**Mine fire inquiry: proposals for improvements**

**Key:**

* **Red = Steps for Hazelwood to undertake**
* **Black = Proposed steps for external parties/agencies to undertake**

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| **Subject**  | **Description** | **Cost** | **Time frame**  |
| **Responding to fire**  |
| Phoenix modelling | * CFA should ensure that whenever their modelling shows a reasonably high likelihood of external fires impacting the Mine (or other critical infrastructure), taking into account the current/predicted weather conditions, it immediately sends that modelling to designated contact people at Hazelwood (and at other critical infrastructure). These conditions are referred to in this document as ‘Extreme Fire Danger Days’.
* CFA should provide update modelling as is appropriate, taking into account the developing fire and weather conditions, to the recipients identified above.
* Accompanying the Phoenix modelling maps supplied to the mine should be a statement of any urgent steps the CFA recommends be taken and provision of the details of a designated contact person at the CFA to deal with any queries and provide updates as appropriate in the circumstances re the modelling.
* CFA should train a number of staff at Hazelwood in the Phoenix modelling tool, so that mine staff are able to interpret predictive maps supplied during emergency.
* Hazelwood will nominate a group of staff to be trained in the modelling tool prior to the next fire season.
* Hazelwood will designate specific people to receive and respond to these communications.
 | Cost not anticipated to be significant (note some of this is CFA expense). | Commence ASAP |
| **Training in fire fighting and equipment**  |
| Specialised Mine fire fighting equipment | CFA should ensure that an appropriate level of aerial appliances is available in the Latrobe Valley for use at all mines, power stations and other critical infrastructure. By ‘aerial appliances’ we mean equipment which can discharge water at elevated levels e.g. aerial pumpers , telebooms , CAFs etc (but we would defer to CFA as to what is the most appropriate equipment to fight such fires). This should be available to be called out at short notice, particularly during the ‘fire season’.  | Unknown – CFA responsibility. | Commence ASAP |
| Fire training specific to the Hazelwood mine | * Hazelwood will offer enhanced training (beyond the training currently offered to the ‘Morwell Group’ i.e. the CFA brigades close to Morwell) prior to the next fire season and on an ongoing basis in relation to:
	+ Orientation, maps, roads within the mine and location of fire fighting infrastructure in the Mine;
	+ Ongoing use of Hazelwood escorts to accompany non-Hazelwood vehicles on-site;
	+ The Mine’s emergency response procedures and command structure in use during fire;
	+ Communications in the mine during emergencies including compatible radio frequencies (Hazelwood will provide our own radios, as was done in the 2014 fire).
* Hazelwood will also offer this enhanced training to CFA personnel and other relevant emergency service agencies (e.g. SES, Victoria Police) within a [25] kilometre radius of the Mine (appropriate radius range to be discussed with the relevant authorities).
* Hazelwood will provide more training to personnel who are intended to perform a role under the emergency command structure detailed under the ‘Hazelwood emergency command structure section below.
 | Mainly personnel time (to be quantified).  | Commence ASAP |
| **Emergency response**  |
| Hazelwood emergency command structure | * Hazelwood will establish an emergency command structure at the Mine to deal with Extreme Fire Danger Days whenever they arise and nominate a pool of candidates who are able to act in these roles when required.
* Whenever notified of an Extreme Fire Day(s), Hazelwood will assign in advance particular roles under that emergency command structure to personnel selected from that pool of candidates to act in these roles at site.
* Hazelwood will notify CFA of the identity and contact details of those personnel holding these roles.
* CFA/ICC must notify Hazelwood and other critical infrastructure operators who may be impacted by the Extreme Fire Danger Day conditions about the level of fire fighting personnel and equipment that is available to assist, and to provide updates on such availability at a frequency that is commensurate with the level of risk in the developing situation.
 | * HPP: Personnel cost plus cost of additional contracted personnel and equipment (will vary).
