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PROCESS FOR LICENSE APPLICATION DEVELOPMENT FOR THE GEOLOGIC REPOSITORY

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I. INTRODUCTION

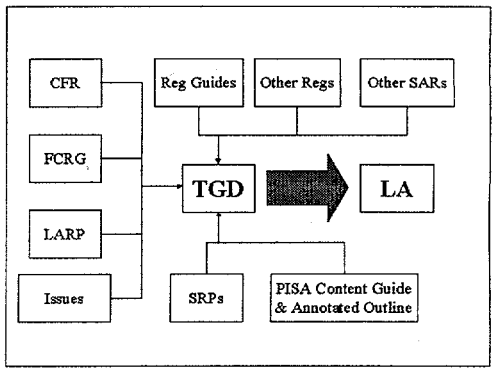
The Department of Energy (DOE), specifically the Office of Civilian Radioactive Waste Management (OCRWM) has been charged by the U.S. Congress, through the Nuclear Waste Policy Act (NWPA), with the responsibility for obtaining a license to develop a geologic repository. The NRC is the licensing authority for geologic disposal, and its regulations pertinent to construction authorization and license application are specified in 10 CFR Part 60, Disposal of High-Level Radioactive Wastes in Geologic Repositories, §60.21ff and §60.31ff. This paper discusses the process the Yucca Mountain Site Characterization Project (YMP) will use to identify and apply regulatory and industry guidance to development of the license application (LA) for a geologic repository at Yucca Mountain, Nevada. This guidance will be implemented by the *Technical Guidance Document for Preparation of the License Application* (TGD), currently in development.

II. WORK DESCRIPTION

The YMP is developing the TGD as the fundamental guidance document from which the license application will be written. The TGD will synthesize regulatory requirements, regulatory guidance, key issues from pre-licensing interactions, draft NRC guidance for the YMP LA, existing project documents, and other information, all of which provide useful guidance for development of the LA (see Figure 1).

The TGD focuses on demonstrating compliance with the NRC's technical and performance requirements as given in 10 CFR 60 for the repository. The TGD also incorporates those Part 60 requirements that specify the types of information to be included in an LA. In addition to Part 60, other regulations and documents provide requirements and guidance that must be considered in the licensing process.

- Regulations. The TGD specifies the location that the individual requirements of disposal regulations will be addressed in the LA. This includes addressing Part 60 requirements directly, regulations referenced by Part 60 such as 10 CFR Part 20 (see 10 CFR 60.21(c)(7)), and other potentially pertinent regulations (e.g., 10 CFR Part 50 Appendix B; 30 CFR Chapter I Subchapters D, E, and N; and 10 CFR Part 50 Appendix I).



- Regulatory Guides and other guidance documents. While little industry guidance has been developed for repositories, the Project intends that related regulatory guidance will be applied as much as feasible. The TGD will direct identification of how the Project will address specific regulatory guides and NUREGS in the LA.

- Issues. The NRC has identified Key Technical Issues (KTIs) that it considers most important to performance of the proposed geologic repository at Yucca Mountain. The TGD directs and

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allocates responsibility for addressing these issues among applicable chapters of the LA.

- Draft Regulatory Guidance DG-3003 and NUREG-1323. The NRC issued two draft documents that provide guidance regarding the content of the LA: Draft Regulatory Guide (DG) 3003, *Format and Content for the License Application for the High-Level Waste Repository* (FCRG) and NUREG 1323, *License Application Review Plan for a Geologic Repository for Spent Nuclear Fuel and High-Level Radioactive Waste* (LARP). The FCRG presents for the applicant an organized approach for developing an LA and outlines the information to be provided in each section. The LARP contains acceptance criteria and information required to support NRC's acceptance and compliance reviews of the LA and as such represents guidance to NRC reviewers after LA. Although these documents are in draft form, the TGD makes use of guidance in these documents and provides detailed directions for developing compliance demonstrations.

- Earlier Project Documents. Initial work on the license application actually began in 1991. Development direction was in the form of a *License Application Annotated Outline* (LAAO). Development of the LAAO ceased in 1995 as a result of significant project resource reduction and reprioritization. More recently the Project Integrated Safety Assessment (PISA) Content Guide was developed to direct the development and to specify the content of a safety assessment that was in support of the project Viability Assessment. Project decisions obviated development of the associated PISA in favor of development of a working draft LA. However, the TGD assures that guidance contained in these documents is incorporated as appropriate into the LA. Industry experience is being drawn upon in development of the TGD through reference to Safety Analysis Reports of nuclear power plants and existing Standard Review Plans (SRPs) for spent fuel storage facilities. This information provides examples of successful descriptions of applicable information as well as information that the NRC has traditionally expected in its review of storage facilities.

The TGD is organized to parallel the structure of the actual license application. It contains five basic types of information to guide the authors/writers:

- A format and structure for the application;
- A cross-reference of applicable regulations to each chapter of the application;
- A discussion of potentially applicable NRC guidance documents (Regulatory Guides, NUREGS, etc.);
- Inclusion and discussion of potentially applicable industry codes and standards; and
- Reference to project documents (e.g., Topical Reports, analyses), either completed or planned.

This information is presented in the context of guidance and acceptance criteria similar to the method employed by the NRC in many of its Standard Review Plans. Guidance is also provided about the depth of discussion required for various parts of the application, and cross-references among the sections are directed where applicable.

III. CONCLUSION

Given the limited regulatory and industry guidance available to support development of a geologic repository LA, the YMP has elected to synthesize available, potentially useful guidance from various sources. The result of this effort, the TGD, will serve as a single source for technical guidance in LA development. When complete, it will specify the types of information needed and the level of detail considered necessary to provide compliance demonstrations that will be acceptable to the NRC staff. The TGD is expected to be largely complete in fiscal year 1998.

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