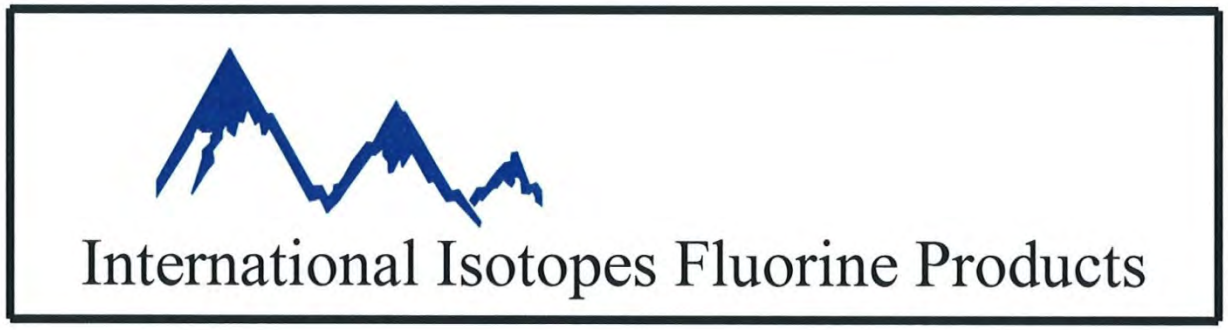

International Isotopes Fluorine Products, Inc. (IIFP)
A Wholly Owned Subsidiary of
International Isotopes, Inc. (INIS)

Fluorine Extraction Process & Depleted Uranium De-conversion (FEP/DUP) Plant

License Application

Chapter 2
Organization and Administration

Revision B
October 27, 2011

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

No List of Tables Entries

2 ORGANIZATION and ADMINISTRATION

International Isotopes Fluorine Products, Inc. (IIFP), a wholly owned subsidiary of International Isotopes, Inc. (INIS), will build and operate a depleted uranium processing facility (plant) near Hobbs in Lea County, New Mexico. A summary of the planned facility description is provided in the IIFP License Application (LA), Revision B Chapter 1 "General Information."

Chapter 2 presents a description of the organization structure responsible for managing the design, construction, startup and operation of the IIFP Facility (also referred to as the Fluorine Extraction Process and Depleted Uranium De-conversion Plant). Key management and supervisory positions and functions are described, including personnel qualifications for each key position. This chapter also includes a summary description of the management system and administrative procedures for effective implementation of Environmental, Safety and Health (ESH) functions at the IIFP Facility. More detail about management measures is provided in the IIFP LA, Revision B Chapter 11 "Management Measures."

The IIFP Chief Operations Officer (COO) is delegated the authority by the IIFP President with the approval of the INIS President and Chief Executive Officer (CEO) for the responsibilities for the design, construction, startup and operations of the facility as well as safety and regulatory compliance. The IIFP policy is to ensure and maintain a safe work place for its employees, to protect the public and the environment relative to the operation of its plant and to assure operational compliance with the terms and conditions of the U.S. Regulatory Commission (NRC) license and applicable federal, state and local regulations. The COO reports directly to the President of IIFP who in turn reports directly to the President/CEO of International Isotopes, Inc. The INIS President/ CEO reports to the Board of Directors of INIS and ensures corporate policies are established and that policy direction is communicated. The IIFP COO has overall responsibility for facility safety and regulatory compliance, whereas the IIFP President, through policies, management reviews and delegation is ultimately responsible for ensuring safety, security and protection of the environment relative to the IIFP Facility.

During the licensing and design stages of the facility, IIFP will have only limited positions filled and in the case where positions are vacant, corporate managers of INIS will fill the given responsibilities. For example, the INIS corporate ESH Manager will initially fulfill the licensing, safety and regulatory affairs responsibility for the IIFP organization until such time that it is appropriate to hire a full time ESH Manager for IIFP. Also the President/CEO of INIS or the President of IIFP will have responsibility and carry out the duties of the IIFP COO until such time the COO is hired and assumes his/her overall responsibilities. Throughout the project development and growth in organization structure INIS and IIFP management will make certain that very clear delineation of responsibility is maintained.

IIFP employs the principle of keeping radiation exposures to employees and the general public as low as reasonably achievable (ALARA). Additionally, the IIFP organization is structured to maintain appropriate independency between the safety, quality organizations and the operations organizations to ensure that production does not take priority over safety.

INIS is implementing International Organization for Standardization (ISO) 9001 in their existing Quality Management System (QMS) at the corporate office and Idaho production facility. INIS corporate quality processes and implementing procedures will be incorporated appropriately into the IIFP Quality Assurance (QA) Program. IIFP is also incorporating a graded approach into the IIFP QA Program that will ensure compliance with necessary regulatory requirements. A description of the IIFP QA Program and graded approach is provided in the IIFP LA, Revision B Appendix A, "Quality Assurance Program Description."

2.1 ORGANIZATIONAL STRUCTURE

The following sections address the organizational structure for the IIFP Facility including corporate ownership, organization structure during design, construction, startup and operations.

2.1.1 Corporate Background

International Isotopes, Inc. was formed as a Texas corporation in 1995. Its wholly owned subsidiaries are International Isotopes Idaho Inc., International Isotopes Fluorine Products, Inc. and International Isotopes Transportation Services, Inc., all of which are Idaho corporations. INIS headquarters and all operations are currently located within two facilities in Idaho Falls, Idaho.

INIS currently operates under three separate NRC possession and use licenses, maintains a specific license to import and export Category 1 and Category 2 quantities of radioactive material, maintains an NRC Approved QA Plan for the shipment of Type B quantities of radioactive materials, maintains two U.S. Department of Transportation Special Form Certificates and several Sealed Source and Device Registry Safety Evaluations. This License Application is being prepared to support a separate and additional NRC operating license for the uranium de-conversion and fluorine extraction processing facility planned for Lea County New Mexico.

The President of International Isotopes Fluorine Products, Inc. will report directly to the President/CEO of INIS. All further position descriptions contained in this chapter refer directly to positions within the IIFP subsidiary unless specifically mentioned otherwise.

2.1.2 Design and Construction Organizational Structure

IIFP management is responsible with delegated authority from the INIS President/CEO for the design, engineering, construction, startup, operation, maintenance, modification, testing and final facility decommissioning.

In the early stages of the project concept, INIS hired a contractor to help develop the IIFP Facility Project. The contractor has experience in uranium and fluorine technologies and related commercial operations including the environmental, safety and health aspects. The contractor's scope of work included developing and managing early project activities and preparing a conceptual design of the plant. The contractor was also hired to prepare the NRC License Application and the Environmental Report for the project.

