EAC – SEF
Operations Division Update

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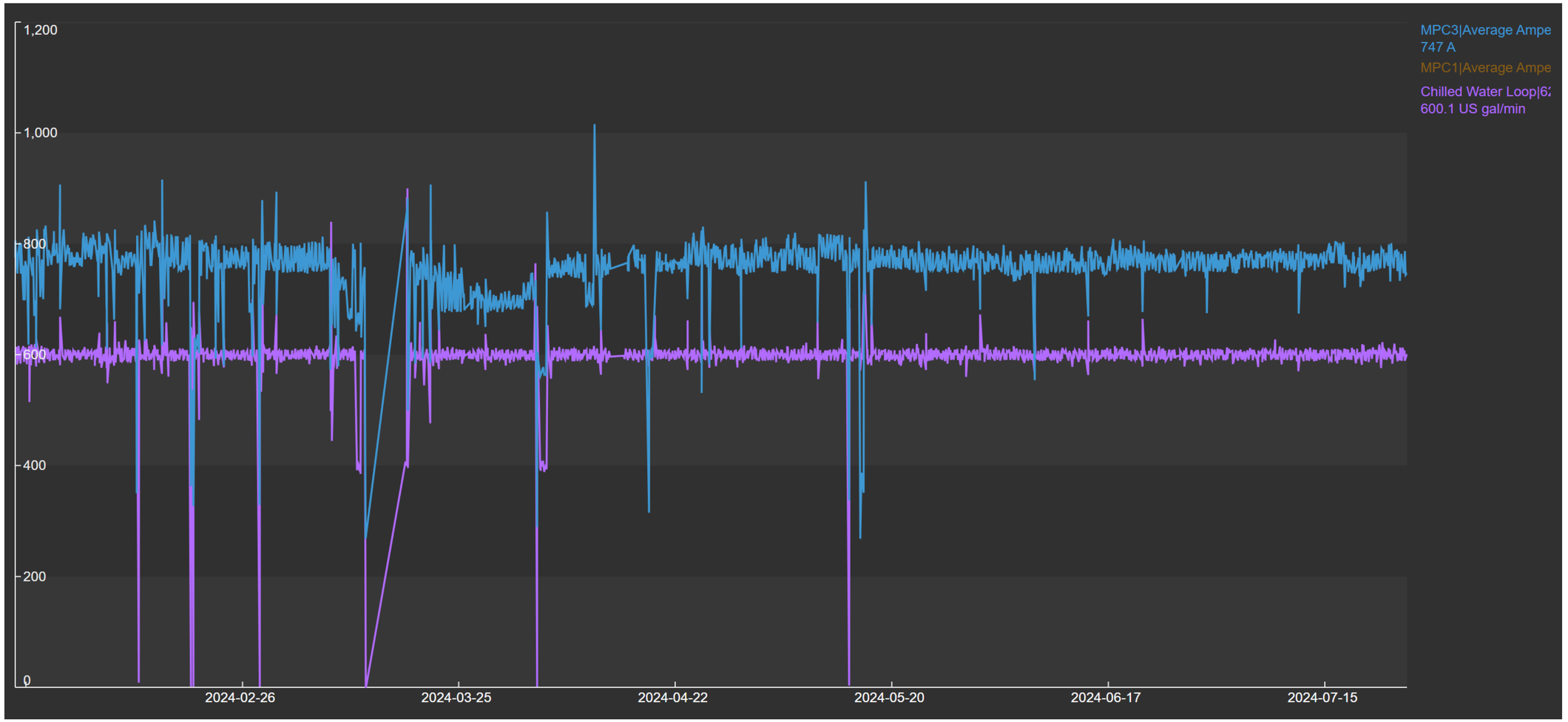
Topics

- PMP (Vale summer shutdown 2024)
- Power and Chillers
- Chilled water
- Compressed Air
- Liquid Nitrogen
- SNOLAB Structural Design Seismicity Study Update
- Fire Protection Study Update
- Windy Drift Update

PMP Summer 2024 (almost over)

- Six weeks June 24th to August 4th, consisting of two periods:
  - Period 1 Mon June 24th to Sun July 14th (3 weeks, cage guide work)
    - Very restricted, Sunday access only for 3 people on short shift.
  - Period 2 Mon June 15th to Sun Aug 4th (3 weeks, skip work)
    - 12-hr shifts, but no restrictions on number of people.
    - Limited by no materials shipments and staff vacations.
- Ran very smoothly this year with no major equipment issues.
- Good work was accomplished on surface, including installation of the SNO+ DDA still, and building maintenance and some offices refurbished.
- Regular shipping will resume week Aug 5th, although maybe a bit congested for a week or two (S-CDMS OVC and PICO PV shipments are being arranged now)..
- Vale has indicated that this PMP format will be the norm in future years.

