

Appendix 2-D

Power Storage Facilities

PROJECT NUJIO'QONIK
Environmental Impact Statement



**PROJECT NUJIO'QONIK
Power Storage Facilities**

August 2023

Prepared for:



Prepared by:

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File: 121417575

Table of Contents

1.0 Battery Energy Storage..... 1

2.0 Thermal Battery Storage 2

3.0 Renewable Diesel or Bio-Diesel Power Generator 4

4.0 Salt Cavern Compressed Air Energy Storage 5

List of Tables

Table 2.1 Rondo Heat Battery Technical Specifications.....3

List of Figures

Figure 2.1 Thermal Storage Process2

Figure 2.2 RHB100 (left) and RHB300 (right).....3

Figure 4.1 Hydrostor’s Advanced Compressed Air Energy Storage Process6



PROJECT NUJIO'QONIK
Power Storage Facilities
Table of Contents
August 2023



1.0 Battery Energy Storage

Battery storage is particularly relevant to support the grid balance as it creates the ability to store power at times of excess and release it at times of deficit and high demand, which is critical to balancing supply and demand for the Project. Lithium-ion battery storage currently dominates the market, as it is the most commercially favourable form of energy storage to date. Lithium-ion battery storage has greater efficiency and flexibility, faster response times, and lower costs overall than most other storage systems.

In the charging phase, the battery converts electrical energy supplied by an external source into chemical energy: a reaction occurs which causes lithium ions to migrate to the anode. During discharge, the opposite happens, allowing a current to circulate. The main technical parameters of a battery are:

- The maximum amount of energy storage, in kWh or MWh
- The maximum power that the battery can supply (i.e., the instantaneous magnitude, expressed in kW or MW)
- The degree of decay in the above parameters (linked to the battery lifetime), in number of charge / discharge cycles

For the Project, it is estimated that a battery system set-up of around [160 MW / 250 MWh] would suffice to manage the intermittent production of the wind farm.



2.0 Thermal Battery Storage

The Project is investigating storing power through a heat battery developed by Rondo Energy Inc. The Rondo Heat Battery (RHB) is a drop-in replacement for fossil-fired boilers and converts intermittent wind and solar power into a supply of continuous industrial heat and power. A visual flow diagram of the process is shown in Figure 2.1. The RHB uses electric heating elements, like those in a toaster or oven, to turn power when it is available into high-temperature heat. Integrating the RHB with a steam turbine converts intermittent renewables into a baseload electricity supply to control grid energy and demand charges, enhance resiliency, and satisfy heat loads.

Electrical heaters (Joule heaters) convert electrical energy into heat at 100% efficiency, and interact smoothly with grid and off-grid generation. When power is available, the electrical heaters glow brightly and warm objects around them rapidly. Thousands of tons of brick are heated directly by this thermal radiation and store energy for hours or days with low loss (less than 1% per day).

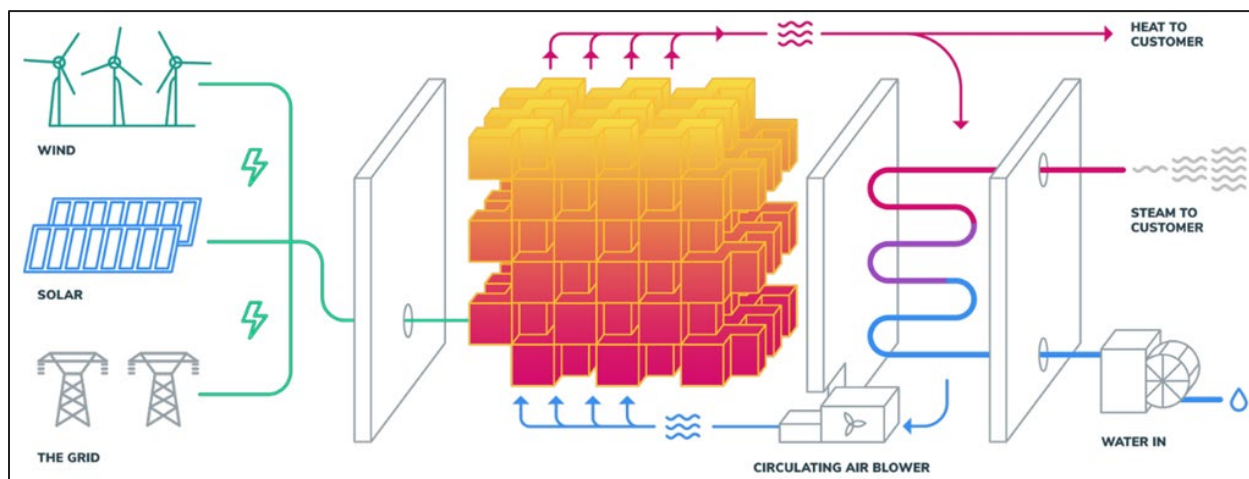


Figure 2.1 Thermal Storage Process

Power and heat are delivered whenever it is needed, on demand, start-stop or continuously. When power and heat are wanted, air flows up through the brick stack and is superheated to over 1,000°C. The heat delivery rate is adjusted easily by changing air flow. Heat at the outlet is delivered at exactly the desired temperature via automated Artificial Intelligence patented controls. The air is eventually recycled back through the system, reducing heat loss and maximizing efficiency. Heat is delivered as superheated air or as superheated steam. RHBs delivers heat at the exact temperature and pressure to meet facility demands. The heat battery easily integrates into existing infrastructure.

The RHB comes in two models – the RHB100 and RHB300 – ready to be deployed and are scalable (Figure 2.2). The technical specifications of the RHB are included in Table 2.1.





Figure 2.2 RHB100 (left) and RHB300 (right)

Table 2.1 Rondo Heat Battery Technical Specifications

Parameter	RHB100	RHB300
Typical daily output	160 MWh 545 MMBTU	480 MWh 1,630 MMBTU
Depth of Discharge	100%	100%
Max. Discharge Rate	Typical 7 MWth Configurable up to 10 MWac	Typical 20 MWth Configurable up to 30 MWac
Energy Storage Capacity	130MWh	340 MWh
Typical Charge Rate	Typical 0 to 20 MWac Configurable up to 0 to 30 MWac	Typical 0 to 70 MWac Configurable up to 0 to 100 MWac
Number of Cycles	Unlimited, 40 years	Unlimited, 40 years
Round Trip Efficiency	> 98%	> 98%
Typical Connections Electrical – 3-phase	4,160 V	20 to 24 kV
Temperate Range	80°C to 1,500°C	80°C to 1,500°C
Dimensions	40(L) / 30(W) / 30(H) in feet 13(L) / 10(W) / 10(HJ) in metres	100(L) / 30(W) / 30(H) in feet 30(L) / 10(W) / 10(HJ) in metres
Notes: MWh = Megawatt-hour kV = kilovolt W = width HJ = MMBTU = Million British Thermal Units MWac = Mega-Watt, Alternating Current °C = degree Celsius MWth = thermal megawatt L = length H = Height		



3.0 Renewable Diesel or Bio-Diesel Power Generator

The Project also has the option to include a renewable diesel generator to provide baseline power to maintain turn-down operations at the ammonia plant, protect the solid-oxide-electrolyzer from total shutdown, and sustain the operational instruments. The generator, estimated at a net required 50 MW capacity, will provide sufficient power to support the above mentioned needs during periods of low wind power production. The renewable diesel will have a low carbon intensity at less than 17 grams carbon dioxide per megajoule (gCO_2/MJ) (conventional diesel has a carbon intensity of over 100 gCO_2/MJ) and a stack height of 3.7 m (12 feet). The diesel generator will likely be designed similar to a peaker plant to provide maximum flexibility as the load demand fluctuates.



4.0 Salt Cavern Compressed Air Energy Storage

The Project has been evaluating storing power through CAES in salt caverns in the vicinity of the hydrogen / ammonia plant's location. The salt caverns under consideration are approximately 26 km south from of Town of Stephenville. TriplePoint Resources Ltd., based in St.-John's, NL, owns the Fischell's Brook Salt Dome mineral rights (NL's only known salt dome), a total of 226 km² of mineral licenses prospective for salt on the west coast of the Island of Newfoundland. TriplePoint Resources Ltd. intends to build, own, and operate a multi-cavern storage facility. Hydrogen and/or power can be stored in the salt cavern.

CAES is a way to store electrical power for later use using compressed air. At utility scale, energy generated during periods of low energy demand (off-peak) can be released to meet higher demand (peak load) periods. CAES is a proven technology, with several plants up and running for multiple years. In a CAES plant, ambient air or another gas is compressed and stored under pressure in an underground cavern. When electricity is required for the production of hydrogen, the pressurized air is heated and expanded in an expansion turbine driving a generator for power production.

CAES (and hydrogen) can be produced and injected into the caverns quickly and removed quickly, which will support emergent or peak needs for air to power, or as subsistence for wind to electrolyzer generation or other utility requirements. The TriplePoint caverns will be large enough to allow for the continuous generation of products that typically lowers the cost of operation and production. In addition, the caverns can deliver stored energy quickly to service variable load demands making it an efficient "battery" for a wind to hydrogen project. Use of the caverns could the Project to operate with reduced or no pressure spheres at surface. This reduces both the Project footprint and the ecological and environmental effects to the land base. Although caverns are initially expensive to wash, they have lower ongoing costs of maintenance, especially for hydrogen storage, and substantially longer lifecycles with less operational risk compared to pressure spheres.

Hydrostor, founded in 2010 and head quartered in Toronto, Ontario, has developed the Advanced Compressed Air Energy Storage (A-CAES) technology, which builds upon traditional CAES by using thermal storage for heat generated during compression and offers siting flexibility due to the hard rock caverns optionality. A-CAES can be deployed at utility scale while offering similar power flexibility rates as flywheels or Lithium-ion battery energy storage systems. The process from air compression to energy storage of the A-CAES technology is shown in Figure 4.1.

A-CAES is comprised of the following steps:

1. **Compression:** Off peak or renewable electricity powers a compressor, which produces heated, compressed air
2. **Heat Exchanger:** Heat is extracted from the air and captured by the thermal management system for reuse
3. **Air Pump:** Air is pumped down the shaft into a water filled cavern
4. **Water Displacement:** Compressed air forces water up the shaft to the surface reservoir
5. **Fully Charged State:** Once the reservoir is filled the plant is ready to provide electricity on demand



PROJECT NUJIO'QONIK
Power Storage Facilities
4.0 Salt Cavern Compressed Air Energy Storage
August 2023

The Fischell Brook salt dome is a subterranean high density, zero permeability salt deposit large enough to allow for the creation of more than 10 large caverns, with an opportunity to wash additional smaller volume caverns. The larger caverns can individually store up to 1 million m³ or more of compressed air or green hydrogen safely. TriplePoint is planning to develop caverns that will vary in size from 500,000 m³ to 1 million m³. The company's initial cavern developed will likely be approximately 500,000 m³, with future caverns developed to suit project requirements for CAES and hydrogen. Caverns in the Fischell Brook salt dome are estimated to be able to provide approximately 500 MW and 8 to 14 hours of storage per cavern, which would be more than sufficient for the Project to manage intermittent wind energy production.

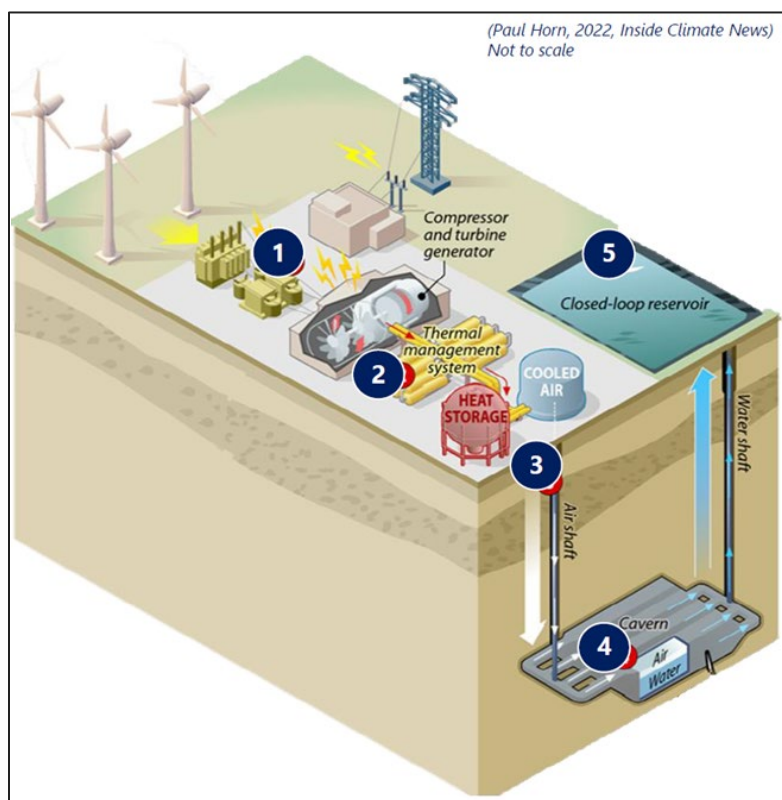



Figure 4.1 Hydrostor's Advanced Compressed Air Energy Storage Process



Appendix 2-E

Annotated Table of Contents of Environmental Protection Plan

PROJECT NUJIO'QONIK
Environmental Impact Statement

	Environmental Protection Plan		Doc Number: WE-GH2-QTY-L1-002	
	Version 0.1		07-31-2023	Page 1 of 4



Project Nujio'qonik **Environmental Protection Plan** **Annotated Table of Contents**

Document No	WE GH2-QTY-L1-002	Current Revision	V0.1
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Table 1. Annotated Table of Contents Environmental Protection Plan for Project Nujio'qonik

Section	Description
Introduction	<p>Introduces the EPP, provides a brief description of the Project's location and Project description overview including:</p> <ul style="list-style-type: none"> Construction, operation, and maintenance activities throughout the lifespan of the Project. The registration process and permit requirements. The purpose and organization of the EPP, the procedures, responsibilities and actions, mitigation measures, contingency planning, and the training requirements.
Purpose and Objectives	<p>Outlines the purpose and objectives of the EPP, describing how it will be used by staff and why it is required.</p>
Project Description Overview	<p>Provides an overview of the Project activities and components.</p>
Organization (Development & Implementation)	<p>Provides an annotated list of the sections of the EPP, summarizing the organization of the document.</p>
World Energy GH2 Environmental Policy	<p>States and describes the adopted Environmental Policy and how WEGH2 is committed to environmental protection and community engagement.</p>
Roles and Responsibilities	<p>Lists the roles and responsibilities of the:</p> <ul style="list-style-type: none"> WEGH2 management team. WEGH2 staff. Environmental compliance personnel. Contractors/Subcontractors. Regulators.
Regulatory Requirements	<p>Outlines the regulatory requirements at the Federal, Provincial, and Municipal levels that apply to the Project. Reference will be made to the respective Acts, Regulations, and Bylaws at these levels.</p> <p>Lists the approvals, authorizations, and permits that may be required.</p>
Environmental Compliance Monitoring	<p>Describes site inspections and compliance monitoring requirements, as well as requirements for reporting and communication.</p> <p>Outlines the responsible personnel and appropriate timing of site inspections and provides an overview of the detail recorded during the site inspection.</p> <p>Outlines the responsible personnel for compliance monitoring and the types of Project activities that may be monitored to comply with</p>

	applicable regulatory requirements and proper implementation of environmental protection procedures.
Environmental Protection Procedures	<p>Potential environmental concerns and the environmental protection procedures implemented during Project activities will be described in detail for the applicable Project phase. At a minimum, environmental protection procedures for the following Project activities/environmental concerns (e.g., major construction, operational and maintenance activities for the lifespan of the Project) will be outlined:</p> <ol style="list-style-type: none"> 1. Sensitive Timing Windows 2. Buffer Zones 3. Surveying 4. Clearing of Vegetation 5. Grubbing and Overburden Material Management 6. Work in or Near Freshwater Environment 7. Watercourse Crossings – Fording, Culverts, and Bridges 8. Linear Developments 9. Quarrying and Aggregate Removal 10. Equipment Use and Maintenance 11. Excavating, Backfilling, and Grading 12. Erosion Prevention and Sediment Control 13. Storage, Transportation and Handling of Fuel and Other Hazardous Materials 14. Solid Waste Disposal 15. Wood Treatment 16. Works in or Near Marine Environment 17. Marine and Shoreline Drilling 18. Sewage Disposal 19. Concrete Batch Plant 20. Borehole and Water Well Drilling 21. Blasting 22. Lighting 23. Noise Control 24. Dust Control 25. Pumps and Generators 26. Vegetation, Wildlife, and Avifauna Management 27. Marine Traffic 28. Vehicular Traffic 29. Air Emissions (Including Greenhouse Gas Emissions) 30. Protection of Rare and at-Risk Plants
Area Specific Environmental Protection Plans	Lists the specific construction activities, environmental issues, environmental protection procedures and monitoring requirements for each Project area.
Environmental Mitigation Measures	Each Project activity/environmental concern will be categorized in a table with each respective mitigation(s). Whether the mitigation(s) will

	take place during construction, operation or maintenance will be selected with a checkbox.
Contingency Planning	Outlines contingency plans for fuel and hazardous material spills, wildlife encounters, failure of erosion and sediment control measures, fires and explosions, extreme weather, and discovery of historic resources. Plans such as Emergency Response Plan and Spill Prevention Response Plan will also be developed, under separate cover.
Document Management (Revision Procedures)	Outlines the process of how the document is managed by means of the distribution, maintenance, revisions and training.
Contact Lists	Contains a list of key contacts relevant to the EPP.
References	Contains a list of references cited in the EPP, and other relevant sources of additional information.
Signature Page	Corporate signature page accepting the EPP.

Appendix 2-F

Emergency Response / Contingency Plan

PROJECT NUJIO'QONIK
Environmental Impact Statement



Emergency Response / Contingency Plan

<i>Document No</i>	WE GH2-ERP-01	<i>Current Revision</i>	1
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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 2 of 74


Table of Contents

1.	Introduction	5
1.1	General Information	5
1.1.1	ERP Information	5
1.1.2	Operations Information	6
1.2	Emergency Response Priorities	8
1.3	Hazard Recognition and Assessment	8
1.4	Evacuation / Muster Point	9
2.	Emergency Response Guidelines	10
2.1	ERT Organizational Structure	10
2.2	Duties of Emergency Response Team Members	10
2.3	Responsibilities for Level 1 Response	11
2.4	Responsibilities for Level 2 Response	14
2.5	Personal Protective Equipment (PPE)	22
2.6	Emergency Response Plan Coordination, Maintenance, Approval, and Responsibilities	23
2.7	Emergency Procedures	25
2.7.1	Injury	25
2.7.2	Spill or Release	29
2.7.3	Flaring / Venting	31
2.7.4	Fire/Explosion	32
2.7.5	Vehicle Accident on Site	33
2.7.6	Dislodging of Wind Tower or Turbine Blade	34
2.7.7	Fire/Explosion in Wind Turbine	34

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 3 of 74

2.7.8	Wind Tower Rescue	35
2.7.9	Bomb Threat	36
2.7.10	Flooding	36
2.7.11	Tornado	39
2.7.12	Hurricane	40
2.7.13	Thunderstorm and Lightning	41
2.7.14	Winter Weather	42
2.7.15	Earthquakes	42
2.7.16	Wildlife Emergencies/Incidents	44
2.7.17	Failure of Industrial Water Supply	45
2.7.18	Energy Generation/Transmission Failure	45
2.7.19	Shelter in Place	46
2.7.20	Building Evacuation	47
2.7.21	Critical Operation	48
2.7.22	Termination Procedures	48
3.	Emergency Contacts	50
3.1	Joint Capacity of Nearby Communities to Respond to Incident	50
3.2	Regulatory Reporting Guidelines	51
4.	Additional Resources	52
5.	Plan Review and Update	53
6.	Site Information	54
6.1	Site Plot Plan Contents	54
6.2	Emergency Response Equipment	55
7.	Safety Data Sheets	56


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All printed copies shall be considered uncontrolled

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 4 of 74

8.	Employee Review	57
	Appendix A: World Energy GH2 Safety Procedures	58
	Appendix B: Site Plan	61
	Appendix C: Emergency Equipment Supplies, Inspection and Fire System Inspection Requirements	62
	Appendix D: Reporting Requirements – OHS and Environmental Incidents	70
	Appendix E: Planning Checklists and Forms	73

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 5 of 74

1. Introduction

1.1 General Information

1.1.1 ERP Information


World Energy GH2 is committed to providing a safe and healthy work facility for its employees, the surrounding community, and the environment. The identification of potential emergencies and vulnerabilities, prevention of those emergencies and ensuring preparedness to respond is of utmost importance and shall be the priority for all persons working at the facility. It is anticipated that accidents, injuries, and emergencies may still occur. This Emergency Response Plan (ERP) will provide guidelines for a coordinated emergency management system in the facility to respond to such situations. The ERP utilizes proven techniques of the Incident Command System. When situations dictate, the system will utilize the combined effort from all departments, mutual aid groups, and municipal agencies to mitigate emergency incidents in a safe, effective, and timely manner. Mutual Aid Agreements will be established with local and provincial groups as project development progresses.

