Denison Mines Corp.
Wheeler River Operation

Fire Protection Program

Document # 16

Version 2

April 2025

Approval for Use

Version	Date	Description of Activities	Author	Reviewer	Approver
Version 1	29-Sept-2023	For CNSC Review			
Version 2	01-Apr-2025	Updated as per CNSC comments			

Revision History

Version	Date	Description of Revision
1	29-Sept-2023	For CNSC Review
2	April 2025	2.1.2.3 Pre-Incident Planning – *added section.* 3.2.1 Fire Safety Plan – *added clarification and reference.*

Table of Contents

Figures

1 Introduction

The *Fire Protection Program* (the Program) is one of the Program documents that comprise the Management System for the Wheeler River Operation (the Operation). The *Fire Protection Program* is preceded by the *Management System Program* within the document framework for the Operation as shown in Figure 1. Consistent with all other Program documents, the *Fire Protection Program* is organized according to the 'Plan-Do-Check-Act' iterative process to incorporate continual improvement in all stages of the Program.

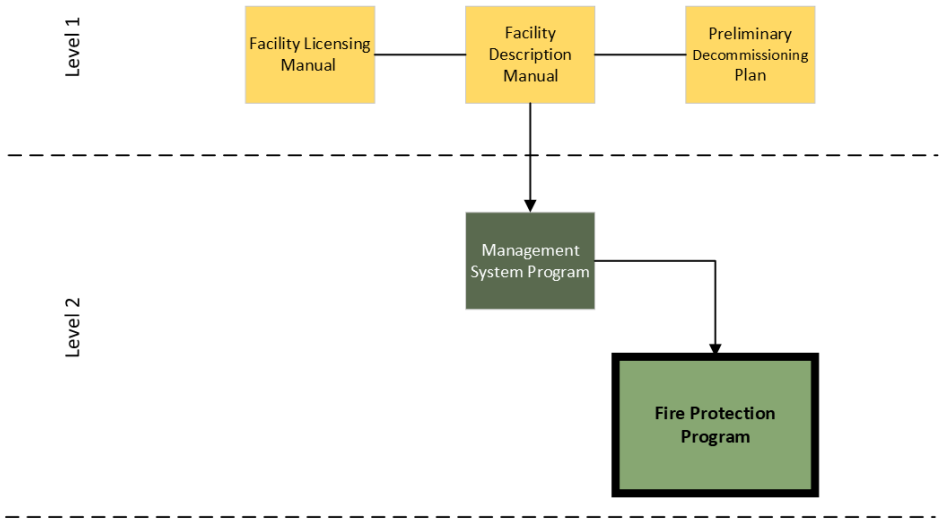

Figure 1: Program shown within Document Framework for the Wheeler River Operation

1.1 Purpose

The Operation has developed and implemented this Program which establishes the fire protection goals and associated safety performance criteria for the Operation. The Operation is designed, operated, inspected, tested, and maintained so that the fire protection goals, and safety performance criteria contained herein are achieved.

The Program summarizes protection requirements at the Operation and has been developed in consideration of applicable regulatory and statutory requirements, industry standards, and corporate and Operation requirements.

1.2 Scope

The Program applies to the activities required to manage fire protection activities at the Operation and details the methods and practices that are utilized for fire protection.

The Program applies to applicable buildings at the Operation and to the design and construction of new buildings and facilities; to the modification of existing facilities, and through their different operational stages, including shutdown and decommissioning.

The processes outlined in this Program apply to all Operation employees, contractors, and visitors.

The Program is implemented in an integrated manner with the Wheeler River *Emergency Preparedness and Response Program* which outlines measures to prevent, prepare for, respond to, and recover from

surface emergencies (including fire) associated with the Operation (See Section 2.3). The response to wildfires that threaten the Operation is addressed under the Operation's *Emergency Response Plan* and is not included in this Program.

1.3 Program Overview and Principles

This Program is designed to align with Denison's overall goal of protecting and promoting the health, safety, well-being of people, and environment through all phases of the project.

