"Safe for Life - Zero Incidents"

SITE SPECIFIC HEALTH AND SAFETY PLAN (SSHASP)

Roberts Bay and Ida Bay Site Remediation Project, Nunavut

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1.0 INTRODUCTION

Site Specific Health and Safety Plan (SSHASP) - Roberts Bay and Ida Bay Remediation Project

Compiled and Reviewed By:	Vijay Lanji Project Manager	Signature
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Reviewed By:	Dan Sinclair Environmental OHS Manager BC Region	Signature
Reviewed By:	Dele Morakinyo INAC Project Manager	Signature
Reviewed By:	Giselle Cotta PWGSC Project Manager Northern Contaminated Sites Program	Signature
Reviewed By:	Matthew McElwaine PWGSC Project Officer Northern Contaminated Sites Program	Signature
Reviewed By:	Charles Gravelle SENES Consultants Ltd.	Signature

All work will be conducted in accordance with:

- Federal, Territorial and Local Legislation and Regulations
- Quantum Murray LP Corporate Health and Safety Program
- Site Specific Health and Safety Plan (SSHASP)

All site personnel must read and sign the following SSHASP prior to the start of any work.

2.0 PROJECT ORGANIZATION AND COORDINATION

INAC Project Manager	Dele Morakinyo Office: 867 975-4732 Cellular:
INAC Project Manager	Giselle Cotta Office: 780 497-3839 Cellular:
PWGSC Project Officer	Matthew McElwaine Office: 780 497-3690 Cellular: 780 887-6288
SENES Consultants Ltd. Project Manager	Charles Gravelle Office: 905 882-5984 Cellular: 416 5783354
PWGSC Departmental Representative	Lawrence Borowski (SENES) Office: Cellular:
PWGSC Departmental Representative	Henry Wong (SENES) Office: Cellular:
Prime Contractor	Quantum Murray LP
QMLP Project Manager	Vijay Lanji Office: 604 430-0080 Cellular: 604 313-5685
QMLP General Superintendent	Ron Bosel Office: 604 430-0080 Cellular: 604 839-9240
QMLP Site Superintendent	Gil Fife Office: 403 720-4163 Cellular: 403 510-7188
QMLP Hazardous Waste Specialist	Phil Linder Office: 604 430-0080 Cellular: 604 833-9117
QMLP Environmental Health & Safety Mgr., BC Region	Dan Sinclair Office: 604 430-0080 Cellular: 604 837-2267
QMLP Offsite Emergency Response Coordinator	Phil Linder Office: 604 430-0080 Cellular: 604 833-9117

QMLP Site Health & Safety Coordinator QMLP Onsite Emergency Response Coordinator	John DeSchutter Office: 604 430-0080 Cellular 604 319-7157
QMLP Site Medic	Mike Wood Office: Cellular

3.0 ENVIRONMENTAL, HEALTH AND SAFETY POLICY

3.1 SITE SPECIFIC HEALTH & SAFETY PLAN

This Site Specific Health & Safety Plan (SSHASP) for the Roberts Bay and Ida Bay Site Remediation Project has been developed to comply with:

- Canada Occupational Health and Safety Regulations (SOR/86-304)
- Mine Health and Safety Act S.N.W.T. 1994
- Workers Compensation Act Bill 4 (NU)
- WCB Safety Act R.S.N.W.T.
- INAC Contaminated Sites Program, Environment, Health & Safety Management System Manual
- INAC Contaminated Sites Program, Environment, Health & Safety Standard Operating Procedures Manual
- QMLP Corporate Environmental, Health and Safety Policy

Where any conflict occurs in standards or requirements of individual health and safety policies, the more stringent standard will apply.

Inuktitut copies of the Mine Health and Safety Act and the Workers Compensation Act will be provided and readily available at site.

An Inuit Liaison Officer fluent in Inuktitut and English will be employed at site for the duration of Roberts Bay and Ida Bay Site Remediation Project work.

Information from INAC EHS Manuals provided by INAC Contaminated Sites Directorate has been adapted with permission for development of the Roberts Bay and Ida Bay Site Remediation SSHASP.

All project supervisory personnel employed at site for the duration of Roberts Bay and Ida Bay Site Remediation Project work will hold valid Level 1 or higher first aid certificates.

A Level 2 Supervisor (Nunavut WCB Mine Health and Safety Act) will be employed at site for the duration of Roberts Bay and Ida Bay Site Remediation Project work.

Medic services (Level 2 or better), first aid and medical care/facilities will be maintained at site for the duration of Roberts Bay and Ida Bay Site Remediation Project work.

3.2 QMLP CORPORATE ENVIRONMENTAL, HEALTH AND SAFETY POLICY

QUANTUM MURRAY LP and its subsidiaries are committed to conducting our business in a manner that protects the environment, and the health and safety of our employees. This commitment is extended to our subcontractors, consultants, visitors, regulatory inspectors, the public and our clientele. We will integrate this commitment into our business planning and operations by establishing and maintaining an Environmental, Health and Safety Management System (EHSMS) that carries out the following principles:

Health and Safety
Foster a culture that makes the health, safety and well being of our employees our number one priority – more important than production, profits, and serving the client – and provides every employee the absolute right and obligation to question, stop and correct any unsafe act or condition.

Compliance
Conduct our business in accordance with all applicable environmental, health and safety laws and regulations, and other relevant standards to which we may voluntarily subscribe, and provide the training, management systems, and resources necessary to do so.

Risk Reduction
Assess and manage the environmental, health and safety risk associated with all aspects of our business to protect our employees, our shareholders, our clients, the communities in which we operate, and the environment.

Pollution Prevention and Resource Conservation
Factor pollution prevention and resource conservation opportunities into our business planning and operating decisions to help reduce our impact on the environment.

Open Communication
Maintain an open and honest relationship with our employees and stakeholders with respect to the environmental, health and safety performance and expectations of our operations and services.

Responsibilities
As the Employer, we are responsible to implement and maintain a safe and healthy work environment. Our supervisors are responsible, and will be held accountable, for ensuring that safe and healthy work conditions are maintained in their assigned work areas. It is the responsibility of ALL Workers to conduct work safely and follow legislated and employer Safe Work Procedures and Practices.

Continuous Improvement
Establish key measures to track our performance, set objectives and targets to drive continuous performance improvement, conduct audits, inspections and assessments, and promptly correct conditions that we determine threaten human health, safety or the environment.

Quantum Murray believes excellence in environmental stewardship, health and safety is only achievable through active participation by all persons associated with the organization. As a result, Quantum Murray will only retain the services of those employees and subcontractors, whom constantly demonstrate environmental, health and safety practices that comply with Quantum Murray policies, procedures and practices, in conjunction with federal, provincial, territorial and municipal legislation.

3.3 QMLP HARASSMENT/RESPECT POLICY

Introduction:

QMLP is committed to the promotion of an environment for work which upholds the dignity and respect of the individual and which supports every individual's right to work in an environment which is free of any form of harassment, intimidation or bullying.

QMLP recognizes the right of every individual to such an environment and requires all persons employed by QMLP to recognize their responsibilities in this regard.

Harassment of other employees, management, supervisor or labourer - will not be tolerated.

Scope of Policy:
This policy applies to the behaviour of all employees, and others engaged in activities relating to or providing services to QMLP in all locations and situations.

Definitions:

Bullying: Is defined as behavior of a physical, verbal or a psychological nature which is unwanted and unwelcome and which could reasonably be regarded as offensive. The bully, intentionally or unintentionally, misuses the power of position, knowledge or personality to domineer, intimidate or humiliate others. The following are common but not exclusive examples of bullying behavior:

- Open aggression, threats, shouting abuse or the use of obscenities
- Constant humiliation, sneering or ridicule
- Unreasonable scrutiny or unreasonable demands
- Taking credit for another person's work
- Undermining a person's authority
- Spreading malicious rumours

Harassment: Is defined as any act or conduct which is unwanted and unwelcome and which could reasonably be regarded as offensive, humiliating or intimidating on any of the following discriminatory grounds: gender, marital status, family status, sexual orientation, religion, age, disability or race. The following are common but not exclusive examples of harassment:

- Treating people less favourably or subjecting them to ridicule on any of the nine discrimination grounds
- Demeaning and derogatory remarks, name-calling
- Isolation, non co-operation or exclusion within the workplace
- Unwelcome comments on appearance
- Unwarranted criticism of work performance
- Undermining the authority of a colleague in the workplace
- Production, display or circulation of offensive material

Sexual Harassment: Is defined as unwanted and unwelcome conduct that could reasonably be regarded as sexually, or otherwise on the gender ground, offensive, humiliating or intimidating. Sexual harassment undermines the dignity of the recipient, and adversely affects work or study performance. The following examples are some of the most common forms of sexual harassment:

- Sexually suggestive jokes or comments
- Innuendo or jokes about a person's sexual orientation
- Questions or insults about one's private life
- Unwelcome sexual attention
- Display of offensive material
- Leering, offensive gestures or whistling
- Threats of, or actual, physical assault
- Groping, patting or unnecessary touching
- Suggestions that sexual favours may further someone's career, or that refusal may damage it.

Racial Harassment: Is harassment on the grounds of race/ethnic origin is defined as unwanted or unwelcome conduct based on a person's race that is offensive to the recipient and which might threaten a person's security or create a stressful, hostile or intimidating work environment. Harassment on the grounds of race may include:

Verbal harassment; offensive jokes or remarks about a person's race or ethnic origin, ridicule or assumptions based on racial stereotypes;
Visual harassment: Production, display or circulation of materials offensive to particular racial or ethnic groups, such as cartoons or racial propaganda
Physical harassment: physical assault, threats of physical assault

Action: What do you do if you feel you are being harassed or bullied? Listed are courses of action.

Informal Approach: As part of its commitment to an environment that is free of any form of harassment, QMLP has a number of resources available to those who feel that they are the subject of harassment and has established procedures to deal with formal complaints.

If you feel you are being harassed or bullied you should, if at all possible, endeavour to make it clear to the person, or persons, causing offence that such behaviour towards you is offensive and unacceptable.

If such behaviour is having an adverse effect on your work, point this out to them and ask them to stop. Keep a record of incidents so that you can be specific about the behaviour or actions that are causing offence. If speaking to the person fails, or if it proves too difficult to do, there are other sources of help available to you.

Internal Support: You can contact your Human Resources Manager, Health and Safety Coordinator, or a member of the Senior Management Team.

Making a Formal Complaint: If you wish to make a formal complaint you must do so in writing. Written complaints should contain details of the person or persons against whom the complaint is being made and where possible, details of the alleged act or acts of harassment. Assistance in making a formal written complaint can be sought from one of the above sources of help.

Complaints Procedure:

The written complaint should be forwarded to the following address, and be clearly marked "Complaints / Confidential":

Quantum Murray LP
200 – 15 Fitzgerald Road
Ottawa, ON K2H 9G1

Attention: Director Human Resources

All formal complaints will be referred directly to an Investigator appointed by a Senior Manager. All complaints will be investigated in a confidential manner and without undue delay. The complainant will be advised of the identity of the individual who will be performing the investigation.

The alleged harasser will be given a copy of the written formal complaint and afforded the opportunity to respond in writing. Each party will have the right to present his or her side of the case and/or be represented by one person of their choice. Both parties will be advised of the outcome of the investigation once the Investigator has made a report to the Senior Manager.

