Global First Power

Licence To Prepare Site Application Part 1:

Nuclear Facility at Chalk River Site

GFP01-REF-BUS-00004

June 2023

Executive Summary

Global First Power (GFP) is applying for a licence to prepare site for one Micro Modular Reactor™ [1](MMR™)[1] Nuclear Plant on the Chalk River Laboratories (CRL) property; a partial application was submitted in 2019.

This Part 1 submission updates the licence application elements which are programmatic in nature and less dependent on detailed design information. It provides a significant portion of the information required to demonstrate that GFP meets or exceeds all of the applicable requirements of the *Nuclear Safety and Control Act* (NSCA) and the associated regulations.

The application describes the management system and various programs, processes, and personnel that GFP has put in place to meet the requirements of the Canadian Standards Association (CSA) N286-12, *Management System Requirements for Nuclear Facilities*, in support of site preparation activities. This will ensure that all work is performed with quality, to the appropriate standard and with minimal impact to the public, workers, and the environment. Collectively, these elements ensure that safety is the overriding priority in any activities undertaken to prepare the site under this licence application. To date, GFP has not initiated any licensed activities at the site.

Ultra Safe Nuclear Corporation (USNC), a nuclear technology developer based in the United States, is both the technology developer and the planned vendor for this project.

Site Evaluation

While the studies and evaluation are still in progress, to date all the available results conclude that the CRL site is suitable for the proposed new NGS.

In support of this application, a number of site evaluation studies are in the process of being completed in order to demonstrate the CRL site meets the regulatory requirements in accordance with REGDOC-1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities*. The site evaluation information will be submitted in the Part 2 Licence to Prepare Site (LTPS) application.

General areas currently under review include:

- An evaluation against the Canadian Nuclear Safety Commission (CNSC) Safety Goals
- Evolving natural and human-induced factors
- Hazards associated with external events (natural and human-induced)

- Potential impact of the site on the environment
- Demographics and emergency planning

GFP has completed a nuclear security review, a Site Specific Threat and Risk Assessment (SSTRA). Results of the SSTRA did not foresee any significant security risk to meet the *Nuclear Security Regulations*. There are no unique or additional factors related to GFP's ability to safely implement and provide security at this site, which is already managed as a secure nuclear facility by Canadian Nuclear Laboratories (CNL) staff .

Site Preparation

GFP has implemented the necessary processes to ensure site preparation activities as described in the application can be carried out in accordance with the applicable requirements. Section 5.0 of the application describes compliance with many of the Safety and Controls Areas (SCAs) applicable to the site preparation phase.

Indigenous and Public Engagement and Communications

GFP values the relationships it has with Indigenous communities, the public and stakeholders.

GFP has been fostering open and ongoing communications and engagement programs with the public and stakeholders in the surrounding communities of our planned facility, as well as with the broader general public.

GFP keeps the public and stakeholders informed about the MMR project through a variety of forums, such as newsletters, fact sheets, emails, website, and social media. GFP's public website serves as a means of interaction with members of the public and stakeholder groups.

GFP maintains a presence on social media (Twitter and LinkedIn) and shares information through these platforms to the broader community.

GFP also meets regularly with Indigenous communities to ensure meaningful engagement and communications.

Overall Conclusion

In summary, this Part 1 licence application contains substantive information demonstrating that GFP meets the pertinent requirements of the NSCA and the associated regulations and shows GFP:

1. is qualified to carry on the activity requested to be licensed; and
2. will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement

international obligations to which Canada has agreed.

As evidenced throughout this Part 1 application and supporting documents, GFP asserts that, consistent with the scope of this application:

(a) Nuclear safety will be assured such that the public, personnel and the environment are protected;
(b) A new NGS at the CRL site would not pose any unreasonable risk to the public, personnel, or the environment;
(c) A management system that incorporates a graded approach commensurate with the risk, is in place to effectively and safely conduct the site preparation activities through the requested licensing period;

(d) Staff are qualified and competent to carry on the licensed activities; and
(e) Transparency and appropriate Indigenous and public consultations will continue.

Through this submission and the subsequent Part 2 LTPS application, GFP is requesting a site preparation licence for a Micro Modular Reactor to be located at the CRL site, where nuclear research activities have taken place over the last several decades.

1 The Micro Modular Reactor (MMR) is a Trade Mark of Ultra Safe Nuclear Corporation. Everywhere the term "Micro Modular Reactor" or "MMR" are used in this document, it should be noted that a Trade Mark is associated with them.

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1.0 Overview

1.1 Introduction

GFP, a company incorporated in Canada, is a joint venture between Ontario Power Generation (OPG), and Seattle, United States based USNC, and whose vision is to lead the world's transformation to safe, reliable, and cost-effective low-carbon energy for all communities.

The MMR project will deploy USNC's MMR technology at CRL in Renfrew County, Ontario, on the shore of the Ottawa River approximately 200 kilometres northwest of Ottawa. The CRL property is federal land owned by Atomic Energy of Canada Limited (AECL), with an approximate total area of 4 000 hectares and situated within the boundaries of the Corporation of the Town of Deep River, Ontario.

OPG, a corporation wholly owned by the Government of Ontario and the owner and operator of Canada Deuterium Uranium (CANDU) nuclear plants in Ontario, or a subsidiary of OPG, is providing licensing and operational expertise and guidance for the MMR facility during the site preparation, construction, operation, and decommissioning phases of the project. USNC is the nuclear technology developer and owns the design intellectual property for the MMR reactors and for the Fully-Ceramic Micro-encapsulated (FCM) fuel.

A partial (initial) site preparation licence application was submitted to the CNSC for the Chalk River MMR project in March 2019 (Reference 1) with an update submitted in June 2019 (Reference 2). This document and accompanying enclosures represent Part 1 of a site preparation licence application that expands on the information provided to allow GFP to conduct the site preparation activities for the future construction and operation of a new NGS at CRL.

The MMR nuclear plant includes a MMR High Temperature Gas-cooled Reactor (HTGCR), which is a small modular reactor (SMR). The reactor heat generated is transported via molten salt to a non-nuclear adjacent plant where it is used to generate electrical energy over an anticipated operating life of up to 40 years. The nuclear plant also includes all the equipment required to transport the heat from the reactor, to support the operation of the nuclear plant and ensure its safety. The reactor vessel is situated within a structure known as the 'citadel'. The MMR nuclear plant is designed to be generally physically separated

from the adjacent plant, and requiring minimal supporting services from the adjacent plant for its safe operation. The adjacent plant is expected to use the provided heat for both electrical power generation and other applications such as district heating.

GFP has intention to establish a contract with USNC and/or subsidiaries as the main vendor of the MMR.

Figure 1: Aerial View of Chalk River Site and MMR Project Site (Photo© Canadian Nuclear Laboratories)

To fulfill the requirements of this application for a licence to prepare site for the MMR project at Chalk River, GFP is in the process of conducting extensive studies, assessments and consultations with various stakeholders and rightsholders to complete the site evaluation. At present, the studies support a conclusion that the GFP selected site is suitable for a new NGS and the project is not likely to cause significant adverse effects. GFP plans to submit the balance of the required information per REGDOC-1.1.1, in Part 2 of the LTPS application as documented in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

In support of this Part 1 licence application, GFP has completed the following activities:

a) Addressed many of REGDOC-1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities* requirements
b) Site Selection Threat and Risk Assessment
c) Indigenous engagement
d) Public engagement
e) Issuance of a management system that governs site preparation activities

1.2 General Description of Applicant

1.2.1 Name and Business Address

Global First Power Ltd.
1032 Brock Street South, Unit 200B, Whitby, Ontario, L1N 4L8

1.2.2 Mailing Address

GFP's mailing address is the same as the business address that is provided in Section 1.2.1 above.

1.2.3 Persons who have Authority to Interact for the Applicant with CNSC

The contact persons who have the authority to interact for the applicant with the CNSC are as follows:

Mr. Jos Diening
President and Chief Executive Officer (CEO), GFP
jos.diening@globalfirstpower.com, 905-914-3233
1032 Brock Street South, Suite 200B, Whitby, Ontario, L1N 4L8

Mr. Jordan Black
Licensing, Environment Director, GFP
jordan.black@globalfirstpower.com, 416-795-0949
1032 Brock Street South, Suite 200B, Whitby, Ontario, L1N 4L8

1.2.4 Proof of Legal Status

As proof of legal status, a recent corporate profile report is provided (Attachment 2).

1.2.5 Evidence that Applicant has Authority from the Owner of the Site to Carry on the Activity to be Licensed

GFP, CNL and AECL signed an *AECL-CNL - Early Site Evaluation and Preparation Agreement* (GFP01-AGMT-BUS-00001)(ESAPA), dated April 3, 2020. Through the ESAPA (Enclosure 3), the owner of the land for the project, AECL, in conjunction with CNL, has granted GFP the authority to carry on the activities set out in the GFP LTPS application. Specifically, section 4.4 of the ESAPA states:

"4.4 Site Preparation Authority

1) *AECL hereby grants the Project Developer the authority to carry on the activities set out in the GFP Licence to Prepare Site Application at the Proposed Project Site (the "Site Preparation Authority"), subject to (i) the Project Developer having obtained the CNSC Site Preparation Licence; (ii) CNL and the Project Developer mutually agreeing upon a Work Plan for such site preparation activities…*

The "Project Developer" means Global First Power Limited and its successors."

Further agreements will be developed to support future licensing phases of the project, including, among others, the development of the Project Sublease Agreement, that will eventually replace the existing ESAPA. GFP will inform the Commission of the status of the subsequent site-related agreements between GFP, AECL and CNL as part its future applications for the Licence to Construct (LTC) and the Licence to Operate (LTO).

1.2.6 Identification of Persons Responsible for Management and Control of Licensed Activity

Mr. Jos Diening; President and Chief Executive Officer, GFP, is responsible for the management and control of the licensed activity.

1.2.7 Billing Contact Person

Information regarding billing contact person is as follows:

Mr. Jos Diening
President and Chief Executive Officer, GFP
jos.diening@globalfirstpower.com, 905-914-3233

1.2.8 Legal Signing Authority

Information regarding the legal signing authority is the same as provided in Section 1.2.7.

1.2.9 Nuclear and Hazardous Substances

As stated in the original partial site preparation licence application (Reference 1), there will be no nuclear substances encompassed by the site preparation licence. Any site preparation activities which may require construction-related tools containing radioactive nuclear substances as defined in the *Nuclear Substances and Radiation Devices Regulations* will be

performed under the authority of separate, CNSC nuclear substance and device licences, as required.

Any hazardous substances that may be present and/or hazardous wastes generated as a result of site preparation activities will be limited to those employed during standard construction processes. These would include chemicals, fuel, lubricants and compressed gases used during operation and maintenance of site preparation equipment, as well as solvents and cleaners used to clean the equipment. Additional substances on site may consist of paint, aerosol cans, oil and electrical components used in the construction and relocation of services and utilities, construction of support facilities, and explosives used during excavation activities.

The management of hazardous wastes, which include the storage, processing, disposal or transportation of hazardous or liquid industrial waste generated during the site preparation will comply with applicable federal and provincial requirements, such as the *Transportation of Dangerous Goods* (TDG) *Act* and TDG Regulations, *Environmental Protection Act*, *General – Waste Management*, O. Reg. 347, Environment and Climate Change Canada (ECCC) guidelines and waste management best practices. Spills will be reported in accordance with regulatory requirements.

2.0 General Description of the Project

This section of the licence application describes the activities to be licensed and provides a descriptive overview of the project.

2.1 Activity to be Licensed

GFP is requesting a site preparation licence to encompass the following licensed activities which will enable establishment of infrastructure and measures necessary to support a safe and smooth transition to construction under the future Licence to Construct:

- Construction of site access control measures, such as construction and installation of security fencing
- Clearing and grubbing of vegetation
- Excavation and grading of the site to a finished elevation
- Construction of required environmental monitoring and mitigation systems
- Construction of required flood protection and erosion control measures
- Construction/paving of parking area(s), access ways and roads
- Setup of temporary power, temporary parking, lighting, crane matting, construction facilities (lunch trailers, wash cars, site offices, etc…)
- Erection of temporary storage and laydown areas as well as a construction yard including handling of commodities and tools
- Demolition and removal of existing structures (if required)
- Excavation of any foundations such as citadel, molten salt tanks, sumps, etc.
- Drilling and installation of support pilings or shoring to maintain excavations or roads (excludes any pilings that would support the plant or be nuclear safety related in nature)
- Installation of shoring and concrete forms in anticipation of concrete pours under a construction licence
- Construction, and installation of services and utilities required to service the future project facilities (e.g., domestic water, fire water, sewage, electrical, communications, natural gas) including underground utilities and backfill (when required)
- Construction of support buildings inside the site, such as an administrative building

There is no construction of a nuclear facility or nuclear structures, systems and components encompassed by this licence application. All of the proposed planned licensed activities and construction of non-nuclear facilities in this Part 1 application will be bounded by the

factors to be considered in the Plant Parameter Envelope (PPE), to be submitted in the Part 2 LTPS application. As the reactor technology design is finalized, all relevant plant parameters will be evaluated against the PPE to ensure the construction and operation of the facility causes no significant changes or impacts to the CRL MMR project Environmental Impact Statement (EIS) conclusions.

2.2 Descriptive Overview

GFP's site preparation application (Parts 1 and 2) is intended to allow GFP to conduct site preparation activities for the future construction and operation of a single MMR unit under design by USNC, supplying electrical power to the CRL campus or district grid, and the remainder as process or district heating of the CRL site.

The projected in-service date for the MMR is not yet precisely known, but for planning purposes, it is assumed that first power and subsequent power operations will be in 2027.

3.0 Site Description

The MMR project site is proposed to be built at the CRL site, in a space which is primarily currently surfaced with asphalt and being used as a parking lot. It is designated Site C. The site boundary will extend somewhat past the asphalt from the northeast to southeast into a currently shrubbed and treed area.

The site is approximately bounded at the northwest end by a line parallel to the existing CRL security fence line south of CRL's Building B524 facility, bounded at the northeast to southeast approximately 20 meters past the existing parking lot asphalt, and the perimeter is closed by the Hydro One corridor, Foundation road, and a jut-out from Foundation road into the existing parking lot on the south to west side.

Labelled maps are provided in Section 3.1 depicting the project's approximate location and surrounding area.

3.1 Location and Site Layout

Figure 2 is a CRL site property boundary map, depicting the proposed MMR facility at the southwest corner of the Administration area.

