

International Power – Hazelwood Mine

Guidelines For Season & Period Specific Fire Preparedness and Mitigation Planning

UNCONTROLLED WHEN PRINTED

INTRODUCTION

These guidelines outline the data needed to prepare for the onset of the annual fire danger period and to make ready the equipment and personnel necessary to combat fires occurring in the Hazelwood Brown Coal Mine, operated by International Power, and to enable the declaration of the Fire Season and to monitor conditions that lead up to the declaration of high fire alert days which require the Director of Mining to issue of Period Specific Fire Preparedness and Mitigation Plans.

The fire service systems in the Hazelwood Brown Coal Mine are also used to suppress dust. Both dust suppression and fire alertness and preparedness activities are in direct response to varying climate conditions. Minimising Mine dust and forecasting weather conditions by measuring temperature, wind speed, relative humidity and by knowing forecast changes, will enable the management and preparedness for the threat from fires and for dust suppression.

Wise use of personnel and plant resources can minimise the impact on normal work activities. The advancement of external bushfires also needs to be monitored as falling embers can be the initiation of fire spotting many kilometres ahead of the fire front.

1 STRATEGY

The strategy to minimise fugitive dust and to have a heightened awareness to be prepared to fight fires is outlined by the following three response levels. Refer to **Appendix 1** for details of these response levels:

- 2.1 Response Level 1 Minimise Fugitive Dust Mobilisation;**
Monitored on a needs basis with spray dampening as required.
- 2.2 Response Level 2 Increase preparedness by reducing response times; and**
Monitored Monthly with a twelve Month overview.
- 2.3 Response Level 3 Organisational readiness for fire fighting - Declare a Fire Alert.**
Monitored Daily with a Weekly overview.

2 SUPPORTING DOCUMENTS

The following Hazelwood Mine documents outline the procedures and checklists for managing emergencies in the Hazelwood Brown Coal Mine and define the responsibilities when an emergency has been declared. As a fire in the mine is a specific type of emergency that can be minimised or circumvented from occurring, a high degree of preparedness of both personnel and fire fighting equipment can assist with the management of fire mitigation.

Paradigm 2589	INTERNATIONAL POWER HAZELWOOD MINE – FIRE SERVICE POLICY AND CODE OF PRACTICE
Paradigm 2895	INTERNATIONAL POWER HAZELWOOD MINE – EMERGENCY RESPONSE PLAN
Paradigm 2758	INTERNATIONAL POWER HAZELWOOD MINE – FIRE INSTRUCTIONS INTERNATIONAL POWER HAZELWOOD MINE – FIRE TRAINING MANUAL
Paradigm 36546	INTERNATIONAL POWER HAZELWOOD MINE – GUIDELINES FOR SEASON & PERIOD SPECIFIC FIRE PREPAREDNESS & MITGATION PLANNING
Paradigm 36547	INTERNATIONAL POWER HAZELWOOD MINE – GUIDELINES FOR SEASON SPECIFIC FIRE PREPAREDNESS & MITGATION PLANNING
Paradigm 36548	INTERNATIONAL POWER HAZELWOOD MINE – CHECK LIST FOR FIRE FIGHTING EQUIPMENT ANNUAL AUDIT & INSPECTIONS
Paradigm 36549	INTERNATIONAL POWER HAZELWOOD MINE – CHECK LIST FOR SEASON SPECIFIC FIRE PREPAREDNESS & MITIGATION PLANNING

After each fire danger period has concluded the effectiveness of each of these documents needs to be reviewed so that any new or unforeseen circumstances can be defined and procedures set in place to improve the management of them. Time changes the environment and new equipment may be available to better manage the onset of fire emergencies and to minimise the likelihood of a severe fire occurring.

The criteria obtained and used to determine and declare a high fire alert warning will also be required to be continually assessed for their economic effectiveness. *Refer to Section 8 for the criteria in defining the need for a Period Specific Fire Preparedness and Mitigation Plan.*

3 SOURCING WEATHER FORECAST PARAMETERS

The weather forecast parameters can be reached by accessing the following Bureau of Meteorology (BoM) and Elders Weather internet links. The Bureau of Meteorology (BoM) web site is accessed via the Registered User Services via the [Login Here] button and entering the required user name and password.

Refer to **Appendix 2** for images of these web sites:

- 4.1 BoM Fire weather forecast – current day:
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18500
- 4.2 BoM Fire weather forecast – 1 day outlook:
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18520
- 4.3 BoM Fire weather forecast – 2-3 day outlook:
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18530
- 4.4 BoM Fire weather briefing:
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18600
- 4.5 BoM Fire weather bulletin - look for the Latrobe Valley Weather Station:
<http://www.bom.gov.au/products/reg/vicfire/IDV60236.shtml>
- 4.6 BoM Climate Statistics for Australian Locations
Look for: MORWELL (LATROBE VALLEY AIRPORT)
http://www.bom.gov.au/climate/averages/tables/cw_085280.shtml
- 4.7 Elders Weather West & South Gippsland 28 Day Rainfall Forecast:
<http://www.eldersweather.com.au/raindates.jsp?lc=v17>
- 4.8 Elders Weather West & South Gippsland 12 Month Rainfall Forecast:
<http://www.eldersweather.com.au/raindates.jsp?lc=v17>
- 4.9 Elders Weather Traralgon (Latrobe Valley Airport) Local Weather with 7 day Forecast:
<http://www.eldersweather.com.au/local.jsp?lt=aploc&lc=8808>

The critical values of the parameters assist in declaring a high fire alert warning. Refer to **Section 8** below.

4 FORECASTING WEATHER CONDITIONS

The following parameters can be measured or sourced to enable accurate forecasting of the prevailing weather conditions that separately do not themselves define a high probability of a fire occurring or the conditions necessary to promote a severe fire threat, but together they present a picture that enable the prediction of conditions that are likely to present the need for a high level of fire preparedness. On such occasions, a period specific fire preparedness and mitigation plan shall be issued covering each day of likely fire danger and the need for increased fire alertness.

5.1 WIND SPEED

High prevailing winds can drive the fire front rapidly across open grasslands and timbered areas, this includes across the mine's brown coal faces. Low prevailing winds can also fan a fire front. Windy conditions can also assist with the drying out of fire fuel, both coal and grasslands, and assists to carry air born particles (coal dust) around and beyond.

5.2 RELATIVE HUMIDITY

The lower the relative humidity then the more dangerous is the environment for either starting fires by spontaneous combustion or allowing a fire source to spread unabated.

5.3 TEMPERATURE

Temperature has a direct bearing upon the likelihood of assisting either spontaneous combustion, or promoting an existing fire.

