		[ ]	[✓]
	Transportation	No Response is Necessary for this Section		
	No response is needed from applicants during the licensing phase. Transportation issues are reviewed during inspections.			

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*	No Response is Necessary for this Section		
	Minimization of Contamination			
	The applicant does not need to provide a response to this item under the following conditions, and NRC will consider that the above criteria have been met if the applicant's responses meet the criteria in the following sections: "Facilities and Equipment," "Radiation Safety Program - Tracer Studies," "Radiation Safety Program - Operating and Emergency Procedures," and "Radiation Safety Program - Waste Management."			
	AND			
	Major decontamination procedures *will not be performed*. Decontamination of the facilities or sealed sources require special authorization from the NRC or an Agreement State.	[✓]	[ ]	
	OR			
	Major decontamination procedures *will be performed*, and procedures to perform major decontamination activities are provided. Applicants should submit their procedures to perform major decontamination activities if they intend to perform the activity rather than contracting the work to a licensed entity.	[ ]	[ ]	[ ]
	Drill-to-stop			
	Operating and emergency procedures for conducting DTS well logging operations submitted.	[✓]	[ ]	[✓]
	OR			
	A summary addressing important radiation safety aspects of its O&E Procedures when conducting DTS submitted.	[ ]	[ ]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Measurement While Drilling or Logging While Drilling			
	Operating and emergency procedures for conducting MWD and/or LWD well logging operations submitted.	[ ]	[X]	[ ]
	OR			
	Summary that addresses important radiation safety aspects of Operating and Emergency Procedures when conducting MWD and/or LWD well logging operations submitted.			[ ]
	Energy Compensation Sources			
	Operating and emergency procedures for using ECDs submitted.	[ ]	[X]	[ ]
	OR			
	A summary or outline addressing important radiation safety aspects of operating and emergency procedures when using or handling ECSs submitted.	[ ]	[X]	[ ]
	- Instructions for testing ECSs requiring leak tests at intervals not to exceed 3 years	[ ]		
	- Instructions for conducting physical inventories of ECSs at least every 6 months	[ ]		
	- A record system for maintaining inventory records required by 10 CFR 39.37	[ ]		
	- A record system for maintaining records of use for ECSs.	[ ]		
	Use of Sealed Sources or Neutron Generators in Fresh Water Aquifers	No response is required from the licensee unless it requests authorization for the prohibited activity.		
	Tracer Studies in Single Well Applications	No response required to this section provided that the elements listed in 8.10.13.1 are contained in other sections.		

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Field Flood and Secondary Recovery Applications (Tracer Studies in Multiple Wells)			
	We will be using tracer materials in conducting field flood studies in multiple wells.	[ ]		
	We will not conduct field flood studies.	[ ]		
	OR			
	We have submitted the information outlined in Appendix F for conducting field flood studies.	[ ]	[X]	[ ]
	Tracer Studies in Fresh Water Aquifers			
	We will not knowingly inject tracer material into a fresh water aquifer.	[ ]		
	OR			
	Applicants requesting authorization to inject licensed radioactive material into a fresh aquifer must provide their reasons for performing the study and procedures to protect their workers and the public. Licensees must also provide the information required for an environmental assessment. Authorization to conduct such activities requires that applicants provide procedures to safeguard the public, licensee personnel, and the environment, in addition to providing an environmental impact study.	[ ]	[X]	[ ]

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Radioactive Collar and Subsidence or Depth Control Markers			
	We will only use radioactive markers where each individual marker contains only quantities of licensed material not exceeding the exempt quantities authorized in 10 CFR 30.71, Schedule B, as described in Section 8.10.14 of NUREG-1556, Vol. 14.	[ ]	[✓]	
	OR			
	Procedures for using radioactive markers that are in excess of the quantities in Section 8.10.14 of NUREG-1556, Vol.14. are submitted for review.		[✓]	[ ]
	Neutron Accelerators Using Licensed Material			
	We will not use neutron generators (accelerators) in our well logging operations.	[ ]		
	OR			
	We will use neutron generators (accelerators) in accordance with the criteria in Section 8.10.15 of NUREG-1556, Vol. 14.	[ ]		

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Depleted Uranium Sinker Bars			
	Depleted uranium sinker bars will be obtained under the provisions of a general license, per 10 CFR 40.51, and registration form NRC Form 244 will be filed, as required.	[ ]	[✓]	
	OR			
	Depleted uranium sinker bars will not be obtained under the provision of a general license per 10 CFR 40.51 (general license).	[ ]	[✓]	
	AND			
	Uranium sinker bars will be possessed and inspected as specified in Section 8.10.16 of NUREG-1556, Vol. 14.	[ ]	[✓]	
	AND			
	We have specified the number of kilograms of specifically licensed source material (DU) that should be included in the license.	[ ]	[✓]	

Item No.	Title and Criteria	Yes	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** *(Cont'd)*			
	Waste Management			
	• We will use the model waste procedures published in Appendix T to NUREG-1556, Vol. 14, "Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses," dated May 2000.	[ ]	[✓]	
	OR			
	• "We will use the (specify either (1) Decay-In-Storage, or (2) Disposal of Liquids Into Sanitary Sewerage) model waste procedures that are published in Appendix T to NUREG-1556, Vol. 14, "Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses," dated May 2000.	[ ]	[✓]	[ ]
	OR			
	• Provided are our procedures for waste collection, storage and disposal by any of the authorized methods described in this section. Applicants should contact the appropriate Regional Office of the NRC for guidance to obtain approval of any method(s) of waste disposal other than those discussed in this section.		[✓]	[ ]
	OR			
	• If access to a radioactive waste burial site is unavailable, the applicant should request authorization for extended interim storage of waste. Applicant should refer to NRC IN 90-09, "Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees," dated February 1990, for guidance and submit the required information with the application.	[ ]	[✓]	[ ]