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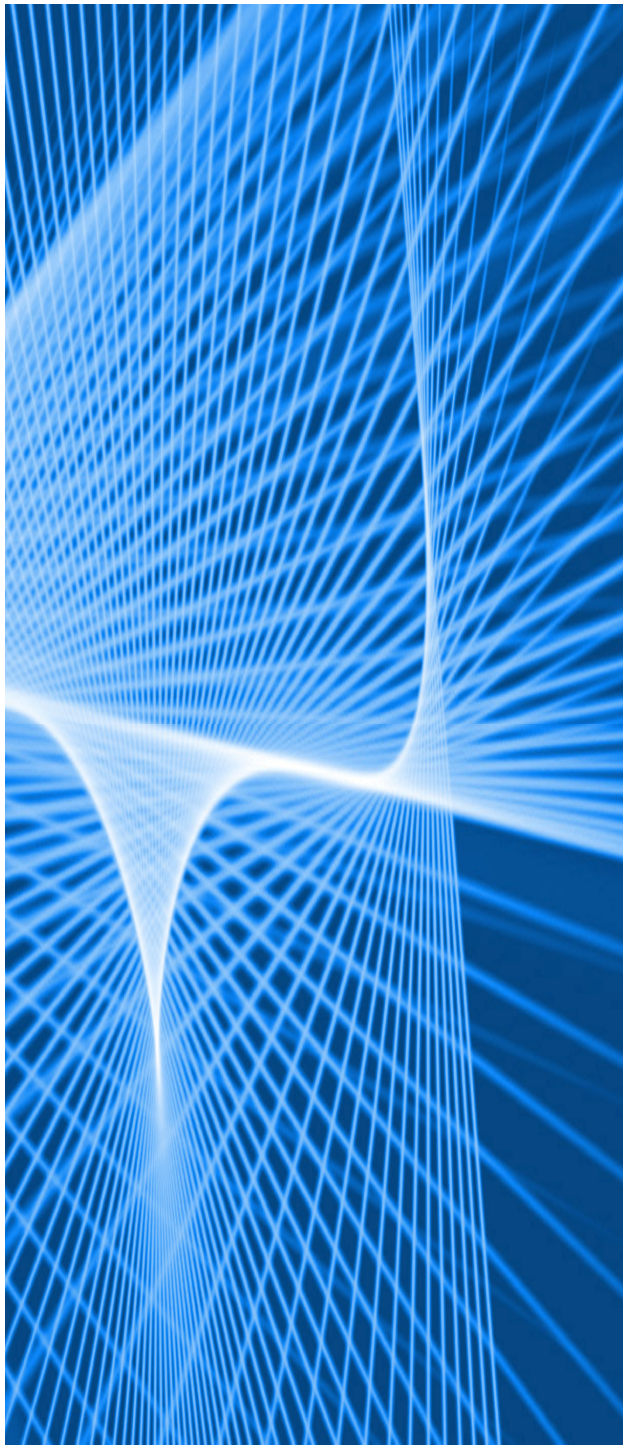
Global Laser Enrichment

Commercial Facility Licensing



Presentation to the U.S. Nuclear Regulatory Commission February 6, 2009

Global Laser Enrichment (GLE) Commercial Facility

- Project Update
- License Application Overview
- Quality Assurance Program Description
- Decommissioning Funding Plan
- Environmental Report Update

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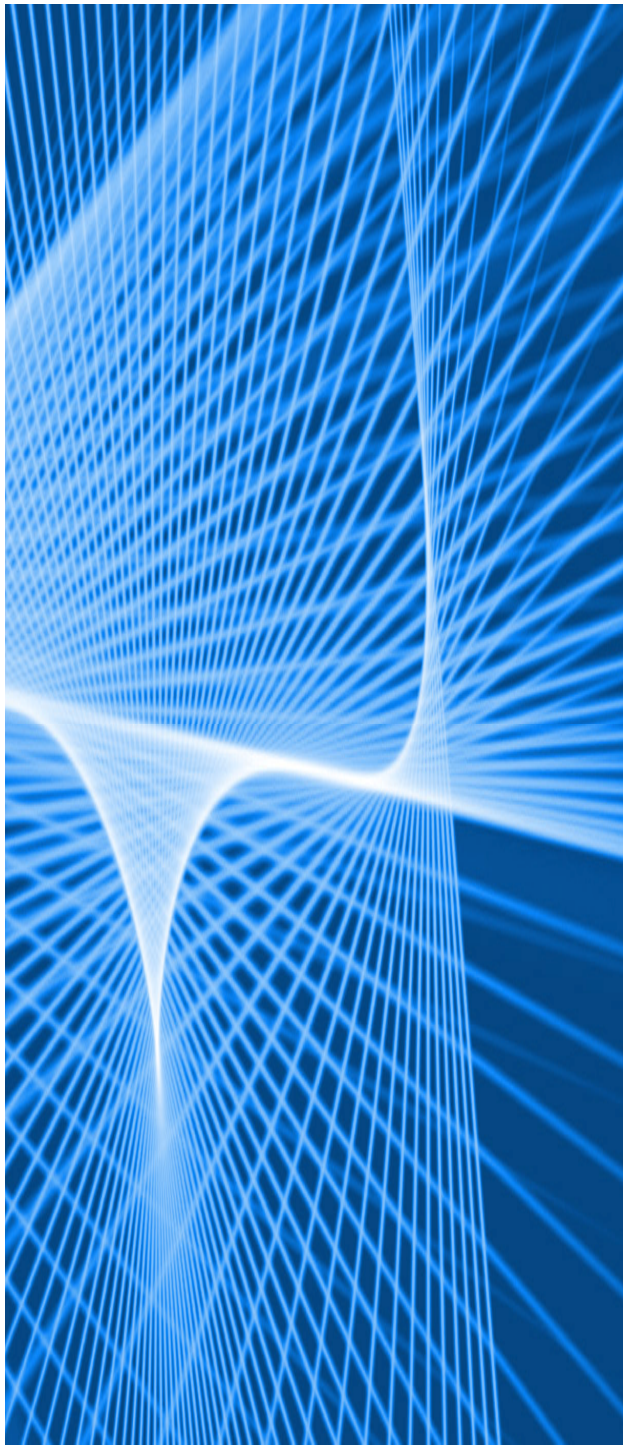
Commercial Facility Project Update