The Program adheres to a defense-in-depth principle which is used to achieve a high degree of fire protection by providing redundancy, diversity, and balance in fire protection measures. The five elements of the defense-in-depth principle are outlined as follows:

Level One: Prevent Fires

Design measures are put in place to reduce or eliminate, where practicable, combustible materials, and ignition sources.

Level Two: Detection & Response

Detect and respond to events to prevent escalation of failures. Provide means to quickly detect and extinguish or control fires.

Level Three: Minimize Consequences of Events

Fire separations or other measures limit the spread of fire and its effects, thus minimizing the impact on the nuclear facility and its occupants.

Level Four: Control & Mitigate (Fire)

Control severe facility conditions and mitigate the consequences of severe accidents. Plans and procedures control event progression and mitigate the consequences of postulated fire scenarios and failure modes so that releases are minimized.

Level Five: Control & Mitigate (Radiological)

Mitigate radiological consequences of significant releases of radioactive substances. Plans provide for onsite and offsite emergency responses to mitigate the radiological consequences of an event.

1.4 Compliance and Regulatory Requirements

This Program is compliant with the *Nuclear Safety and Control Act (SC 1997, c.9)* and associated regulations, including the *General Nuclear Safety and Control Regulations (SOR/2000-202),* the *Uranium Mines and Mills Regulations (SOR2000-206).* The Program also follows guidance and requirements in the Canadian Nuclear Safety Commission (CNSC) REGDOC 2.10.2, *Fire Protection.*

Additionally, the Program meets CSA N393-13 *Fire protection for facilities that process, handle, or store nuclear substances*, requirements of the *Environmental Emergency Regulations, 2019,* and provincial requirements including the *Occupational Health and Safety Regulations,* the *Fire Safety Act SS, 2015,* and *The Mines Regulations, 2018 RRS.*

Where specific design or operational requirements are not addressed in this document, the National Building Code of Canada (NBCC) or National Fire Code of Canada (NFCC), good engineering practice will apply and, where appropriate, recognized standards (such as those of the National Fire Protection Association (NFPA) will be used.

1.5 Terminology

1.5.1 Definitions

Term	Definition
Code Compliance Review (CCR)	An assessment for compliance with the applicable sections of the codes of construction (i.e., the NBCC, NFCC, and CSA N393-13 Fire protection for facilities that process, handle, or store nuclear substances) and the codes and standards referenced therein.
Combustible Material	Material that, when in the form and under the conditions in which it is likely to be used, will ignite, support combustion, burn, or release flammable vapor when subject to fire or heat.
Defense-In-Depth	The provision of multiple levels of defense to prevent accidents and provide appropriate protection and mitigation in the event of an accident.
Design Basis Fire	A hypothetical fire used for fire protection design or analysis. The design basis fire is a fire that would result in the most severe consequences in the area under consideration, in the absence of fire suppression by automatic or manual systems.
Fire Hazard Assessment (FHA)	A set of analyses and assessments for evaluating fire hazards and appropriate fire protection systems and features used to mitigate a fire's effects.
Fire Prevention	Measures directed toward avoiding the inception of fire.
Fire Protection	Methods of providing for fire control or fire extinguishment.
Qualified Third Party	Qualified person(s) who have not been directly involved in or contributed to the work under consideration.
Systematic Approach to Training (SAT)	A structured approach used to manage training modules widely known as an instructional design model.
Transient Combustible	Combustible material located in a space on a temporary basis.
Worker	Any person working for Denison, including contractors.

1.5.2 Acronyms and Abbreviations

Acronym or Abbreviation	Term
CCR	Code Compliance Review
EPRP	Emergency Preparedness and Response
FHA	Fire Hazard Assessment
SAT	Systematic Approach to Training

2 Plan

2.1 Risk Management

Denison uses risk-based assessments to identify and prioritize the protection of workers, the public, and the environment. The risk management process includes identification of hazards, risk assessment of those hazards, and managing work practices to control the risks.

