

VENTILATION AND GAS MANAGEMENT STRATEGY FOR RE-ENTRY TO THE PIKE RIVER MINE DRIFT

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This paper describes the ventilation and gas management strategy to be employed in the re-entry of the Pike River Mine drift together with results of nitrogen injection to date. The purpose of re-entry is for forensic examination, possible recovery of bodies and to bring, at least some, degree of closure to the families of the 29 miners who were killed in the explosion on 19th November 2010.

Following the initial and subsequent explosions at the mine, it was sealed in 2011. Review of the situation in 2017 led to the establishment of the Pike River Recovery Agency (PRRA) in January 2018. The PRRA is charged with the task of developing and implementing a plan to re-enter the 2.2km access drift, if deemed technically feasible and safe to do so.

At the time of commencing this re entry planning work the mine was effectively sealed and inert by virtue of methane concentrations being in excess of 90%.

A series of design reviews and risk assessments led, initially, to three ventilation and gas management strategies being developed, namely; an additional access tunnel for a through ventilation, a single entry force ventilation system and a large diameter borehole system. Comparison of the risks and operational issues associated with each system led to the force ventilation system being selected as the base case plan.

The recovery plans developed by PRRA involve initial purging with nitrogen followed by purging the drift in stone with fresh air whilst simultaneously maintaining an inert (<5% oxygen) nitrogen/methane atmosphere in the coal mine workings. The current plan is then to re-enter the drift from the portal under force ventilation with forensic examination, possibly involving members of the New Zealand police force, being undertaken as access progresses.

The first phase of nitrogen injection to the drift commenced on 18th December 2018 and was successful. Infrastructure for the next phases of re-entry are currently being installed and tested. Based on monitoring data available to date, it is anticipated that the identified re – entry plan will progress to the next phases of air purge then re-entry during the first half of 2019.

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