Radioactive Material License Guide

Naturally Occurring Radioactive Material

NORM Specific License

Louisiana Department of Environmental Quality
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INTRODUCTION

This guide describes the type and extent of information needed by the Registrations and Certifications staff to evaluate an application for a specific license for authorization to perform the following commercial services involving NORM contamination:

A. Commercial decontamination of equipment, facilities and land.

B. To perform maintenance on NORM contaminated equipment.

C. To provide mixing, grinding, or volume reduction of NORM contaminated material in preparation for disposal.

D. To package or encapsulate NORM contaminated material in preparation for disposal.

E. To provide health physics support for disposal in plugged and abandoned wells.

F. Other services as described in the application.

The applicant should carefully study the regulations and this guide, and submit all information requested. Please remember that omission of necessary information will delay the processing of your application. This guide does not substitute for understanding the requirements of the regulations.

The following regulations (LAC 33:XV) apply and should be used in conjunction with this guide.

A. Chapter 1, "General Provisions"

B. Chapter 3, "Licensing of Radioactive Material"

C. Chapter 4, "Standards for Protection Against Radiation

D. Chapter 10, "Notices, Instruction and Reports to Workers; Inspections"

E. Chapter 14, "Regulation and Licensing of Naturally Occurring Radioactive Materials (NORM)"

F. Chapter 15, "Transportation of Radioactive Material"

G. Chapter 25, " Fee Schedule"

This guide is for general guidance in preparation of the license application and should not be considered as all the information that may be required for a particular application. Nor is it a substitute for the applicant's safety evaluation of the proposed activity. The applicant must ensure that the application correctly and adequately describes the commercial services offered, and the radiation safety measures and procedures to be followed in order to provide adequate protection. For the purposes of this guide, decontamination means deliberate operations to reduce or remove residual NORM contamination from equipment, facilities, or land.

It is the responsibility of the applicant to determine that all applicable permits (wastewater discharge, water runoff, air quality, etc.) are obtained before initiation of activities. Issuance of a Radioactive Material License does not imply that all requirements of the Department of Environmental Quality have necessarily been met.

The Secretary of LDEQ will send a notice of the subject matter of each application for a license to the governing authority of the parish affected by the application. The parish governing authority shall promptly notify each municipality within said parish affected by the application. La. R.S. 30:2022.

Applicants are entitled to an adjudicatory hearing on a license decision; such a hearing must be requested within (20) days from receipt of the decision. La. R.S. 30:2024.

Any information submitted in an application becomes public record. Certain restricted kinds of information such as trade secrets, proprietary information, and commercial or business information may be held confidential. If this is desired a letter must be sent to the Secretary requesting confidentiality and setting forth reasons why the information may be confidential. La. R.S. 30:2030.

If a license must be renewed or amended, the compliance history of the licensee for which the renewal or amendment is sought will be considered prior to the issuance. La. R.S. 30:2014.

If the applicant's commercial decontamination operations are at a permanent facility (location), public notice of an application in a newspaper of general circulation may be required or a public hearing may be held if there is sufficient public interest in the application.

Please remember that all information, including forms or drawings, submitted with the application become a part of the license and require an amendment of the license if they change.

IT Questions

Part of the application for commercial decontamination operations at a permanent facility (location), must include response to the "IT Questions. " The "IT Questions" were formulated by the Supreme Court in the Save Ourselves vs. Louisiana Environmental Control Commission, 452 So. 2d 1152 (La. 1984). The responses are intended to assure the Department that the activity and the site are suitable. The five questions are:

A. Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

B. Does a cost-benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

C. Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

D. Are there alternative sites which would offer more protection to the environment than

the proposed facility without unduly curtailing non-environmental benefits?

E. Are there mitigating measures which would offer more protection to he environment than the facility as proposed without unduly curtailing non-environmental benefits?

FINANCIAL ASSURANCE ARRANGEMENTS

LAC 33:XV.1420 contains requirements for licensees that physically or chemically treat or store NORM waste, to post with the division financial security to ensure the protection of the public health and safety and the environment in the event of abandonment, default, or other inability or unwillingness of the licensee to meet the requirements of the Act or the regulations. The applicant must review this regulation and provide information as necessary**.**

AS LOW AS REASONABLY ACHIEVABLE

The applicant should, in addition to complying with the requirements set for in the Louisiana Radiation Regulations, make every reasonable effort to maintain radiation exposures As Low As Reasonably Achievable (ALARA). Applicants should give consideration to the ALARA philosophy in the development of operating procedures and in the training of employees.

