4.0 FACILITY AND PROCESS DESCRIPTION

4.1 Purpose of Review

The purpose of this review is to establish that the facility and process description provided by the applicant is adequate to understand the facility processes and parameters. This helps to determine the adequacy of the hazard/accident analysis (see Standard Review Plan (SRP) Chapter 5.0, "Hazard/Accident Analysis") and the adequacy of the facilities' graded approach to quality.

4.2 Responsibility for Review

Primary: Certification Project Manager

Secondary: Reviewers of SRP Chapters 5.0 and 6.0

Supporting: Resident Inspector Staff

4.3 Areas of Review

The staff reviews the facility description with respect to features that could affect potential accidents and their consequences. Examples of these features are facility location, facility design information, and location and arrangement of buildings on the facility site. The staff reviews the description of each process analyzed. Specific areas that are reviewed are basic process function and theory, function and operation of major components, process design and equipment, and process operating ranges and limits. The staff reviews the description of the structures, systems, and components (SSCs) identified as important to safety to ensure that the number and quality for controls are commensurate with staff acceptance criteria. Such criteria are based on the consequence level (graded approach to quality assurance) that the controls are intended to prevent or mitigate.

4.4 Review Procedures

4.4.1 Acceptance Review

The staff review should start with the primary reviewer's determination that sufficient information has been provided in the contents of the application to satisfy the requirements in 10 CFR 76.35, "Contents of Application," and 10 CFR 76.36, "Renewals," with respect to the description of the principal SSCs of the gaseous diffusion plant facilities, including a description of equipment and facilities that will be used to protect health and minimize danger to life or property—see SRP Section 4.5.1, "Regulatory Requirements"—and that the topics discussed in SRP Section 4.3, "Areas of Review," have been addressed.

Facility and Process Description

If significant deficiencies are identified in the application, the applicant should be requested to submit additional material before the staff resumes the application review.

4.4.2 Evaluation

The primary and secondary reviewers should review the applicant's description of the facility to determine if the features that could affect potential accidents and their consequences are adequately discussed. The reviewer should verify that information describing the location and arrangement of buildings at the site and their distance from the site boundary is provided. The reviewer should determine that design criteria for the facility are justified on the basis that (a) they are sufficient to withstand the effects of credible external events that could occur at the site, or (b) the consequences of such credible external events are acceptable, given their expected frequency of occurrence.

The reviewers should review the applicant's description of each process analyzed in the hazard/accident analysis to determine that it provides an adequate understanding of process function and theory, as well as major component function and operation. The staff also reviews information provided on process design, equipment, and instrumentation to determine that it is sufficient to understand the results of the hazard/accident analysis.

The reviewers should review the applicant's identification of SSCs important to safety and description of their intended safety function. It uses this information to determine that the identified SSCs and the description of their intended safety function support the conclusions of the accident analysis and the selection of safety limits, limiting control setting, limiting conditions for operation, design features for safety, surveillance requirements, and administrative controls identified for the facility's Technical Safety Requirements. The intended safety function description should also provide the bases for the graded approach of applying the criteria of ASME NQA–1–1989, "Quality Assurance Program Requirements for Nuclear Facilities."

On the basis of its review, the staff may request that the applicant provide additional information or modify the submittal to meet the acceptance criteria in SRP Section 4.5.

The final step in the review is the primary staff reviewer's writing of a Compliance Evaluation Report (CER) that summarizes the conduct of the review, identifies what material in the application forms the basis for a finding of reasonable assurance with respect to the acceptance criteria, and presents the bases for certificate conditions that may be necessary to conclude that reasonable assurance is achieved.

4.5 Acceptance Criteria

The regulatory requirements, regulatory guidance, and regulatory review criteria applicable to this Standard Review Plan (SRP) are listed in the following sections.

4.5.1 Regulatory Requirements

Section 76.35(a)(6) requires that the application include a description of equipment and facilities that will be used by the corporation to protect health and minimize danger to life or property. In addition, Section 76.35(a)(8) requires that the application includes a description of the plant site and a description of the principal structures, systems, and components of the plant.

4.5.2 Regulatory Guidance

No regulatory guidance has been developed in this area.

4.5.3 Regulatory Review Criteria

The NRC staff should use the following regulatory review criteria or information demonstrating acceptable alternatives in its review of the application. Acceptability should be based on the following:

1. The information describing the location and arrangement of buildings at the site and their distance from the site boundary is in enough detail to support the consequence analysis from the hazard/accident analysis. The design criteria for the facility provides enough detail to determine (a) that they are sufficient to withstand the effects of credible external events that could occur at the site, or (b) the consequences of such credible external events are acceptable, given their expected frequency of occurrence as evaluated in the hazard/accident analysis.