The facility site evaluation and selection was conducted by INIS and its experienced contractors. The selected site at Hobbs, New Mexico is described in the IIFP LA, Revision B Chapter 1.

A Design and Build (DB) Contractor will be contracted to perform detailed design and construction of the IIFP Facility.

The "design and build" terminology is used synonymously with design and construction work as shown in Figure 2-1, "IIFP Project Design and Construction Organization."

While the project is in licensing, design and construction, the President/CEO of INIS may also act as the President of IIFP until that position is filled. One of the first positions that will be filled in the IIFP organization will be the Chief Operations Officer (COO) who will take direct responsibility, and will be delegated the commensurate authority by the IIFP President, for all aspects of the project including

selecting additional IIFP management staff. As the project progresses into construction, startup and finally operations, the COO will add appropriate management positions in order that they gain knowledge of the plant at the appropriate stages and in order to put additional staff and programs in place to support the safe operation of the facility. Figure 2-1 presents the planned project organization during the project design and construction.

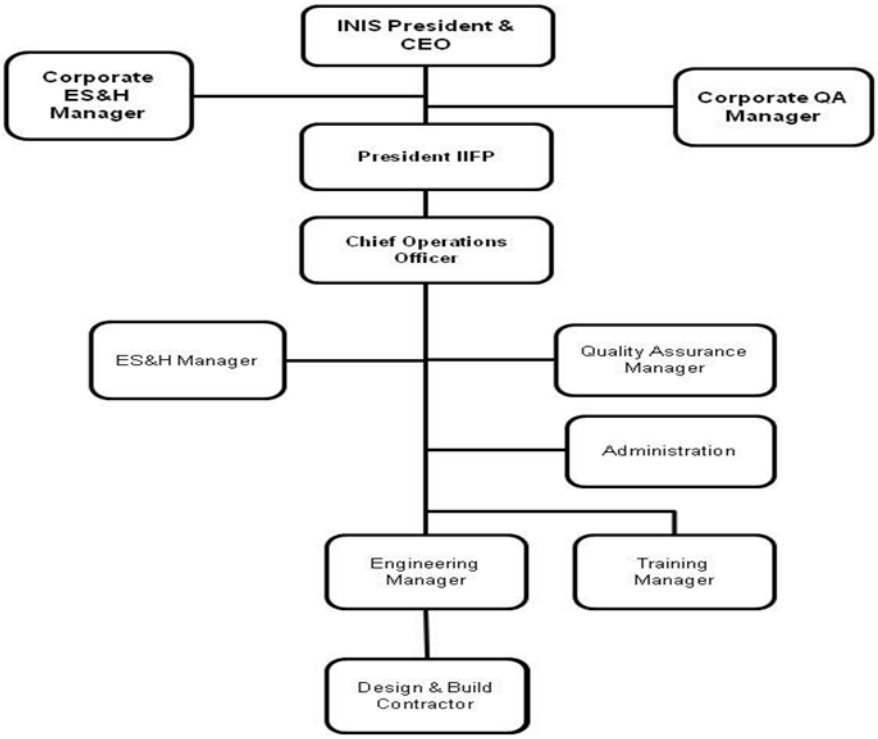

Figure 2-1 IIFP Project Design and Construction Organization

As shown in Figure 2-1, the COO is responsible, with delegated commensurate authority from the IIFP President, for managing the administration, ESH, QA, Engineering and Training for the IIFP Facility. The COO is also responsible for overseeing the supporting contractor functions during the licensing, design and construction of the IIFP Facility. Once an IIFP Engineering Manager is hired, the COO will delegate authority to the Engineering Manager for providing the day-to-day oversight of the DB Contractor and ensuring professional and contractor support is in place to perform any required Integrated Safety Analysis (ISA) Summary and licensing documentation during the design and construction of the IIFP Facility. Until the Engineering Manager position is filled, the COO (or the IIFP President if the COO position is not yet filled) carries out these Engineering Manager responsibilities. The INIS parent company will provide the QA and ESH Management support to the IIFP COO during the licensing and design stages of the project. Prior to start of construction activities IIFP will establish full time Quality Assurance and ESH managers for the facility. Procurement for the commercial plant project is generally

performed by the DB Contractor but in some cases may be performed by IIFP or subcontractors. The IIFP QA function ensures that evaluation and pre-approval of vendor qualification is performed where the procurement involves IROFS as identified in the IIFP ISA Summary, Revision B. This review and pre-approval is to ensure the vendor quality assurance programs are in accordance with the requirements of the IIFP QA Program. Likewise, the QA function ensures reviews of vendor performance in accordance with the IIFP QA Program where the procurement involves QA Levels 1 and 2 systems, structures and components as defined by the IIFP QA Program documentation.

Configuration management (CM) and design modification safety reviews are discussed in Section 2.3.1.

Position descriptions of key management personnel in the design and construction organization will be accessible to affected personnel and the NRC.

2.1.3 Transition from Design and Construction to Startup and Plant Operation

Prior to the end of construction, the focus of the organization will shift from design and construction to initial startup and operation. At an appropriate time during construction, IIFP will supplement and expand the initial organization structure to include a Plant Manager (PM) and other management positions and disciplines necessary to ensure readiness of the facility for safely starting and effectively transitioning from construction activities to operating activities. These additional positions will be hired well in advance of the scheduled start up of operations and may serve in interim organizational roles during the construction stage of the project.

During this transition, the IIFP Plant ESH and QA Managers report to the COO regarding ESH and QA matters related to design and construction. Both the ESH Manager and QA Manager have the responsibility and authority to elevate and report any ESH or QA unresolved concern to the IIFP President. All ESH and QA reported concerns will be followed through to resolution and documented. This reporting authority of the IIFP ESH and QA Managers is intentionally structured to provide significant continued focus on the ESH goals and stop-work authority during design, construction and transition periods when the operating organization may not yet be fully implemented.

When construction of the facility and process systems is complete, the equipment and systems undergo acceptance testing as in accordance with the QA Program and approved written procedures. Following successful completion of integrated equipment and systems testing and acceptance, the responsibilities for managing the facility equipment and systems are transferred from the Design and Construction Organization to the Plant Operation Organization as shown in Figure 2-2 by means of a transition plan. The COO and Plant Manager ensure the development of a transition plan and an orderly, safe and thorough turnover to the IIFP Plant Operation Organization. The turnover includes the physical systems, corresponding design information, records of the facility and as-built drawings. Following turnover, the Plant Operation Organization is responsible for facility safe operations, maintenance, configuration management and facility safety reviews of modifications affecting the as-built plant.