Some of the items that should be considered to help maintain radiation exposures as low as reasonably achievable are discussed below. The discussion is not intended to be all inclusive, but should be used as a guide in establishing an operating philosophy for maintaining occupational radiation exposures as low as reasonably achievable.

The most important single item is the routine use of survey meters to evaluate radiation levels and the use of protective clothing. The necessity of performing adequate surveys and use of protective clothing, should be emphasized during initial classroom training, one-the-job training and refresher training.

Management can also contribute to maintaining low occupational exposures by reviewing personnel monitoring records, employee performance, and procedures to identify those areas where improvement may be achieved.

LICENSE FEES

The applicant should refer to LAC 33: XV.Chapter 25 to determine the fee that should accompany a new application. Review of the application will not begin without the proper fee. This fee may be paid by money order, certified check, or personal check, made payable to the Department of Environmental Quality. A fee is required for all initial applications and for licenses that are required to be reissued. If there are any questions, the Department staff will clarify the fees.

FILING AN APPLICATION

Applications for a new license should be completed as instructed below. The Addendum to Permit Applications form must be submitted with all new and renewal license applications. All items of the application, Forms DRC-11 and DRC-13, should be completed in sufficient detail to allow the Department to make an accurate review of the program with regard to safe handling of

NORM contaminated material. Any section in the application that is not applicable should be designated with N/A. Because the space on the application form is limited, attachments must be used. Clearly identify information submitted as an attachment; for example, Attachment A, Page 5, Item C.

Mail the original application to the Louisiana Department of Environmental Quality, Emergency & Radiological Services Division, P.O. Box 4312, Baton Rouge, Louisiana 70821-4312 and retain a copy for your records.

FORM DRC-11

APPLICATION FOR RADIOACTIVE MATERIAL LICENSE

Item 1 Enter the name, mailing address, telephone number, fax number, and email addresws of the applicant in item 1. The applicant should be the corporation or other legal entity applying for the license. If the applicant is an individual, the individual must be acting in a private capacity and not for the individual's employment with a corporation or other legal entity.

Item 2 Check "New License Application," or "Renewal." If you are requesting a renewal please provide your Louisiana Radioactive Material License Number. If you have a license with the U. S. Nuclear Regulatory Commission, another Agreement State or a Licensing State, please list these.

Renewal of a license is governed by LAC 33:XV.333. To prevent interruption of activities conducted under a license, this regulation requires filling of notification 30 days before expiration. If the Department does not receive the required renewal notification by this date, an application for a new license, along with the appropriate fee, may be required.

Item 3 If the applicant's commercial decontamination operations are at a permanent facility (location), specify the location by street address and city, or provide a descriptive address (such as five miles east of LA 1 on Highway 190) that will allow the Department to easily locate the applicant's facility. **A post office box address alone is not acceptable**. Specify any permanent off-site locations where decontamination activities will be conducted. "Off-site location" means any location not on the main plant site. For operations at a customer's facility, show that decontamination activity at temporary job sites in Louisiana and/or offshore is requested. Temporary job site authorization is also required if you wish to work in other states under reciprocal recognition of a Louisiana License.

Item 4 The "Person Responsible for Radiation Protection" is often called the Radiation Safety Officer (RSO). You may use a title different than RSO, but one individual must be designated as responsible for the radiation safety program, to maintain the license and associated records, and to be the primary contact with the Department in administering the license. The RSO must have the authority to act for and on behalf of the licensee. Verification of this authority must be included in the application. The RSO's responsibility and authority must include: maintenance of an ALARA program (LAC 33:XV.406.B.), enforcement of radiation safety policies and procedures, suspension of activities deemed inappropriate, taking remedial action when necessary, making necessary reports, and making decisions concerning licensed activities.

A qualified person must be designated the individual responsible for radiation protection. Provide the qualifications and training (formal education and on-the-job) of this individual on the back of Form DRC-13, "Radiological Qualifications and Training," or in a separate attachment.

