Appendix WRM18-A Noels Pond Water Levels





Noels Pond water levels

Figure 1 provides the measured water levels on October 16, 2023, in Noels Pond, at the culverts on Route 490 the flow into Noels Pond and upstream on Warm Creek at the location where the old railway line crosses Warm Creek. In addition, the ground or surface elevations of the land adjacent to the old railway crossing were also measured. On October 16, 2023, the water level was at 21.13 m in Noels Pond or at approximately 0.5 to 0.6 m above the base of the outflow water control structure. The water level at the old railway crossing on Warm Creek was at 22.19 m. The elevation of the immediate surrounding land at the old railway crossing is between 22.6 m and 22.8 m. This land is within the Warm Creek flood plain and has a history of flooding during peak runoff events.

Figure 2a shows the elevation contour lines at 0.5 m intervals around Noels Pond, Muddy Pond and the bottom part of Warm Creek. The top of the broad crested weir water control structure at the Noels Pond outflow is 1.22 m above the base of the water control gates. The concrete weir sidewalls are 2.03 m above the base of the water control gates and 0.81 m above the top of the weir. The channel leading from Noels Pond to the water control structure has been filled in by former operators such that the current normal water level for Noels Pond is approximately 0.45 m above the base of the water control structure. It is proposed that the original channel be restored to bring the minimum low water level slightly below the top of the water control structure base. These surface water level elevations confirm that raising the water level in Noels Pond and Muddy Pond by 1.0 - 1.22 m above the base of the flow control gate (or approximately 0.75 m above the normal low flow water levels) at the Noels Pond outflow will not increase the flood conditions in the community of Noels Pond above what is normally produced by high runoff periods.. The historical and frequent flooding of land within the community of Noels Pond is due to the land being located in the Warm Creek flood plain.

The proposed changes to the water level in Noels Pond and in Muddy Pond will raise the water level within the ponds to the exposed shorelines of those ponds (**Figure 2b**) that have normally been submerged by periods of high stream flow. The 21.5 and 22 m contour lines are highlighted and the water level would rise to within the area defined by those two contour lines before overflowing he broad crested weir. The areas adjacent to Noels Pond and Warm Creek that are flooded during periods of high stream flow are primarily wetlands.

The broad crested weir at the outflow to Noels Pond is approximately 17.5 m wide with three flow control gates that have a combined width of 8 m. If the gates are closed during a major flood event, then for the first 0.10 m rise in water level in Noels Pond above the top of the weir, the flow over the weir will be in excess of 60 cubic metres of water per minute or more than 1,260 cubic metres per minute before the weir side walls are submerged. The combination of gate management (producing a maximum additional flow channel in the gates of 9.6 square metres) and weir overflow, replicating the existing conditions, will mitigate against any excessive flooding around Noels Pond when the water level in Noels Pond and Muddy Pond is maintained at the required level.

Figure 2c shows the contour lines around the eastern end of Noels Pond and up into the area that surrounds the bottom part of Warm Creek. The 21.5 and 22 m contour lines show the area in which the water level will rise during most WEGH2 operations. As demonstrated by the stream elevations (**Figure 1**) that were surveyed on October 16, 2023, increasing the Noels Pond water levels 1.22 m above the base of the water outflow control structure will not back the water up to levels that would flood the 2.6 to 2.8 m land elevations above the old railway crossing. However, areas in the flood plain that historically flooded will continue to flood during peak runoff events from the Warm Creek drainage basin.









Appendix WRM20-A Flood Emergency Response Plan







Brief Scope: The Flood Emergency Response Plan identifies roles, actions and responsibilities for department management and emergency responders, field and support personnel before, during, and after an emergency that could occur within the local area and nearby areas of World Energy GH2's facilities. FLOOD EMERGENCY RESPONSE PLAN



			Name and Signature		
Rev	Date	Modification description	Prepared by	Approved by	Authorized by
			Name	Name	Name
00	01/11/2024	New	Position	Position	Position
			Signature	Signature	Signature



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1 Emergency Plan Development, Administration & Authorization

This detailed Flood Emergency Response Plan is designed to provide employees, Senior Management, Managers, Emergency responders, support organizations and Dispatch Centers, with the necessary information to effectively respond to the flood alarm or emergencies. All emergency situations involving the company or requiring the company resources whether inside or outside the company jurisdiction should be included in this Plan and the respective safety and emergency department are responsible to review and approve it for use in emergencies.