The design basis for the facility is maintained during the transition from construction to operations through the CM Program described in Section 2.3.1 below and in the LA, Revision B Chapter 11.

2.1.4 Plant Operation Organizational Structure

The IIFP Plant Operation Organization structure and lines of communication are shown in Figure 2-2. IIFP has responsibility for pre-operational testing, startup, operations and maintenance of the IIFP commercial plant.

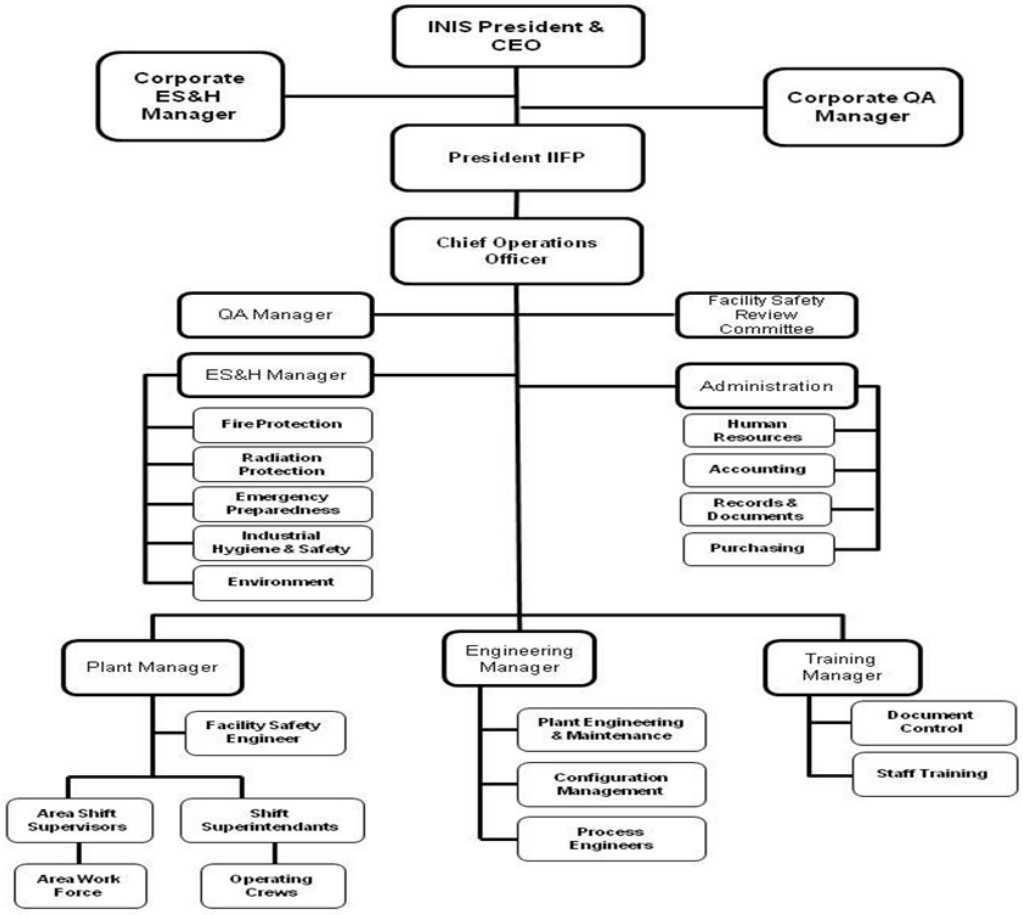

Figure 2-2 Plant Operation Organization

The Chief Operations Officer reports directly to the IIFP President who, in turn reports to the INIS President/ CEO. The COO is responsible with delegated authority from the IIFP President for the overall operation, maintenance, administration and regulatory compliance of the IIFP Facility. In the discharge of these responsibilities, the COO leads the activities of the plant, including the following functions:

- Quality Assurance
- Plant Management (Operations/Technical)
- Engineering and Maintenance
- Administration
- Training
- Environmental, Safety and Health
- Facility Safety Review Committee (FSRC) including the ALARA Committee

The responsibilities, authorities and lines of communication of key management positions within the plant organization are discussed in Section 2.2 “Key Management Positions, Responsibilities and Qualifications.”

Position descriptions for key management personnel in the operating organization will be accessible to affected personnel and to the NRC.

2.2 KEY MANAGEMENT POSITIONS, RESPONSIBILITIES AND QUALIFICATIONS

This section describes the key functional positions responsible for managing the safe design, construction and operation of the IIFP Facility. The responsibilities, authorities, qualifications and lines of communication for each key management position are provided in this section.

Responsibilities, authorities and inter-relationships of the IIFP operating organizational groups, who have responsibilities important to ESH and Quality Assurance, are specified in approved written position descriptions.

2.2.1 INIS President and Chief Executive Officer

The INIS President and Chief Executive Officer reports to and receives policy direction from, the INIS Board of Directors. The President/CEO is responsible for establishing policies and providing overall direction and management of all INIS corporate activities. The President/CEO also ensures that INIS corporate policies for the ESH and QA Programs are maintained and transmitted to all levels of management and implemented appropriately through approved written procedures. The President/CEO shall have as a minimum a bachelor's degree in a scientific field or business. At least eight (8) years of work experience is required with the proven ability in management of a commercial chemical, radiological, or nuclear related operations or engineering organization, overall leadership qualities and the commitment to safety, quality and regulatory compliance.

2.2.2 INIS Corporate Environmental, Safety and Health and Quality Assurance Managers

The INIS Corporate ESH and Quality Assurance Managers are appointed by the INIS President/CEO and are responsible for ensuring development and communication of the parent INIS corporate ESH and QA policies that will ensure safe operation and meet the licenses, permit and product requirements.

During the early stages of the IIFP project, the INIS Corporate ESH and QA Managers temporarily have duties that will later be fulfilled by the IIFP ESH and QA Manager, respectively. When the positions of IIFP ESH and QA Managers are filled, any of the IIFP Facility ESH and QA responsibilities, duties and authorities that were temporarily being performed by INIS Corporate staff will transfer to the IIFP ESH and QA Managers.

The INIS Corporate ESH Manager is responsible for initially establishing an IIFP system that will identify and evaluate potential or new regulatory requirements applicable to the IIFP Facility. During the design and construction stages, this ESH Manager ensures that environmental technical and licensing support, as requested by the COO or IIFP President/CEO, is provided. The INIS Corporate ESH Manager also provides technical support for the federal, state and local environmental related permit application. A primary responsibility of this ESH Manager during the design/construction stage of the project is to prepare responses and interact with the NRC for Requests for Additional Information (RAIs) relative to the IIFP License and Environmental Report. The INIS Corporate ESH Manager also provides support for ensuring that effective audit, feedback, investigative and corrective action programs are in place across the parent and subsidiary corporate organizations that will provide prompt response in preventing and correcting ESH related incidents.