The individual who provides direct personal supervision of the activities authorized by a Louisiana Radioactive Material License is referred to as a NORM Supervisor. Individuals who supervise NORM decontamination activities must be listed. Provide the qualifications and training (formal education and on-the-job) of all individuals on the back of Form DRC-13, "Radiological Qualifications and Training," or in a separate attachment.

Individuals who will perform NORM decontamination activities must be designated by the RSO after they satisfactorily complete training in the safe handling of radioactive material.

Item 5a Provide the name of the company supplying film badges or thermoluminescent dosimeters (TLD) and the frequency of exchange. See item 9a for more information about personnel monitoring.

Item 5b Not Applicable

Item 5c The applicant must review LAC 33:XV Chapter 4 to establish the need for Bioassay. See item 9a for more information about bioassay.

Item 5d Not Applicable

Item 6a Contamination Surveys

Routine contamination surveys of personnel, facilities and equipment must be addressed in the application. The frequency of contamination surveys must be evaluated by the applicant. Daily contamination surveys is the minimum frequency that should be considered without detailed justification. Specify the frequency in item 6a and as an attachment provide the additional information outlined in the instructions for item 9a.

Item 6b Radiation Area Surveys

Specify the frequency in item 6b and as an attachment provide the additional information for Item 9a.

Item 6c Environmental Surveys

The requirement for environmental surveys must be addressed by the applicant. As a minimum, consideration should be given to the need for, and the appropriate means of collecting and analyzing air, soil, and water samples. If environmental surveys are used the program must be described in an attachment to the application. If environmental surveys are not to be performed, then justification for this decision must be provided with the application.

Item 7 Not applicable

Item 8 Waste Disposal

Indicate who will handle the disposal of radioactive waste. It may be shipped to an authorized recipient (NORM licensee) or a specifically licensed disposal facility. Records of transfer and disposal must be maintained in accordance with LAC 33:XV.104 and 478.

Transportation of NORM contaminated material shall be in accordance with LAC 33:XV. Chapter 15 and with applicable sections of the U.S. Department of Transportation regulations contained in 49 CFR Parts 170 - 189.

A method of disposal other than transfer to an authorized recipient must be described in detail and will be authorized on a case by case basis.

Item 9a Health Physics Program
A formal set of written operating and emergency procedures for the handling of NORM contaminated material must be established and provided as an attachment to the license application. Written standard operating and emergency procedures for personnel must be developed for the specific operations that will be performed.

The health physics program shall incorporate to the extent practicable, procedures and engineering controls to achieve doses as low as reasonably achievable (ALARA) as required in LAC 33:XV.406.B.

There is no standard format for operating and emergency procedures. A sequential set of instructions which covers operations from the beginning of the work day to the end of the work day is an acceptable format. A copy of these procedures must be made available to all personnel under the jurisdiction of the RSO. Specific radiation safety training in the procedures is to be provided to all workers.

Operating and emergency procedures should be specific for each different type of operation and should include at least the following:

A. A description or organizational chart of the licensee's management structure. This should also include a listing of responsibilities regarding radiation safety for each of the positions in the management structure. A list of emergency phone numbers for the responsible individuals must be provided. In the emergency phone list you must provide pager numbers, mobile phone numbers (if used and available), and home phone numbers.

B. The duties and authorities of the RSO.

C. A description of the training for all personnel who work with or in the vicinity of NORM contaminated materials. Such personnel must have basic radiation safety training. Please refer to the Form DRC-13 instructions for additional information on training.