1.1 <u>Policy</u>

World Energy GH2 is committed to reducing losses caused by Flood. We will do so by identifying, planning for, and training to respond to emergencies that could occur in our facilities. We will do everything possible to prevent emergencies, but when and if they do occur, we will be prepared. Each person in the emergency response organization, as described here, will be held fully accountable for the complete execution of his/her emergency duties.

Everyone in the position of Manager is expected to be familiar with the contents of this Plan and their responsibilities therein. The Managers are anticipated to familiarize those individuals in their area of responsibility with the requirements of this Plan. The Fire Protection Manager (FPD) is designated as the Emergency Preparedness Coordinator with assistance from key response personnel, line management and support groups, to oversee development, implementation, and maintenance of the Flood Emergency Response Plan (FERP) under the direction of the World Energy GH2 Safety Committee.

1.2 <u>Purpose and Scope</u>

The scope of this Plan is to have in place a standard outline of communications and required actions according to company policies and procedures and/or Governmental Agency directives. It is intended to provide a standard course of action and guidelines on specific procedures to be followed by the affected department and supporting Departments in dealing with flood event within the town of Stephenville, or a flood event affecting Company assets and infrastructures, or company resources that are required to support organizations outside the Company.

The Flood Emergency Response Plan identifies roles, actions and responsibilities for department management and emergency responders, field and support personnel before, during, and after an emergency that could occur within the local area and nearby areas of the facilities. The plan shall be followed in the event of a flood that puts people at risk, adversely affects the environment or damages the reputation of the organization, its assets or ability to continue normal business activities.

1.3 Implementation of the Plan

1.3.1 Emergency Response Plan Objectives

The overall objectives of Emergency Response Plan are summarized as follows:

- To prevent loss of life and minimize the risk of bodily injury to employees or property.
- To minimize damage to company installations and public property.
- To provide maximum possible safety for the emergency response personnel.
- To inform employees, public and authorities about the Flood Emergency.
- To authorize the responsibilities of various entities involved
- To activate the Flood Emergency Response.



This plan shall be immediately implemented by Incident Commander if any of the following conditions exist:

- Flood Alarm
- Flood Emergency
- Flood Warning from the Media
- Earthquake or Natural Disaster

1.4 Plan Reviews, Maintenance, and Distribution

This plan shall be reviewed and updated at least every three months with partial updates per recommendations from drills and incidents, to update telephone numbers and emergency equipment lists, and to address personnel changes. All organizations with responsibilities in this plan shall review it and suggest comments based on events and changes in their personnel, procedures, and/or equipment over the previous month. Formal concurrence of the plan shall be obtained from all involved organizations for all revisions. The plan shall be distributed by emergency response coordinator, at a minimum, to:

- Each division superintendent
- Emergency Dispatch center
- Plant Security
- Incident Command

Recommendations for changes to the plan shall be evaluated after every drill, exercise, training session, and real emergency. Changes should be incorporated into the plan immediately if possible; if it is a minor change that will not affect emergency response, it may be reserved until the periodical review.

2 Emergency Risks and Scenarios

- The facility's superintendent should conduct Emergency planning which begins with identification of Flood Location, such as ponds, lake, river and ocean. These hazards and their associated scenarios have been, and will continue to be, assessed to determine both probability of occurrence and consequences of the Flood. Any hazard identified and assessed as significant shall be reviewed carefully to see whether it can be prevented or mitigated by design, engineering, or additional equipment measures.
- Records of location, incident identification and analysis shall be maintained. They can be used for subsequent Flood emergency planning and as a resource when the activity is repeated in the future. Documentation shall include, at a minimum, information sources, the names of participants, analysis methods used, hazard identification results, all documents utilized or references to each document identifying drawing/document number, title, revision and date, complete list of incident scenarios, scenario analysis worksheets, and the reasons for including (or excluding) a Flood scenario.

