

HML 2014 Emergency Preparedness and Response Plan

Tailings Dam Test

November 18/19, 2014

Introduction:

As partial fulfilment of the MEM Chief Inspectors' orders, August 18, 2014, all mines in BC are required to test their Emergency Preparedness and Response Plan (EPRP) with respect to tailings dams.. This document outlines Huckleberry Mines LTD's EPRP test and results.

Huckleberry Mines conducted the EPRP test in two separate components:

1. A "practical test" involving the area of immediate effect and the evacuation of and possible mitigation methods that could reasonably be performed at the discovery of such a situation.
2. A "tabletop exercise" involving the supervisors of the various groups to go through the scenario in mock and to identify weak points in communication, responsibility, and knowledge of the OMS manual.

The test was performed on Nov 18 – 19, 2014 respectively.

1. Practical Test

a. Scenario:

The Practical portion of the test scenario involved a breach in the Tailings/Reclaim pipelines along the south perimeter of the pit causing a breach in the South Saddle Dam, and subsequent progressive wash out and mobilization of TMF-2 tailings into the MZO Pit.

The scenario was presented in paper form to the on-shift mine supervisor immediately beforehand, and he was left to respond to the scenario.. The Mine Operations Manager acted as an invigilator to clear up ambiguities and answer questions about the theoretical situations in the scenario description.

b. Practical Scenario Response Results:

(Due to back and forth radio communication, some of the times are estimated)

2:39 - Test Commences. Pit shifter orients himself and travels to the area of the incident.

2:45 - Guard placed at top of main access road to MZO Pit and adjacent perimeter road to crusher.

2:47 - Shifter inspected the breach and run-out area and Truck Park/shift turnover area within MZO pit cleared

2:51 - 1006 Bench Cleared

2:52 - 1030 Bench Cleared

2:54 - Shovel and Drill Operator Cleared.

2:58 - All Light vehicles and Haulage trucks cleared. Test Observer unnecessarily cleared.

3:04 - Shifter originally calls test completed, but was "reminded" of still running tailings and reclaim lines.

3:05 - HML Mill contacted to cease tailings discharge to TMF-3. Mill Shifter confirms communication and begins process to stop tailings discharge.

3:07 - Pit Shifter calls Pit Lead Hand to shut down TMF-3 reclaim Barge. Lead Hand is not aware of process for this shutdown and responds accordingly.

3:10 - Pit shifter calls Mill shifter to send someone via unaffected route to shut down reclaim barge. Mill GF, who was in the pit proceeds to shutdown facility.

3:12 - Reclaim Barge is off.

3:14 - Pit shifter Calls end to test. All areas of effect visually cleared and all personnel evacuated to safe locations.

c. Invigilators Conclusions:

The Pit Shifter's response to the scenario was very fast and thorough, likely due to the similarity to clearing a blast, which occurs quite frequently. All personnel expected to be in the pit were contacted and told to evacuate immediately or were assigned persons to pick them up if in equipment that was not able to retreat quick enough. . The visual inspection to ensure evacuation of affected personnel occurred rapidly. All personnel were evacuated to appropriate safe locations.

The small scale nature of HML's pit made clearing the area quite easy and did not make it necessary to conduct any sort of 'roll call' process of making sure that personnel are safe. In future tests scenarios using a progressive and more complex emergency will be targeted.

Observers/Guards need to be better prepared so that they perform their proper function. For example, the guard at the run-out area was supposed to keep people from driving into the truck park, as it was flooded by re-mobilized tailings and mine waste. The test was allowed to continue however if in real time and actual, the condition would have been visible and this error likely would not have occurred.

However, the actual incident of the breach and broken pipes was inititally largely ignored,. Perhaps, this is due in part to the imaginary nature of the incident and limitations of static drawings.

The pre-scenario preparation could be improved with the invigilator staying with the shift boss/incident commander to describe the situation in real time and answer questions which would otherwise be visually obvious. Also, record keeping of the incident would be more efficient

2. Supervisors' Tabletop Exercise Follow-up:

The supervisors of the various groups about the mine were assembled on November 19th to review the outcome of the test. Each supervisor answered certain questions about their area of responsibility, including the confirmation process for all of their personnel's locations, and the communication process (chain of command) during / after any real incident involving a tailings facility.

The most notable items that come out of the exercise are; how an individual supervisor would gather information during a radio 'black-out' during an emergency, and who acts as incident commander during such an event. The Health, Safety, and Reclamation Code for B.C. Mines states that the pit shifter is always in charge of the mine workings. There are scenarios that will need additional consideration once all personnel are Safe and Accounted for when it comes to responsibility and any transfer of authority in an emergency. This is not to be confused with the individual responsibilities list, which seems well understood with respect to the test conducted.

As with the practical pit response portion of the test, most issues dealing with an actual physical response are very well understood by all personnel on site.

In general, the response to a general emergency and lines of communication are well understood and the teams communicate with no issues noted. In a real life scenario, there needs to be a more effective process developed for the person in charge to determine where everyone in their area of responsibility is located along with a proper tracking system.

Communication offsite was not tested in this scenario. Most off site communication is the initial responsibility of the Manager of Mine Operations and Engineering, the author of this document, who was also the invigilator for this

test and the most experienced in these types of situations. The level of preparation to conduct the test was quite high, and the update of the personnel lists and EPRP document imply a thorough understanding of the emergency protocols, though it is not the author's place to grade his own understanding. Future tests may warrant a neutral invigilator.

Lessons Learned:

(a) Scenario:

- The scenario in terms of evacuation was similar to a daily blast clearance and as such a more complex scenario should be considered for the next series of tests.
- Include more technical requirement in the next test; The need for engineering/consultant aid.
- A breach has a high likelihood of cutting off direct access to certain work areas. This should be incorporated into future tests.
- Invigilator ride-along with the pit supervisor to add additional control to cover ambiguities in the theoretical scenario documents and point out what would be obvious if the event were really to occur.

(b) Communication:

- Personnel from other departments may be outside of communication during a radio-silence evacuation scenario. This may affect persons from

departments other than mine operations. Supervisors from the other departments can determine where their people are on other radio channels, but anyone in the pit supervisor's area of responsibility will be on the pit channel and under possible black-out or answer only when called by communications control. This was discussed in the tabletop exercise with the supervisors. Perhaps a separate 'where are your people' test can be performed in the future after a procedure is set up.

- Further to the above, there is no in/out documentation the mine shifter has for [non mine-ops] personnel in the pit. Pit operations personnel are well documented on his daily line-up as with the other groups for their own personnel, but getting that information to the pit supervisor during an emergency is not covered by a procedure.
- Some external communications conflict with the general ERP, as within that document, only certain persons are allowed to communicate offsite during an emergency. This will have to be ratified to accommodate the requirements of a tailings disaster. For example; Engineer of Record, Helicopter support, PEP, RCMP, Rio Tinto (Kemano), etc.

(c) General Recommendations:

- Set up more regular tests of this type. Not necessarily tailings facility related, but any emergency response testing is valuable and applicable to any type of emergency.
- Have the tests overseen by neutral person(s) such as a representative of the tailings facility consultant or possibly set up as an inter-site agreement. Otherwise, tests are invariably set up by senior-most personnel, who then do not become part of the test.