D. A description of the personnel dosimetry program. This description should include, as a minimum, the following:

    1. Type of device(s) used (e.g., film badges, thermoluminescent devices, pocket chambers, etc.);

2. Exchange frequency of the devices;

3. Supplier of the personnel dosimetry devices. Personnel dosimetry processors must be accredited by the National Voluntary Laboratory Accreditation Program (LAC 33:VX .430);

4. Instructions for using the devices (e.g., who will use the devices, how they will be worn, and when the devices will be used). Any personnel monitoring device, such as a film or TLD badge, must be assigned to one and only one individual; and

5. Frequency and type of review of the personnel dosimetry results by the RSO or management.

E. Describe how the applicant will demonstrate compliance with LAC 33:XV. 413 and 431 concerning internal exposure. Specifically how the applicant will demonstrate that air concentrations for radionuclides are not being exceeded in either the work place or in the unrestricted areas surrounding the restricted areas at either the fixed facility or temporary locations. If air monitoring/sampling will be employed, provide the following information:

1. Manufacturer and model number or operational specifications of equipment used for occupational and environmental air sampling or monitoring;

2. Instrument calibration frequency;

3. Description of the calibration method;

4. Type of filter or sample collector used;

5. Description of sample collection procedure including flow rate determination, sample volume determination, and handling of filter or sample after collection;

6. Description of identification and handling of sample prior to analysis;

7. Name of supplier of analytical service and the lower limits of detection. If the applicant plans to perform the analysis of the sample, a description of the analytical procedure must be provided; and

8. Description of the sampling location selection process for both occupational and environmental samples.

F. List the criteria for determining when a "suspected internal exposure" has occurred. Also, address the method used to bioassay for ingested material, the method used to bioassay for inhaled material, and the method used for the baseline bioassay, and who will conduct the bioassay. Address the documentation of the investigation of the event which resulted in a bioassay and the results of the bioassay.

G. A description of protective clothing (gloves, coveralls, respirators, etc.) that will be used. This description must include the criteria for determining when protective clothing will

be used and the instruction in the proper use.

H. A description of the survey program for contamination surveys and radiation area surveys must be provided as an attachment.

The program must include the required frequency and methods of surveys, instruments to be used, records to be kept, and action levels to be observed.

Contamination survey procedures must include the areas to be surveyed, sample collection methods, the instrument that is to be used, who will perform the survey and counting procedures if appropriate. Also include the levels of residual contamination considered to be acceptable (action level), the procedures that will be followed if the action level is exceeded including documentation, and provisions for maintenance of survey records.

Contamination surveys must address procedures for land, equipment, facilities, and personnel; specifically, what or who will be surveyed, the survey instrument to be used, action levels for the survey, and the action that will be taken if the action level is exceeded.

Surveys should be made before and after each cleaning operation at a temporary job site.

Surveys should be performed to determine the radiation levels at the external surfaces of temporary storage facilities.

All survey records must be maintained for at least two years by the licensee for inspection by the Department.

I. Decontamination procedures addressing clean-up of spills, use of protective clothing and equipment, and decontamination of clothing and equipment must be provided. Also include acceptable contamination limits or action levels.

J. A description of the specific methods to be used for disposal of NORM contaminated materials and the provisions for maintaining disposal records.

K. Methods of controlling access to restricted areas and methods employed to prevent unauthorized access to and/or removal of contaminated material.

L. Posting used to denote radiation, restricted areas, or airborne radioactivity area and where the posting will be located at the facility and job sites. LAC 33:XV. Chapter 4 Subchapter G contains the posting regulations.

Instructions to employees in establishing, posting of restricted areas. The instructions must address location and number of signs in addition to posting and controlling the entrances to the restricted area.

There are also certain documents that are required by LAC 33:XV. 1011 to be posted or made available to employees.

M. Procedures for labeling of containers of NORM-contaminated waste that must be

permanently marked with an identification number traceable back to records documenting the original source of contents.

N. Procedures for receipt, transportation (securing material, manifest, capping of contaminated pipe), handling, storage, identification and transfer of contaminated material (including any special instructions to any employees such as drivers.)

O. Description of contamination control procedures for personnel and equipment, the types of surveys that will be made for both personnel and equipment, the instrument that is to be used, where the survey will be performed, the limits appropriate for each, and procedures for managing contaminated personnel and equipment. Management of contaminated personnel and equipment includes preventing the spread of contamination and decontamination procedures. Decontamination procedures must include the disposal of any waste generated such as water or rags.

P. If operations have the potential to produce NORM-contaminated dusts (e.g., cutting, grinding, sand-blasting, welding, drilling, polishing, etc.) or if loose contamination is suspected, a respirator appropriate for radioactive particulates shall be worn. Please refer to LAC 33:XV.441 and 442.