The INIS Corporate QA Manager is responsible for the overall development and implementation of all aspects of the corporate Quality Assurance Program. The INIS Corporate QA Manager also provides support for ensuring the QA policies, effective audit, investigative and corrective action programs are in place across the parent and subsidiary corporate organizations that will provide prompt response in preventing and correcting Quality Assurance issues and events.

The INIS Corporate ESH and QA Managers provide advice, oversight and consultation in assisting the IIFP QA and ESH Managers in matters of regulatory compliance and ESH and QA program objectives.

The INIS Corporate ESH and Assurance Managers shall have a minimum a bachelor's degree in an engineering or scientific field and five (5) years of related experience in chemical, radiological or nuclear facilities.

2.2.3 IIFP President

The IIFP President reports directly to the INIS President/CEO and is responsible for establishing policies and providing overall direction and management of all IIFP activities. The IIFP President also ensures that policies for the ESH and QA Programs are maintained and transmitted to all levels of IIFP management and implemented appropriately through approved written procedures. The IIFP President shall have as a minimum a bachelor's degree in a scientific discipline or industrial supervision related field. At least five (5) years of work experience is required with demonstrated proficiency in management of a commercial chemical, radiological, or nuclear related operations or engineering organization, overall leadership qualities and a commitment to safety, quality and regulatory compliance.

2.2.4 IIFP Chief Operations Officer

The IIFP Chief Operations Officer is selected by the IIFP President. In the role of COO, he/she is responsible for managing the design, detailed engineering, construction, pre-startup, procurement, configuration management, quality assurance, ESH, subcontracting, project control and records.

The COO is the individual with the overall responsibility for safety and operational activities of the IIFP Facility. The responsibilities of the COO are defined by IIFP policies, procedures and instructions. The COO is responsible for the safe conduct and control of operations and protection of employees. The COO also has responsibility for regulatory compliance with the facility NRC licenses and other federal, state and local permits or licenses. The COO ensures proper selection of staff for the key positions including positions for the Facility Safety Review Committee and ALARA Committee.

The COO shall have the authority to enforce the shutdown of any construction or pre-start activity. The COO will also delegate facility shutdown authority to appropriate organizations and line managers. The COO must approve restart of any activity that was shut down due to safety and/or regulatory concerns.

The COO shall have as a minimum a bachelor's degree in a scientific discipline or industrial supervision related field and five (5) years of experience in a chemical, radiological, or nuclear related operations or engineering organization. The experience shall include responsible assignments involving engineering or facility operations management. The COO shall be cognizant of the IIFP licensing documentation and the overall ESH and QA requirements of the facility design and construction.

2.2.5 Engineering Manager

The Engineering Manager reports directly to the COO. During the design and construction stages, the Engineering Manager ensures professional staffing or contractor support is in place to perform ISA and licensing documentation. This support includes, but is not limited to: 1) design modifications review and determination of Items Relied on for Safety (IROFS, 2) design changes review and determinations related to IROFS, in accordance with the IIFP QA Program or 3) response to the NRC involving RAIs relative to design changes or modifications. During start-up and operations stages of the facility the Engineering Manager is responsible for providing all facility engineering support, configuration management and plant engineering maintenance.

The Engineering Manager also has responsibility for ensuring the directing and scheduling of maintenance activities, including ensuring safe design and reliability of process and support equipment and providing maintenance support for equipment and systems. The Engineering Manager is responsible for overseeing engineering projects and the development of design changes to the facility and for ensuring the establishment and implementation of engineering and maintenance policies and procedures. Other responsibilities typically include, but are not limited to, activities such as: 1) providing design authority for engineering projects, 2) overseeing maintenance of the approved design status and 3) assuring coordinating and maintaining testing programs for the facility, to include testing of systems, structures and components (SSCs) to ensure the SSCs are functioning as specified in design documents.

The Engineering Manager ensures that design change reviews and analyses are documented, follow requirements of the IIFP QA Program and CM Program and are reported, reviewed and approved in accordance with IIFP procedures during the design and construction of the facility. Once IIFP staffs the Facility Safety Engineer (FSE) position, the ISA and related controls and the licensing amendment process become the responsibility of the Facility Safety Engineer**.** The responsibilities and qualifications for the FSE are described in Section 2.2.9.1.

The Engineering Manager shall have as a minimum a bachelor's degree in an engineering or scientific field and a minimum of five (5) years of experience in implementing and managing technical or engineering programs or operations in a chemical, radiological or nuclear facility. Educational requirement may be substituted with relevant military and/or civilian work experience.

2.2.5.1 Plant Engineering and Maintenance Manager

The Plant Engineering and Maintenance Manager reports to the Engineering Manager and has responsibilities for supervising day-to-day engineering services and management for the preventive and corrective maintenance support for the IIFP Facility.

The Plant Engineering and Maintenance Manager has responsibility for ensuring the directing and scheduling of maintenance activities, including ensuring safe functionality and reliability of process and support equipment and providing maintenance support for equipment and systems. Other responsibilities, typically include, but are not limited to, activities such as: 1) corrective and preventive maintenance of facility equipment, 2) assuring adequate qualified staffing and training of maintenance and engineering support personnel, 3) assuring development and implementation of maintenance procedures and 4) coordinating and implementing testing programs for the facility, to include testing of systems, structures and components to ensure the SSCs are functioning as specified in design documents.

The Plant Engineering and Maintenance Manager shall have as a minimum a bachelor's degree in an engineering or scientific field and a minimum of five (5) years experience in implementing and

supervising a plant engineering or maintenance program in a chemical, radiological or nuclear facility. Educational requirement may be substituted with relevant military and/or civilian work experience.

2.2.5.2 Maintenance Supervisors

The Maintenance Supervisors report to the Plant Engineering and Maintenance Manager and have responsibilities for corrective and preventive maintenance, measuring and test equipment calibrations, equipment fabrication and repairs in the shop and field and development and implementation of maintenance procedures. The Maintenance Supervisors implement maintenance procedures for ensuring safe and reliable equipment, systems, structures and components and for reviewing maintenance work requests to assist in determining if the work involves IROFS or modifications.