Because there can be sensitive and confidential aspects to such cases, the procedures have been designed to safeguard the rights, both of the complainant and the alleged harasser. All complaints will be dealt with promptly and treated with the utmost discretion. The outcome will be advised to both parties. All reasonable steps will be taken to protect the individual who files a complaint, or assists in an investigation from intimidation, victimization or discrimination. Retaliating against someone who complains about harassment is a serious disciplinary offence.

Malicious complaints will also be regarded seriously by QMLP and may result in disciplinary action.

4.0 SAFETY RESPONSIBILITIES OF PROJECT PERSONNEL

QMLP Corporate Health & Safety Program requires all QMLP personnel to review and sign the QMLP - Employee Orientation Booklet for Health & Safety Responsibilities and Rules.

QMLP Corporate Health & Safety Program requires all personnel and visitors arriving at QMLP project sites to attend and sign a site specific Safety Orientation conducted by the site Health and Safety Coordinator.

QMLP recognizes that the training and education of workers is a vital part of our environmental, health and safety program. Employees must have the knowledge and skills to do their work safely. Safety instruction will be provided to all workers as part of the Worker Orientation Seminars and through additional onsite training. As part of our program of worker education and training QMLP will:

- Conduct Worker Orientation Seminars for all site personnel prior to project commencement
- Conduct and document site-specific safety orientations for all site personnel and visitors
- Ensure employees obtain the required level of training to perform their duties safely
- Provide applicable Safe Work Procedures (SWP) and task specific Job Safety Analyses (JSA) for all project tasks and instruct workers in the required procedures
- Provide applicable personal protective equipment (PPE) required to safely complete all work tasks assigned
- Conduct and document daily Tailgate Safety Meetings to preview planned work activities, appropriate SWP or JSA procedures and PPE requirements, and reinforce site health and safety requirements
- Conduct and document weekly Health & Safety Meetings to review health and safety issues from the previous week, preview work activities for the coming week, review H&S Bulletins from other work sites, and refresh and reinforce safe work procedures.
- Monitor on-going requirements for health and safety instruction
- Provide specialized employee training as required

The onsite Health & Safety Coordinator is responsible for implementing and maintaining a site specific Health and Safety Program all personnel must adhere to throughout this project.

The Site Superintendent and Site Supervisors are responsible for ensuring:

- employees are trained in appropriate safe work procedures to complete their duties safely
- employees follow safe work methods and all related regulations
- safe and healthy work conditions are maintained in all site work areas to prevent injury or harm to personnel and the environment

ALL site personnel are required to:

- support and comply with the Health and Safety Program
- work safely, in a manner consistent with all regulatory and employer procedures and practices
- maintain a safe and healthy work environment
- question, stop and correct any unsafe act or condition encountered on site
- report all incidents, accidents and near misses to the Site Superintendent or the Health and Safety Coordinator

5.0 SITE DESCRIPTION

Site Location:	• Roberts Bay - 68º 10' 45" N, 106º 33' 29"W • Ida Bay - 68º 13' 59" N, 106º 31' 57"W
Nearest Communities:	• Cambridge Bay -115 km NE of site • Bathurst Inlet -165 km SW of site • Hope Bay Mine – 3 km W of site
Nearest Medical Facility:	• Kitikmeot Health Centre, Cambridge Bay
Nearest Hospital	• Stanton Territorial Hospital, Yellowknife, NT
Site Terrain:	• Site is dominated by basaltic ridges interspersed with low/wet muskeg areas and small lakes.
Site Access:	• Fixed wing aircraft to Hope Bay Mine • Helicopter to site • Floatplane to Ida Bay • Boat/barge to Ida Bay • 7 km trail connecting Ida Bay site and Roberts Bay site
Personnel and Supply Flights:	• Twin Otter and/or Turbo Beaver fixed wing, floatplane from Cambridge Bay to Ida Bay • Twice-weekly scheduled flights to site
Site Description:	• Roberts Bay Mine site – waste rock piles, two open and flooded adits, infrastructure remains with light framed "temporary' buildings, abandoned equipment, scattered debris, landfill/dump with a waste rock berm, drainage ditches and a tailings pond. • Ida Bay Mine site – four waste rock piles and an open, flooded adit.

6.0 SITE ACTIVITIES

Purpose of Site Activities:	Remediation of abandoned silver mine openings, structures, waste, debris and contaminated soils

Description of Site Activities to be conducted by Quantum Murray LP:

1. Ida Bay

- Mobilize camp, equipment, supplies and personnel
- Construct camp laydown area and camp
- Remove intertidal zone waste rock and dispose in exploration trench
- Remove and contain hazardous materials for offsite disposal
- Collect and contain non-hazardous site debris for landfill disposal at Roberts Bay
- Seal mine adit and vent raise
- Backfill exploration trench excavation and site depressions
- Grade site to match surrounding terrain
- Decontaminate all equipment for transport to Roberts Bay
- Prepare for winter ice road to Roberts Bay
- Move equipment to Roberts Bay (winter ice road)

2. Roberts Bay

- Prepare hazardous materials storage area
- Stabilize existing Tailings Pond berms and consolidate spilled tailings
- Construct non-hazardous waste landfill
- Demolish site structures and landfill non-hazardous waste
- Collect site debris and landfill non-hazardous waste
- Package hazardous materials and move to hazardous materials storage area
- Seal mine adits and vent raise closure; cover second vent raise cap
- Close non-hazardous waste landfill
- Grade and cover existing camp dump to match surrounding terrain
- Grade borrow areas and site to match surrounding terrain
- Decontaminate all equipment for demobilization
- Move equipment, supplies and offsite disposal items to Ida Bay for demobilization
- Demobilize personnel, equipment and offsite disposal items

7.0 ENVIRONMENTAL, HEALTH & SAFETY HAZARD ASSESSMENT

7.1 SITE HAZARD ASSESSMENT SUMMARY

A hazard assessment of the Roberts Bay and Ida Bay Site Remediation Project has identified the following chemical and physical hazards associated with the worksite and work components:

Chemical Hazards	1	Asbestos Brake Pads; Asbestos Transite Board
	2	Benzene
	3	Toluene
	4	Xylene
	5	Gasoline
	6	Diesel Fuel
	7	Type B Jet Fuel
	8	Lead/Acid Batteries
	9	Glycol
	10	Xanthanate
	11	Hydrochloric Acid
	12	Nitric Acid
	13	Calcium
	14	Lime

Physical Hazards	1	Air Track Drilling
	2	ATV Operation
	3	Cold Weather
	4	Demolition Activities
	5	Fire
	6	Firearm Use
	7	Hazardous Materials Handling
	8	Hot work (oxy/acetylene torch cutting)
	9	Loose Debris, Uneven Terrain
	10	Manual Cutting Tools
	11	Manual Lifting
	12	Mine Adit Collapsing
	13	Mobile Equipment and Vehicles
	14	Mounting/Dismounting Equipment
	15	Petroleum Products Handling
	16	Power Cutting Tools
	17	Trucks Reversing / Dumping
	18	Warm Weather
	19	Wildlife Encounter
	20	Work At Height

7.2 CHEMICAL HAZARDS

All Site Activities which may involve contact with identified chemical substances or chemical substance containers will be governed by procedures outlined in an applicable SWP or JSA.

The following chemical substance are known or suspected to be on site. The potential hazards, contamination risk level, mitigation measures and first aid requirements of each chemical hazard are identified in the following tables.

Substance:	Asbestos Brake Pads; Asbestos Transite Board

Risk Analysis:

Hazards:	Dust, fibres or smoke released by machining, grinding, cutting or burning may be carcinogenic and may cause eye irritation, soreness in throat, nose and respiratory tract and dermatitis-like skin reactions.
Risk:	Contamination hazard - Low to Moderate Small quantities of non-friable asbestos containing automobile brake pad and asbestos containing transite board insulation to be packaged. No asbestos materials will be broken, cut or burnt.
Mitigation:	Develop written JSA for asbestos abatement. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately flush eyes with running water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes substance, move the exposed person to fresh air immediately. Other measures are usually unnecessary.

Substance:	Benzene

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Toluene

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Ethyl Benzene

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Xylene

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Gasoline

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Diesel Fuel

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Type B Jet Fuel

Risk Analysis:

Hazard:	Highly flammable liquid. Vapour explosion hazard. Fire will produce irritating, corrosive and/or toxic gases. Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for liquid fuel consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. If substance is swallowed, get medical attention immediately.

Substance:	Lead/Acid Batteries

Risk Analysis:

Hazard:	Lead compounds are highly toxic if inhaled, swallowed or absorbed through skin. Batteries may explode when heated. Dust, fibres or smoke released by machining, grinding, cutting or burning may be carcinogenic and may cause eye irritation, soreness in throat, nose and respiratory tract and dermatitis-like skin reactions. Sulphuric acid will react with water releasing corrosive and/or toxic gases. Contact may cause severe burns to skin and eyes.
Risk:	Explosion/fire hazard - High Contamination hazard - Moderate
Mitigation:	Develop written JSA for lead/acid battery consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 20 minutes, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. DO NOT use mouth-to-mouth resuscitation if victim has ingested or inhaled substance; give artificial respiration with aid of pocket mask equipped with one-way valve or other proper respiratory device. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin with running water for at least 20 minutes. For minor skin contact avoid spreading material on unaffected skin. If substance is swallowed, get medical attention immediately

Substance:	Ethylene Glycol

Risk Analysis:

Hazard:	Vapours may cause dizziness or suffocation. Severe eye irritant. Skin and respiratory irritant.
Risk:	Moderate contamination hazard
Mitigation:	Develop written JSA for glycol consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 20 minutes, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. DO NOT use mouth-to-mouth resuscitation if victim has ingested or inhaled substance; give artificial respiration with aid of pocket mask equipped with one-way valve or other proper respiratory device. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin with running water for at least 20 minutes. If substance is swallowed, get medical attention immediately.

Substance:	Sodium Ethyl Xanthate

Risk Analysis:

Hazard:	Reacts with water to form carbon disulphide. Acute exposure to carbon disulphide vapour may cause loss of consciousness, breathing difficulty, vascular collapse and possible death. Sodium ethyl xanthate is a mild to moderate eye irritant. Carbon disulphide vapour is a severe eye irritant. Sodium ethyl xanthate is a moderate skin irritant. Carbon disulphide vapour is a severe skin irritant and can cause blisters on contact.
Risk:	Moderate to high risk of carbon disulphide vapour inhalation. Moderate risk of contamination.
Mitigation:	Develop written JSA for sodium ethyl disulphide consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. DO NOT use mouth-to-mouth resuscitation if victim has ingested or inhaled substance; give artificial respiration with aid of pocket mask equipped with one-way valve or other proper respiratory device. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin with plenty of running water. Seek medical attention if irritation persists. If substance is swallowed, rinse mouth with water. Give plenty of water to drink. If person is losing consciousness, do not give anything by mouth. Get medical attention immediately.

Substance:	Hydrochloric Acid

Risk Analysis:

Hazard:	Very hazardous in event of skin or eye contact (corrosive, irritant, permeator). Skin contact may produce burns. Severe over-exposure may result in death. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Slightly hazardous in event of inhalation (lung sensitizer). Inhalation of spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking or difficulty breathing.
Risk:	Moderate risk of contamination.
Mitigation:	Develop written JSA for hydrochloric acid consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. DO NOT use mouth-to-mouth resuscitation if victim has ingested or inhaled substance; give artificial respiration with aid of pocket mask equipped with one-way valve or other proper respiratory device. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin with plenty of running water for at least 15 minutes. Seek medical attention immediately. In case of severe skin contact, wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention. If substance is swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. If person is losing consciousness, do not give anything by mouth. Get medical attention immediately.