Risk management includes identifying Operation-related hazards that could result in fire emergencies, assessing the significance of the associated risks, and managing the risks to acceptable levels through the application of controls.

2.1.1 Risk Register

Denison uses a risk register to proactively identify and address significant fire hazards, controls, prioritize resources, and continuously improve its fire protection practices. The risk register is a central repository for recording and tracking information related to the significant fire protection risks.

The risk register may include information such as: risk identification, risk assessment, risk analysis, risk evaluation, risk prioritization, risk mitigation, risk monitoring and review. Further details on the risk register are provided in the *Management System Program*.

2.1.2 Fire Protection Assessments

Fire protection assessments are a set of evaluations that independently confirm the adequacy of fire prevention, detection, control, and mitigation measures. Fire protection assessments used by the Operation include code compliance review and fire hazard assessment.

2.1.2.1 Fire Hazard Assessments

The objective of the fire hazard assessment is to demonstrate that the fire protection goals, and safety performance criteria of the Program are met. The fire hazard assessment covers all site locations processing, handling, and storing nuclear substances, and associated nonnuclear facilities and exposures external to these areas.

Fire hazard assessment preparations or updates are related to the complexity of the facility and the potential risk to persons and the environment to meet the fire protection goals and safety performance criteria of the Program.

The fire hazard assessment evaluates potential fire hazards, as well as the fire protection systems and features (including both physical attributes and Program elements) used to mitigate the effects of fire. The fire hazard assessment confirms that the facility (including the design, operation, and maintenance provisions) meets the fire protection goals and safety performance criteria of the Program.

The fire hazard assessment is maintained as necessary to reflect nuclear facility modifications, significant changes in fire hazards, operating experience, and operational changes, and will be updated or confirmed at least once every five years.

The fire hazard assessment provides documentation and assessment of the following:

- Operation layout and separation analysis;

- The impact of fire and explosion hazards, and analyzes required separation between various portions of the operation;
- The inventory and configuration of combustibles in each zone, including transient combustibles that could be present;
- Fire detection measures as well as automatic and manual suppression measures;
- Fire mitigation measures such as fire separations, spatial separations, and smoke control measures;
- Combustible, toxic, radioactive, and explosive gas control measures;
- Hazardous materials and their impact on fires and fire detection and suppression measures;
- Identification of equipment, components, and circuits needed during fire or to maintain processes required for safety;
- Evaluation of the electrical and cable systems fire protection or fire confinement control for these processes;
- Systems that are needed to maintain their integrity;
- Postulation of the design basis fires in each fire zone required to be assessed and assessment of resulting damage to facility structure, systems, and components;
- Documentation includes the basis of each step in the assessment from fire initiation to fire growth, as well as equipment damage, failures, and consequences of radioactive release;
- Available forms of manual fire protection that can be considered for the facility, including emergency response team and mutual aid resources;
- Compliance with the applicable requirements of the most current version of CSA n393-13 and referenced documents; and
- Assessment of effectiveness, appropriateness, and reliability of the fire protection measures in meeting the goals and safety performance criteria of the program.

The defense-in-depth principle outlined in the Program is used in the fire hazard assessment development to help determine the fire protection measures required to demonstrate the fire protection goals, and safety performance criteria of the Program are met.

When assessing fire hazards and consequences of fires, the following are considered acceptable assumptions:

- Fires need not be postulated coincident with independent, low-frequency events or accidents in the facility;
- Two or more simultaneous, independent fires in the facility need not be postulated;
- Credit may be given to equipment or components that result in fail-safe conditions after damage by fire or fire suppression action, provided that the fail-safe qualities of the equipment or component are individually assessed against the failure modes induced by the fire or fire suppression action;
- Manual action may be credited, provided that the necessary conditions for correct and timely actions have been identified and justified; and
- Additional assumptions used in the analysis are to be stated and justified.

