

FLOOD LESSONS LEARNT - SAFETY

Setup a health guideline in advance to enable immediate support to the rescued staff:

- Medical check-ups e.g. what type of check-ups, what blood tests,
- Better communication of our Health team with the external doctors and hospitals – There was clearly a disjoint of what was the requirements of the medicals.
- We took too long in responding to health issues post medicals, some instances we did not know where to refer the employees
- Medical form that needs to be sent to the hospitals needs to have details on what happened, possible exposures so that the hospitals can attend to employees appropriately.

Ensure chemical containers and Park Homes are well secured

Clean up plugged sewers across site

Improve communication/connectivity in case of a flood:

- Upgrade of radio system to enable external communication for supervisors

Improve signage of accessible areas on initial days of site access following the flood

Before bringing people back to work, following considerations must be in place to make the process quicker and more efficient:

- Facilities such as toilets, drinking water, kitchens, changing areas, and eating and rest areas must be prioritized

- also lighting within offices was arranged late, exposing people coming into unsafe conditions

- Essential rescue equipment to be stored for easy access and immediate deployment, e.g., life jackets, fast recovery crafts (rubber dingy), portable neon flares and headlamps.

- Develop a mustering area on higher ground – recommend the use of highest point.

- Develop an off-site roll call system for immediate onsite head count reporting and IMT evac. planning.

Additional Crisis Support Structures:

- Develop a sustainable network with Disaster Management (DM) for priority crisis management and support. Include DM into our emergency planning.

Review the refinery drainage system:

Internal refinery drainage system compromises our location to escape as well – ingress of water had cut off access in a southerly direction. During periods of high rainfall, the refinery often experiences overflows of the internal stormwater system, and sometimes even the oily sewer system.

Improve weather updates coming to the refinery:

- Better quality and early timing of information on inclement / severe weather – incl. rains, wind, heat, lightning, etc. from official / reliable / credible sources to an appropriate custodian – with formalised, structured response protocols for each condition.
- External information from Umgeni water (and other parties) with regards to the Shongweni dam overflow / bursting of weir / sluice gate
- Replace current damaged weather system with fit for purpose system including forecasting ability

Flood Response before and after Umlaas Canal is fixed

- Review / develop our internal trigger points and the decision makers – with a clear monitoring strategy (locations, parameters)
 - o Security monitored just at the north bound road 1st steel gate ,rather than a bit further back, beyond Mondri bridge
 - o Water flooded via west and south west side first as per witness on the night
 - o High water velocity, rapid rate of rise in levels

Include credible emergency scenarios (including a flood event plus other natural disasters) and actual live drills in our scheduled emergency plans with use of helicopters, etc.

Suggest a double storey EMS Building where the upper level serves as a safe haven

Consider relocation of the main fire station:

- Main Fire station poorly located (low lying area and in the centre of an already congested infrastructure)

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Headcount back up ex electronic system: suggest a more robust system be looked at, with location finder / tracker device viz. location of people that were isolated on the plant was not known. Radio contact was non-existent as radios were submerged and they could not communicate - suggest a GPS / transponder type back up. (Shift Manager's meeting at start of shift would have / should have known how many personnel onsite, for the headcount)

Rubber dinghy / other water craft at strategic points with trained persons on each shift (could be EMS / shift Fire Crew) e.g. Gates, Admin building / Workshop, etc. Life jackets and other rescue equipment / paraphernalia as well e.g., Neon flares(rechargeable), Head lights (rechargeable),

Helipad: designated area above the main office building and with bright lights, demarcation, etc.

Umlaas canal level indicator (linked to panel and alarm), CCTV along north bound road / Umlaas canal / other strategic locations

Training on evacuation:

- Control room access door was not known except by a few, but was used as route to escape

Transportation arrangements + communication from offsite evacuation staging area:

- The offsite evacuation point had no arrangements for transport to take people home. The rescued people had to rely on friends that came to check on them, to get a lift back home, as they had no phones, etc.

Improve communication with rescued staff on medical attention matters:

- Calls were made by non-clinic personnel to the affected people to follow up on medical attention needs, but there was no clear direction on medical attention.