5.4 RAINFALL

The rainfall, and hence moisture content of the ground and forested areas has a direct bearing upon the promotion of fire spread. Rainfall forecasting can be for 18 days and even 12 months ahead. The historic rainfall figures can assist with the knowledge that ground moisture is high or low, which the following indices measure.

5.5 FOREST FIRE DANGER INDEX (FOREST FDI)

The state of dryness of forested areas will promote extreme wildfire behaviour when the forest FDI has a value that exceeds 40, a factor influenced by the degree of rainfall, and prevailing temperatures.

5.6 GRASSLAND FIRE DANGER INDEX (GRASSLAND FDI)

The state of dryness of grassland areas will promote extreme wildfire behaviour when the grassland FDI has a value that exceeds 40, a factor influenced by the degree of rainfall, and prevailing temperatures.

5.7 BYRAM-KEETCH DROUGHT INDEX (BKDI)

The BKDI considers the topmost layers of soil such that their field capacity is 200 mm of available water. The BKDI index estimates how much effective rainfall is needed to saturate this depth of soil at any time. Moisture is lost from the soil only by evaporation due to temperature effects. The first 5 mm of rainfall is lost to the canopy. There is a problem if any of the rainfall is lost as surface run-off. BKDI assumes flat terrain, and thus uniform drying, and will often vary widely with hilly terrain.

5.8 DROUGHT FACTOR (DF)

The DF estimates the proportion of fine fuels available for the forward spread of a fire. DF assumes flat terrain, and thus uniform drying, and will often vary widely with hilly terrain.

5.9 DEGREE OF CURING

Degree of curing is the amount of greenness in the pasture and is estimated visually for large areas. 100% cured is when all pastures are fully cured and there is no green material at all.

5.10 CFA TOTAL FIRE BANS

The Hazelwood Brown Coal Mine is in the Eastern Region of the State of Victoria, which covers a region from Mallacoota to the East and Berwick in the West, and from the Alps in the North to Wilson's Promontory in the South. The weather conditions can vary significantly across this vast region. Consequently, weather bureau information more specifically for the Latrobe Valley is of interest for providing accurate predictions and preparedness for the following day(s).

5 MINIMISING HIGH FIRE DANGER IN THE MORWELL MINE

Armed with the forecasts of the various environmental parameters, then it is possible to predict the degree of fire danger within the brown coal mine and the influence of environment of the surrounding area. With the right conditions brown coal, once loosed and mixed with air, will readily spontaneously combust, while brown coal still undug is in the safest fire resistance condition. While the local conditions within the Morwell brown coal mine may and will often be very different to that of the surrounding areas, the mine conditions will usually be more severe than the surrounding areas; this is due to the lack of grassland, promoting rapid run off of rainfall, and the depth of the mine promoting its our unique environment. Consequently, the brown coal levels will usually dry out quicker than the surrounding grassland fields, promoting a problem with air borne coal dust, and the greater need for dust suppression. The hazards from vehicles and maintenance activities can increase the likelihood of ignition sources, and hence the need for fire awareness is of paramount importance.

6.1 DUST SUPPRESSION

Wetting down exposed coal levels will assist in dust suppression, consequently it is paramount for good maintenance of the dirty water pipelines feeding sprays and hydrants installed on all working levels of the brown coal faces. Aerial inspections of the spray cover are conducted to ensure the required spray spread.

6.2 RAINFALL

While rainfall can assist with lowering the risk of high fire danger, during the high fire danger periods rainfall does not readily occur, consequently wetting down exposed coal levels will assist in lower the likelihood of spontaneous combustion of loosened brown coal.

6.3 WIND SPEED

Brown coal fires can be quickly driven out of control by the prevailing wind. The depth of the brown coal mines can influence local winds which are not detectable on the surrounding surface of the mine, but nevertheless can be a severe contributing factor in fire expansion.

6.4 VEHICULAR TRAFFIC

All vehicles entering and travelling on coal levels shall have a protected exhaust system, which will assist in keeping the brown coal away from the hot exhaust system. Additional cleaning of brown coal from the underside of all vehicle entering and accessing coal level is also paramount on occasions of high fire danger and alert.

6.5 MAINTENACE ACTIVITIES

It is important for the correct procedures to be followed during maintenance activities especially when welding and oxygen assisted metal cutting is being carried out. All sources of heat and flame are potentially sources of ignition for the starting of coal fires.

6.6 SMALL GRASS FIRES

Small grass fires need to be immediately attended to due to their ability to rapidly expand into a larger out of control grass fire, especially if there is a prevailing wind or a day of high temperatures and low relative humidity.

6.7 FLYING EMBERS

Flying embers from wildfire in remote grasslands and forests can travel for kilometres and contain sufficient energy to start spot fires when they land on combustible materials. During times when bushfires are in the immediate area, a heightened awareness is required to detect the landing of these fire initiation sources and hence to take immediate action to report and put these spot fires out.

6 EQUIPMENT & PERSONNEL PREPAREDNESS

The Annual Fire Fighting Equipment Audit is conducted in two inspection phases, Preliminary and Final, to ensure that all equipment is available and ready for the onset of a fire danger period.

The Preliminary Fire Fighting Equipment Audit must be carried out in July of each year to identify the equipment that is available, ready and fit for purpose. Missing equipment is reported and action taken to replace it, while damaged equipment is also reported, but is either replaced or repaired.

Upon the completion of the Preliminary Fire Fighting Equipment Audit, corrective action must be carried out prior to the Final Fire Fighting Equipment Audit being carried out in September of each year. This will ensure that all fire fighting equipment is available, ready, working and tested prior to be needed for the purpose of fire fighting.

The Annual Fire Fighting Equipment Audit will also ensure that the emergency control centre facilities are ready for use in an emergency, and personnel are trained in the use of the facility.

Personnel should have undertaken the necessary fire training as outlined in the Hazelwood Mine Fire Fighting Manual. This will ensure that personnel know how to operate all fire fighting equipment, and know where to find the equipment when required.

7 PERIOD SPECIFIC FIRE PREPAREDNESS AND MITIGATION PLAN

The following five parameters can be used to determine the likelihood of the need to declare a **high fire alert warning**:

- 8.1 The minimum forecast relative humidity is below 25%;
- 8.2 The maximum forecast temperature is above 35°C;
- 8.3 The maximum forecast wind speeds is above 30 km/hour (*independent of wind direction*);
- 8.4 The maximum wind gust speed is above 40 km/hour (*independent of wind direction*); and
- 8.5 The forecast Forest or Grassland Fire Danger Index to exceed 40 for the Latrobe Valley or the Hazelwood Mine.