An emergency, for the purpose of this document, is defined as any potential or real situation that may result in serious injury, loss of life, property damage, such as fire, explosion, or damage to the equipment and/or potential impact on the environment, such as a spill or release of a hazardous substance (e.g. ammonia or a fuel spill).

Section 4 of the National Fire Code states that any facility involved in the storage, handling or use of flammable and combustible liquids must have an Emergency Response Plan (ERP) on site.

The National Fire Code also states that fire drills must be conducted, and the Plan must be reviewed at intervals no greater than 12 months.

All personnel directly involved with the operation of the site will become familiar with the site's ERP. Training will be provided in appropriate emergency response procedures and drills will be conducted at least once a year to test the adequacy of the overall ERP and to ensure that workers are familiar with their roles and responsibilities. The Hazardous Material Response Team will train more often based on the Hazardous Material Response and Training Plan. The Emergency Response Team

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 6 of 74

(ERT) does not engage in interior structural fire suppression activities. ERT members are solely charged with defensive activities.

All Site Staff will receive annual fire extinguisher and spill response training. In addition, they will receive instruction in fire prevention and emergency evacuation procedures for the facility. All employees tasked with firefighting responsibilities will be provided training in fire suppression methods, fire prevention, emergency procedures, organization and chain of command, firefighting crew safety and communications as defined with the National Fire Protection Association standards. This training will be provided at intervals no greater than 12 months.


The Training Coordinator will ensure that enough employees are trained to assist in the safe and orderly evacuation of employees during an emergency. Employees also are trained annually on the Incident Command System via classroom training and subsequent spill drill.

1.1.2 Operations Information

The operations include a hydrogen and ammonia production facility at a brownfield site at the Port of Stephenville, two onshore wind farms along Newfoundland (NL) and Labrador's low-density populated west coast and a later phase expansion wind farm and supporting infrastructure and facilities.

Whenever a hazard is recognized, the potential for loss of human life, including the employee responding to the hazard, must be carefully evaluated as part of the sequence of response actions. As the facility uses electrolysis to generate hydrogen, which in turn is used to produce ammonia for export it is important for emergency response planning to address potential risks / hazards associated with this process. These two processes and resulting products are described in further detail below:

Hydrogen: Hydrogen is produced using an electrolyzer plant, which uses renewable electricity to separate hydrogen from purified water. By applying an electrical current through water (H₂O), it is possible to split the hydrogen (H₂) and oxygen (O₂) molecules apart. The hydrogen is then a gas which can be captured, purified, and compressed for direct use, storage, or distribution. The oxygen may be captured for other uses or safely vented to the atmosphere. The hydrogen will be transported to the ammonia production loop by appropriate/engineered piping. There will be onsite storage of hydrogen, used to buffer flow between the electrolyzer and ammonia units. It will be stored in the


	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 7 of 74

gaseous state in stationary aboveground storage, consisting of multiple cylindrical steel composite pressure vessel(s) which may be mounted in a frame and installed on a concrete foundation.

Flammability and explosion are the primary hazards associated with the use of gaseous hydrogen, and the wide flammability range and the low energy required for ignition dictate special handling to prevent mixing with air. A hydrogen fire may have a practically invisible flame, which makes it hard to recognize either the flame itself or its source of release. Ignition sources such as sparks from electrical equipment and sources of static electricity, open flames, and extremely hot objects must be removed from the vicinity of gaseous hydrogen sources to preclude inadvertent ignition. Vent systems are designed to assure the hydrogen is exhausted to a safe location and are designed to prevent backflow.

Ammonia: Ammonia is synthesized in a processing unit known as a "Haber Bosch" unit. A Haber Bosch unit combines hydrogen with nitrogen extracted from the air using the air separation unit (ASU). The hydrogen and nitrogen are raised to high temperature and high pressure in the presence of an iron catalyst to form ammonia. The ammonia produced will be liquified by refrigeration and delivered by piping to the existing marine facility in the port of Stephenville where it will be transported overseas. Before transport, ammonia will be stored in double-walled, insulated, low pressure tanks with a refrigeration to maintain temperatures.

Ammonia is classified as a liquefied, flammable, and corrosive gas in accordance with the International Fire Code (IFC) and National Fire Protection Association's (NFPA) definitions. Per the Globally Harmonized System (GHS) it is a Category 2 Flammable Gas (based on a Lower Explosive Limit >14 v/v%, a Category 1B Skin Corrosive because of a corrosive response in less than 1 hour, and a Category 4 Acute Toxicity due to an inhalation toxicity of ~3700ppm over 4 hours). However, standards for personnel exposure are stricter and will be followed. The American Conference of Governmental Industrial Hygienists (ACGIH) provides short term exposure limit (STEL) guidelines of 35 ppm (applicable for a period of 5 to 15 minutes) and a time weighted average (TWA) limit of 25 ppm. The applicable codes and standards for the production and storage of ammonia are NFPA 55 and API 620. These standards guide the design of the storage facilities and the safety systems required to prevent harm to people and the environment.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 8 of 74

1.2 Emergency Response Priorities

Priorities in an emergency response situation are (in this order):

1. PEOPLE - The safeguarding of people and human health;
2. ENVIRONMENT - The protection of the environment and ecosystems;
3. PROPERTY - The protection of physical assets;
4. REPORT AND DOCUMENT – Inform all needed as per communication guidelines in section 3.1 of this document, complete and submit necessary reports to governmental agencies, keep necessary documentation relating to the event, take pictures, etc.

1.3 Hazard Recognition and Assessment

Effective ERP planning requires a clear identification of factors that may contribute to emergencies, types of potential emergencies and assessment of risk of each. The ERP Planning Committee has coordinated and held Preliminary Risk Identification and Mitigation Planning workshops to identify all project operational risks to which this ERP must respond. The risk assessment included the identification, frequency and severity of each risk exposure for which a response procedure is needed. The ERP Planning Committee oversees these risk assessments to drive prevention measures, standards, and protocols that HSE Department will put in place before Operations commence.


The project continues to develop following recognized good engineering practices to identify and mitigate risks / hazards through out the design, construction and operation phases. Process / operational risks are greatly influenced by early engineering decisions. The primary method of identifying and mitigating process risks is through the PHA process (Process Hazards Analysis). This is a study of process hazards that include methods like What-If, HAZID (hazard Identification), and HAZOP (Hazard and Operability Analysis). The latter is a structured and systematic technique for identifying possible hazards during operation and maintenance.

Engineering documents, primarily the P&IDs (Piping and Instrument Diagrams), are periodically issued by the engineering contractor and reviewed by representatives from all parties and disciplines to identify possible concerns. The earlier such concerns are identified and corrected, the less impact they have on the project's cost and schedule. The HAZOP is conducted once the design has progressed to a firm state, typically towards the end of FEED. Changes that occur post-HAZOP are formally recorded and reviewed/approved to ensure they do not conflict with the HAZOP recommendations or create new risks. The project team works to design safety measures into the overall facility design. Situations may arise that pose a hazard to personnel, the environment and/or the facility. The normal human response to an emergency situation is to “jump

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 9 of 74

right into action.” Far too often this can lead to worse situations than the emergency itself. Immediately upon realizing that an incident is of emergency nature, it is important for an employee to determine the potential hazards BEFORE taking any action.


1.4 Evacuation / Muster Point

A muster point is a pre-designated meeting place where employees are to gather in the event of an emergency when site evacuation is required. In this manner, all site employees can be accounted for.

The muster point should be located at a safe distance and should be known to all employees. Muster locations will be designed specifically to account for wind dispersion of any potential ammonia vapor release as project development progresses.

This muster point will be clearly indicated in the site Plot Plan in the Appendix of this document.

A secondary muster point will be added on all site Plot Plans in Appendix of this document in the event of an emergency that makes the first muster point a dangerous place to gather.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 10 of 74

2. Emergency Response Guidelines

2.1 ERT Organizational Structure

A trained Emergency Response Team staff is available 24 hours per day to respond to emergencies such as medical, fire, and emergency releases. Each work shift shall have a fully staffed Emergency Response Team (ERT).

The Safety Department selects and trains the emergency first response team. This Emergency Response Team consists of at least ten members from the hourly and salaried employees. The ERT will include at least three firefighters and one fire officer on staff at all shifts, with a call-in for working incidents. In addition, these staff members' regular job duties will include overall site security for the facility.

The team consists of three levels of ERT membership. These levels are:


- ERT 1 - Emergency Response/ HazMat Operations I/Rescue Response Team
- ERT 2 – Operations Chief / Safety Officer
- ERT 3 – Incident Commander

Any member of the Emergency Response Team who is not trained on any of the requirements will not respond to that particular scenario or that part of the response. For example, if a member joins the team and will not receive training for fire suppression until a later date, he/she will serve only in a support-type role for the team and not in the fire or hazardous area.

2.2 Duties of Emergency Response Team Members

At the sound of the emergency alarm, the Emergency Response Team will assemble at the Incident Command Post as directed by the incident. If the Incident Command Post is not set up, they will assemble outside the ERT Storage Box for pre-planning and instructions.

A designated person will record the identities of the responders, using a sign-in sheet, and turn them in to the Incident Commander to account for all members at the scene.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 11 of 74

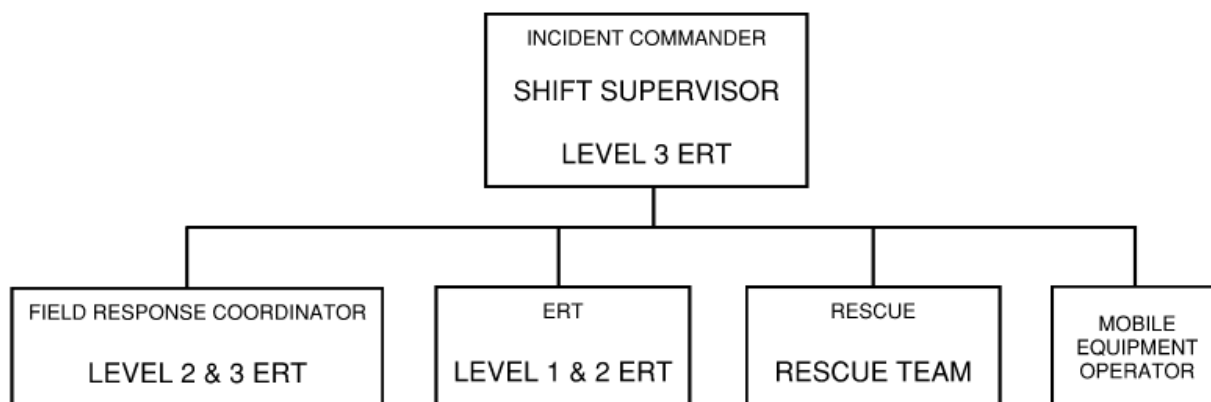
Emergency Response Team members who are on shift will report immediately to the Incident Commander. Emergency Response Team members, who are off duty, will contact the guard house and be available to respond to a call-out by the Incident Commander.


Emergency Response Team members who are called out to an incident shall respond and will ask the Guard house Staff or Shift Supervisor for any special instructions left by the Incident Commander (wind direction, direction of approach, special P.P.E. required, etc.).

2.3 Responsibilities for Level 1 Response

The following provides an overview of the organization of the Emergency Response Team (Tactical) and the Emergency Management Team (Strategic/Support).

The Emergency Response Team will be activated when the emergency alarm is sounded or when the Shift Supervisor deems that an emergency exists.



	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 12 of 74

Emergency Response Personnel Responsibilities:


INCIDENT COMMANDER (TACTICAL RESPONSE)	
STAFFED BY:	Shift Supervisor
LOCATION TO REPORT:	Command Post/Determined by the Incident Commander
BASIC FUNCTION:	Coordinates overall emergency and tactical response activities

- Establishes the Command Post and makes contact with the Operations Chief. Determines safe location of the Command Post/Staging Area after receiving input from all initial sources.
- Dons Personal Protective Equipment (PPE) (Minimum: Turnout gear) and prepares to size up and conduct a SCENE ASSESSMENT with the Operations Chief.
- Determines jointly with the Operations Chief the need for additional assistance based on initial evaluation and scene assessment. (Escalation to Level Two 2 Response, informing Environmental Department of the situation, etc.).
- Determines which muster point is the safest, and commands the non-emergency staff to report to that muster point
- Advises the Operations Chief of actions being performed from a process operation standpoint and identifies any hazards that may exist.
- Evaluates jointly with Operations Chief the need for the evacuation of any area affected by the emergency inside and outside plant fence lines.
- Directs the safe shut down of the affected equipment as appropriate.
- Ensures security by authorizing entry of emergency personnel only into the emergency area.
- Determines need to block roads both inside and outside site fence lines.
- Determines tactical plan and communicates this plan to the Emergency Response Team.
- Meets lead of local emergency services upon his/her arrival at the Command Post.
- Coordinates jointly with the lead and all responding local emergency services personnel and equipment.
- Continues to evaluate proper utilization of emergency manpower and resources.
- Determines jointly with the Operations Chief when normal operation "All Clear" may be announced by the guard house.
- Prepares an EHS First Report and submits the report by end of shift.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 13 of 74

OPERATIONS CHIEF	
STAFFED BY:	Level 3 ERT Member
LOCATION TO REPORT:	Determined by Incident Commander
BASIC FUNCTION:	Coordinates the safe operation with the affected unit or area.

- Reports to the command post and establishes contact with the Incident Commander.
- Dons PPE (minimum: turnout gear) and prepares to enter the emergency site with the Incident Commander.
- Works closely with the Incident Commander to finalize decisions necessary to secure the emergency.
- Coordinates appropriate area air monitoring for LEL, toxic atmospheric contaminants, oxygen content, etc.
- Determines appropriate level of PPE for ERT members and anyone authorized to enter the affected area.
- Coordinates periodic atmospheric monitoring during the emergency.
- Coordinates and directs the Emergency Response Team and any additional emergency mobile equipment.
- Directs RESCUE, HAZMAT or medical efforts as needed.
- After an "All Clear" has been called, directs the ERT to return all emergency equipment to a ready condition.
- Supports HAZMAT team as needed.
- Determines jointly with Incident Commander "All Clear."
- Participates in Post Emergency Critiques.


MOBILE EQUIPMENT OPERATOR	
STAFFED BY:	Level 2 or 3 ERT Member
LOCATION TO REPORT:	Fire Station
BASIC FUNCTION:	Operates all mobile firefighting equipment and assists the Incident Commander as necessary.

- Directed by Incident Commander to proceed to the fire station or designated location, dons turnout gear, and reports to the command post and the Incident Commander.
- Prepares any anticipated mobile firefighting equipment.
- Responds to the staging area with appropriate response equipment as directed by the Incident Commander.
- Works with ERT in deploying firefighting equipment as directed by the Operations Chief.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 14 of 74

- Assists the Field Response Coordinator with area atmospheric monitoring as necessary.
- Responds to HAZMAT incident and participates in HAZMAT operation level activities as directed by the Incident Commander.

EMERGENCY RESPONSE TEAM	
STAFFED BY:	ERT Level 1 and 2
LOCATION TO REPORT:	Command Post
BASIC FUNCTION:	Assists with the operation of emergency equipment. Provides manpower to perform offensive or defensive emergency response tactics.

- Reports to Command Post/Staging area and checks in with Incident Commander.
- Dons turnout gear.
- Enters the affected area and performs emergency response duties as directed by the Operations Chief.
- Responds to HAZMAT incidents and participates in HAZMAT operations level activities as directed by the Incident Commander.
- Assists with post emergency operations ensuring that emergency equipment is back in ready service.
- Participates in formal critique session.

2.4 Responsibilities for Level 2 Response


The purpose of the Emergency Management Team is to provide assistance to the Emergency Response Team (ERT) during emergencies which are severe in nature and exceed the capabilities of the ERT. Examples of these incidents include:

- A highly visible event which may result in a response by the news media or a regulatory agency.
- Any significant environmental emergency or hazardous materials release which exceeds the facility boundaries or which may pose a health threat to the community or the environment.
- Any significant civil disorder, intruders into the facility, bomb threats, etc. that threatens employees or company property.
- Any significant natural disasters.

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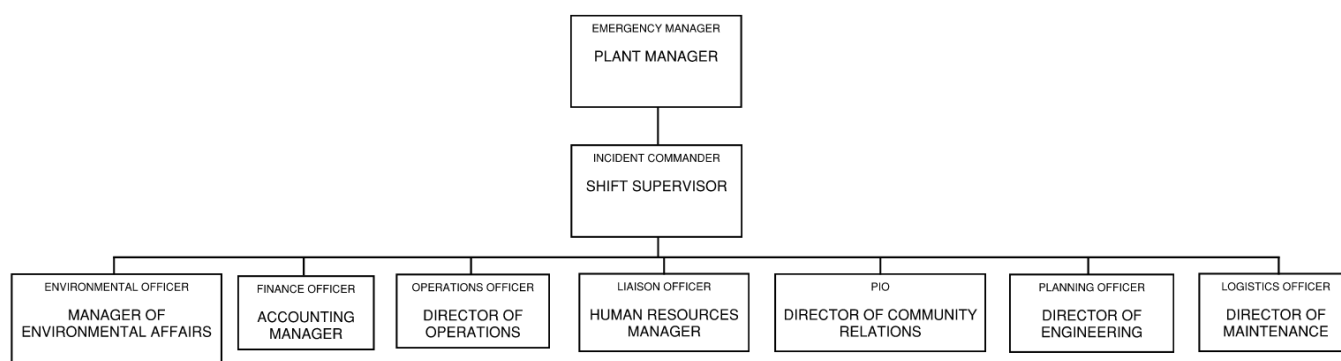
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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 15 of 74

- Any severe fire or emergency release with which the ERT Incident Commander has determined he/she will need assistance in managing peripheral emergency activities.
- Any fatality or serious disabling injury.

The activation of a Level 2 Situation is identified by one long blast on the plant emergency whistle followed by an announcement on the site radio, emergency channel. This announcement will be made by the Shift Supervisor.

The Emergency Management Team shall be activated, with input from operations, solely by the Incident Commander based on his/her assessment of the situation. Emergency Management Team members shall report to the site Emergency Management Center and prepare to assist ERT Personnel. Emergency Management Team positions are described below:



	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 16 of 74

Emergency Response Personnel Responsibilities:

INCIDENT COMMANDER	
STAFFED BY:	<u>On-Duty</u> Shift Supervisor The Incident Commander will be the <u>On-Duty</u> Shift Supervisor up to the time a Level 2 situation is initiated.
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Assumes overall responsibilities for the coordination of the Emergency.

- Provides overall coordination of the response activities.
- Reports to the Incident Command Site.
- Receives briefing from the On-Duty Shift Supervisor or the Operations Chief as appropriate.
- Verifies that all Incident Command positions are staffed and functioning.
- Requests necessary support from other Incident Command staff persons.
- Maintains updated status of emergency situation.
- Predicts probable course of events and assist Operations Chief in developing abatement and mitigation measures.


OPERATIONS CHIEF	
STAFFED BY:	Director of Operations/Unit Area Manager
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Coordinates the safe process operation of the plant.

- Reports to the Incident Command Site (ICS).
- Receives briefing from the Emergency Management Team personnel on-site.
- Provides process operations managerial and tactical support to the Incident Commander such as product transfer, isolation, and de-pressurization of equipment.
- Provides the Incident Commander with process operational information updates relevant to emergency response activities.
- Provides for the continued safe operation or shutdown of plant process facilities.
- Assists in post emergency re-startup of the process following Process Safety SOPs

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 17 of 74

PLANNING CHIEF	
STAFFED BY:	Director of Engineering
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Provides engineering and other technical support to the Emergency Management Team.

- Reports to the Incident Command Site for a briefing.
- Provides technical information and resources such as P&ID, block flow diagrams, plot plans, etc.
- Assists in developing press releases.

LIAISON OFFICER	
STAFFED BY:	Human Resources Manager
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Coordinates overall site operation.

- Reports to the Incident Command Site for a briefing.
- Acts as liaison with law enforcement officials and coordinates all outside evacuations and road blocking as instructed by the Incident Commander within 10 minutes of the initial request.
- Maintains headcount from the Area coordinators if an evacuation has occurred.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 18 of 74

EMERGENCY MANAGER	
STAFFED BY:	Plant Manager
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Provides communication link between facility and outside agencies and surrounding community.

- Reports to the Incident Command Site for a briefing.
- Ensures all Incident Command positions are staffed and functioning.
- Directs staff planning sessions.
- Approves press releases in the absence of the Chief Executive Officer.
- Briefs company officials including the CEO and assists in the development of a company strategy for mitigation of the incident.
- Schedules and directs post emergency debriefing and planning session with all members of the Emergency Management Team.
- Prepares to interface with city officials on behalf of the Company.
- Coordinates with the Planning and Economic Department and oversees the planning activities relevant to resumption of normal operations.


FINANCE CHIEF	
STAFFED BY:	Accounting Manager
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Tracks and records financial expenditures related to the emergency.