Substance:	Nitric Acid

Risk Analysis:

Hazard:	Very hazardous in event of skin or eye contact (corrosive, irritant, permeator). Skin contact may produce burns. Severe over-exposure may result in death. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Slightly hazardous in event of inhalation (lung sensitizer). Inhalation of spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking or difficulty breathing.
Risk:	Moderate risk of contamination.
Mitigation:	Develop written JSA for hydrochloric acid consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical attention immediately. If worker breathes a large amount of substance, move the exposed person to fresh air immediately. Provide artificial respiration if breathing has stopped. DO NOT use mouth-to-mouth resuscitation if victim has ingested or inhaled substance; give artificial respiration with aid of pocket mask equipped with one-way valve or other proper respiratory device. Provide oxygen if breathing is difficult. Keep the person warm and at rest. Get medical attention as soon as possible. In case of skin contact with substance, immediately flush skin with plenty of running water for at least 15 minutes. Seek medical attention immediately. In case of severe skin contact, wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention. If substance is swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. If person is losing consciousness, do not give anything by mouth. Get medical attention immediately.

Substance:	Calcium Chloride

Risk Analysis:

Hazard:	Slightly hazardous in event of skin or eye contact (irritant). Slightly hazardous in event of inhalation. Slightly hazardous in event of ingestion.
Risk:	Moderate risk of contamination.
Mitigation:	Develop written JSA for calcium chloride consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 15 minutes, keeping the eyelids open. If worker inhales substance, move the exposed person to fresh air immediately. Seek immediate medical attention. In case of skin contact with substance, immediately flush skin with plenty of running water for at least 15 minutes. Seek medical attention immediately. In case of severe skin contact, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. If substance is swallowed, DO NOT induce vomiting. If person is not breathing, perform artificial resuscitation. Get medical attention immediately.

Substance:	Hydrated Lime

Risk Analysis:

Hazard:	Acute hazard in event of inhalation or ingestion. Breathing dust may cause nose, throat or lung irritation, including choking depending on the degree of exposure. Inhalation of high levels of dust can cause chemical burns to the nose, throat and lungs. Ingestion of large quantities of substance can cause chemical burns in the mouth, throat, stomach and digestive tract. Airborne dust may cause eye irritation or inflammation. Eye contact with large amounts of dry powder or wet hydrated lime can cause moderate eye irritation, chemical burns and blindness. Skin contact may cause dry skin, discomfort, irritation and severe burns. Skin exposure may be hazardous even in the absence of pain or discomfort. Exposure of sufficient duration on moist areas of the body can cause serious and potentially irreversible damage to skin, eye, respiratory and digestive tracts due to chemical burns.
Risk:	Moderate risk of contamination.
Mitigation:	Develop written JSA for hydrated lime consolidation and packaging. Ensure worker understands the JSA before commencing task. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the JSA.
First Aid:	If substance contacts the eyes, immediately wash eyes with large amounts of water for at least 15 minutes, keeping the eyelids open. Get medical attention immediately. If worker inhales substance, move the exposed person to fresh air immediately. Seek medical attention for discomfort or if coughing and other symptoms do not subside. In case of skin contact with substance, immediately flush skin with cool water and a pH neutral soap or a mild skin detergent. Seek medical attention for rash, burns and irritation. If substance is swallowed, DO NOT induce vomiting. If person is conscious, have them drink plenty of water. Get medical attention or contact poison control centre immediately.

7.3 PHYSICAL HAZARDS

All Site Activities will be governed by procedures outlined in an applicable SWP or JSA.

The following physical hazards have been identified on site. The physical hazard, potential consequences of the hazard, risk level, mitigation measures and mitigation frequency for each physical hazard are identified in the following tables.

Hazard:	Air Track Drilling

Risk Analysis:

What can go wrong?	Compressed air equipment malfunction Pinch points on equipment
Consequences:	Injury or death
Probability:	Medium
Mitigation:	Develop written JSA for air track drilling Reinforce safe work practices required for air track drilling operations.
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving air track drilling activities.

Hazard:	ATV Operation

Risk Analysis:

What can go wrong?	Vehicle accident
Consequences:	Injury or death
Probability:	Medium
Mitigation:	Provide written Safe Work Procedure for operating ATV's. Reinforcement of safe work practices while operating ATV's.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Cold Weather

Risk Analysis:

What can go wrong?	Hypothermia
Consequences:	Injury or death
Probability:	Medium
Mitigation:	Provide written Safe Work Procedure for working in cold weather. Reinforcement of safe work practices for cold weather work.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Demolition Activities

Risk Analysis:

What can go wrong?	Worker can be struck by falling or flying materials
Consequences:	Injury or death to workers Damage to equipment
Probability:	Low
Mitigation:	Ground personnel will not be in work area while structures are being demolished with equipment. Refer to Demolition Contingency Plan for details.
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving demolition activities.

Hazard:	Fire

Risk Analysis:

What can go wrong?	Fire in camp or work site
Consequences:	Damage to facilities or equipment. Injury or death.
Probability:	Low
Mitigation:	Develop written Fire Safety Plan Ensure fire suppression equipment is immediately available Ensure all workers are trained in use of fire suppression equipment Reinforce importance of camp and worksite housekeeping
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Firearm Use

Risk Analysis:

What can go wrong?	Misuse of firearms
Consequences:	Injury or death
Probability:	Low
Mitigation:	Develop written Firearm Safety Plan. Provide secure facilities and equipment for storage of firearms. Only licensed and specific personnel to access / use firearms. Reinforce safe firearm use practices.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Hazardous Materials Handling

Risk Analysis:

What can go wrong?	Worker can be exposed to asbestos (inhalation) during asbestos abatement activity or acid/lead (ingestion, dermal contact) during battery collection.
Consequences:	Injury to workers
Probability:	Low
Mitigation:	Develop specific Hazardous Material Handling Contingency Plans. Workers tasked with hazardous material collection will receive appropriate onsite training prior to any hazardous material removal, will have hazards and correct handling and decontamination procedures reinforced at daily safety meetings, and will be monitored during any hazardous material collection by the Hazardous Waste Supervisor.
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving hazardous materials handling activities.

Hazard:	Hot work (oxy/acetylene torch cutting)

Risk Analysis:

What can go wrong?	Sparks could cause fire in work area. Burns to worker.
Consequences:	Injury to worker
Probability:	Low
Mitigation:	Only experienced workers to use cutting torches. Fire suppression equipment will be positioned for immediate use in work area. No other worker allowed in the immediate vicinity of the torch operation.
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving hot work activities.

Hazard:	Loose debris, uneven terrain

Risk Analysis:

What can go wrong?	Trips and falls during while engaged in site work
Consequences:	Injury to workers
Probability:	Low.
Mitigation:	The necessity for proper worksite housecleaning will be reinforced to workers throughout the project.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Manual Cutting Tools

Risk Analysis:

What can go wrong?	Cuts from tool
Consequences:	Injury to worker
Probability:	Medium
Mitigation:	Provide written Safe Work Procedure for task. Ensure worker understands the SWP before commencing task. All tools to be inspected prior to use. Any tool found to be faulty should be disposed / repaired before use. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the SWP.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Manual Lifting

Risk Analysis:

What can go wrong?	Worker may attempt to lift heavy materials or not use proper positioning when lifting materials.
Consequences:	Injury to worker (back, legs, etc)
Probability:	Medium
Mitigation:	Correct manual lifting technique and will be reinforced throughout project. Appropriate equipment will be used to lift loads all loads not easily moved/lifted manually.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Mine Adit Collapsing

Risk Analysis:

What can go wrong?	Accidental explosive detonation Flying debris
Consequences:	Injury or death
Probability:	Medium
Mitigation:	Develop written JSA for explosives use. Experienced Mine Manager onsite to coordinate and supervise task.
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving mine adit implosion activities.

Hazard:	Mobile Equipment and Vehicles

Risk Analysis:

What can go wrong?	Worker struck by equipment or vehicle.
Consequences:	Injury or death
Probability:	Low
Mitigation:	Provide written Safe Work Procedure to working in vicinity of mobile equipment or vehicles. Reinforcement of safe working practices while working around mobile equipment or vehicles. Equip all mobile equipment and vehicles with back-up alarms.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Mounting / Dismounting Equipment

Risk Analysis:

What can go wrong?	Fall from equipment
Consequences:	Injury to worker
Probability:	Low
Mitigation:	Provide written Safe Work Procedure for task. Reinforcement of safe work practices while mounting / dismounting equipment.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Petroleum Product Handling

Risk Analysis:

What can go wrong?	Petroleum products (diesel, gasoline) could splash onto worker during refuelling equipment or vehicles or during hazardous materials collection and consolidation.
Consequences:	Injury to worker from contact
Probability:	Low
Mitigation:	Workers handling petroleum products will wear correct personal protective equipment to avoid injury from petroleum contact
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving petroleum product handling activities.

Hazard:	Power Cutting Tools

Risk Analysis:

What can go wrong?	Electrical fault during tool use Worker cut by power tool Worker cut by material being cut
Consequences:	Injury to worker
Probability:	Medium
Mitigation:	Provide written Safe Work Procedure or JSA for task. Ensure worker understands the SWP or JSA before commencing task. All power tools to be inspected prior to use. Any tool found to be faulty should be repaired before use. Workers to wear correct PPE for task. Workers to follow correct task procedures as specified in the SWP or JSA.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Trucks Reversing / Dumping

Risk Analysis:

What can go wrong?	Ground personnel struck by vehicle or falling load
Consequences:	Injury or death
Probability:	Medium
Mitigation:	Provide written Safe Work Procedure or JSA for task. Reinforce safe working practices while working in the vicinity of trucks reversing and / or dumping. Use spotters to guide truck operators when reversing / dumping. Equip all trucks with back-up alarms.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Warm Weather

Risk Analysis:

What can go wrong?	Heat Stress
Consequences:	Injury or death
Probability:	Low
Mitigation:	Provide written Safe Work Procedure for working in warm weather. Reinforcement of safe work practices for warm weather work.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Wildlife Encounter

Risk Analysis:

What can go wrong?	Attack by wildlife
Consequences:	Injury or death to personnel or wildlife
Probability:	Low
Mitigation:	Train all workers in wildlife encounter safety. Provide experienced wildlife monitors for duration or project. Develop written Wildlife Safety Plan. Reinforce wildlife safety procedures throughout project.
How Frequently?	At the daily Tailgate Safety Meeting prior to work commencement and during every work shift as necessary.

Hazard:	Work at Height

Risk Analysis:

What can go wrong?	Fall from height
Consequences:	Injury or death
Probability:	Medium
Mitigation:	Provide written Safe Work Procedure for working at height. Reinforce safe working practices for working at height.
How Frequently?	At the Tailgate Safety Meeting prior to task commencement and during task as necessary on every shift involving work at height activities.

7.3.1 Safe Work Procedures

The following QMLP Safe Work Procedures are included in Appendix 1 and will be reviewed by all project personnel prior to commencement of applicable work activity.