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GLE Commercial Facility Project Update

Recent Accomplishments

- Environmental Report early submittal Jan 30th
- Submitted exemption requests
  - Early ER submittal
  - Pre-construction activities
- Significant design development progress
- ISA Summary 1st draft complete

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GLE Commercial Facility Project Update

Up-coming Milestones

Conduct independent review of ISA & Summary

Complete LA integrated & mgt reviews

Finalize supporting license documentation

Develop RAI response plan

On track for submittal in advance of June 2009

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GLE Commercial Facility Project Update

GLE Site & Area Boundaries

Restricted Area

Owner Controlled Area

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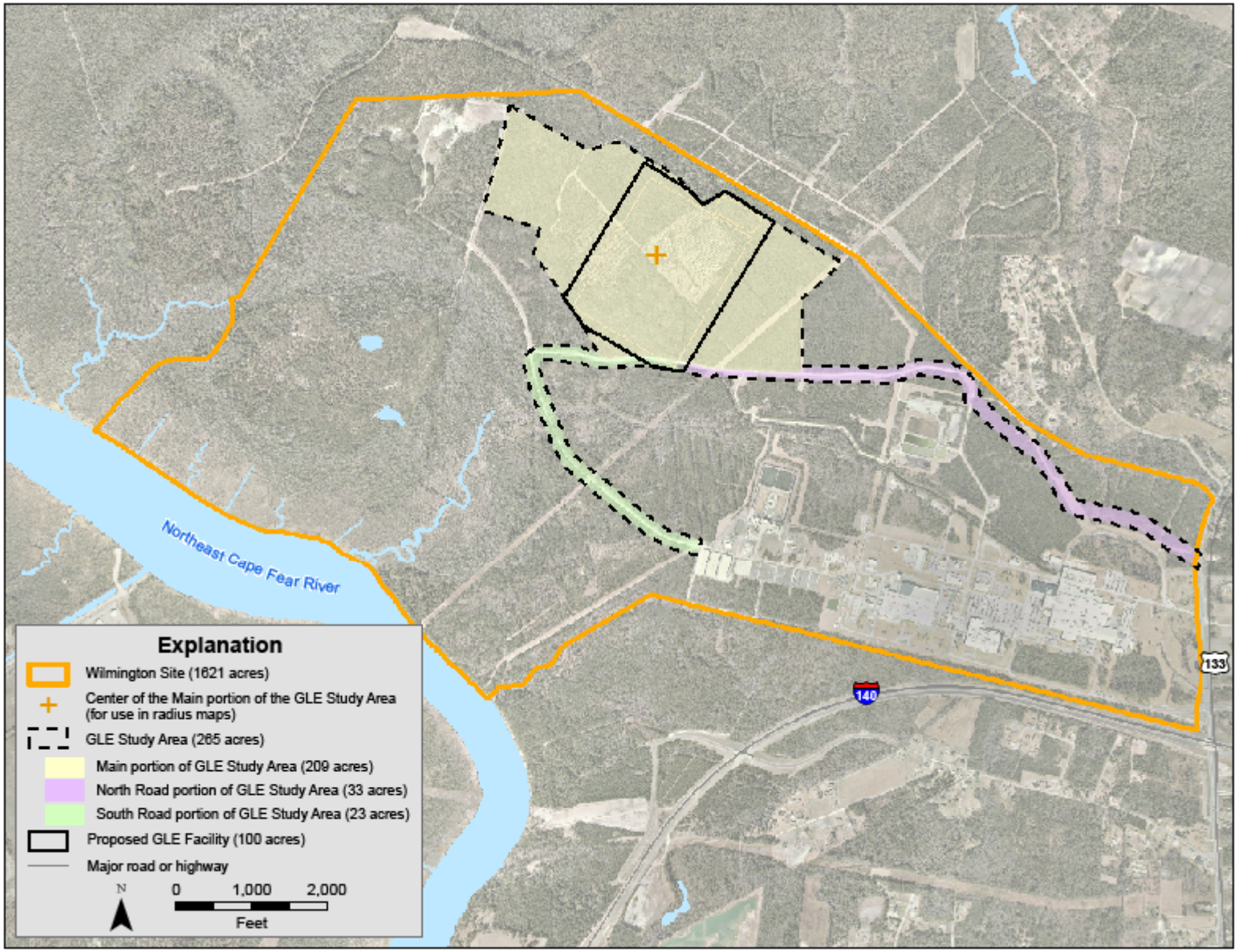
Northeast Cape Fear River
140
133
Explanation
Wilmington Site (1621 acres)
Center of the Main portion of the GLE Study Area (for use in radius maps)
GLE Study Area (265 acres)
Main portion of GLE Study Area (209 acres)
North Road portion of GLE Study Area (33 acres)
South Road portion of GLE Study Area (23 acres)
Proposed GLE Facility (100 acres)
Major road or highway
N
0
1,000
2,000
Feet