Figure 3 is a local topographical map showing the approximate location of the proposed MMR project site and displays, from a regional perspective, the site's location in reference to nearby population centres.

Figure 4 depicts an approximate site boundary and proposed layout locations of structures post construction phase, overlaid on a satellite image of the preferred site location. CRL's building B524 is visible in the northern area of the image.

Detailed layout of specific structures and systems will be produced to support a future application to permit construction activities, following further progression of the technology design.

Figure 2: CRL Site Property Boundary Map

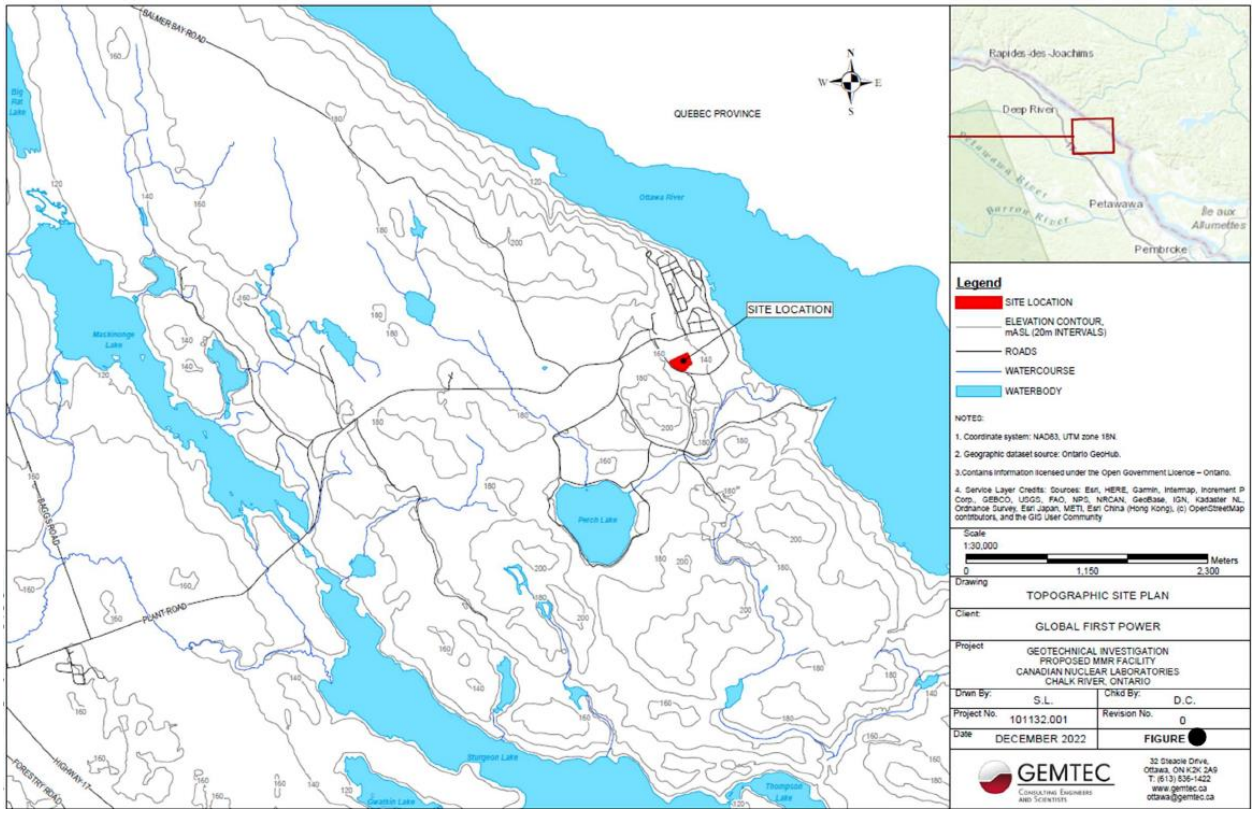

Figure 3: CRL Topographical Map

Figure 4: MMR Project Proposed Site Boundary and Layout (Note: layout provided for illustrative purposes only, and subject to change.)

3.2 Environmental Risk Assessment

GFP is in the process of completing an environmental risk assessment (ERA), encompassing a human health risk assessment (HHRA) and an ecological risk assessment (EcoRA) for the MMR project. The ERA is being prepared to be in compliance with Canadian Standards Association Group (CSA) N288.6-22 *Environmental Risk Assessments at Nuclear Facilities and Uranium Mines and Mills*. It will meet the requirements for an ERA as outlined in REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*.

The objective of the ERA is to evaluate the risk to human and ecological receptors resulting from exposure to radiological and non-radiological contaminants as well as any physical stressors. The MMR project is being designed to avoid causing any adverse residual effects to human and ecological receptors. ERA predictions, along with other Environmental Assessment predictions, will be confirmed through an EA Follow-Up Program which GFP will implement in compliance with CSA N288.4 *Environmental monitoring programs at nuclear facilities and uranium mines and mills*.

This section of the LTPS application will be updated in the Part 2 application submission as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

4.0 Site Evaluation

This section of the application will address the site evaluation process and the investigations and preparatory work that have been done, and will be done, on the site and surrounding area.

4.1 Introduction

In support of this application, a site evaluation is being performed in accordance with the requirements and expectations of the *Class I Nuclear Facilities Regulations,* CNSC REGDOC-1.1.1., *Site Evaluation and Site Preparation for New Reactor Facilities,* and following GFP-PRCS-DES-00001, *Site Evaluation Process.*

The purpose of the site evaluation is to investigate and fully characterize the site to determine its suitability to host the MMR facility. Suitability criteria are specified in REGDOC-1.1.1, which also specifies International Atomic Energy Agency (IAEA) guidance on how the characterization studies and assessments should be performed. The site evaluation process reviews preferred and alternate sites that were identified as potentially suitable to host the MMR facility.

The preferred site, selected by GFP, was designated Site C and is located on a portion of the CNL parking lot, an already pre-disturbed area. As the final design of the selected reactor technology is not available, a PPE that bounds the design is used to support the site selection process and site evaluation studies. The reactor technology chosen by GFP was the MMR; a HTGCR design.

Thus far, the site evaluation assessments support the selected site as suitable to host the MMR facility by indicating that no impediments exist to adapting the MMR configuration to the site conditions.

The subsequent subsections of 4.0 will be completed in the Part 2 application submission as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

5.0 Safety and Control Measures

This section of the application addresses the SCAs relevant to an application for a licence to prepare site.

5.1 Management System

Information for the Management System SCA demonstrates the required governance, processes, controls and capabilities are implemented to achieve GFP's safety and business objectives, continuously monitor its performance against those objectives, and fosters an effective safety and security culture for the life cycle phases of the facility in accordance with applicable laws, regulatory requirements and industry standards.

Per REGDOC-1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities*, the applicable regulatory basis is:

- *General Nuclear Safety and Control Regulations*, paragraphs 3(1)(i) and (k) and 12(1)(a) through (j)
- *Class I Nuclear Facilities Regulations*, paragraphs 3(d) and 4(d)

The GFP management system has been developed to fulfil the requirements of CSA N286-12, *Management system requirements for nuclear facilities* and applicable regulatory requirements, including REGDOC-2.1.1, *Management System* and REGDOC-2.1.2, *Safety Culture*. The GFP management system that identifies the required processes applies across all the life cycle phases of the facility in an integrated manner as it executes the activities of site preparation, design and construction, operation and decommissioning. GFP's management system also ensures that the required quality, health, safety, security of the public and workers, and protection of the environment are achieved.

The GFP management system is defined by the key business activities displayed in Figure 5, GFP Integrated Management System Model, which is described in GFP-MAN-BUS-00001, *GFP Management System Manual* and its supporting governance framework as shown in Figure 6.

GFP's key business activities support the development, deployment, and licensing of MMR technology as a new form of safe, clean, reliable, and commercially viable energy to Canada owning and operating a next generation of nuclear technology.

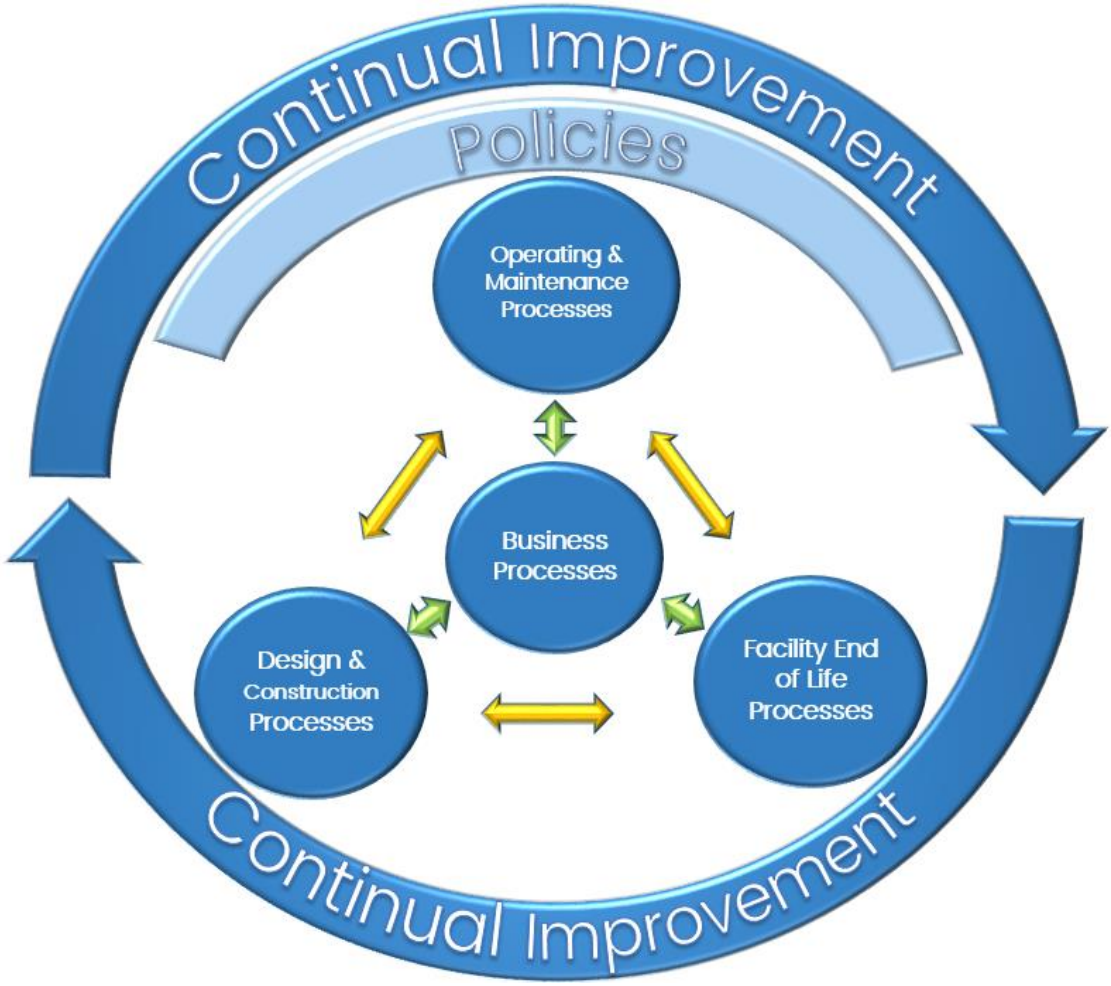

Figure 5: GFP Integrated Management System Model

The GFP management system has been developed based on staged releases supporting different stages of the MMR project (Reference 3).

The four staged management system releases are:

Release 0

Release 0 focused on the business processes designed in the development of the business which meets the GFP business objectives and supports the licence to prepare site activities. This was previously submitted to CNSC staff per the correspondence outlined in Attachment 1.

Release 1

Release 1 focused on all aspects required for site preparation including the processes to support design, construction, and commissioning activities. This was previously submitted to CNSC staff per the correspondence outlined in Attachment 1.

Release 2

Release 2 will focus on the operational and general site activities for a facility. The GFP management system will be fully developed following the completion of the processes to support this release.

Release 3

Release 3 will be used to capture lessons learned from implementation of the GFP management system, incorporating improvement opportunities of the GFP management system for long term operation of a facility.

GFP management system process governance to support Release 0 and 1 have been completed and submitted to the CNSC and Release 2 and 3 are on track for submission (Reference 3).

Note: GFP is currently addressing information requests (IRs) received from CNSC staff on the management system (References 6-8).

Note: This Part 1 application includes some Release 2 identified documents, as required to describe certain SCA programs.

The GFP management system process documents that will manage and control activities through the facility life cycle phases are:

Table 1: GFP Management System Documents

Document	Title	Release
GFP-MAN-BUS-00001	GFP Management System Manual	0
GFP-PRCS-BUS-00001	Business Management Process	0
GFP-PRCS-BUS-00002	Information Management Process	0
GFP-PRCS-BUS-00003	Communication Management Process	1
GFP-PRCS-BUS-00004	Health and Safety Management Process	0
GFP-PRCS-BUS-00005	Resource Management Process	0
GFP-PRCS-BUS-00006	Change Management Process	1
GFP-PRCS-BUS-00007	Performance Improvement Process	1
GFP-PRCS-BUS-00008	Environmental Management Process	0
GFP-PRCS-BUS-00009	Emergency Response Process	2
GFP-PRCS-BUS-00010	Nuclear Security Process	2
GFP-PRCS-BUS-00011	Verification and Validation Process	1
GFP-PRCS-BUS-00012	Completion Assurance Process	1
GFP-PRCS-BUS-00013	Turnover Process	1
GFP-PRCS-DES-00001	Site Evaluation Process	0
GFP-PRCS-DES-00002	Design Management Process	1
GFP-PRCS-CON-00001	Construction Process	1
GFP-PRCS-COM-00001	Commissioning Process	1
GFP-PRCS-SCN-00001	Supply Chain Management Process	0
GFP-PRCS-OPS-00001	Operations Process	2
GFP-PRCS-OPS-00002	Radiation Protection Process	1
GFP-PRCS-OPS-00003	Chemistry Control Process	2
GFP-PRCS-OPS-00004	Fuel Management Process	2
GFP-PRCS-OPS-00005	Nuclear Safeguards Process	2
GFP-PRCS-OPS-00006	Environmental Qualification Process	2
GFP-PRCS-OPS-00007	Fire Protection Process	2
GFP-PRCS-MTE-00001	Maintenance Process	2
GFP-PRCS-WTE-00001	Nuclear Waste Management Process	2
GFP-PRCS-DEC-00001	End of Commercial Operation Process	2
GFP-PRCS-DEC-00003	Decommissioning Process	1
GFP-PRCS-WRK-00001	Work Management Process	0

The current GFP management system governance framework is shown in Figure 6 below. Ongoing internal oversight of the governance framework is being performed to ensure alignment with the applicable regulatory and industry requirements, and internal assessments are planned to determine effective implementation of the GFP management system. The governance framework may expand, applying the graded approach during the completion of Release 2 documents, following either execution of the governance or as identified in the planned internal assessments.