The Maintenance Supervisors ensure that preventive and corrective maintenance is implemented in a safe and efficient manner in accordance with the work schedule and plan. Duties include, but are not limited to: 1) ensure that plant work for IROFS is performed using written procedures as applicable, 2) oversee activities to ensure radiation doses are ALARA and 3) schedule and ensure adequate training for maintenance personnel. A Maintenance Supervisor assigned to each shift is also the Emergency Response Team Leader (ERTL) on the back-shifts, weekends and holidays and carries out that responsibility as described in the IIFP LA, Revision B "Emergency Management Plan."

Maintenance Supervisors shall have as a minimum a high school diploma and at least four (4) years of lead maintenance experience in the field of mechanical, electrical, or instrument maintenance in a chemical, radiological or nuclear facility, or a bachelor's degree in engineering or scientific field with at least two (2) years of practical maintenance experience in a chemical, radiological or nuclear facility.

2.2.5.3 Configuration Management Manager

The IIFP Configuration Management Manager (CMM) reports to the Engineering Manager and has responsibility for maintaining the CM program and procedures. The CMM also ensures applicable CM evaluations and decisions are documented and entered into recordkeeping in accordance with plant procedures. The CMM ensures that audits are conducted on CM performance, evaluations and decisions. Reports of those findings are reported to the FSRC, accordingly.

The CMM shall have at least four (4) years of appropriate responsible experience of working with CM program implementation in a chemical, radiological or nuclear facility.

2.2.5.4 Human Factors Engineer

IIFP commits to adding a professional with a human factors engineering (or human factors) background to the IIFP project. IIFP will employ this individual either as a contractor or an employee. The Human Factors Engineer will report directly to the IIFP Engineering Manager. The individual in this position has the responsibility for developing and finalizing the IIFP Human Factors Engineering (HFE) Implementation Plan and for overseeing the incorporation and implementation of the HFE Plan elements within the applicable HFE scope during the design, engineering and start up of the facility. The Human Factors Engineering position is included as part of the staff shown in the "Design and Build Contractor" organization box during design and construction stage of the Project and is included in the "Process Engineers" organization box of Figure 2-2, "Plant Operation Organization" once the IIFP operation begins.

The Human Factors Engineer shall have as a minimum a bachelor's degree in Human Factors Engineering or a bachelor's degree in a scientific discipline or psychology with an emphasis on human factors. Additionally, the Human Factors Engineer shall have at least three (3) years of experience in the application of human factors engineering or human factors in a commercial or military setting. The educational requirement may be waived if it is deemed that the candidate has relevant and sufficient military and/or commercial experience in Human Factors beyond the minimum experience requirements.

2.2.6 Design and Build Contractor

The Design and Build Contractor is selected by the INIS President/CEO and approved by the INIS Board of Directors. The DB Contractor, under a formal approved written contract with IIFP, is responsible for performing the detailed design, engineering, procurement and construction of the IIFP Facility. The DB Contractor assigned project manager is the lead-official representative of the design/build contract. In the initial design stage, the DB Contractor will report directly to the COO. Once the Engineering Manager position is filled the DB Contractor will report directly to the Engineering Manager. The DB Contractor coordinates work on the project and controls the subcontractors, inspections and start-up functions to ensure safe design, construction, acceptance testing and turnover to the IIFP Plant Operation Organization.

During the detailed design, construction and start-up stage of the project, the DB Contractor will also ensure, as part of the written contract, that design meets all the applicable federal, state and local codes and standards.

The approved DB Contractor shall have as a minimum a demonstrated safe record of experience in design, engineering, procurement and construction of chemical, radiological or nuclear facilities at project complexity levels at least equivalent with that of the IIFP Project. The DB Contractor shall also have the professional and trade craft capabilities of either performing or subcontracting for design, engineering, procurement, construction and support of acceptance testing for the plant process equipment, systems and facility infrastructure.

2.2.7 IIFP Quality Assurance Manager

The IIFP Quality Assurance (QA) Manager reports to the COO, but has an interacting relationship with Engineering, Training, ESH and Plant Manager organizations, other IIFP Facility managers and INIS QA corporate staff, on matters of QA policies, new QA requirements and overall QA performance. The IIFP QA Manager is responsible for establishing and maintaining the IIFP QA Program. Line management and their staff are responsible for ensuring implementation of the QA Program and compliance with the Program. The QA Manager position is independent from operational and safety organizations. The QA Manager has authority to elevate and report any QA unresolved concerns to the IIFP President and the INIS Corporate QA Manager. The IIFP QA Manager is responsible to ensure that such QA concerns will be followed through to resolution and documentation.

The IIFP QA Manager ensures compliance with the program elements identified in Revision B Chapter 11 of the License Application and the Revision B "Quality Assurance Program Description," Appendix A of the License Application. Those elements include the QA Program; qualification and certification of personnel; work control; design control; procurement document control; instructions, procedures and drawings; document control; control of purchased items and services; identification and control of materials, parts and components; control of special processes; test control; inspection; control of measuring and test equipment; inspection, test and operating status; control of non-conforming items; corrective actions; and audits/assessments.

The QA Manager has plant shutdown authority in matters relative to QA and ensures through the Plant Manager and COO that such shutdowns are implemented in a safe and orderly manner. The QA Manager, or Designee, must approve the restart of any operation shutdown by reasons of QA matters or by the QA function.

The IIFP QA Manager shall have as a minimum a bachelor's degree in engineering, science or related field and five (5) years of experience in the implementation of a QA Program at a chemical, radiological or nuclear facility.

2.2.8 IIFP Environmental, Safety and Health Manager

The IIFP Environmental, Safety and Health (ESH) Manager reports to the IIFP COO, but also has an interacting relationship with all managers on matters of ESH policies, regulatory requirements, plant safety and environmental compliance. In addition, the ESH Manager has the authority to elevate any ESH unresolved concerns to the IIFP President and the INIS Corporate ESH Manager. The IIFP ESH Manager is responsible to ensure that such concerns will be followed through to resolution and documentation.

The IIFP ESH Manager has the responsibility to establish and oversee the Radiation Protection, Industrial Safety/Industrial Hygiene, Fire Protection, Emergency Preparedness/Security and Environmental Protection Programs to ensure compliance with applicable federal, state and local regulations and requirements. Those programs are designed to ensure the health and safety of employees and the public, as well as the protection of the environment. The ESH Manager has plant shutdown authority in matters relative to ESH and ensures through the Plant Manager and COO that such shutdowns are implemented in a safe and orderly manner. The ESH Manager, or Designee, must approve the restart of any operation shutdown by reasons of ESH matters or by the ESH function.

The IIFP ESH Manager shall have as a minimum a bachelor's degree in engineering, science or related field and five (5) years of responsible assignments of ESH activities at chemical, radiological or nuclear facilities.