2.1.2.2 Code Compliance Review

To demonstrate an adequate level of safety, the Operation undergoes a code compliance review as part of the fire hazard assessment process. Where there are no deviations, the code compliance review report declares the facility as being in compliance with CSA N393-13, the *National Building Code of Canada*, and the *National Fire Code of Canada*. The results of the code compliance review are documented and submitted to the Canadian Nuclear Safety Commission.

A code compliance review is a third-party assessment of Operation design and Operation against applicable codes and standards (e.g., the *National Building Code of Canada*) to confirm whether requirements are met.

This includes reviewing fire protection systems, structures, and components such as:

- Suppression systems (e.g., water supply reticulation and pumps);
- Detection systems;
- Manual fire suppression equipment (e.g., portable fire extinguishers, hose stations, and fire hydrants);
- Storage, supply, and use of flammable liquids and gases; and
- Fire protection features (e.g., fire separations, fire doors, and penetration seals).

Code compliance reviews are supplemental to the general audit requirements of the *Management System Program*.

2.1.2.3 Pre-Incident Planning

Pre-incident plans are documented and provided to Emergency Response Team members. Pre-incident plans are readily available during fire emergencies to tailor response, control, and mitigation measures to the unique conditions of the fire setting and surrounding area. Pre-incident plans are developed for critical and vital Operation site buildings and structures. Copies of the pre-incident plans are kept in the Emergency Operations Centre, fire truck, and emergency response trailer.

Pre-incident plans inform the planning of emergency response and training requirements and the equipment required to execute these responses. Pre-incident plans are updated as required to reflect changes in facility configuration, hazards, and systems. In addition, pre-incident plans are reviewed according to the frequency defined by the associated process documentation for accuracy and are managed in accordance with the document management process as outlined in the *Management System Program*.

2.2 Objectives and Targets

The Operation is responsible for establishing, implementing, and documenting Program objectives and annual targets. Objectives and targets of this Program will be measurable, documented, and tracked. Performance against the objectives and targets will be communicated at regular intervals (i.e., during Management Review), and opportunities for continual improvement will be identified.

The process for setting overall objectives and targets is outlined in the *Management System Program* and supporting procedure.

2.3 Resources

Denison is committed to providing the necessary resources to support effective development, implementation, maintenance, and continual improvement of the Program, including achievement of its objectives and targets.

2.3.1 Roles and Responsibilities

This subsection outlines the specific roles and responsibilities within the Program, including EPRP Management and EPRP Coordinator, and other workers with various levels of responsibility.

For effective implementation of this Program, workers are informed of their roles and responsibilities and are accountable for comprehending and performing them. Executive and Leadership level roles and responsibilities are specified in the *Management System Program*.

General Manager

- Overseeing the implementation, and adherence to this Program;
- Confirming accountability of fire protection practices needed to carry out the Program;
- Confirming appropriate resources are made available for the Program;
- Working with applicable departments to verify that Program roles and responsibilities are identified and outlined, and that those with specific responsibilities are qualified to fulfill their roles;

Safety Coordinator

- Managing and monitoring the effectiveness of the Program*;*
- Development and implementation of fire protection measures;
- Ensuring adequate training for fire protection processes;
- Participating in the management review process; and
- Maintaining fire protection documents and records.

Safety Supervisor

- Implementation of the FPP at the Operation;
- Ensuring fire protection equipment is maintained;
- Liaison with external third-party reviewers; and
- Conducting the component of the maintenance and inspections related to fire protection.

Mill Maintenance General Supervisor

- Responsible for the implementation of the remainder of the maintenance and inspections related to fire protection.

2.3.2 Facilities and Equipment

Facilities and equipment used to effectively prevent, prepare for, respond to, and mitigate emergency events and situations are provided and maintained. Facilities are designed, constructed, operated, and

maintained with consideration for worker health, safety, well-being, and in compliance with legal requirements.

2.3.3 Legal and Other

Denison is committed to complying with all applicable legal and other requirements related to fire protection. Types of legal requirements applicable to the Operation include:

- Federal and provincial acts and regulations;
- Environmental assessment commitments and follow-up monitoring; and
- Licensing obligations and commitments.