Q. Procedures for managing an accident or unusual occurrence. These should cover, as a minimum, the following:

1. Transportation accidents;

2. Spills;

3. Loss of power or use of the ventilation system;

4. Fire involving NORM contaminated material;

5. Procedures for notifying proper personnel. The operating and emergency procedures should contain the names and telephone numbers of the persons to be contacted.

6. Instructions must describe immediate actions to be taken to identify areas of contamination and restrict access. The instructions must include action to prevent contaminations of personnel, equipment and facilities, and for the evacuation of the area.

R. Records management procedures should describe the following:

1. Types of records maintained. Record must include but or not necessarily limited to: personnel monitoring records, bioassay results, survey records, calibration records, training records, receipt, transfer and disposal records.

2. The Individual responsible for maintaining the records; and

3. The location where the records are kept.

S. Describe the procedure to ensure that the required reports are made. LAC 33:XV Chapter 4 Subchapter J contains some of the required reports. The Louisiana Radioactive Material License that is issued may also contain reporting requirements. An individual such as the RSO must be assigned the duty of monitoring the need for reports and making the reports.

Item 9b Physical Facilities

Describe the facility, including a drawing showing the location of equipment and decontamination activities. The description should include facility design and dimensions and should show the location of restricted areas. If decontamination activities are to be in an enclosed area (e.g., building), describe of the ventilation system for that area. Describe any equipment (e.g., containment system, spray system, retention tanks, storage facilities, etc.) proposed for use during the decontamination process.

In an attachment, please provide written verification that the proposed permanent facility complies with any local zoning ordinances or restrictions that are applicable.

Provide a drawing and description of the waste-holding area. Provide instructions for the posting and security for areas where NORM contaminated materials will be used or stored including temporary jobsites, if applicable.

Item 10 Health Physics Instrumentation

A radiation survey instrument is required for NORM operations. Each radiation survey instrument should be calibrated at intervals not to exceed six months and after every servicing.

For each type of radiation detection instrument available to the program, the applicant must specify the manufacturer's name and model number, the number of instruments available, the type of radiation detected (alpha, beta, gamma, and/or neutron), and the range in microroentgens or milliroentgens per hour or counts per minute. Instruments to be used for surveys must have a capability of measuring one microroentgen per hour through at least 500 microroentgens per hour.

If the applicant is to perform instrument calibration, the following information must be provided:

A. calibration source (radioisotope)
B. activity
C. decay correction procedures
D. geometry (exposure rate at certain distances)
E. procedures

If instrument calibration will be performed by an organization other than the applicant, the name of the organization should be included in the application.

Item 11 General Instrumentation

List any other radiation detection instruments available for health physics or monitoring.

Item 12 Not applicable.

Item 13 Not applicable.

Item 14 Enter the name and company affiliation of anyone other than an employee of the applicant who assisted in the preparation of this application.

DATE AND SIGN THE ORIGINAL UNDER ITEM 14 AND SUBMIT THE ORIGINAL TO THE LOUISIANA RADIATION PROTECTION DIVISION.

FORM DRC-13

SCHEDULE OF RADIOACTIVE MATERIALS

Complete the required information under this schedule for all radioisotopes to be possessed by the applicant.

RADIOLOGICAL QUALIFICATIONS AND TRAINING

Radiation Safety Officer (RSO)

Provide a resume' for the RSO including training and experience. The qualifications of the Radiation Safety Officer should include familiarity with the Louisiana Radiation Protection Regulations, company requirements and procedures, general training in basic radionuclide handling techniques and safety practices, and on-the-job experience actually handling comparable materials. Descriptions of on-the-job experience should include aspects such as the degree of independent use of NORM contaminated materials, the types and quantities of NORM contaminated materials handled, the types of surveys and the other radiation safety duties performed, the name of the company or other employer where the experience was gained, and the length of time over which the experience was obtained. The RSO should have a minimum of 40 hours of instruction in radiation safety or health physics and 3 months of experience in performing NORM decontamination procedures or 6 months of experience handling Hazardous Materials.

