

Do not use the following checklist to write your application. The following checklist is to help you verify that you have included the information necessary for your radioactive materials application before you upload the document. There are specific details in the guidance document not included in the checklist that are applicable to the application. If the checklist is used to write the application, your application's processing may be delayed.

The checklist is a high-level overview and does not necessarily include specific details for each item. It is meant to ensure only that you addressed each item necessary for the application. Details are discussed and provided for each individual item in the guidance document. The guidance document should have been used to write the application because it includes the details of what information is necessary to determine that the licensed materials will be used safely and will be properly secured. The checklist will help you to review your application to make sure that you have not forgotten to submit information regarding an item for the application.

Using the checklist, please review your application. When you have verified that you have included the information requested for an application, please proceed and follow the instructions to upload your application through the application portal and pay the application fee. Your application is not complete until the application is uploaded **AND** the fee is paid.

For future applications and payments, please make note of the following:

Renewal applications must be received by the DWMRC at least 30 days prior to the expiration date listed on the license. If not, your license may expire and you may be required to store or dispose of your radioactive materials until you can be issued a new radioactive materials license.

Annual fees are due each year on the month and day stated in the expiration date. If the license expires on March 31, 2025, an annual fee would be due on March 31, 2021, March 31, 2022, and so on. For this example, there would be no annual fee required on March 31, 2025 since a renewal is due that year.

If you have questions, please feel free to contact a member of the Radioactive Materials Section at 801-536-0200.

Checklist for Well Logging Radioactive Material License Applicationd

Items 1 through 4: Locations & Responsible Individuals

| Item No. and Title | Suggested Response | |
|---|---|----------------------------------|
| Item 1: License Action Type | <p>You clearly stated what type of action you are requesting and provided the license number if the request involves an existing radioactive materials license:</p> <ul style="list-style-type: none"> • A NEW LICENSE application; • An AMENDMENT (change) to one or more item(s) of an existing license. [Information for only the item(s) being changed are required to be submitted;] <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • A LICENSE RENEWAL Application for an existing Radioactive Materials License. [MUST BE RECEIVED by DWMRC at least 30 days prior to expiration date stated on license]. | <p>[]</p> <p>[]</p> <p>[]</p> |
| Item 2: Name and Mailing Address of Applicant | <ul style="list-style-type: none"> • The legal name of applicant as registered with the UT Division of Corporations and Commercial Code is on the request. If operating under a "Doing Business As" company, the corporation's name and the DBA name is provided: Example: ABC, Inc. DBA Company Operating Name" • Full Mailing Address for applicant, including zip code, is provided. • If separate Billing Address is necessary, Billing Address is provided. | <p>[]</p> <p>[]</p> <p>[]</p> |
| Item 3: Address(es) Where Licensed Materials Will be Used or Possessed | <ul style="list-style-type: none"> • <u>All</u> "Location of Use" physical address(es) or location description(s)* (3 mi W of Power Plant on Hwy 10, City, UT) are provided. Information showing or describing exact location of licensed materials are marked as protected [Sensitive-Security Related Information Protected Under 63G-2-201(3)(b)]. • Indication of use of devices at temporary job sites was provided. <p>* P.O. Boxes are not accepted for locations of use. Locations of Use are locations where materials are stored, used, prepared, etc excluding temporary job sites.</p> | <p>[]</p> <p>[]</p> <p>[]</p> |
| Item 4: Person(s) to be Contacted About the Application | <p>Name of Individual(s) to contact for additional information for the application or clarification are provided</p> <ul style="list-style-type: none"> • <u>Contact information for the named individual(s) provided –</u> Telephone numbers (cell & office), email address(es) • A completed Delegation of Authority Form for each individual who is not a member of management but who is authorized to act on behalf of the applicant/licensee was provided. | <p>[]</p> <p>[]</p> <p>[]</p> |