The process for managing legal and other requirements is outlined in the *Management System Program*. Denison has established procedures to ensure compliance with these requirements and that compliance obligations are regularly reviewed. Any changes relevant to fire protection compliance obligations are monitored and evaluated to determine if updates to the Program and its supporting Plans, Procedures, and Work Instructions are required.

2.4 Training and Competence

A systematic approach to training (SAT) is used to educate, train, and qualify workers and contractors to perform assigned work. Training requirements are monitored to verify workers have necessary training when needed to maintain competency and work safely.

Records of training activities and competencies will be maintained as outlined in the *Training Management Program*.

2.5 Documentation and Records Management

Denison will establish and maintain documented Plans, Procedures and Work Instructions to ensure effective implementation of the Program. Documentation will be controlled, reviewed, and updated as necessary in accordance with the requirements in the *Management System Program*.

Documents and records will be generated as a result of implementation of the Program and completion of licensed activities. Examples of some records generated specific to the Program may include:

- Fire protection plans, procedures, and work instructions;
- Inventories of hazardous substances, waste dangerous goods, and emergency response equipment; and
- Equipment maintenance and calibration records.

Documents and records are readily accessible to those who require them. Further information on documentation and records management is provided in the *Management System Program.*

2.6 Communication

Communication both with internal and external stakeholders is a critical element of the Program to promote a safe work culture that understands the importance of fire protection for the Operation. Relevant information to inform workers of fire risks and hazards and any changes to personnel, processes, facilities, or equipment will be shared.

Effectively communicating information about fire emergencies to internal and external parties is a crucial element of this Program and the supporting plans. During and following fire and other emergency events and situations, information is communicated to and among various internal and external parties affected by, involved in, and interested in fire emergencies. This includes the following:

- Employees and contractors;
- Emergency response teams;
- Regulatory agencies; and
- Indigenous groups, local communities, and the public (as required).

Internal and external communication processes specific to emergency events and situations are further outlined in the *Emergency Response Plan*, the *Transportation Emergency Response Plan*, and *Crisis Management Plan.*

Communication principles and processes are further outlined in the *Management System Program,* and communication with indigenous groups, local communities, and the public is managed as outlined in the *Public and Indigenous Information Program.*

2.7 Change Management

Change is managed at the Operation to protect workers, the environment, and property, and to ensure that regulatory requirements are met. Any new building, equipment, structure, or modification that may affect, directly or indirectly, the existing fire safety measures, including the manual firefighting capability, is subject to the change and design control procedures. The Operation's change management process is outlined in the *Management System Program.*

Examples of changes captured by the process could include, but is not limited to changes to the:

- *Fire Protection Program* and supporting plans, procedures, and work instructions;
- Structures, systems, and components;
- Regulatory requirements related to fire protection;
- Emerging risks to workers; and
- Organizational changes.

All proposed modifications to the facility are assessed to determine their potential impact on fire protection and the associated safety performance criteria. This assessment is completed through the site change control process in accordance with CSA N393-13.

2.8 Emergency Preparedness and Response

The emergency response team is trained to deal with a range of events that require both operational and emergency response in accordance with the fire response needs analysis and CSA N393-13. Events can be non-radioactive and may result from situations and conditions external to the site. The designed emergency response capability and infrastructure is sufficiently flexible to be used for a broad range of events and disasters. Roles and responsibilities are captured in the *Emergency Response Plan* and role-specific training and competency details are outlined in the *Emergency Response Plan*, the *Transportation Emergency Response Plan*, and the *Crisis Management Plan*.

Training and competency required for surface industrial firefighting are prescribed under the authority for recognizing training with the Provincial Emergency Management and Fire Safety Branch, Office of the

Fire Commissioner. Emergency response team personnel are enrolled in the Office of the Fire Commissioner Provincial Recognition of Training for the industrial fire brigade program. Training that exceeds the minimum requirements set out in this standard may be conducted at the discretion of Operation management and the approval of the assigned Program Coordinator.