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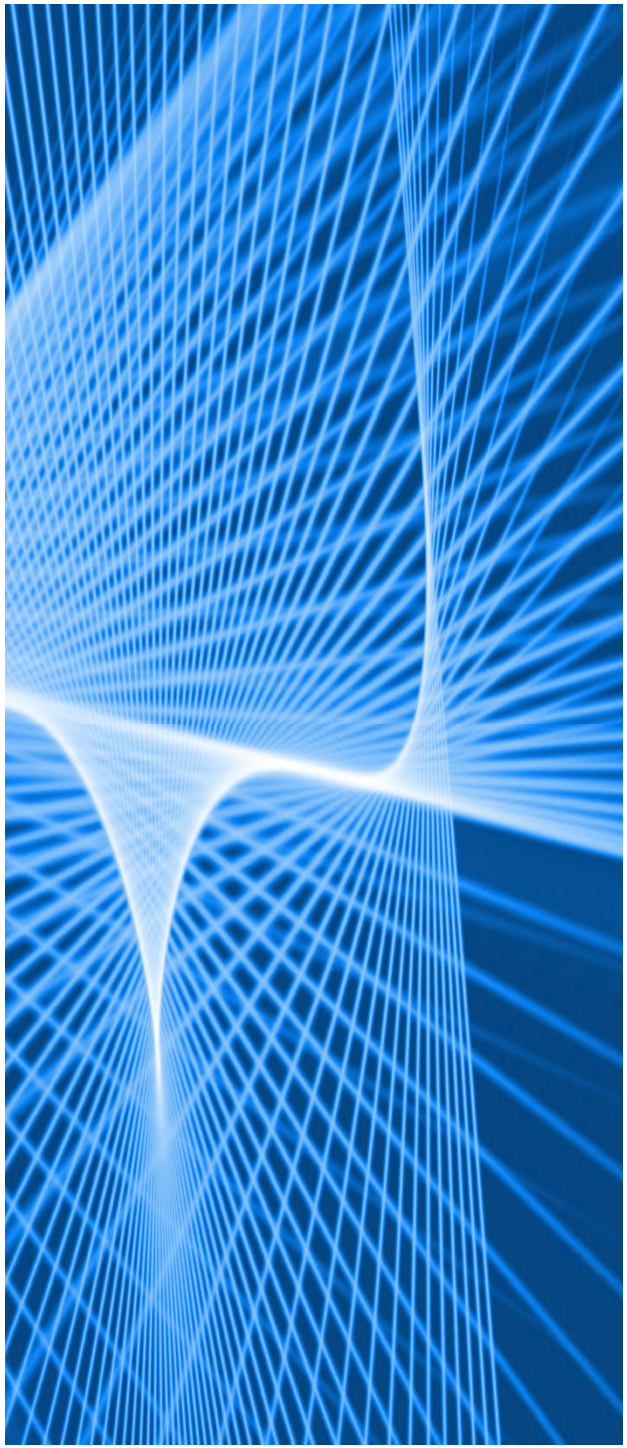
License Application Overview



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License Application Overview

Application Submittal Method

- Goal was to make as public as possible
- Large percentage is public
- Application will include some:
  - proprietary
  - export controlled information
  - security related information
  - safeguards information
  - classified
- Will provide hardcopy & CD

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License Application Overview

LA Development & Review Status

- Chapters 1-11 90% complete
- ISA Summary 75% complete
- Security & EP plans complete
- FNMCP in final review
- Decommissioning Funding Plan final draft

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Chapter 4 Radiation Protection Overview

Radiation Protection Program

- Requirements of 10 CFR 20, Subpart B
- Responsibilities of Key Program Personnel
- Radiation Protection Program Staffing
- Independence of the Radiation Protection Program
- Annual Review of the Radiation Protection Program

As Low As Reasonably Achievable (ALARA) Program

- ALARA Program
- ALARA Policies and Procedures
- ALARA Goals
- Radiation Safety Committee
- Interaction Between Radiation Protection and Operations
- Review of ALARA Program

Chapter 4 Radiation Protection Overview (continued)

Organization and Personnel Qualifications

- Radiation Protection Personnel
- Organizational Relationships
- Radiation Protection Manager
- Radiation Protection Staff Responsibilities
- Minimum Training of Radiation Protection Staff

Commitment to Approved Procedures

- Radiation Protection Procedures
- Preparation, Authorization, Approval, and Distribution of Radiation Protection Procedures
- Radiation Work Permit Procedures