In extreme cases, any one of these parameters can trigger a declaration of a high fire alert period, but usually more than one should be taken into account when determining their influence on the outcome. It will be important to reach a balance between promoting too many **period specific fire preparedness and mitigation plans** and thus losing their impact, and putting out too few. The financial implications of implementing the plan too frivolously would result in resources being diverted on days when the plan is not necessarily needed.

When a **high fire alert warning** has been declared, then a **period specific fire preparedness and mitigation plan** will be generated and emailed to all personnel, and brought to the attention of all personnel not otherwise notified. **Appendix 3** details the generic requirements of this period specific plan.

Appendix 1 –Three Tier Response Levels.

➤ **Response Level 1**

Objective	Minimise fugitive dust mobilisation
Considerations	<ul style="list-style-type: none"> ➤ Fine dust is defined as less than 50 µm in size ➤ Testing has determined that brown coal dust particles less than 180 µm become airborne at 3.5 m/s or 12.6 km/hr Wind speeds at the coal surface are not the same as those forecast by the Bureau of Meteorology
Frequency	➤ Monitored on a needs basis with dampening spraying as required.
Methods	➤ Apply water to dampen dust
Organisational Impact	<ul style="list-style-type: none"> ➤ Redirection of 1x7 Services resources to wetting down activities ➤ May impact on otherwise planned activities through labour diversion and creation of an environment that inhibits maintenance or operations activities

➤ **Response Level 2**

Objective	Increase preparedness by reducing response time
Considerations	➤ Preparation in the event of deteriorating weather conditions without the costs of a Level 3 "Fire Alert"
Frequency	➤ Monitored Monthly with a twelve Month overview
Methods	<ul style="list-style-type: none"> ➤ Apply water to create wetted corridors for plant protection ➤ Appoint dedicated fire spotter for coal benches ➤ Prepare plan to reduce dredger and mobile slew vulnerability ➤ Confirm locations and availability of response plant and equipment
Organisational Impact	<ul style="list-style-type: none"> ➤ FSO to prepare plan to reduce machine vulnerability ➤ Redirection of 1x7 Services resources to wetting down activities ➤ May impact on otherwise planned activities through labour diversion and creation of an environment that inhibits maintenance or operations activities

➤ **Response Level 3**

Objective	Organisational readiness for fire fighting
Considerations	<ul style="list-style-type: none"> ➤ Continue mine operations ➤ Full scale preparation for fire fighting
Frequency	➤ Monitored Daily with a Weekly overview
Methods	<ul style="list-style-type: none"> ➤ Declare: Fire Alert ➤ Prepare: Period Specific Fire Preparedness and Mitigation Plan
Organisational Impact	<ul style="list-style-type: none"> ➤ All non-operational activities cease ➤ Redirection of all non-operational resources in accordance with the Period Specific Fire Preparedness and Mitigation Plan

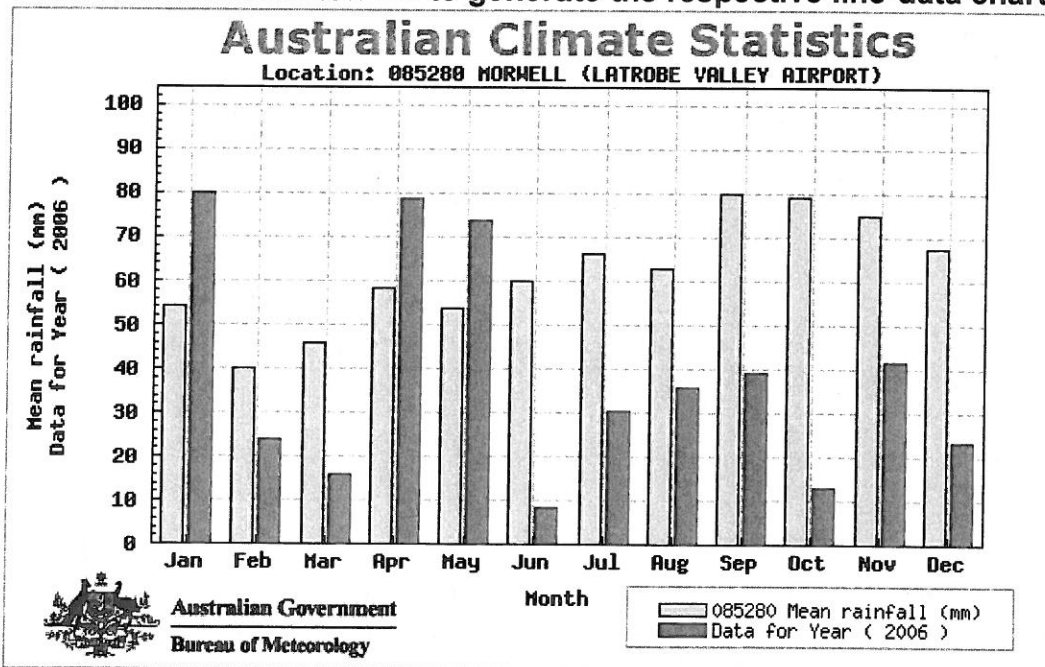
Appendix 2 – Accessing Internet Data. (cont')

A2.1 Bureau of Meteorology Climate Statistics for Australian Locations (LV Airport) - Summary
http://www.bom.gov.au/climate/averages/tables/cw_085280.shtml

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years	Plot	Map
Temperature																
Mean maximum temperature (°C)	26.0	26.6	24.2	20.4	16.8	14.1	13.6	14.8	16.8	19.2	21.5	24.0	19.8	23	1984-2007	
Mean minimum temperature (°C)	12.6	12.7	11.1	8.6	6.5	4.4	3.7	4.2	5.9	7.5	9.3	11.1	8.1	23	1984-2007	
Rainfall																
Mean rainfall (mm)	54.2	39.9	45.9	58.4	53.8	60.2	66.1	63.1	80.0	79.3	75.1	67.6	740.9	23	1984-2007	
Decile 5 (median) rainfall (mm)	49.0	33.2	43.8	52.8	49.7	59.6	69.4	58.0	70.8	69.3	70.4	59.6	751.4	21	1984-2007	
Mean number of days of rain ≥ 1 mm	6.6	5.3	6.8	8.6	8.7	10.5	11.3	11.7	12.4	11.0	9.0	8.2	110.1	23	1984-2007	
Other daily elements																
Mean daily sunshine (hours)																
Mean number of clear days	3.7	4.2	4.5	3.0	2.1	1.6	1.7	2.5	2.4	2.5	2.5	2.9	33.6	23	1984-2007	
Mean number of cloudy days	12.0	10.1	12.4	12.8	15.7	15.6	15.2	15.5	15.0	13.3	14.7	14.2	186.5	23	1984-2007	
9 am conditions																
Mean 9am temperature (°C)	17.4	16.8	15.3	13.1	10.1	7.7	7.1	8.4	10.9	13.4	14.4	16.2	12.6	23	1984-2007	
Mean 9am relative humidity (%)	74	79	82	84	89	90	89	85	81	74	76	72	81	23	1984-2007	
Mean 9am wind speed (km/h)	13.4	11.1	10.4	10.0	8.5	8.9	9.7	12.1	13.8	16.7	14.5	15.8	12.1	22	1984-2007	
9am wind speed vs direction plot																
3 pm conditions																
Mean 3pm temperature (°C)	24.2	24.9	22.7	19.2	15.7	13.1	12.4	13.6	15.3	17.6	19.9	22.2	18.4	23	1984-2007	
Mean 3pm relative humidity (%)	47	46	49	55	64	68	67	61	60	56	54	50	56	23	1984-2007	
Mean 3pm wind speed (km/h)	20.6	18.3	17.6	16.5	14.6	15.9	17.5	19.3	20.2	20.8	19.5	21.1	18.5	21	1984-2007	
3pm wind speed vs direction plot																