NORM Supervisor

A resume' of the training and experience of each person who will supervise the use of NORM contaminated materials, who will handle NORM contaminated material without supervision, or who will have responsibilities for radiation safety should be submitted. User qualifications should include instructions in radiation safety practices appropriate for operating procedures, knowledge of radiation regulations, and on-the-job experience actually handling comparable materials. Descriptions of on-the-job training should include the degree of independent use, the types and quantities of materials handled, the company or other employer where the experience

was gained, and the length of time over which the training occurred. Individuals who supervise decontamination activities should have a minimum of 16 hours of instruction in radiation safety or 8 hours of instruction in radiation safety and 40 hours of Hazardous Material safety instruction. In addition, these individuals should have a minimum of 3 months of experience in performing NORM decontamination procedures or 6 months of experience handling Hazardous Materials.

NORM Worker

A description of the radiation safety training of the employees who will work with or around contaminated material or equipment should be submitted. Individuals who perform the decontamination activities on-site or at a customer's facility should have a minimum of 8 hours instruction in radiation safety. In addition, these individuals should have a minimum of 8 hours of on the job practical training in performing the decontamination procedures.

Classroom training may be acquired through accredited colleges or universities or training courses accepted by the Department, the United States Nuclear Regulatory Commission (NRC), another Agreement State, or Licensing State. The applicant may provide this training if the applicant provides the Department with a:

A. detailed outline of each topic to be covered in the course, the amount of time spent on each topic, a description of each demonstration used, and a list of prerequisites for attendees,

B. description of any equipment or visual aids that are to be used. These may include filmstrips, video tapes, movies, survey instruments, and equipment,

C. list, including title and author, of any books, training manuals, and/or workbooks used in the course,

D. resume for each instructor showing academic training (especially as applicable to radiation safety) and any teaching or training experience, and

E. description of how the student’s performance will be assessed and what will be considered acceptable performance.

Describe the program to provide periodic refresher training to update workers on any changes to the license, procedures, or regulations and to reinforce the radiation safety training. This is in addition to any safety meetings or training that may be conducted at temporary jobsites. Periodic refresher training on an annual basis is considered the minimum acceptable frequency.

Daily safety meetings. As a minimum the procedure should document who conducted the meeting, who attended the meeting, what was discussed, and the time spent in training**.**

SAMPLE ALARA PROGRAM

The following conditions describe the program followed by _____ to ensure that occupational radiation exposures to employees engaged in the use of radioactive equipment are kept as low as reasonably achievable.

1. MANAGEMENT COMMITMENT

_____ IS COMMITTED TO MAKE EVERY REASONABLE EFFORT TO MINIMIZE RADIATION EXPOSURES TO EMPLOYEES, THROUGH THE FOLLOWING CONTROL MEASURES:

a. Personnel will be made aware of management's commitment to maintain low exposure levels.

b. Management will periodically review operating procedures with radiation safety officer to determine steps taken to reduce exposures.

c. Management will ensure that the person, or persons, selected for Radiation Safety Officer responsibilities are fully qualified to administer all aspects of a radiation protection program.

d. Management will ensure that all employees engaged in the use of radioactive equipment are fully trained in the area of radiation safety. This will be reviewed at least once a year, and additional training will be scheduled as necessary.

e. The RSO has full authority to enforce safe operation, and to communicate as required with appropriate levels of management to halt an operation he deems unsafe.

2. VIGILANCE BY THE RSO AND RADIATION PROTECTION STAFF

The RSO has the responsibility to monitor the Radiation Safety Program to ensure that exposures are as low as reasonably achievable, and to search for new and better ways to perform jobs with less exposure. The following aspects apply to this responsibility:

a. The RSO shall know the origins of radiation exposure and be aware of trends in exposures.

b. Should unusual exposures occur, the RSO shall initiate an investigation of the circumstances to determine causes and prevent the likelihood of recurrence. Operating procedures should periodically be reviewed to identify situations in which exposures can be reduced.

c. The RSO shall be responsible for ensuring that the equipment used is maintained in good working order and used properly. Written procedures for use of the equipment are to be available and followed.

Printed Name: _____ Phone Number: _____

Signature: _____ Fax Number: _____
(Management)

E-mail address: _____

Also include the Addendum to Permit Application per LAC 33:I.1701 which can be found at http://www.deq.louisiana.gov/portal/tabid/240/Default.aspx