SWP #	Title / Description
002	Hot Work
008	Cutting With Portable Cut Off Saw
009	Demolition
010	Drilling, Grinding & Cutting
013	Excavation
014	Exposed Handling of Petroleum Products
015	Heavy Equipment Refuelling
018	Manual Lifting
019	Mobile Equipment
020	Mounting and Dismounting Equipment
026	Respirator Program
029	Starting Equipment
034	Use of Portable Ladders
037	Work at Heights
038	Heavy Equipment Lifting
040	Cutting
041	Gloves
046	Extreme Heat or Cold
047	Hoisting and Rigging

The following Standard Operating Procedures (SOP) from the INAC, 2006 manual are included in Appendix 2 and will be reviewed by all project personnel prior to commencement of applicable work activity.

SOP #	Title / Description
007	Hand Tools
008	Power Tools
011	Chainsaw Safety
013	Fire Protection
015	Cold Weather Hazards
016	Warm Weather Hazards
017(A)	Wildlife Safety
017(B)	Bear Safety
018	Winter Road Safety
020	Housekeeping
021	Barricading, Flagging & Hazard Signs
023	Firearm Safety
026	Aircraft Travel in Remote Areas (Fixed Wing)
027	Helicopter Safety
028	Mobile Equipment Operation
031	ATV Operation

7.3.2 Job Safety Analysis Example

Specific activities may require a Job Safety Analysis (JSA) to be completed on site. Generally a JSA must be completed for any task that does not have an applicable Safe Work Procedure.

JOB SAFETY ANALYSIS (JSA)

DEMOLITION		
Task Name	***JSA # (Site Specific)***	***Safe Work Procedure Developed By***

SITE / PROJECT:	ROBERTS BAY REMEDIATION PROJECT		
NAME OF CONTRACTOR:	QUANTUM MURRAY LP	**Date:**	

Sequence of Basic Job Steps		**Potential Hazards**	**Safety Controls to Reduce or Eliminate Hazard**
1.	Move equipment to work area	Mobile equipment	Develop written Safe Work Procedure for working in the vicinity of mobile equipment. Designate roadways for mobile equipment. Only qualified personnel to operate equipment. Use signs, barricading or delineators as necessary. Ensure all ground personnel and equipment operators understand and follow safe work procedures for working near mobile equipment.
2.	Changing equipment attachments	Pinch points Tool selection Unsafe Communication	Ensure that workers are wearing correct PPE as per the SWP. Ensure that there is no loose clothing to get stuck. Choose the right tool for the job (i.e. do not use a bar to hammer the pin in, use a hammer) Ensure all workers understand and use correct communications signals. Only one ground person designated to communicate hand signals to operator.
3.	Demolition of building frames and equipment	Falling debris	Cordon off area and use a ground safety watch person to assist equipment operator. Post warning signs.

		Equipment working in area Torch cutting Spills Manual labour	Ensure that no workers enter the equipment working area, using the safety watch person. Compressed cylinders secured in an upright position at all times. Equipment to be inspected prior to start of each shift by torch-man. Ensure proper PSI in regulators Ensure safe work permits have been issued. Clear all combustibles and / or wet area prior and post torch cutting Fire-watch personnel with fire extinguishing equipment. Wear proper respirators (if required) and fire resistant clothing. Never use oxygen hose to blow (clean) off clothing. Oxygen will impregnate clothing and make it highly flammable. Ensure torches are pointed away from fellow workers at all times. Ensure proper footing and support of material being cut. Maintain touch, lines and regulators are in good condition. Periodically inspect torch cutting equipment. Make sure fire extinguishers are fully charged and inspected. Ensure tanks and line purged and emptied prior to demolition. Have a spill kit available that contain both oil and glycol absorbent pads. Use the right tool for the task Use proper lifting techniques (lift with your legs not your back) Use proper PPE for the task, i.e. dust mask, ear protection, florescent vest, head protection, foot protection, and eye protection. Be aware of your surroundings, if you are unsure about anything, ask your immediate supervisor. Report any hazardous condition immediately to your immediate supervisor.
4.	Purging / Cleaning Drums	Liquid in drums	Use proper PPE for the task. Remove liquid prior to cleaning.
5.	Demolition - Manual	Danger of falling structures, block walls and various items. Vibration Dust Combustibles	Barricade area from unauthorized personnel. Use appropriate tools for the task. Be aware of vibration sensitive areas and adjust work procedures to minimize the possibility of vibration occurrences (i.e. when demolishing block walls, do not let the blocks fall to the floor uncontrolled. Spray work area with water as necessary to reduce dust. Remove all combustible material and have proper fire extinguishing equipment.

6.	Demolition - Use of shear or grapple	Danger of falling structures Equipment operator error Equipment failure Open excavations	Barricade area from unauthorized personnel. Only experienced personnel to operate equipment. Observe daily and weekly maintenance checks. Barricade properly (floor covers, guardrails etc.)
7.	Material Cutting	Explosion or fire from torch cutting. Injury from gas powered cutting tool use	Ensure equipment has been cleaned properly before cutting with torch. Lines vented; valves open. Have proper fire extinguishing equipment available. Verify lines are blanked, severed and vented. Compressed cylinders secured in an upright position at all times. Items to be cut or welded are free from gasses and oils. Cutting equipment to be inspected prior to start of each shift. Ensure proper PSI in regulators Ensure safe work permits have been issued. Wet area prior and post torch cutting Fire-watch personnel. Remove all combustibles from area. Wear proper PPE Wear proper respirators (if required) Never use oxygen hose to blow (clean) off clothing. Oxygen will impregnate clothing and make it highly flammable. Ensure torches are pointed away from fellow workers at all times. Ensure proper footing and support of material being cut. Maintain touch, lines and regulators are in good condition. Periodically inspect equipment. Make sure fire extinguishers are fully charged and inspected. Ensure power tools are in good working condition before using. Position work so as not to create a hazard outside the work area. Ensure proper footing and support of material being cut. Always shut off gas powered cutting tools when not in use.
8.	Load scrap metal/debris	Falling debris. Reversing trucks for loading. Stable loads.	All workers are to stay clear of all truck during loading. Debris can fall or fly from the bucket or back of truck. Operator to ensure area around trucks is clear of debris. Truck operators are under the control of the equipment operator during loading operations. Trucks do not move until signalled by predetermined horn signal, hand signal or radio command from operator.

			Equipment operator to ensure truck load is stable before releasing truck from loading area.
9.	Work area clean up	Small equipment working with ground personnel. Physical labour picking up small debris and placing into Bobcat bucket.	All workers to understand safe working procedures when working in close proximity to mobile equipment. Workers are to help each other lifting awkward, heavy material or use machinery. Proper lifting techniques are to be use during physical work. Bobcat operators are to keep machinery on low idle when working in close proximity to workers.
10.			
11.			
12.			
13.			
14.			
15.			

Tools and Equipment	Personal Protective Equipment
Excavator & Shear Bobcat Oxy / Acetylene cutting torch Gas powered cut-off saw Pry bars Hammers Shovels Brooms Fire Extinguishers Water tank Water pump & hose Spill Kit Radio Barricading / Caution Tape Warning Signs	Coveralls Hard Hat Eye Protection Half mask Hi-visibility vest Gloves Steel-toed boots

Person(s) Carrying out the Work

Name *(please print clearly)*	Signature	Date

JSA Approved By: (Supervisor/Health and Safety Coordinator)

Supervisor's Name		*Signature*		*Date*

Health and Safety Coordinator's Name		*Signature*		*Date*

NOTE: For tasks/activities that extend beyond a single day, use a DAILY RENEWAL FORM – QHS # 46. Review with current crew and revise weather/changes.

8.0 PERSONAL PROTECTIVE EQUIPMENT

Based on the evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas and tasks at this site:

Location	Level of Protection	Personnel Protective Equipment
Entire Site	Level D	Hardhat (mandatory) Eye protection (mandatory) Hearing protection (mandatory) Coveralls (mandatory) High visibility vest (mandatory) Protective gloves (mandatory) Steel-toed work boots (mandatory)
Job Specific	Level D plus	Fire retardant coveralls Tyvek coveralls Face protection Air quality protection (half face mask with one-way valve) Air quality protection (half face respirator with dual cartridge) Latex inner gloves

9.0 WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM)

QMLP will ensure all workers will receive full WHMIS training in the safe use of hazardous materials in the workplace.

Training will cover:

- WHMIS regulations
- Hazard identification
- Product classification
- Labels and symbols
- Material Safety Data Sheets (MSDS)

Material Safety Data Sheets for all hazardous materials identified as existing onsite and hazardous materials transported to site will be maintained onsite throughout the project.

10.0 COMMUNICATIONS

10.1 COMMUNICATIONS EQUIPMENT

Communication equipment and systems to be used during all phases of work at the Ida Bay / Roberts Bay sites include:

- InfoSat satellite communication system
- MSAT mobile satellite radio
- Iridium mobile satellite phones
- 2-way radio system

10.1.1 Infosat satellite communication system

The Infosat satellite communication system will be the primary system used for the Ida Bay / Roberts Bay project. This system provides LAN extension and IP integration of services at remote locations, each site LAN having:

- Digital telephone service with separate line and number
- Real time fax service with separate line and number
- E-mail service
- Data file transfer service
- Internet access

10.1.2 MSAT satellite radio phone system

The MSAT satellite radio system provides mobile phone, fax and data transfer services at remote locations. This system will provide phone and data transfer backup to the primary satellite communication system.

10.1.3 Iridium satellite phone system

The Iridium satellite system provides reliable phone service at latitudes north of the Arctic Circle. Portable satellite phones will provide mobile and emergency phone backup to the primary satellite communication system.

10.1.4 2-Way radio system

A 2-way radio system incorporating a base station, repeater station and mobile radio receiver/transmitters will be used for the Ida Bay / Roberts Bay project to provide reliable push-to-talk communication onsite.

10.2 EMERGENCY AND RESCUE COMMUNICATION

10.2.1 Day Trip Communication Procedures

Work activities comprising travel away from the immediate main camp area and/or between the Ida Bay and Roberts Bay sites will require the work party to maintain a reliable communication link with personnel at the main camp.

A 2-way radio communication system capable of reliable communication between both worksites will be used for this project.

Each vehicle travelling between worksites must carry a mobile 2-way radio receiver/transmitter.

Before departure on any travel between worksites, the designated work party lead must advise the Project Coordinator or Office Designate of the Trip Itinerary, including:

- number and names of all members of the work party
- means of transportation
- departure time from Worksite A
- estimated travel time to Worksite B
- call-in time upon arrival at Worksite B, and
- alert time for the trip

The Project Coordinator or Office Designate must post a copy of the Trip Itinerary at the project office.

Unexpected delays or changes to the Trip Itinerary must be reported to the Project Coordinator or Office Designate and the Trip Itinerary modified as necessary.

Upon arrival at Worksite B, the designated work party lead must advise the Project Coordinator or Office Designate of the work party's arrival.

The alert time is the arranged time, allowing for possible and reasonable delay, that the Project Coordinator will attempt to contact the work party and/or activate a search response.