* CFA: unknown what it would cost them to provide these notifications and updates.
 | Commence ASAP |
| Additional fire personnel | * On Extreme Fire Danger Days, Hazelwood will ensure more personnel are rostered on and additional contractors are available for dedicated fire protection duties e.g. instead of one 1x7 crew, have the equivalent of two crews available, as required in the circumstances.
* The amount of additional trained contractor support, including plant and equipment, will reflect internal staffing availability and, to some extent, the level of support that the CFA advises it has available.
 | Additional personnel and contractor cost (will vary). | Commence ASAP |
| Additional signage | Hazelwood will upgrade signage within the Mine to make orientation easier for non-Mine personnel.  | Cost to be quantified. | During 2014 |
| **Power supply for fighting fires** |
|  Redundancy in power supply  | * SP Ausnet should replace the wooden poles in and around the Mine which hold the transmission lines with concrete poles to avoid loss of the poles again in fire.
* SP Ausnet should install four isolator switches at the point where the 66kV lines enter Hazelwood premises (i.e. the south eastern corner of the site). This will:
	+ increase redundancy in the 66kV supply;
	+ allow SP Ausnet to quickly isolate any line which is damaged;
	+ restore power into the Mine quickly (which was not the case in February because there were no switches installed, requiring a lot more difficulty and time to re-energise lines);
	+ ensure that power supply is minimally interrupted to the pumps within the site during fire.
* Hazelwood will undertake a review of any other required steps to address any other redundancies in the electrical system.
 | * Wooden poles : cost unknown – but not anticipated to be significant.
* Switches: cost unknown – anticipated to be about $100k.
* Review cost: unknown.
 | * Wooden poles and switches : ASAP (noting SP Ausnet recently reinstalled wooden poles on northern batters). In particular, isolator switch installation should be a quick fix which provides significant immediate benefit.
* Review time: commence ASAP.
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| Enhance redundancy of power supply to run the clean and dirty water pumps. | * SP Ausnet to conduct a feasibility study (for its consideration) to upgrade the MHO substation from ‘temporary’ to ‘permanent’ standard This has the benefit of providing an alternate power source via an underground cable from the 22kv system. Hazelwood to provide switching capability for MHO/MWW.
* Hazelwood to make permanent the temporary connection that was established between MWE (supplied at 11kV) and clean/dirty water pumps.
* This provides power sources from the 66kV, 22kV and 11 kV systems.
 | * MHO upgrade: cost unknown.
* Additional switching capability: $50k.
* MWE-clean/dirty water pump 11 kV connection: around $750k.
 | * MHO upgrade: time frame unknown.
* Additional switching capability time frame: Around 6 months
* MWE-clean/dirty water 11 kV connection: possibly 6 months.
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| **Fire risk mitigation**  |
| Vegetation  | Hazelwood will initiate a programme for reducing vegetation in the worked out areas of the northern batters to reduce fire risk (insofar as is consistent with OH&S requirements and the stability properties of the vegetation) commencing in the areas closest to Morwell. | Cost unknown. | Clear north eastern batters before November 2014 and have an ongoing program for the appropriate management of vegetation in the rest of the northern batters.  |
| Pipework | * Hazelwood will maintain and continue to use the additional pipe system located in the northern batters which was installed during the 2014 fires.
* Hazelwood will install additional pipework and hydrants in the areas marked on the northern batters shown in the broken aqua coloured line in the attached plan (the “eastern section of the northern batters”).
* This will have the effect that the area shown is covered by:
	+ Rehabilitation that has occurred prior to 2014;
	+ Rehabilitation proposed to be undertaken during 2014;
	+ Undisturbed land (i.e. grassed areas that don’t contain exposed coal);
	+ Sprinklers which are currently installed on the northern batters; or
	+ Additional sprinklers to be installed on the northern batters.
* Conduct a review (to be undertaken by external consultants working with Hazelwood personnel) of the current pipework and condition in the areas of the Mine other than the eastern section of the northern batters.