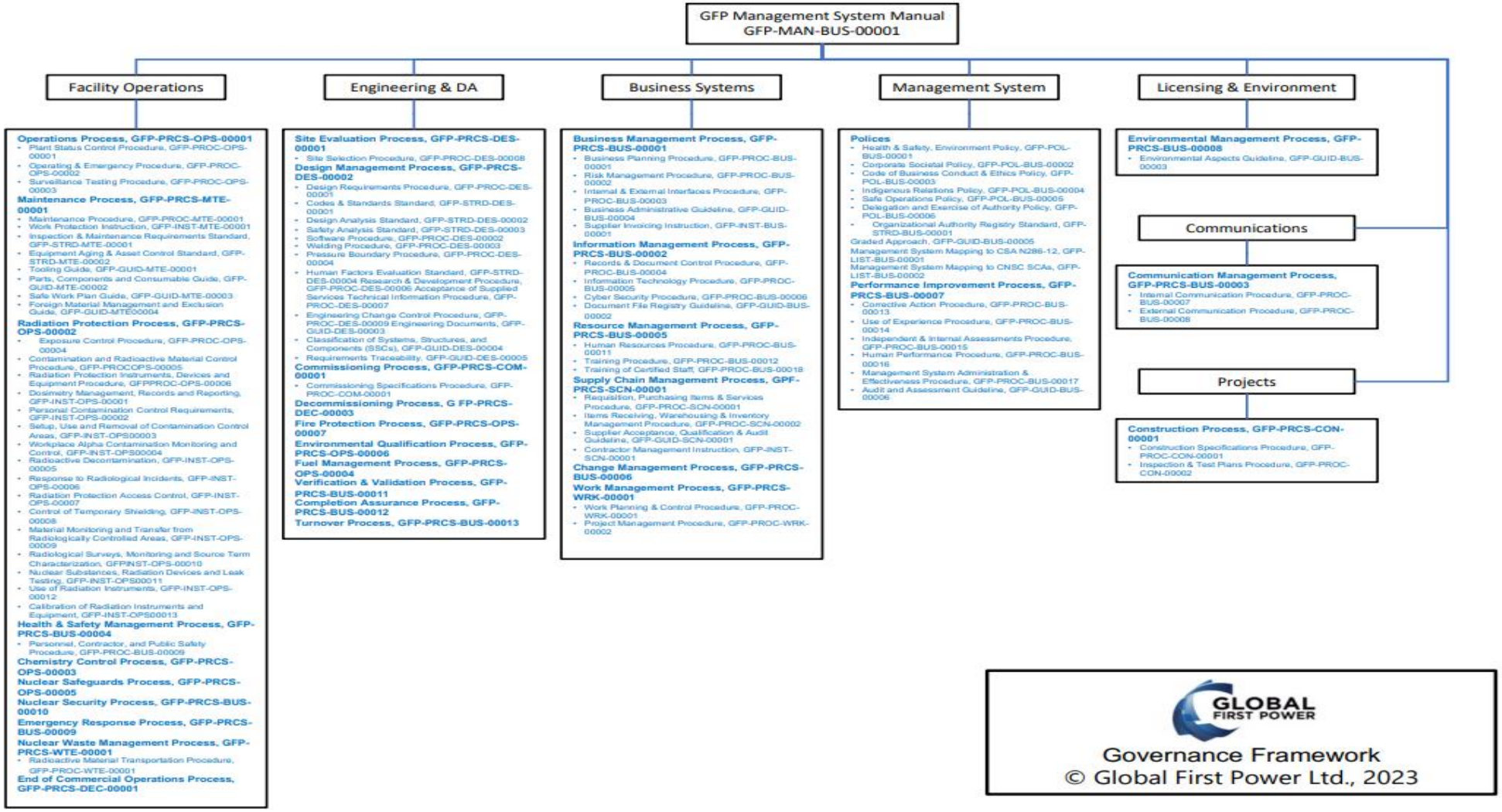

Figure 6: GFP Management System Governance Framework

5.1.1 Management System for Design Activities

USNC is the qualified Engineering supplier that has been selected for the design of the MMR in accordance with GFP-PRCS-SCN-00001, *GFP Supply Chain Management Process*. The Engineering supplier's management system has been assessed to comply with the required standards as specified through the *GFP Supply Chain Management Process*. GFP-PRCS-DES-00002, *GFP Design Management Process* and its implementing documents will be used to manage all related design activities throughout the life cycle phases of the facility, including Site Preparation, to ensure the applicable design and safety analysis requirements are met in accordance with relevant regulatory requirements and applicable codes, standards, and industry practices. This includes the establishment of the design authority role for the management of design activities for the GFP facility.

5.1.2 Vendor Management System

The development and deployment of a MMR will be established through design, procurement, and construct supplier contracts with GFP as the owner of the contracts. USNC is the approved designer for the MMR at the Chalk River Site of CNL. GFP's intention is to establish a contract with USNC and/or subsidiaries as the main vendor, who will also provide procurement and construction services. The selection of qualified suppliers to perform contractual requirements will be managed by GFP's *Supply Chain Management Process* and its implementing documents. GFP's management system ensures ongoing oversight of the established approved supplier(s) and that a defined and implemented management system compliant with applicable current standards is in place by future suppliers.

5.1.3 Performance Improvement and Management Review

GFP has implemented GFP-PRCS-BUS-00007, *Performance Improvement Process* along with its implementing documents, that ensures effective implementation of the GFP management system. This includes:

- Establishment of appropriate performance metrics and monitoring methods that promote the expected business objective results and behaviours.
- Proactive problem identification, assessment, prioritization, required trending and resolution of a problem.
- Establishment of human performance activities and behaviours that promote an effective safety culture.
- Applying lessons learned to improve performance from internal insights and relevant external industry experience.
- Performing the required internal self-assessments and independent assessments to ensure work activities are aligned with the GFP Management System expectations.
- Performing regular effectiveness reviews of the GFP Management System to ensure alignment with CSA N286-12, *Management system requirements for nuclear facilities*.

5.1.4 Human Performance and Safety Culture

Safety culture is applicable to all the activities that may affect the health and safety of workers, the public, and the environment in every phase of the facility's life cycle. GFP-POL-BUS-00005, *Safe Operations Policy*, GFP-PRCS-BUS-00007, *Performance Improvement Process* and GFP-PROC-BUS-00016, *Human Performance Procedure* implement GFP's expectations for understanding, executing, and promoting a strong safety culture for all activities performed at a facility.

5.1.5 Organization

Figure 7 depicts the current organizational structure for GFP. The key positions and internal and external interfaces are described in GFP-PROC-BUS-00003, *Internal and External Interfaces Procedure,* with authorities established through GFP-STRD-BUS-00001, *Organizational Authority Registry Standard*. The organizational structure may continue to evolve as the MMR project activities increase throughout the facility life cycle phases, applying the risk management processes to ensure effective execution of GFP's business objectives.

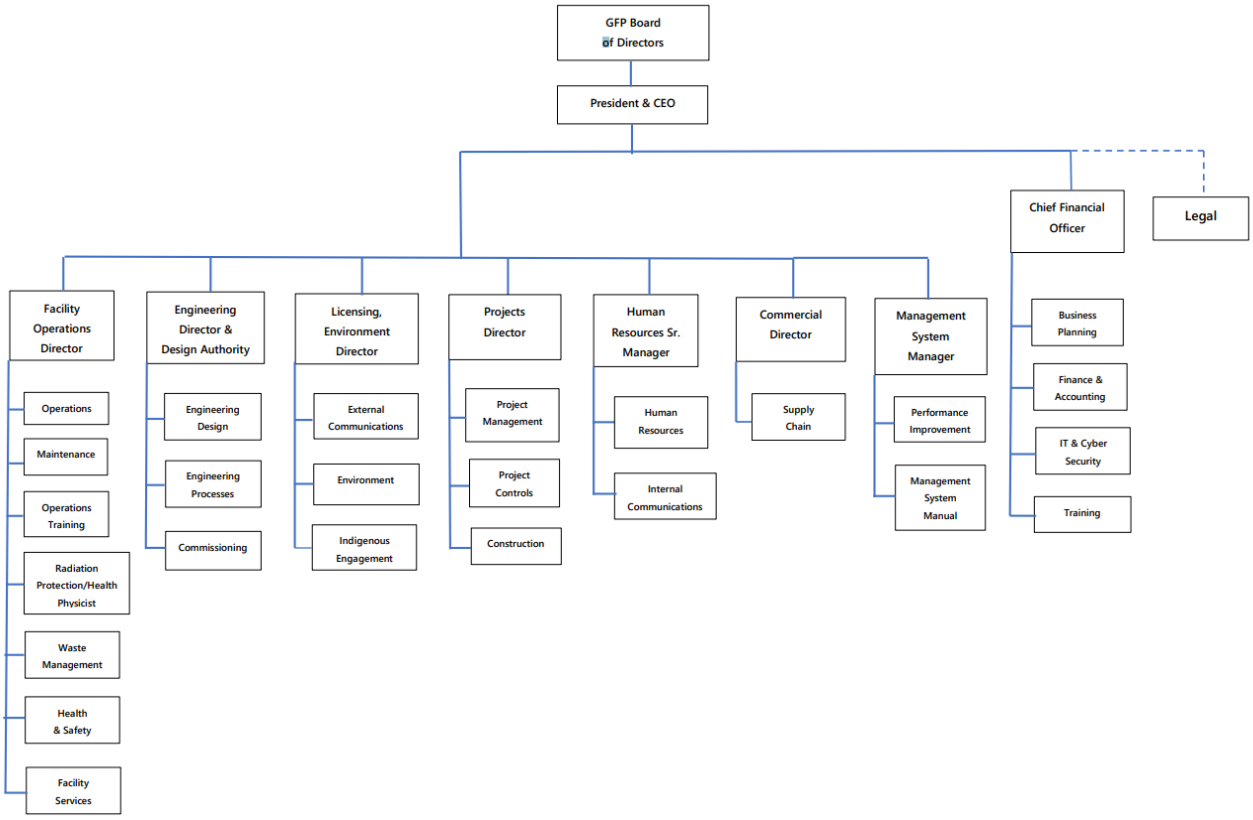

Figure 7: GFP Organizational Structure

5.1.6 Configuration Management

To ensure the design and safety analysis requirements are maintained, GFP's management and control of all data generated during the facility life cycle phases is established through the implementation of the following documents:

- GFP-PRCS-DES-00002, *Design Management Process*
- GFP-PROC-DES-00001, *Design Requirements Procedure*
- GFP-PROC-DES-00009, *Engineering Change Control Procedure*
- GFP-GUID-DES-00005, *Requirements Traceability Guide*

5.1.7 Records Management

The management and control of all records and documents, including those for software developed to execute GFP's business objectives, and the activities to support the facility life cycle phases are described in the following documents:

- GFP-PRCS-BUS-00002, *Information Management Process*
- GFP-PROC-BUS-00004, *Records and Document Control Procedure*
- GFP-PROC-BUS-00005, *Information Technology Procedure*
- GFP-PROC-DES-00007, *Acceptance of Supplied Services Technical Information Procedure*

5.1.8 Applicable GFP Documents

The following document (see Table 2) is the applicable GFP document for the Management System SCA, which supports the licensing basis.

Table 2: Management System Document for the Management System SCA

Document	Title
GFP-MAN-BUS-00001	Management System Manual

5.2 Human Performance Management

In accordance with REGDOC-1.1.1, the Human Performance Management SCA is not relevant to a licence application for a LTPS. It is noted that basic human performance management aspects appropriate for LTPS activities are addressed under the management system SCA. Therefore, this section is left blank intentionally.

5.3 Operating Performance

This section is reserved for the Operating Performance SCA which includes an overall review of the conduct of the licensed site preparation activities and the activities that enable effective performance. The Operating Performance section will be submitted in the Part 2 application as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

5.4 Safety Analysis

This section is reserved for the Safety Analysis SCA which covers the establishment and maintenance of the safety analysis that supports the overall safety case for the MMR facility. As the MMR design matures, an analytical framework is being used to demonstrate how safety requirements are met for a broad range of operating conditions and initiating events. The systematic evaluation of the potential hazards associated with the conduct of the MMR facility and the effectiveness of preventative measures and strategies in reducing such hazards will be presented. This section will be provided in the Part 2 application submission as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

5.5 Physical Design

This section is reserved for the Physical Design SCA which relates to the activities that affect the ability of Systems, Structures, and Components (SSCs) to meet and maintain their design basis, given new information arising over time and taking into account changes in the external environment. As the MMR design matures this section will contain the applicable information to be provided in the Part 2 application submission as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

5.6 Fitness for Service

In accordance with REGDOC-1.1.1, the Fitness for Service SCA is not relevant to a licence application for a licence to prepare a site. Therefore, this section is left blank intentionally.

5.7 Radiation Protection

The Radiation Protection SCA addresses the hazards associated with exposure to radioactive substances from past or present nuclear activities, as well as from the use of tools containing radioactive nuclear substances. Additionally, it describes the *Radiation Protection Process* established by GFP and applied to site preparation activities to manage workplace radiological hazards, protect workers and keep radiation exposures As Low As Reasonably Achievable (ALARA).

Applicable regulatory basis:

- *General Nuclear Safety and Control Regulations*, paragraphs 3 (1) (e), 3 (1) (f), 29 (1) (b), 17 (d) and 17 (e)
- *Class I Nuclear Facilities Regulations*, paragraph 3 (g)
- *Radiation Protection Regulations*

The following also provides guidance on application of regulatory requirements related to radiation protection:

- REGDOC-2.7.1, *Radiation Protection*

GFP-PRCS-OPS-00002, *Radiation Protection Process* implements the required standards and procedures for the conduct of activities within the GFP facility to achieve and maintain Radiation Protection practices in accordance with applicable regulatory requirements and industry standards, including the following objectives:

a) Controlling occupational and public exposure below regulatory limits, avoiding unplanned exposures, and keeping collective doses ALARA, social and economic factors considered.

b) Preventing the uncontrolled release of contamination or radioactive material from the facility.

c) Demonstrated achievement of the requirements through ongoing monitoring and oversight of the process.