- Reports to the Incident Command Site for a briefing.
- Monitors and documents financial costs data relating to the emergency activity.
- Establishes contact with the Warehouse Manager and sets up cost tracking for warehouse supplies.
- Coordinates insurance notification as needed.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 19 of 74

- Coordinates legal support and assistance.
- Coordinates insurance support, tracks claims, monitors and records all costs related to recovery activities, and performs damage analysis. **Note to Draft: Insurance Claim Procedures will be defined as the project progresses.**


LOGISTICS CHIEF	
STAFFED BY:	Director of Maintenance
LOCATION TO REPORT:	Incident Command Site (ICS)
BASIC FUNCTION:	Provides overall maintenance support to the emergency effort.

- Reports to the Incident Command Site for a briefing.
- Establishes communication center at the designated area as necessary.
- Provides for the procurement of outside materials, and equipment.
- Provides maintenance and contractor support as requested by Incident Commander or Emergency Management Team.
- Provides equipment resources such as vehicles, forklifts, backhoes, personnel transports, etc.
- Provides necessary equipment to refuel emergency vehicles and other applicable equipment.
- Provides portable generators and lighting as necessary.
- Provides for required support staff depending on the emergency situation.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 20 of 74

SAFETY OFFICER	
STAFFED BY:	Safety
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Monitors and assesses hazardous and unsafe situations and develops measures for ensuring personnel safety.

- Establishes a direct communication line with the Incident Commander.
- Reports to the Incident Commander for a briefing.
- Participates in strategy planning meetings.
- Identifies potentially unsafe situations with regard to the health and safety of the Emergency Response Team.
- Develops an on-site safety and health plan on an as-needed basis.
- Coordinates joint monitoring with municipal agencies. Activates Odor Patrol as deemed necessary.
- Provides for industrial hygiene support staff as needed.
- Provides qualified relief support for the Emergency Response Team.
- Establishes and oversees medical first aid site as needed and establishes an emergency triage at a designated area.
- Coordinates emergency medical services as needed, including notification and alerting of local ambulance services, MEDI-EVAC and local area hospitals.
- Arranges for additional security personnel and directs security efforts.
- Coordinates off-site community air monitoring program through the Environmental Unit Leader.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 21 of 74

ENVIRONMENTAL UNIT LEADER	
STAFFED BY:	Director of Environmental Affair
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Oversees environmental compliance issues in conjunction with the emergency response coordination.

- Reports to the Incident Command Site for a briefing.
- Consults with the Incident Commander on environmental issues.
- Acts as liaison with Federal, Provincial, and Local agencies concerning environmental issues.
- Oversees post emergency clean-up operations including off-site oil spill emergencies.
- Notifies the Provincial Emergency Response Centre and provides all required information including an estimate of the release volume.
- Assesses and documents anticipated environmental impact of the emergency following the Agency Notification Procedure.
- Evaluates the effectiveness of response activities in mitigating potential environmental concerns.


PUBLIC INFORMATION OFFICER	
STAFFED BY:	Director of Public Relations and Community Affairs
LOCATION TO REPORT:	Emergency Management Center (EMC)
BASIC FUNCTION:	Coordinates public and media strategy, and informs Command of any potential adverse issues.

- Establishes news media assembly area and briefing room at a designated location.
- Serves as contact person for provincial and federal agencies.
- Develops all press releases with the assistance of Emergency Management Officer as soon as they become available.
- Briefs all arriving safety and health regulatory agencies as necessary.
- Conducts an initial, follow-up and post incident statement with news media in coordination with company Chief Executive Officer or his/her designated alternate.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 22 of 74

- Maintains communications with news media persons and provides updated briefings and news releases. The initial briefing should be accomplished within 30 minutes of the on-set of the incident.
- Monitors news media broadcasts and advises the ICS of significant developments.
- Coordinates and supports incoming telephone calls and communications.
- Establishes a community toll free number.

2.5 Personal Protective Equipment (PPE)


The appropriate PPE (personal protective equipment) must be worn when handling potentially hazardous materials. The MSDS for the chemical should be consulted to determine the hazards associated with a chemical.

To ensure state of the art quality and maintain standardization, all Safety, and Emergency Response Equipment shall only be purchased with prior approval from the Safety Department. Safety shall continually research for better and more efficient PPE for emergency response.

Decontamination procedures for PPE used during a release or spill is located in the Hazardous Materials Response Operating Procedure.

Respiratory Protection

Self-contained breathing apparatus (SCBA) shall be made available to all personnel engaged in a plant emergency. NO personnel shall proceed beyond the Command Post without turnout gear and SCBA unless cleared by the Incident Commander.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 23 of 74

Turnout Gear

Turnout gear is required to be worn by "ALL" responders who are in the area of a fire or uncontrolled emergency release unless directed otherwise by the Incident Commander.

All ERT Members and Shift Supervisor shall be issued a full set of turnout gear consisting of the following:

- Helmet
- Gloves
- Pants
- Storage bag
- Hood
- Boots
- Coat

HAZMAT Suits


Level A (vapor suit) and B (splash protection) suits are available for an emergency response to HAZMAT-type incidents. These suits may only be utilized during emergencies by personnel trained in the proper donning and wearing of this type of equipment. Level A and B suits are maintained in the Rescue Van along with SCBA's and spare bottles.

2.6 Emergency Response Plan Coordination, Maintenance, Approval, and Responsibilities

Plan Coordination

The Safety Department is responsible for the coordination of the Emergency Response Plan with outside response agencies and mutual aid groups. In addition, Safety shall obtain internal and external reviews of the plan as appropriate and as described in this section.

The emergency response plans shall be written and maintained to comply with all applicable laws, rules, and regulations and to accommodate facility needs and company policy.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 24 of 74

Review and Approval

The Management Committee and appropriate department heads shall review and approve the initial Emergency Response Plan and subsequent changes or amendments made to the plan. The Safety Department shall establish and maintain communications with mutual aid groups to continue improving the Emergency Response Plan.

Responsibilities – Employees

Every person working at the site has some responsibilities under the Emergency Response Plan. Each person is responsible for ensuring that other employees, contractors, and visitors be familiar with the requirements of this plan. Furthermore, each person must report any emergency or potential emergency that he/she becomes aware of.


Departments

Each department is responsible for ensuring that sufficient preparations and arrangements are made for the department to respond to its various assigned responsibilities and to provide the necessary resources required by this emergency plan. Each department is also responsible for ensuring that its personnel is available to respond on a 24-hour basis to each named Incident Command System position.

Each department shall coordinate with the Safety Department in ensuring the availability of department personnel for compliance with all training requirements.

Safety Department

The Safety Department shall provide for the necessary emergency response training required by this plan or as requested.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 25 of 74

2.7 Emergency Procedures

The procedures listed below are to be followed by all employees in case of an emergency. Actions taken by the ERT are also included, where applicable. Each employee should identify their working area on the posted emergency evacuation map and note the nearest emergency exit, location of fire extinguishers, and First Aid Kits. All Area Coordinators are trained in First Aid, CPR, AED, fire extinguisher, and evacuation procedures. Each employee is responsible for knowing who their Area Coordinator is and must follow the Area Coordinator's instructions in the event of an emergency.

2.7.1 Injury

A critical injury may be fatal if not dealt with urgently. 911 must be called. The patient should be given immediate medical emergency assistance or first aid and taken to the nearest hospital without any delay. Response time is vital in cases of critical injury.


The scene of a critical injury, especially when work related, should be secured for:

- Investigation by appropriate authorities such as police or an Inspector of the Occupational Health and Safety Division
- No admittance to the scene of accident except for the purpose of life saving efforts or relieving human suffering, ensuring public utility, service or transport system, or preventing damage to equipment and property
- None should disturb, destroy, alter or remove any article from the scene of accident

Reports of critical injuries are to be made to the appropriate authorities immediately. Refer to World Energy GH2 PSM 011 Incident Investigation Procedure for details on reportable injuries/illnesses, as well as definitions for injury types. An investigation report of a critical injury is to be forwarded to the concerned offices within a prescribed time limit as per existing laws and regulations.

The 24 hour accident reporting line number for the Newfoundland and Labrador Occupational Health and Safety Division is 1-709-729-4444, Refer to World Energy GH2 PSM 011 Incident Investigation Procedure

In the event of a medical emergency the following items must be considered / completed by appropriate responders:


	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 26 of 74

Action	Notes
The witness of an injury or illness involving any person employee, contractor, or visitor at the site must immediately report the injury or illness.	<p>Notify the Shift Supervisor by using emergency channel or phone number. Provide the following information:</p> <ul style="list-style-type: none"> - Injured person's name - Witness name - Exact location of medical emergency - Nature of medical emergency and cause, if known
In an emergency, any employee is authorized to call the Shift Supervisor or designated personnel listed and request assistance.	However, in most cases, it is more appropriate to notify the Area Coordinator that is trained in First Aid, CPR, and AED who will provide immediate care and perform proper notification.
On-duty Shift Supervisor acknowledges receipt of emergency message and assume title of Incident Commander. The Operations Chief also assumes their role.	The shift supervisor or designated personnel will call emergency services as required and provided them with all necessary details
The Incident Commander will provide for all necessary emergency medical treatment and advise the Operations Chief of the status of the injured person.	If outside medical assistance is required, the Incident Commander shall request this support.
The Operations Chief shall report to the emergency scene and provide assistance as requested by the Incident Commander.	The Operations Chief shall arrange for transportation of an injured employee if an ambulance is not required.
The Incident Commander shall authorize the Command Post to call "Normal Operation" as soon as it is determined that there is no danger to anyone outside the immediate area. Once the incident is mitigated., the "All Clear" will be announced over site radio channels.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 27 of 74

Action	Notes
The Public Information Officer will notify the provincial Occupational Health and Safety authority as required (refer to Section 3.2 for specific reporting requirements).	
The site Head Operator in Charge shall contact the Human Resources Department as soon as practical in order to notify family members.	
An Accident/Incident Investigation form shall be completed by the supervisor responsible for the personnel or equipment involved in the incident.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 28 of 74

Exposure Control Plan

First aid responders shall take all precautions to avoid harm or contact with blood or other body fluids. This includes using the personal protective equipment (PPE) provided in the first aid bags or kits.

- First-Aid responders shall keep others from being harmed by controlling the incident site.
- The following table identifies PPE to be used for various first aid tasks:


	GLOVES	MASK	EYEWEAR
Bleeding Control/Spurting Blood (*)	Yes	Yes	Yes
Bleeding Control/Minimal Bleeding (*)	Yes	No	No
Wound Care/No Spurting Blood	Yes	No	No
Cleaning Spills (Blood, Body Fluids)	Yes	No	No
Mouth-to-Mouth Resuscitation (**)			
Eye Irritation			

*If soiling is likely, long sleeves should be worn

**Resuscitation face masks and mechanical respiratory devices are to be used.

All medical supplies and PPE shall be stored, maintained, and replenished as necessary.

- Medical supplies and first aid kits are inspected by the Safety Department.
- All materials contaminated with blood or other Potentially Infected Material (PIM) shall be placed in red Biohazard bags before leaving the incident scene for disposal or decontamination. This includes contaminated clothing and PPE.
 - The Biohazard bags are provided with the first aid kits. The Safety Department will store the contaminated materials until they can be disposed of properly.
- Employees who may have contacted blood or other PIM must wash their hands or other body parts as soon as feasible and visit the Occupational Health Clinic immediately. Hand washing is also required immediately after removing protective gloves.
- Equipment or surfaces, which may have been contaminated, must be cleaned as soon as feasible. A solution of 10:1 water to bleach shall be used for decontamination.
- Equipment that cannot be decontaminated must be labeled "BIOHAZARD", stating the portions that are contaminated.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 29 of 74


- First aid responders must clean and decontaminate immediately or as soon as feasible following an incident.
- If contaminated needles or sharps are generated in the facility for medical purposes, they must be discarded as soon as feasible in sharps containers provided for the employee's purposes. Needles must not be disposed of in regular trash.

2.7.2 Spill or Release

This section is intended to be used for various types of spills/releases, including but not limited to:

- General product spills
- Product going off-site
- Spills at loading/unloading racks
- Above ground storage tank spills
- Spills or releases involving hydrogen, ammonia, chemicals, pesticides, or any potentially hazardous substance

Note to Draft: Various spill types will be addressed as project development progresses.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 30 of 74


Staff on-site should take the following actions in the event of an ammonia spill or release:

Action	Notes
Stop the product flow. Shut down pumps. Close supply valves.	If safe to do so, turn off pumps, close valves, block sewers/drains, close dyke drains, and close separators/interceptors.
Eliminate all sources of ignition.	Shut off electrical power to the affected area.
Immediately notify the Shift Supervisor.	Shift Supervisor (emergency channel or phone number) Safety Supervisor (phone number) Director of Safety (phone number) Provide reporting employee's name and the location (in or near unit) of the emergency, the nature of the emergency, any known injuries or immediate hazards, and the wind direction.
Call ERT if there is any danger of the spill getting out of control.	
Upon receipt of a report of fire or emergency release, the Shift supervisor shall notify Guard house if Emergency Response is needed from fire department. The Guard house shall utilize a land line to Dial 911.	
The Shift Supervisor contacts the appropriate person to sound the site emergency alarm.	
The Shift Supervisor will: Announce all pertinent data over the site emergency channel. Immediately notify the Safety Department and initiate the Call Out Procedure.	The Guard house Operator will remain available to provide additional assistance as required by the Incident Commander.
The ERT will complete their duties.	Safety Department, in consult with SMEs, will develop ERT response SOPs for identified event scenarios. ERT will follow SOPs and will be given specialized training per HazMat Response and Training Plan.
The Incident Commander will prepare an EHS report.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 31 of 74

2.7.3 Flaring / Venting

In the event of flaring and/or venting of hydrogen, ammonia or other gases:

Action	Notes
Stop the product flow. Shut down pumps. Close supply valves.	If safe to do so, turn off pumps and close valves.
Eliminate all sources of ignition.	In case of ammonia release, if there is no fire and if the leakage is small and controllable, the commander should trigger :“shelter in place” to keep personnel safe while only designated protected response team (protection class A or B) will respond the leak.
Immediately notify the Shift Supervisor.	Shift Supervisor (emergency channel or phone number) Safety Supervisor (phone number) Director of Safety (phone number) Provide reporting employee’s name and the location (in or near unit) of the emergency, the nature of the emergency, any known injuries or immediate hazards, and the wind direction.
Upon receipt of a report of a flaring event, the Shift supervisor shall notify Guard house if Emergency Response is needed from fire department. The Guard house shall utilize a land line to Dial 911.	
The Shift Supervisor contacts the appropriate person to sound the site emergency alarm.	
The Shift Supervisor will: Announce all pertinent data over the site emergency channel. Immediately notify the Safety Department and initiate the Call Out Procedure.	The Guard house Operator will remain available to provide additional assistance as required by the Incident Commander.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 32 of 74

Action	Notes
The ERT will complete their duties.	Safety Department, in consult with SMEs, will develop ERT response SOPs for identified event scenarios. ERT will follow SOPs and will be given specialized training per HazMat Response and Training Plan.
The Incident Commander will prepare an EHS report.	

2.7.4 Fire/Explosion


The actions to take will depend on the size of the fire or other safety aspects to be assessed. Do not hesitate to call the ERT for help as it might rapidly become out of control.

Action	Notes
Remain calm, immediately notify the Shift Supervisor and obtain assistance in locating and using the nearest fire extinguisher, if properly trained and incipient stage fire.	One of the following should be informed in the order noted: Shift Supervisor (emergency channel or phone number) Safety Supervisor (phone number) Director of Safety (phone number) Provide your name and the location (in or near unit) of the emergency, the nature of the emergency (fire, burning building, etc.), any known injuries or immediate hazards, and the wind direction.
Call ERT there is any danger of the fire getting out of control.	
Upon receipt of a report of fire or emergency release, the Shift supervisor shall notify Guard house if Emergency Response is needed from fire department. The Guard house shall utilize a land line to Dial 911.	
The Shift Supervisor contacts the appropriate person to sound the site emergency alarm.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 33 of 74

Action	Notes
The Shift Supervisor will: Announce all pertinent data over the site emergency channel. Immediately notify the Safety Department and initiate the Call Out Procedure.	The Guard house Operator will remain available to provide additional assistance as required by the Incident Commander.
The ERT will complete their duties.	
The Incident Commander will prepare an EHS report.	

2.7.5 Vehicle Accident on Site


Action	Notes
If the accident involves fuel dispensing(from slip tanks or fuel trucks to heavy construction equipment), or any product loading or unloading equipment, activate the emergency shutdown button. Follow Spill Response Procedure.	
Ask all Guests to leave their vehicle and move away from dispensers.	
Call 911 if emergency services are required.	
Contact the Shift Supervisor using the emergency channel.	Provide them with the turbine number or the nearest turbine, service or county road, if at a wind farm. If unable to contact, contact the Safety Supervisor or Director of Safety.
Incident Commander will establish a safety zone as needed. Secure the affected area.	Restrict and direct traffic in and out.
Record driver information.	
The Incident Commander will prepare an EHS report.	

If a spill or fire/explosion ensues, refer to the appropriate section of the guidelines for more detailed information.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 34 of 74

2.7.6 Dislodging of Wind Tower or Turbine Blade

Action	Notes
Stop work and assess the situation.	
Contact the Shift Supervisor using the emergency channel for help.	Provide the turbine number or the nearest turbine, service or county road. If unable to contact the shift supervisor, contact the Safety Supervisor or Director of Safety.
Incident Commander will secure the incident scene.	Do not disturb the accident / incident area.
The Incident Commander will contact all site workers on emergency channel.	Notify workers of the emergency and assign a person to meet the emergency service at the meeting location.
The Area Coordinator will gather and count persons.	
The Incident Commander will prepare an EHS report.	

2.7.7 Fire/Explosion in Wind Turbine

Action	Notes
Contact wind plant operator and turbine technicians to confirm disconnection of electrical power from other machinery or a substation and other necessary safety measures.	Confirm visual disconnect.
Establish a safety perimeter of 750 feet around the involved tower for possible falling components.	
Prevent spread of fire to surrounding vegetation or other exposures.	

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 35 of 74


2.7.8 Wind Tower Rescue

Action	Notes
Contact wind plant operator and operator's technician performs wind turbine shutdown.	Confirm visual disconnect to electrical collection system. Do not activate emergency shutdown until victim's location is known.
Fire and Rescue (EMS) team accesses the wind turbine.	Firefighters access by interior stairway using complete fall protection. Firefighters will secure EMS members, provide complete fall protection, and ensure EMS safety at all times.
Fire and rescue teams evaluate the patient and incident.	
Access for rescue equipment is provided.	On the interior of the tower, proceed upward by stairway. Firefighter must accompany equipment to prevent it getting jammed or striking structure. On tower exterior, use electric winch or high-angle equipment.
Rescuer stabilizes the victim.	Rescuer determines whether the victim should be moved to nacelle or platform for stabilization, depending on whether there is sufficient space in these areas.
Victim is evacuated.	If inside the tower or distant from the nacelle, the victim may be evacuated from the platform with descent and safety lines completely fitted to descenders and pulleys and pulleys anchored to structure above the platform, or victim may be suspended by fall protection or anchorage and descend with the rescuer at the foot of stretcher. If near or at the nacelle, victim should be moved to platform if nearby. Three static lines (safety, descent, and guide) are needed to avoid twisting. Victim must be accompanied during descent.
Victim is transported to hospital.	May be done via ambulance or helicopter if adequate space.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 36 of 74

2.7.9 Bomb Threat


Handle bomb threats seriously and safely! Bomb threats are unusual but can happen. Most bomb threats are just threats aimed at trying to cause fear or a reaction like an evacuation.

Action	Notes
Write down as much information from caller as possible.	STAY CALM.
Contact the Shift Supervisor using the emergency channel for help.	If unable to contact, contact the Safety Supervisor or Director of Safety.
Call 911 for police immediately after the threat call.	
Let police handle any suspicious objects or packages.	
The Incident Commander will initiate emergency shutdown procedures if required.	Shut down the site if needed or requested by Police.
Precautions: <ul style="list-style-type: none"> • STAY AWAY. • DON'T TOUCH. • LET THE EXPERTS HANDLE ANY SUSPECT PARCELS. 	

2.7.10 Flooding

To shut down a facility which may be flooded:

Action	Notes
Take a product inventory reading of all aboveground tanks including water level readings.	
Above ground tanks should be filled to a level at least 25% above the estimated/predicted floodwater elevation.	If time permits, request an emergency delivery of products if necessary.