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Chapter 4 Radiation Protection Overview (continued)

Radiation Protection Training

- Design and Implementation of Radiation Protection Training
  - Training of Personnel and Visitors
- Level of Training
- Incorporation of 10 CFR 19 Training Requirements
- Review of Radiation Protection Training Program
- Evaluation of the Radiation Protection Training Program

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Chapter 4 Radiation Protection Overview (continued)

Ventilation and Respiratory Protection Programs

- Ventilation and Containment
- Respiratory Protection Program
- Radiation Surveys and Monitoring Programs

Air Sampling Program

- Control of Airborne Radioactive Material
- Minimization of Contamination

Contamination Survey Program

- Corrective Action Program for Personnel Contamination
- Corrective Action Program for Airborne Occupational Exposure
- Equipment and Instrumentation Sensitivity

GLE Chapter 6 Chemical Process Safety Overview

Process Chemical Risk and Accident Sequences

- Chemical Release Scenario Techniques and Assumptions
- Source Term and Dispersion Models
- Description of Chemical Dispersion Models
- Chemical Exposure Standards

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GLE Chapter 6 Chemical Process Safety Overview (continued)

Severity Ranking	Consequence Description		
	Workers	Offsite Public	Environment
3 (High)	• Radiological dose greater than 1 Sv (100 rem) • 75 mg soluble uranium intake • Chemical exposure greater than AEGL-3 • A criticality accident occurs	• Radiological dose greater than 0.25 Sv (25 rem) • 30 mg soluble uranium intake • Chemical exposure greater than AEGL-2 • A criticality accident occurs	• A criticality accident occurs
2 (Intermediate)	• Radiological dose greater than 0.25 Sv (25 rem) but less than or equal to 1 Sv (100 rem) • Chemical exposure greater than AEGL-2 but less than or equal to AEGL-3	• Radiological dose greater than 0.05 Sv (5 rem) but less than or equal to .025 Sv (25 rem) • Chemical exposure greater than AEGL-1 but less than or equal to AEGL-2	• Radioactive release greater than 5,000 times Table 2 Appendix B of 10 CFR Part 20
1 (Low)	Accidents with radiological and/or chemical exposures to workers less than those above	Accidents with radiological and/or chemical exposures to the public less than those above	Radioactive releases to the environment producing effects less than those specified above

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GLE Chapter 6 Chemical Process Safety Overview (continued)

IROFS and Management Measures

- Chemical Safety Approach
- Chemical Process Safety Controls
- Chemical Process Safety Management Measures

Requirements for New Facilities

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GLE Chapter 7 Fire Protection Overview

Fire Safety Management Measures

- Fire Protection Items Relied on for Safety
- Management Policy and Direction
- Fire Protection Program

Fire Hazards Analysis

Facility Design

- Baseline Design Criteria and Defense-In-Depth
- Fire Area Separation
- Power Supply and Distribution Systems
- Ventilation, Confinement, and Filtration Systems
- Facility Control, Computer, and Telecommunication Rooms
- Drainage and Control of Contaminated Runoff
- Lightning Protection
- Wild land Fire Protection

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GLE Chapter 7 Fire Protection Overview (continued)

Life Safety

Fire Protection Systems

- Fire Water Supply
- Fire Detection and Alarm Systems
- Automatic Suppression Systems
- Standpipe and Hose Systems
- Portable Extinguishers
- Inspection, Testing, and Maintenance of Fire Protection Systems

Fire Emergency Response Readiness

- GEH Wilmington Site Emergency Response Organization (ERO)
- Offsite Organizations
- Pre-Incident Planning
- Emergency Response Personnel Training and Qualification
- Fire Investigations and Fire Reports
- Fire Drills

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License Application Overview

Integrated Safety Analysis

Methodology same as approved GNF-A ISA

Team consisted of experienced industry experts

Developed technical reports, process flow diagrams, etc.

Design approach to minimize # of IROFS

Management expectation “no sole IROFS”

Expect no digitally controlled IROFS

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License Application Overview

Emergency Plan

- Developed integrated GNF-A & GLE E-plan
- Plan based on current version of GNF-A plan
- We will provide updates to integrated plan if necessary
- Off-site responder comments incorporated