2. The description of the processes analyzed as part of the hazard/accident analysis are considered acceptable if the following features are identified and described. If the information is available elsewhere in the certificate application, reference to the appropriate sections is considered acceptable.

   NOTE: Some descriptions of processes may contain confidential-restricted data and will not be available in the Safety Analysis Report (SAR). If such confidential-restricted information is needed to determine the adequacy of the SAR, it should be requested from the applicant and controlled accordingly.

   The information provided must support an overall understanding of the facility process operations as they pertain to the hazard/accident analysis:

   a. Basic process function and theory. This information includes a general discussion of the basic theory of the process.

   b. Function and operation of major components. This information includes the general arrangement, function, and operation of major components in the process. It includes process schematics showing the major components and instrumentation and, if appropriate, chemical flowsheets showing compositions of the various process streams.

c. Process design and equipment. This information includes a discussion of process design, equipment, and instrumentation that is detailed enough to understand the results of the hazard/accident analysis, particularly the operational analysis from which the SSCs important to safety were derived. It includes equipment schematics with enough detail for the reviewer to understand the process and its interactions with other systems.

d. Process operating ranges and limits. This information includes the operating ranges and limits for all measured variables (e.g., temperatures, pressures, flows, and compositions) used in engineered or administrative controls to ensure safe operation of the process. The process operating limits and ranges are considered acceptable if they are consistent with those assumed in the hazard/accident analysis.

3. The description of the SSCs important to safety are considered acceptable if the following features are identified and described. If the information is available elsewhere in the certificate application, reference to the appropriate sections is considered acceptable.

   a. The identification of the SSCs important to safety and the description of their safety functions agree with the results of hazard/accident analyses, particularly the essential controls identified in the operational analyses found acceptable from SRP Chapter 5.0, "Hazard/Accident Analysis," and provide adequate detail to support the derivation of Technical Safety Requirements (TSRs) (see SRP Chapter 6.0, "Technical Safety Requirements").

   b. Support systems necessary for the SSCs important to safety to perform their safety function agree with the results of hazard/accident analyses, particularly the essential controls identified in the operational analyses, found acceptable from SRP Chapter 5.0, "Hazard/Accident Analysis."

   c. Functional requirements provide assurance that the SSCs can perform their intended safety function. The functional requirements support the identification of the support systems identified above.

   d. Performance criteria for the SSCs are supported by the results of hazard/accident analyses, particularly the essential controls identified in the operational analyses, found acceptable from SRP Chapter 5.0, "Hazard/Accident Analysis," and provide adequate detail to support the derivation of TSRs (see SRP Chapter 6.0, "Technical Safety Requirements").

   e. A basis is provided on how the graded approach to quality will be applied to the SSCs and support systems identified above. The degree of application of the graded approach to quality (safety system classification) to the SSCs and support systems within system boundaries of the SSCs will be acceptable if it is commensurate with the importance to safety of the SSCs (i.e., if the safety system classification agrees with consequences of concern (Appendix C, "Proposed Consequences of Concern") that the intended safety functions of the SSCs is supposed to prevent or mitigate).

f. The system boundary of the SSCs includes the support systems necessary for the SSCs to perform their intended safety function.

4.6 Evaluation Findings

The staff's review should verify that sufficient information has been provided in the application to satisfy the intent of requirements in 10 CFR 76.35, "Contents of Application," and 10 CFR 76.36, "Renewals," with respect to the facility and process description and that the information provided is consistent with the guidance in this SRP. On the basis of this information, the staff should be able to conclude that this evaluation is complete.

The staff could document the evaluation of the application as follows:

The staff has reviewed the facility and process description for [name of facility] according to the SRP Sections 4.3, 4.4, and 4.5. The applicant has adequately described and documented the facility and process description. In addition, the applicant has [The reviewer will describe the bases for this conclusion, addressing areas that were reviewed and a discussion of how the acceptance criteria have been met. The reviewer should include a description of the general location, number, and type of controls, referencing appropriate sections of the application. The reviewer should also describe the applicant's approach to ensuring the quality and reliability of the controls.]

On the basis of its review, the NRC staff has concluded that the facility and process descriptions are acceptable to support the recertification.

4.7 References

American Society of Mechanical Engineering (ASME) ASME NQA–1–1989, "Quality Assurance Program Requirements for Nuclear Facilities." ASME: New York. 1989

Code of Federal Regulations, *Title 10, Energy,* Part 76, "Certification of Gaseous Diffusion Plants."