	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 37 of 74

Action	Notes
Ensure that above ground tanks which could float away are secured or tethered in a manner that would prevent floating from the property.	Have a qualified contractor assess your tanks and install additional tethers or anchors if necessary.
Secure containers of chemicals, cleaning agents, pesticides, etc. Every effort must be made to remove these products from the expected flood zone. If they cannot be moved to a safe location, store these containers at high elevations in a manner that prevents them from floating off the property or leaking into floodwaters.	
Drums should be tied down or otherwise secured to prevent floating.	
If the facility is to be closed / evacuated, shut down electrical power to the site at the main breaker. Contact the power service utility company to determine if the power service to the facility is going to be cut off.	The Incident Commander will notify all personnel to evacuate.
Shut down turbines after everyone has evacuated.	
Shut down other utilities to the site potable water. If water is obtained from a water well, secure the well using a well seal.	
Shut down all appliances including hot water tanks, furnaces, etc.	
Lock all doors and gates to the facility.	
Post a sign in a prominent location identifying the names and telephone numbers where key company personnel can be contacted during the emergency.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 38 of 74


To start up a facility which has been flooded:

Action	Notes
Re-activate utilities to the site (water, electricity) and appliances using qualified utility service personnel where required.	
Take product inventory readings and water dips of all tanks to determine if product has leaked out from the tanks or water has entered the tanks.	Continue to monitor inventory in case of damages causing further leaks.
Take appropriate measures to test product quality.	
Pump out water from sumps and containment pans using a qualified contractor.	If the water is contaminated with product, follow proper procedures for disposal.
Follow all re-entry procedures and requirements for health and safety as provided by your local government authority (disinfection, potable water testing, etc.).	
Test all systems, including leak detection systems, cathodic protection, tank level monitors, fire protection systems (if applicable) etc.	
Prior to resuming work in an excavation the soil should be retested by a suitably competent Engineer and damaged benching/slopes or shoring systems inspected and repaired.	Excavations that have been subject to flooding are extremely unstable.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 39 of 74


2.7.11 Tornado

Action	Notes
Close the site.	Shut down pumps, electricity, all systems, lock doors, etc. Secure or store exterior equipment. Protect windows and other glass.
Assess the situation to ensure the safety of those on-site and evacuate people as deemed necessary.	
Stay in contact with the shift supervisor.	
If you are in the open, seek shelter in a sturdy building but stay away from windows if possible.	
If none is available, be prepared to lie flat in a depression or ditch, and hang onto something on the ground (culvert, large pipe, etc.).	
If you are in a truck or automobile, get away from the vehicle, and seek shelter as described above. You are safer in a ditch than in your vehicle.	
After the event, re-enter the area when safe and assess the damage.	Look for obvious structural issues. Check for downed or dangling electrical power lines and stay away from them. Report all damage observations to the shift supervisor.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 40 of 74


2.7.12 Hurricane

Action	Notes
Close the site.	Shut down pumps, electricity, all systems, lock doors, etc. Secure or store exterior equipment. Protect windows and other glass.
Assess the situation to ensure the safety of those on-site and evacuate people as deemed necessary.	Emergency personnel to stay at facility only if safe to do so. Notify local authorities if personnel are staying on site.
Stay in contact with the shift supervisor.	
When safe to do so, patrol facility.	Watch for roof leaks, pipe breakage, equipment damage, product releases, fire or structural damage.
After the event, re-enter the area when safe and assess the damage.	Look for obvious structural issues. Check for downed or dangling electrical power lines and stay away from them. Report all damage observations to the shift supervisor.
Assess site for any injured personnel and address per SOP.	

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 41 of 74

2.7.13 Thunderstorm and Lightning

Action	Notes
When thunderstorm activity is forecasted, wind farm site supervision should monitor closely the site actual weather conditions and / or the internet weather radar for the formation and location of thunderstorms.	<p>Level 1 Lightning Alert (48 to 80 km) – all personnel are to be made aware of the lightning in the area and should be prepared to stop work and seek shelter as the storm moves closer.</p> <p>Level 2 lightning alert (within 48 km) – all personnel are to stop work immediately and seek shelter (exit wind farm) until the storm passes and an “all clear” is communicated.</p> <p>Level 3 Lightning Alert (thunder is heard at the site, likely within 15 km) – if not evacuated, proceed to one of the safe zones in the wind farm (the platforms under the yaw section and at ground level – but not in front of electrical cabinets). Sit or stand at the center of the platform and do not touch the tower wall.</p>
Remain in a safe location inside of turbine.	Contact the shift supervisor using the emergency channel for help and provide them with the turbine number or the nearest turbine, service, or county road.
Leave the site and go to a safe location when it is safe to evacuate.	
The shift supervisor will contact site workers on the emergency channel and notify them of the emergency and assign a person to meet the emergency service (if needed) at the meeting location.	

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 42 of 74


2.7.14 Winter Weather

Action	Notes
Be aware of changing weather conditions. Site management to have procedures in place for early release of employees.	
Prepare to shelter employees who become stranded at the site.	This includes appropriate supplies of drinking water and comfort items.
Following the emergency, repair any damage and remove snow and ice from parking lots, roads, walkways, work platforms and scaffolds.	
Arrange welfare checks i.e. phone calls.	Ensure employees have safely reached their destination, if departing in advance of severe winter storms.

2.7.15 Earthquakes

Key steps during an earthquake:

Action	Notes
<p>If you are inside, do not leave the building when you feel shaking. This is the time to DROP, COVER AND HOLD ON unless you are clearly in danger such as inside a warehouse with product stacked on high shelves.</p> <p>If up-tower, personnel should remain in place and take cover.</p>	<p>DROP, COVER AND HOLD ON: Crouch down and cover your head and neck with your hands.</p> <p>Get under a nearby desk or heavy table and hang onto it; if it moves, move with it. Stay there until the shaking has stopped completely.</p> <p>Keep away from windows, file cabinets and other heavy objects that may fall.</p> <p>Keep clear of any equipment that could fall, topple, or cause crushing.</p>

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 43 of 74

Action	Notes
When the initial shaking stops, contact the Area Coordinator on the emergency channel to confirm your location and wellbeing.	
Always anticipate aftershocks.	Drop, Cover and Hold On during aftershocks as well.
If you're outdoors, stay in the open, away from walls, trees, buildings, and power lines.	Move to an open area of the lot away from the building, canopy, and above ground tanks. Use the site access roads and do not attempt to drive off road.
If in a vehicle (onsite or roads), stop the vehicle and do not leave it during the earthquake.	Do not stop on a bridge, at an underpass, or in a tunnel, and keep away from buildings at the side of the road (danger of collapse).


Key steps after an earthquake:

Action	Notes
After the shaking has completely stopped, assess the situation and check for hazards.	Check for injuries and render first aid as needed. (Seriously injured persons should not be moved unless doing so is the only way to avoid imminent danger of further injury.)
Safely exit the building and go to the muster point.	Continue to assess the situation for hazards during exit, on the way to the muster point, and at the muster point. Check the wind direction and assess the air quality/atmosphere as gas release can be as a result of EQ tremors/shakes. Consider using emergency PPE when exiting the building.
Take roll call at the muster point	Account for all employees, contractors, customers, and visitors.
Do not re-enter any buildings.	Arrangements must be made with a professional structural engineer to inspect offices and buildings following the disaster in order to determine whether or not it is safe to re-enter or continue to operate within.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 44 of 74

Action	Notes
Leave switches and valves as they are unless a hazard exists such as a gas leak or fuel leak.	Secure the area and keep everyone away from the hazard. Only attempt to shut off a switch or close a valve if there is an obvious hazard and only if it can be done safely.
Damage to the site should be assessed and repaired. Prior to starting work, all structures, including scaffolding, site facilities, platforms, electrical services, and equipment such as cranes shall be inspected.	Personnel shall only return to the work site once instructed to do so by their supervisor.

2.7.16 Wildlife Emergencies/Incidents


A wildlife emergency includes events such as bird mortality events of 10 or more birds in a single event, or an individual species at risk during a single event due to collisions with wind energy infrastructure.

Action	Notes
Stop work and contact the Shift Supervisor.	Provide a verbal report of the observed injury/mortality referencing the turbine number or the nearest turbine, service, or connector road.
The Shift Supervisor will respond to the incident location and will assess the scene.	
The Shift Supervisor will direct the safe shut down of applicable equipment if appropriate (i.e., to halt ongoing injury or prevent equipment damage).	
The ERT will engage Environmental Compliance Staff who will implement the wildlife response measures in the Species at Risk Impact Mitigation and Monitoring Plan and/or the Avifauna Impacts Mitigation and Monitoring Plan for the Project as applicable.	A Project-specific Species at Risk Impact Mitigation and Monitoring Plan and Avifauna Impacts Mitigation and Monitoring Plan will be developed pre-construction. These plans will include incident-specific response procedures including surveys (e.g., initial wildlife assessment, reconnaissance surveys, surveillance surveys) procedures for wildlife handling and information management and reporting.

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 45 of 74

2.7.17 Failure of Industrial Water Supply

Action	Notes
Contact the shift supervisor using the emergency channel.	
Shut down the site.	Follow emergency procedures to safely shut down the plant and cut off the power
Identify alternative water supply.	

2.7.18 Energy Generation/Transmission Failure

Action	Notes
Any operations personnel, who become aware of a total loss of power situation, has the authority to initiate emergency shutdown procedures appropriate for their operational unit. Shutdowns are initiated based on the judgment that such a shutdown is required to safely secure the unit operation and protect all personnel.	Take actions such as shutting down pumps and electrical equipment, closing valves. Follow process safety SOPs.
Contact the shift supervisor using the emergency channel.	
Operators should continue to make rounds in the process areas. The equipment must continue to be monitored for leaks and any potential problems that may occur in an extended power outage.	Special attention should be paid to sumps, drains, and any other systems that can gravity fill.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 46 of 74

Action	Notes
The anticipated outage timeframe will define the next steps. A short complete power outage will require normal startup afterward. An extended power outage, lasting for several days, may require that emergency generators be brought in to provide temporary power to accomplish such tasks as flushing and draining the unit.	Qualified operators are expected to recognize unique circumstances and take appropriate actions after careful consideration of their impact. During each power outage that arises, the status of all equipment must be assessed and the order in which remaining steps are to be taken must be continually evaluated.
Upon restoration of power, a review of firewater systems needs to be conducted to ensure proper pressure is restored.	

2.7.19 Shelter in Place


During an accidental release of hazardous materials, people sometimes take shelter indoors to prevent injury or death. This is called Shelter-In-Place. Most chemical releases will last only a few minutes and staying inside will be the best way to ensure your protection.

Action	Notes
Follow the instruction of your Area Coordinator. Listen for the specific direction to "Shelter-in-Place."	
If in doors, stay there. If outside, go indoors immediately. Close doors and windows.	Ventilation will be shut down in the business buildings to prevent hazardous materials from entering the buildings.
Shut off space heaters or other non-essential equipment that may be a source of ignition.	
Cover your nose and mouth with a wet cloth if the odor is highly noticeable or irritating.	
Wait for additional instructions following an "All Clear" message to air out your area.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 47 of 74

2.7.20 Building Evacuation

STAFF SHOULD NOT DO NOT EVACUATE UNLESS DIRECTED TO DO SO. Upon given directions to evacuate, employees shall do the following:

Action	Notes
Proceed in an orderly fashion to the exit closest to your work area as shown on the posted emergency evacuation procedures map. Follow the directions of your Area Coordinator.	Take your keys and other essential items when you exit if you may not be able to re-enter the building.
If there are any handicapped temporarily disabled persons in your area, obtain assistance in helping them out of the building.	
Upon leaving the building, proceed to the area designated for your group on the posted emergency evacuation procedures map. Stay away from trees and overhead electrical wires.	
Once clear of the building, assemble with your workgroup. The Area Coordinator or Support will account for all personnel, and report back to the Safety Supervisor, or Director of Safety.	If you are in a part of the building other than your normal work area when the evacuation alarm is sounded, exit with the group you are with, then assemble with your work group.
Respond to requests for assistance from police, fire-fighting units, and relief organizations as requested through your Supervisor or Area Coordinator. Do not go into damaged areas unless your assistance has been requested. Cooperate fully with local authorities.	
Area Coordinators will inform employees when it is safe to re-enter the building.	Failure to comply with an evacuation order or the directions of the Area Coordinator shall be grounds for disciplinary action.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 48 of 74


2.7.21 Critical Operation

During an emergency, personnel involved in critical operations may remain on the site upon the permission of the Plant Manager or Area Manager.

Action	Notes
If the emergency will not permit some of the personnel to remain at the facility, the designated official or other assigned personnel shall notify the Area Manager to initiate backups.	
The Operations Department will ensure that emergency shutdown procedures are easily locatable for critical operations and work processes.	

2.7.22 Termination Procedures

Action	Notes
The Incident Commander with input from the Operations Chief shall determine when normal operations may resume within the site. Upon this announcement, work may resume in areas outside of the emergency area.	
When emergency conditions are abated and emergency response equipment has been returned to ready condition, the Incident Commander with input from the Operations Chief shall request an "All Clear" to announce over emergency channel.	


	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 49 of 74

Action	Notes
The Incident Commander shall coordinate with the officials from the Health Hazardous Materials Division when determining the effectiveness of an emergency response activity in mitigating a flammable and toxic release in an offsite location.	
A critique of the emergency response shall be scheduled as soon as the "All Clear" is given. The time and place of the critique shall be coordinated by the Incident Commander.	
A first report of incident shall be completed by the Shift Supervisor.	

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 50 of 74

3. Emergency Contacts

3.1 Joint Capacity of Nearby Communities to Respond to Incident

Note to Draft: As the project further develops, local communities and responders will be engaged to develop a communications and joint response capacity plan.

Police:

Royal Newfoundland Constabulary

9 University Drive

P.O. Box 39, Corner Brook, NL

A2H 6C3

General Telephone: 1-709-637-4100

Officer In Charge: 1-709-637-4110

Royal Canadian Mounted Police Bay St. George Detachment

40 Oregon Dr

Stephenville NL A2N 3M3

Telephone: 709-643-2118

Fire Department:

Stephenville Fire Department

125 Carolina Ave

Stephenville NL A2N 2S6


Telephone: 709-643-8378

Stephenville Crossing Fire Department

73 West St

Stephenville Crossing NL A0N 2C0


Telephone: 709-646-5555

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 51 of 74

3.2 Regulatory Reporting Guidelines


REGULATORY REPORTING GUIDELINE – NEWFOUNDLAND AND LABRADOR

Outcome (Event Type)	Detail	Who Reports	Report To	Report Type	Report Timing
Fire	Fire that cannot be safely and quickly extinguished by site staff.	Site Worker or Site Management	Fire Department	Verbal	Immediate
Product Spill or Leak 1. On site and off site 2. Bulk transportation	1. Uncontained release any amount or any amount on water. 2. Please refer to the TDG regulations on the Transport Canada website.	1. Site Management 2. Transporter	1. NF Env. 1-800-563-6181 2. Local Police - NF Env. 1-800-563-6181 - Director General, TDG Ottawa	1. Verbal/Written 2. Verbal Verbal/Written	1. Immediate/As req'd 2. Immediate Immediate/30 days
Injury	1. Minor/first aid 2. Major/critical injury or fatality	1. Site Management 2. Site Management	1. N/A 2. WHSCC 1-800-563-9000 Occupational Health and Safety Division 1-709-729-4444	1. N/A 2. Verbal/Written	1. N/A 2. Immediate/2 days

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 52 of 74

4. Additional Resources

Note to Draft: As project definition progresses the various vendors and their emergency telephone numbers will be identified.


	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 53 of 74

5. Plan Review and Update

The Emergency Response Plan will be reviewed annually and updated whenever:

- New hazards are identified or existing hazards change
- There are changes to the facility layout or infrastructure
- There are changes to emergency action and evacuation procedures

The Safety Department will review the plan with each employee when the plan is developed and whenever information in the plan changes.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 54 of 74

6. Site Information

6.1 Site Plot Plan Contents


Note to Draft: As the overall project design matures the Site Plot Plan will be updated to include the following items:

- Buildings description including occupancy classification, and other structures, etc.
- Location and content of product storage tanks with each tanks' capacity
- Product loading/unloading areas
- Dispenser islands
- Product pumps
- Catch basins and manholes
- Location of sewers and storm drains
- Oil/water separators, stormceptors
- Any receiving body of water that could be significantly impacted by a spill and site gradients in potential spill areas / damming and containment control features
- Site entrances and exits (access routes for emergency responder)
- Location of all fire extinguishers, fire alarm systems, description of sprinkler systems including fire department connections, control valve(s), riser(s) and water line locations (indicated on site diagram)
- Location of emergency shutdown button(s), all ESDs should be named or numbered (ex: Emergency shut down #1 or Emergency Shut Down on rack)
- Location of natural gas or heating fuel supply shut off valve(s)
- Location of domestic and fire water shut offs
- Depiction and description of containment features
- Location of spill response equipment and supplies
- Evacuation routes
- Location of evacuation musters point. There should also be a secondary muster point in case the first one is in harm's way.
- First Aid kits and Eye Wash
- Location of Emergency Operations Centre / Fire Department Building on site
- Locations of PPE storage (e.g. individual escape masks)

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 55 of 74

6.2 Emergency Response Equipment


Note to Draft: Quantities of Emergency Response Equipment will be a function of final design.

Refer to Appendix for listing.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 56 of 74

7. Safety Data Sheets

Note to Draft” Safety Data Sheet (SDS) for each hazardous material transported or stored on the site will be collated.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 57 of 74

8. Employee Review

This page should be signed by each employee as confirmation they have read the Emergency Response Plan and understand their responsibilities in the case of an emergency. The Plan should be reviewed and signed once every six months by all employees. Signed confirmation pages should be retained for a minimum of 2 years.

NAME (Please Print)


SIGNATURE

DATE

Site Management should review this Emergency Response Plan every six months to ensure it is up-to-date and verify that all employees have been trained to respond to the various emergencies.

REVIEW DATE

SIGNATURE OF SITE MANAGEMENT

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 58 of 74

Appendix A: World Energy GH2 Safety Procedures

Note to Draft: This list of procedures will be updated as project development progresses. Additional procedures may be added over time.

World Energy GH2 ENG-002 Temporary Repair Process Flowchart Rev A

World Energy GH2 ENG-002 Temporary Repairs Rev A

World Energy GH2 ENG-002F Temporary Repair Form Rev A

World Energy GH2 ERP 001 - Emergency Response Plan Rev A

World Energy GH2 PSM 001 Process Safety Information Rev A

World Energy GH2 PSM 002 Process Hazard Analysis Rev A

World Energy GH2 PSM 003 Operating Procedures Rev A

World Energy GH2 PSM 004 Training Rev A

World Energy GH2 PSM 005 Mechanical Integrity Rev A

World Energy GH2 PSM 006 Employee Participation Rev A

World Energy GH2 PSM 007 Management of Change Rev A

World Energy GH2 PSM 008 Pre-Startup Safety Review Rev A

World Energy GH2 PSM 009 Compliance Audit Rev A

World Energy GH2 PSM 010 Contractor Safety Rev A

World Energy GH2 PSM 011 Incident Investigation Rev A

World Energy GH2 PSM 012 Hot Work Guideline Rev A

World Energy GH2 PSM 013 Car Seal Management Program Rev A

World Energy GH2 PSM 013 Car Seal Management Program Rev A

World Energy GH2 SAF - 001 Injury and Illness Prevention Program Rev A

World Energy GH2 SAF - 002 Hazard Communication Rev A

World Energy GH2 SAF - 003 Energy Isolation Lockout Rev A

World Energy GH2 SAF - 003F Blind Tag List Rev A

World Energy GH2 SAF - 003F Lockout Inspection Form Rev A

World Energy GH2 SAF - 003F Lockout Tagout List Rev A


World Energy GH2 SAF - 004 Confined Space Rev A

World Energy GH2 SAF - 004F Confined Space Rescue Plan Checklist Rev A

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 59 of 74

World Energy GH2 SAF - 005 Hearing Conservation Rev A

World Energy GH2 SAF - 007 Vehicle Safety Rev A

World Energy GH2 SAF - 008 Heat Illness Prevention Rev A

World Energy GH2 SAF - 009 Truck Driver Safety Manual Rev A

World Energy GH2 SAF - 010 Safety Environmental Committee Rev A

World Energy GH2 SAF - 011 Job Safety Analysis Rev A

World Energy GH2 SAF - 011F JSA Form Rev A

World Energy GH2 SAF - 012 Facial Hair Policy Rev A

World Energy GH2 SAF - 013 Safety Suggestion Program Rev A

World Energy GH2 SAF - 014 Temporary Bypass of Safety System Rev A

World Energy GH2 SAF - 014F RECORD OF TEMPORARY BYPASS FORM Rev A

World Energy GH2 SAF - 015 Stop Work Authority Rev A

World Energy GH2 SAF - 016 Firewatch Requirements Rev A

World Energy GH2 SAF - 017 Fire Prevention Plan Rev A

World Energy GH2 SAF - 019 Generation Modification of Procedures Rev A

World Energy GH2 SAF - 020 General Refinery Work Rules Rev A

World Energy GH2 SAF - 021 Check In Check Out Procedure Rev A

World Energy GH2 SAF - 022 Barricade Guidelines Rev A

World Energy GH2 SAF - 023 Hydrogen Safety Guideline Rev A

World Energy GH2 SAF - 024 Ammonia Safety Guideline Rev A

World Energy GH2 SAF - 025 Nitrogen Handling Guideline Rev A

World Energy GH2 SAF - 026 Respiratory Protection Rev A

World Energy GH2 SAF - 027 Exposure Control Program Rev A

World Energy GH2 SAF - 028 Use of Cell Phones and Other Electronic Devices Rev A

World Energy GH2 SAF - 029 Chemical Hygiene Plan Rev A

World Energy GH2 SAF - 030 Hot Surfaces Policy Rev A

World Energy GH2 SAF - 031 Ladder and Fall Protection Program Rev A

World Energy GH2 SAF - 032 Crane Operations Rev A

World Energy GH2 SAF - 033 Personal Protective Equipment (PPE) Rev A


World Energy GH2 SAF - 034 Work Permit System Rev A

World Energy GH2 SAF - 035 Powered Industrial Truck Safety Program Rev A

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 60 of 74

World Energy GH2 SAF - 036 Demolition Policy Rev A

World Energy GH2 SAF - 037 Preparing Process Equipment for Opening Rev A

World Energy GH2 SAF - 038 Trenching and Excavation Program Rev A

World Energy GH2 SAF - 039 Inclement Weather Policy Rev A

World Energy GH2 SAF - 040 Hand Protection Policy Rev A

World Energy GH2 SAF - 041 Bicycle Safety Rev A

World Energy GH2 SAF - 042 Mobile Elevating Work Platforms Rev A


World Energy GH2 SAF - 043 Exclusion Zone for Operating Units During Start-up and Shut Down Activities Rev A

World Energy GH2 SAF - 044 Electrical Safety Rev A

World Energy GH2 SAF – 045 Hazardous Materials Resource and Training Plan Rev A


World Energy GH2 SAF – 04 Spill Response Rev A

World Energy GH2 SEC - 001 Site Security Program Rev A

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 61 of 74


Appendix B: Site Plan

Note to Draft: The Site Plan will be incorporated as the project design progresses.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 62 of 74


Appendix C: Emergency Equipment Supplies, Inspection and Fire System Inspection Requirements

Note to Draft: This section will be further defined as the project design progresses.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 63 of 74


Emergency Equipment Supplies & Vendors List

Note to Draft: This section will be further defined as the project design progresses.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 64 of 74


Emergency Equipment Inspection & Maintenance Vendors List

Note to Draft: This section will be further defined as the project design progresses.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 65 of 74

Fire Systems Inspection Requirements List: Equipment / Codes / Inspection Frequency

Note to Draft: This section will be further defined as the project design progresses.