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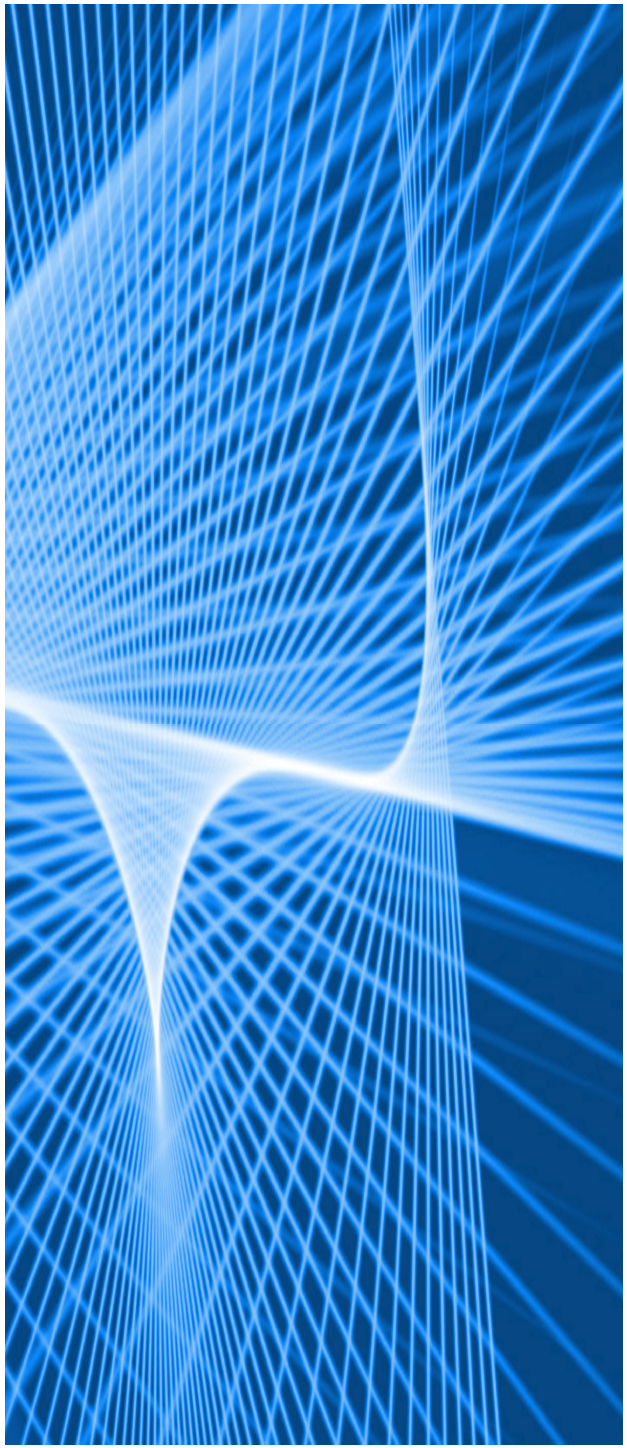
Quality Assurance Program Description



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Quality Assurance Program Description

QA Program Overview

QA Implementation Status

GLE Organization and Responsibilities

Quality Levels

Design Control / Configuration Mgt

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Quality Assurance Program Description

- GLE QAP under GE-H Corporate QA Policy
  - However, separate & distinct from GE-H NQA-1 program
- GLE QA Program documented in QAPD
  - Formatted per NQA-1 (covers all 18 elements)
  - Summarized in LA Chapter 11
  - Implemented in Phases (consistent with Part 70)

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Quality Assurance Program Description

Current emphasis on Design & ISA activities to support LA ISA Summary

Plans & procedures are in place for:

- Design Control
- Configuration Management
- Records Management
- GLE organizational responsibilities and Interfaces with contractors

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Quality Assurance Program Description

QA implemented by a combination of

- GE-H/GNF-A programs & procedures
- GLE programs & procedures
- Contractor procedures

QA Program next phase will focus on:

- Final design
- Construction
- Long-lead procurements

Full implementation when GLE infrastructure fully established

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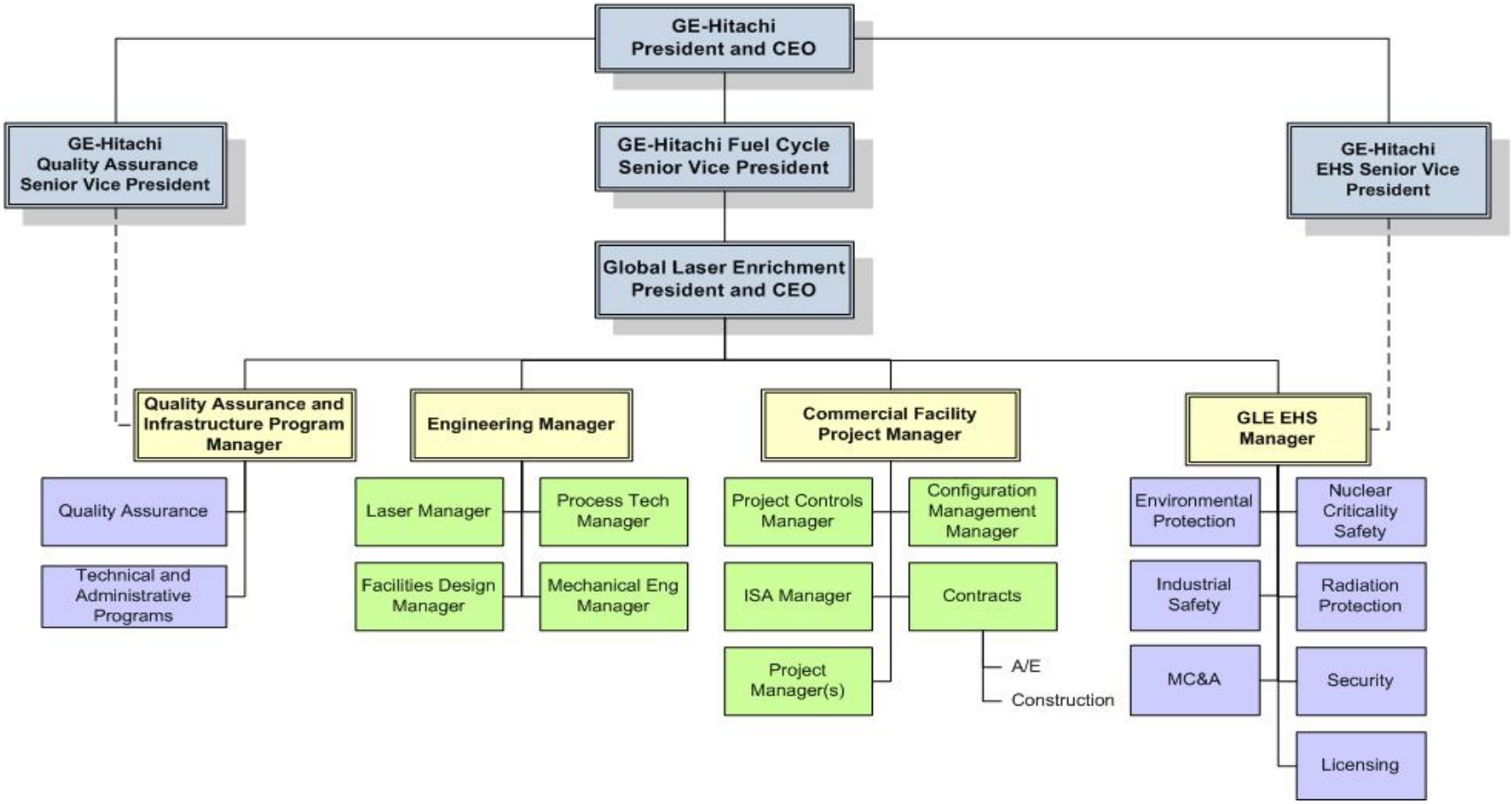
Quality Assurance Program Description