10.2.2 Emergency Response Communication

Refer to: Section 20.0 Emergency Response Plan

Emergency response communications will include:

- portable pressurized air horns
- portable, 2-way radio transmitter/receivers
- satellite communication system

10.2.2.1 PORTABLE AIR HORN

Portable air horns will be stationed at all work areas. In the event of an emergency situation at the work area, the air horn will be activated in a single, extended blast to warn all nearby personnel that an emergency situation has occurred. Emergency response procedures will be initiated and followed.

10.2.2.1 PORTABLE 2-WAY RADIO

Portable, hand-held 2-way radio transmitter/receivers will be carried by at least one person (generally the work party lead) in every work party. Mobile 2-way radio transmitter/receivers will be located in all mobile equipment and vehicles. In the event of an emergency situation at the work area, the 2-way radio will be used to contact the site Emergency Response Coordinator and the Site Superintendent.

The 2-way radio system will be used to coordinate all onsite emergency response.

The site Emergency Response Coordinator and the site Medic will keep a 2-way radio on their person at all times.

10.2.2.1 SATELLITE COMMUNICATION SYTEM

The satellite communication system installed at the QLMP Site Office will be used to contact and coordinate offsite emergency response agencies.

11.0 CAMP RULES

The following camp rules have been drafted in accordance with regulations:

- Nunavut Safety Act
- National Fire Code of Canada
- Canada Labour

It is the responsibility of all personnel (without exception) to adhere to these rules.

Failure to comply may result in the suspension of camp privileges and/or removal from site.

The Camp Administration Clerk will keep record of assigned rooms. Do not change rooms without approval.

Camp rules are as follows:

- Quiet time is 11:00 P.M. Excessive noise is NOT allowed at any time.
- Become familiar with all emergency procedures, exits, signals and alarms.
- Keep access to fire equipment clear at all times.
- Report any damaged safety apparatus or equipment immediately.
- Smoking in camp bedrooms is prohibited.
- Camp buildings and any area within 3 metres of camp doorways are designated smoke-free areas.
- Sheltered smoking areas within the camp area will be provided and designated.
- Tampering with fire detectors/alarms or any other safety equipment is a criminal offence. Offenders will be dismissed and removed from site.
- Alteration of, or tampering with, electrical circuits and equipment is prohibited. No bulb exceeding 60 watts may be used.
- Camp occupants are responsible for damages to assigned rooms or common areas. Damages to your assigned room must be reported immediately.
- No alterations or modifications may be made to camp property.
- Storage of oil, gas, propane, charcoal or burning of incense or mosquito coils is prohibited.

- Keep clothing or other flammable items away from room heaters.
- Keep living areas as clean as possible.
- The possession or consumption of alcohol is NOT permitted.
- The possession or consumption of unlawful drugs is NOT permitted.
- The possession or use of firearms or ammunition by any person other than designated personnel is NOT permitted.
- Fighting, harassment or violence is grounds for dismissal and removal from site.
- Theft, vandalism or destruction of property is grounds for dismissal and removal from site.
- Dirty outer clothing and boots must be removed before entering the Dining or Recreation areas. A dirty outer clothing/boots storage area will be designated.
- Hunting and fishing are not permitted on INAC sites. QMLP will provide traditional, northern food as available.
- QMLP reserves the right to inspect rooms at any reasonable time.
- QMLP reserves the right to establish additional rules and regulations.

12.0 FIRE SAFETY

The key to fire safety is fire prevention.

- Fire Safety Plan will be explained to the site personnel at the Worker Orientation Seminars and reinforced during project safety meetings.
- All workers will receive fire extinguisher training and the training documented and maintained on site.
- Fire extinguishers will be located in every camp building, mounted in/on all equipment and vehicles, stationed at all fuel storage areas and refuelling areas and stationed at any work area identified as a potential fire hazard.
- Fire extinguishers must be accessible to all workers and placed adjacent to work areas at the beginning of each day.
- Regular inspections will be conducted to identify hazards including potential fire hazards.
- Fire extinguisher use will be recorded and documented in the weekly report.
- Tampering with fire prevention or protective equipment is a criminal offence. Offenders will be immediately dismissed and removed from camp.

13.0 FIRE SAFETY PLAN - CAMP

13.1 HOUSEKEEPING:

- No smoking inside camp bedrooms.
- No naked flames allowed in any camp room.
- Storage of oil, gas, propane, charcoal or burning of incense or mosquito coils in any camp room is prohibited.
- Ensure clothing or other potential combustibles are not placed on baseboard heaters.
- Do not tamper with any fire alarm or smoke detector.
- Tampering with fire prevention or protective equipment is a criminal offence. Offenders will be immediately dismissed and removed from camp.
- QMLP will perform and document weekly safety inspections of entire camp.

13.2 INDIVIDUAL FIRE SAFETY PROCEDURES:

- When you arrive at camp, make yourself familiar with the location of all firefighting equipment, fire alarm stations and emergency exits.
- If you discover a fire pull fire alarms and/or shout “FIRE-FIRE-FIRE”. Continue this throughout entire camp yourself or assign another person. Assess fire and attempt to extinguish with available fire extinguishers if possible.
- When you hear an alarm, act, don’t investigate.
- If fire is in your room, close the window if possible, get out and close the door. Pull fire alarm and/or shout “FIRE-FIRE-FIRE”.
- If the fire is not in your room, leave if you can. First, feel your door. If it is cool, open it slowly and go to the nearest exit. If smoke is present, lower yourself below smoke level and move to nearest exit.
- Take adequate clothing/blankets for protection from the elements and gather at designated muster station to allow for head count.

13.3 CAMP EVACUATION PROCEDURE:

- Remove people from each room in an orderly manner, closing windows and doors when leaving.
- If room is smoke filled, don’t panic, lower yourself to below smoke level and move to nearest exit.
- Take adequate clothing/blankets for protection from the elements and gather at a designated area to allow for head count.

In the event of a fire emergency follow the emergency response procedures outlined in Section 20.7 Emergency Response Procedure

14.0 FIRE SAFETY PLAN – WORK SITE

The key to fire safety is fire prevention.

14.1 HOUSEKEEPING

- Keep work areas clean and free from debris to prevent fire hazards (wood, cardboard, paper, plastic, rags etc.). All work site debris must be collected for proper disposal.
- Controlled debris burning will only occur in the camp incinerator or a designated burn pit.
- Torch cutting will only occur if there is no risk of sparks causing a fire. The surrounding work area will be cleared and/or thoroughly wetted in advance, and fire suppression equipment (20 lb. fire extinguisher, shovels) will be immediately available at the work area.
- Keep flammable liquid storage to a minimum and in approved containers.
- Where combustible vapours are potentially present, monitor LEL's and take action as appropriate.

14.2 SMOKING

- Smoking is only allowed in workplace areas designated as safe for smoking.
- All smoking waste (cigarette butts, packaging) must be collected and returned to camp for proper disposal.
- Smoking is not allowed within 3 metres of any entrance to an enclosed "workplace".
- Smoking is not allowed within 7.5 metres of any fuel storage or fuel dispensing area.

15.0 ELECTRICAL SAFETY

- Replace electrical cords that have cracked insulation or broken connectors.
- Do not overload electrical circuits.
- Never run extension cords where they can be damaged or become a tripping hazard.

16.0 FIRST AID

16.1 FIRST AID FACILITY

A First Aid Facility with an attendant Medic and all necessary equipment and supplies will be maintained onsite for the duration of the Roberts Bay and Ida Bay Site Remediation Project.

The Medic will be on duty in the First Air Facility during normal work hours and on call as needed after normal work hours. The Medic will keep a 2-way radio on their person at all times.

- First Aid medical treatment will be available at the First Aid Facility.
- Level 1 first aid kits will be carried in all mobile work vehicles.
- Level 1 first aid kits will be immediately available at all work areas.

16.2 FIRST AID AND MEDICAL SUPPLIES

First Aid Facility will be equipped with the following equipment and supplies:

FIRST AID FACILITY MEDICAL EQUIPMENT/SUPPLIES		
ITEM	UNIT	QUANTITY
First Aid Manual (English/French)	ea	1
Instruments (trauma scissors, bandage scissors, ring cutter, pupil lights, nail drill)		
Elastic bandage clips		
Safety pins		
Trauma shears		
Tweezers (various)		
Hot and cold packs		
Kleenex		
Bio bags		
Large and small Ziploc bags		
Lock box for non-prescription medications	ea	1
Electric suction unit	ea	1
Suction catheters		
Automated external defibrillator	ea	1
2-M oxygen cylinders with regulator	ea	2
Oxygen supply catheters		
Burn kit	ea	2
Glucometer and supplies	ea	1
BP cuff & stethoscope	ea	1
Oral thermometer	ea	2
Sharps disposal container	ea	2
Instrument sterilization tray	ea	2

FIRST AID FACILITY WOUND MANAGEMENT SUPPLIES		
ITEM	UNIT	QUANTITY
20L water pail	ea	1
Water pump	ea	1
Wound irrigation syringes (12 – 60 cc)		
Nitrile gloves SM	pack	1
Nitrile gloves LG	pack	2
Nitrile gloves XL	pack	1
Antiseptic solution (Betadine, Povidine, Baxedin)		
Alcohol wipes		
Cotton balls		
Q-tips		
Gauze Pads (sterile, multiple sizes)		
Gauze Pads (non-stick)		
Gauze bandage (various sizes)		
Elastic bandage - 3” and 4” rolls (tensor, self-adhering, crepe)		
Triangular bandage		
Pressure dressing (8” x 7”)		
Combine trauma dressing (5” x 9”)		
Occlusive trauma dressing (Tegaderm)	sheets	12
Transpore tape	roll	4
Cloth tape	roll	4
Steri Strips skin closures (various sizes)		60
Bandaids (various sizes)		100
Moleskin sheets	ea	12
Blister care (Second Skin)	box	2
Benzoin Tincture	container	1
Eye pads	ea	12
Eye wash bottles	ea	2
Eye wash solution	bottle	2

FIRST AID FACILITY NON-PRESCRIPTION MEDICATIONS		
ITEM	UNIT	QUANTITY
Antibiotic ointment (Polysporin, Bactroban)	tube	2
Analgesic, antipyretic & anti-inflammatory medication (Aspirin, Tylenol, Ibuprofen)	bottle	2
Antihistamines (Benadryl, Sudafed)	pack	4
Antacid (Gravol, Maalox, Gelusil, Mylanta etc.)	bottle	4
Anti-constipation (Metamucil)	bottle	2
Anti- diarrhoeal (Lomotil, Keopectate)	bottle	2
Antifungal (Tinactin, Mystatin)	tube	2
Dental pain (Orabase, Anbesol)	pack	2
Ipecac Syrup	bottle	2

EMERGENCY RESPONSE EQUIPMENT/SUPPLIES		
ITEM	UNIT	QUANTITY
Gazelle basket stretcher	ea	1
Scoop stretcher	ea	1
Ferno # 9 stretcher	ea	1
Spinal board	ea	
Spinal kit	ea	1
Collar kit and spider straps	ea	1
Clam shell	ea	1
Blankets (wool)	ea	8
Blankets (thermal)	ea	2
Blanket pins	ea	12
Sam splint set (2 short and 1 long)	set	4
Air casts (ankle, knee, elbow)	ea	2
Ambu bag valve mask (adult)	ea	2
Sand bags	ea	4
E size oxygen kit	ea	2
E size oxygen cylinders (aluminum)	ea	4
Level 3 FA kit	ea	2
Emergency burn kit	ea	2

FIRST AID FACILITY GENERAL EQUIPMENT/SUPPLIES		
ITEM	UNIT	QUANTITY
Table and chair	ea	1
Telephone	ea	1
2-Way radio	ea	1
Filing cabinet	ea	1
File holders		
Paper, notepads, pencils		
Clip boards	ea	2
First Aid bed	ea	1
Blankets (wool)	ea	2
Pillows	ea	2
Paper sheets and pillow cases		
Plastic sheet bed cover	ea	2
Plastic pillow case covers	ea	4
Treatment chair	ea	1
Treatment chair ring and bowl	ea	1
Lighted magnifier	ea	1
Large towels	ea	6
Power bar	ea	1
Power cord 12’	ea	2
Plastic cups		
Garbage can with lid (large)	ea	1
Garbage can small	ea	1

FIRST AID FACILITY CLEANING EQUIPMENT		
ITEM	UNIT	QUANTITY
20L mop pail	ea	1
Floor mop	ea	1
Floor broom and pan	ea	1
Floor cleaner		
Spray clean		
Cleaning cloths		
Clean up sponges		
Sanitary wipes		
Paper towel		

First aid supplies usage will be monitored and replenished as necessary by scheduled supply flight.

