

Borumba Pumped Hydro Energy Storage Project – Site Severe Weather Event Protocol

Scope

The Borumba PHES Project **Site Severe Weather Event Protocol** is to be followed in relation to:

- impending storms where lightning is expected; and
- flooding from rivers and or rain deluge which may impede site access/egress or travel internally within the site.

The protocol is to be adopted by each Principal Contractor working on the Borumba PHES in relation to severe weather events. A Principal Contractor may choose to adopt a protocol that is of a higher standard than that detailed in this document. Where this occurs the Principal Contractor is to provide a copy of the protocol to Queensland Hydro for review.

Weather Forecasting Services

Queensland Hydro has contracted Early Warning Network (EWN) to provide weather forecasting services for the Borumba PHES project.

Weather reports from EWN for the Project site will be transmitted to nominated representatives from each Principal Contractor. Where weather has formed or where there is a risk of flooding and/or extreme weather that could develop and impact the Project, reports from Early Warning Network will increase in frequency to allow accurate calculations concerning when the Project could be affected by these environmental conditions. The EWN Alerts are configured to provide 2 notifications based on proximity to the site at ~30km and at ~15km.

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Lightning Response Protocol

Alert	Response
<p>Green Alert</p> <p>Lightning detected within 20 - 30km to the centre of the site</p>	<p>All personnel are advised that lightning activity has been detected.</p> <p>Workers to prepare to take further action.</p> <p>Identify the nearest safe location and if none are nearby either:</p> <ul style="list-style-type: none"> • Be prepared to move to a safe location if the lightning alert level increases; or • Consider moving one or more light vehicles to the job site which can be used as a safe refuge for the work group if lightning activity moves closer. <p>Supervisor or delegate to monitor lightning activity</p>
<p>Yellow Alert</p> <p>Lightning detected within 10 - 20km to the centre of the site</p>	<p>Line manager (or delegate, e.g., a task supervisor) is to risk assess current operations in relation to lightning activity and understand the direction the storm is moving in, giving specific consideration to unsafe locations and hazardous activities. If the storm is moving towards the workfronts the below points are to be followed.</p> <p>Suspension of the following hazardous activities:</p> <ul style="list-style-type: none"> • Crane operations (booms lowered where the crane design allows); • EWP and scissor lift activities; • Bulk liquid and dangerous goods operations; • Refuelling operations; and • Hazardous activity or work in unsafe locations where the location or nature of the work mean that a safe location cannot be reached within 5 to 10 minutes. <p>All personnel in unsafe locations with no nearby safe location to relocate to a safer location</p> <p>Prepare to take further action (include identifying safe park up zones for mobile plant, taking into consideration potential for lightning strikes to cause tyre explosions)</p> <p>Supervisor or delegate to monitor lightning activity</p>
<p>Red Alert</p> <p>Lightning detected within 0 - 10km to the centre of the site</p>	<p>Suspension of activities as per Yellow Alert plus the following additional controls:</p> <ul style="list-style-type: none"> • All personnel immediately seek a safe location and remain in place until the alert is downgraded. Relocation to another safe location should only occur in exceptional circumstances and by the shortest route possible. • Suspension of all mobile plant operations (e.g. front end loaders, excavators, rollers). Mobile plant to be parked such that potential line of fire if a tyre explosion was to occur is minimised.

	<ul style="list-style-type: none"> • Line manager (or delegate) to monitor lightning activity • Use of wired radios in vehicles or buildings to be kept to a minimum.
All Clear	<p>Return to outdoor activities with caution</p> <p>Continue monitoring for further lightning activity</p>

All workers:

- Alert your supervisor or fellow workers if you see lightning or hear thunder and seek shelter according to your established procedures.
- Never seek shelter in temporary structures, sheds, buildings with unearthened metal roofs, or under trees.
- Avoid bodies of water and metal objects such as fencing that may conduct electricity.
- When sheltering (including inside a vehicle), avoid contact with the external surfaces, metal objects such as pipes, wiring, metal parts of the vehicle, and avoid using plugged in electrical equipment.
- Workers who are caught away from shelter should:
 - Avoid being on the highest point in an open area or near tall objects, but do not lie flat on the ground.
 - Crouch (alone) with your feet together, preferably in a ditch or hollow so you are not the highest object.
 - Remove all metal objects from your body.

Flood Response Protocol

To be developed