Power and Chillers



Power and Chillers

- Last 6 months (Feb’23 – Aug’24) had 7 power outages, and generators turned on for all outages.
- A remaining reliability issue is that on a power trip often 1 or 2 fluid-cooler fans fail to restart, which reduces chilled water capacity. Once SNO+ had to be shutdown due to rising deck temperatutre.
- The new MPC remote-operated breakers are now delivered and underground, and installation is underway, although at a slow pace. Final tie-ins however will require two extended power outages (without generator backup) this fall which must be coordinated with the experiments.
- A comprehensive electrical power study is being undertaken this year to examine options to improves power reliability and continuity, and to address power quality issues (THD)

Chilled Water

- Project is underway to build a wall to create an electrical room enclosure for MPC-3, chiller controls and the pumps and fans starters and VFDs. This will increase reliably and reduce equipment failures.

- The chilled water loop is being upgraded to increase performance, efficiency and reliability:
  - Phase 1 – new piping to SNO+ plants and replace flow controls in the old SNO-era AHUs – completed.
  - Phase 2 – new flow controls and valves to change to pressure-controlled flow – In planning.

- A comprehensive chiller study is currently being scoped to help guide long term planning to extend life or replace chillers, and options for increased future capacity.

Compressed Air

- Over the last period there has again been several incidents of low compressed air pressure due to Vale supply (problem for AHUs, SNO+ plants, CUTE).
- During this time SNOLAB's back-up CA was still out of service as is being replaced with a larger capacity system.
- The new CA plant is now delivered, installed and operational. However, the plant could not be put into service due to TSSA registration problem caused by the vendor. The registration is now finally being completed this week (just in time for planned Vale outage on Monday)

Liquid and Gas Nitrogen

- GN2, connected to supply the DEAP3600 main LN2 dewar, is running well.
- The LN2 generator plant:
  - Working well following fix of early failures (valves and pump seal) – reliability improved. We are now working on gas quality issues with the PSA. Installing extra flow instrumentation.
  - Still working with the vendor to enable remote start of the compressor.
  - Providing relief to logistics, as capacity of ~350 L/day meets most lab requirements, and saves a rail car per day.
  - R&D in progress to address the argon separation issue.

Structural Design Seismicity Update

- Ground control consultants ITASCA have updated their 2009 report on mining-induced seismic activity risk and design requirements for SNOLAB. New report is issued, and we have a new “design event” time-series scaled velocity spectrum, and an associated pseudo-acceleration spectrum derived from it. This updated analysis benefits from a large amount of seismicity data collected by Vale in the last 15 years, and that as the production mining is deeper and further away from SNOLAB, the probability of large events is reduced.

- The new report has simplified and reduced cost for the design of compliant experiment structural frames and components.

- An additional study is being untaken now by ITASCA to provide a framework and guidance for engineers, as to how the mining seimic event probabilities and spectra can be compared to earthquake probabilities and spectra. This is to enable more direct compliance with building and structural codes, such as API-650 for tanks (e.g. for nEXO).

- SNOLAB also now has a structural engineer on staff with expertise in seismicity analysis.

UG Fire Protection Consultants Review (on-going)

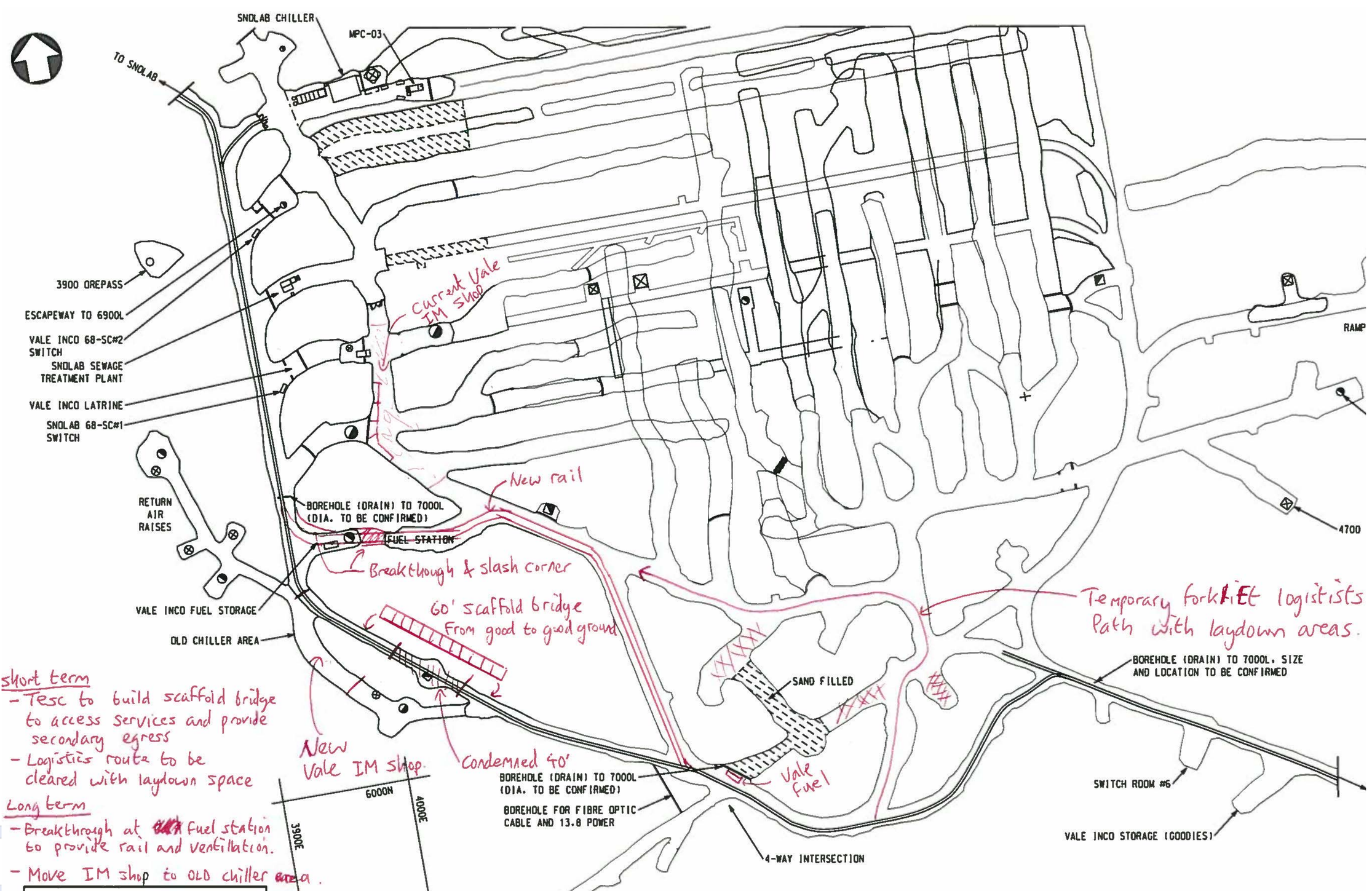
- Fire risk and protection requirements for experiments are determined within the lifecycle process.
- Contract with a fire hazard protection engineering consultancy to review area-based fire risk with UG SNOLAB and protection options.
- Also consulted with Mine Rescue.
- One expected outcome is to retire or reconfigure current standpipe/hose-reel system to use clean domestic water.
- Another potential is to use CAFs (mobile form units) as recommended by Mine Rescue
- Also, expect to have improved guidance to projects on fire protection requirements and options.
- This review is still in progress.