Site preparation activities may require the use of equipment or tools containing nuclear substances or radiation devices (e.g. radiography), but these activities will be performed under separate CNSC Nuclear Substances and Radiation Devices licenses. GFP is not requesting permission to possess, transfer, use, or store nuclear substances under this application.

Pre-construction radiological surveys and screening of the soil, asphalt and other existing surfaces within the GFP site boundary will be performed prior to excavation. These surveys will identify any unexpected radiological hazards that may be present during site preparation activities and serve as a baseline for future decommissioning activities. In the event that unexpected radiological hazards are identified during pre-construction and baseline surveys, they will be mitigated in accordance with the *Radiation Protection Process* to maintain the safety of workers, the environment, the public and keep exposures ALARA.

The MMR project site is located on land within the CNL licensed site. As a result of its proximity to licensed activities performed on the CNL site, there could be very low level exposure to ionizing radiation above background levels during site preparation activities. Site radiological monitoring data from environmental monitors confirms doses to GFP staff from CNL licensed activities would be negligible and well below public regulatory dose limits.

No worker involved in site preparation activities is expected to receive doses in excess of the limits for non-Nuclear Energy Workers (1 mSv). Any resulting exposure to workers is expected to be a small fraction of the regulatory limits and the Action Levels defined by the *GFP Radiation Protection Process*, GFP-PRCS-OPS-00002.

Looking forward beyond site preparation, implementation of the *Radiation Protection Process* and associated governance will be adapted to the activities conducted during the different licensing phases for the project. ALARA and Radiation Protection input into the facility design will ensure that radiation doses to workers at the operational MMR facility will be kept ALARA. The facility dose estimate will continue to be updated through site preparation activities and as appropriate, incorporated in the facility design features to ensure that radiation exposures are kept ALARA.

5.7.1 Applicable GFP Documents

The following document (see Table 3) is the applicable GFP document for the Radiation Protection SCA, which supports the licensing basis.

Table 3: Management System Document for the Radiation Protection SCA

Document	Title
GFP-PRCS-OPS-00002	Radiation Protection Process

5.8 Conventional Health and Safety

The Conventional Health and Safety SCA ensures adequate implementation and oversight of a program to manage workplace safety hazards and to protect personnel and equipment. Certain radiological hazards and controls are also addressed within this section.

Applicable regulatory basis:

- *Class I Nuclear Facilities Regulations*, paragraphs 3(f) and 4(e)

GFP's *Health and Safety Management Process* (GFP-PRCS-BUS-00004), aligned with GFP's *Health and Safety, and Environment Policy* (GFP-POL-BUS-00001) provides the framework for GFP's Health and Safety program implementation. The program includes the interface and accountabilities associated with vendors and applies to all GFP personnel supporting the project, as well as vendors.

The *Health and Safety Management Process* and its implementing procedures establish the requirements for the health and safety of employees and contractors and appropriate mitigating safety measures to ensure health and safety risks to employees and contractors are managed and controlled in accordance with federal safety requirements. Similarly, it ensures there are controls and safe working measures in place over the life cycle activities of the facility and ensures safety risks to the public are managed.

The *Health and Safety Management Process* was reviewed to ensure it meets the requirements of the latest federal codes and standards. It is aligned with CSA N286-12, *Management system requirements for nuclear facilities* and was developed based on industry best practices.

5.8.1 Applicable GFP Documents

The following documents (see Table 4) are the applicable GFP documents for the Conventional Health and Safety SCA, which supports the licensing basis.

Table 4: Management System Documents for the Conventional Health and Safety SCA

Document	Title
GFP-POL-BUS-00001	Health and Safety, and Environment Policy
GFP-PRCS-BUS-00004	Health and Safety Management Process

5.9 Environmental Protection

The Environmental Protection SCA addresses the environmental management practices necessary to ensure that licensed activities associated with the MMR are conducted in a manner which protects the environment and minimizes the risks associated with potential negative impacts. This includes the identification, monitoring and control of radioactive and other hazardous substances.

GFP's Environmental Management Process is outlined in GFP-PRCS-BUS-00008, *Environmental Management Process* and addresses the following regulatory requirements, in addition to REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*:

- *General Nuclear Safety and Control Regulations*, paragraphs 12(1)(c) and 12(1)(f)
- *Class I Nuclear Facilities Regulations*, subsections 3(a), 3(b), 3(c), 3(e), 3(g), 3(h), 3(j), 4(a), 4(b), 4(c), 4(d), and 4(e)
- *Radiation Protection Regulations*, paragraph 4(b) and subsection 13(1)

5.9.1 General Considerations for Environmental Protection

GFP-POL-BUS-00001, *Health and Safety, and Environmental Policy* is to conduct licensed activities in a manner which protects the environment, with a focus on prevention and mitigation of any potential adverse impacts. GFP will ensure that robust environmental management practices are in place prior to the activities being performed for each life cycle phase of the facility.

GFP maintains an ISO 14001 compliant environmental management system as documented in GFP-PRCS-BUS-00008, *Environmental Management Process.*

GFP is currently conducting an Environmental Assessment (EA) as part of the licensing process for the MMR facility at Chalk River. The EA, which is being conducted under the Canadian Environmental Assessment Act (CEAA) 2012, includes an Environmental Risk Assessment (ERA). The ERA assesses the potential impacts of the project on the environment and identifies mitigation measures to minimize any impacts.

With respect to Site Preparation, GFP will develop environmental management requirements based on environmental monitoring and follow-up activities identified under the EA, as well as through evaluation of applicable significant environmental aspects (SEAs)

per the *Environmental Management Process*. Applicable SEAs for Site Preparation may include the management of spills, waste, soil and water.

During this phase of the project, GFP will ensure compliance with applicable standards as they relate to site preparation activities, including:

- CAN/CSA-ISO 14001, *Environmental management systems – Requirements with guidance for use* (2004 edition or successor editions)
- CSA N288.0, Environmental management of nuclear facilities: Common requirements of the CSA N288 series of Standards
- CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*
- CSA N288.4, *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills*
- CSA N288.5, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills*
- CSA N288.7, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*
- CSA N288.8, *Establishing and implementing action levels for releases to the environment from nuclear facilities*

NOTE: Radiological effluents will not be present during the site preparation and construction activities.

5.9.2 Performance of Site Preparation and Facility Construction by Different Organizations

For site preparation activities, approved suppliers will conduct environmental management activities in accordance with GFP01-PLAN-BUS-00002, *Environmental Management Plan* (Enclosure 4). Approved suppliers conducting work on GFP's behalf, shall maintain ISO 14001 compliant environmental management systems.

Where approved suppliers are conducting work on GFP's behalf, GFP will ensure supplier developed environmental management plans meet required standards and regulations in advance of the work to be performed. GFP will maintain ongoing oversight of

environmental management activities during site preparation work to ensure environmental impacts are being effectively minimized.

5.9.3 Applicable GFP Documents

The following document (see Table 5) is the applicable GFP document for the Environmental Protection SCA, which supports the licensing basis.

Table 5: Management System Document for the Environmental Protection SCA

Document	Title
GFP-PRCS-BUS-00008	Environmental Management Process

5.10 Emergency Management and Fire Protection

The Emergency Management and Fire Protection SCA covers emergency plans and emergency preparedness programs that exist for emergencies and for non-routine conditions.

Applicable regulatory basis:

- *General Nuclear Safety and Control Regulations, paragraph 3(1)(k)*
- *Class I Nuclear Facilities Regulations*, paragraphs 3(f) and 3(k)
- *Nuclear Safety and Control Act, subsection 24(4),*
- *Class 1 Nuclear Facilities Regulations, paragraph 6(k)*

GFP's emergency management objectives and requirements are stated in GFP-PRCS-BUS-00009, *Emergency Response Process* (Enclosure 5) and cover prevention and mitigation, preparedness, response and recovery from emergencies including those that are nuclear related. GFP addresses emergency management requirements for the life of the facility through the *Emergency Response Process* commensurate with risk in accordance with a graded approach as articulated in GFP-GUID-BUS-00005, *Graded Approach.*

The following regulatory documents and standards inform the requirements in GFP's *Emergency Response Process*.

- CNSC REGDOC-2.10.1*, Nuclear Emergency Preparedness and Response, Version 2*
- CSA N1600*, General Requirements for nuclear emergency management programs*
- IAEA GS-R-2*, Preparedness and Response for a Nuclear or Radiological Emergency*

The objectives of GFP's Emergency Response Process are consistent with four elements:

1. Planning basis
2. Emergency response plan and procedures
3. Emergency preparedness
4. Program management

The planning basis includes GFP's analysis of the risks and hazards that the emergency response process addresses. This includes identifying hazards that could adversely impact the environment and the health and safety of onsite personnel or the public and the risks

and impacts associated with these. The planning basis also identifies postulated scenarios that may challenge the facility's emergency response capabilities and the information needed by regional and provincial offsite authorities to make informed decisions on emergency planning zones and the level of preparedness required.

The emergency response plan and procedures identify how GFP will execute a response including details on the emergency response organization and staffing, categorization, activation and notification of emergencies, ongoing assessment of an emergency, interface and support for offsite response organizations, protection of personnel during emergencies, emergency response facilities and equipment, public emergency information and preparedness, recovery planning, and validation of emergency response and recovery plans and procedures.

GFP's emergency preparedness objective encompasses training and qualification of staff, drills to assess proficiency, and maintenance and testing of emergency response facilities and equipment.

Lastly, program management of GFP's emergency response are the management system aspects that assure the effectiveness of the *Emergency Response Process*.

GFP addresses fire protection requirements through GFP-PRCS-OPS-00007, *Fire Protection Process* (Enclosure 6). Fire protection encompasses activities to prevent, mitigate, and respond to fires such that the risk to employees, public, environment, and facility assets is acceptably low and controlled.

The following regulatory documents, codes and standards inform the requirements in GFP's Fire Protection Process:

- CNSC REGDOC-2.5.2*, Design of Reactor Facilities, Version 2*
- CSA N286-12*, Management system requirements for nuclear facilities*
- CSA N293-12, *Fire protection for nuclear power plants*
- CSA N293S1:21, *Supplement #1 to N293-12, Fire protection for nuclear power plants (application to small modular reactors)*
- *National Building Code of Canada*
- *National Fire Code of Canada*

GFP's fire safety provisions ensure the following objectives are achieved in the event of a fire:

a) The health and safety of facility personnel are protected.
b) The risk of radiological releases to the public is acceptably low.
c) Impact of radioactive and hazardous material on the environment is minimized.
d) The risk to GFP business objectives is acceptably low.

GFP will protect the health and safety of personnel from fire by ensuring individuals are protected from injury, ensuring safe egress routes and/or areas of refuge, and protecting personnel performing emergency services during and following a fire.

Maintaining the risk of radiological releases to the public acceptably low in accordance with *Radiation Protection Process* and *Safety Analysis Standard* (GFP-STRD-DES-00003) in the event of a fire is accomplished by ensuring the reactor and other on-site nuclear substances are sub-critical when appropriate and are effectively monitored, ensuring decay heat is removed from the reactor core and heat removal is effectively monitored, maintaining the integrity of fission product barriers, and minimizing the release of radionuclides outside of containment.

Minimizing the impact on the environment in the event of a fire is achieved by preventing release of hazardous substances, nuclear substances and radioactive material at the source, ensuring means of detecting releases to the environment, controlling releases and mitigating their effects, establishing means to recover from the effect of releases, and controlling firefighting water and other agents.

During site preparation, there will be no production and use of nuclear energy or production, possession, and use of nuclear substances or prescribed equipment requiring control under the Nuclear Safety and Control Act. Commensurately, measures for radiological/nuclear-related emergencies that originate on the GFP site are not required at this time.

GFP01-PLAN-BUS-00001, *Emergency Response Plan* (Enclosure 7) contains provisions to establish and meet emergency response requirements associated with site preparation including response to conventional events as well as radiological events originating outside of the GFP site but within the CRL boundary.

The *Emergency Response Plan* is designed to be readily adapted in phases to future project activities beyond site preparation to ensure its use results in timely and appropriate measures commensurate with assessed hazards presented during the performance of licensed activities on site. It will be updated according to design progress, operational readiness, and availability of supporting data including the safety analysis, source term, and dose projections. GFP is actively looking beyond LTPS activities to inform the design of facility SSCs for effective fire prevention and mitigating measures for emergency response.

CNL has an established emergency response program and infrastructure in place at CRL which includes emergency response resources, facilities, equipment, supplies, and agreements with local support services that are integrated with provincial and regional governing bodies and local authorities.

To further support the demonstration objectives of the MMR Project, GFP is establishing arrangements with CNL to utilize CNL emergency response services for the MMR for fire and conventional emergency response, support for CRL on-site emergency response, support for CRL off-site emergency response, development of emergency response procedures that integrate the MMR into CRL's site emergency response plan and command structure, and MMR integration into CRL's security controlled secondary alarm station. The associated implementing processes will be in place in advance of commencement of LTPS site activities.

For conventional emergencies that originate on the GFP site that have impact on the radiological safety of the CRL site, response on the broader CRL site will be governed by CNL's emergency response program. GFP will be integrated into CNL's emergency command and response structure and plan to ensure a comprehensive, site-wide response.

5.10.1 Applicable GFP Documents

The following documents (see Table 6) are the applicable GFP documents for the Emergency Management and Fire Protection SCA, which supports the licensing basis.

Table 6: Management System Documents for the Emergency Management and Fire Protection SCA

Document	Title
GFP-PRCS-BUS-00009	Emergency Response Process
GFP01-PLAN-BUS-00001	Emergency Response Plan
GFP-PRCS-OPS-00007	Fire Protection Process

5.11 Waste Management and Decommissioning

The Waste Management SCA covers internal waste-related programs that form part of the facility's operations up to the point where the waste is removed from the facility to a separate waste management facility, and takes into account principles of waste minimization at the source.