Design & Construction Org Chart



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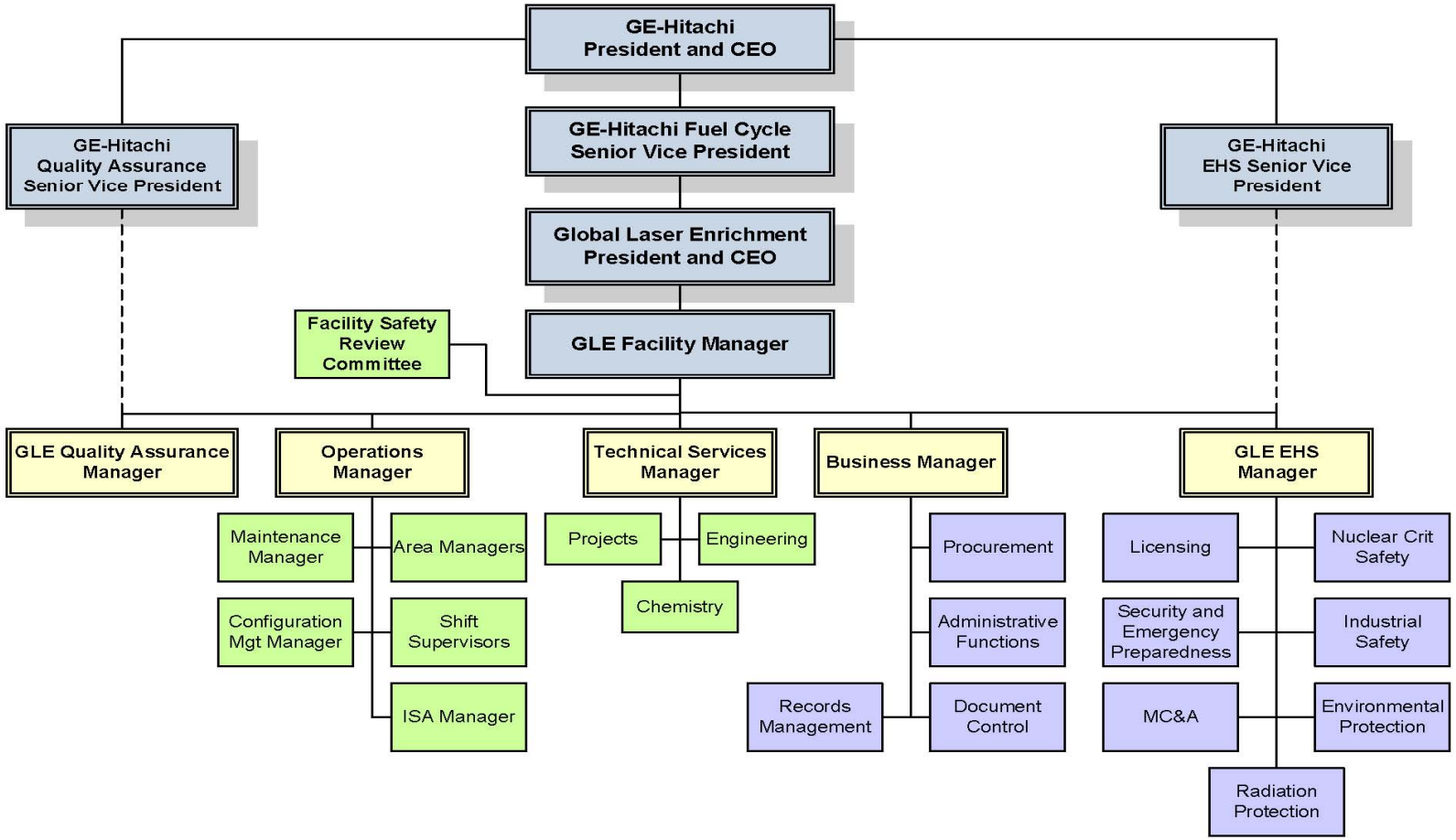
Quality Assurance Program Description

