

C.2.13 10 CFR Parts 30, 40 and 70 Materials Licenses for COLs

OVERVIEW

NRC regulations at 10 CFR Parts 30, 40 and 70 address the materials licensing requirements pertaining to the receipt, possession, and use of source material, byproduct material and special nuclear material (SNM). A COL licensee must have materials licenses in order to support facility construction and operation. For example, materials licenses are required to: 1) receive, possess, and use reactor fuel; 2) receive, possess, and use sealed neutron sources for reactor startup; and 3) receive, possess, and use material for sample analysis, instrumentation, and equipment calibration.

The NRC staff reviews a COL application for compliance with the requirements of 10 CFR Part 52 as well as Part 50 and other regulations as needed.. It is essential that a COL applicant provide sufficient information in its application to meet the applicable requirements of Parts 30, 40, and 70 for the timeframe between the NRC's issuance of a COL and the NRC's finding under 10 CFR 52.103(g) as well as the timeframe for later operations

In SECY-00-0092, "Combined License Review Process," dated April 20, 2000, the Commission approved generic license conditions for 10 CFR Parts 30, 40, and 70. Holders of a COL under 10 CFR Part 52 are authorized to receive, possess, and use source, byproduct, and SNM in accordance with 10 CFR Parts 30, 40, and 70 and licensees are required to comply with all applicable requirements in 10 CFR Parts 30, 40, and 70. In order to meet these requirements, the applicant will need to include in its application a request to receive, possess, and use source, byproduct, and SNM and provide sufficient information to support compliance with the applicable portions of 10 CFR Parts 30, 40, and 70.

The following guidance addresses the recommended approach for a COL applicant to request 10 CFR Parts 30, 40 and 70 materials licenses. The technical information to be included in the applicant's FSAR and other parts of the application to support the materials licenses is contained in NUREG-0800 as supplemented by NUREG-1520, "Standard Review Plan for the Review of a Licensing Application for a Fuel Cycle Facility," and NUREG-1556, "Consolidated Guidance About Materials Licenses." Also, the NRC staff's safety evaluation reports documenting prior reviews of COL applications that requested 10 CFR Parts 30, 40 and 70 materials licenses are publicly available on the NRC's website.

GUIDANCE

Materials Licenses Request

The COL applicant should, pursuant to 10 CFR 52.8, "Combining Licenses; Elimination of Repetition," request 10 CFR Parts 30, 40 and 70 materials licenses to be incorporated into the COL in order to receive, possess and use source, byproduct and SNM. The applicant should identify and describe the request for materials licenses in Part 1, "General & Financial Information," of the COL application. Further, the COL applicant should provide the information sufficient to meet the applicable requirements of 10 CFR Parts 30, 40, and 70 in Part 2, "Safety Analysis Report," and other parts of the COL application.

The COL applicant should request authority for activities regulated under 10 CFR Parts 30, 40 and 70 according their needs. Historically, large light water reactor applicants have needed authority for the following:

- To receive, possess, and use SNM as reactor fuel;
- To receive, possess, and use any byproduct, source, and SNM, as sealed neutron sources for reactor startup, sources for instrument and equipment calibration, sources associated with radioactive apparatus or components, sources for sample analysis, and sources for fission detectors in the required amounts; and
- To possess, but not separate, such by-product, and SNM, as may be produced by the operation of the facility.

COL License Conditions

The COL applicant should request license conditions as needed for the COL pursuant to the regulations in 10 CFR Parts 30, 40, and 70. Below follow some examples taken from of license conditions that have been successfully utilized in previous applications. These may follow a different license condition numbering system applicable to the chapter used by the applicant rather than the modelling example used below and wording may need to be changed based on the application specifics of the site.