2.2.8.1 Fire Protection Lead

The Fire Protection Lead (FP) reports to the IIFP ESH Manager and has responsibilities for developing fire protection plans and procedures and for ensuring that day-to-day fire protection activities are implemented in accordance with the Fire Protection Plan and procedures. The FP Lead ensures that inspections, audits and surveys are performed on fire protection systems, equipment and controls in accordance with established frequencies and procedures.

The FP Lead shall be trained in the field of fire protection and have at least two (2) years practical experience in fire protection activities at a chemical, radiological or nuclear facility.

2.2.8.2 Radiation Protection Manager

The Radiation Protection Manager (RPM) is administratively independent of production operations and reports directly to the IIFP ESH Manager. The RPM also has the authority to report to the IIFP COO any unresolved concerns related to ESH and radiation protection. The RPM is responsible for effectively implementing the IIFP Radiation Protection Program (RPP) and for ensuring the facility is staffed with suitably trained radiation personnel. The RPM must approve restart of any operation that was shut down by the radiation protection (RP) function or as a result of radiation protection concerns. The RP staff,

including technicians and support personnel, report to the RPM. Major responsibilities of the RPM and the RP staff include, but are not limited to, the following:

- Establish and maintain the RP programs, procedures and training
- Conduct radiation and contamination monitoring and control programs
- Evaluate radiation exposures of employees, contractor personnel and visitors and ensure the maintenance records and reporting of results
- Establish and maintain the ALARA program, including being a key member of the ALARA Committee
- Evaluate the integrity and reliability of radiation detection instruments
- Provide support for Integrated Safety Analyses and configuration control

Additional responsibilities of the RPM and RP staff are provided in the IIFP LA, Revision B Chapter 4 "Radiation Protection."

The Radiation Protection Manager shall have as a minimum a bachelor's degree in engineering or a scientific field and a minimum of five (5) years responsible experience that includes assignments involving responsibility for RP and the application and direction of RP programs.

2.2.8.3 Emergency Preparedness/Security Lead

The Emergency Preparedness/Security (EP/S) Lead is a staff person reporting to the IIFP ESH Manager and has responsibilities for developing emergency planning and preparedness programs and procedures. This position also develops and maintains facility security procedures and oversees implementation of facility security. The EP/S Lead assesses the effectiveness of the security and facility emergency preparedness programs, designs and ensures the implementation of drills and exercises and provides feedback to the ESH Manager and emergency response organization for corrections and improvements.

The Emergency Preparedness/Security Lead shall have a minimum of five (5) years responsible experience in the development, implementation and leadership of emergency planning and preparedness programs and procedures. At least two (2) of those years' experience must be related to chemical, radiological or nuclear facilities. Additionally, the EP/S Lead shall have either one (1) year of responsible industrial physical security experience or an appropriate security training certificate.

2.2.8.4 Industrial Safety/Industrial Hygiene Lead

The Industrial Safety/Industrial Hygiene Lead (ISIH) is a professional staff person that reports to the IIFP ESH Manager and has responsibility for: 1) developing and implementing the plant safety industrial safety, hazards communications and industrial hygiene programs and procedures, 2) ensuring development or provision of safety training materials, 3) assisting in the training of employees in safety, 4) assuring audits, inspections and assessments are conducted relative to safe conditions and practices including follow through to resolution of significant findings, 5) performing monitoring and evaluations of workplace conditions and environment to ensure established safe controls and acceptability and 6) advising and ensuring compliance of Occupational Safety and Health Administration (OSHA) requirements.

The ISIH Lead shall have a bachelor's degree in engineering or occupational safety and health and a minimum of three (3) years of responsible experience in safety programs at a chemical, radiological or nuclear facility.

2.2.8.5 Environment Lead

The Environment Lead reports to the IIFP ESH Manager and has responsibilities in supporting the ESH Manager, including but not limited to: 1) developing of environmental programs and procedures, 2) leading monitoring and measuring activities, 3) developing and maintaining environmental related permits, 4) assisting in training of employees in environmental matters, 5) conducting audits and inspections, 6) preparing and providing environmental data and reports and 7) interacting with federal, state and local representatives in ensuring compliance with permit requirements and conditions.

The Environment Lead shall have a bachelor's degree in engineering or scientific field and at least two (2) years environmental related experience in a chemical, radiological or nuclear facility.

2.2.9 Plant Manager

The Plant Manager (PM) reports directly to the COO. The PM is responsible for implementing safe practices, procedures and activities related to the operation of the production processes, utilities, environmental protection and waste treatment systems, fire system, laboratory and warehouses. The PM is responsible for the safe conduct and control of operations and protection of employees. The PM also has responsibility for day-to-day regulatory and procedural compliance associated with the facility operations.

The PM is responsible for hiring and training of qualified staff and operating personnel in the Plant Management organization.

During initial start up of the facility the Plant Manager is responsible for coordinating with the Training Manager (TM) for developing safe and effective operating procedures and training program plans. The PM is responsible for staffing of the operations organization and for ensuring operational readiness and acceptance testing plans, schedules and documentation during startup.

The PM shall be responsible for application of the safety related programs to facility operations and shall have the authority to enforce the shutdown of any process or building. The PM will also delegate facility shutdown authority to appropriate organizations and line managers. The PM must approve restart of an operation that was shut down due to safety and/or regulatory concerns.

The PM shall have as a minimum a bachelor's degree and five (5) years of experience in chemical, radiological, or nuclear related operations. The experience shall include senior responsible assignments involving engineering or facility operations management. The PM shall be cognizant of the IIFP licensing documentation and the overall ESH requirements of the IIFP Facility.

2.2.9.1 Facility Safety Engineer

The Facility Safety Engineer(s) (FSE) reports directly to the Plant Manager and has responsibility for performing technical safety analysis and regulatory evaluations for IROFS relative to modifications and change management.

The FSEs are also responsible for determining and providing ISA results and recommendations to the Facility Safety Review Committee (FSRC) and IIFP management. The FSE ensures adequate analysis, ISA Summary revisions and the reporting of such analysis and determinations.

The FSEs ensure documentation and recordkeeping of safety analyses and determinations in accordance with the IIFP QA, CM and Document Control and Records programs.

The FSE shall have as a minimum a bachelor's degree in engineering or a scientific field and at least four (4) years of experience in a radiological or nuclear-related facility of which two (2) of those years shall be in application of safety analysis methodologies.

2.2.9.2 Area Shift Supervisors

Operational functions of the IIFP Facility have designated Area Shift (day and other work shifts) Supervisors who are responsible for implementing safe and efficient operations at the Plant site.