Item 5: Radioactive Materials

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|------------|---|-----|-----|----------------------|
| 5. | RADIOACTIVE MATERIAL | | | |
| 5.1 | Sealed Radioactive Material | | | |
| | The applicant provided the information on Pages 4 & 5 for sealed sources | [] | | [] |
| | AND | | | |
| | The applicant identified each radionuclide (element name and mass number) that will be used in each sealed source within the DWMRC's jurisdiction. | [] | | [] |
| | The applicant provided the manufacturer's or distributor's name and model number for each sealed source and, if applicable, device requested. | [] | | [] |
| | The applicant confirmed that the activity per source and maximum activity in each device will not exceed the maximum activity listed on the approved certificate of registration issued by the NRC or by an Agreement State. | [] | | [] |
| | The applicant confirmed that each sealed source, device, and source and device combination is registered as an approved sealed source or device by the NRC or an Agreement State, and will be possessed and used in accordance with the conditions specified in the registration certificate. The applicant provided the SSD registration certificate number, if available. (No copy of the SSD Registration Sheet is to be provided) | [] | | [] |
| | The applicant identified each sealed source or energy compensation source by the manufacturer's name, model number, radionuclide (element name and mass number), maximum activity per source, and total activity requested. | [] | | [] |
| | The applicant identified any sealed sources or corresponding devices not used in well logging that contain radioactive materials, and specified the manufacturer's name, model number, and radionuclide (element name and mass number). Examples of such devices are calibration devices used for radiation survey instruments and pocket dosimeters, and sources used above ground for calibrating well logging tools. (Includes SNM & Source Materials) | [] | | [] |
| | The applicant identified the manufacturer's name and model number of depleted uranium sinker bars. | [] | | [] |

Item 5: RADIOACTIVE MATERIAL (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|---|--|--|--|
| 5.2 | <p>Unsealed [Tracer] Radioactive Material (including both volatile and nonvolatile materials) (e.g., iodine-131, iodine-125, hydrogen-3)]</p> <ul style="list-style-type: none"> • The applicant provided element name with mass number, chemical and/or physical form, and maximum requested possession limit for each tracer to be possessed. • The applicant provided information for volatile materials, if known, on the anticipated rate of volatility or dispersion. (This information may be obtained from the tracer material vendor, supplier, or manufacturer.) • The applicant identified each chemical and/or physical form (e.g., liquid, gas, or labeled frac sands) requested for each type of tracer study. • The applicant specified the maximum amount of each radionuclide tracer that will be used in each type of tracer study by its physical or chemical form. Identifying the forms as “any” is unacceptable. • The applicant specified the maximum amount of each radionuclide tracer material that will be possessed at any one time. The applicant included any materials that may be stored as waste in the possession limits. • The applicant specified the purpose for which each radionuclide will be used. • The applicant provided an Emergency Plan [if required]. Emergency plans are not routinely required for tracer materials with half-lives of less than 120 days and for quantities authorized in well logging and tracer licenses. If needed see NRC’s Regulatory Guide 3.67 for additional guidance on developing emergency plans. The applicant referred to R313-22-32(8) and R313-22-90, Schedule C, “Quantities of radioactive materials requiring consideration of the need for an emergency plan for responding to a release,” to determine the quantities of radioactive material requiring an emergency plan for responding to a release of radioactive materials. In addition, R313-22-32(8) provides the information required to develop an Emergency Plan. | <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> | <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> | <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> |

| Well Logging Sealed Sources | | | | | | |
|--|------------------------------|---------------------------------|---|--|-------------------------|-------------------------------|
| Radionuclide | Manufacturer/ Model No. | | | Maximum activity per source and total activity requested (mCi or Ci) | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Neutron Generators | | | | | | |
| Radionuclide | Manufacturer/ Model No. | | | Maximum activity per source and total activity requested (mCi or Ci) | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Energy Compensation Sources | | | | | | |
| Radionuclide | Manufacturer/ Model No. | | | Maximum activity per source and total activity requested (mCi or Ci) | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Unsealed Tracer Materials | | | | | | |
| Radionuclide | Chemical or Physical Form | | | Purpose | Maximum Per Study (mCi) | Maximum Amount Requested(mCi) |
| | <input type="checkbox"/> Gas | <input type="checkbox"/> Liquid | <input type="checkbox"/> Labeled Frac Sands | | | |
| | <input type="checkbox"/> Gas | <input type="checkbox"/> Liquid | <input type="checkbox"/> Labeled Frac Sands | | | |
| | <input type="checkbox"/> Gas | <input type="checkbox"/> Liquid | <input type="checkbox"/> Labeled Frac Sands | | | |
| Note: Indicate the rate of volatility or dispersion for each unsealed tracer material. | | | | | | |

| Depleted Uranium | | |
|---|------------------------------------|---|
| Radionuclide | Manufacturer/ Model No. | Kilograms Requested |
| Depleted Uranium (DU) | | |
| Sealed Sources Not Used in Well Logging Operations | | |
| Radionuclide | Manufacturer/ Model No. | Maximum activity per source and total activity requested (mCi or Ci) |
| | | |