- License Condition (1-1) – Subject to the conditions and requirements incorporated herein, the Commission hereby licenses [applicant name]:
 - (a) (i) Pursuant to the AEA and 10 CFR Part 70, to receive and possess special nuclear material (SNM) as reactor fuel in accordance with the limitations for storage and in the amounts necessary for reactor operation, as described in the FSAR as supplemented and amended;
 - (ii) Pursuant to the AEA and 10 CFR Part 70, to use SNM as reactor fuel, after a Commission finding under 10 CFR 52.103(g) has been made, in accordance with the limitations for storage and in amounts necessary for reactor operation, described in the FSAR, as supplemented and amended;
 - (b) (i) Pursuant to the AEA and 10 CFR Parts 30 and 70, to receive, possess, and use, at any time before a Commission finding under 10 CFR 52.103(g), such byproduct and special nuclear material (but not uranium hexafluoride) as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts not exceeding those specified in 10 CFR 30.35(d) and 10 CFR 70.25(d) for establishing decommissioning financial assurance, and not exceeding those specified in 10 CFR 30.72 and 10 CFR 70.22(i)(1);
 - (ii) Pursuant to the AEA and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, after a Commission finding under 10 CFR 52.103(g), any byproduct, source, and special nuclear material (but not uranium hexafluoride) as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts, as necessary;
 - (c) (i) Pursuant to the AEA and 10 CFR Parts 30 and 70, to receive, possess, and use, before a Commission finding under 10 CFR 52.103(g), any byproduct or special nuclear material (but not uranium hexafluoride) that is (1) in unsealed form, (2) on foils or plated surfaces, or (3) sealed in glass, for sample analysis or instrument calibration or other activity associated with radioactive apparatus or components, in amounts not exceeding those specified in 10 CFR 30.35(d) and 10 CFR 70.25(d) for establishing decommissioning financial assurance, and not exceeding those specified in 10 CFR 30.72 and 10 CFR 70.22(i)(1);
 - (ii) Pursuant to the AEA and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, after a Commission finding under 10 CFR 52.103(g), in amounts as necessary, any byproduct, source, or special nuclear material (but not uranium

hexafluoride) without restriction as to chemical or physical form, for sample analysis or instrument calibration or other activity associated with radioactive apparatus or components; and

- (d) Pursuant to the AEA and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- License Condition (1-2) – Before the initial receipt of SNM onsite, the licensee shall implement the SNM Material Control and Accounting Program. No later than 12 months after issuance of the COL, the licensee shall submit to the Director of the Office of New Reactors (NRO) a schedule that supports planning for and conduct of NRC inspections of the SNM Material Control and Accounting program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the SNM Material Control and Accounting program has been fully implemented.
- License Condition (1-3) – The fire protection measures in accordance with RG 1.189 for designated storage building areas (including adjacent fire areas that could affect the storage area) shall be implemented before initial receipt of byproduct or special nuclear materials that are not fuel (excluding exempt quantities as described in 10 CFR 30.18).
- License Condition (1-4) – The fire protection measures in accordance with RG 1.189 for areas associated with new fuel (including all fuel handling, fuel storage, and adjacent fire areas that could affect the new fuel) shall be implemented before receipt of fuel onsite.
- License Condition (1-5) – All fire protection program features shall be implemented before initial fuel load.

Operational Programs to Support 10 CFR Parts 30, 40, and 70

Section C.2.12, “Operational Programs for COLs,” of this regulatory guide addresses operational programs required by the NRC regulations for COLs and Section 13.4, “Operational Programs,” of NUREG-0800 identifies the technical information needed to be included in the COL applicant’s FSAR to support the operational programs. Several of these programs support requirements in 10 CFR Parts 30, 40 and 70 for materials licenses, and the COL applicant should identify the milestones and commitments for the implementation of these programs. Milestones for the portions of operational programs applicable to radioactive materials that support the issuance of licenses and requirements relative to 10 CFR Parts 30, 40, and 70 include the following:

- Radiation Protection Program (including as low as is reasonably achievable [ALARA] principles) – prior to initial receipt of byproduct, source, or SNM (excluding exempt quantities as described in 10 CFR 30.18, “Exempt quantities,” though when disposing of materials under exempt quantities of 10 CFR 30.18, the licensee must continue to follow 10 CFR Part 20 for proper disposal);
- Fire Protection Program – prior to initial receipt of byproduct, source, or SNM (excluding exempt quantities as described in 10 CFR 30.18, “Exempt quantities”);
- Security Program including physical security, safeguards contingency programs, training and qualification program – prior to receipt of fuel onsite (protected area), cyber security program, – prior to receipt of fuel onsite (protected area),
- Fitness for Duty Program, – prior to receipt of special nuclear material;
- Non-licensed plant staff training program associated with receipt of the radioactive material – prior to initial receipt of byproduct, source, or SNM (excluding exempt quantities as described in 10 CFR 30.18, “Exempt quantities”); and
- Special Nuclear Material (SNM) Physical Protection Program – prior to receipt of special

nuclear material including the following elements:

- Special Nuclear Material (SNM) Physical Protection Program Description which describes the 10 CFR Part 70 required protection program in effect for the period of time during which new fuel as SNM is received and stored in a controlled access area (CAA), in accordance with the requirements of 10 CFR 73.67;
- The New Fuel Shipping Plan which addresses the applicable 10 CFR 73.67 requirements in the event that unirradiated new fuel assemblies or components are returned to the supplying fuel manufacturer(s) facility; and
- Special Nuclear Material (SNM) Material Control and Accounting Procedures (A material control and accounting system consisting of special nuclear material accounting procedures is utilized to delineate the requirements, responsibilities, and methods of special nuclear material control from the time special nuclear material is received until it is shipped from the plant. These procedures provide detailed steps for SNM shipping and receiving, inventory, accounting, and preparing records and reports.)