Should any employee identify to QMLP the requirement for essential medication during the project (e.g. insulin, epinephrine), QMLP will provide all required support in terms of storage and access to such medications brought to the site for self-medication.

17.0 FUEL MANAGEMENT

5 x 5,000 gal US aboveground storage tanks (AST) and 205 litre drums will be used store and dispense fuels and oil on site.

Placement, secondary containment and spill containment procedures for all fuel and oil storage will be in accordance with regulations outlined in Canadian Council of Ministers of the Environment (CCME) PN 1326 – Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products

Immediately accessible firefighting equipment and emergency spill equipment and materials as specified in Section 21.0 Spill Contingency Plan will be maintained at all fuel storage and fuel dispensing areas.

Open flame use or smoking is not permitted within 7.5 metres of any fuel storage or refuelling area.

Spill Contingency Planning and Reporting Regulations, NWT Reg. 068-93 requires spills of flammable liquids larger than 100 litres to be reported to the NT - NU 24 Hour Spill Report Line (867) 920-8130.

In the event of a spill less than 100 litres in volume of a flammable liquid, Quantum Murray LP will immediately clean up the spill area using all resources required to remediate the area to pre-spill conditions.

Quantum Murray LP will notify appropriate authorities if any spill:

- enters any water body directly or by surface drainage
- causes any adverse environmental effect other than those readily rectified through immediate clean up and restoration

If a spill greater than 100 litres in volume of a flammable liquid occurs, Quantum Murray LP will:

- take all actions to contain the spill and prevent further release into the environment
- take all necessary actions to prevent injury to personnel by isolating the spill area and preventing entrance to the affected area
- notify the Territorial Authorities and the NT - NU Spill Report Line (867 920-8130)
- take all actions necessary to remediate the spill area by containing the spill, preventing migration out of the spill area, and removing and packaging all spilled and remediation materials for proper disposal (see Section 21.0 Spill Contingency Plan).

18.0 WORKSITE SAFETY

18.1 HEAVY EQUIPMENT OPERATION

QMLP requires the following rules to be followed by all operators and ground personnel when working with or around mobile equipment.

- Caution will be used when working around heavy equipment.
- Heavy equipment will be equipped with an audible back-up alarm, 2-way radio and fire extinguisher.
- Emergency Spill Kit must be immediately available at all work areas.

High visibility vests must be worn by all personnel on the site. Communication between operator and ground personnel must be maintained at all times.

18.1.1 Equipment Operators

Operators must be properly trained in the operation and maintenance of equipment for which they are responsible.

Seat belts will be worn at all times.

At the start of each shift, operators must check all hoses, fluids, grease fittings and visually inspect all moving parts for wear or damage. Operators must record and initial the daily inspection on the equipment log sheet and have the report initialled by the Site Superintendent. If mechanical repairs are necessary, repairs will be completed, recorded in the log sheet and initialled by the mechanic.

In the event of a hydraulic leak or hydraulic hose malfunction, equipment operation is to stop. Spill pads and absorbent material are to be utilized to clean / collect oil and contaminated materials are to be excavated, contained and disposed appropriately. All repairs must be recorded in the log sheet and initialled by the mechanic.

NEVER move equipment without having visual contact with the area to be accessed.

A spotter must be used when equipment is moving or operating under overhead hazards.

When not in operation, tracked vehicles will be locked out and hydraulic equipment will be grounded. Never park or shut down equipment with a load in the air.

Always engage lock out lever when exiting equipment or before ground personnel approach the machine.

Always use certified and properly tagged lifting chains, slings etc. Periodically check lifting devices for wear or damage. If any piece of lifting equipment is worn or damaged, replace the item with a new, certified item.

NEVER lift or swing a load above ground personnel.

Always use hand holds and steps and maintain three points of contact when mounting or dismounting equipment – never jump off equipment.

NEVER allow ground personnel to ride in buckets or standing on any part of the machine.

NEVER allow ground personnel to stand between the bucket and the machine, behind the machine or in the swing area of the machine

Operators must be able to receive communication from ground personnel at all times – NO music head sets are permitted while operating equipment.

The use of music radios are permitted but must not impede communication with other personnel.

Smoking is not permitted while operating equipment in a designated hazardous area.

Equipment must be parked and locked out while using a 2-way radio.

Keep equipment clean. Remove spilled oil, fuel or grease to reduce slipping hazards.

Dispose of grease tubes in appropriate waste containers, NOT ON THE GROUND.

18.1.2 Ground Personnel

Due to noise and the operator's obstructed field of vision, ground personnel must make eye contact with the equipment operator before entering the work area.

Ensure the equipment operator is informed if you leave the work area.

Ensure the equipment operator is aware of your presence and intention if you have to approach the equipment. Never approach equipment until the operator has parked and locked out the machine and communicated it is safe for you to approach.

NEVER position yourself between the bucket and the machine or in the machine's swing area.

NEVER stand behind the machine or in any position where the operator cannot see you.

Ground personnel must NEVER ride in the bucket or on any part of the equipment.

NEVER position yourself under or in the travel path of a suspended load.

18.2 EXCAVATION

Existing mine adits will be off limits to all personnel. Adits will be barricaded and signs posted preventing entry. NO PERSONNEL WILL ENTER A MINE ADIT.

No worker will enter any excavation over 1.2 m in depth, unless the side slopes are cut back to a safe angle as defined in the Territorial Regulations OR a memo from a geotechnical engineer is on site. Additionally ANY time the excavation depth exceeds 6.0 metres a memo from a geotechnical engineer must be on site.

Excavated material will be placed a minimum distance of 3 metres from the edge of any trench or excavation.

18.3 NOISE HAZARD

Ear protection is mandatory.

Verbal radio communication between ground personnel and other personnel or equipment operators may be difficult at times due to equipment or other work area noise, or radio operation may not possible due to the physical constraints of the work. In these instances non-verbal (hand) signals will be used for work area communications.

Simple, standard hand signals will be reviewed prior to operation and will be used when appropriate.

Communication Procedures
The following standard hand signals will be used for communication (only when vocal communication is not possible):

Hand Signal	Signification
Thumb and forefinger forming a circle	OK, I am all right, I understand
Thumbs down or shaking head side to side	NO, negative
Index finger pointed up; circle hand	Load Up
Index finger pointed down; circle hand	Load Down
Hand parallel to ground, palm down; hand moved in a sweeping, sideways gesture	Stop load movement

18.4 DUST HAZARD

All necessary effort must be made to minimize and control dust generation and/or the effects of dust at work areas.

Dust control measures include:

- Grading and/or watering roadways
- Spraying work areas if work produces excessive dust
- Positioning/scheduling work tasks so as not to be downwind of a dust producing activity
- Providing applicable protective equipment (dust masks, filters etc.) if work is necessary in areas of high dust concentrations

18.5 FIRE HAZARD

Fire extinguishers must be placed adjacent to the work area and readily accessible to all workers and at the beginning of each day.

All mobile equipment and vehicles must be equipped with a readily accessible fire extinguisher.

All personnel will be trained in the use of fire extinguishers and records of training documented.

In the event of a major fire, the site will be evacuated immediately and on-site emergency response will be initiated.

18.6 BIOLOGICAL HAZARD

A potential biological hazard exists with the handling of camp waste water.

All black water produced during project activities will be collected and contained for offsite disposal. To eliminate unacceptable risks associated with biological hazards, the workers packaging and transporting black water containers will wear the mandatory, Level D PPE (see Section 8.0 Personal Protective Equipment) including latex gloves, and will and will follow worker decontamination procedures (see Section 19.0 Worksite Decontamination Procedures).

18.7 WEATHER HAZARDS

18.7.1 Cold Weather Safety Guide

Weather conditions during the late summer work periods at Roberts Bay should pose little risk of workers suffering the effects of hypothermia (abnormally low body temperature); however, the risk of hypothermia is present any time air temperatures drop below 10°C.

The Cold Weather Safety Guide follows guidelines detailed in INAC SOP-015-Cold Weather Hazards included in Appendix 2. The information in SOP-015-Cold Weather Hazards will be presented to all personnel at the Worker Orientation Meetings and reinforced as required onsite.

Wind, moisture and cold are the key factors that lead to hypothermia.

Hypothermia affects the brain, making the victim unable to think clearly. They may not realize what is happening or be able to do anything about it.

18.7.2 Cold Weather Protective Measures

Work in pairs or groups. Each person in a group should watch for signs of hypothermia in the others.

Dress warmly in layers that trap warm air near the body but do not trap perspiration next to the skin. Minimize perspiration by removing layers to suit the activity level.

Guard against heat loss through extremities. Wear a warm hat, face protection, gloves and warm socks.

Wear raingear as required to prevent becoming wet and cold.

18.7.3 Warm Weather Safety Guide

The expected physical labour activities and weather conditions during the summer work periods at Roberts Bay should pose little risk of workers suffering the effects of heat stress.

The Warm Weather Safety Guide follows guidelines detailed in INAC SOP-016-Warm Weather Hazards included in Appendix 2. The information in SOP-016-Warm Weather Hazards will be presented to all personnel at the Worker Orientation Meetings and reinforced as required onsite.

Heat stress occurs when environmental and physical work factors combine to strain the body's ability to regulate its internal temperature.

18.7.4 Warm Weather Protective Measures

Workers will be assessed for general fitness, obesity and the ability to cope with wearing personal protective equipment.

Weather conditions will be monitored and job scheduling and work practices will be modified as required.

Personnel exposed to potential heat stress hazard will be fully instructed on heat stress causes, symptoms, controls and treatment measures prior to commencing the activity.

19.0 WORKSITE DECONTAMINATION PROCEDURES

19.1 GENERAL WORKSITE DECONTAMINATION

Personnel leaving an active work area shall be appropriately decontaminated prior to eating or drinking and at the end of the workday.

- All personnel must clean their work boots and clothing and wash all exposed skin with tepid water and soap.