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 66 of 74

Fire Systems Apparatus/Equipment Inventory Check List				
Item	Quantity	Condition (Good, Fair, Poor)	Comments	Year
1.5" Fire Hose				
1.5" Hose				
1.5" Nozzle				
12' Roof Ladder				
2.5 Gal Water Ext.				
2.5 Gal Water Ext.				
2.5" Fire Hose				
2.5" Hose				
2.5" Nozzle				
24' Ext. Ladder				
2hp Air compressor				
35' Ext. Ladder				
60 amp Battery Charger				
Absorb-all				
Attic Ladder				
Binoculars				
Blankets				
Booster Cables				
Bunker Boots				
Bunker Suits				
Cascade System				
Caution Tape				
Cell Phone				
Chain Saw				
Chemical Gloves				
Chest Waders				
Chimney Brush's				
Class A Foam				
Class B Foam				
Cold Water Suits				

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Fire Systems Apparatus/Equipment Inventory Check List

Item	Quantity	Condition (Good, Fair, Poor)	Comments	Year
Cover Sheets				
Cover-alls				
Cribbing				
Defibrillator				
Dry Chemical				
Extension Cord				
Eye Glass Cleaner				
Falls Arrest Harness				
Fire Axe				
Fire Extinguishers				
Fire Helmet				
First Aid Kit				
First Aid Supplies				
Flagging Tape				
Flashlights				
Floater Suits				
Floats				
Flood Lamps				
Foam Eductor				
Foam Nozzle				
Foil Exposure Blankets				
Forestry Nozzle				
Gas Can				
Gas Powered Ice Auger				
Gate Valves				
Gated Wyes				
Grapple				
Hacksaw				
Halogen Tool				
Hard Suction				

Fire Systems Apparatus/Equipment Inventory Check List

Item	Quantity	Condition (Good, Fair, Poor)	Comments	Year
Hard Suction Hose				
Hip Rubbers				
Hose Clamp				
Hose Couplings				
Hose Wrench				
Hydrant Wrench				
Ice Picks				
Medical Oxygen				
Mobile Radio				
New Pagers				
Nomex Gloves				
Nomex Hood				
Nozzle Fittings				
Old Pagers				
P. F. D.				
Pike Poles				
Portable Drill				
Portable Extinguisher				
Portable Generator				
Portable Pump				
Portable Radio				
Pressure Washer 2200 psi				
Propane Torch				
Pry Bar				
Pylons				
Radio Charger				
Reciprocating Saw				
Rescue Board				
Rescue Pole				
Rescue Rope				

Fire Systems Apparatus/Equipment Inventory Check List

Item	Quantity	Condition (Good, Fair, Poor)	Comments	Year
S.C.B.A.				
Safety Belts				
Safety Glasses				
Safety Harness				
Safety Vest				
SCBA				
SCBA Fill Station				
SCBA Cylinders				
Shop Vac				
Smoke Ejector				
Spinal Boards				
Steel Cutter				
Stop Signs				
Stretcher				
Surgical Gloves				
Tarps				
Tether				
Tool Box				
Tool Kit				
Traffic Flags				
Trauma Kit				
Trouble Light				
Universal Adapter				
Utility Knife				
Utility Rope				
Wheel Chocks				
Wire Cutters				
Fire Suppression System				
Water Misting System				
Gas Monitor				


	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 70 of 74

Appendix D: Reporting Requirements – OHS and Environmental Incidents

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	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 71 of 74

Injury Reporting Requirements, Newfoundland and Labrador

When an injury happens, the following actions must be taken:


First make sure that the worker has received the necessary care. Then collect details about the incident including what happened, where it happened and the names of people who saw the incident.

Tell the worker to report the incident to their health care provider and get copies of all necessary forms. This could include a Physician's Report (MD), a Chiropractor's Report (8/10c), or a Physio Report (PR).

Complete an Employer's Report of Injury (Form 7) through *connect* within three days of the injury. The worker will also have to complete a Worker's Injury Report (Form 6).

Sources:

Canadian Centre for Occupational Health and Safety, "Health and Safety Legislation in Canada – Injury Reporting." Last revised 31 March 2021. https://www.ccohs.ca/oshanswers/legisl/legislation/injury_reporting.html

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 72 of 74

Environmental Emergency Reporting Requirements

When an environmental emergency occurs, the following actions must be taken:

Report the environmental emergency as soon as possible by calling (709) 772-2083 or 1-800-563-9089.

Submit a *Written Report of an Environmental Emergency* as soon as is reasonably possible after an incident to the Region Director, Environmental Enforcement Directorate at Environment and Climate Change Canada (ECCC) in the region where the emergency occurs. Reports must be submitted through the Environmental Emergency Reporting System (<https://ec.ss.ec.gc.ca/>) and must include:


- Contact information of the reporter
- Date and time of the release
- Location of the release
- Quantity and concentration of the substance released
- Description of the container system and its condition
- Description of the potential harmful effects of the emergency
- Description of the circumstances leading to the emergency, including measures taken to mitigate any harmful effects on the environment and human health
- Description of all measures taken to prevent similar events
- Environmental Complaints (Non-emergencies) – To report an environmental concern which is not an emergency please contact an Environmental Protection Officer located at the nearest Government Service Centre office or contact Crime Stoppers of Newfoundland and Labrador 1-800-222-TIPS (8477).

Sources:

Government of Canada, “Environmental emergency regulations: reporting a spill or release.” Modified 22 February 2022. <https://www.canada.ca/en/environment-climate-change/services/environmental-emergencies-program/regulations/reporting-spill-release.html>

Government of Newfoundland and Labrador, “Environmental Protection.” <https://www.gov.nl.ca/dgsnl/licenses/env-protection/>


Environment and Climate Change Canada, *Environmental Emergency Regulations*, 2019. https://publications.gc.ca/collections/collection_2019/eccc/En4-376-5-2019-eng.pdf

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 73 of 74

Appendix E: Planning Checklists and Forms

Checklist for Evaluating Emergency Response Drills

Checklist for Evaluating Emergency Response Drills		
	Yes	No
Was the exercise completed within the expected time?	<input type="checkbox"/>	<input type="checkbox"/>
Did the Emergency Management Team respond appropriately as planned?	<input type="checkbox"/>	<input type="checkbox"/>
Did response teams function as planned?	<input type="checkbox"/>	<input type="checkbox"/>
Were internal and external communications clear?	<input type="checkbox"/>	<input type="checkbox"/>
Did any employees have difficulty evacuating?	<input type="checkbox"/>	<input type="checkbox"/>
Were all exits and entrances clear and functional – gates, doors, elevators, etc.?	<input type="checkbox"/>	<input type="checkbox"/>
Were aisles clear?	<input type="checkbox"/>	<input type="checkbox"/>
Were there sufficient emergency materials and equipment available?	<input type="checkbox"/>	<input type="checkbox"/>
Were the emergency materials and equipment in the proper place and proper working order?	<input type="checkbox"/>	<input type="checkbox"/>
Did vehicles need to be moved?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, were keys readily available?	<input type="checkbox"/>	<input type="checkbox"/>
Did appropriate notification take place?	<input type="checkbox"/>	<input type="checkbox"/>
Did everyone know what to do?	<input type="checkbox"/>	<input type="checkbox"/>
Did anyone have too much to do?	<input type="checkbox"/>	<input type="checkbox"/>
Did the fire department, ambulance, police arrive on time?	<input type="checkbox"/>	<input type="checkbox"/>
Remarks: 		

	Emergency Response Plan		Doc Number: WE GH2-ERP-01
	Version 1	08-07-2023	Page 74 of 74

Emergency Planning Exercise Review Form

EMERGENCY PLANNING EXERCISE REVIEW

Exercise Type:

Function Reviewed:

Date of Exercise:

Issue Identified:

Consequence if NOT Corrected:

Recommended Action:

Responsible Person:

Date of Completion:

Copies To:

Reviewed By:

Notes:

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Appendix 2-G

Waste Management Plan

PROJECT NUJIO'QONIK
Environmental Impact Statement



Waste Management Plan

Project Nujio'qonik

Document No.	WE GH2-QTY-L1-001	Current Version	V0.1
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Table of Contents

1.0	Introduction	5
1.1	Overview	5
1.2	Purpose and Objectives	5
1.3	Company Information	6
1.4	Document Management	6
1.5	Distribution	6
2.0	Project Description.....	8
2.1	Site Location	8
2.2	Construction, Operation and Maintenance Activities	11
2.3	Decommissioning and Rehabilitation Activities.....	11
3.0	Relevant Legislation	13
3.1	Federal.....	13
3.2	Provincial	13
3.3	Municipal.....	13
3.4	Other	13
4.0	Roles and Responsibilities.....	14
5.0	Waste Management System	15
5.1	Waste Management Hierarchy	15
5.1.1	Prevention	15
5.1.2	Minimization	15
5.1.3	Reuse	15
5.1.4	Recycle	16
5.1.5	Disposal	16
5.2	Waste Classification	16
5.2.1	Non-Hazardous Waste	17
5.2.2	Hazardous Waste	17
5.3	Waste Containers	18
5.4	Waste Management Procedures	19
5.5	Waste Storage	19

5.5.1	Hazardous Materials	19
5.6	Waste Transportation	21
5.7	Waste Management Summary	21
6.0	Contingency Plans	24
6.1	Extreme Weather Conditions.....	24
6.2	Fires and Explosions	24
6.3	Fuels and Hazardous Material Spills	24
6.4	Improper Disposal	25
6.5	Wildlife	25
7.0	Training.....	25
8.0	Monitoring and Record Keeping	25
9.0	Revising the WMP	26

List of Tables

Table 1	Waste Materials and their Respective Containers.	18
Table 2	Waste Management Summary	22

List of Figures

Figure 1	Project Site Plan.	9
Figure 2	Hydrogen / Ammonia Plant Site Layout (Including Waste Storage Area).	10

Acronyms and Abbreviations

CEPA	Canadian Environmental Protection Act
EIHWHRMR	Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations
EIS	Environmental Impact Statement
ERP	Emergency Response Plan
HDPE	High Density Polyethylene
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
IMHWR	Interprovincial Movement of Hazardous Waste Regulations
km ²	square kilometer
MARPOL	International Convention for the Prevention of Pollution from Ships
NL	Newfoundland and Labrador
NL DECC	Newfoundland and Labrador Department of Environment and Climate Change
NL EPA	Newfoundland and Labrador Environmental Protection Act
NL FFA	Newfoundland and Labrador Department of Fisheries, Forestry and Agriculture
PPE	Personal Protective Equipment
PPWSA	Protected Public Water Supply Area
SDS	Safety Data Sheet
TDG Act	Transportation of Dangerous Goods Act
TDGR	Transportation of Dangerous Goods Regulations
UN	United Nations
WDG/HW	Waste Dangerous Goods/Hazardous Wastes
WEGH2	World Energy GH2
WHMIS	Workplace Hazardous Materials Information System
WMP	Waste Management Plan

1.0 Introduction

1.1 Overview

World Energy GH2 (WEGH2) proposes to construct and operate Project Nujio'qonik (the Project), as described in the Environmental Impact Statement submitted on August 15, 2023, in the Stephenville area of Newfoundland and Labrador. The Project will consist of the construction, operation and maintenance, and decommissioning of the Port au Port wind farm, Codroy wind farm, and a hydrogen / ammonia plant in Stephenville, as well as upgrades to the existing port at Stephenville.

The undertaking was registered with the Newfoundland and Labrador Department of Environment and Climate Change (NL DECC) on June 21, 2022, and a decision rendered by the Minister on August 5th, 2022, required a full Environmental Impact Statement (EIS) for the project. The final EIS Guidelines for the project were issued on December 13, 2022, and required development of a Waste Management Plan (WMP). Specifically:

The EIS shall include a Waste Management Plan that shall describe all liquid and solid waste expected to be generated during construction, operation and maintenance, decommissioning, and rehabilitation for all components of the Project, and methods to reduce, reuse, recycle, recover, and/or manage residual wastes through disposal.

This document has been submitted in response to this requirement.

The WMP is a living document and may not address all of the wastes that may arise during the Project. Revisions may be made during the course of the Project to reflect unforeseen circumstances or improvements as a result of a process review. This will result in open communication at all levels and serve as a means to achieve continuous improvement.

The WEGH2 environmental management team will provide direction and guidance throughout the Project to ensure that work is planned, designed, and constructed to be consistent with environmental regulation, policies, and our goal of environmental excellence.

1.2 Purpose and Objectives

This WMP is a field-ready document to provide guidance on the acceptable practices for the management of waste associated with Project activities during construction, operation and maintenance, and decommissioning. It is intended to be a reference document for Project personnel for the planning and execution of Project-specific activities, as well as a guidance document for contingency planning. While this version of the WMP includes more detail for the construction, and operation and maintenance phase of the Project, later revisions will incorporate further detail surrounding the decommissioning phase. Waste management activities associated with the decommissioning phase are briefly summarized in Section 2.3.

The WMP is to be available to all relevant staff, contractors and subcontractors to ensure that each is aware of their responsibilities with respect to reducing, reusing, recycling and recovering of all waste streams. The specific purposes of the WMP are to:

- Provide a reference to applicable legislative requirements and guidelines;
- Document environmental concerns and appropriate protection measures;

- Provide concise and clear instructions to project personnel regarding procedures for handling, storage and disposal of waste;
- Provide a reference document for personnel when planning and/or conducting specific activities and working in specific areas; and
- Communicate changes in the waste management program through the revision process.

The waste management procedures outlined in this document shall be followed, together with those detailed in the terms and conditions of all permits and approvals, licences, authorizations, or other instruments issued under provincial or federal legislation. In the case of any inconsistency or conflict between these, the conditions imposed by provincial or federal legislation, policy or guidelines and a permit/approval/licence/authorization or other instrument, shall have precedence over the content within this WMP.

The main objective of this WMP is to describe the classification, handling, transportation, and disposal of waste, along with the associated documentation and reporting requirements in accordance with company and regulatory expectations.

1.3 Company Information

WEGH2 is responsible for activities associated with the Project, including implementation and management of the WMP. Contact information for WEGH2 is provided below.

World Energy GH2

Contact: David Pinsent, M.Sc.
Mailing Address: 87 Water Street
St. John's, NL A1C 1A5
Telephone: (709) 727-1460
Email: dpinsent@worldenergygh2.com

1.4 Document Management

The WMP is a controlled distribution document. The Environment and Sustainability Manager is responsible for WMP distribution and administration. Requests for copies and suggestions for revisions to this document are to be submitted in writing to the Environment and Sustainability Manager as per Section 9.0.

1.5 Distribution

The WMP distribution list includes all those involved in the work scope of the Project, management personnel, and regulators. All parties will receive copies of amendments and updates as they are produced. In order to ensure that all WMP documents in circulation are current, the WMP document is not to be photocopied or distributed without the prior permission of the Environment and Sustainability Manager.

Table 1 WMP Distribution List

Affiliation	Contact Information
Government of Newfoundland Department of Environment and Climate Change	PO Box 8700 St. John's, NL A1B 4J6 ECCInfo@gov.nl.ca
World Energy GH2 Project office and construction sites	13 Tennessee Drive Stephenville, NL A2N 2Y3

2.0 Project Description

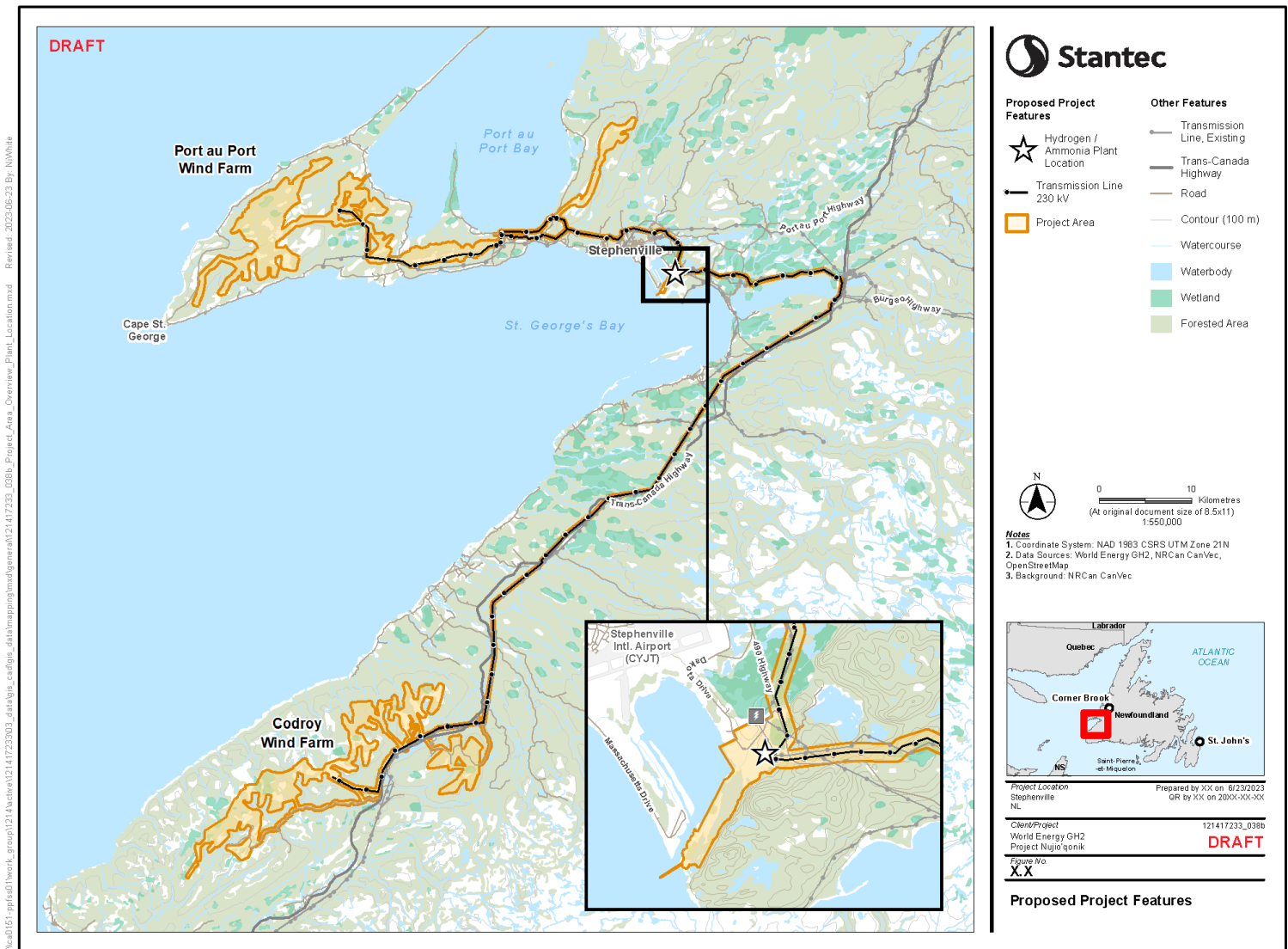
The Project's purpose is to produce cost-effective renewable (green) electrolytic hydrogen and ammonia for export to meet growing market demand, supporting the reduction in greenhouse gas (GHG) emissions and the global energy transition. Hydrogen will be converted to ammonia to facilitate efficient marine transportation to export markets.