Clarification of Parts 30, 40, and 70 Materials and Use

The COL applicant should identify in the FSAR the specific types of sources, byproducts, and SNM requested to be licensed under 10 CFR Parts 30, 40, and 70. The information should include the name, amount, and specifications (including the chemical or physical form and isotopic content where applicable), and the use or purpose, and the maximum amount at any one time. Further, the COL applicant should clarify (1) the licensed material to be received, possessed, or used during the period between the issuance of the COL and before the 10 CFR 52.103(g) finding, and (2) the licensed material to be received, possessed, or used after the 10 CFR 52.103(g) finding.

The applicant must ensure all relevant requirements of 10 CFR Parts 30, 40, and 70 are met for all material which they possess, including, as needed, prior to the 10 CFR 52.103(g) finding. Therefore, the application should specify if during the period prior to the 10 CFR 52.103(g) finding, the total quantities of such material to be possessed will exceed the quantities and forms referenced in 10 CFR 30.32(i)(1), 10 CFR 70.22(i)(1), 10 CFR 30.35(d), and 10 CFR 70.25(d). If the total quantities referenced in any of these regulations are to be exceeded, the application must address how the specific requirements of those regulations are being met.

Application information for Part 70 License

The COL applicant should include the detailed information identified in NUREG–1520 and NUREG–0800 to address the following areas for a 10 CFR Part 70 license:

- general information – applicant identifications, location, licenses sought, financial qualifications, exemption requests, site layout, population, geography, nearby facilities, meteorology, hydrology, geology, and seismicity;
- organization and administration – structure, management, functions, qualifications, experience, communications, and turnover of the construction to operation;
- radiation protection;
- criticality safety;
- fire safety;
- emergency preparedness;
- environmental protection;
- SNM MC&A–exemptions, MC&A, and fixed site security review; and

- physical security.

Application information for Parts 30 and 40 Licenses

The COL applicant should include the detailed information identified in NUREG–1556 and NUREG–0800 to address the following areas for 10 CFR Part 30 and 40 licenses:

- general information – license action type, legal identities, address, points of contact;
- radioactive materials to be possessed and used, including (a) element and mass number; (b) chemical and/or physical form; and (c) maximum amount which will be possessed at any one time;
- purpose(s) for which licensed material will be used;
- financial assurance and recordkeeping;
- individuals responsible for the radiation safety program and training and experience, etc.;
- training for workers in or frequenting restricted areas;
- facilities and equipment;
- radiation Safety Program;
- waste management;
- physical security; and
- emergency preparedness.

Exemption Associated with SNM Material Control and Accounting (MC&A) Program

The COL applicant may find it appropriate to request an exemption from the requirements at 10 CFR 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 pertaining to an SNM MC&A program. Such an exemption allows the same regulations applicable to nuclear reactors licensed under 10 CFR Part 50 regarding MC&A for SNM to be applicable to COLs under 10 CFR Part 52. Prior COL applicants have requested, and been granted, this type of exemption.

The provisions of 10 CFR 70.22(b) require an applicant to include a full description of the applicant's program for MC&A of SNM under 10 CFR 74.31, 10 CFR 74.33, 10 CFR 74.41; and 10 CFR 74.51. The provisions of 10 CFR 70.32(c) require a license authorizing the use of SNM to include and be subject to a condition requiring the licensee to maintain and follow an SNM MC&A Program, a measurement control program, and other material control procedures that include corresponding record management requirements. The regulations at 10 CFR 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 contain exceptions for nuclear reactors licensed under 10 CFR Part 50; and, the regulations applicable to the MC&A of SNM for nuclear reactors licensed under 10 CFR Part 50 are in 10 CFR Part 74, Subpart B and 74.11 through 74.19, except for 74.17. However, the regulations contain no exception for nuclear reactors licensed under 10 CFR Part 52. Accordingly, a COL applicant who seeks applicability of the same regulations regarding MC&A of SNM applicable to nuclear reactors licensed under 10 CFR Part 50 must request an exemption from 10 CFR 70.22(b), 70.32(c), 74.31, 74.41, and 74.51.