19.2 HAZARDOUS MATERIALS HANDLING DECONTAMINATION

Personnel exiting a hazardous material abatement work area after being in direct contact with contaminated materials shall be appropriately decontaminated. Decontamination must be completed any time you exit the work area. Standard Level D decontamination procedures include:

- Remove outermost personal protective equipment
- Wash exposed skin with tepid water (hot water opens pores and increases chance of contaminant absorption)
- Remove coveralls taking care to prevent contamination of skin and underclothing. Open coveralls and roll them back inside out to prevent contamination of inner clothing.
- Remove first inner glove by peeling back inside out using the other, gloved hand. Hold removed glove with the gloved hand, slide the clean, bare hand into top of second glove, and peel it off inside out. No contact with contaminated surfaces should occur.
- Double bag and label contaminated materials and personnel protective equipment.
- Porous materials such as leather, canvas and some plastics are hard to decontaminate and should generally be discarded.
- Reusable clothing should not be taken home for cleaning.
- Wash hands before meals and wash hair and body after the shift is over.

19.3 HEAVY EQUIPMENT DECONTAMINATION

Equipment used in this project may need to be decontaminated before:

- travel between Ida Bay and Roberts Bay worksites
- relocation to another work area, or
- transported off site

Equipment will be decontaminated by scraping, brushing and/or pressure washing. All decontamination waste (organics and wash water) will be collected and packaged for proper disposal.

20.0 EMERGENCY RESPONSE PLAN

20.1 EMERGENCY DEFINITION:

An emergency is any situation with the potential to affect the life, health or safety of any person, property or the environment.

20.2 KEY COMPONENTS OF EMERGENCY RESPONSE PLAN:

Hazard Identification – to identify and mitigate potential hazards
Emergency Response Coordination – identify roles and designate personnel and agencies
Communication System – identify and install a reliable system for location / site
Emergency Contact List – develop and post an emergency contact list
Emergency Response Procedure – develop procedures for specific location / site
Communication of the Emergency Response Plan – educate workers of the plan during orientation and updates
Debriefing and Post Incident Procedures – recovery systems / resources once the emergency response is completed

20.3 HAZARD IDENTIFICATION:

The Roberts Bay and Ida Bay worksites have been assessed for potential health and safety hazards. Mitigation measures and procedures have been developed for:

- Chemical workplace hazards
- Physical workplace hazards
- Fire hazards
- Environmental hazards

20.4 EMERGENCY RESPONSE COORDINATION:

- The Emergency Coordination Centre will be the Quantum Murray LP site office.
- The onsite Emergency Response Coordinator will be the Site Health & Safety Coordinator.
- The offsite Emergency Response Coordinator will be Phil Linder (604 833-9117).
- Quantum Murray LP will contact all relevant emergency response agencies prior to project commencement.
- Quantum Murray LP will coordinate all emergency response.

- If outside emergency response personnel are required (Ambulance, Police, Fire etc.), Quantum Murray LP will relinquish response coordination once outside response personnel are onsite and will then assist further emergency response.

- Onsite subcontractors must provide equipment and assistance if requested to do so by the emergency response personnel.

20.5 COMMUNICATION SYSTEM:

A reliable communication system for the Roberts Bay / Ida Bay location has been identified and will be installed for this project (see Section 10.0 Communications Equipment).

Emergency response communication equipment will include:

- portable pressurized air horns
- portable, 2-way radio transmitter/receivers
- satellite communication system

20.5.1 Portable Air Horn

Portable air horns will be stationed at all work areas. In the event of an emergency situation at the work area, the air horn will be activated in a single, extended blast to warn all nearby personnel that an emergency situation has occurred. Emergency response procedures will be initiated and followed.

20.5.2 Portable 2-way Radio

Portable, hand-held 2-way radio transmitter/receivers will be carried by at least one person (generally the work party lead) in every work party. Mobile 2-way radio transmitter/receivers will be located in all mobile equipment and vehicles. In the event of an emergency situation at the work area, the 2-way radio will be used to contact the onsite Emergency Response Coordinator and the Site Superintendent.

The 2-way radio system will be used to coordinate all onsite emergency response.

20.5.3 Satellite Communication System

The satellite communication system installed at the QLMP Site Office will be used to contact and coordinate offsite emergency response agencies.

20.6 EMERGENCY RESPONSE CONTACT LIST:

PROJECT	Roberts Bay and Ida Bay Site Remediation, Nunavut
SITE LOCATION	125 km SW of Cambridge Bay, Nunavut GPS: 68º 10' 45" N; 106º 33' 29" W
QMLP - Offsite Emergency Response Coordinator	Phil Linder (604) 833-9117
QMLP - Onsite Emergency Response Coordinator	John DeSchutter Site phone number
NEAREST MEDICAL FACILITY	Kitikmeot Health Centre Cambridge Bay (867) 983-4500
NEAREST HOSPITAL	Stanton Territorial Hospital Yellowknife, NT Main Switchboard (867) 669-4111 Emergency Unit (867) 669-4100
AIR MEDIVAC	Arctic Sunwest (876) 873-4464 Adlair Aviation (867) 873-5161 Air Tindi (867) 669-8200 First Air (867) 669-6618 Great Slave Helicopters (867) 873-2081 Canadian Helicopters (867) 669-0779
ENVIRONMENT CANADA Environmental Emergencies Officers	24-hour pager (867) 920-5131
POLICE - Cambridge Bay	(867) 983-0123
FIRE MARSHALL - Cambridge Bay	(867) 983-9016
WCB - 24 Hour Accident Report Line	Yellowknife 1-800-661-0792 Iqaluit 1-800-404-4407
NT - NU 24 Hour Spill Report Line	(867) 920-8130
Yellowknife Wildlife Emergency Line	(867) 873-7181

INAC - Project Manager	Dele Morakinyo (867) 975-4732
PWGSC - Project Manager	Giselle Cotta (780) 497-3839
PWGSC - Project Officer	Matthew McElwaine (780) 497-3690
SENES Consultants Ltd. - Project Manager	Charles Gravelle (905) 882-5984
QMLP - Project Manager	Vijay Lanji (604) 430-0080
QMLP - General Superintendent	Ron Bosel (604) 839-9240
QMLP - Site Superintendent	Gil Fife (403) 510-7188
QMLP - Environmental Health & Safety Mgr.	Dan Sinclair (604) 837-2267

20.7 EMERGENCY RESPONSE PROCEDURE:

- Sound worksite area emergency alarm (a single, extended blast of the work area emergency air horn) and contact the onsite Emergency Response Coordinator immediately.

- The onsite Emergency Response Coordinator will initiate and coordinate emergency response.

- All work must stop immediately upon hearing the emergency alarm signal (a single, extended blast of a work area air horn).

- Personnel near the incident area should provide immediate and appropriate FIRST RESPONSE if able to and ONLY if it is safe to do so (e.g. administer first aid, extinguish fire, stop product flow, shut down equipment etc.).

- All personnel (not involved in FIRST RESPONSE activities) must assemble at the designated muster station.

- Personnel assembled at the designated muster station must complete a head count to ensure every worker onsite is accounted for and evacuated safely. Workers must not leave the muster station until a head count has been completed and they have been instructed to do so.

- Personnel should carry out all required emergency response possible and appropriate to the situation.

- The onsite Emergency Response Coordinator will contact appropriate offsite emergency response personnel (QMLP Emergency Response, ambulance, air medivac, hospital, etc.) if necessary.

- The onsite Emergency Response Coordinator will contact appropriate authorities, and project management.

- As soon as possible after all personnel have been accounted for, cordon off the incident area and eliminate or mitigate any remaining hazards at the incident area if able to and ONLY if it safe to do so.

- If offsite emergency response agencies are required, personnel should assist in emergency response as directed after offsite emergency response agencies arrive and assume control as the primary responders.

- The onsite Emergency Response Coordinator will complete an incident investigation report as soon as possible and forward the report to appropriate authorities and project management.

All site personnel will be required to acknowledge that they have read and understand the Emergency Plan and are familiar with its provisions, as per the example below.

Please sign and return to Health & Safety Coordinator (HSC). Refer to QHS # 34.

Name *(print clearly)*	**Company** *(print clearly)*	**Date**	**First Aid Training** **Yes** / **No**

EXAMPLE ONLY

Refer to QHS # 34

20.8 COMMUNICATION OF THE EMERGENCY RESPONSE PLAN

The emergency response plan will be introduced to project personnel and site visitors at the Worker Orientation Seminars prior to commencement of the project and during onsite orientations.

Regular reinforcement of the Emergency Response Plan will be presented to project personnel throughout the project.

20.9 DEBRIEFING AND POST-INCIDENT PROCEDURE:

The Site Superintendent and the onsite Emergency Response Coordinator will conduct a review of the emergency and the response at the conclusion of an emergency situation.

The onsite Emergency Response Coordinator will distribute and review investigation findings with all personnel.

Emergency response tasks are often performed by people not accustomed to handling emergencies. People may have seen their work partners and friends seriously injured and in pain. Memories of the accident or their injured work partners may have a detrimental post-incident effect on the personnel involved in or witnessing an emergency response. Some personnel involved may need professional assistance to cope with the effects of a serious emergency experience.
As an important part of the post-incident procedure, the Health and Safety Coordinator will contact and observe all site personnel post-incident for indications of shock or other signs of concern and arrange for appropriate medical assistance if required.

21.0 SPILL CONTINGENCY PLAN:

This spill contingency plan has been developed in accordance with the Spill Contingency Planning and Reporting Regulations, NWT Reg. 068-93 and the Environmental Protection Act (EPA) to ensure:

- Life is protected
- Injuries are avoided or minimized
- Resources are used effectively
- Environmental impact is minimized
- Essential reporting is completed

The Spill Contingency Plan will be incorporated into the Worker Orientation Seminars prior to the project.

Spill hazards will be identified and spill response procedures will be reinforced at the daily tailgate meetings.

Emergency spill response kits will be maintained at all fuel storage sites and stationed at all work areas and refuelling areas.

If a fuel, oil or other harmful substance spill occurs during the project, the following procedures will be implemented:

- Ensure safety
- Stop the flow
- Secure the area
- Contain the spill
- Clean-up
- Notify / Report

21.1 ENSURE SAFETY:

- Act quickly to protect site personnel, the public and the environment
- Never rush in, always determine the product spilled and take appropriate action
- Wear appropriate personal protective equipment (PPE)
- Warn people in the immediate vicinity
- Ensure no ignition sources are present in the immediate area if the spill is a flammable material

21.2 STOP THE FLOW:

- Act quickly to reduce safety hazards and environmental impact
- Close valves, shut off pumps or plug holes/leaks
- Stop the flow or the spill at its source

21.3 SECURE THE AREA:

- Isolate the contaminated area with appropriate barriers and signage
- Limit access to the spill area
- Prevent unauthorized entry onto the spill site

21.4 CONTAIN THE SPILL:

- Block off and protect drains, culverts and water bodies
- Prevent spilled material from entering drainage structures (ditches, culverts, drains) or local water bodies
- Use spill absorbent material to contain and absorb the spill
- If necessary, use a dyke or any other method to prevent any discharge from spill site.
- Make every effort to minimize contamination

21.5 CLEANUP:

- Consolidate and package all liquid waste for proper disposal
- Excavate/collect and package all contaminated organic materials for proper disposal
- Recover and package all contaminated absorbents, spill containment materials and disposable protective equipment for proper disposal
- Decontaminate all equipment; package all equipment decontamination waste (soil, wash water etc.) produced for proper disposal
- Clean all tools; package all used cleaning materials for proper disposal
- Decontaminate (clean/wash) all reusable clothing, boots etc.; package all decontamination waste produced for proper disposal

21.6 NOTIFY / REPORT:

- Notify NT – NU 24 Hour Spill Report Line (867) 920-8130
- Notify project management
- Complete and submit NWT Spill Report form
- Complete and submit QMLP Incident Investigation form

The Spill Contingency Planning and Reporting Regulations for NWT Reg 068-93, Schedule B specifies minimum reportable quantities listed by type of contaminant and described as per the Transport of Dangerous Goods Act (TDG).