The Project includes the construction, operation and maintenance, and decommissioning of the Port au Port wind farm, Codroy wind farm, and a hydrogen / ammonia plant in Stephenville, as well as upgrades to the existing port at Stephenville. The Project is positioned as Canada's first commercial renewable hydrogen and ammonia production facility powered by renewable wind energy with the capability to ship ammonia via deep-water port to meet increasing global market demand.

2.1 Site Location

The proposed hydrogen / ammonia plant and export facilities at the Port of Stephenville are located approximately 5 kilometres (km) west of the Town of Stephenville, Newfoundland and Labrador (NL). The Port au Port wind farm (comprised of Port au Port West and Port au Port East) is located west and north of Stephenville and the Codroy wind farm is located 75 km south of Stephenville; both are connected to the hydrogen / ammonia plant by a collector system / transmission lines. A map of the Project area, including key features and nearby waste management facilities, is provided in Figure 1.

The waste storage area for hazardous and non-hazardous waste will be located in the area of the hydrogen / ammonia plant in Stephenville. The roll on/off bins will be placed strategically so that they can be easily accessed by the user and the collector. Space must be kept so that an empty bin can be dropped before a truck can collect a full bin. Figure 2 shows an illustration of the preliminary hydrogen/ammonia plant site layout and the approximate laydown for the waste storage area.



Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

Figure 1 Project Site Plan.

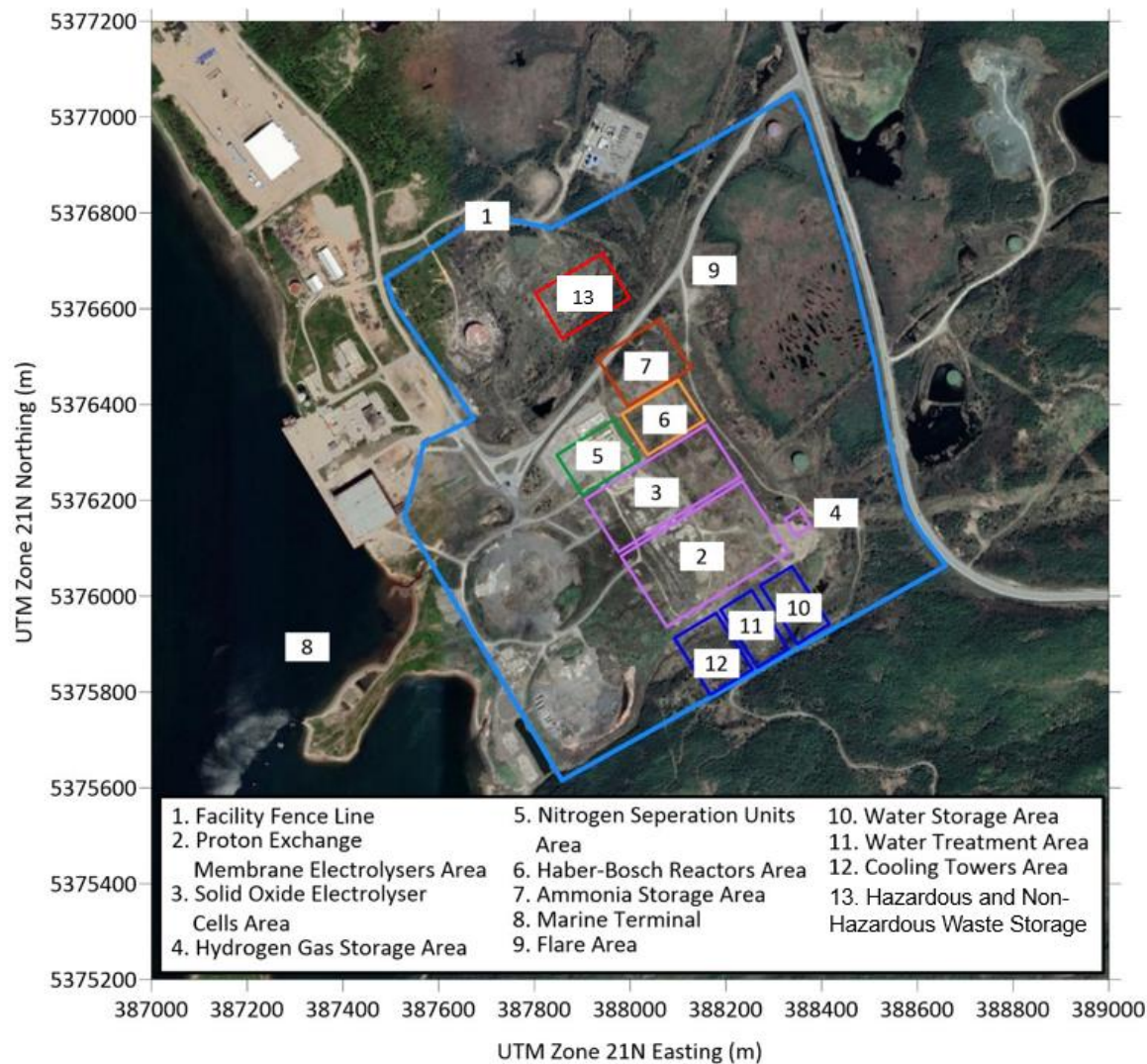


Figure 2 Hydrogen / Ammonia Plant Site Layout (Including Waste Storage Area).

2.2 Construction, Operation and Maintenance Activities

The construction phase of the Project will entail the buildout of the hydrogen production facility, wind farms, transmission infrastructure, and other supporting facilities. The construction phase will include site preparation and construction. Main activities include the following:

- Civil works, including temporary accommodation facilities, site preparation, site clearing and grading and access roads.
- Wind farm construction, including wind turbine transportation and installation.
- Electrical infrastructure, including connector systems, substations, transmissions lines, and hydrogen / ammonia plant terminal station.
- Hydrogen / ammonia plant construction.
- Port facility upgrades.

The operation phase of the Project will cover managing the continuous wind energy generation and subsequent use in the production of green hydrogen and green ammonia. The Project's operation and maintenance strategy will be formulated to maximize the wind farms' and hydrogen and ammonia facility's production over the lifetime of the assets, in a safe, qualitative and environmentally friendly manner.

In the hydrogen and ammonia production processes, the wind energy will be used for the following purposes (based on current calculations):

- Most of the wind energy produced (approximately 92%) will be used in electrolyzers to produce hydrogen.
- A small portion of the wind energy (less than 4%) will be used by the air separation unit, which is part of the ammonia plant, to produce the nitrogen required for the ammonia production.
- A small portion of the wind energy (approximately 4.5%) will be used in the Haber-Bosch process in the ammonia plant for ammonia production.

Waste generated during the construction, operations and maintenance phase of the Project will be collected and disposed of in accordance with this WMP.

2.3 Decommissioning and Rehabilitation Activities

It is recognized that the Project is in its early stage, and that it will take at least 30 years for it to reach the end of the Project's nominal design life. The Project's decommissioning and rehabilitation activities aim to restore the site and typically include:

- Removal and appropriate disposal of all salvageable and non-salvageable equipment, materials, and supplies, including recyclables and non-recyclables
- Demolition and removal of all above-grade infrastructure including buildings and foundations
- Removal and appropriate disposal of non-hazardous demolition debris
- Re-contouring
- Overburden and topsoil replacement
- Natural re-vegetation

	Document Control and Record Keeping		Document No.: WE-GH2-QTY-L1-001
	Version 0.1	07-27-2023	Page 12 of 27

Specific waste management activities associated with the removal and appropriate disposal of all salvageable and non-salvageable equipment, materials, supplies, and demolition debris during decommissioning will be developed in future revisions of the WMP, in accordance with the applicable regulations at the time.

3.0 Relevant Legislation

The Project will fully comply with all applicable federal, provincial, and municipal regulatory requirements. Copies of all approvals, authorizations, licences, and permits shall be obtained and kept on file. WEGH2 is responsible to ensure all relevant legislation is followed prior to waste generation.

3.1 Federal

The following federal regulatory requirements apply to waste management for the Project:

- *Canadian Environmental Protection Act (CEPA);*
- *Canada Shipping Act;*
- *Fisheries Act;*
- *Hazardous Materials Information Review Act;* and
- *Transportation of Dangerous Goods (TDG) Act.*

3.2 Provincial

The following provincial regulatory requirements apply to waste management for the Project:

- *Air Pollution Control Regulations;*
- *Dangerous Goods Transportation Act;*
- *Environmental Control Water and Sewage Regulations;*
- *Newfoundland and Labrador Environmental Protection Act (NL EPA);*
- *Occupational Health and Safety Act;*
- *Occupational Health and Safety Regulations;*
- *Storage and Handling of Gasoline and Associated Products Regulations;*
- *Used Oil Control Regulations;*
- *Waste Diversion Regulations;*
- *Waste Management Regulations;* and
- *Water Resources Act.*

3.3 Municipal

The Project will be in compliance with local municipal bylaws and the *Urban and Rural Planning Act* for any waste handling, storage, and disposal taking place within any municipal borders.

3.4 Other

The Project will be in compliance with other applicable legislation which includes:

- International Convention for the Prevention of Pollution from Ships;
- International Maritime Dangerous Goods (IMDG) Code; and
- International Air Transport Association (IATA).

4.0 Roles and Responsibilities

WEGH2 will be accountable for the review and acceptance of the WMP. All employees, contractors, and visitors to the Project will be made aware of the WMP during orientation. The following roles have specific duties regarding waste management:

Environmental and Sustainability Manager

- Maintains overall responsibility for the development and implementation of the WMP.
- Provides awareness to the WMP.
- Monitors the effectiveness of the WMP.
- Ensures employees and contractors receive orientation and training on waste management procedures.
- Monitors and liaises with Waste Management Contractors.

Logistics Coordinator

- Ensures correct segregation and temporary storage of waste.
- Ensures correct handling and packaging of waste.
- Preparation of waste documentation and waste description.
- Coordinates waste shipments with Waste Management Contractors and advises the receiver of the shipment quantity and classification.
- Reports any health and safety issues with respect to the WMP to the Environmental and Sustainability Manager.
- Conducts routine monitoring and audits of waste management procedures.
- Ensures correct documentation is in place.

Waste Management Contractors

- Responsible for implementing waste management procedures outlined in Section 5.4.
- Ensure compliance with all applicable legislation and regulations.
- Ensure compliance to applicable transportation of dangerous goods requirements.
- Refuse waste that is not packaged or documented correctly.
- Ensure all relevant documents on waste material are in place.
- Transfer waste documentation to relevant third parties or waste disposal contractors.
- Provide responsible and effective waste collection, treatment, and disposal.
- Maintain records and provide monthly reports to WEGH2.
- Communicate any waste management issues to WEGH2.
- Conduct internal audits of their own waste management plans.

All Employees and Contractors

- Provided with orientation and training on waste management procedures specific to their area or work type.
- Aware of waste management procedures related to their area or work type.
- Receive additional training on new or changing waste management procedures, as needed.

5.0 Waste Management System

5.1 Waste Management Hierarchy

The effective application of a waste control hierarchy requires on-site management of waste as they are generated. Waste management requirements include the identification of waste streams, estimations and monitoring of waste volumes generated, segregation and provision of suitable on-site waste storage facilities, and an understanding of locally available treatment and disposal options.

WEGH2's approach to waste management uses the following hierarchy:

- Prevention
- Minimization
- Reuse¹
- Recycle¹
- Disposal

5.1.1 Prevention

The prevention of waste materials, where practical to do so, can materially reduce the environmental impact of WEGH2's activities. Waste reduction, reuse, and recycling opportunities will be identified wherever possible and initiatives from employees may provide the most effective minimization strategies. Opportunities include reducing packaging at the source, consolidating shipments to eliminate packaging, streamlining the purchase of materials to eliminate excess product waste.

Waste streams should be segregated to the extent possible at the source to ensure appropriate management and minimise downstream processing and prevent unnecessary contamination of other less hazardous waste. Segregation is also important to prevent chemically incompatible waste from inadvertently coming in contact and causing an unwanted reaction. Such reactions can result in fires, generation of toxic by-products (such as toxic gases), and even explosions. Proper segregation practices must also be in place for the storage of all chemicals.

5.1.2 Minimization

Successful waste minimization starts at procurement. Waste reduction is most effective when managing waste at the source. Purchasing recyclable products instead of non-recyclable ones, purchasing materials in larger pack sizes (i.e., in bulk) or with less packaging. Purchasing longer-life consumables to reduce waste and ensuring the oldest product is used first to reduce chance of expiry. Introducing efficiencies which require less of the product to be purchased. Reduction of volumes and toxicity of waste generated are to be reviewed prior to disposal.

5.1.3 Reuse

Opportunities to reuse waste material prior to disposal will be reviewed. Making secondary use of items such as packaging materials, may eliminate the need to purchase new materials. Materials that can be reused should be segregated from the waste stream, cleaned, and repaired prior to storage for future reuse.

¹ In accordance with associated regulatory requirements for the waste generated and associated waste classification.

5.1.4 Recycle

Every effort will be made for on-site recycling of waste. At-source separation of recyclable materials diverts material from landfills and displaces the need for raw materials in manufacturing. Some examples of recycling may include plastic, paper, scrap metal and waste oil. Recyclable materials should be segregated from the waste stream and stored separately. Education and awareness are necessary components of a recycling program since contamination of recycling bins can lead to the whole bin being disposed of as general waste.

5.1.5 Disposal

Where the generation of wastes cannot be avoided, and the waste is not suitable for reuse or recycling, the disposal of these wastes must be effectively managed to ensure compliance with regulatory requirements, and to keep the environmental impacts of these wastes to a minimum. Material not deemed acceptable for reuse or recycling will be disposed of via a Waste Management Contractor for the safe transportation of solid waste to an approved facility (e.g., Wild Cove waste disposal site). Materials that can be recycled will be sorted and taken to an approved facility. Burning of rubbish and waste materials on site will not be permitted. Rubbish and waste materials will not be buried on site.

The disposal of waste oil and garbage from vessels within the port will follow the *Vessel Pollution and Dangerous Chemicals Regulations* under the *Canada Shipping Act*. Vessels within the port will be required to produce records of compliance with the International Convention for the Prevention of Pollutions from Ships (MARPOL). These will include report keeping within the vessel's Oil Record Book and the Garbage Record Book following the onshore disposal by an approved Waste Management Contractor.

5.2 Waste Classification

Material is considered waste when it can no longer be used for its original purpose. The types of waste considered in this category include non-hazardous waste and hazardous waste.

Waste classification though analytical and physical testing may be required to confirm waste properties and to inform management methods and treatment/disposal options. Such tests are typically required by the recycling, treatment or disposal facilities to ensure that the materials meet the facility specific acceptance requirements. In Newfoundland and Labrador, classification and acceptance requirements for various waste streams are established for each waste facility under a facility operating approval. For many waste categories, it will not be necessary to do any sampling as the management and disposal will not be dependent on the exact chemical composition of the material. Frequently, the reason for sampling and analyzing waste is to determine if a potential treatment (or disposal) option is suitable for the particular waste and to monitor the success of the treatment process.

In Newfoundland and Labrador, Waste Dangerous Goods / Hazardous Wastes (WDG/HW) are linked to the classification systems established in the federal *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* (EIHWHRMR) schedules, or those which have dangerous good characteristics as described under the *TDG Act* and the *Transportation of Dangerous Goods Regulations* (TDGR) or are hazardous based upon other scientific documentation. A determination of WDG/HW will be based upon generator knowledge or laboratory analysis.

Currently there are no approved disposal facilities for the disposal of WDG/HW within the province. Generators of WDG/HW are required to be registered with the Department prior to transporting waste. All exports of WDG/HW must be manifested during transport and copies returned to NL DECC. Terrapure Environmental owns and operates

the only approved hazardous waste transfer facility in Newfoundland and Labrador. Where certain waste stream can be treated, reused or recycled the within the province.

The *TDG Act* administered by Transport Canada, applies to substances that fall under the definition of 'dangerous goods' in the TDGR. In general, oily waste is not expected to be classified as either dangerous goods or waste dangerous goods, but may be included under the following TDGR Hazard classes (generally defined as follows):

- Class 3: Flammable and combustible liquids (flashpoint < 60°C);
- Class 4.1: Flammable solids (Readily combustible under normal conditions of transport);
- Class 6.1: Toxic substances (substances that are liable to cause death or serious injury or to harm human health if swallowed or inhaled or if they come into contact with human skin); and
- Class 9: Miscellaneous products.

The *Interprovincial Movement of Hazardous Waste Regulations* (IMHWR) issued under *Canadian Environmental Protection Act* 1999 (CEPA) established requirements for waste manifests for all shipments of hazardous waste between Canadian provinces. The goal of the IMHWR is "to ensure that the Canadian manifest tracking and hazards classification conditions for waste, formerly set out in the TDGR, are maintained for the interprovincial movements of hazardous wastes". Interprovincial shipments of waste dangerous goods destined for disposal must comply with the requirements of these regulations and the hazard classifications under the TDGR. Generators of waste exports from Newfoundland and Labrador are subject to registration and manifesting requirements.

5.2.1 Non-Hazardous Waste

Non-hazardous wastes include wastes that are not considered dangerous goods under the *TDG Act*, the IMDG Code, and the IATA. Non-hazardous waste generated by the Project may include:

- kitchen waste;
- general refuse;
- packaging material;
- wooden pallets;
- soiled clothing;
- glass;
- scrap metals;
- paper; and
- cardboard.

5.2.2 Hazardous Waste

Hazardous wastes include those regulated as waste dangerous goods under the *TDG Act*, the IMDG and the IATA. Classes of hazardous waste include gases, flammable liquids, flammable solids, oxidizing substances, poisonous and infectious substances, radioactive materials (including naturally occurring radioactive material), corrosives and miscellaneous substances. Hazardous waste may include:

- acids;
- aerosol cans;
- asbestos-based wastes;
- bases;

- batteries;
- cleaning solvents;
- contaminated waste oils;
- empty drums containing residual chemicals;
- medical wastes;
- oily rags
- paint residues;
- paint thinners;
- waste chemicals; and
- waste fuels.

There are limited waste by-products created from the wind energy generation process. Some waste will be produced from ongoing turbine maintenance (e.g., lubricant and hydraulic oils). Hazardous waste materials will not be generated in large quantities. Subject to manufacturer specifications, replacement of oil lubricant in a turbine gearbox is estimated to be required once every 10 years. Total volume would be one barrel (159 L) every 10 years per turbine.

Other waste by-products are created from the hydrogen and ammonia plant operations such as, oily water drains, and lubricating oils from equipment rotation. Water treatment chemicals will be in a closed system and not typically removed or discharged.

Waste oil/lubricants will be disposed of through conventional hazardous waste disposal streams as per this WMP.

5.3 Waste Containers

The following table lists waste material types that may be generated by the Project and their container type to be stored in. This category-wise segregation of waste streams helps to manage and properly dispose of waste generated by the Project.

Table 1 Waste Materials and their Respective Containers.

Waste Material	Container
General refuse	General refuse bin
Glass/plastic bottles	Recycling bins
Paper/carboard	Paper bins
Scrap metal	Scrap metal bin
Wooden pallets/boxes	Cargo baskets
Oil contaminated rags Paint cans	Open head United Nations (UN) rated steel drums
Galley grease	Plastic pails or closed head steel drums
Flammable solvents Chlorinated solvents	Closed head UN rated steel drums or original packaging
Biomedical waste sharps	Rigid plastic sharps containers (do not compact)

The Logistics Coordinator will ensure waste identification follows *TDG Act* procedures for labeling, handling, and packaging. Other labeling requirements include:

- Name of waste;
- Name of individual or team which generated the waste;
- Source of waste if appropriate (process/location);
- Chemical analysis if appropriate;
- Safety Data Sheets (SDS) information; and
- Any additional, useful, safety or environmental information.

Non-hazardous waste must also be properly labelled and packaged. Every effort must be taken to prevent the mixing of hazardous and non-hazardous waste streams. Waste streams should never mix because of the potential for chemical reactions that may pose serious health and safety and/or environmental risks.

5.4 Waste Management Procedures

Contractors working on site are responsible for implementing the following waste management procedures:

- All waste material generated during the construction and operation of the facility is to be placed in suitable refuse containers and removed to an approved waste disposal site on a weekly basis, with the approval of the site owner/operator.
- All work sites will be kept free from the accumulation of waste material and debris, and upon completion of the works, surplus materials and temporary structures will be cleaned from the sites.
- All solid waste, including waste construction material, will be properly sorted for reuse, recycling, composting, or landfilling in approved facilities. Waybills will be provided upon request for the disposal of hazardous materials at appropriate, provincially approved waste facilities.
- Segregated materials will be stored in a manner to prevent degradation, burning, or burying on site until they are sent to the appropriate, provincially approved waste disposal, recycling, or composting facility.
- Permanent storage areas for containers or drums will be clearly identified.
- Temporary on-site sewage systems required during construction activities will be installed and operated according to relevant provincial legislation. A licensed septic pumping contractor will be used, and waybills will be provided upon request.