Operations Org Chart



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Quality Assurance Program Description

Three Quality Levels (QL)

QL-1

Sole (single) IROFS for high consequence events

QL-2

Sole (single) IROFS for intermediate consequence events

Two (2) or more IROFS for high consequence events

QL-3

Items not QL-1 or QL-2

Commercial grade

(Management discretion can also be applied to add items to QL 1, 2)

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Quality Assurance Program Description

Graded approach based on

- Risk
- Defense-in-depth

Final grading criteria established when ISA Summary completed

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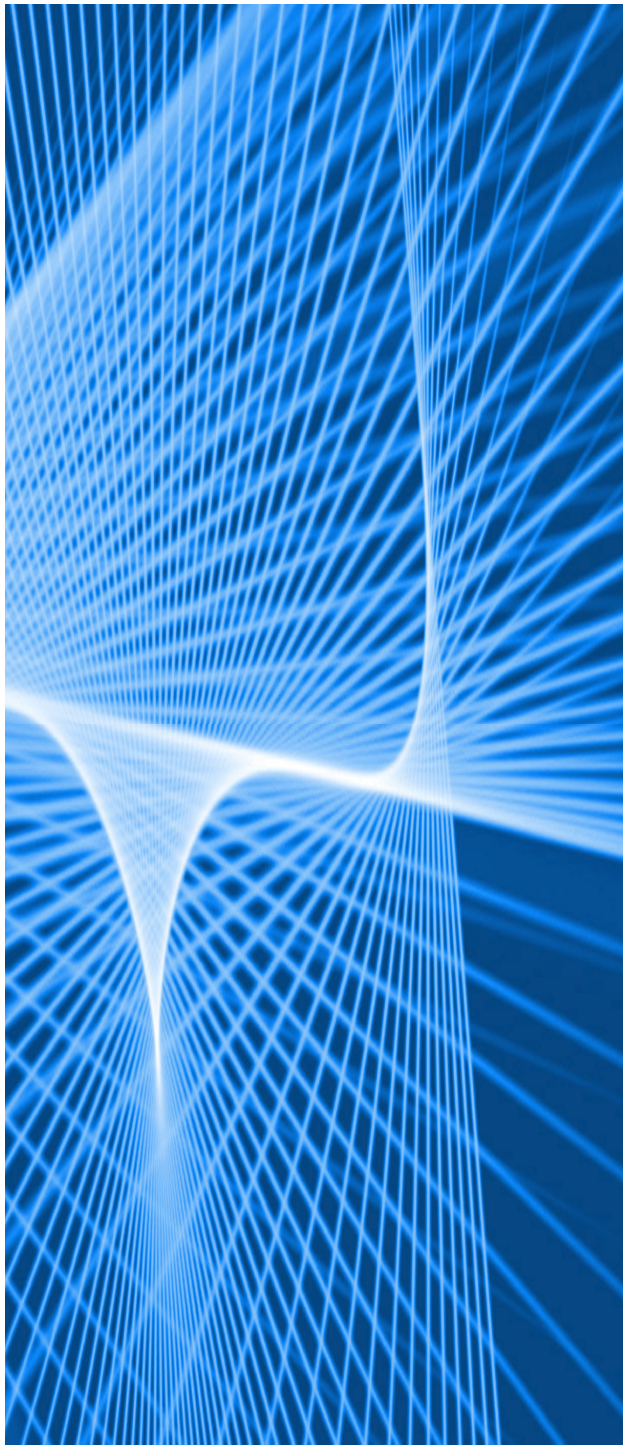
Decommissioning Funding Plan



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GLE Decommissioning Funding Plan Overview

- Consistent with the guidance in NUREG 1757
- Facility cost estimate prepared by experienced decommissioning contractor
- Financial Instrument – Surety Bond
- Exemption request for incremental funding (tails disposal)

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GLE Decommissioning Funding Plan

An overview of the decommissioning activities

Methods used to determine the cost estimate

Financial assurance instrument

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GLE Decommissioning Cost Estimate

- Cost of decommissioning site, facility buildings & equipment
- Cost of “depleted tails” disposal over the license duration
- Cost to declassify components

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GLE Decommissioning Steps

1. Planning phase (initial survey, workforce, disposal criteria, regulatory requirements, etc)
2. Dismantlement (disassemble components)
3. Decontamination (wipe, wash, scabble)
4. Final Survey (determine level of contamination)
5. Disposal (packaging and shipping)
6. De-classify certain components to unrecognizable form

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GLE Decommissioning Cost Estimate Assumptions

- 40 years operations, 5 years D&D (1.5 years overlap)
- Goal is unrestricted use per 10 CFR 20
- Clean systems and areas are left in place
- GEH will be decommissioning general contractor
- Will used experienced subcontractors for certain tasks (e.g., final status survey)