2.1 Flood Risk Assessment:

The facility manager and emergency response services (Fire, Security, Environment, Safety, etc.) shall work collaboratively to identify hazards, monitor those hazards, the likelihood of their occurrence, and the vulnerability of people, property, the environment, and the operation itself to those hazards. A number of methodologies and techniques for risk assessment exist that range from simple to complex. A good example of these techniques is the "What-if" analysis. The purpose of the what-if analysis is to identify specific hazards or hazardous situations that could result in undesirable consequences. This technique has limited structure but relies on knowledgeable individuals who are familiar with the areas/operations/processes.



Hazards to be evaluated shall include the following location:

- Natural hazards (geological or meteorological)
- Raising sea level
- Storm Surge
- Dam / canal failure at Noels Pond
- All identified incidents, scenario analysis worksheets, and associated documentation shall be considered restricted material and retained by the Emergency Response Coordinator in a secure location, which should still allow easy retrieval.
- The chance of seasonal flooding in this region presents a low to medium risk; however, with the advance information from the local meteorological dept. on flood warning, specific actions to be carried out on those occasions are considered. Some of the effects likely during flood are water entering the plants / processing units, danger to life of persons / property and outbreak of epidemics / other contagious diseases.

3 Strategies to combat Flood Emergency Scenarios

In the event of a flood situation, the Operation & Maintenance personnel of the respective plant, being first line respondent at site, shall attempt to alarm the plant and the people to evacuate the plant to the nearest Assembly Point.

Subsequent actions intended to reduce the impact of the disaster due to flood are

- Emergency shutdown the plant if possible
- Alarm the occupant if you have access to
- Shutdown of equipment
- Removing flammable inventory, where appropriate

To enhance the clarity and urgency of flood alerts, we have categorized flood warnings into three distinct types. These categories aim to provide clear guidance to the people and facilitate appropriate actions based on the severity of the flood threat.

3.1 <u>Flood Advisory (Level 1):</u>

Issued when flooding is imminent or occurring but is not expected to pose a serious threat to life or property. A Flood Advisory (Level 1) has to be issued by Emergency Command Coordinator when flooding is imminent or occurring, but the threat is not anticipated to be severe. This advisory serves as an early alert to operation & Maintenance Personnel and businesses in potentially affected areas. It is typically issued in situations where increased water levels in rivers or the information from the meteorological department which may cause inconvenience but are not expected to pose a significant threat to life or property.

Actions:

- **Stay Informed**: Regularly check local news channels, weather updates, and community alerts for the latest information on flood conditions.
- Monitor Water Levels: Keep an eye on water levels in nearby rivers, streams, and low-lying areas.



- **Secure Property**: Prepare for potential localized flooding by securing loose objects outdoors. Consider moving valuables and important documents to higher ground.
- **Follow Updates**: Stay tuned to updates from local government authorities. Be prepared to adjust plans based on changing conditions.

3.2 Flood Warning (Level 2)

A Flood Warning (Level 2) is issued when moderate flooding is expected, indicating a potential threat to life and property. Some of the Indicators of the flood warnings to be consider Level 2 are:

Indicators:

- Water Levels: Water levels are anticipated to rise significantly, posing a moderate risk of flooding in the affected area.
- **Duration**: The expected duration of the flood event is taken into account, with a focus on sustained or prolonged periods of increased water levels.
- Localized Impact: Specific areas, such as low-lying neighborhoods or regions prone to flooding, may experience moderate inundation.