red = highest value blue = lowest value

Press the Chart Button to generate the respective line-data chart.



Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Mean rainfall (mm)	54.2	39.9	45.9	58.4	53.8	60.2	66.1	63.1	80.0	79.3	75.1	67.6	740.9	23
Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Rainfall (mm) for year 2006	80.0	23.8	16.0	78.6	73.6	8.4	30.4	36.0	39.2	13.0	41.8	23.2	464.0	1

Appendix 2 – Accessing Internet Data.

A2.2 Elders Weather West & South Gippsland 28-Day Rainfall Forecast

<http://www.eldersweather.com.au/raindates.jsp?lc=v17>

W & S Gippsland 28-day rainfall forecast

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	28 Low	29 Med	30 Med	31 Low	1	2
					Jun	
3	4	5 Low	6 Low	7	8	9
10 Low	11	12	13	14	15 Low	16
17 Low	18 Low	19	20	21	22 Low	23
24						

Issue Notes

The hemispheric long wave pattern is still a 4-wave system with troughs approaching South Africa, west of Western Australia, east of New Zealand and close to South America. The trough near WA is slow moving and is thus anchoring the other troughs as well. Thus the highs and lows in the Australian region will continue to move slowly and amplify. Summary: Over southern and eastern Australia the major late autumn/winter cold front events likely to bring widespread rain are expected about 14-17 May, 24-28 May, 06-08 June, 15-16 June and 23-24 June. Events limited to more southern regions are likely about 01-03 June, 19-21 June and 29-30 June. Rain events originating in the tropics and moving south are possible about 15-17 May, 06-07 June, and 17-18 June. Over Western Australia the strongest late autumn/winter cold fronts should occur about 20-25 May, 29 May to 03 June, 12-14 June, and 27-28 June. Lesser events are likely about 17-18 May, 16-17 June and 21-23 June. Rain events moving in from the north are possible about 02-03 June, and 13-14 June.

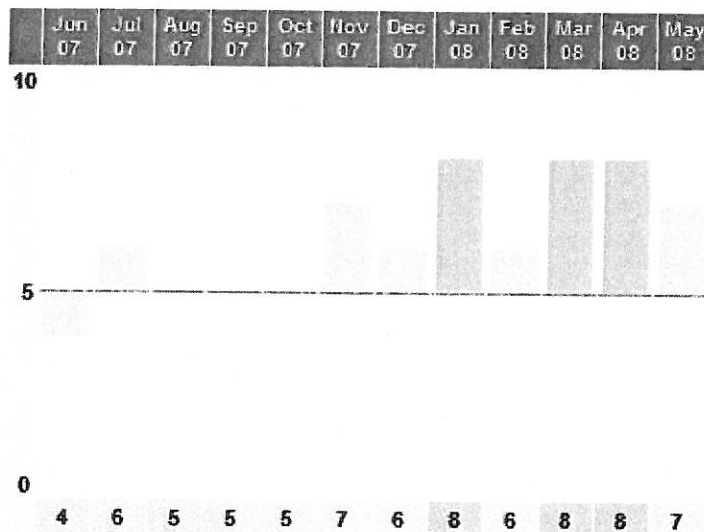
Chance of rainfall somewhere within district

Nil	Low	Medium	High
<25%	25-50%	50-75%	≥75%

A2.3 Elders Weather West & South Gippsland 12-Month Rainfall Forecast

<http://www.eldersweather.com.au/raindeciles.jsp?lc=v17>

W & S Gippsland 12-month rainfall forecast



Issue Notes

The SOI was -3 at the end of April 2007. Although this value is near normal it is the 12th consecutive negative value. Latest forecasts indicate the ENSO will probably remain near neutral, but on the cool side, for the remainder of 2007. Pacific Ocean temperatures are near normal in the west but cooler now in central and eastern parts. Based on climatological data to the end of April 2007 the years which are considered to have broadscale conditions similar to the current set-up include: 2003, 2002, 1988, 1986, 1982, 1979, 1973, 1969 and 1968, the majority of which were years of neutral El Nino conditions. There are two El Nino years in the list, and one La Nina. We conclude that near neutral conditions are the most likely for the remainder of 2007. Confidence in the result is MODERATE to HIGH.

Rainfall deciles

10 Well above normal	8-9 Above normal	4-7 Near normal	2-3 Below normal	1 Well below normal
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Appendix 3 – Level 3 Guide for Period Specific Fire Preparedness and Mitigation Plan

IPR Hazelwood Mine Fire Preparedness and Mitigation Plan

Issue Date: day / / 2007

Forecast

- day: Temperature Deg C, Wind Speed kph, Direction , Humidity %.
- day: Temperature Deg C, Wind Speed kph, Direction , Humidity %.
- day: Temperature Deg C, Wind Speed kph, Direction , Humidity %.