3 Do

3.1 Fire Safety Training Needs Analysis

A fire safety training needs analysis is performed to identify and document the staff training necessary for implementation of the Program. The needs analysis is based on a review of work activities, fire hazards, and required responses. Employees and contractors receive fire safety training in accordance with employee orientation and the fire safety training needs analysis. It includes, but is not limited to:

- *Fire Protection Program* goals;
- Basic fire prevention;
- Life safety;
- Use of portable fire extinguishers;
- Emergency procedures;
- Maintenance of egress routes;
- Fire equipment availability;
- Control of transient material, hot work, and ignition sources; and
- Reporting of fire.

Review of the fire safety training accords with CSA N393-13 *Fire protection for facilities that process, handle, or store nuclear substances.*

3.2 Fire Protection Management

3.2.1 Fire Safety Plan

The objective of the *Fire Safety Plan* is to define those elements which positively contribute to prevent fires, maintain fire safe conditions at the Operation, maintain the reliability of the fire protection systems, provide an effective emergency response to limit the effects of fires, to protect the health and safety of all persons at the Operation, to protect the environment, and to minimize the loss of property in the event of a fire. The *Fire Safety Plan* provides information on specific responsibilities, emergency instructions in the event of a fire, training provided to personnel during orientation, fire protection inspections, execution of fire drills, description of how fire hazards are controlled at the site, and descriptions of specific fire hazards at the site. The execution of exercises and drills for fire hazards adhere to the requirements described in the *Emergency Preparedness and Response Program.*

The *Fire Safety Plan* meets the requirements of the National Fire Code of Canada, site license requirements and supporting reference materials, and Saskatchewan Provincial *Occupational Health and Safety Regulations.*

The Fire Safety Plan involves three elements: Fire Prevention, Fire Protection and Emergency Response and is reviewed and updated annually during construction and every three years or as necessary to reflect current Operation conditions.

3.2.2 Third Party Review

The Operation engages a third-party reviewer to review proposed projects with potential impact to fire protection. This review verifies Operation compliance with the *National Building Code of Canada* and the *National Fire Code of Canada.*

The third-party reviewer evaluates the proposed change(s), assesses its potential fire hazards, and appropriate fire protection system and features used to mitigate the fire hazards. This includes:

- The evaluations of physical construction and layout of the buildings and equipment, including electrical cables within fire compartments;
- An inventory of combustibles, including maximum transient combustibles within each fire compartment;
- A description of fire protection equipment, including detection systems, and manual and automatic extinguishing systems in each fire compartment; and
- An analysis to assure a single fire event cannot impair required safe shutdown functions or result in uncontrolled release of chemicals including radioactive contamination to the environment.

If the fire hazard assessment concludes that the objectives listed in Section 2.2 cannot be achieved, modifications and actions are to be taken to reduce the fire risk to an acceptable level.

Once the proposed changes are accepted, it is important that the integrity of the fire protection measures put in place are not compromised:

- Subsequent site modification proposals that may impact existing fire protection systems undergo another assessment and another third-party review conducted as required; and
- Administrative controls are put in place to assure that combustibles do not accumulate to a level that invalidates the assessment.

Third party reviews are carried out by one or more independent reviewers having specific expertise with such reviews; and submitted, in writing, to the CNSC prior to the implementation of the modification.

3.3 Fire Safety Controls

Controls eliminate, prevent, or reduce the risk of harm to workers, the public, the environment, and property during fire emergencies. Controls are documented in a fire hazard assessment as described in section 2.1.2.1 according to the frequency defined by the associated process documentation and are evaluated for effectiveness.

Controls are used, operated, and maintained according to their design, limitations, and appropriate training. Following appropriate procedures and training is critical in maintaining the effectiveness of controls.

This Program adopts the defense in depth approach to fire protection as described in section 1.3. Examples of defense in depth fire risk controls and the associated Programs which govern the associated processes are provided below.