Waste management addresses all wastes, but pays particular emphasis to wastes characterized as radiological or hazardous substances that are used or produced in the course of carrying on a licensed activity and that may pose a risk to the environment or the health and safety of persons. It should be noted that GFP does not intend to conduct any licenced activities that could be expected to generate any radiological waste during the site preparation phase of this project, and as such, this application provides only a high-level overview of how radiological waste concerns are being incorporated into the early planning and design activities being undertaken by GFP and its vendor partners. Further details on radiological waste management will be provided in subsequent licensing applications.

This area also covers the planning for decommissioning.

Applicable regulatory basis:

- *General Nuclear Safety and Control Regulations*, paragraphs 3(1)(j), 3(1)(k) and 3(1)(1)
- *Class I Nuclear Facilities Regulations*, paragraphs 3(e), 3(k), 4(a), 4(c)

5.11.1 Hazardous Substances and Hazardous Wastes

As part of the GFP Management System, GFP-PRCS-WTE-00001, *Nuclear Waste Management Process* (Enclosure 8) describes the organizational responsibilities, applicable interfaces and required activities for the management of waste generated by the MMR project at Chalk River, including non-nuclear and hazardous wastes. These activities are carried out in a safe and effective manner by qualified personnel that ensures applicable regulatory requirements and industry standards are met, applying a graded approach, commensurate with risk posed by the waste to health, safety and the environment.

The following regulatory documents and standards inform the requirements in GFP's Nuclear Waste Management process:

- REGDOC 2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada*
- REGDOC 2.11.1, *Waste Management, Volume 1: Management of Radioactive Waste*
- CSA N286.12, *Management system requirements for nuclear facilities*
- CSA N292.0, *General principles for the management of radioactive waste and irradiated fuel*
- CSA N292.3, *Management of low- and intermediate- level radioactive waste*
- CSA N292.5, *Guideline for the exemption or clearance from regulatory control of materials that contain, or potentially contain, nuclear substances*

For all phases of licensing, waste quantities and characteristics are defined, and measures implemented to manage the waste, including transportation requirements and disposal streams.

During site preparation activities, the intent of the *Nuclear Waste Management Process* will be implemented via the vendor through their own waste management plan, with GFP oversight to ensure it is in compliance with regulatory requirements.

Hazardous substances that may be present and/or hazardous wastes generated as a result of site preparation activities will be limited to those employed during standard construction processes. These would include chemicals, fuel, lubricants and compressed gases used during operation and maintenance of site preparation equipment, as well as solvents and cleaners used to clean the equipment. Additional substances on-site may consist of paint, aerosol cans, oil and electrical components used in the construction and relocation of services and utilities, construction of support facilities, and explosives used during excavation activities.

Baseline radiation hazard characterization measurements of the site and excavated areas shall be performed during excavation activities. Any radioactive material found in excess of background levels shall be managed as radioactive waste, and will be segregated, packaged and transported to designated locations on the Chalk River site in accordance with *GFP Radiation Protection Process.*

Through oversight of the vendor waste management plans, GFP will ensure that every effort shall be undertaken to minimize the volume of waste generated requiring disposal in a

landfill or licensed facility. GFP will ensure that all reasonable efforts are undertaken to reduce, reuse or recycle non-hazardous waste.

The management of hazardous waste, which includes the storage, processing, disposal or transport of hazardous or liquid industrial waste generated during site preparation will comply with the following federal and provincial requirements and guidelines:

- *TDG Act*
- *TDG Regulations*
- *Environmental Protection Act, General – Waste Management, O. Reg. 347*
- *Ministry of Environment guidelines*
- *Waste management best practices*

Waste will be collected, stored and shipped by a licenced hazardous waste disposal company, to a facility licenced to receive and manage the waste.

Hazardous waste will be stored in separate, marked, secure areas to ensure segregation for appropriate management. Risk of failure from the primary container will be mitigated by provisions of catch containment. Accidental release will be reported in accordance with regulatory requirements.

5.11.2 Decommissioning

The MMR project decommissioning process is stipulated through the Management System via GFP-PRCS-DEC-00003, *Decommissioning Process,* ensuring that all the requirements to retire a nuclear facility permanently from service and render it to a predetermined end-state conditions, is done meeting health, safety, environment, security, quality and economic considerations, in accordance with applicable regulatory requirements and industry standards.

The decommissioning process is implemented via GFP01-PLAN-DEC-00001, *Preliminary Decommissioning Plan* (PDP)(Enclosure 9).

The following regulatory documents and standards inform the requirements in GFP's Decommissioning process and plan:

- REGDOC 2.9.1, *Environmental Principles, Assessments and Protection Measures, Version 1.2*
- REGDOC 2.11.2, *Decommissioning*
- REGDOC 3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*
- CSA N286.12, *Management system requirements for nuclear facilities*
- CSA N294.19, *Decommissioning of facilities containing nuclear substances*

The *Preliminary Decommissioning Plan* for the site preparation phase describes decommissioning of the site as follows:

Decommissioning During LTPS Activities:

Should a decision be made to discontinue the project, decommissioning of the LTPS activities are being planned to achieve an end state of a gravel lot suitable for industrial use. At this stage of the facility lifecycle, a prompt decommissioning strategy is expected to be employed, as explained in the PDP. This end-state has been agreed-upon with CNL (Reference 4) and includes:

- Major excavations have been filled in with suitable rock fill.
- The built-up terrace has been removed to return the site to the original grade.
- The administration building has been demolished and rubble removed from site.
- Equipment and laydown areas for site preparation are demobilized, temporary services removed, and final surveys completed to verify the end-state objectives have been met.

Decommissioning for Future Licensing Phases and Post-Operation:

The *Preliminary Decommissioning Plan* considers decommissioning following post-operation. Preliminary decommissioning planning is currently being conducted by GFP and USNC to inform ongoing design of the facility configuration. As a next generation nuclear power technology that is being designed to be deployed in remote regions, GFP sees a

significant opportunity to integrate cost effective decommissioning practices into the facility from the outset to make decommissioning more predictable and efficient. This project also presents an opportunity to make these design decisions in conjunction with efforts to design in maintainability, improvements in waste management and associated reductions of radiological doses to workers.

GFP intends to follow a deferred decommissioning strategy for the MMR project at Chalk River. At end of life, the reactor will be placed into a safe shutdown state, for a period of time to be determined through analysis, to allow the source term to decay sufficiently to commence decommissioning activities via the citadel.

GFP is in discussion with CNL to allow for interim storage of MMR spent fuel at the CRL site. Additionally, GFP is in discussion with the Nuclear Waste Management Organization (NWMO) regarding acceptance criteria for the long-term disposal of spent fuel in a Deep Geologic Repository (DGR). GFP intends to continue these discussions throughout the design phase of the project, to ensure any spent fuel generated through future licenced activities (beyond the scope of the site preparation licence) is considered in the design such that waste volumes are minimized and compatible with industry best practices for storage and disposal.

During the design process, the following are taken into consideration to facilitate an effective decommissioning process, while minimizing waste requiring special handling and disposal:

- The MMR design is relatively simple with fewer SSCs than conventional nuclear power plants. This results in fewer SSCs to decommission, decontaminate, and process as waste.
- It is intended that most fission products created throughout the lifetime of the plant and during all decommissioning activities remain within the FCM fuel pellets. Continuous purification of the helium coolant will remove additional fission products. This reduces the number of SSCs that can be significantly contaminated and therefore reduces the amount of decontamination and waste generated during decommissioning.
- It is intended that direct radiation from the core is contained within the citadel. The number of SSCs located in the citadel is limited to only those which must be in the vicinity of the reactor, and those SSCs are placed in shielded positions which limits the degree of irradiation.

- For SSCs that cannot be completely shielded, radioactive waste is reduced by material selection that limits the effects of activation.
- Design features are incorporated into SSCs to simplify decontamination activities, such as smooth surfaces and limiting sharp corners. Contaminated SSCs which cannot be easily removed into flasks for off-site processing or require in-situ dismantling will have provisions for decontamination activities during decommissioning. This will include access for washing and associated active liquid waste handling systems designed with sufficient capacity for these end-of-life activities.
- The modular construction will be designed to facilitate decommissioning as the modules can be removed with limited processing and cutting and can be handled with standard lifting and transportation equipment. The modular design isolates areas of higher activity limiting the decontamination activities that will be required.

A preliminary decommissioning plan consistent with the principles described above has been developed, and at this stage is limited to the decommissioning of the site in conditions expected at the end of site preparation activities. The cost of execution of the PDP has been estimated and forms the basis of the proposed financial guarantees for this licence. The Financial Guarantees are discussed in Section 6.5.

Nuclear and hazardous wastes that will be generated over the nuclear facility's lifecycle, including decommissioning, will be described in the predictions of effects on the environment, in Section 4.0 of the Part 2 application.

5.11.3 Applicable GFP Documents

The following documents (see Table 7) are the applicable GFP documents for the Waste Management and Decommissioning SCA, which support the licensing basis.

Table 7: Management System Documents for Waste Management and Decommissioning SCA

Document	Title
GFP-PRCS-WTE-00001	Nuclear Waste Management Process
GFP01-PLAN-DEC-00001	Preliminary Decommissioning Plan

5.12 Security

The Security SCA covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for the facility or activity.

The objective of GFP's Nuclear Security program is to establish a state of security readiness to ensure safe and secure operation of the MMR during all the project phases based on the regulatory requirements.

Applicable regulatory basis:

- *General Nuclear Safety and Control Regulations*, paragraphs 3(1)(d), 3(1)(g), and 3(1)(h) and sections 21 through 23
- *Class I Nuclear Facilities Regulations*, paragraph 3(i)
- *Nuclear Security Regulations*, section 3

A key objective of GFP's *Nuclear Security Process* (GFP-PRCS-BUS-00010) (Enclosure 10) is to manage risks to the public of a significant radiological release caused by nuclear sabotage and / or theft of nuclear material by external or internal threat agents.

Two primary goals of GFP's *Nuclear Security Process* are to:

1. Support implementation of facility Defence-in-Depth provisions to address risks of theft and malicious acts; and
2. Demonstrate the implementation of MMR security-by-design features.

The *Nuclear Security Process* supports the protection of nuclear assets at the facility in accordance with the *Nuclear Security Regulations*, associated nuclear security related regulatory documents, and applicable industry standards. This process ensures security readiness as required and maximizes response capability as appropriate to contain, mitigate, and terminate nuclear security events while minimizing adverse impacts to staff and the facility.

The following regulatory documents and standards inform the requirements in GFP's *Nuclear Security Process*, which covers the life of the facility:

- CNSC REGDOC-2.2.4, *Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness*
- CNSC REGDOC-2.3.1, *Conduct of Licensed Activities: Construction and Commissioning Programs*
- CNSC REGDOC-2.12.1 Version 2, *High-Security Facilities, Volume I: Nuclear Response Force*
- CNSC REGDOC-2.12.1 *High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices*
- CNSC REGDOC-2.12.2, *Site Access Security Clearance*
- CNSC REGDOC-2.12.3 Version 2.1, *Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material*
- CNSC REGDOC 3.1.1 *Reporting Requirements for Nuclear Power Plants, Version 2*
- CSA N290.7-14 *Cyber security for nuclear power plants and small reactor facilities*

5.12.1 General Considerations for Security

GFP will implement, via the security process, measures appropriate for each phase of the project, from site preparation, construction, and operation to decommissioning. This ensures compliance with the *Nuclear Security Regulations*, related regulatory documents and applicable codes and standards, as well as any additional measures required to protect personnel, information and physical assets against security risks identified in GFP01-REPT-DES-00009, *Site Selection Threat & Risk Assessment (SSTRA) for Global First Power* (Enclosure 11).

The current security program is established to address activities to be conducted under the Licence to Prepare Site.

GFP security measures will follow GFP's *Nuclear Security Process* which will be updated as required during the licensing phases noted above.

Key elements of the security program include response to threats and maintaining compliance with legislative requirements, while minimizing the adverse impact that the implementation of security measures may have on legitimate staff and plant operations. The security program implemented for the MMR project is being established using modern threat characterisation approaches and will evolve with changes in threat scenarios.

This MMR is being built within the CRL property, which is a high security site that maintains a security program commensurate with all regulatory requirements for their licensed activities. GFP is establishing a commercial agreement with CNL to use CNL security services to align on-site security support activities and also as a conservative set of protective measures over and above the MMR project security by design measures being implemented. The intent is to provide additional assurances to the public while simultaneously generating information to support a case for security by design measures for future green-field sites. Both the agreement and associated implementing processes will be established prior to the commencement of licenced activities.

LTPS activities are essentially focused on traditional construction activities and do not involve the handling of high activity sources or nuclear material. As such, for the LTPS, the focus is on confirming acceptability of the site to allow for implementation of security measures, clearance of GFP staff for access to prescribed information and on establishing means to store and control prescribed information.

Elements of the MMR project security measures, including treatment of prescribed information, are defined below.

5.12.2 Prescribed Information

OPG provides security clearance services of GFP staff for access to prescribed information, and to allow GFP's prescribed information to be stored at secure facilities as required. Any GFP staff requiring access to prescribed information require OPG security clearance for prescribed information regardless of work location. Leveraging OPG's experience as an operator of multiple high security sites as well as a mature licensee aids GFP's security program and ensures security objectives are met.

GFP currently has established an information management program through GFP-PRCS-BUS-00002, *Information Management Process*, and GFP-PROC-BUS-00006, *Cyber Security Procedure*.

GFP-PRCS-BUS-00002, *Information Management Process* establishes standards and procedures for the management of GFP's information throughout the nuclear facility's lifecycle, regardless of media, including electronic systems, to ensure consistent and

appropriate use. This process establishes uniform and efficient requirements for management, maintenance, and final disposition of records and documents throughout GFP. It also establishes the overall GFP process for governance including electronic filing, approval, distribution, and maintenance of the GFP governance framework.

GFP-PROC-BUS-00006, *Cyber Security Procedure* provides the framework to protect GFP's infrastructure and staff from potential cyber-attacks following a graded risk approach. The procedure ensures that GFP's information and operational technologies (IT and OT) are used and operated in a secure, vigilant, and resilient manner that minimizes cyber risks to GFP's information assets and operating facilities.

5.12.3 Site Security Measures

GFP-PRCS-BUS-00010, *Nuclear Security Process* contains the security measures related to the MMR project, updated as required for each licensing phase. Security measures beyond what is currently provided by CNL based on the requirements of the *Nuclear Security Regulations* and associated regulatory documents, as well as any additional measures, are identified though the SSTRA process.