Background

- **CFA Resources:** Stretched – may be zero if there were to be an incident
- **Fire Bugs:** Known to active in area
- **External Sourced Fires:** Flying embers or ingress is a possibility
- **Mine Fire Alert:** May be declared during day / / 2007

Machine Positions

- Dredger D25 Positioned at T/side of M520 approx m mark
- Dredger D10 Positioned at T/side of M620 approx m mark
- Dredger D9 Positioned at T/side of M720 approx m mark
- Dredger D11 Positioned at T/side of M820 approx m mark
- Dredger D24 Positioned at T/side of M 20 approx m mark
- Mobile Slew S94 Positioned at T/End of M 20 connected to D
- Mobile Slew S96 Positioned at T/End of M 20 connected to D

Preparedness

- Critical assets to be protected – all Dredgers, Tipper Stacker TS2, Mobile Slews S94 & S96, TP5, TP8, Hazelwood Slot Bunker, Trunk Conveyors, Electric supply cables, Electrical sub-stations
- All personnel on high alert
- All unmanned machines to be fully hosed up
- All pumps must be checked on day / / 2007
- Fire Service Group: Sprays on intermittently from day / / 2007 from 0700 hrs
- Fire Service Group: Sprays on continuously from day / / 2007 from 0700 hrs
- Fire Service Group: Fill Furphy water tankers – 1 at **MWW**, 1 at **MWN**, remainder at control centre
- Fire Service Group: Position hose trailers - one at F/Service yard & the other at Control Centre
- Sprays on at TP5 and TP8 and on road underneath Hazelwood Slot Bunker throughout day
- 2 x 12 Operational personnel wash away loose coal at TP5 & TP8 – on day / / 2007
- Fixed monitors to be positioned around current Dredger Maintenance sites
- Once Mine Dredgers or Conveyors have been stopped, patrols are to be conducted every hour afterwards checking for signs of fire - demanned or stopped
- All vehicles to park on clay surface and walk to coal levels if possible
- Notify Loy Yang Operations (**0407 512 867**) to charge the Low Quality Water line

Manning & Available Resources

- Additional Maintenance crew on site for day working on / / 2007
- When Maintenance crew are complete, report to F/Service Supervisor & carry out directed fire duties
- Maintenance personnel perform normal planned maintenance and breakdown duties
- Minimal leave for 1 x 7 Services and Maintenance Crews
- All vehicles to be checked for hoses & fittings and to carry extra hoses if necessary
- RTL to operate on channel 21 UHF radios
- RTL Trucks will be operating on Clay Areas only & there will be no coal excavation for next two days
- Mine & RTL tanker allocation (ensure that 50% water in tankers at all times):

50 tonne tanker	Northern Batters
Coates 20 Tonne tanker	Perimeter Road
Mine Fire tanker	F/Service Office

30 tonne tanker	Northern Batters
Mercedes Benz tanker	Control Centre

Upon Notification of a Fire Alert Event

- All Maintenance crews to commence fire watch duties manning 2 x Slip-On-Fire-Tankers and conduct patrols as directed by Fire Services Supervisor. (60 & 80 Series Conveyors)
- Non operations personnel and vehicles to leave coal faces
- Maintenance activities to cease on coal levels
- All vehicles to be washed underneath after leaving the mine and before entering again
- All spare men to be on fire watch and available for patrols
- RTL to notify RRR Project to have their water tankers remain 50% full (4 water tankers to be available)
- Fire Services to notify Diamond Protection to have their Fire Tanker on standby
- All vehicles are to report to Fire Services their entry onto coal levels
- Mine Personnel to patrol along internal perimeter road
- Diamond Protection to patrol external along Brodribb Road & Strezlecki Highway

Response

- Safety of personnel is paramount
- Under no circumstances are personnel to take undue risks "**THINK BEFORE YOU ACT**"
- Call CFA immediately of any sign of fire, no matter how small
- All personnel attend, take note of probable cause and minimise spread
- People resources (in call in order) – IPRH Mine, CFA, Contractors – RTL, Alstom, Belle Baine, Bilfinger Berger, IPRH Station and Corporate, Station Alliance contractors – Fluor, Alstom, Loy Yang B personnel

1 INTRODUCTION

These guidelines outline the data needed to prepare for the onset of the annual fire danger period and to make ready the equipment and personnel necessary to combat fires occurring in the Morwell Brown Coal Mine, and to enable the declaration of periods of high fire alert. The fire service systems in the Hazelwood brown coal mine are also used to suppress dust. Both dust suppression and fire alertness activities are in direct response to climate conditions. Minimising dust and forecasting weather conditions, especially temperature, wind speed, relative humidity and knowing forecast changes enable the management and preparedness for the threat from fires and for dust suppression. Wise use of personnel and plant resources can minimise the impact on normal work activities. The advancement of external bushfires also needs to be monitored as falling embers can be the initiation of fire spotting many kilometres ahead of the fire front.

2 STRATEGY

The strategy is to define a three tiered response to dust suppression and fire preparedness. Refer to **Appendix 1** for details of these response levels:

- 2.1 **Level 1** Initial response to minimise fugitive dust mobilisation;
- 2.2 **Level 2** To increase preparedness by reducing response times; and
- 2.3 **Level 3** Declaration of a fire Alert and organisational readiness for fire fighting.

3 SUPPORTING DOCUMENTS

The following documents outline the procedures and checklists for managing emergencies in the Hazelwood Brown Coal Mine and define the responsibilities when an emergency has been declared. As a fire in the mine is a specific type of emergency that can be minimised or circumvented from occurring, a high degree of preparedness of both personnel and fire fighting equipment can assist with the management of fire mitigation.

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Paradigm 36548	INTERNATIONAL POWER HAZELWOOD MINE – CHECK LIST FOR FIRE FIGHTING EQUIPMENT ANNUAL AUDIT & INSPECTIONS
Paradigm 36549	INTERNATIONAL POWER HAZELWOOD MINE – CHECK LIST FOR SEASON SPECIFIC FIRE PREPAREDNESS & MITIGATION PLANNING

After each fire danger period has concluded the effectiveness of each of these documents needs to be reviewed so that any new or unforeseen circumstances can be defined and procedures set in place to improve the management of them. Time changes the environment and new equipment may be available to better manage the onset of fire emergencies and to minimise the likelihood of a severe fire occurring.

The criteria obtained and used to determine and declare a high fire alert warning will also be required to be continually assessed for their economic effectiveness. Refer to **Section 8** below.

4 SOURCING WEATHER FORECAST PARAMETERS

The weather forecast parameters can be reached by accessing the following Bureau of Meteorology (BoM) and Elders Weather internet links. Refer to **Appendix 2** for images of these web sites:

- 4.1 **BoM** **Fire weather forecast – current day:**
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18500
- 4.2 **BoM** **Fire weather forecast – 1 day outlook:**
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18520
- 4.3 **BoM** **Fire weather forecast – 2-3 day outlook:**
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18530
- 4.4 **BoM** **Fire weather briefing:**
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18600
- 4.5 **Elders Weather** **West & South Gippsland 28-day Rainfall Forecast:**
<http://www.eldersweather.com.au/raindates.jsp?lc=v17>
- 4.6 **Elders Weather** **Traralgon (Latrobe Valley Airport) Local Weather with 7 day Forecast:**
<http://www.eldersweather.com.au/local.jsp?lt=aploc&lc=8808>

The critical values of the parameters assist in declaring a high fire alert warning. Refer to **Section 8** below.

