

## Licensing Checklist for Well Logging and Well Tracer Applications

This checklist is intended for those applicants wishing to obtain licensure (or renewal) for utilization of sealed sources or tracers in well logging or tracer studies. Include the information specified below on form RH 2050 or attachments thereto. Items not covered on this list may be found in the guide, form RH 2051.\*

### **Item 3:**

- a. Nuclide: Cesium-137, Iodine-131
- b. Form: Sealed source (ABC Co. Model 123), Sodium Iodide or Methyl Iodide
- c. Possession Limit: Number of sources, maximum activity each or activity only (unsealed)

### **Item 4: Proposed Use**

- a. To be used as components of tools for well logging.
- b. To be used as a tracer in oil and gas wells.
- c. To be used as a tracer in injection wells for flood field studies.

### **Item 5: Radiation Safety Officer and Users**

Name all supervisory personnel who must be physically present at each job site. Submit a completed RH 2050A for each individual. If possible, provide evidence of formal course work.

### **Item 6: Radiation Detection Instruments**

Include range(s) and type (i.e., GM with pancake probe or ion chamber).

### **Item 7: Calibration Process**

Specify authorized service company, if done in house, provide detailed step-by-step procedures and NBS traceability of the sources to be used.

### **Item 8: Personnel Monitoring and Bioassay Procedures**

- a. Personnel monitoring
  1. Type (Film Badge or TLD)
  2. Radiation detected (gamma or neutron)
  3. Exchange frequency
  4. Whole body or extremity
  5. Dosimeters: type, range, calibration procedure
- b. Bioassays (Iodine-131 or Hydrogen-3 only)
  1. Iodine-131: For use > 50 mCi per week, routine thyroid counts. State who will provide this service and submit appropriate action levels to assure less than 1 microcurie uptake per calendar quarter.

\* ALL CORRESPONDENCE MUST BE SUBMITTED IN DUPLICATE

2. Hydrogen-3: Curie quantities require routine urine analysis. Submit who will perform the actual analysis. If done in house, provide techniques and instrumentation used.

3. Arrangements for bioassays are needed in case of accidental ingestion or absorption, even if routine bioassays are not performed.

**Item 9: Facilities and Equipment**

- a. Diagrams of all locations where radioactive material is used and/or stored. Describe security, posting, and labeling of containers/storage area.
- b. Describe handling tools, face masks (with NIOSH-approved charcoal filters), and protective clothing.
- c. Describe storage containers and/or shielding used.
- d. If Iodine-131 will be loaded into tools at the shop location describe hoods, sinks, and other handling equipment used in these procedures.

**Item 10: Radiation Safety Program**

- a. Management
  1. Organizational chart
  2. Audits, including what areas are covered.
  3. Commitment to maintaining exposures as low as reasonably achievable.
- b. Training, Instructions to Personnel
  1. Initial training—outline topics and duration
  2. Refresher training
  3. Evaluation of users competency (tests, observations)
  4. Copies of procedures for all users
- c. Radiation Safety Officer Duties
- d. Procedures for Ordering, Receipt, and Inventory Control
- e. Transportation Procedures
  1. Security while in transport
  2. Department of Transportation-approved shipping containers
  3. Information carried with drivers
  4. Surveys of vehicles including acceptable radiation levels
  5. Placarding requirements (if applicable)
- f. Operating Procedures
  1. Source transfer to tools and/or loading tools with Iodine-131
  2. Use of handling tools
  3. Surveys at the well site--criteria for release to uncontrolled area storage location surveys
  4. Decontamination procedures
  5. Contamination limits for personnel and equipment
  6. Control of access to restricted areas
  7. Assurance of fully-cased wells to below potable water zones

- g. Leak Test Procedures
  - 1. Method
  - 2. Frequency
  - 3. Analysis (who provides kit and analysis)
- h. Records Maintained for Inspection (submit forms used)
  - 1. Training of users
  - 2. Utilization logs
  - 3. Personnel monitoring, bioassays
  - 4. Surveys
  - 5. Calibration of instruments
  - 6. Receipt, transfer, and disposal
  - 7. Leak test results
  - 8. Audits by Radiation Safety Officer/management
  - 9. Accidents/abnormal occurrences
  - 10. Verification of intact casing in potable water zones
- i. Emergency Procedures
  - 1. Losses down hole or ruptured sources
  - 2. Vehicular accidents
  - 3. Personnel contamination or overexposures
  - 4. Notification call list

**Item 11: Effluent and Environmental Monitoring (Tracers Only)**

Assurance of emissions from well bores not to exceed regulatory limits for air and water.

**Item 12: Waste Disposal**

- 1. Return sources to manufacturer or other specific licensee, in properly labeled and approved Department of Transportation specification containers.
- 2. Methods of disposing of contaminated items (i.e., clothing, equipment, etc.), and unused solutions.
- 3. Store for decay: Include secure storage and criteria for release (via survey) as nonradioactive waste.
- 4. Liquids: Sanitary sewer concentration limit must be assured by calculation.

**Item 13: Decommissioning and Decontamination Plans**

- 1. Notification to vacate pursuant to 17 CAC 30298 (thirty days prior).
- 2. Clearance survey, after all stored items are used and/or transferred.
- 3. Removal of all radiation emblems and markings.
- 4. No unrestricted use until location deleted from license (or termination of license).

**Item 14: Certificate**

Signature and title of management individual responsible for legal and financial matters.