Items 5 & 6: RADIOACTIVE MATERIAL PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|--|--|---|--|
| 5.3 | <p>Financial Assurance and Recordkeeping for Decommissioning</p> <ul style="list-style-type: none"> • Pursuant to R313-22-32(6), the applicant committed to maintaining records important to decommissioning and transferring these records to a DWMRC, an NRC or Agreement State licensee before licensed activities are transferred or assigned, in accordance with R313-19-34(2). Furthermore, pursuant to R313-12-51(6), the applicant committed to forward the records required by R313-22-35(7)(a), to the DWMRC office before the license is terminated. <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • If financial assurance or a decommissioning funding plan is required, the applicant has committed to submit the required documents following the guidance described in NRC's NUREG-1757, Volume 3. | [] | | |
| 6. | <p>PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED</p> <ul style="list-style-type: none"> • For each sealed source and radionuclide requested in the application, the applicant stated the purpose for the licensed material using the following list: <ul style="list-style-type: none"> — 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 <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • The applicant specified 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. <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • The applicant provided a commitment to perform the following activities in <i>fresh water</i> aquifers: <ul style="list-style-type: none"> — Tracer studies — Well logging using sealed sources — Well logging using neutron generator" | <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> | <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> | <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|--|-----|---|---|
| 8. | <p>TRAINING FOR LOGGING SUPERVISORS AND LOGGING ASSISTANTS (Continued)</p> <ul style="list-style-type: none"> • The applicant specified the qualifications of the instructors for radiation safety principles and described their experience with well logging activities. If training will be conducted by someone outside the applicant's organization, the applicant identified the course by title, provided the name, address, and telephone number of the company providing the training, and provided a course outline (if available). • The applicant described the field (practical) examination that will be given to prospective logging supervisors and logging assistants. • The applicant described the annual refresher training program, including topics to be covered and how the training will be conducted. • The applicant submitted a description of the program for annual safety reviews of the job performance of each well logging supervisor, as described in 10 CFR 39.13(d). | | | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |
| 9. | <p>FACILITIES AND EQUIPMENT</p> <ul style="list-style-type: none"> • The applicant submitted a diagram, drawing, or sketch of the proposed facility, identifying areas where radioactive materials, including radioactive wastes, will be used or stored. <ul style="list-style-type: none"> ➤ 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 (e.g., concrete, lead) and means for securing radioactive materials from unauthorized removal. • The applicant submitted 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. The applicant specified the types and amount of shielding materials (e.g., concrete, lead) and means for securing tracer materials from unauthorized removal. • The applicant described items such as protective clothing (e.g., rubber gloves, coveralls, respirators, and face shields), auxiliary shielding, absorbent materials, injection equipment, secondary containers for waste water storage for decontamination purposes, and plastic bags for storing contaminated items, which will be available at well sites when using tracer materials. | | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|---|---|---|---|
| 9. | <p>FACILITIES AND EQUIPMENT (Continued)</p> <ul style="list-style-type: none"> • The applicant described proposed laundry facilities, if applicable, used for contaminated protective clothing. The applicant specifies how the contaminated waste water from the laundry machines or sinks is disposed. Operating and emergency procedures addressed decontamination of the laundry area and equipment. • The applicant described proposed decontamination facilities for trucks, tracer injection tools, or other equipment contaminated by tracer materials, if applicable. The applicant specified how contaminated waste water for the decontamination facilities is disposed. The applicant's operating and emergency procedures address decontamination of these types of equipment and facilities. • The applicant described equipment for "repackaging" gaseous, volatile, or finely divided tracer material, if applicable. The applicant if requesting the ability to repackage tracer, volatile, or finely divided material, the applicant may need the following equipment 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. • The applicant stated the physical location(s) where the DWMRC regulatory required records are stored and available for review during DWMRC inspections. | | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |
| 10. | <p>RADIATION SAFETY PROGRAM</p> <p>The applicant has submitted its radiation protection program. (RPP). The format for the RPP is determined by the applicant. No specific format is required by the DWMRC for submitting a radiation protection program but certain information must be included.</p> <p>The RPP should include each of the following items:</p> <ul style="list-style-type: none"> • steps to keep radiation exposures ALARA • description of equipment and facilities adequate to protect personnel, the public, and the environment • commitment that licensed activities will be conducted by individuals qualified by training and experience • written operating and emergency procedures • program for the annual inspection of the job performance of well logging personnel • description of organization structure and individuals responsible for ensuring implementation of radiation safety program • records management | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|--|--|-----|----------------------|