5 FORECASTING WEATHER CONDITIONS

The following parameters can be measured or sourced to enable accurate forecasting of the prevailing weather conditions that separately do not themselves define a high probability of a fire occurring or the conditions necessary to promote a severe fire threat, but together they present a picture that enable the prediction of conditions that are likely to present the need for a high level of fire preparedness. On such occasions, a period specific fire preparedness and mitigation plan shall be issued covering each day of likely fire danger and the need for increased fire alertness.

5.1 WIND SPEED

High prevailing winds can drive the fire front rapidly across open grasslands and timbered areas, this includes across the mine's brown coal faces. Low prevailing winds can also fan a fire front. Windy conditions can also assist with the drying out of fire fuel, both coal and grasslands, and assists to carry air born particles (coal dust) around and beyond.

5.2 RELATIVE HUMIDITY

The lower the relative humidity then the more dangerous is the environment for either starting fires by spontaneous combustion or allowing a fire source to spread unabated.

5.3 TEMPERATURE

Temperature has a direct bearing upon the likelihood of assisting either spontaneous combustion, or promoting an existing fire.

5.4 RAINFALL

The rainfall, and hence moisture content of the ground and forested areas has a direct bearing upon the promotion of fire spread. Rainfall forecasting can be for 18 days and even 12 months ahead. The historic rainfall figures can assist with the knowledge that ground moisture is high or low, which the following indices measure.

5.5 FOREST FIRE DANGER INDEX (FOREST FDI)

The state of dryness of forested areas will promote extreme wildfire behaviour when the forest FDI has a value that exceeds 40, a factor influenced by the degree of rainfall, and prevailing temperatures.

5.6 GRASSLAND FIRE DANGER INDEX (GRASSLAND FDI)

The state of dryness of grassland areas will promote extreme wildfire behaviour when the grassland FDI has a value that exceeds 40, a factor influenced by the degree of rainfall, and prevailing temperatures.

5.7 BYRAM-KEETCH DROUGHT INDEX (BKDI)

The BKDI considers the topmost layers of soil such that their field capacity is 200 mm of available water. The BKDI index estimates how much effective rainfall is needed to saturate this depth of soil at any time. Moisture is lost from the soil only by evaporation due to temperature effects. The first 5 mm of rainfall is lost to the canopy. There is a problem if any of the rainfall is lost as surface run-off. BKDI assumes flat terrain, and thus uniform drying, and will often vary widely with hilly terrain.

5.8 DROUGHT FACTOR (DF)

The DF estimates the proportion of fine fuels available for the forward spread of a fire. DF assumes flat terrain, and thus uniform drying, and will often vary widely with hilly terrain.

5.9 DEGREE OF CURING

Degree of curing is the amount of greenness in the pasture and is estimated visually for large areas. 100% cured is when all pastures are fully cured and there is no green material at all.

5.10 CFA TOTAL FIRE BANS

The Hazelwood Brown Coal Mine is in the Eastern Region of the State of Victoria, which covers a region from Mallacoota to the East and Berwick in the West, and from the Alps in the North to Wilson's Promontory in the South. The weather conditions can vary significantly across this vast region. Consequently, weather bureau information more specifically for the Latrobe Valley is of interest for providing accurate predictions and preparedness for the following day(s).

6 MINIMISING HIGH FIRE DANGER IN THE MORWELL MINE

Armed with the forecasts of the various environmental parameters, then it is possible to predict the degree of fire danger within the brown coal mine and the influence of environment of the surrounding area. With the right conditions brown coal, once loosed and mixed with air, will readily spontaneously combust, while brown coal still undug is in the safest fire resistance condition. While the local conditions within the Morwell brown coal mine may and will often be very different to that of the surrounding areas, the mine conditions will usually be more severe than the surrounding areas; this is due to the lack of grassland, promoting rapid run off of rainfall, and the depth of the mine promoting its own unique environment. Consequently, the brown coal levels will usually dry out quicker than the surrounding grassland fields, promoting a problem with air borne coal dust, and the greater need for dust suppression. The hazards from vehicles and maintenance activities can increase the likelihood of ignition sources, and hence the need for fire awareness is of paramount importance.

6.1 DUST SUPPRESSION

Wetting down exposed coal levels will assist in dust suppression, consequently it is paramount for good maintenance of the dirty water pipelines feeding sprays and hydrants installed on all working levels of the brown coal faces. Aerial inspections of the spray cover are conducted to ensure the required spray spread.

6.2 RAINFALL

While rainfall can assist with lowering the risk of high fire danger, during the high fire danger periods rainfall does not readily occur, consequently wetting down exposed coal levels will assist in lower the likelihood of spontaneous combustion of loosened brown coal.

6.3 WIND SPEED

Brown coal fires can be quickly driven out of control by the prevailing wind. The depth of the brown coal mines can influence local winds which are not detectable on the surrounding surface of the mine, but nevertheless can be a severe contributing factor in fire expansion.

6.4 VEHICULAR TRAFFIC

All vehicles entering and travelling on coal levels shall have a protected exhaust system, which will assist in keeping the brown coal away from the hot exhaust system. Additional cleaning of brown coal from the underside of all vehicle entering and accessing coal level is also paramount on occasions of high fire danger and alert.

6.5 MAINTENANCE ACTIVITIES

It is important for the correct procedures to be followed during maintenance activities especially when welding and oxygen assisted metal cutting is being carried out. All sources of heat and flame are potentially sources of ignition for the starting of coal fires.

6.6 SMALL GRASS FIRES

Small grass fires need to be immediately attended to due to their ability to rapidly expand into a larger out of control grass fire, especially if there is a prevailing wind or a day of high temperatures and low relative humidity.

6.7 FLYING EMBERS

Flying embers from wildfire in remote grasslands and forests can travel for kilometres and contain sufficient energy to start spot fires when they land on combustible materials. During times when bushfires are in the immediate area, a heightened awareness is required to detect the landing of these fire initiation sources and hence to take immediate action to report and put these spot fires out.

7 EQUIPMENT & PERSONNEL PREPAREDNESS

To ensure that all equipment is available and ready for the onset of a fire danger period, the fire fighting annual audit is conducted in two inspection phases: Preliminary and Final. The annual audit will also ensure that the emergency control facilities are ready for use in an emergency.

The preliminary audit must be carried out in July of each year to identify the equipment that is ready and fit for purpose, missing or damaged.