Access Control

The GFP site boundary is completely encompassed within the CNL owned property. Public access to the CNL property is already restricted through use of access controls, fencing and signage. Visitors are required to pass through CNL security gates to access the GFP site.

For the MMR project site preparation activities, GFP01-PLAN-OPS-00001, *Site Security Plan* (Enclosure 12) has been established. Security and access control measures are being established, such as fencing and conventional security barriers, commensurate with the nature of the activities being performed and the security requirements that would apply to those activities. Contract partners chosen for site preparation activities will be required to submit a site security plan to GFP that must be accepted in advance of the associated contractor site preparation activities. The contractor security plan shall meet security requirements appropriate for the site preparation phase of the project.

The *Site Security Plan* will evolve and be updated to meet the requirements for subsequent project phases.

Prescribed Equipment

No prescribed equipment will be used during the site preparation phase.

5.12.4 Site Access Clearance

GFP is establishing a commercial agreement with CNL to use CNL security services to align on-site security support activities. GFP staff and contractors requiring access to the CNL site will have site access clearance granted by CNL security services, and will follow CNL site requirements for CNL site access. The associated implementing processes will be in place in advance of commencement of LTPS site activities.

5.12.5 Security Arrangements with Off-site Response Forces

GFP is establishing a commercial agreement with CNL for the extension of current agreements CNL has with local law enforcement for off-site response forces. The agreements will be further developed commensurate with the development of the MMR security program as the project matures into the next licensing phase. Future agreements will meet requirements defined by Section 35 of the *Nuclear Security Regulations.*

5.12.6 Physical Security

Physical security measures for the site preparation phase of the MMR project will focus on site access control as described in Section 5.12.4. Additional security measures to comply with the *Nuclear Security Regulations* and associated regulatory documents would be implemented during the construction and operating phases of the MMR project.

5.12.7 Cyber Security

GFP's *Cyber Security Procedure* (GFP-PROC-BUS-00006) supports GFP's *Information Management Process* (GFP-PRCS-BUS-00002). The GFP *Cyber Security Procedure* addresses requirements identified in CSA N290.7-14, *Cyber security for nuclear power plants and small reactor facilities* as well as cyber security related requirements in CSA N286-12, *Management system requirements for nuclear facilities*.

GFP's *Cyber Security Procedure* ensures security vulnerabilities and risks associated with GFP's IT and OT infrastructure and assets are managed. GFP processes require the monitoring of IT and operations environments on an ongoing basis to identify, detect,

respond, and recover from cyber threats that impact the confidentiality, integrity, and availability of its assets.

5.12.8 Security Officer Program

For site preparation phase of the MMR project, there are no Nuclear Security Officers (NSO) required for the protection of nuclear assets. Through establishment of a commercial agreement with CNL, GFP intends to utilize CNL nuclear security staff and NSOs to fulfil security requirements of the site throughout the phases of the MMR project as a conservative set of protective measures over and above the MMR security-by-design measures.

As part of establishing the commercial agreement with CNL for provision of security services, GFP will confirm and verify that any NSOs utilized in the future meet all requirements outlined by the *Nuclear Security Regulations*, CNSC REGDOC-2.12.1, *High Security Facilities, Volume I: Nuclear Response Force, Version 2* and CNSC REGDOC-2.24, *Fitness for Duty, Volume III, Nuclear Security Officer Medical, Physical, and Psychological Fitness*.

5.12.9 Applicable GFP Documents

The following documents (see Table 8) are the applicable GFP documents for the Security SCA, which support the licensing basis.

Table 8: Management System Documents for Security SCA

Document	Title
GFP-PRCS-BUS-00010	Nuclear Security Process
GFP-PRCS-BUS-00002	Information Management Process

5.13 Safeguards and Non-Proliferation

The Safeguards and Non-Proliferation SCA is intended to prevent the unauthorized access and distribution of nuclear substances, prescribed information and equipment, and controlled components and information. Safeguards and non-proliferation measures are set up throughout the lifecycle of the nuclear power station following Canadian regulations and agreements with the IAEA.

GFP's GFP-PRCS-OPS-00005, *GFP's Nuclear Safeguards Process* (Enclosure 13) has been developed to support the construction/operation phases of the MMR project to allow for:

- monitoring and reporting on nuclear material and activities
- providing IAEA safeguards inspectors with access to areas where nuclear material is stored, and to certain specified nuclear-related manufacturing and research activities
- providing operational and design information for nuclear facilities to the IAEA

GFP meets the *Nuclear Non-Proliferation Import and Export Control Regulations* through the implementation of GFP-PRCS-OPS-00005, *GFP's Nuclear Safeguards Process.*

Applicable regulatory basis:

- *Nuclear Non-Proliferation Import and Export Control Regulations*

Applicable international protocols:

- IAEA INFCIRC/140, *Treaty on the Non-Proliferation of Nuclear Weapons (NPT)*
- IAEA INFCIRC/164, *Agreement between the Government of Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*
- IAEA INFCIRC/164/Add.1, *Protocol Additional to INFCIRC/164*

In preparation for future applications for Licences to Construct and Operate, GFP will define and implement measures to ensure compliance with the above requirements and obligations. This will involve active engagement with the IAEA and the CNSC. This will specifically involve the completion of an IAEA Design Information Questionnaire (DIQ) to

allow for the definition of requirements to implement safeguards measures at the facility. Key considerations are:

- Operational and design information,
- Measures to ensure monitoring and reporting on nuclear material and activities, and
- Providing access to areas where nuclear material is stored to IAEA inspectors.

The current MMR design and operational concept facilitate implementation of safeguards by design provisions, notably through use of proliferation resistant tristructual isotropic (TRISO) particles that are contained within USNC's proprietary FCM fuel.

However, there will be no nuclear materials encompassed by the site preparation licence requested, and as such, implementation of safeguards measures related to nuclear materials are not required for this phase. Detailed information related to implementation of safeguards will be submitted in support of future licensing applications.

GFP currently holds import and export licences for information-sharing with U.S.-based USNC, and is in compliance with the requirements for controlling nuclear information.

For subsequent MMR licensing phases:

- The requirements of REGDOC-2.13.2, *Import and Export, Version 2* will be reflected through implementation of GFP Management system documentation that includes: the *Safeguards Process* (GFP-PRCS-OPS-00005), the *Cyber Security Procedure* (GFP-PROC-BUS-00006), the *Nuclear Security Process* (GFP-PRCS-OPS-00010), and the *Information Management Process* (GFP-PRCS-BUS-00002).

- GFP will complete the DIQ with the IAEA which will establish the IAEA requirements for safeguards measures to be implemented at the MMR project site. GFP will commence required provisions of GFP's Safeguards Process for record keeping, IAEA access, nuclear material accountancy, facilitating the installation of safeguards equipment and seals, records retention, and providing necessary information to regulatory agencies as required based on the progress of the project and at the request of regulators and the IAEA.

- Prior to GFP's safeguards measures being implemented, but after the IAEA has communicated the necessary safeguards measures, GFP will train its employees in accordance with GFP-PROC-BUS-00012, *Training Procedure* on the measures to be used at GFP's Chalk River site. This will ensure staff are aware of their obligation regarding safeguards requirements, including related equipment and seals.

5.13.1 Applicable GFP Documents

The following document (see Table 9) is the applicable GFP document for the Safeguards and Non-Proliferation SCA, which support the licensing basis.

Table 9: Management System Document for Safeguards and Non-Proliferation SCA

Document	Title
GFP-PRCS-OPS-00005	Nuclear Safeguards Process

5.14 Packaging and Transport

In accordance with REGDOC-1.1.1, the Packaging and Transport SCA is not relevant to an application for a licence to prepare a site. Therefore, this section is left blank intentionally.

6.0 Other Matters of Regulatory Interest

6.1 Environmental Assessment

In 2019, the EA process commenced to evaluate the potential impacts that the MMR project could have on the environment and identify available mitigation measures. The CNSC was identified as the responsible authority for the Project regulated under the Nuclear Control and Safety Act and confirmed that the Project met the definition of a "designated project" defined in the *Regulations Designating Physical Activities under the Canadian Environmental Assessment Act (CEAA, 2012)*.

The effects of the project are being documented in the EIS which is being completed in accordance with CNSC's "Generic Guidelines for the Preparation of an Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012*".

Signficant progress has been made to develop the draft EIS. Thus far, no significant environmental effects have been identified, taking into account the proposed mitigation measures. This includes no adverse effects from accidents, malfunctions or malevolent acts, effects of the environment on the project, and cumulative effects. The completed EIS will be submitted with Part 2 of this application as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

6.2 Public Information and Disclosure Program

6.2.1 Public Information Program

GFP's communication strategy follows the principles and processes for external communications governed by GFP-PRCS-BUS-00003, *Communications Management Process*. The *Communications Management Process* and its implementing procedures provide the expectations and requirements of GFP for effective, open, timely, and transparent communications with Indigenous communities, applicable regulators, employees, external entities, members of the public, and stakeholders.

GFP's Public Disclosure Protocol is posted on GFP's public website and reflects our commitment to provide accurate and timely information to the public and stakeholders in various forums and vehicles, based on audience interests, perception of risk, and preferred means of communication.

GFP's goal is to ensure a clear understanding of our activities to allow audiences to make informed decisions through readily accessible information, open dialogue with opportunities to share views and perspectives, and have questions addressed.

6.2.2 Communications and Consultation – Micro Modular Reactor Project

GFP has a *Public Information and Disclosure Plan* (GFP-PLAN-BUS-00003) that establishes the requirements for GFP's public information and disclosure for the MMR project, in accordance with CNSC REGDOC-3.2.1, *Public Information and Disclosure*.

The objectives of this plan and associated activities are to ensure that audiences identified as likely to be impacted by a licensed activity and/or having a potential interest in the licensed activity are provided relevant and timely information regarding health, safety and security of persons and the environment. The plan includes providing clear, consistent, timely, and accurate information.

Note: GFP is currently addressing information requests (IRs) received from CNSC staff (Reference 5) and updating our *Public Information and Disclosure Plan* for submission with the Part 2 LTPS application.

GFP has continued to inform the public and stakeholders about the status of the MMR project through a variety of forums, such as open house events and newsletters.

Information Sharing

Some methods of information sharing include, but are not limited to, the following:

- GFP provides information on the MMR project and related licensing activities, as well as general information on nuclear power and new nuclear technology. This is accomplished through a variety of forums, such as newsletters, fact sheets, emails, website, and social media.
- GFP's public website serves as a means of interaction with members of the public and stakeholder groups.
- GFP maintains a presence on social media (Twitter and LinkedIn) and shares information through these platforms.

Community Outreach

GFP continues to engage with the community adjacent to the CRL MMR project site and with Indigenous Nations and communities with established or asserted Indigenous and treaty rights and interests proximate to the CRL MMR project site in a transparent manner. GFP meets often with stakeholder groups, such as government and municipal officials, as summarized in Table 10.

6.2.3 Summary

GFP is committed to open and transparent communications and providing informative, timely, and accurate information which will be disclosed in accordance with applicable legal and regulatory requirements. Throughout the licensing process, GFP will continue to communicate and engage through a variety of activities with stakeholders, the public, and Indigenous Nations and communities to ensure they are aware of GFP's intentions and of the opportunities for public participation in the licensing process.

6.3 Indigenous Engagement

6.3.1 Indigenous Engagement Program

GFP is committed to meaningful engagement with Indigenous Nations and communities in regards to its future nuclear projects, including the CRL MMR project.

GFP's *Indigenous Relations Policy* (GFP-POL-BUS-00004) recognizes the legal and constitutional rights possessed by Indigenous peoples and the importance of the relationship between Indigenous peoples and their traditional lands and resources. GFP is committed to regularly engaging with Indigenous Nations and communities about projects that potentially impact their legal and constitutional rights. The policy also states GFP's desire to explore partnerships, employment-opportunity initiatives, and other capacity-building efforts with Indigenous Nations and communities.

Indigenous Nations and communities who have been engaged to various extents regarding the CRL MMR project include:

- Algonquin Anishinabeg Nation Tribal Council
    - Abitibiwinni (Pikogan) First Nation
    - Kebaowek First Nation
    - Kitcisakik First Nation
    - Kitigan Zibi Anishinabeg First Nation
    - Lac Simon First Nation
    - Long Point First Nation
    - Wahgoshig First Nation
- Algonquin Nation Secretariat
    - Algonquins of Barriere Lake
    - Timiskaming First Nation
    - Wolf Lake First Nation
- Algonquins of Ontario
- Algonquins of Pikwàkanagàn First Nation
- Anishinabek Nation
- Métis Nation of Ontario
- Williams Treaties First Nations

- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation

Indigenous engagement in relation to the CRL MMR project began in 2019 and will continue throughout the project's lifespan, including the EA licensing process. Indigenous engagement activities include information sharing sessions and presentations, site tours, and requests for input of Indigenous knowledge to be incorporated into GFP's EIS. GFP values the Indigenous knowledge that was shared to approach potential impacts or concerns through a 'two-eyed seeing' approach. GFP's preliminary technical support document *Draft Preliminary Indigenous Engagement Report,* (Reference 1) provides an understanding of the approach to engagement, alignment with regulatory requirements, identified Indigenous Nations and communities, and an overview of engagement with Indigenous partners. The report highlights the anticipated effects assessment undertaken for the Indigenous engagement environment, which supports components of the EIS. GFP will continue to engage with identified and interested Indigenous Nations and communities throughout the MMR project lifespan. GFP is in the process of updating the *Indigenous Engagement Report* with ongoing engagement activities, and plans to include the updated report with the LTPS Part 2 application, as reflected in GFP01-PLAN-BUS-00006, *GFP Nuclear Facility at Chalk River Site: Updated Submission Schedule of Licence Application Information* (Enclosure 2).

Furthermore, input from Indigenous Nations and communities has already been received by GFP and will be included in the draft EIS, including Indigenous Knowledge and information on traditions and land usage. Further input and feedback will continue to be sought from Nations and communities that are interested in sharing this information with GFP as the draft EIS is finalized.

6.3.2 Summary

GFP continues to proactively engage Indigenous Nations and communities through activities that include information sharing, workshops, and/or community briefings. The objective of these activities is to ensure that Indigenous Nations and communities identified and/or interested in the project are made aware of GFP's planned licence application and are provided with the opportunity to discuss topics of interest related to the application. GFP respects traditional indigenous rights and activities (e.g., hunting, trapping, fishing, gathering, or conducting ceremonies) and is committed to addressing them based on any potential impacts related to the project. The activities being carried out by GFP meet the requirements outlined in CNSC REGDOC-3.2.2, *Indigenous Engagement* and align with the CEAA, 2012.