| 10. | <p>RADIATION SAFETY PROGRAM (Continued)</p> <ul style="list-style-type: none"> • methods or procedures for preventing the release of contaminated material, equipment, or vehicles to unrestricted use from tracer or field flood study operations • radiation safety procedures and the well logging supervisors' responsibilities unique to tracer and field flood study operations • tracer and field flood study equipment, techniques, and corresponding radiation safety procedures associated with the use of tracer materials • information on the appropriate handling, control/security, and disposal of any unused tracer materials • commitment that the licensee will implement a security, control, and accountability program for radioactive materials located at field stations and temporary job sites <p>Appendix D of the guidance document includes a description of procedures for using tracer materials in field flood study operations.</p> | [] | | [] |
| | | [] | | [] |
| | | [] | | [] |
| | | [] | | [] |
| | | [] | | [] |
| | | [] | | [] |
| 10.1 | <p>Well Owner or Operator Agreement</p> <ul style="list-style-type: none"> • The applicant committed to obtain a written agreement that meets the requirements specified in 10 CFR 39.15 prior to well logging: (i) with a sealed source; (ii) with a neutron generator exceeding 30 Ci; or (iii) with a neutron generator in a well without a surface casing, and will provide an example of the agreement to the DWMRC.” • The applicant committed to provide written instructions to the customer when conducting well logging using unsealed material that describes those subjects listed in the “Discussion” (unsealed material) portion of Section 8.10.1, “Well Owner or Operator Agreements” in NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance about Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses.” | [] | [] | [] |
| | | [] | [] | [] |
| 10.2 | <p>Radiation Safety Program Audit</p> <p>The applicant is not required to, and should not, submit its audit program to the DWMRC for review during the licensing phase. The licensee’s program for auditing its radiation safety and security programs may be reviewed during inspections.</p> | Need Not Be Submitted With Application | | |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|--------------------------------------|---|--|--|--|
| <p>10.</p> <p>10.3</p> | <p>RADIATION SAFETY PROGRAM (Continued)</p> <p>Radiation Monitoring Instruments</p> <p>The applicant provided one of the following:</p> <ul style="list-style-type: none"> • The applicant provided a description of the instrumentation (as described in the “Discussion” portion of Section 8.10.3, “Radiation Monitoring Instruments” of this Guidance Document) that will be used to perform required radiation surveys and a commitment that the applicant will use instruments that meet the radiation monitoring instrument specifications published in Appendix H of NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses.” The applicant also provided the necessary information to reserve the right to upgrade their radiation survey instruments as necessary. <p align="center">OR</p> <ul style="list-style-type: none"> • The applicant provided a description of the instrumentation (as described in the “Discussion” portion of Section 8.10.3, “Radiation Monitoring Instruments” of this NUREG) that will be used to perform required radiation surveys and a commitment to use instruments that meet the radiation monitoring instrument specifications published in Appendix H of NUREG–1556, Volume 14, (Current Revision) “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses.” Additionally, the applicant committed to implement the model radiation survey meter calibration program published in Appendix H of NUREG–1556, Volume 14, (Current Revision). The applicant also provided information to reserve the right to upgrade their radiation survey instruments as necessary. <p align="center">OR</p> <ul style="list-style-type: none"> • The applicant provided a description of alternative equipment and procedures for ensuring that the applicant will use appropriate radiation monitoring equipment during licensed activities and that their radiation survey equipment will be properly calibrated at the appropriate frequencies. Additionally, the applicant provided the appropriate information to reserve the right to upgrade their radiation survey instruments as necessary. | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |
| <p>10.4</p> | <p>Material Receipt and Accountability</p> <ul style="list-style-type: none"> • The applicant committed to conduct and document physical inventories at intervals not to exceed 6 months, to account for all radioactive materials (sealed sources, tracer materials, and unused or waste materials) and depleted uranium received and possessed under the license.” | <p align="center">[]</p> | | |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|--------------------------------------|---|---|----------------------------------|----------------------|
| <p>10.</p> <p>10.4</p> | <p>RADIATION SAFETY PROGRAM (Continued)</p> <p>Material Receipt and Accountability (Continued)</p> <p align="center">AND</p> <ul style="list-style-type: none"> • The applicant committed to develop, implement, and maintain procedures for ensuring accountability of licensed materials at all times. <p align="center">AND</p> <ul style="list-style-type: none"> • If applicable, the applicant committed to comply with the National Source Tracking System (NSTS) reporting requirement as described in R313-15-1206, "Reports of Transactions Involving Nationally Tracked Sources." | <p>[]</p> <p>[]</p> | <p>[]</p> | |