Upon the completion of the preliminary audit, corrective action must be carried out prior to the final audit being carried out in September of each year. This will ensure that all fire fighting equipment is available, ready, working and tested prior to be needed for the purpose of fire fighting.

Personnel should have undertaken the necessary fire training as outlined in the Hazelwood Mine Fire Fighting Manual. This will ensure that personnel know how to operate all fire fighting equipment, and know where to find the equipment when required.

8 PERIOD SPECIFIC FIRE PREPAREDNESS AND MITIGATION PLAN

The following five (5) parameters can be used to correlate the likelihood of the need to declare a high fire alert warning:

- 8.1 The minimum forecast relative humidity is below 25%;
- 8.2 The maximum forecast temperature is above 35°C
- 8.3 The maximum forecast wind speeds is above 30 km/hour (*independent of wind direction*)
- 8.4 The maximum wind gust speed is above 40 km/hour (*independent of wind direction*);
- 8.5 The forecast Forest or Grassland Fire Danger Index will exceed 40 for the Latrobe Valley or for the Morwell brown coal mine;

In extreme cases, anyone of these parameters can trigger a declaration of a high fire alert period, but usually more than one should be taken into account when determining their influence on the outcome. It will be important to reach a balance between promoting too many **period specific fire preparedness and mitigation plans** and thus losing their impact, and putting out too few. The financial implications of implementing the plan too frivolously would result in resources being diverted on days when the plan is not necessarily needed.

When a high fire alert warning has been declared, then a **period specific fire preparedness and mitigation plan** will be generated and emailed to all personnel, and brought to the attention of all personnel not otherwise notified. Appendix 3 details the generic requirements of this daily plan.

Appendix 1 –Three Tier Response Levels.

➤ **Response Level 1**

Objective	Minimise fugitive dust mobilisation
Considerations	<ul style="list-style-type: none"> ➤ Application of water is one of the most significant causes of fine dust ➤ Fine dust is defined as less than 50 µm in size ➤ Testing has determined that brown coal dust particles less than 180 µm become airborne at 3.5 m/s or 12.6 km/hr <p>Wind speeds at the coal surface are not the same as those forecast by the Bureau of Meteorology</p>
Methods	<ul style="list-style-type: none"> ➤ Apply water to dampen dust
Organisational Impact	<ul style="list-style-type: none"> ➤ Redirection of 1x7 Services resources to wetting down activities ➤ May impact on otherwise planned activities through labour diversion and creation of an environment that inhibits maintenance or operations activities

➤ **Response Level 2**

Objective	Increase preparedness by reducing response time
Considerations	<ul style="list-style-type: none"> ➤ Preparation in the event of deteriorating weather conditions without the costs of a "fire alert"
Methods	<ul style="list-style-type: none"> ➤ Apply water to create wetted corridors for plant protection ➤ Appoint dedicated fire spotter for coal benches ➤ Prepare plan to reduce dredger and mobile slew vulnerability ➤ Confirm locations and availability of response plant and equipment
Organisational Impact	<ul style="list-style-type: none"> ➤ Redirection of 1x7 Services resources to wetting down activities ➤ FSO to prepare plan to reduce machine vulnerability ➤ May impact on otherwise planned activities through labour diversion and creation of an environment that inhibits maintenance or operations activities

➤ **Response Level 3**

Objective	Organisational readiness for fire fighting
Considerations	<ul style="list-style-type: none"> ➤ Continued mine operations ➤ Full scale preparation for fire fighting
Methods	<ul style="list-style-type: none"> ➤ Declare Fire Alert ➤ Prepare fire preparedness plan
Organisational Impact	<ul style="list-style-type: none"> ➤ All non-operational activities cease ➤ Redirection of all non-operational resources in accord with fire preparedness plan

Appendix 2 – Accessing Internet Data.

A2.1 Elders Weather Traralgon (Latrobe Valley Airport) Local Weather with 7 day Forecast:
<http://www.eldersweather.com.au/local.jsp?lt=aploc&lc=8808>

Traralgon Local Weather
 38.20°S, 146.54°E, 36m AMSL

Recently at Latrobe Valley Ap				Latrobe Valley Ap at 20:30 EST				
	24h to 9am		24h from 9am		Temperature	Dew Point	Rel. Humidity	Feels Like
	Rainfall	Min. Temp.	Max. Temp.					
Sunday	0.0mm	8.4°C +1.9	21°C +4		14.3°C	12.2°C	87%	13.9°C
Saturday	0.0mm	7.9°C +1.4	15.9°C -1.0		Wind	Gusts	Pressure	Rainfall
Friday	0.0mm	9.3°C +2.8	18.9°C +2.0		E 9km/h	13km/h	1022.8hPa	0.0mm

Forecast for Latrobe Valley									
	Forecast	Min /Max	Chance of Rain, Likely Amount	Frost Risk	9am		3pm		
					Wind	RH	Wind	RH	
Monday	Late shower	9 / 22°C	20%, < 1mm	Nil	N 10km/h	73%	N 7km/h	66%	
Tuesday	Rain developing	10 / 20°C	50%, < 1mm	Nil	N 16km/h	70%	N 20km/h	68%	
Wednesday	Showers	10 / 19°C	50%, < 1mm	Nil	W 10km/h	61%	SE 4km/h	57%	
Thursday	Mostly cloudy	8 / 19°C	50%, < 1mm	Nil	ENE 20km/h	69%	ESE 23km/h	70%	
Friday	Mostly cloudy	9 / 17°C	10%, 1-5mm	Nil	W 1km/h	69%	SW 13km/h	61%	
Saturday	Mostly sunny	8 / 17°C	10%, < 1mm	Nil	SW 17km/h	76%	SSW 12km/h	71%	

Climate for Latrobe Valley Ap				Sun times for Latrobe Valley	
Daily Rainfall	Total	Wettest	Driest	Sunrise	Sunset
May 2007	23.0mm 4 days	19.4mm 4th	0.0mm 2nd	07:07 EST	17:14 EST
Jan-May 2007	207.2mm 51 days	41.8mm 28th Feb			
Rainfall Totals	Average	Wettest	Driest	Moon	
May 1984-2005	53.2mm 14.1 days	138.0mm 1988	11.4mm 2001	Moonrise: 03:40 EST	Moonset: 15:15 EST
Jan-May 1984-2005	254.5mm 69.7 days				
Daily Min. Temperature	Average	Lowest	Highest		
May 2007	9.7°C	5.3°C 10th	14.1°C 5th		
May 1984-2005	6.5°C	-2.2°C 31st 2002	14.4°C 24th 1987		
Daily Max. Temperature	Average	Lowest	Highest		
May 2007	18.9°C	15.9°C 12th	21.6°C 1st		
May 1984-2005	16.9°C	7.4°C 28th 2000	26.7°C 1st 1997		

A2.2 Bureau of Meteorology Victorian Fire Weather Forecast – 1 day outlook:
http://www.bom.gov.au/cgi-bin/show_prod.cgi?IDV18520

VICTORIAN REGIONAL OFFICE

Victorian Fire Weather Forecast issued at 1650 on 12/12/01 for FRIDAY 14/12/2001

TOWN/CITY	MAX REL TMP HUM	WIND DIRECT /SPD/GST	DF CUR FST GRS	WIND CHANGE
	(C) (%)	(kph)	(%) FDI FDI	(kph and time)
Latrobe Valley	21 38	SW 10	6 20 5 0	
East Sale	22 43	S 15	5 20 4 0	
W/S Gippsland	LAL: 0			
Orbost	21 49	S 15	6 20 4 0	

Appendix 3 – Generic Period Specific Fire Preparedness and Mitigation Plan.