Actions:

- **Evacuation** of Low-Lying Areas: Initiate the evacuation process promptly for the operation & Maintenance Personnel and all the staff, as these areas are more susceptible to moderate flooding. Follow the established Evacuation Routes specified in section 6.0 of this procedure.
- **Prioritize Safety**: Emphasize the importance of personal safety and the safety of others during the evacuation process. Discourage individuals from attempting to drive through flooded roadways, and advise against engaging in risky behavior.
- Secure Important Items: Instruct staff to secure important documents, valuables, and essential items before leaving their places. Consider using waterproof containers to protect critical items, and provide guidance on quick and efficient evacuation procedures.
- **Communication**: Stress the significance of maintaining clear communication. Instruct individuals to keep informed about their evacuation plans. Establish and communicate designated Assembly points or shelters to facilitate reunification.
- **Monitor Updates**: Emphasize the need to stay informed by tuning in to emergency broadcasts and weather updates for the latest information. Encourage individuals to adjust their evacuation plans based on real-time conditions and official advisories.
- Assist Vulnerable Staff: Highlight the importance of Vulnerable Staff. Urge Staff to offer assistance to vulnerable staff, such as the elderly, individuals with disabilities, or those who may need help evacuating. Ensure that transportation and support are provided for those who require assistance.

3.3 Flash Flood Warning (Level 3):

A Flash Flood Warning (Level 3) is the most severe category, indicating that rapid and severe flooding is either occurring or imminent. Flash floods are sudden, intense floods that can occur within minutes of heavy rainfall, dam breaks, or other critical events. This level of warning demands immediate action to ensure personal safety and prevent loss of life and property. Some of the Indicators of the flood warnings to be consider Level 3 are:

Indicators:

• **Rapid Onset**: Flash floods have a sudden onset, often within minutes of intense rainfall or the occurrence of a triggering event like a dam break.



- Swift Water Movement: Flash floods are characterized by swift, powerful water currents that can carry debris and pose extreme dangers to anyone in their path.
- **Imminent Threat**: There is an imminent and severe threat to life and property, requiring immediate evacuation and protective measures.

Actions:

- **Immediate Evacuation**: Evacuate to higher ground without delay. Follow the established Evacuation Routes specified in section 6.0 of this procedure. Do not wait for official confirmation; swift action is crucial.
- Avoid Flooded Areas: Under no circumstances should individuals attempt to drive or walk through flooded areas. Rapidly rising water levels are extremely hazardous and can carry away vehicles and people.
- Seek High Ground: Seek shelter in designated evacuation centers or move to high-elevation locations away from flood-prone areas. Do not delay evacuation; prioritize personal safety above all.
- **Continuous Monitoring**: Stay tuned to emergency broadcasts and weather updates for the latest information. Continuous monitoring is essential to receive real-time alerts and adjust evacuation plans accordingly.
- **Do Not Cross Flooded Roads**: Emphasize the absolute importance of never attempting to cross flooded roads, even if the water appears shallow. Flooded roads may conceal dangerous conditions beneath the surface.
- Assist Vulnerable Staff: Highlight the importance of Vulnerable Staff. Urge Staff to offer assistance to vulnerable staff, such as the elderly, individuals with disabilities, or those who may need help evacuating. Ensure that transportation and support are provided for those who require assistance.
- **Emergency Services**: Contact emergency services immediately if trapped or in a life-threatening situation using the contact provided on Section 4.0. Provide location details and follow their instructions.
- Follow Local Authorities: Adhere to instructions from local authorities and emergency services.
- Avoid Contact with Floodwater: Do not wade through floodwaters, as they may contain hidden dangers, such as debris, contaminants, and swift currents.



4 Emergency Contact Procedure

4.1 For all Personnel

4.1.1 *How to report Emergency*

FLOOD EMERGENCY REPORTING INSTRUCTIONS

TELEPHONE: **XXXX** (from a GH2 telephone)

Note: If outside Plant, facility, or if **XXXX** is busy, see below.