6.4 Intergovernmental Consultation

This section provides a summary of the government bodies and agencies that GFP has had consultations and involvement with during the EA and licensing process for the MMR project.

Federal, provincial, and municipal government agencies and departments were notified of the Project commencement and received project newsletters and invitations to engagement and consultation events held since project initiation. Distribution lists were expanded and kept updated as the project progressed and additional stakeholders became aware of the proposed project. To facilitate open lines of communication, GFP has worked to ensure any needs or enquiries are addressed through active communication with the following government/agencies:

- Atomic Energy Canada Limited
- Canadian Nuclear Laboratories
- Canadian Nuclear Safety Commission
- Environment and Climate Change Canada
- Global Affairs Canada
- Health Canada
- Impact Assessment Agency
- Innovation, Science and Economic Development Canada
- Natural Resources Canada
- Nuclear Waste Management Organization
- Transport Canada
- Province of Ontario Ministry of Environment, Conservation and Parks
- Province of Quebec, Ministère de l'Environnement et de la Lutte Contre les Changements Climatiques

Table 10 provides a breakdown on engagement events and activities which have occurred with government and/or agency stakeholders throughout the duration of this project.

Table 10: Government and Agency Engagement Events and Activities

Date	Description
July 5, 2019	Letters sent to the following individuals regarding organizing a meeting for Project introduction: • Mayor of Deep River; • Mayor of Laurentian Hills; • Mayor of Pembroke; • Mayor of Petawawa; • Mayor of Renfrew County; • Member of Parliament (MP) of Renfrew – Nipissing – Pembroke Riding; • Member of Provincial Parliament (MPP) of Renfrew – Nipissing – Pembroke Riding; and • Warden of the Pontiac Municipal Regional Council
July 8, 2019	Letters sent to the following individuals regarding organizing a meeting for Project introduction: • MP of Pontiac Riding
July 24, 2019	A meeting was held with the Mayor of Deep River which provided an introduction of the proposed Project.
July 25, 2019	A meeting was held with the Mayor of Pembroke which provided an introduction of the proposed Project.
August 23, 2019	A meeting was held with the Wardens of Pontiac County and Renfrew County which provided an introduction of the proposed Project.
October 2, 2019	A meeting was held with the Mayor of Laurentian Hills which provided an introduction of the proposed Project.
October 3, 2019	A meeting was held with the Mayor of Petawawa which provided an introduction of the proposed Project.
February 5, 2020	A letter was sent to the MP of the Pontiac Riding which provided Project updates and CNSC's announcement regarding the EA scope hearing.
April 20, 2020	A phone call to the MP of the Pontiac Riding took place
April 22, 2020	A virtual meeting took place in order to provide an introduction to GFP and the Project.

Date	Description
October 6, 2020	A phone meeting took place in order to provide Project updates to Pembroke Town Council.
October 21, 2020	An email was sent to local mayors, wardens, public officials, and MPs from the Project area in order to inform them of Public Attitude Research GFP would be conducting in late October 2021.
November 6, 2020	A letter was sent to the PC federal government regarding GFP government funding.
February 24, 2021	An email was sent to the following individuals/representatives in order to provide notification about the upcoming telephone town hall and virtual open houses events to be held in March 2, 2021: • Mayor of Deep River; • Mayor of Laurentian Hills; • Mayor of Pembroke; • MP of Renfrew – Nipissing – Pembroke Riding; • Warden of Renfrew County; and • Warden of the Pontiac Municipal Regional Council.
March 24, 2021	GFP reached out to the following individuals in order to organize a meeting date regarding 2021 Project updates: • Mayor of Deep River; • Mayor of Laurentian Hills; • Mayor of Pembroke; • Mayor of Petawawa; • MP of Pontiac Region; • MPP of Renfrew County; and • Municipal Regional Council of Pontiac County
April 7, 2021	An email was sent out to the following individuals in order to provide notification of upcoming Social and Economic impact assessment work to start April 12, 2021: • Mayor of Laurentian Hills; • Mayor of Pembroke;

Date	Description
	• Mayor of Petawawa; • Mayor of Renfrew County; and • Municipal Regional Council of Pontiac County
April 20, 2021	GFP reached out to the Renfrew County Economic Development Division in order to obtain advice on engagement avenues for Renfrew County.
April 27, 2021	GFP contacted the Mayor of the Town of Laurentian Hills in order to request to appear before the Laurentian Hills Town Council to provide an update on the Project.
May 4, 2021	GFP met virtually with the City of Pembroke Council in order to provide updates regarding the Project. The City of Pembroke Council inquired about waste disposal/storage and project lifecycle logistics.
May 19, 2021	GFP sent an email to notify the following individuals/representatives about the May 19, 2021, press release regarding CNSC licensing: • Mayor of Deep River; • Mayor of Laurentian Hills; • Mayor of Pembroke; • Mayor of Petawawa; • MP of Pontiac County; • MP of Renfrew-Nipissing-Pembroke; • MPP of Renfrew-Nipissing-Pembroke; • Municipal Regional Council of Pontiac County; and • Warden of the Pontiac Municipal Regional Council.
May 26, 2021	GFP and MP of Calgary Centre coordinating on organizing a meeting
June 7, 2021	GFP provided Project updates to the Town of Petawawa Council
June 9, 2021	GFP sent a letter to the Minister of Natural Resources and Minister of Science, Innovation and Economic Development encouraging support for the MMRP.
June 9, 2021	GFP met with the Town of Deep River and presented updates on the Project.

Date	Description
June 26, 2021	GFP met with the Minister of Innovation, Science and Economic Development's office in order to discuss federal funding.
July 5, 2021	GFP sent an email to the following individuals/representatives including the summer 2021 newsletter: • Mayor of Pembroke; • Mayor of Petawawa; • Mayor of Pontiac Region; • Mayor of Renfrew County; and • MPP of Renfrew—Nipissing—Pembroke.
November 2, 2021	An email was sent to the following individuals in order to provide notification about the upcoming Telephone Town Hall (TTH) and Virtual Open House (VOH) events to be held on November 16, 2021: • Mayor of Laurentian Hills; • Mayor of Pembroke; • Mayor of Petawawa; • Mayor of Pontiac County; • Mayor of Renfrew County; • MP of Renfrew – Nipissing – Pembroke; • MPP of Renfrew – Nipissing – Pembroke; and • Warden of the Pontiac Municipal Regional Council.
November 11, 2021	GFP emailed the Mayor of the Greater Madawaska Valley to provide notification about the upcoming TTH and VOH events to be held on November 16, 2021. GFP also provided information about the event.
November 18, 2021	GFP emailed the following individuals/representatives in order to provide notification that the TTH recording from the November 16, 2021, event was available: • Mayor of Deep River; • Mayor of Lawrentian Hills; • Mayor of Pembroke; • Mayor of Petawawa;

Date	Description
	• Mayor of Pontiac County; • Mayor of Renfrew County; • MP of Renfrew – Nipissing – Pembroke; and • MPP of Renfrew – Nipissing – Pembroke.
December 2, 2021	An email was sent by GFP to the following individuals/representatives: • Mayor of Laurentian Hills; • Mayor of Deep River; • Mayor of Pembroke; • Mayor of Petawawa; • Mayor of Pontiac; • Mayor of Pontiac Region; • Mayor of Renfrew County; • MP of Renfrew – Nipissing – Pembroke; and • MPP of Renfrew – Nipissing – Pembroke.
December 2, 2021	GFP sent a diorama completed by UNSC to the following individuals/Representatives: • Mayor of Laurentian Hills; • Mayor of Deep River; • Mayor of Pontiac; • Mayor of Pontiac Region; • Mayor of Pembroke; • Mayor of Petawawa; • Mayor of Renfrew County; • MP of Renfrew – Nipissing – Pembroke; and • MPP of Renfrew – Nipissing – Pembroke.
February 17, 2022	GFP spoke at the Renfrew County Economic Partners Meeting which was also attended by various local stakeholders, as well as those representing banks and Federal government. Topics included: • Commercialization;

Date	Description
	• Employment numbers; and • Project costs and logistics.
March 21, 2022	GFP sent an email to the Project stakeholder list including a reminder about the CNSC-hosted webinar taking place on March 22, 2022.
March 22, 2022	CNSC hosted a webinar on the GFP MMRP.
March 24, 2022	GFP presented at the CNL Environmental Stewardship Council meeting.
April 27, 2022	GFP presented to Renfrew County Council.
June 28, 2022	GFP emailed the Project stakeholder list including the following individuals/representatives to provide information about summer outreach activities: • Mayor of Deep River; • Mayor of Laurentian Hills; • Mayor of Pembroke; • Mayor of Petawawa; • Mayor of Pontiac County; • Mayor of Renfrew County; • Mayor of Sheenboro; • MP of Renfrew – Nipissing – Pembroke; • MPP of Renfrew – Nipissing – Pembroke; and • Ontario Power Generation Staff.
July 20, 2022	GFP sent information about the August 2022 in-person and virtual open house events to the Mayor of Pontiac County and the Renfrew Country contact list which included the Mayor and those in charge of town social media accounts.
August 4, 2022	GFP sent an email to the Project stakeholder list noting that the virtual open house event was live.
August 4, 2022	GFP held an in-person open house event in Sheenboro, Quebec.
August 5, 2022	GFP held an in-person open house event in Deep River, Ontario.
August 6, 2022	CNL held an open house event in Deep River, Ontario

Date	Description
August 17, 2022	GFP sent an email to the Project stakeholder list noting that the virtual open house was extended to August 19.
August 17, 2022	GFP met in-person with a representative from Ontario's Ministry of Economic Development, Job Creation and Trade to provide an update on the Project and discuss opportunities to support the Strategic Industry Intelligence Branch – Industrial Materials, Clean and Low Carbon Technologies Unit.
November 9, 2022	A GFP representative joined Nuclear Energy Agency's panel to discuss a workshop on the management of spent fuel, radioactive waste, and decommissioning in SMR/Advanced reactor technologies.
January 21, 2023	GFP Licensing Director presented and participated in a panel discussion with representatives from the Nuclear Waste Management Organization (NWMO) and CNSC at the Carleton University Green Energy Symposium, discussing the project and answering audience questions.
February 22-24, 2023	GFP President and CEO, Licensing Director, and Communications Director attended the Canadian Nuclear Association 2023 conference. Conversations with municipality, provincial, and federal officials were made to spread awareness of the MMR project at the Chalk River site, including officials from the Ministry of Energy, NRCan, CNL, AECL, and CNSC.
March 16, 2023	GFP President and CEO met with members of Ontario's Ministry of Economic Development, Job Creation and Trade to GFP's Whitby office. Discussions regarding supply base for the Chalk River MMRP took place during this visit.
April 27, 2023	GFP President and CEO attended Public Policy Forum's Annual Testimonial Dinner Honour Roll in Toronto, sharing a table with the President and CEO of the NWMO, the Chairman of the Board of Directors of the NWMO, and the Chief of Staff of the Provincial Ministry of Energy. Discussions regarding the Chalk River project scope/schedule and GFP's vision for MMR operations took place during this event.
May 11, 2023	GFP, AECL, and CNL announced that GFP has selected a location at the Chalk River Laboratories to site the proposed MMRP. The Mayor of Deep

Date	Description
	River, Mayor of Petawawa, 4th Canadian Division Support Group Commander and the Chief Warrant Officer (CWO) were in attendance.
June 2, 2023	GFP President and CEO spent the day with two Whitby council members. They spoke about clean energy and the impact that the MMR project can have on remote communities. The councilors were interested in the fact that the GFP head office was located in their community.
June 14, 2023	GFP President and CEO spoke on a panel during a Mining Association of Canada (MAC) event to discuss the MMR project technology and answer audience questions.

MPs, MPPs, and members of municipal councils were notified of the Project commencement and were given updates on the project and project-related activities through newsletters, invitations and participation in consultation and engagement events. GFP regularly briefs local and regional municipal governments to share information about the project and related engagement activities. GFP works to provide answers to questions noted by elected officials and provides a public forum for elected officials to learn more about and discuss the project.

6.5 Financial Guarantees

The NSCA and its regulations require that applicants make adequate provisions for the decommissioning of activities licensed by the CNSC.

The following regulatory document informs the requirements for GFP's Financial Guarantee:

- REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*

The assurance of a financial guarantee is intended to address the potential that the CNSC would find itself responsible for performance of the decommissioning effort.

GFP01-PLAN-DEC-00001, *Preliminary Decommissioning Plan* (PDP) for the site preparation phase was developed to describe the decommissioning of the site in the unlikely event the project is cancelled after the site preparation activities have been completed.

The PDP forms the basis of the anticipated decommissioning activities to restore the project site to the required end-state condition. As per GFP01-REPT-DEC-00001, *Decommissioning Cost Estimate to Support the Chalk River Site Facility Preliminary Decommissioning Plan*, the decommissioning activities associated with the LTPS undertakings are currently estimated to cost $12,628,000(CAD Dollar), which includes appropriate contingency and escalation (Enclosure 14). A financial guarantee will be in place prior to the commencement of the Licence to Prepare Site activities. GFP currently plans to establish a Letter of Credit (or equivalent financial security/instrument) to ensure the availability of funding to adequately decommission the project site in the event the project does not proceed.

7.0 Conclusion

This Part 1 submission updates the licence application elements which are programmatic in nature and less dependent on the availability of detailed design information. It provides a significant portion of the information required to demonstrate that GFP meets or exceeds all of the applicable requirements of the NSCA and the associated regulations.

The MMR project site evaluation is continuing using site baseline data and being evaluated against current codes, standards and practices. This work builds on a significant amount of information already available from existing CNL operations. While the studies and evaluation are still in progress, to date all the available results indicate no impediments to conducting project activities anticipated over the lifecycle of the project taking into account planned preventive and mitigative measures. The CRL site has hosted licensed nuclear activities for several decades and represents an ideal location for GFP to continue on in this tradition and demonstrate the capabilities of the MMR.

The MMR Project represents a significant opportunity for optimizing advancement of SMR technology in Canada to support, in an environmentally-conscious manner, remote communities and industries in Ontario. Canada is poised to leverage nuclear energy as a key contributor in its climate change strategy, and the MMR can play a unique role in meeting this historical challenge.