5.5 Waste Storage

5.5.1 Hazardous Materials

The Contractor is responsible for ensuring that all provincial and federal regulations are followed in relation to the storage and handling of hazardous materials, including spills and releases. The NL requirements are specified in the *Storage and Handling of Gasoline and Associated Products Regulations*, 2003 (NL Regulation 58/03) and the *Used Oil Control Regulations* 2002 (NL Regulation 82/02), pursuant to the NL EPA. All spills to water are reportable as per the *Fisheries Act*. Reporting requirements can be found in the Emergency Response Plan. In addition, the following minimum requirements are to be implemented regarding the storage and handling of hazardous materials:

- Equipment will be kept in good working order, will be inspected regularly, and observed leaks will be repaired. Equipment maintenance work will take place at designated maintenance sites, away from water

bodies and wetlands. High Density Polyethylene (HDPE) lined maintenance pads will be constructed for equipment maintenance purposes in sensitive areas.

- Fuel storage areas will have approved secondary containment, capable of capturing the contents of the entire volume being stored. Storage areas for containers or drums will be clearly identified.
- Storage of all hazardous materials will comply with Workplace Hazardous Materials Information System (WHMIS) requirements. Appropriate SDS will be located at the storage site(s).
- Transportation of dangerous goods will comply with Transport Canada's *TDG Act*.
- Brush should be chopped/shredded and may be burnt on-site with the approval of the NL Department of Fisheries, Forestry and Agriculture (NL FFA), Forestry and Wildlife Divisions or may be removed to an approved waste disposal site for proper disposal with the permission of the owner/operator of the waste disposal site. Tires and used or waste oil are not to be used to aid in the burning of brush.
- Contractors will provide an Emergency Response Plan (ERP) which will include emergency spill response procedures for potential release of diesel fuel, hydraulic oil and all other types of synthetic oil, drill muds and hazardous materials, and hazardous wastes. Procedure details should include staff and contractor training requirements, and emergency contact numbers for fire responders.
- Spill containment equipment (e.g., spill kits) and trained personnel will always be present at site.
- Secondary containment (i.e., spill trays) should be used during refueling or storage of any hazardous material.
- Refuelling, clean-up kits and storage of fuel will follow permit stipulations under the Policy for Land and Water Related Developments in a Protected Public Water Supply Area (PPWSA) under the NL *Water Resources Act*.
- Refuelling in the field will not occur within 30 m of watercourses and water supply areas (including the known location of private wells). Where equipment is located near a wetland and must be refuelled at that location, special precautions will be used to prevent spilled fuel from entering sensitive receptors (e.g., spill tray/absorbent pads located below nozzle and spill response kits fully stocked and located at the refuelling location).
- In the event of an emergency involving dangerous goods, call Canutec at 613-966-6666 or *666 (cell phone). Canutec is the Canadian Transport Emergency Centre and is operated by Transport Canada to assist emergency response personnel in handling dangerous goods emergencies. This national bilingual advisory centre is specialized in interpreting technical information, providing advice, and emergency response associated with the transportation of dangerous goods under the *TDG Act*.

When storing waste in drums it is critical that the drums be clearly labelled to indicate the contents and that materials are not mixed. The following practices must be followed:

- Properly label all drums and make an SDS available when applicable.
- Verify the drums are sealed to prevent spills prior to storage or movement.
- Store with a secondary containment and in designated storage areas.
- Ensure that the decanting nozzle does not leak when installed.
- Use a drip-pan to prevent spills, keep clean-up materials nearby.

5.6 Waste Transportation

The waste material generator will ensure wastes are properly segregated, packaged, labelled and manifested to meet *TDG Act/IMDG/IATA* requirements prior to shipment. The logistics coordinator will arrange for the shipment of waste and advise the receiver of the shipment quantity and classification.

All wastes must be transferred properly segregated, packaged, labelled, and manifested for disposal. In the case of hazardous wastes, materials are packaged, labelled and manifested to meet *TDG Act/IMDG/IATA* requirements. Separate manifests are required of the wastes if they are not all destined for the same disposal site.

A copy of the waste (dangerous goods) manifest is attached to the cargo manifest. One waste manifest may be used for multiple consignments of wastes transferred on the same shipment.

If waste samples are to be transferred by air (i.e., samples for laboratory analysis), additional shipping precautions are required as per IATA. The Technical Instructions for the Safe Transport of Dangerous Goods by Air, as published by the International Civil Aviation organization, is the generally accepted reference for packaging, labelling and manifesting of shipments by air.

The Logistics Coordinator will be responsible for arranging for pickup of the waste with the designated waste disposal contractor and must check all shipments of wastes for proper segregation, packaging, labelling and discrepancies before arranging for removal from site.

5.7 Waste Management Summary

A summary of potential waste streams generated by their Project including their origin, storage, collection, treatment, disposal, and legislative requirements is included in Table 2.



Table 2 Waste Management Summary

Waste Type	Waste Origin	Collection/Transportation	Treatment/Disposal	Applicable Legislation
Non-Hazardous Waste				
Food	Lunchrooms, trailers	Collect in plastic bags. Collect in storage bin, remove from site.	Landfill	<ul style="list-style-type: none">Waste Diversion Regulations, EPAProvincial Waste Management StrategyWaste Management Regulations, EPA
Paper/Cardboard	Plant, lunchrooms, trailers	Collect in storage bin.	Landfill when applicable or recycle at a licensed facility.	<ul style="list-style-type: none">Waste Diversion Regulations, EPAProvincial Waste Management StrategyWaste Management Regulations, EPA
Plastics	Plant, lunchrooms, trailers	Collect in storage bin.	Landfill when applicable or recycle at a licensed facility.	<ul style="list-style-type: none">Waste Diversion Regulations, EPAWaste Management Regulations, EPA
Beverage Containers	Lunchrooms, trailers	Collect accepted beverage containers in recycling bin	Recycle at a licensed facility.	<ul style="list-style-type: none">Waste Diversion Regulations, EPAWaste Management Regulations, EPA
Tin Cans	Plant, lunchrooms, trailers	Collect in storage bin.	Recycle at a licensed facility.	<ul style="list-style-type: none">Waste Diversion Regulations, EPAWaste Management Regulations, EPA
Tires	Plant, mobile equipment	Store at laydown area, remove from site.	Recycle or dispose off site at a licensed facility.	<ul style="list-style-type: none">Waste Management Regulations, EPA
Condemned Vehicles	Mobile equipment	Drain residual fluids and store in laydown area. Transport off site to licensed metals recycler.	Recycle at a licensed metals recycler.	<ul style="list-style-type: none">Waste Diversion Regulations, EPAWaste Management Regulations, EPA
Scrap Metal	Plant, wind farms, mobile equipment, maintenance building	Store at laydown area. Re-use or recycle if possible. Transport off site.	Re-use if possible. Recycle/dispose at a licensed metals recycler.	<ul style="list-style-type: none">Waste Diversion Regulations, EPAWaste Management Regulations, EPA
Bulk Construction Debris	Plant, wind farms	Re-use or recycle if possible. Collect in storage bin. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none">Waste Management Regulations, EPA
Hazardous Waste				
Acids	Plant, maintenance building	Store in approved containers. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none">TDG RegulationsWHMIS RequirementsHazardous Products ActControlled Products Regulations
Aerosol cans	Plant, maintenance building	Collect cans separately in labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none">TDG RegulationsWHMIS RequirementsHazardous Products ActControlled Products RegulationsFire Prevention Flammable and Combustible Liquids Regulations
Asbestos	Plant, maintenance building	Contact a licensed Asbestos abatement contractor immediately for removal if detected.	Obtain a disposal permit and dispose as per the requirements of the permit.	<ul style="list-style-type: none">TDG RegulationsWHMIS RequirementsHazardous Products ActAsbestos Abatement Regulations
Bases	Plant, maintenance building	Store in approved containers. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none">TDG RegulationsWHMIS RequirementsHazardous Products ActControlled Products Regulations
Batteries	Plant, maintenance building	Store in labelled containers at site. Transport off site.	Dispose/recycle off site at a licensed facility	<ul style="list-style-type: none">TDG RegulationsWHMIS RequirementsHazardous Products ActControlled Products Regulations

Cleaning solvents	Plant, maintenance building	Collect cans separately in sealed and labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i>
Contaminated waste oils	Plant, maintenance building, mobile equipment	Collect and seal in labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>Used Oil Control Regulations, EPA</i> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i> • <i>Fire Prevention Flammable and Combustible Liquids Regulations</i>
Empty drums containing residual chemicals	Plant, maintenance building	Collect and seal in labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i> • <i>Fire Prevention Flammable and Combustible Liquids Regulations</i>
Human waste	Lunchrooms, trailers, portable toilets	Collect at source. Removal by a licensed Septic Removal Contractor in a timely manner.	Disposed off site by a licensed Septic Removal Contractor.	<ul style="list-style-type: none"> • <i>Public Health Act</i> • <i>Sanitation Regulations</i>
Medical waste	Lunchrooms, trailers	Store in special waste containers. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>Public Health Act</i> • <i>Sanitation Regulations</i>
Oily rags	Plant, maintenance building, mobile equipment	Collect and seal in labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>Used Oil Control Regulations, EPA</i> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i> • <i>Fire Prevention Flammable and Combustible Liquids Regulations</i>
Paint residues, thinners	Plant, maintenance building, mobile equipment	Collect cans separately in sealed and labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i> • <i>Fire Prevention Flammable and Combustible Liquids Regulations</i>
Waste chemicals	Plant, maintenance building, mobile equipment	Collect cans separately in sealed and labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i> • <i>Fire Prevention Flammable and Combustible Liquids Regulations</i>
Waste fuels	Plant, maintenance building, mobile equipment	Collect in sealed and labelled drums. Transport off site.	Dispose off site at a licensed facility.	<ul style="list-style-type: none"> • <i>Used Oil Control Regulations, EPA</i> • <i>TDG Regulations</i> • <i>WHMIS Requirements</i> • <i>Hazardous Products Act</i> • <i>Controlled Products Regulations</i> • <i>Fire Prevention Flammable and Combustible Liquids Regulations</i>

6.0 Contingency Plans

As part of the Emergency Response Plan (ERP), several contingency plans have been developed to minimize adverse effects from accidents and unplanned incidents. These contingency plans will be modified as required throughout the life of the project.

The following contingency plans have been developed for this project and are summarized below:

- Extreme Weather Conditions;
- Fires and Explosions;
- Fuel and Hazardous Material Spills;
- Improper Disposal; and
- Wildlife.

6.1 Extreme Weather Conditions

Extreme weather can include severe storms, hurricanes, tornadoes, and drought. Winter storm events can consist of high winds, snow, ice and freezing rain. During the summer and fall months, the island of Newfoundland is susceptible to hurricanes and tropical storms which can bring very strong winds and heavy rains that can cause lengthy power outages and flooding. Other forms of severe weather can develop during warmer months including thunder, lightning, hail and occasionally hurricanes. Tornadoes are not common in NL, but still a potential risk.

In the event of extreme weather conditions, WEGH2 may issue instructions with respect to waste management activities on site. This may include securing loose items, storing smaller to medium size items inside, placing hazardous materials on higher ground, delaying a scheduled pickup to dispose of materials, etc.

6.2 Fires and Explosions

In the event of fire associated with waste, the emergency response unit shall be dispatched immediately in accordance with the procedures outlined in the Project's ERP. Some precautions to take to prevent fire hazards include:

- Smoking in designated areas only.
- Storing, handling and disposing of flammable materials and other wastes appropriately.
- Providing fire-fighting equipment that is in compliance with manufacturer standards and in sufficient quantities.
- Training project personnel to use fire-fighting equipment.

6.3 Fuels and Hazardous Material Spills

Any unintentional or unauthorized discharge of any substance to the air, water, or ground is considered a reportable incident. All spills are to be reported immediately to the Environmental and Sustainability Manager. Consult the SDS before taking any action to confirm appropriate personal protective equipment (PPE) is worn and whether any specialized cleanup and waste handling procedures are required. Spills of waste chemicals will be dealt with in accordance with the instructions of the SDS, and for significant releases or spills entering the environment, in accordance with the Project's ERP.

6.4 Improper Disposal

When it comes to waste management, it is very important to segregate the waste appropriately, especially for non-hazardous and hazardous waste streams. Any instances of improperly disposed of materials shall be reported immediately and investigated.

Materials associated with the clean-up of spilled material (e.g., sorbent pads, chemical neutralizer, PPE, etc.) will be treated as hazardous waste and handled, stored, and disposed of accordingly.

6.5 Wildlife

Wildlife may become familiar with waste storage locations on the Project site and wildlife encounters pose a potential risk for stress or injury to both the wildlife and project personnel. To reduce the risk to both wildlife and humans, it is important that the following measures should be implemented:

- Working areas will be kept clean of food scraps and garbage.
- Wildlife protected disposal containers will be used in remote areas or covers will always be closed on a garbage container when not in use.
- Food and garbage bins will be regularly emptied and transferred to the landfill.
- Project personnel shall never directly feed wildlife.

7.0 Training

WEGH2 will ensure that employees are provided with formal and on-the-job training related to the WMP by deploying a site-specific orientation and training package. All personnel on site will be given basic orientation and training related to compliance with waste management practices and policies, which will increase awareness of the WMP. As the WMP is updated, WEGH2 will circulate communication to employees and contractors.

As appropriate, WEGH2 and its contractors will provide job specific training and orientations related to waste management. WEGH2 will then review pertinent contractor's training matrices to ensure that all personnel are suitably qualified and trained. All contractors will be required to maintain a database of training records to support the credentials of all employees. This data will be reviewed and audited on a regular basis to ensure credentials are always current.

WEGH2 requires anyone working on site to have WHMIS training, regardless of whether they will be handling chemicals. WEGH2 will also require anyone who packages or transports materials to have TDG training, or to be directly supervised by someone who has TDG training.

8.0 Monitoring and Record Keeping

Monitoring inspections and audits will be completed on all components of the waste management plan on an annual basis to minimize non-compliance issues and identify any adjustments that may be required.

Monitoring may include informal and formal inspections on personnel, equipment, and contractors by:

- Ensuring the accuracy of locations and conditions of on-site waste condition bins.
- Reviewing the waste collection, transportation, and handling operations of all personnel working at the Project.
- Confirming waste volumes are properly being recorded.

If the monitoring inspections identify problems of concern, appropriate measures will be implemented to ensure procedures outlined in the WMP are followed. A record will be kept by the Logistics Coordinator to track correction measures that have been taken.

9.0 Revising the WMP

As this is a controlled document, revisions may only be made by the Environment and Sustainability Manager. It is anticipated that most of the revisions to the WMP will arise from the operating personnel at site, and future revisions with further detail of the Project decommissioning phase. Other revisions will be as required/requested from the provincial and federal government regulatory agencies and other stakeholders. Plan holders and readers/reviewers may initiate proposed revisions by forwarding recommended changes to the Environment and Sustainability Manager in writing.

Recommendations will be reviewed, and appropriate revisions incorporated into the WMP when required. The approved revisions will be issued to all holders of controlled copies of the WMP. Each revision will be accompanied by a Revision Control Sheet that:

- Provides revision instructions; and
- Lists the sections being superseded.

An updated Table of Contents will be included with each revision. A revision number and revision date will be added to each revised page. WMP holders will be responsible for inserting revision pages into their document.

Appendix 2-H

Hazardous Materials Response and Training Plan

PROJECT NUJIO'QONIK
Environmental Impact Statement



Project Nujio'qonik

Hazardous Materials Response and Training Plan

<i>Document No</i>	WE GH2-SAF-045	<i>Current Revision</i>	1.0
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	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 2 of 14

Table of Contents

1	Introduction	3
2	Hazardous Materials Response Training Overview	3
3	Training Requirements	3
3.1	Year 1, First Quarter	4
3.2	Year 1, Second Quarter	5
3.3	Year 1, Third Quarter	6
3.4	Year 1, Fourth Quarter	7
3.5	Year 2, First Quarter	8
3.6	Year 2, Second Quarter	9
3.7	Year 2, Third Quarter	10
3.8	Year 3, Fourth Quarter	11
4	Hazardous Materials Response Equipment and Vehicles	12

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 3 of 14

1 Introduction

World Energy GH2 is committed to providing a safe and healthy work facility for its employees, the surrounding community, and the environment. The identification of potential emergencies and vulnerabilities, prevention of those emergencies and ensuring preparedness to respond is of utmost importance and shall be the priority for all persons working at the facility.

It is anticipated that accidents, injuries, and emergencies may still occur. This Hazardous Materials Response and Training Plan provides guidelines for training and equipment requirements to support any potential required hazardous materials event response in local areas and along transportation routes.

2 Hazardous Materials Response Training Overview

The overall goal of this training plan is to have fully trained multi-professional skilled emergency services responders to be competent at the incipient stage of the project's productions start-up. This training plan provides a framework on requirements for a two-year period before manufacturing starts up. This plan specifies the training requirements for both firefighters and fire officers, as both will be required for any fire service departments. All courses must be from a recognized Canadian Fire College with the emphasis that the courses are IFSAC and ProBoard Certified.


This plan incorporates training requirements for the Hazardous Materials Response team in addition to the standard training requirements defined in WE GH2 ERP-01 Emergency Response Plan. The Hazardous Material Response Team will train above and beyond that contained in the ERP to ensure that workers are familiar with their roles and responsibilities in HazMat Response.

The Training Coordinator will ensure that the Hazardous Materials Response Team is trained in accordance with this plan. Throughout the training plan, documentation of training hours, certifications, and skills acquired will be maintained by the Training Coordinator. Regular evaluations and feedback sessions will also be conducted to identify areas for improvement and ensure compliance with Canadian regulations and industry standards.

3 Training Requirements

A comprehensive two-year training plan to fully train firefighters and hazardous materials (HAZMAT) technicians for responding to fires, ammonia releases, and hydrogen fires in collaboration with a Canadian fire college. This plan is specifically tailored for a manufacturing plant fire department.

The training plan outlines a chronological order to move local candidates through all training requirements.