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GLE Decommissioning Cost Estimate Assumptions (continued)

- Classified components processed off-site
- Waste transported off-site by truck
- Existing decon/radwaste systems will be used for D&D
- Work performed 2 shifts per day
- Tails disposal - used the “mean” from the DOE estimated cost
- Increased the tails estimate from 2007 to 2009 dollars

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GLE Decommissioning Initial Estimates

Facility = $200 million

Depleted uranium disposition = $1 billion

Total (includes 25% contingency) = $1.5 billion

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Environmental Report Update

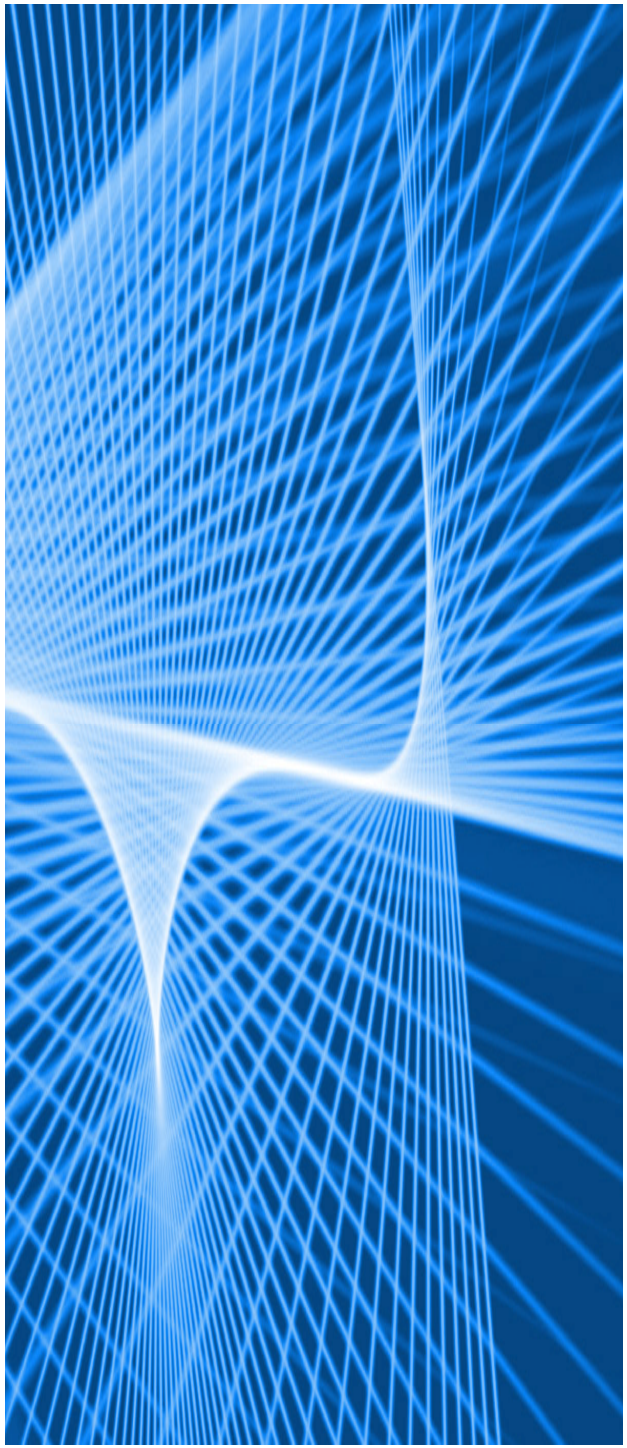

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Table of Contents

1 – introduction

2 – alternatives

3 – description of existing environment

4 – impacts to environment

5 – mitigation measures

6 – environmental measurements and monitoring

7 – cost benefit

8 – summary of impacts

9 – references

10 – list of preparers

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Changes to first draft ER

Assumed 8% enrichment (previously 10%)

Cumulative impacts of proposed nearby cement plant

Briefly mention early construction

Barnwell closure

Dry scrubber system (previously wet)

Accident analysis complete (moderate impacts)

GLE ER - Definitions

In accordance with NUREG 1748, impacts are;

- SMALL: the environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.
- MODERATE: the environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
- LARGE: the environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

Mitigation Measures

SMALL impacts for majority of resources

MODERATE impacts identified for transportation, ecological resources, noise, accidents (on or near the Wilmington site)

Mitigation for Transportation Impacts

New site entrance

Castle Hayne Road turn lanes

Alternating shifts, scheduling off-hour deliveries

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Mitigation for Impacts to Ecological Resources

Tree surveys/planting

Implement programs to enhance wildlife habitat on the Site

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Mitigation for Noise Impacts

Comply with local ordinances

Utilize “reduced noise” equipment

Overall Best Management Practices

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Mitigation for Accident Impacts

Comply with 10 CFR 70.61 (performance requirements)

Preparation of ISA to identify high/intermediate consequences

Identification of IROFS to prevent/mitigate

Summary of pre-application topics

Environmental Report

Integrated Safety Analysis

Criticality Safety

Radiation Protection

Fire Protection

Chemical Process Safety

Security

Quality Assurance

Decommissioning Funding

Organization/Administration

Emergency Preparedness

Others?

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