Defense in Depth Controls:

<u>Level I – Preventing Fires</u>

- Fire hazard assessment;
- Hot work permit and fire watch;
- Housekeeping;
- Proper segregation, storage, control of combustibles and control of hazardous substances and waste dangerous goods;

- Employee orientation;
- Annual facility condition inspections
- Preventing access to restricted areas;
- Impairment procedures; and
- Design modification review.

Level II – Fire Detection and Suppression

- Designing, installing, inspecting, and maintaining fire detection, alarm, and suppression systems;
- Pre-incident planning;
- Impairment procedures;
- Employee orientation
- Adequately trained and resourced emergency response team; and
- Emergency response processes and equipment.

Level III – Limiting the Effects of Fire

- Fire hazard assessment
- Designing and constructing adequate fire separations, barriers, and fire stops;
- Proper segregation, storage, and control of combustibles;
- Proper segregation, storage, and control of hazardous substances and waste dangerous goods; and
- Design modification review.

Level IV – Controlling and Mitigating Fire Events

- Designing and constructing adequate fire separations, barriers, and fire stops;
- Proper segregation, storage, and control of combustibles;
- Proper segregation, storage, and control of hazardous substances and waste dangerous goods;
- Adequately trained and resourced emergency response team;
- Pre-incident planning;
- Emergency response processes and equipment; and
- Designing, installing, inspecting, and maintaining fire detection, alarm, and suppression systems.

Level V – Mitigating Fire Consequences

- Proper storage and control of nuclear substances;
- Emergency responses processes and equipment; and
- Agreements with other off-site, regional emergency responders.

3.4 Contractor Management

Contractors performing work at the Operation are subject to the requirements of this Program. Contractors with specialized knowledge or training may be used to prepare for, or respond to, fire emergencies. The process for ensuring contractors adhere to requirements is outlined in the *Contractor Management Plan*.

4 Check

4.1 Monitoring and Measurement

Fire protection performance is monitored and measured against established objectives and targets (identified in section 2.2). Denison will monitor, measure, analyze, and evaluate its fire protection effectiveness based on a defined process outlined in the *Management System Program*.

Monitoring and measurement activities specific to fire protection at the Operation may include:

- Scheduled inspections, testing and maintenance of fire protection systems;
- Testing and inspection performed in accordance with National Fire Code of Canada and associated site procedures;
- Corrective actions are addressed through the Denison corrective action process for any identified non-conformances or through the site preventative maintenance system to address equipment reliability issues;
- Performing and documenting all follow-up actions and corrections;
- Work orders generated for daily, weekly, monthly, and long-term inspections;
- Sourcing of specific maintenance duties and appropriate contractors;
- Documenting results of tests and inspections within the site preventative maintenance system; and
- Filing and archiving completed work orders.

All monitoring and measurement activities must also meet defined quality assurance and quality control requirements outlined within relevant Plans as part of this Program.

The results of monitoring and measurement activities are communicated internally and externally (see section 4.4) and documented as part of the records management process outlined in the *Management System Program*.

4.2 Inspections and Audits

Denison will conduct internal audits of the Program to assure compliance with the requirements set out in the Program and to determine if the Program is effectively implemented and maintained.

In addition to routine compliance and conformance audits, a third-party review of compliance with the inspection requirements of the National Fire Code of Canada is conducted by one or more external agencies that have specific expertise with such reviews. Findings are to be documented and provided in a report to the Operation.

The internal audits will follow the process and procedures outlined in the *Management System Program.*

4.2.1 Fire Risk Needs Analysis

An analysis is performed in compliance with CSA N393-13 standard. The standard requires that a need analysis be completed to determine the manual response requirements based on the type, size, and location of potential fires as well as other impediments that would impact manual fire suppression operations.

The fire risk needs analysis determines:

- The most demanding fire risks on-site, specifying fuel, maximum credible fire size, extent in terms of area or geometry, impact of exposures, impact on life safety, and likely impact on the public in terms of nuclear safety;
- The requirements for extinguishment by all available means, including automatic or manual, using water, foam, dry chemical, and inert gas;
- The required equipment to deliver the appropriate extinguishing agent;
- Whether the on-site firefighting organization has adequate support for offsite assistance, if necessary, based on response time, mutual aid assistance plan, or other considerations;
- Personal protective equipment requirements;
- Training requirements; and
- The site's fire response capabilities and expectations.