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 4 of 14

3.1 Year 1, First Quarter

Firefighter I Certification:


- NFPA 1001: Firefighter I certification course covering basic firefighting skills, equipment, and techniques
- Fire behavior, suppression tactics, ventilation, and rescue operations
- Live-fire training exercises to apply theoretical knowledge
- 200 Hours

Hazardous Materials Awareness NFPA 1072:

- Introduction to hazardous materials and their risks in the manufacturing plant environment
- Hazard identification, labeling, and basic safety procedures
- Awareness-level response techniques for initial scene management
- 8 Hours

Incident Command System (ICS) 100 Introduction:

- Introduction to ICS principles, organization, and terminology
- Roles and responsibilities within the incident command structure
- Basic incident management procedures and communication protocols
- 6 Hours, on-line

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 5 of 14

3.2 Year 1, Second Quarter

Firefighter II Certification:


- NFPA 1001: Firefighter II certification course focusing on advanced firefighting skills and strategies
- Advanced fire behavior, ventilation techniques, search and rescue, and firefighter survival
- Practical exercises emphasizing team coordination and incident response
- 100 Hours

Hazardous Materials Operations:

- NFPA 1072: Hazardous Materials Operations certification course
- Hazardous materials recognition, evaluation, and defensive response strategies
- Decontamination procedures, spill control, and containment techniques
- Simulated exercises involving hazardous materials incidents
- 40 Hours

Emergency Medical Responder (EMR) Training: (Optional) Basic First Aid/ CPR with AED

- Comprehensive EMR training covering basic life support, medical emergencies, and trauma care
- Chemical exposure assessment, decontamination procedures, and treatment protocols for ammonia and hydrogen-related incidents
- Practical exercises to simulate medical responses in hazardous environments
- 120 Hours

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 6 of 14

3.3 Year 1, Third Quarter

Hazardous Materials Technician:


- NFPA 1072: Hazardous Materials Technician certification course
- In-depth understanding of hazardous materials, chemical properties, and advanced response strategies
- Advanced decontamination techniques, containment and confinement procedures, and air monitoring
- Hands-on exercises and simulations involving complex HAZMAT incidents
- 80 Hours

Industrial Firefighting Techniques:

- Specific training focused on industrial firefighting techniques applicable to the manufacturing plant environment
- Fire suppression systems, industrial hazards, and specialized equipment usage
- Live-fire training exercises and simulations replicating plant-specific scenarios
- Specialized training in house, Ammonia, Hydrogen

Incident Command System (ICS) Intermediate:

- ICS 200 certification course providing an intermediate level of incident command knowledge and skills
- Expanding on ICS principles, incident planning, resource management, and incident documentation
- Complex incident simulations to practice decision-making and coordination
- 16 Hours

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 7 of 14


3.4 Year 1, Fourth Quarter

Advanced Firefighting Techniques:

- Advanced firefighting skills training emphasizing large-scale incidents and complex fire behavior
- High-rise Structures firefighting, ventilation techniques, incident size-up, and tactical considerations
- Practical exercises with simulated challenging fire scenarios

Ammonia and Hydrogen Incident Response:

- In-depth training on ammonia and hydrogen hazards, response strategies, and incident management
- Understanding the manufacturing plant's specific processes, systems, and emergency shutdown procedures
- Practical exercises involving simulated ammonia and hydrogen incidents
- On site Ammonia release and control technics
- 40 Hours

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 8 of 14


3.5 Year 2, First Quarter

Technical Rescue Training:

- Technical rescue disciplines specific to the manufacturing plant environment (e.g., confined space, high-angle, trench)
- NFPA 1006 Rope Rescue Level I, II
- 36 Hours
- NFPA 1006 Confined Space Level I, II
- 35 Hours
- Advanced rope techniques, equipment usage, patient packaging, and extrication procedures
- Hands-on practical exercises and simulations in various rescue scenarios

Leadership and Management Skills:

- Training on leadership and management skills essential for supervisory and officer roles
- Communication, decision-making, conflict resolution, and team building
- Practical exercises focusing on incident management and personnel supervision
- NFPA 1031 Fire Inspector Level I

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 9 of 14


3.6 Year 2, Second Quarter

Incident Command System (ICS) Advanced:

- ICS 300 certification course providing advanced incident command knowledge and skills
- Command and general staff roles, establishing a command post, and strategic decision-making
- Complex incident simulations requiring multi-agency coordination

Specialized Training:

- Specific training based on the manufacturing plant's unique hazards, processes, and equipment
- NFPA 1002 Pump Operations, Driver Operator
- 36 hours
- Collaboration with subject matter experts and industry professionals
- Practical exercises and simulations to enhance plant-specific response capabilities

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 10 of 14


3.7 Year 2, Third Quarter

Advanced Hazardous Materials Response:

- Advanced hazardous materials response training tailored to the manufacturing plant's specific chemicals and processes, Ammonia, Hydrogen, Battery fires
- Advanced air monitoring, sampling techniques, decontamination methods, and product transfer procedures
- Simulated exercises involving complex HAZMAT incidents

Emergency Planning and Preparedness:

- Development and implementation of emergency response plans and procedures
- Risk assessment, hazard mitigation, emergency communication systems, and evacuation planning
- Tabletop exercises and drills to test emergency plans

	Hazardous Response and Training Plan		Doc Number: WE GH2-SAF-045
	Version 1.0	08-01-2023	Page 11 of 14

3.8 Year 3, Fourth Quarter

Continued Professional Development of Fire Officers:

- Fireground Management
- 18 Hours
- NFPA 1021 Fire Officer Level I
- 16 weeks online, 40 Hours
- NFPA 1021 Fire Officer Level II
- 16 Weeks online, 40 Hours
- NFPA 1521 Fire Department Safety Officer
- 35 Hours
- ICS Operations Sections Chief, ICS Canada
- 24 Hours
- ICS Planning Section Chief, ICS Canada
- 24 Hours
- NFPA Fire Inspector Level I
- 40 Hours
- NFPA 1041 Emergency Services Instructor Level I
- 40 Hours
- Participation in workshops, conferences, and seminars to stay updated on industry best practices
- Cross-training opportunities with other fire departments and emergency response agencies
- Integration and Joint Exercises:
 - Collaborative training exercises with neighboring fire departments, HAZMAT teams, and emergency response agencies
 - Joint simulations replicating large-scale incidents involving ammonia, hydrogen, and other hazards
 - Enhancing coordination, communication, and interoperability among different response entities

4 Hazardous Materials Response Equipment and Vehicles

The section further outlines the Vehicles/Apparatus/Equipment needed for HazMat response, in addition to that included in WE GH2 ERP-01 Emergency Response Plan

Note to Draft: Further refinement of the required equipment and vehicles list, including quantities, will occur as the project progresses.

Equipment	Quantity
Self-Contained Breathing Apparatus (SCBA)	1 / FF, 1 spare cylinder (composite ultralight, one hour), integrated communication through facepiece, c/w matching FFARP adaptor for cartridges
Level A vapor suits (HazMat responders, Hot Zone)	
Level A suit testing kit (per manufacturer)	
Level B splash suits (HazMat responders, Warm Zone)	
Rubber Boots with Steel Toe (Level A over-boots)	
Level B and C Chem Boots	
Turnout gear	
Full Face Air Purifying Respirator with Ammonia cartridge and prefilter	
2-4 Continuous air monitors (LEL, H2S, NH3, O2)	
Nitrile ammonia gloves (flock lined)	
Thermal gloves (ammonia cold protection)	
Fire monitors (water spray fog, fire vapor suppression)	
Fire hose (multiple lengths of 2 ½ and 1 ¾ hand lines) with adjustable nozzles	
Portable fire fighting monitors	

Sewer / manhole covers (neoprene)	
Variety Spill Adsorbent Materials/Kits (Pillows/socks/granular/ chemical absorption material)	
Waste drums for Haz Waste Packaging	
Boom (for sites near waterways) Only to be used by trained responders	
Culvert spill runoff closure device, if applicable	
Aluminum shovel (spark proof)	
Decontamination pool(s), brushes, long handles, spray 9	
Disposal bags / salvage drums and other waste containers	
Traffic cones (10) – height 28 inches, to set zones out	
Nitrile Gloves / Goggles /FFAPR/Level A and B suits	
Heavy duty ventilation fans (gas and electric), c/w portable generator	
Portable radios (intrinsically safe for HazMat Level A suit Use)	
Emergency medical kit for ammonia	
Confined space hard hat helmet for HazMat and CS entry	
Incident Command Vests (IC, Decon, Etc.)	
Miscellaneous supplies (containers, etc.)	
Ammonia transfer pumps	

Vehicles	Quantity
2 x 24 ft trailers (enclosed)	2
1 outfitted for decontamination	
1 outfitted for equipment, dressing, etc.	
¾ or 1 Ton truck with cap on bed, or suburban for towing trailer	1

Fire Fighting Vehicles / Apparatus	Quantity
Fire truck, Class A (FUS) Pumper min 2000 PGM with Class A and B foam capacity	1
Cubed 18 foot stand up delivery van (rescue CSE, rope rescue, etc. equipment truck)	1
100 foot aerial ladder with a 3000 gpm pump, c/w plumbed water-way (along ladder way)	1

Appendix 2-I

Workforce and Employment Plan

PROJECT NUJIO'QONIK
Environmental Impact Statement



Workforce and Employment Plan

Project Nujio'qonik

August 2023

Disclaimer: The plan is based on the best information available at the time of publication and is expected to change as the project design is finalized.

Table of Contents

1. Introduction
2. Full and Fair Opportunity
3. Workforce Requirements
 - 3.1 Workforce Forecast
 - 3.2 Recruitment & Retention Strategy
 - 3.3 Apprenticeship
4. Training and Development
5. Reporting
6. Benefits Agreement

1. Introduction

The Project Nujio'qonik will construct and operate up to 328 wind turbines on the Port au Port Peninsula and Codroy areas to generate 2 gigawatts (GW) of electricity with the associated transmission and supporting infrastructure to power a 1.2 GW hydrogen and ammonia production facility in the Port of Stephenville. Future expansion of the Project includes the potential to create up to a total of 3 GW of renewable electricity from the Port au Port wind farm and two additional onshore wind farms to power a 1.8 GW hydrogen and ammonia production facility.

The Project Nujio'qonik will provide long-term benefits to the province through enhanced employment opportunities. Employment opportunities from the construction phase of the project are expected to begin in late-2023, with peak construction occurring in late-2024 to mid-2026. Once the Project is operational, direct and indirect employment opportunities are expected to continue for the 30-year operational life cycle.

This Workforce and Employment Plan has been prepared for Project Nujio'qonik as of August 2023, and is reflective of the project configuration at this time and may change materially from time to time.

2. Full and Fair Opportunity

Consistent with the *Canadian Charter of Human Rights and Freedoms*, the project will prioritize residents of Newfoundland and Labrador for employment opportunities, with additional consideration given to local area residents and Indigenous groups. Further details around hiring protocols will be finalized in line with our Benefits Agreement.

Contractors, subcontractors, partnering companies, and any other source of employment for the project will be subject to the Full and Fair Opportunity protocol.

3. Workforce Requirements

3.1 Workforce Forecast

3.1.1 Construction

There will be over 2,200 direct jobs available to support the construction of the turbine infrastructure, hydrogen plant and related infrastructure. This total includes a management team, and a variety of professional and administrative roles, with the majority of the positions being construction-related trades. A current estimate of the positions required during the construction phase can be found in Appendix

A. Please note that these numbers are based on the current high-level estimate and are expected to change as we move through the project design and planning phases, however, this estimate should provide a sense of the magnitude and timing of the workforce required.

It is worth noting the plan to execute a phased approach to construction, resulting in many of the positions being maintained long term across the various phases of construction. This includes the sequential construction of two wind farms over a five-year period, as well as the phased construction of the hydrogen and ammonia production plant.

3.1.2 Operations

The operations phase will include a broad range of occupations, including wind turbine technicians, maintenance trades, security, operations/manager, engineers, technicians, plant operators and transportation. The steady state operations team is expected to include approximately 400 employees over the 30-year operations.

The operation and maintenance of the facility will be a substantial and constant undertaking, with workers employed full time through the life of the Project.

A current estimate of the positions required during the operations phase can be found in Appendix B. Please note that these numbers are based on the current high-level estimate and are expected to change as we move through the design and planning phases, and construction phases, and begin to ramp up production.

3.1.3 Decommissioning

The decommissioning phase will require a sizable workforce to decommission turbines, transmission lines, substations, balance of plant, and hydrogen and ammonia facility. We estimate that these duties will require an estimated 100 people for the wind farm (including BoP) and an additional 250 people to remove, load and ship out for decommissioning of the hydrogen and ammonia plant.

These activities would be expected to coincide with a ramp down in operations activities and will continue to be refined as we proceed through our 30-year operational life cycle.

3.2 Recruitment and Retention Strategy

World Energy GH2 plans to direct-hire many of the employees required for the management team for the construction and operational phases of the project, with several areas of expertise expected to be secured through contract.

World Energy GH2 plans to issue Engineering, Procurement & Construction (EPC) contracts for the construction phase of the project, and the trades workforce will be hired by those contractors.

Where there is a shortage of a skilled trade, it is expected that contractors will utilize additional apprentices and/or international building trade unions to secure the required workforce. It is not anticipated that any trades will be required through immigration for this project, however, the Government of Newfoundland and Labrador has set a target to bring more than 5,000 newcomers for permanent resident admission by year 2026, and the company shall actively seek and support construction trades newcomer candidates for the project to build up the skilled workforce in the local area.

Since January 2023, World Energy GH2 has been working with Venor, a recruitment and human resources consultancy, to develop a labour relations strategy for the project. WEGH2 has met with TradesNL, and will continue to meet with trades unions, as we plan the human resources for the project. WEGH2's planning also includes an education and training strategy, comprised of a partnership between Qalipu First Nation and DOB Academy (Netherlands) to develop industry training, and a partnership with College of the North Atlantic to provide scholarships to students in the Wind Turbine Technician and Hydrogen Technician programs. Further partnerships with post-secondary institutions will develop as the project progresses

World Energy GH2 has contracted a local firm to manage sourcing candidates for executive, management, and staff positions for the project. The company, when filling any positions, shall include DEIB (diversity, equity, inclusion and belonging) statements in the application portal and job postings, encouraging applicants from all backgrounds to apply, as well as directly reach out to applicable Indigenous groups and community associations regarding potential and current opportunities relating to the project.

A competitive total compensation package, including wages, shifts, turnaround schedules, accommodations, and travel, is crucial to attract and retain the local workforce for the project.

World Energy GH2 is committed to a fair and competitive compensation package for workers on the project.

3.3 Apprenticeship

World Energy GH2 shall support the training and development of registered apprentices as part of its responsibility to provide opportunities for skilled tradespeople for the project, and will develop an Apprenticeship Training Program for the construction and operations phases of the project.

Trades will require Red Seal Provincial or Interprovincial Journeyperson certification. Apprentices must be registered with the Newfoundland and Labrador Apprenticeship Trade & Certification Division.

During the construction phase, World Energy GH2 commits to a target of 10% for the ratio of apprentices to journeypersons working on the project. Noting that this will fluctuate over time depending on a number of factors, including overall mix of trades and availability of apprentices.

Contractors and subcontractors will be required to follow the apprenticeship commitments for the construction phase of the project.

World Energy GH2 commits to developing an apprenticeship program for the operations phase, with details to be confirmed within the Benefits Agreement.

4. Training and Development

The wind power industry is new to Newfoundland and Labrador, and the qualifications for individuals working on the project will include the current skilled trades workforce and will also introduce new skills to the province.

Included as a part of the project's training and development plan is an education partnership with the College of the North Atlantic's Wind Technician Program and Hydrogen Technician Program, and the facilitation of a partnership between Qalipu First Nation and DOB Academy (The Netherlands) to develop industry training and curriculum. We plan to develop additional collaboration opportunities and partnerships with post-secondary institutions across the province.

World Energy GH2 will continue to collaborate with Government, education and training institutions, and industry associations to seek local solutions, including the Apprenticeship Program, to any identified trades or labour shortages.

5. Reporting

World Energy GH2 commits to quarterly reporting on employment statistics based on the following criteria:

- Total Number of Employees by NOC code 2021
- Number of Full-Time and Part-time employees
- Number of Apprentices by NOC code 2021
- Number of Journeypersons by NOC code 2021
- Gender

- Indigenous
- Source of workforce

6. Benefits Agreement

World Energy GH2 commits to developing a Benefits Agreement that meets the approval of the Minister of Industry, Energy and Technology, and includes a DEIB Plan that meets the requirements of the Minister responsible for Women and Gender Equality.

World Energy GH2 recognizes the impact the project will have on the local area and its people, and shall develop a Benefits Agreement to ensure employment and economic opportunities are focused on supporting and empowering local residents, businesses, and Indigenous groups.

APPENDIX A

Labour Forecast Construction Phase

Construction Phase NOC Codes																					
NOC Code	NOC Code Description	2023	2024					2025					2026					2027			
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Construction Trades and Apprentices																					
2120	Architects, urban planners and land surveyors				5	8	9	9	9	9	8	8	8	8	5	5	5	5			
6320	Cooks, butchers and bakers			10	10	10	10	10	10	10	10	10	10	10	5	5	5	5			
6520	Food support occupations			25	25	25	25	25	25	25	25	25	25	25	10	10	10	10			
6531	Cleaners			25	25	25	25	25	25	25	25	25	25	25	10	10	10	10			
7210	Machining, metal forming, shaping and erecting trades				50	100	200	200	354	250	100	100	50	50	50	50	25	25			
7220	Technical electrical trades and electrical power line and telecommunications workers	20	50	100	100	100	100	125	175	200	200	175	150	125	100	100	100	100			
7230	Plumbers, pipefitters and gas fitters				100	200	300	300	400	500	614	500	300	200	100	50	25	25			
7231	Carpenters and cabinetmakers				5	5	5	10	10	10	10	5	5	5	5	5	5	5			
7232	Bricklayers and Insulators				5	5	5	5	10	10	10	10	10	84	84	84	50	25			
7240	Machinery and transportation equipment mechanics (except motor vehicles)			22	22	22	22	22	22	22	22	22	22	15	10	5	5	5			
7250	Crane operators and water well drillers				5	5	5	5	5	5	5	5	5	5	5	5	5	5			
7310	Concrete finishers, tilesetters and plasterers				50	100	200	200	45	25	25	25	25	25	25	10	5	5			
7330	Transport truck and transit drivers				50	200	400	500	705	463	389	300	200	100	100	100	50	25			
7340	Operators, drillers and blasters	4	45	53	45	45	45	132	42	42	42	42	39	25	20	10	5	5			
7511	Trades Helpers and Labourers		130	130	198	130	130	130	150	175	200	150	150	100	100	50	25	25			
9421	Furniture, wood, plastic and other products assemblers, finishers and inspectors				10	25	25	50	75	103	103	103	50	25	5	5	5	5			
Total Construction Trades and Apprentices		24	225	470	905	1305	1606	1798	1800	1800	1699	1405	974	827	634	504	335	285			
Construction Management and Staff																					
0001	Legislators and Senior Management	5	10	15	15	15	15	15	15	15	15	15	15	15	15	5	5	5			
1001	Administrative Service Managers			8	8	8	8	8	8	8	8	8	8	6	2	2	2	1			
1002	Managers in Business and Financial Services	1	3	6	6	6	6	6	6	6	6	6	6	6	2	2	2	1			
1120	Human Resources and Business Services Specialist	2	3	5	8	8	8	8	8	8	8	8	8	8	7	5	2	1			
1210	Administrative and Regulatory Occupations	1	3	8	12	12	12	12	12	12	12	12	12	12	4	2	2	2			
1211	Court reporters, transcriptionists, records management technicians and statistical officers		1	2	6	6	7	7	7	7	4	3	2	2	2	2	2	1			
1310	Administrative, Payroll & Payroll Officers		1	1	6	8	8	8	8	8	8	8	8	6	4	1	1	1			
1311	Office Administrative Assistants - general, legal and medical		1	2	2	4	6	8	8	8	6	6	3	2	2	2	1	1			
1420	Financial, insurance and related administrative support workers		1	2	4	6	8	8	8	8	6	6	6	4	4	4	4	2			
2001	Managers in engineering, architecture, science and information systems	3	3	6	6	11	11	11	11	11	11	11	8	8	4	2	2	2			
2122	Computer and information systems professionals	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
2130	Civil and Mechanical Engineers	1	2	4	6	12	12	12	12	12	12	12	8	6	4	2	2	2			
2131	Electrical, electronics and computer engineers	1	1	1	2	6	6	6	6	6	6	6	4	2	1	1	1	1			
2222	Technical occupations in computer and information systems	1	1	1	4	6	6	6	6	6	6	6	4	2	2	2	2	2			
2223	Technical inspectors and regulatory officers	1	3	6	9	12	12	12	12	12	12	12	12	6	6	3	3	1			
2230	Technical occupations in civil, mechanical and industrial engineering	1	2	4	4	10	10	10	10	10	10	6	6	3	3	3	3	1			
2231	Technical occupations in electronics and electrical engineering				86	86	96	96	225	230	230	150	125	125	66	66	66	1			
4110	Judges, lawyers and Quebec notaries	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
4140	Policy and program researchers, consultants and officers	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1			
6001	Corporate Sales Manager						1	2	2	2	2	2	2	1	1	1	1	1			
6310	Insurance, real estate and financial sales occupations				1	1	1	2	2	2	2	2	2	1	1	1	1	1			
7001	Managers in construction and facility operation and maintenance				6	12	20	20	24	24	24	24	24	12	12	6	3	3			
Total Construction Management and Staff		20	38	80	202	242	258	266	395	400	394	307	255	231	140	113	109	32			
Total Construction		44	263	550	1107	1547	1864	2064	2195	2200	2093	1712	1229	1058	774	617	444	317			

APPENDIX B

Labour Forecast Operations Phase

Operations Phase NOC Codes													
NOC Code	NOC Code Description	2025				2026				2027-2055+			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
0001	Legislators and Senior Management	4	8	12	15	15	15	15	15	15	15	15	15
1001	Administrative Service Managers	2	4	6	8	8	8	8	8	8	8	8	8
1002	Managers in Business and Financial Services	1	2	4	5	5	5	5	5	5	5	5	5
1120	Human Resources and Business Services Specialist	1	2	4	5	5	5	5	5	5	5	5	5
1210	Administrative and Regulatory Occupations	2	4	6	7	7	7	7	7	7	7	7	7
1211	Court reporters, transcriptionists, records management technicians and statistical officers	1	1	1	2	2	2	2	2	2	2	2	2
1310	Administrative, Payroll & Payroll Officers	1	1	2	2	2	2	2	2	2	2	2	2
1311	Office Administrative Assistants - general, legal and medical	1	1	2	3	3	3	3	3	3	3	3	3
1420	Financial, insurance and related administrative support workers	1	2	4	5	5	5	5	5	5	5	5	5
2001	Managers in engineering, architecture, science and information systems	3	5	9	10	10	10	10	10	10	10	10	10
2122	Computer and information systems professionals	1	1	1	2	2	2	2	2	2	2	2	2
2130	Civil and Mechanical Engineers	10	15	20	25	15	15	15	15	15	15	15	15
2131	Electrical, electronics and computer engineers	2	4	6	8	15	15	15	15	15	15	15	15
2222	Technical occupations in computer and information systems	2	2	4	5	5	5	5	5	5	5	5	5
2223	Technical inspectors and regulatory officers	5	10	15	20	40	40	40	40	40	40	40	40
2230	Technical occupations in civil, mechanical and industrial engineering	10	20	30	40	70	70	70	70	70	70	70	70
2231	Technical occupations in electronics and electrical engineering	10	20	30	40	70	70	70	70	70	70	70	70
4110	Judges, lawyers and Quebec notaries	1	1	1	1	1	1	1	1	1	1	1	1
4140	Policy and program researchers, consultants and officers	2	2	2	2	2	2	2	2	2	2	2	2
7001	Managers in construction and facility operation and maintenance	8	10	14	18	18	18	18	18	18	18	18	18
Total Operatons		68	115	173	223	300	300	300	300	300	300	300	300