* The outcome of the review would be made known to DSDBI/VWA
 | Review cost unknown: may be around $100k. | Target: December 2014 (note subject to weather/ground conditions). |
| Wetting down non-operational areas | On Extreme Fire Danger Days Hazelwood will instigate wetting down of non-operational areas.  | Additional water and personnel. Not anticipated to be significant. | Commence ASAP |
| **Planning and communication in relation to fire**  |
| Integrated Fire Management Planning | * LCC prepares a Municipal Fire plan and engages in Integrated Fire Management Planning. Hazelwood will nominate a representative from Hazelwood from its planning and emergency sections to attend the meetings of the Municipal Fire Prevention committee convened by LCC.
* Integrated fire management planning will be enhanced if LCC also invites the CFA and the owners and operators of other critical infrastructure in the Latrobe Valley to attend (including other mine owners, SP Ausnet and other industry affected by fire risk, including plantations and mills).
 | Mainly personnel time (to be quantified).  | Commence ASAP |
| Communication between agencies during an emergency response | * On Extreme Fire Danger Days, the CFA should permit representatives of crucial infrastructure in the Valley to attend the ICC to be fully briefed on the fire threat and on any ongoing fires.
* Hazelwood will nominate designated people from Hazelwood to be in attendance at the CFA ICC during an emergency which threatens the Mine.
 | Not anticipated to be significant.  | Commence ASAP |
| Community engagement  | * The CFA should convene a review by the entities likely to be involved in responding to a fire, particularly a long running fire (e.g. including at least SP Ausnet, LCC, DSDBI, VWA, Vic Police, LV mine operators, CFA , DoH, EPA).
* Participants in this review should jointly review their community communications protocol prior to the next fire season. During the review, the responsibility of each entity for each type of messaging should be clarified.
* Hazelwood will participate in such a review. Hazelwood will also review its own communications protocol to ensure that during the response to fire which is capable of impacting on the community, it is able to communicate messages to the community via any protocol adopted following the review by all agencies.
 | Cost not anticipated to be significant.  | Commence ASAP |
|  **Occupational Health and Safety**  |
| Major Mining Hazard Safety Assessment under OH & S Regulations  | * VWA should prepare guidance material in relation to the requirements for mine operators of Regulations 5.3.21 and 5.3.23.
* Hazelwood will work with VWA to review its Safety Assessment and Safety Management System in light of Regulations 5.3.21 and 5.3.23.
 | Not anticipated to be significant. | ASAP, in consultation with VWA. |
| CO protocol | CFA and Hazelwood to develop a CO management protocol for fire fighter and mine employee safety prior to the next fire season, in consultation with VWA.  | Cost not anticipated to be significant | Commence ASAP |
| **Rehabilitation**  |
| Rehabilitation according to Work Plans | * Hazelwood will undertake the rehabilitation set out in Annexure 5 to the Faithful statement.
* Noting that there appears to be ambiguity in the current Work Plans about whether the dates specified are for rehabilitation to be commenced or completed by that date, as part of the ongoing discussions with DSDBI re the 2013 WPV, Hazelwood will discuss the appropriate timing of each sequence of rehabilitation works.
* DSDBI should clearly specify in the 2013 Work Plan Variation the dates for commencement and completion of progressive rehabilitation following an assessment, in consultation with Hazelwood, of:
1. the availability of suitable materials from within the Mine;
2. the progression of mining in accordance with the Work Plan (as varied by agreement with DSDBI from time to time); and
3. geotechnical/stability constraints.
 | * Cost of rehab set out in Annexure 5: approximately $800k.
* Cost of discussions: nil.
* Cost of varying rehabilitation works program: unknown.
 | * Undertake rehab set out in Annexure 5 by Dec 2014.
* Time frame for discussion with DSDBI: soon, as part of the ongoing discussions re 2013 WPV.
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