| <p>10.5</p> | <p>Occupational Dosimetry</p> <ul style="list-style-type: none"> • The applicant committed that required personnel dosimeters (e.g., film badge, TLD, OSL) will be processed and evaluated by an NVLAP-accredited entity, will be exchanged at the required frequency, and will be assigned to and worn by well logging supervisors and logging assistants." <p align="center">AND</p> <ul style="list-style-type: none"> • The applicant provided a commitment to develop, maintain, and implement a bioassay program when using unsealed radioactive tracer materials as recommended in NRC Regulatory Guide 8.20, "Applications of Bioassay for Radioiodine," 8.32, "Criteria for Establishing a Tritium Bioassay Program," or other appropriate NRC Regulatory Guide." <p align="center">OR</p> <ul style="list-style-type: none"> • In lieu of developing a bioassay program, the applicant provided a commitment that the applicant will contract with a vendor for bioassay services, and confirmed that the vendor is licensed or otherwise authorized by the DWMRC, the NRC or an Agreement State to provide required bioassay services. <p align="center">OR</p> <ul style="list-style-type: none"> • In lieu of developing a bioassay program, the applicant provided a commitment that the applicant will not allow any individual to use more than (i) 1.85 GBq [50 mCi] of iodine-131 at any one time or in any 5-day period at field stations or at temporary job sites, (ii) or more than 3.7 GBq [0.1 curie] of H-3 or (iii) more than 3700 GBq [100 Ci] of gaseous H-3. | <p>[]</p> <p>[]</p> <p>[]</p> <p>[]</p> | <p>[]</p> <p>[]</p> <p>[]</p> | |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|-----------------------------------|--|--|---------------------------|---------------------------|
| <p>10. 10.6</p> | <p>RADIATION SAFETY PROGRAM (Continued) Public Dose No response is required from the applicant in a license application, but compliance will be examined during inspection. During NRC inspections, licensees must be able to provide documentation, demonstrating by measurement or calculation, that the total effective dose equivalent to the individual member of the public likely to receive the highest dose from licensed operations is less than 1 mSv [100 mrem] in a year, and any unrestricted area does not exceed 0.02 mSv [2 mrem] in any 1 hour. See Appendix J of this NUREG for examples of methods to demonstrate compliance.</p> | <p align="center">Need Not Be Submitted With Application</p> | | |
| <p>10.7</p> | <p>Operating and Emergency Procedures The applicant submitted written operating and emergency procedures that address the important radiation safety aspects, as described in 10 CFR 39.63, "Operating and emergency procedures." OR The applicant provided an outline or summary of the operating and emergency procedures including the important radiation safety aspects of the procedures.</p> | <p align="center">[]</p> | <p align="center">[]</p> | <p align="center">[]</p> |
| <p>10.8</p> | <p>Leak Tests</p> <ul style="list-style-type: none"> • The applicant committed that leak tests sample collection and analysis will be performed by an organization authorized by the DWMRC, the NRC or an Agreement State to provide leak testing services to other licensees. Leak tests may be collected by the licensee, using a leak test kit supplier's instructions. Such leak test kits will be supplied by an organization authorized by the NRC or an Agreement State to provide leak testing services. <p align="center">OR</p> <ul style="list-style-type: none"> • The applicant committed that leak test sample collection and analysis will be done by the applicant. The applicant provided the information in Appendix L of Guidance Document supporting a request to perform leak test sample collection and sample analysis and Committed that either the applicant would follow the model procedures in Appendix L of NUREG-1556, Volume 14, (Current Revision), "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses", or the applicant submitted alternative procedures for leak test sampling and analysis. | <p align="center">[]</p> | <p align="center">[]</p> | <p align="center">[]</p> |
| <p>10.9.1</p> | <p>Maintenance Prior To Use</p> <ul style="list-style-type: none"> • The applicant committed that before each use, visual inspections will be conducted and records maintained in accordance with 10 CFR 39.43(a), to ensure that well logging equipment is in good working condition and is labeled as required. | <p align="center">[]</p> | <p align="center">[]</p> | |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|--|---|-----|----------------------|
| 10.9.1 | <p>RADIATION SAFETY PROGRAM Maintenance Prior To Use (Continued)</p> <p align="center">AND</p> <ul style="list-style-type: none"> The applicant submitted the procedure(s) for conducting visual inspections. | | | [] |
| 10.9.2 | <p>Semiannual Visual Inspection and Routine Maintenance</p> <ul style="list-style-type: none"> The applicant made a commitment that semiannual visual inspections and routine maintenance will be conducted and records maintained in accordance with 10 CFR 39.43(b), to ensure that required labeling is legible and that no physical damage is visible.\ <p align="center">AND</p> <ul style="list-style-type: none"> The applicant submitted the procedure(s) for conducting semiannual visual inspections and routine maintenance. | [] | [] | [] |
| 10.9.3 | <p>Maintenance Requiring Special Authorization</p> <ul style="list-style-type: none"> The applicant committed that activities described in 10 CFR 39.43(c) and (d) will not be conducted unless written detailed procedures have been approved by the DWMRC. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant submitted detailed procedures for any activities described in 10 CFR 39.43(c) and (d), including radiation safety precautions that individuals are expected to follow when performing these tasks and minimum qualifications of these individuals. Each different task was described. If the procedure required the removal of the sealed source from the holder before performing any maintenance on the holder, the applicant described the removal procedures. | [] | [] | [] |