The information contained in this Part 1 application (along with the information to be provided in Part 2) will demonstrate that GFP:

- is qualified to carry on the activity requested to be licensed; and
- will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

8.0 References

1. GFP Letter, J. Howieson to M. Leblanc, " Application for a Licence to Prepare Site for the Micro Modular Reactor Nuclear Plant at Chalk River", March 20, 2019, GFCS-19-001.
2. GFP Letter, J. Howieson to M. Leblanc, " Re: Updated Documents in Support of Global First Power's Application for a Licence to Prepare Site for the Micro Modular Reactor Nuclear Plant at Chalk River", June 27, 2019, GFCS-19-002.
3. GFP Letter, R. Sohi to S. Eaton, " Submission of Global First Power (GFP) Licence Application Information Management System Acknowledgement and request for clarification", April 30, 2021, GFP-CORR-BUS-00004-CNSC.
4. GFP Letter, A. Jeffery to S. Celovsky, " Subject: Site Boundary Coordinates and Proposed End-State", April 14, 2023, GFP01-CORR-DEC-00001.
5. CNSC Letter, S. Eaton to J. Diening, " Subject: CNSC Information Requests regarding Public Information and Disclosure Program – Global First Power (GFP) Micro Modular Reactor™ (MMR™) at Chalk River Project", May 3, 2023, GFP-CORR-BUS-00046-CNSC, e-Doc 7022986.
6. CNSC Letter, S. Eaton to R. Sohi, "CNSC Information Requests Regarding Management System for the Global First Power (GFP) Micro Modular Reactor (MMR) Nuclear Power Reactor Site Preparation Licence (PRSL)", September 8, 2021, GFP-CORR-BUS-00012-CNSC.
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8. CNSC Letter, S. Eaton to D. Minière, " Canadian Nuclear Safety Commission (CNSC) Information Requests Regarding Management System for the Global First Power (GFP) Micro Modular Reactor (MMR) Nuclear Power Reactor Site Preparation Licence (PRSL)", December 9, 2021, GFP-CORR-BUS-00018-CNSC.

9.0 Glossary

AECL	Atomic Energy of Canada Limited
ALARA	As Low As Reasonably Achievable
CANDU	Candian Deuterium Uranium
CEAA	Canadian Environmental Assessment Act
CEO	Chief Executive Officer
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
CRL	Chalk River Laboratories
CSA	Canadian Standards Association
CWO	Chief Warrant Officer
DGR	Deep Geological Repository
DIQ	Design Information Questionnaire
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
EcoRA	Ecological Risk Assessment
EIS	Environmental Impact Statement
ERA	Environmental Risk Assessment
ESAPA	Early Site Evaluation and Preparation Agreement
FCM	Fully Ceramic Microencapsulated
GFP	Global First Power
HHRA	Human Health Risk Assessment
HTGCR	High Temperature Gas Cooled Reactor
IAEA	International Atomic Energy Agency
IR	Information Request
IT	Information Technology
LTPS	Licence to Prepare Site
MAC	Mining Association of Canada
MMR	Micro Modular Reactor
MP	Member of Parliament
MPP	Member of Provincial Parliament

NGS	Nuclear Generating Station
NSCA	Nuclear Safety and Control Act
NSO	Nuclear Security Officer
NWMO	Nuclear Waste Management Organization
OPG	Ontario Power Generation Inc.
OT	Operational Technology
PDP	Preliminary Decommissioning Plan
PPE	Plant Parameter Envelope
REGDOC	Regulatory Document
SCA	Safety and Control Area
SEA	Significant Environmental Aspect
SMR	Small Modular Reactor
SSC	System Structure Component
SSTRA	Site Selection Threat and Risk Assessment
TDG	Transportation of Dangerous Goods
TRISO	Tristructural Isotropic
TTH	Telephone Town Hall
USNC	Ultra Safe Nuclear Corporation
VOH	Virtual Open House

Appendix A Licence Application Matrix – Cross Reference

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
3. (1) An application for a licence shall contain the following information: (a) the applicant's name and business address;	1.2.1
(b) the activity to be licensed and its purpose;	2.1
(c) the name, maximum quantity and form of any nuclear substance to be encompassed by the licence;	1.2.9
(d) a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence;	2.1, 2.2, 5.12
(e) the proposed measures to ensure compliance with the *Radiation Protection Regulations* and the *Nuclear Security Regulations*;	5.7, 5.12
(f) any proposed action level for the purpose of section 6 of the *Radiation Protection Regulations*;	5.7
(g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information;	2.1, 5.12
(h) the proposed measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment or prescribed information;	2.1, 5.12
(i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;	4.0*
(j) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;	1.2.9, 5.11

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
(k) the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the *Act* and the regulations made under the *Act*, including the internal allocation of functions, responsibilities and authority;	5.1.5
(l) a description of any proposed financial guarantee relating to the activity to be licensed;	6.5
(m) any other information required by the Act or the regulations made under the Act for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence	2.1, 2.2
(1.1) The Commission or a designated officer authorized under paragraph 37(2)(*c*) of the *Act*, may require any other information that is necessary to enable the Commission or the designated officer to determine whether the applicant: • (a) is qualified to carry on the activity to be licensed, or	Entire Application
• (b) will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.	Entire Application
12. (1) Every licensee shall (a) ensure the presence of a sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the Act, the regulations made under the Act and the licence; (b) train the workers to carry on the licensed activity in accordance with the Act, the regulations made under the Act and the licence; (c) take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances;	5.1, 5.7, 5.9, 5.12

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
(d) provide the devices required by the Act, the regulations made under the Act and the licence and maintain them within the manufacturer's specifications; (e) require that every person at the site of the licensed activity use equipment, devices, clothing and procedures in accordance with the Act, the regulations made under the Act and the licence; (f) take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment as a result of the licensed activity; (g) implement measures for alerting the licensee to the illegal use or removal of a nuclear substance, prescribed equipment or prescribed information, or the illegal use of a nuclear facility; (h) implement measures for alerting the licensee to acts of sabotage or attempted sabotage anywhere at the site of the licensed activity; (i) take all necessary measures to facilitate Canada's compliance with any applicable safeguards agreement; (j) instruct the workers on the physical security program at the site of the licensed activity and on their obligations under that program;	
15. Every applicant for a licence and every licensee shall notify the Commission of	
(*a*) the persons who have authority to act for them in their dealings with the Commission;	1.2.3
(*b*) the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance,	1.2.6, 5.1

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
nuclear facility, prescribed equipment or prescribed information encompassed by the licence; and	
(*c*) any change in the information referred to in paragraphs (*a*) and (*b*), within 15 days after the change occurs.	1.2.3
17. Every worker shall (*d*) observe and obey all notices and warning signs posted by the licensee in accordance with the *Radiation Protection Regulations*; and (e) take all reasonable precautions to ensure the worker's own safety, the safety of the other persons at the site of the licensed activity, the protection of the environment, the protection of the public and the maintenance of the security of nuclear facilities and of nuclear substances.	5.7, 5.8
21 (1) Information that concerns any of the following, including a record of that information, is prescribed information for the purposes of the Act: (a) a nuclear substance that is required for the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device, including the properties of the nuclear substance; (b) the design, production, use, operation or maintenance of a nuclear weapon or nuclear explosive device; (c) the security arrangements, security equipment, security systems and security procedures established by a licensee in accordance with the Act, the regulations made under the Act or the licence, and any incident relating to security; and (d) the route or schedule for the transport of Category I, II or III nuclear material, as defined in section 1 of the *Nuclear Security Regulations*. (2) Information that is made public in accordance with the Act, the regulations made under the Act or a licence is not prescribed information for the purposes of the Act.	5.12, 5.13

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
22 (2) The following persons may possess, transfer or use prescribed information without a licence to carry on that activity: (a) a worker, for the purpose of enabling the worker to perform duties assigned by the licensee; and (b) a person who is legally required or legally authorized to obtain or receive the information. (3) For greater certainty, the exemptions established in subsections (1) and (2) relate only to the activities specified in those subsections and do not derogate from the licence requirement imposed by section 26 of the Act in relation to other activities. **23** (1) No person shall transfer or disclose prescribed information unless the person (a) is legally required to do so; or (b) transfers or discloses it to (i) a minister, employee or other person acting on behalf or under the direction of the Government of Canada, the government of a province or any of their agencies, for the purpose of assisting themselves in exercising a power or performing a duty or function lawfully conferred or imposed on them, (ii) an official of a foreign government or an international agency, for the purpose of meeting obligations imposed by an arrangement made between the Government of Canada and the foreign government or international agency, (iii) a worker, for the purpose of enabling the worker to perform duties assigned by the licensee, or	

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
(iv) a person who is legally required or legally authorized to obtain or receive the information. (2) A person who possesses or has knowledge of prescribed information shall take all necessary precautions to prevent any transfer or disclosure of the prescribed information that is not authorized by the Act and the regulations made under the Act.	
29. (1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the Commission of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it: (*b*) the occurrence of an event that is likely to result in the exposure of persons to radiation in excess of the applicable radiation dose limits prescribed by the *Radiation Protection Regulations*;	5.7

Class I Nuclear Facilities Regulations	
Requirement(s)	**Application Cross-Ref.**
3. An application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*: (*a*) a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;	3.1, 5.10
(*b*) plans showing the location, perimeter, areas, structures and systems of the nuclear facility;	1.1, 3.1
(*c*) evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed;	1.2.5
(*d*) the proposed management system for the activity to be licensed, including measures to promote and support safety culture;	5.1
(*d.1*) the proposed human performance program for the activity to be licensed, including measures to ensure workers' fitness for duty;	5.1.3, 5.2
(*e*) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on;	1.2.9, 5.11
(*f*) the proposed worker health and safety policies and procedures;	5.8, 5.10
(*g*) the proposed environmental protection policies and procedures;	3.2, 5.9
(*h*) the proposed effluent and environmental monitoring programs;	3.2, 5.9
(*i*) if the application is in respect of a nuclear facility referred to in paragraph 2(*b*) of the *Nuclear Security Regulations*, the information required by section 3 of those Regulations;	5.12

Class I Nuclear Facilities Regulations	
Requirement(s)	**Application Cross-Ref.**
(*j*) the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed; and	5.9, 6.2, 6.3, 6.4
(*k*) the proposed plan for the decommissioning of the nuclear facility or of the site.	5.11
4. An application for a licence to prepare site for a Class I nuclear facility shall contain the following information in addition to the information required by section 3: (*a*) a description of the site evaluation process and of the investigations and preparatory work that have been and will be done on the site and in the surrounding area;	4.0*, 5.9, 5.11
(*b*) a description of the site's susceptibility to human activity and natural phenomena, including seismic events, tornadoes and floods;	4.0*, 5.9
(*c*) the proposed program to determine the environmental baseline characteristics of the site and the surrounding area;	4.0*, 5.9
(*d*) the proposed quality assurance program for the design of the nuclear facility; and	5.1, 5.9
(*e*) the effects on the environment and the health and safety of persons that may result from the activity to be licensed and the measures that will be taken to prevent or mitigate those effects;	4.0*, 5.8, 5.9

Nuclear Security Regulations	
Requirement(s)	**Application Cross-Ref.**
3. An application for a licence in respect of Category I or II nuclear material, other than a licence to transport, and an application for a licence in respect of a nuclear facility referred to in paragraph 2(*b*) shall contain the following information in addition to the information required by section 3 of the *Nuclear Substances and Radiation Devices Regulations* or sections 3 to 8 of the *Class I Nuclear Facilities Regulations*, as applicable: (*a*) a copy of the written protection arrangements made with a response force, referred to in section 35;	5.12
(*b*) the site plan referred to in section 16;	
(*c*) a description of the proposed security equipment, systems and procedures;	
(*d*) a description of the proposed on-site and off-site communications equipment, systems and procedures;	
(*e*) a description of the proposed structure and organization of the nuclear security guard service, including the duties, responsibilities and training of nuclear security guards; and	
(*f*) the proposed plan and procedures to assess and respond to breaches of security.	
(*g*) the current threat and risk assessment.	

*Reserved for Part 2 application submission

Appendix B REGDOC-1.1.1 Mapping to Application

No.	REGDOC-1.1.1 Section(s)	Application Cross-Ref.
1.	**Introduction**	1.0, 1.1
1.1	Purpose	
1.2	Scope	
1.3	Relevant legislation	
1.4	National and international Standards	
2.	**Background**	
2.1	Environmental assessment	6.1
2.2	Public and aboriginal engagement	6.2, 6.3, 6.4
2.3	Overview of site evaluation	4.0 *
2.4	Overview of site preparation	5.0
3.	**Site Evaluation for New Reactor Facilities**	4.0 *
3.1	Role of site evaluation in the CNSC regulatory process	4.0 *
3.2	Site evaluation methodology	4.0 *
3.3	General criteria for site evaluation	4.0 *
3.4	Gathering Baseline Data	4.0 *
3.5	Evaluation of Natural External Events	4.0 *
3.6	Evaluation of External, Non-Malevolent, Human-Induced Events	4.0 *
3.7	Security Considerations	5.12
3.8	Management system	5.1
3.9	Decommissioning	5.11
4.	**Site Preparation for a New Reactor Facility**	5.0
4.1	Role of site evaluation in an application for a licence to prepare site	4.0 *
4.2	Site preparation activities	2.1, 5.0
4.3	Management system	5.1
4.4	Operating performance	5.3
4.5	Safety analysis	5.4
4.6	Physical design	5.5
4.7	Radiation protection measures	5.7

No.	REGDOC-1.1.1 Section(s)	Application Cross-Ref.
4.8	Conventional health and safety	5.8
4.9	Environmental protection	5.9
4.10	Emergency management and fire protection	5.10
4.11	Waste management	5.11
4.12	Security	5.12
4.13	Safeguards and non-proliferation	5.13
4.14	Other matters of regulatory interest	6.0
Appendix A	Licence Application Guide: Licence to Prepare Site	Entire Application
Appendix B	Site Evaluation Program and Processes	4.0 *
Appendix C	Baseline Data used to Evaluate Suitability Throughout the Lifecycle of the Nuclear Facility	4.0 *
Appendix D	Security Baseline Data – Security risks presented by the site's location	5.12
Appendix E	Prediction of Effects of the Environment on the Project over the Lifecycle of the Nuclear Facility	4.0 *
Appendix F	Assessment of Non-Malevolent Accidents, and Malfunctions and of the Consequences	4.0 *
Appendix G	Effects of the Project on the Environment	4.0 *

*Reserved for Part 2 application submission