Nonconformities, instances of regulatory noncompliance, or opportunities for improvement identified through audits and inspections are managed as outlined in the *Management System Program.*

4.3 Management Review

The *Fire Protection Program* will be reviewed by Denison management in accordance with the defined frequency to assure the Program is meeting its objectives or needs adjustment. Examples of the types of items related to fire protection that Denison management will review may include, but is not limited to:

- Suitability, adequacy, and performance of fire protection objectives and targets;
- Upcoming or new legislation related to fire protection;
- Recent or planned changes in facility operations;
- Results of monitoring in relation to meeting performance objectives and targets;
- Results of audits and inspections in relation meeting performance objectives and targets;
- Status of training objectives for industrial fire brigade;
- Identified opportunities for improvement based on incident reports and other sources;
- Communications from interested parties;
- Adequacy of resources; and
- Any needs for program adjustment.

Where necessary, Denison management will identify opportunities for improvement and establish action plans to implement change in accordance with the process outlined in the *Management System Program*.

4.4 Reporting

Denison will routinely report both internally and externally on the performance of the *Fire Protection Program*. External reporting can include reporting to regulators, the public, and Indigenous and local communities.

External reports to regulators will be produced in accordance with regulatory requirements.

External reports to the public or Indigenous communities on the performance of the Program will be tailored to the interests of these groups as identified through community engagement activities. Reporting, disclosure, and communication to the public and Indigenous and local communities is discussed in more detail in the *Public and Indigenous Information Program.*

5 Act

5.1 Corrective Action

Non-conformities or areas for improvement are identified following the process outlined in the *Management System Program* and the supporting procedures. These non-conformities can include related incidents, near-misses, and deviations from the *Fire Protection Program.* Non-conformities can also be identified during inspections and audits.

Responses to identification of non-conformities include investigation of cause, and corrective action if appropriate. Corrective actions are planned, implemented, verified, and reviewed for effectiveness based on the process identified in the *Management System Program*.

5.2 Continual Improvement

Opportunities for improvement of this Program will be identified and addressed to enhance fire protection for the Operation. The continual improvement process for this Program follows the overall continual improvement process outlined in the *Management System Program* and the supporting procedures. Continual improvement may also include updating Program objectives and targets based on changing circumstances or new information. Improvement may involve benchmarking performance against other similar projects and facilities. Any changes identified through the continual improvement process will be implemented in a systematic and controlled manner.

With respect to fire protection, opportunities for continual improvement may be identified through review by the monitoring and measurement of Program effectiveness, fire protection evaluations, or specific actions from an event, audit, or inspection.

6 References

6.1 Internal

Document Name
Management System Program
Wildfire Prevention and Preparedness Plan
Emergency Preparedness and Response Program
Emergency Response Plan
Transportation Emergency Response Plan
Crisis Management Plan
Corporate Office Emergency Response Plan
Training Management Program
Indigenous and Public Engagement Program
Health and Safety Management Program
Security Management Program
Contractor Management Plan

6.2 External

Federal

Nuclear Safety and Control Act

Uranium Mines and Mills Regulations

Radiation Protection Regulations

Nuclear Substances and Radioactive Devices Regulations

General Nuclear Safety and Control Regulations

Canadian Nuclear Safety Commission*. REGDOC 2.10.1 Nuclear Emergency Preparedness and Response*

Canadian Nuclear Safety Commission*. REGDOC 2.10.2 Fire Protection*

CSA *N393-13 Fire protection for facilities that process and handle or store nuclear substances.*

Provincial

The Saskatchewan Employment Act, 1993

The Occupational Health and Safety Regulations 1996

The Mines Regulations, 2018

Saskatchewan Mine Rescue Manual

The Fire Safety Act

The Fire Safety Regulations

The Wildfire Act

The Wildfire Regulations