The Area Shift Supervisors report directly to the Plant Manager and have responsibilities in designated production and utility areas of the plant. Their duties include, but are not limited to: 1) ensuring safe operation of the facility and support equipment, 2) ensuring IROFS are available and perform as intended, 3) overseeing activities to ensure radiation doses are ALARA, 4) managing of depleted uranium hexafluoride (DUF_6) cylinder handling, 5) managing chemical inventories and material logistics, 6) scheduling and supervising of operations personnel, 7) ensuring operational aspects of IROFS are being maintained in accordance with QA requirements, 8) scheduling and ensuring adequate operator training and 9) ensuring that usable and adequate supplies of safety, emergency, fire protection and spill prevention/control equipment are maintained.

The Area Shift Supervisors shall have as a minimum a bachelor's degree in a technical field and two (2) years of experience in operations of a chemical or nuclear facility or a high school diploma with five (5) years of operations experience, two (2) of which are in chemical or nuclear facility.

2.2.9.3 Shift Superintendents

The Shift Superintendents report directly to the Plant Manager. A Shift Superintendent (SSP) is assigned and scheduled for each work shift including weekends and holidays. The SSP when scheduled on the back shift (afternoons, nights, holidays and weekends) has the role in coordinating the IIFP Facility operational and maintenance tasks and support activities. This role includes: 1) assuring coordination among work groups in the authorization of safety and radiological permits, 2) arranging any additional or replacement qualified staff, as needed, for the work shift to support planned and emerging work activities, 3) ensuring corrective response and reporting for any abnormal events and 4) setting priorities and coordinating activities among the various shift functional groups when emerging or unexpected task requirements arise. When the SSP is scheduled to work on the day shift, he/she assists in emergency preparedness, planning and related training, supports the Plant Manager on special projects and assignments and attends refresher training as needed. The Shift Superintendent has the authority to stop work and shut down operations in a safe and orderly manner in matters related to ESH or QA.

Additionally, the Shift Superintendent takes the lead role of the facility Emergency Director until the COO, or Designee, can assume that role in the event of an emergency. Once relieved of the Emergency Director role, the SSP then fills the role of the Field Incident Commander during the emergency event. The role and responsibilities of the SSP during declared emergencies are specifically stated in the IIFP LA, Revision B "Emergency Management Plan."

The Shift Superintendent shall have as a minimum a bachelor's degree in an engineering or scientific field and a minimum of four (4) years of responsible experience in supervising and implementing chemical,

radiological or nuclear-related operations programs. Educational requirement may be substituted with relevant military and/or civilian work experience.

2.2.10 Facility Safety Review Committee

The Facility Safety Review Committee (FSRC) is appointed by the COO. The FSRC reports to the COO in providing technical and administrative review for ISA determinations and decisions that involve IROFS and proposed modifications to equipment, systems, structures or components. The FSRC conducts audits and reviews of operations that could affect safety or health of the worker, public safety or environmental impacts. The FSRC consists of the Chairperson, who is appointed by the COO and shall have as a minimum at least one (1) member from each of the following organizations: ESH, radiation protection, QA, safety, training, engineering and Plant Manager. The ALARA Committee, as discussed in LA Revision B Chapter 4 supports the FSRC in matters related to radiation protection. The scope of activities reviewed and audited by the FSRC shall include, but are not limited to, the following:

- Changes in facility, equipment, systems, structures or components IROFS designs in accordance with the IIFP QA Program
- Radiation protection
- Hazardous chemical safety
- Environmental protection
- Fire protection and safety
- Industrial safety/industrial hygiene
- ALARA policy implementation
- Critiques of unusual events and adverse audit findings

Requirements and minimum frequencies for audits conducted by the FSRC will be defined in the IIFP Quality Assurance Program implementation procedures.

Members of the FSRC shall have as a minimum a bachelor's degree in engineering or scientific field and at least three (3) years appropriate experience in their respective discipline in a chemical or nuclear facility. A minimum of five (5) years of experience in their respective discipline or job function in a chemical or nuclear facility may be substituted for the bachelor's degree.

2.2.11 Training Manager

The Training Manager (TM) reports directly to the COO. During design and construction of the facility the TM is responsible for coordination with engineering in order to develop operating procedures for the various facility systems and for developing training programs for initial and recurrent operator, engineering, maintenance and support personnel. During facility operations the TM is responsible for the ongoing conduct of these training programs as well as well as maintain the facility document control system.

The TM shall have as a minimum a bachelor's degree in engineering or scientific field and a minimum of five (5) years in a chemical, radiological or nuclear facility, with at least three (3) of those years in responsible operations l assignments. The TM should have prior experience in nuclear facility training programs including conduct of operations principals and philosophies.

2.3 MANAGEMENT MEASURES

Management measures discussed below are the formal methods applied to maintain IROFS at a needed level of reliability and availability. IIFP may also apply formal management measures to other important aspects of the facility operation. These methods ensure that protection and mitigation features are adequate to keep accidents within the bounds of acceptable risk. Management measures are applied, as a minimum, to all structures, systems and components associated with the performance of any IROFS.

No management measure requirements or guidance is provided in 10 CFR Part 40 (CFR, 2009a), so the program elements defined in 10 CFR 70.4 (CFR, 2009b) were followed and are discussed below. Management measures are discussed in more detail in Revision B Chapter 11 of the IIFP LA.

2.3.1 Configuration Management

Configuration Management Program elements are specified in 10 CFR 70.72 (CFR, 2009d). The IIFP is a 10 CFR 40 (CFR, 2009a) licensed facility, but owing to requirements for an ISA of the facility and associated IROFS, a CM Program is applicable. Such a program is implemented to ensure adequate change control for facility operations. Configuration management and control assures that any facility or process changes are evaluated appropriately and such changes are reflected in updated drawings, procedures and other facility documents. Configuration management ensures that all but "like kind or previously approved equivalent" replacement of equipment and minor non-process changes receives review and approval from the safety and licensing organizations. The impact of these changes (modifications) are evaluated and documented by the individual organizational groups. Corresponding safety and licensing documentation is updated in a timely manner following approval of the change.

2.3.2 Maintenance

The IIFP Maintenance Program shall be implemented prior to beginning the operations stage of the IIFP Facility. Maintenance activities include general repair and upkeep of facilities and processes along with preventive maintenance and testing of IROFS and important process controls. These activities are coordinated through safety group reviews and approval via safety work orders, hot work permits and radiation work permits (RWPs), as needed. Any maintenance activities on specific systems are evaluated for their impact on other, nearby systems.