Windy Drift Condemned (1)
Reminder from last meeting

- As reported at previous meetings, the windy drift has been out of service for over a year now, with original plans to repair some ground control problems. Logistics and personnel have been using the bypass drift through the Vale IM shop, which does not have rail link.
- During rehabilitation work the contractor discovered voids behind drift walls. Work was stopped, and area temporarily barricaded as unsafe.
- Subsequent probe drilling found evidence of large void and fractured rock behind wall and below level ground. Thought that the finger chute to the old 402 ore pass has caved-in.
- Vale has now condemned the drift as unsafe and likely unrepairable. Further probe drilling is planned from the opposite side to better define size and shape of void. This is unlikely to change that the drift is unrepairable, but will help refine the zone of bad-ground and risk of ground collapse.

Windy Drift Future Plans

- Vale is working with contractor to build a scaffold bridge over the bad ground. The bridge is now on-site and will be installed in September. This will allow drift to be used as secondary emergency egress, and the scaffold to access utilities.
- In case of water pipe break before the scaffold is installed, there is a plan for how a temporary pipe could be laid, and the materials are ready.
- Vale is completing survey and LIDAR scans to start engineering for blasting a breakthrough drift to reestablish rail link, and to re-locate the Vale IM shop. This will also increase air-flow.
- Vale is working with the logistics supervisor to tidy up and re-grade bypass through the IM shop in order to help the current temporary forklift route easier to unload and navigate.


SNOLAB CHILLER
MPC-03
TO SNOLAB
3900 OREPASS
ESCAPEWAY TO 6900L
VALE INCO 68-SC#2 SWITCH
SNOLAB SEWAGE TREATMENT PLANT
VALE INCO LATRINE
SNOLAB 68-SC#1 SWITCH
current Vale IM shop
RAMP
RETURN AIR RAISES
BOREHOLE (DRAIN) TO 7000L (DIA. TO BE CONFIRMED)
FUEL STATION
New rail
Breakthough & slash corner
4700
VALE INCO FUEL STORAGE
OLD CHILLER AREA
60' scaffold bridge From good to good ground
Temporary forklift logistists Path with laydown areas.
BOREHOLE (DRAIN) TO 7000L, SIZE AND LOCATION TO BE CONFIRMED
SAND FILLED
New Vale IM shop
Condemned 40' BOREHOLE (DRAIN) TO 7000L (DIA. TO BE CONFIRMED)
Vale Fuel
BOREHOLE FOR FIBRE OPTIC CABLE AND 13.8 POWER
SWITCH ROOM #6
VALE INCO STORAGE (GOODIES)
4-WAY INTERSECTION
6000N
4000E
3900E
short term
- Tesc to build scaffold bridge to access services and provide secondary egress
- Logistics route to be cleared with laydown space
Long term
- Breakthrough at fuel station to provide rail and ventilation.
- Move IM shop to OLD chiller area.

End - Questions