| 10.10 | <p>Transportation</p> <ul style="list-style-type: none"> The applicant submitted operating and emergency procedures for transporting well logging sealed sources containing radioactive material, and field flood and tracer radioactive materials. | | | [] |
| 10.11 | <p>Minimization of Contamination</p> <ul style="list-style-type: none"> The applicant does not need to provide a response to this item if the applicant provides responses to the following sections of this NUREG that meet the "Response from Applicant" criteria from those sections: 8.5.1, "Radioactive Material—Sealed Radioactive Material;" 8.5.2, "Radioactive Material—Unsealed (Tracer) Radioactive Material;" 8.9, "Facilities and Equipment;" 8.10.8, "Radiation Safety Program—Leak Tests;" 8.10.7, "Radiation Safety Program—Operating and Emergency Procedures;" 8.10.13, "Radiation Safety Program—Subsurface Tracer Studies;" and 8.11, "Waste Management." | No Response is Necessary for this Section | | |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|--------------|---|-----|-----|----------------------|
| 10. 10.11 | <p>RADIATION SAFETY PROGRAM (Continued)</p> <p>Minimization of Contamination (Continued)</p> <p align="center">OR</p> <ul style="list-style-type: none"> The applicant submitted its procedures to conduct decontamination of a facility contaminated by a leaking sealed source or contaminated by unsealed material with a half-life greater than 120 days. | [] | [] | [] |
| 10.12.1 | <p>Use of Sealed Sources in Drill-to-Stop (DTS) (Wireline) Well Logging Operations</p> <ul style="list-style-type: none"> The applicant submitted operating and emergency procedures for conducting DTS well logging operations. The submitted procedures addressed radiation safety aspects when conducting DTS well logging operations. | | | [] |
| 10.12.2 | <p>Use of Sealed Sources in Measurement While Drilling (MWD) or Logging While Drilling (LWD) Well Logging Operations</p> <ul style="list-style-type: none"> The applicant submitted operating and emergency procedures for conducting MWD and LWD well logging activities. The submitted procedures addressed radiation safety aspects when conducting MWD and LWD well logging operations. | | | [] |
| 10.12.3 | <p>Energy Compensation Sources (ECS)</p> <ul style="list-style-type: none"> The applicant committed to test ECSs requiring leak tests at intervals not to exceed 3 years and to conduct physical inventories of ECSs at least every 6 months. The applicant also committed to maintain physical inventory and material use records in accordance with 10 CFR 39.37, "Physical Inventory," and 10 CFR 39.39 "Records of Material Use." | | | [] |
| 10.12.4 | <p>Use of Sealed Sources and/or Neutron Generators in Fresh water Aquifers</p> <ul style="list-style-type: none"> The applicant committed that sealed sources and/or neutron generators for will not be used for conducting well logging operations in fresh water aquifers. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant has submitted step-by-step operating and emergency procedures for conducting well logging activities using sealed sources and/or neutron generators in fresh water aquifers that meet the criteria in Section 8.10.12.4 of NUREG-1556, Volume 14, (Current Revision), "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses," 10 CFR 39.55, and 10 CFR 39.63." | [] | [] | |
| | <ul style="list-style-type: none"> The applicant has submitted step-by-step operating and emergency procedures for conducting well logging activities using sealed sources and/or neutron generators in fresh water aquifers that meet the criteria in Section 8.10.12.4 of NUREG-1556, Volume 14, (Current Revision), "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses," 10 CFR 39.55, and 10 CFR 39.63." | [] | [] | [] |
| 10.13.1 | <p>Tracer Studies in Single Well Applications</p> <ul style="list-style-type: none"> The applicant committed that no tracer studies in single well applications would be performed. | | [] | [] |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------------|---|-----|-----|----------------------|
| 10. 10.13.1 | <p>RADIATION SAFETY PROGRAM (Continued)</p> <p>Tracer Studies in Single Well Applications (Continued)</p> <p align="center">OR</p> <ul style="list-style-type: none"> The applicant committed that they will perform tracer studies in single well applications. The applicant has submitted step-by-step operating and emergency procedures for conducting tracer studies in single well applications that meet the guidance in Section 8.10.13.1 of NUREG-1556, Volume 14, (Current Revision), "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses," 10 CFR 39.45, and 10 CFR 39.63." | | [] | [] |
| 10.13.2 | <p>Field Flood and Secondary Recovery Applications (Tracer Studies in Multiple Wells)</p> <ul style="list-style-type: none"> The applicant has committed that field flood studies using tracer materials will not be conducted. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant has committed that field flood studies using tracer materials will be conducted. The applicant has submitted step-by-step procedures and information required in Section 8.10.13.2 and Appendix D, "Field Flood Studies/Enhanced Recovery of Oil and Gas Wells" of NUREG-1556, Volume 14, (Current Revision), "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses." | [] | [] | [] |
| 10.13.3 | <p>Tracer Studies in Fresh Water Aquifers</p> <ul style="list-style-type: none"> The applicant has committed that tracer material will not be knowingly injected into a fresh water aquifer. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant has requested authorization to inject tracer material into a fresh water aquifer involving secondary and tertiary oil and gas recovery and has submitted their reasons for performing the study and procedures to safeguard the public, licensee personnel, and the environment. The applicant has will provide an environmental report containing the information outlined in 10 CFR 51.45, "Environmental report." before approval will be granted. | [] | [] | [] |