Minimum Reportable Quantities for NWT:

ITEM NO.	TDG CLASS	DESCRIPTION OF CONTAMINANT	AMOUNT SPILLED
1.	1	Explosives	Any amount
2.	2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 L
3.	2.2	Compressed gas (non-corrosive, nonflammable)	Any amount of gas from containers with a capacity greater than 100 L
4.	2.3	Compressed gas (toxic)	Any amount
5.	2.4	Compressed gas (corrosive)	Any amount
6.	3.1, 3.2, 3.3	Flammable liquid	100 L
7.	4.1	Flammable solid	25 kg
8.	4.2	Spontaneously combustible solids	25 kg
9.	4.3	Water reactant solids	25 kg
10.	5.1	Oxidizing substances	50 L or 50 kg
11.	5.2	Organic Peroxides	1 L or 1 kg
12.	6.1	Poisonous substances	5 L or 5 kg

21.7 EMERGENCY SPILL RESPONSE KITS

Emergency spill response kits will only be used in emergency situations. The onsite Emergency Response Coordinator will inspect spill kits, regularly and after each use, and replace all used items.

21.7.1 Fuel Storage Site Emergency Spill Response Kit Contents:

Quantity	Description
200	Polypropylene Absorbent Pads 18”X18”X3/8”
16	Polypropylene Absorbent Booms 5” diam x 3 m
16	Polypropylene Absorbent Socks 3” diam x 3 m
24 kg	Cellulose or Diamataceous Earth Particulate (Floor Dry)
4	205 litre Tight Head Drums
6	205 litre Open Top Drums with seals and locking lids
6	6 mil poly x 205 litre Drum Liners
300 m	Barrier Tape, Yellow “Caution Do Not Enter”
1 box	Nitrile Gloves, Extra Large
6 pair	Polypropylene Gloves, Large
50 m	1/4” Polypropylene Rope, Yellow
30	Empty Sand Bags 14” X 22”
1 roll	6 mil x 30m x 12m Poly Sheet
1 roll	Duct Tape
1 box	Paper Hand Towels
2	85 gal Poly Overpack Drum (Yellow) with lids, labelled “Spill Kit”

21.7.2 Work Area and Refuelling Area Emergency Spill Response Kit Contents:

Quantity	Description
200	Polypropylene Absorbent Pads 18”X18”X3/8”
8	Polypropylene Absorbent Socks 3” diam x 3 m
6	6 mil poly x 205 litre Drum Liners
1 box	Nitrile Gloves, Extra Large
2 pair	Polypropylene Gloves, Large
1 box	Paper Hand Towels
1	85 gal Poly Overpack Drum (Yellow) with lids, labelled “Spill Kit”

22.0 WILDLIFE SAFETY PLAN

The Wildlife Safety Plan will follow guidelines set out in INAC SOP-017(A)-Wildlife Safety included in Appendix 2.

22.1 LOCAL WILDLIFE

The Roberts Bay/Ida Bay area provides both year-round and seasonal habitat for numerous wildlife species. Wildlife that may be sighted or encountered includes:

- Muskox
- Caribou
- Wolverine
- Polar bear
- Barren Ground grizzly bear
- Arctic and/or Red fox
- Tundra wolf
- Arctic hare

The Queen Maud Gulf Migratory Bird Sanctuary immediately to the east of the Roberts Bay/Ida Bay area is a critical migratory bird habitat. Thousands of waterfowl breed, moult and stage in the area. Bird species that may be reasonably sighted or encountered includes:

- Loon
- Tundra swan
- Canada goose, Ross's goose, snow goose
- Shorebirds
- Peregrine falcon

22.2 GENERAL PRECAUTIONS

General precautions for the Roberts Bay and Ida Bay Site Remediation project will include:

- employment of experienced, local persons as wildlife monitors
- development of a site specific wildlife safety plan and procedures
- personnel education of required behaviour and procedures regarding wildlife and wildlife encounters
- food storage and waste practices designed to prevent wildlife attraction

22.3 General Precautions For Personnel

Required conduct for all project personnel during the project will include

- be alert to the possibility of wildlife encounters at all time
- understand and respect that some wildlife can be dangerous
- never approach, disturb or harass any wildlife
- never feed any wildlife

22.4 Vehicles and Equipment

Wildlife is impacted, by the loss or modification of habitat and disturbance from vehicles and equipment. To minimize the impact to local wildlife during the Roberts Bay and Ida Bay Site Remediation Project, personnel will:

- use designated roadways only and/or use higher, rocky terrain where possible, for any vehicle travel outside the mine site work areas
- minimize vehicle travel on sensitive, tundra areas both inside and outside the mine site work areas
- maintain a safe and appropriate vehicle speed at all times
- not disturb or harass animals with vehicles or equipment

22.5 Wildlife Encounters

22.5.1 Encounters in Vehicles and Equipment

If wildlife is encountered while travelling in vehicles or equipment, stop and allow wildlife to pass or move out of the immediate area.

- remain in the vehicle
- do not use the horn
- wait for animals to pass before continuing

22.5.2 Encounters on Foot

If personnel encounter a bear, wolverine, wolf, or musk ox while on foot:

- back away slowly and do not make direct eye contact
- do not make sudden movements
- contact wildlife monitor personnel and project management personnel by radio
- stay in radio contact until you are at a safe distance and return to a safe area as soon as possible

22.6 REPORTING

All wildlife sightings during the project must be reported to the Site Superintendent or the Health & Safety Coordinator. All wildlife sightings will be recorded and reported.

NEVER FEED WILDLIFE

HUNTING IS PROHIBITED

23.0 BEAR SAFETY PLAN

The Bear Safety Plan will follow guidelines set out in INAC SOP-017(B)-Bear Safety included in Appendix 2.

The Bear Safety Plan consists of the following elements:

- Training
- Bear Response Procedures
- Field Safety
- Camp Safety and Preventative Design
- Detection Systems

The Bear Safety Plan and a Bear Safety video will be presented all workers during the Worker Orientation Seminars.

23.1 TRAINING

Training for all project personnel will include:

- Site orientation at Worker Orientation Seminar prior to mobilization to site
- Bear Safety presentation
- Presentation of Bear Safety Plan and bear response procedures

23.1.1 Site Orientation

Personnel will be informed of:

- Type of bears that frequent the area
- Recent bear activity in the area

23.1.2 Bear Safety Presentation

Bear safety information will include:

- Bear identification
    - Differences between Barren Ground Grizzly bears and Polar bears
- Bear ecology
    - Senses
    - Physical traits and abilities
- Bear behaviour
    - Curiosity
    - Personal Space
- Understanding bear behaviour
    - Body language and vocalizations
    - Avoidance and tolerance
    - Stress displays
- Reacting to a bear encounter
    - Reacting to a non-defensive bear
    - Reacting to a defensive bear
    - Reacting to an attack
- General safety prevention precautions
    - Staying alert
    - Alerting bears of your presence
    - Attractant management
- Personal deterrents
    - Pepper spray
    - Pen launchers
    - Horns

23.2 BEAR RESPONSE PROCEDURES

In the event of a potentially hazardous wildlife sighting at or near the camp or work area:

- Wildlife monitors will notify all personnel as to the animal's location and will assess and monitor the situation.
- If the animal is a safe distance from camp, work area or personnel and poses no immediate threat, wildlife monitors will maintain surveillance of the animal until the animal moves away from the area.
- If the animal is moving toward camp, work area or personnel and is assessed as a potential threat, wildlife monitors will alert all personnel of the situation and the animal's location, and then attempt to move the animal away from the area.
- If it is deemed necessary, work will halt and personnel will muster at designated locations until the wildlife situation is resolved.
- First deterrent response by wildlife monitors will be to discharge air horns or fire detonating (bear banger) rounds to scare the animal away.
- If the animal refuses to leave the area or displays hostile behaviour, wildlife monitors will fire rubber bullet rounds at the animal.
- If the animal still refuses to leave the area and wildlife monitors determine the situation to life-threatening, or the animal charges with hostile intent, wildlife monitors will fire solid bullet rounds at the animal.

NO ANIMAL IS TO BE SHOT WITH INTENT TO KILL UNLESS AS A LAST RESORT

23.3 FIELD SAFETY

Employees will be responsible for promoting a safe work environment, not disturbing wildlife, and avoiding hazards associated with animal encounters.

Responsibilities include:

- Confirming attendance at the bear safety seminar
- Be aware and alert at all times while onsite
- Never approach a bear for any reason
- Never feed bears or other wildlife
- Never disturb or provoke a bear at any time
- Ensuring a wildlife monitor is in position before leaving camp for a work area
- Ensuring a wildlife monitor is notified of their intention and travel route before moving between work areas
- Never leaving camp after work hours unless accompanied by an armed wildlife monitor and carrying a portable radio
- Communicating whereabouts on site through radio check-ins
- Reporting pertinent wildlife sightings and information sharing with the camp crew
- Responding appropriately if an alarm is sounded as part of the bear detection system

23.4 CAMP SAFETY AND PREVENTATIVE DESIGN

The camp has been designed to prevent wildlife problems. The camp location will be reviewed with wildlife personnel and local Aboriginal persons to identify any wildlife travel routes or bear feeding areas that may present a problem.

1000 W tower lights will be located in each corner of the camp to provide night time illumination of the surrounding area.

Camp attractants will be effectively managed by ensuring that food and garbage odours are limited by storing materials indoors. Food waste will be stored in sealed containers and will be either transported offsite for disposal or incinerated onsite. Sewage wastes will be treated onsite and resultant black water will be stored in sealed containers for offsite disposal.

23.5 DETECTION SYSTEMS

Personnel will be alerted of any wildlife approach by two-way radio or by the sounding of a portable air horn.

Work crews will carry radios and portable air horns to every work area.

All wildlife monitors will carry radios and portable air horns.

24.0 FIREARM SAFETY PLAN

Only designated personnel possessing a Possession and Acquisition License (PAL) will be permitted to use a firearm.

Firearms and ammunition will be stored at the camp in compliance with the Firearms Act and Regulations.

Firearms Procedures will be explained to all personnel at the Worker Orientation Seminars and reinforced during the daily tailgate meetings.

All onsite ammunition will be stored and controlled by the Health & Safety Coordinator.

The Health & Safety Coordinator will dispense ammunition to Wildlife Monitors or other authorized personnel on an as-needed basis.

All authorized firearm carriers will only be allotted a determined ration of ammunition that will be replaced if used.

Wildlife monitors will normally carry 12 gauge shot guns although some wildlife monitors will also carry rifles.

In accordance with the Wildlife Response Procedures shotguns will be loaded with 5 shells in the following order:

- Solid shell – 5th shot
- Solid shell – 4th shot
- Rubber shell – 3rd shot
- Detonating shell – 2nd shot
- Detonating shell – 1st shot

Rifles will **ONLY** be used as a last resort in a life-threatening situation.

HUNTING IS PROHIBITED