



Pike River Coal Mine: the Prime Minister's initiative

The Prime Minister, Rt Hon Bill English, has halted sealing of the drift portal pending an un-manned investigation of the mine. The latter will not necessarily provide the level of forensic detail required to understand the chain of events leading to the loss of 29 lives, but it will establish the true condition of the drift, allow identification of further body locations and diminish the concerns of those currently supporting objections to manned re-entry.

The national and international team of engineers supporting the Families welcome the PM's timely intervention and support this initiative to request further remote investigation of the mine by SENZ and to involve the Families' technical advisors in the process. While all the members of the technical team remain convinced that a staged re-entry of the drift is feasible and can be executed safely, they accept that additional remote investigation will add confidence, reduce uncertainties and pave the way for full re-entry, a detailed forensic investigation and ultimately facilitate a fully informed appraisal of recovery possibilities.

The technology options for remote investigation include drilling new boreholes to facilitate high resolution photography, laser scanning, potentially launching flexible robotic camera platforms and also monitoring and control of the mine environment; entry of robotic devices via large diameter boreholes or at the drift portal and use of autonomous or guided drones for photography and hazard mapping.

The requirements for intrinsic safety of some mobile electrical and electronic equipment, and flight limitations of aerial devices, may require all or part of the mine to be ventilated or purged with nitrogen. The Families technical team are in contact with a supplier of robotic devices designed for use in underground mines and will make the information available to SENZ.

The following is an outline of the anticipated plan to be implemented by SENZ in response to the PM's instructions.

Goals

- Exploit existing boreholes where practical, supplemented by new drilling where necessary and feasible to facilitate in-mine investigations and insertion of remote investigation devices;
- Examine the condition of the drift with emphasis on areas of possible instability and where there are gaps in existing data, including the inbye section;
- Examine the insets at the 'pit bottom in stone' and obtain images of the post-explosion condition of electrical cabinets and cables;
- Record details of damage to the mine fabric, infrastructure and equipment in respect of blast, heat and ground movement;
- Seek to determine body locations.



Methodology

1. Establish a management, planning and operations team
2. Identify suitable un-manned investigation technologies; determine operational limitations, costs and availability
3. As a priority, immediately exploit unsealed boreholes (eg Borehole 47) for application of high resolution photography and assess feasibility of using them to launch a flexible robotic device
4. Identify drilling locations to determine key information taking account of terrain and accessibility
5. Determine locations for helicopter landing pads
6. Contract ground works, pad construction, helicopter and drilling services
7. Complete new risk assessments and TARPS
8. Condition the underground environment as necessary for application of the remote technologies to be deployed
9. Undertake systematic drilling, image and data capture, analysis and recording of findings
10. Recommendation of next steps

Timescale

Mindful of seasonal weather and terrain constraints on surface and airborne activities, the Families' technical advisors would anticipate SENZ completing risk assessments and amendments to Principal Hazard Management Plans within one month (end March), commencement of surface ground works to establish new drilling platforms and associated helicopter landing pads within two months (end April) and completion of the un-manned investigation program with results and recommendations published on manned re-entry within five months (end July 2017).

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