| 10.13.4 | <p>Frac-Tagging Operations</p> <ul style="list-style-type: none"> The applicant provided a commitment that they would not perform frac-tagging operations. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant committed to perform frac-tagging operations and has submitted step-by-step operating and emergency procedures that include the following: | [] | [] | [] |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|---|---|---|---|
| 10.13.4 | <p>RADIATION SAFETY PROGRAM (Continued) Frac-Tagging Operations (Continued)</p> <ul style="list-style-type: none"> ✓ Receiving, controlling, and handling tracer material during well injections. ✓ Handling, controlling, and disposing of any unused tracer materials. ✓ Securing, maintaining control, and posting of areas involved with frac-tagging operations using radioactive materials. • The applicant has provided their procedures for containment and/or decontamination of a spill or “sandout” (or “fluid reversal”) involving tracer material during frac sand operations. The procedure includes, among other items, radiation surveys, licensee contact information, steps to be taken by the licensee and the client in the event that a “sandout” (or “fluid reversal”) occurs when the licensee has already left the client’s site, and steps to be taken by the licensee and the client to evaluate flowback or production wastes for the presence of tracer material. • The applicant has described procedures for the disposal of radioactive materials resulting from frac-tagging operations (such as a sandout, fluid reversal, or flowback) at (i) a licensed low level radioactive waste disposal facility; (ii) decay-in-storage using holding tanks and subsequent unrestricted release; or (iii) a request for alternate waste disposal under R313-15-1002, “Method for Obtaining Approval of Proposed Disposal Procedures.” The procedure includes a description of who will be responsible for the disposal of radioactive materials resulting from frac-tagging operations occurring at client’s facilities, and the method for making a determination of the concentration of licensed material (picocuries/gram) in these operations. • The applicant submitted actions to be taken in the event of an explosion, leak and contamination event, and the incapacitation of a lone well logging supervisor.” | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |
| 10.14 | <p>Radioactive Collar and Subsidence or Depth Control Markers</p> <ul style="list-style-type: none"> • The applicant committed that radioactive markers would only be used where each individual marker contains only quantities of licensed material not exceeding the exempt quantities authorized in R3131-19-71. | <p align="center">[]</p> | <p align="center">[]</p> | |
| 10.15 | <p>Neutron Accelerators Using Licensed Material</p> <ul style="list-style-type: none"> • The applicant committed that neutron generators (accelerators) would not be used in their well logging operations.” | <p align="center">[]</p> | <p align="center">[]</p> | |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|----------|---|---|---|---|
| 10.15 | <p>RADIATION SAFETY PROGRAM (Continued) Neutron Accelerators Using Licensed Material (Continued)</p> <p align="center">OR</p> <ul style="list-style-type: none"> <li data-bbox="297 415 1135 730">• The applicant has committed to use neutron generators (accelerators) in accordance with the guidance in Section 8.10.15 of NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses.” The applicant has provided step-by-step operating and emergency procedures for DWMRC review. Additionally, the applicant has committed that calibration of neutron generators will be performed by the DWMRC, an NRC, or Agreement State licensee that is specifically authorized to conduct this activity.” <p align="center">OR</p> <p>The applicant has committed that they will use neutron generators (accelerators) in accordance with the guidance in Section 8.10.15 of NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance About Materials Licenses: Program Specific Guidance About Well Logging, Tracer, and Field Flood Licenses.” The applicant has submitted step-by-step operating and emergency procedures for using the accelerators for DWMRC review. The applicant has stated that they will perform the calibration of neutron generators and has submitted step-by-step procedures for conducting calibration of neutron generators for DWMRC review.”</p> | <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> |
| 10.16 | <p>Depleted Uranium Sinker Bars</p> <ul style="list-style-type: none"> <li data-bbox="297 1182 1135 1245">• The applicant committed that depleted uranium sinker bars will not be used in their well logging operations. <p align="center">OR</p> <ul style="list-style-type: none"> <li data-bbox="297 1329 1135 1476">• The applicant committed that depleted uranium sinker bars will be obtained under the provisions of a general license per R313-19-41, "Transfer of source or radioactive material," the transfer of the registration will be reported to the DWMRC as required. <p align="center">OR</p> <ul style="list-style-type: none"> <li data-bbox="297 1560 1135 1644">• The applicant committed that depleted uranium sinker bars will be obtained under a specific license. The applicant specified the kilograms of material being requested in the application. <p align="center">AND</p> <ul style="list-style-type: none"> <li data-bbox="297 1728 1135 1875">• The applicant provided a commitment that uranium sinker bars will be possessed and inspected as specified in Section 8.10.16 of NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Licenses.” | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> | <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> <p align="center">[]</p> |

Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Protection Program, and Waste Disposal (Continued)

| Item No. | Title and Criteria | Yes | N/A | Description Attached |
|---------------------------------------|---|--|--------------------------|--------------------------|
| <p>10.</p> <p>10.17</p> | <p>RADIATION SAFETY PROGRAM (Continued)</p> <p>Security Program for Category 1 and Category 2 Materials</p> <ul style="list-style-type: none"> No response is required from an applicant or licensee. Compliance with access authorization and security program requirements may be reviewed during NRC inspections. | <p align="center">Need Not Be Submitted With Application</p> | | |
| <p>11.</p> | <p>Waste Management</p> <ul style="list-style-type: none"> The applicant has committed to use sealed and/or unsealed radioactive materials with a half-life greater than 120 days, and will transfer or dispose of the material and contaminated waste to a licensed entity authorized to receive the material. <p align="center">AND</p> <ul style="list-style-type: none"> The applicant has committed to use the model waste procedures published in Appendix N of NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses,” for disposing of radioactive materials and contaminated waste. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant has committed to provide their procedures for waste collection, storage, and disposal by any of the authorized methods described in Section 8.11 of NUREG–1556, Volume 14, (Current Revision), “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses.” <p align="center">OR</p> <ul style="list-style-type: none"> If needed, the applicant has requested authorization for extended interim storage of waste. <p align="center">OR</p> <ul style="list-style-type: none"> The applicant has submitted proposed alternate waste disposal procedures for a method not described in Section 8.11 of this NUREG following R313-15-1002, “Method for obtaining approval of proposed disposal procedures.” | <p align="center">[]</p> | <p align="center">[]</p> | |
| | | <p align="center">[]</p> | <p align="center">[]</p> | |
| | | <p align="center">[]</p> | <p align="center">[]</p> | |
| | | <p align="center">[]</p> | <p align="center">[]</p> | <p align="center">[]</p> |
| | | <p align="center">[]</p> | <p align="center">[]</p> | <p align="center">[]</p> |