REPORT AS FOLLOWS

Say:	This is an Flood Emergency!
I am calling from:	Provide LOCATION
	(e.g., Plant, Building No., Office No.)
I see a:	Provide NATURE OF EMERGENCY
	(e.g., medical assistance, rescue, fire, explosion, gas release,
	Hazardous material release, hostile act, etc.)
There are:	Provide QUANTITY of people hurt and requiring medical assistance.
The phone no. here is:	Provide PHONE NUMBER
My name is:	Provide YOUR NAME
My employee number is:	Provide YOUR EMPLOYEE NO.

* **Note:** In the event of a threat, relate the actual threat directly to Security if possible, through a regular phone.

REPEAT THE ABOVE INFORMATION AND ANSWER QUESTIONS Do not hang up the phone until told to do so.

FROM AN OUTSIDE PLANT OR MOBILE PHONE, CALL:

From Mobile : XXXXXXXX From Landline : XXXXXXXX

If the number is busy or unavailable, try the following:

- 1. Security XXXXXX
- **2. Ambulance** 1+ (709)-643-2472
- **3.** Fire 1+ (709)-643-8378
- 4. OR CALL 911

After the message has been given successfully, the reporting individual should immediately do whatever he can to safely control the emergency situation.



5 <u>Emergency Evacuation Procedure</u>

Alert Phase:

- Upon receiving a flood warning or any emergency alert indicating the need for evacuation, an alarm will sound, and an emergency announcement will be made over the plant's public address system.
- All staff should cease work immediately and follow the evacuation procedures outlined in this plan.

Assembling at Designated Points:

- Employees are to gather at the pre-designated assembly points within the plant premises.
- Assembly points are marked with clear signage and are situated away from potential flood zones.

Accountability Check:

- Supervisors and designated personnel will conduct an accountability check to ensure all employees are present.
- In the event of missing personnel, notify emergency services immediately.

Evacuation Routes:

• Employees will follow clearly marked evacuation routes leading out of the plant. Refer to the evacuation route mark on section 6.0. These routes are designed to avoid flood-prone areas and lead toward the designated evacuation area.

Exit Building Safely:

- Exit the building calmly and in an orderly fashion.
- Do not use elevators during an evacuation; use designated stairwells and exits.

Proceed South to Highway 499:

- Once outside the plant premises, all employees will proceed south toward Highway 490 through Harbour Dr.
- Follow the marked evacuation route that leads to the highway on section 6.0.

Transportation to Safety:

- Employees without personal transportation will be directed to utilize available company-provided transportation or carpool with colleagues.
- Designated shuttle points should be established to facilitate transportation to the south of Highway 490.

Road Safety:

- Exercise caution when walking or driving. Stay on the designated evacuation route and avoid flooded areas.
- If using personal vehicles, carpooling is encouraged to maximize the efficiency of transportation.

Arrival at Highway 490:

- Once at Highway 490, employees will turn south towards the town of *Stephenville Crossing*.
- Follow the highway until reaching the designated safe zone.

Designated Safe Zone - Stephenville Crossing:

- The town of Stephenville Crossing has been identified as the designated safe zone when the flood in the facility.
- Employees will follow instructions from local authorities upon arrival and seek shelter as directed.



If Stephenville Crossing impacted by Flood:

- Alternate Zone is designated to be the town of Corner Brook
- Exit Higway 490 at Seal Cove Road to Highway 461
- Take Highway 461 North. Continue on Highway 461 East
- Merge on to TCH1 East and continue to Corner Brook. Follow the highway until reaching the designated safe zone.

Communication:

- Maintain communication through designated channels. Ensure that everyone is aware of the evacuation route and the designated safe zone.
- Updates and further instructions should be provided through emergency broadcasts and official communication channels.

Emergency Contacts:

- Ensure that all employees have emergency contact information readily available.
- In case of separation or any issues during evacuation, contact emergency services or designated emergency contacts.

All Clear Signal:

• Return to the plant premises only when the "all-clear" signal is given by emergency services and local authorities.



6 <u>Emergency Evacuation Route</u>











Appendix WRM33-A

Public Water Supply Areas Intersected by the Proposed 230 kV Transmission Line (Mapbook)







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