2.3.3 Training and Qualifications

Training and qualifications requirements are established for each functional type of work. Qualifications will include minimum education, technical background, experience, etc., along with physical skills needed to perform individual tasks. Employees are provided formal classroom training and on-the-job (OTJ) training specific to their duties, as applicable. Workers shall read, understand and follow formal area procedures when performing work. Additionally, workers shall understand and obey requirements in work orders, hot work permits and radiation work permits (RWPs) along with posted limits and controls. Job Task Analysis is used, as needed, to supplement training when tasks associated with IROFS are involved.

Along with job specific training mentioned above, all employees are given formal general employee training and safety training, as needed. General worker training includes site access information and an overview of site hazards, emergency alarms and evacuation plans. Safety training may include radiation worker training, hazards communication and general health and safety training. Training and qualification

related documentation is maintained as quality records. Continuing training and improvement is stressed for the entire workforce.

2.3.4 Procedures

Production work aside from routine custodial and office duties are governed by approved procedures, where applicable. Additionally, program requirements, including these management measures, are implemented via procedures, where applicable. Procedures are necessary to provide consistent and reliable performance of site wide activities. IROFS and other safety related items are highlighted in work procedures, typically as “cautions” and “warnings.”

Procedures are developed and approved by the responsible organizations. Employees are trained on all procedures they follow as part of their work assignments. Work procedures and supplemental safety related procedures are expected to be located in the general work areas. Temporary work shall be performed under temporary work orders or RWPs.

Facility and process changes require procedure updates in the form of revisions. Such revisions shall be in place before restart of the operation can commence. Changes to safety systems and safety basis documentation shall also be incorporated into respective procedures. Employees are retrained on the revised procedures before the restart of work.

2.3.5 Audits and Assessments

Audits and/or inspections are periodically performed on many operations at the facility site, both for production and nonproduction related activities, where applicable. Assessments are also routinely performed, but are generally focused on support programs such as environmental, health and safety programs. Audits/inspections focus on review of certain aspects of compliance whereas assessments look more generally at program and process performance. The frequency of audits/inspections and assessments vary based on the safety aspects of the activities performed. Inspections are expected to be routine and frequent. Most production areas walk down and inspect work areas daily. Safety organizations perform routine inspections over various process areas. The more formal audits are performed quarterly or annually and generally focus on safety and regulatory compliance issues. Program or process assessments are performed on an as-needed basis based on performance trends and identified needs. Records of audit, inspections and assessments are maintained as a quality record.

2.3.6 Incident Investigations and Corrective Actions

Incidents and accidents are formally investigated in accordance with the IIFP QA Program and as described in the LA, Revision B Chapter 11 Section 11.6 “Incident Investigations and Corrective Action Program.” Where applicable the investigations are performed by IIFP personnel with knowledge of the process systems involved, the safety areas affected and formal incident/accident investigation methodologies. When an incident occurs, management forms a qualified team that determines root causes of the event and develops recommendations to reduce the likelihood of recurrence. Lessons learned are also developed so other organizations can review their operations for similar type initiators.

Incidents/accidents are tracked and trended to identify weaknesses in types and areas of operation and to look for common causes of events. Corrective actions are assigned and tracked programmatically to ensure that timely and adequate corrections to deficiencies are incorporated. Any required plant changes as a result of corrective actions follow the management methods described above. Corrective actions are

closed out in facility records when implementation is complete or adequate justification for not implementing the corrective action is properly documented.

2.3.7 Employee Concerns

All IIFP employees and contractor personnel working on-site have the responsibility and right to initiate a "stop work" process, relative to any safety or health concerns, in accordance with the project or facility procedures to ensure the workplace and associated work activities are safe.

Employees are trained to notify the designated-work-activity IIFP supervisor of a concern or questionable safety practice or condition. Contractors and sub-contractors receive orientation on the responsibility and reporting of personnel safety/health concerns. The IIFP supervisor who is notified evaluates the activity or condition and determines if the activity is in safe compliance with the procedure, or if the procedure requires a change to improve the safety of the work or condition. Any IIFP supervisor has the authority to stop the work task and request technical assistance and advice from the ESH lead staff for resolving the safety concern before resuming the work activity. If the concerned person remains concerned with the proposed resolution, they have the right and responsibility to elevate the concern to the Shift Superintendent or Area Shift Supervisor and/or the ESH Manager for further review and resolution.

If a "stop work" decision is made, the Shift Superintendent or Area Shift Supervisor is notified to ensure the stoppage does not adversely affect the equipment, processes, systems or facility such as to cause unsafe conditions or potential chemical releases. Except in cases of immediate or life-safety emergencies, the Shift Superintendent or Area Shift Supervisor is notified prior to the actual "stop-work" action.

Employees and contractors are also trained to be aware that other avenues of reporting and resolving safety concerns are available and that employees and other persons on-site have the right and responsibility to utilize those resources. Persons working on-site have access to the following methods for reporting, correcting or improving quality or safety related concerns and suggestions:

- Direct contact with any member of the ESH or QA organizations
- Immediate notification of any line supervisor, Shift Superintendent or facility management
- Submittal of a safety suggestion in accordance with the Industrial Safety Suggestion Program procedures
- Notification to any member of the FSRC or ALARA committee
- "Open door" with the ESH Manager, QA Manager, COO, Plant Manager or the IIFP President
- NRC requirements under 10 CFR 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," (CFR, 2009c)
- Unusual event or potential problem report form submitted to their immediate supervisor or the Shift Superintendent office per the IIFP Performance Assessment and Improvement procedure

2.3.8 Records Management and Document Control

Records associated with the above management measures program elements are retained in accordance with applicable QA procedures. The records are systematically controlled and stored and are easily

retrievable for individuals, groups, programs and activities. All facility and process design elements and items relating to environmental protection and to the safety and health of workers and the public are maintained as a quality record. The Records and Documents organization is ultimately responsible for maintaining facility records, though some records retention will be delegated to specific organizations such as with Training document control.

2.3.9 Written Agreements with Off-site Emergency Resources

The approach to address site emergencies and the use of off-site emergency resources are described in Revision B Chapter 8 “Emergency Management” of the IIFP LA and Revision B of the “Emergency Management Plan.”

REFERENCES

CFR, 2009a Title 10, Code of Federal Regulations, Part 40, "Domestic Licensing of Source Material," U.S. Regulatory Commission, 2009.

CFR, 2009b Title 10, Code of Federal Regulations, Section 70.4, "Definitions," U.S. Nuclear Regulatory Commission, 2009.

CFR, 2009c Title 10, Code of Federal Regulations, Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," U.S. Nuclear Regulatory Commission, 2009.

CFR, 2009d Title 10, Code of Federal Regulations, Section 70.72, "Facility Changes and Change Process," U.S. Nuclear Regulatory Commission, 2009.