Background

- Expect temperature for **Sunday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature for **Monday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature for **Tuesday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature for **Wednesday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature for **Thursday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature for **Friday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature for **Saturday** ___ Deg C ___ kph ESE strong variable winds with a humidity of ___%.
- Expect temperature of **37 Deg C, 20kph WNW** winds with low humidity with a late change in the afternoon gusting up to **25kph** in SW direction.
- CFA resources will be stretched – may be zero if there were to be an incident.
- Active Fire Bugs in area.
- Fire from external source – flying embers or ingress is a possibility.
- Expect a **Mine Fire Alert** to be declared during _____ day ___/___/_____.

Machine Positions

- Dredger D9 Positioned at T/side of M720 H/End with S94.
- Dredger D9 Positioned at T/side of M720 T/End with S94.
- Dredger D9 Positioned at T/side of M720 at ___m mark with S94.
- Dredger D10 Positioned at T/side of M820 H/End with S94.
- Dredger D10 Positioned at T/side of M820 T/End with S94.
- Dredger D10 Positioned at T/side of M820 at ___m mark with S94.
- Dredger D11 Positioned at T/side of M620 H/End with S94.
- Dredger D11 Positioned at T/side of M620 T/End with S94.
- Dredger D11 Positioned at T/side of M620 at ___m mark with S94.
- Dredger D24 Positioned at T/side of M520 H/End with S94.
- Dredger D24 Positioned at T/side of M520 T/End with S94.
- Dredger D24 Positioned at T/side of M520 at ___m mark with S94.
- Dredger D25 Positioned at T/side of M620 H/End with S94.
- Dredger D25 Positioned at T/side of M620 T/End with S94.
- Dredger D25 Positioned at T/side of M620 at ___m mark with S94.
- Mobile Slew S94 Positioned at T/End of M620 T/End.
- Mobile Slew S94 Positioned at T/side of
- Mobile Slew S96 Positioned at T/End of M620
- Mobile Slew S96 Positioned at T/side of

Auxiliary Plant Positions

- RTL Trucks will be operating on Clay Areas only & there will be no coal excavation for next two days.

Preparedness

- All personnel on high alert
- RTL to operate on channel 21 UHF radios.
- Contact Officer Pat Quinn Mobile 0412 842 236
- Sprays on continuously from _____ day ___/___/_____ from 0700hrs
- Sprays on intermittently from _____ day ___/___/_____ from 0700hrs
- All unmanned machines to be fully hosed up including D9, D10, D11, D24 & D25 & S94 & S96 & TS2.
- Fixed monitors to be positioned around D11 Maintenance pad
- All pumps must be checked on _____ day ___/___/_____
- Minimum Machine operation if possible – only 1 dredger for afternoon operation.
- Additional sprays to be set up to protect power supply on Southern Batters
- Once Mine Dredgers or Conveyors have been stopped, patrols are to be conducted every hour afterwards checking for signs of fire.
- 2 x 12 Operational personnel to wash loose coal from around TP5 & TP8 – on Thursday Night shift ___/___/_____.

- Crane monitor to be fitted and remain on standby
- Critical assets to be protected – all Dredgers, Tipper Stacker TS2, Mobile Slews S94 & S96, TP5, TP8, Hazelwood Slot Bunker, Trunk Conveyors, Electric supply cables, Electrical sub stations.
- Sprays on at TP5 and TP8 and on road underneath Hazelwood Slot Bunker.
- All vehicles to park on clay surface and walk to coal levels if possible.
- All vehicles to be checked for hoses & fittings and to carry extra hoses if necessary.
-

Manning & Available Resources

- Additional Maintenance crew on site for _____ day working on _____
- When Maintenance crew are complete, report to Fire Services Supervisor & carry out directed fire duties.
- Maintenance personnel perform normal planned maintenance and breakdown duties.
- Minimal leave for 1 x 7 Services and Maintenance Crews
- RTL operating on site with tankers available if required.
 - 50 tonne water tanker on Northern batters
 - 30 tonne water tanker on Northern batters
 - Coates 20 tonne tanker on Perimeter Road
 - 50% water to remain in tankers at all times
-

Upon Notification of a Fire Alert Event

- All Maintenance crews to commence fire watch duties manning 2 x Slip-On-Fire-Tankers and conduct patrols as directed by Fire Services Supervisor. (80 & 60 Series Conveyors)
- No unnecessary vehicles on levels.
- Minimal maintenance activities to be performed on coal levels
- All vehicles to be washed underneath after leaving the mine and before entering again.
- All spare men to be on fire watch and available for patrols
- Hazelwood Mine Fire Tanker to be positioned at Fire Services Office & then Control Centre after hours.
- Mercedes Benz water tanker to park at Control Centre
- Notify RRR Project to have water tankers remain 50% full (4 water tankers to be available)
- Notify Diamond Protection Fire Tanker to be on standby
- Ensure that the Furphy water tankers have been filled – 1 positioned at MWW and MWN, remainder on standby at the control centre
- Hose trailer to be positioned at the Fire Service yard and the Mine Control building.
- Report to Fire Services all vehicle entry onto coal levels
- Perimeter patrols internal perimeter road and external (by Diamond Protection) along Brodribb Road and the Strezlecki Highway
-

Response

- Safety of personnel is paramount.
- Under no circumstances are personnel to take undue risks. "**THINK BEFORE YOU ACT**".
- Call CFA immediately of any sign of fire, no matter how small.
- All personnel attend, take note of probable cause and minimise spread.
- People resources (in call in order) – IPRH Mine, CFA, Contractors – RTL, Alstom, Belle Baine, Bifinger Berger, IPRH Station and Corporate, Station Alliance contractors – Fluor, Alstom, LYB
-