



**MINE**

**RE-ENTRY**

**ASSESSMENT**

**SYSTEM**

**A Decision Makers Tool**



## Moura No.2 - 1994

### Task Group 4

- “ Knowledge of conditions in a mine following an incident is essential in planning any rescue effort”
- “Information systems must be provided to support implementation of the most appropriate rescue measures.”
- “ Industry should develop an effective computer based emergency decision support system for incident management and training”.



## Context

- The Incident Control Team and particularly the Incident Controller need to consider vast amounts of information during an event
- Many inputs to making properly considered decisions exist within the mines operating systems and safety management procedures before an event but need to be accessible in the pressured environment of an emergency.
- Critical new information that only exists after an event has occurred needs to be assessed in a structured and logical process so that issues are not overlooked.
- Whilst this can be achieved by manual paper based processes it becomes cumbersome and prone to error.



## Background

- Qld and NSW Industry Mine Re-entry Risk Assessment Conducted October/November 2008
- Task Group formed 2009 to develop Rescue Operational Guideline
- Mines Rescue operations Explosibility RA conducted July 2010
- Guideline completed October 2010
- Initial Information Management Software Prototype completed March 2011
- Recommendation from Qld Level 1 Emergency Exercise 2013: Implement MRAS to assist when QMRS arrive on site, with information/incident questions answered.



## FUNCTIONAL SPECIFICATION and LOGIC

Assist decision makers make informed decisions - not make a decision for them.

Access, gather and maintain relevant information already existing within the mines SHMS to avoid duplication of information.

Identify and assess the critical information relevant to the specific incident, to avoid unnecessary information overload.

Provide reports which can quickly summarise the information status to assist the decision makers determine what information is known or unknown.



## FUNCTIONAL SPECIFICATION and LOGIC

Assist decision makers to prioritise required and outstanding information.

Maintaining an up to date log of an incidents status and general actions.

Allow decision makers to formally acknowledge the adequacy of information.

Prepare approved mines rescue team task deployment instructions

A formal process for the assessment and acknowledgement of explosibility risk.

A formal process for approval of entry into a mine during or after an incident





## Routine Questions

- To establish MRAS at a mine a series of questions need to be worked through.
- 9 potential hazard sources have been identified that impact mines rescue deployment. Each has associated level 1 questions to establish the level of control of this hazard.
- Some level 1 questions have second level questions associated with them.

| Hazards (9)                    |
|--------------------------------|
| Atmospheric Conditions         |
| Ventilation Conditions         |
| Fire                           |
| Mines Rescue                   |
| Information Control            |
| Strata Conditions              |
| Other Environmental Conditions |
| Inrush                         |
| Inundation                     |

| Level 1 Questions: | Inundation  | R      |
|--------------------|---|--------|
| Notes:             |   | E      |
| ▶                  | Has the potential impact of inundation been considered? | T<br>I |



# ROUTINE QUESTIONS

Routine Questions

Responsible Position Report

Filter  
Element: \* \* Responsible: \* \* Clear

Hazards (9) Click on a Hazard to view questions related to that Hazard. Use the scrollbar at the extreme right of this screen to scroll through the Hazards if necessary.

- Atmospheric Conditions
- Ventilation Conditions
- Fire
- Mines Rescue
- Information Control
- Strata Conditions
- Other Environmental Conditions
- Inrush
- Inundation

| Level 1 Questions:  | Responsible:                                      | Answer:        | Relevant: | Priority: |
|---|---|----------------|-----------|-----------|
| Notes: Are the fire fighting resources on site documented?                                  | Fire Officer<br>Adequate Equipment/Resources      | Yes<br>History | Yes       | Ignore    |
| Do MSDS exist on the mine site in readily accessible locations for all fire fighting media? | Fire Officer<br>Adequate Equipment/Resources      | <br>History    |           | Ignore    |
| Have all potential fire sources been identified and effects been modelled?                  | VO<br>Substantiate Location Type and Size of Fire | <br>History    |           | Ignore    |

Record: 1 of 3

| Level 2 Questions:  | Answer:     | Relevant: | Priority: |
|---|-------------|-----------|-----------|
| Notes: Is all site fire fighting equipment compatible both underground and on the surface?                                  | <br>History |           |           |
| Is information readily available on the type of fire fighting equipment available on the mine site?                         | <br>History |           |           |
| Is information readily available on the quantity of fire fighting equipment available on the mine site?                     | <br>History |           |           |
| Are there adequate numbers of competency based trained persons to conduct fire fighting operations available on all shifts? | <br>History |           |           |
| Is all site fire fighting equipment compatible both underground and on the surface?   | <br>History |           |           |

Record: 1 of 12



# INITIATING AN INCIDENT

Incident Details

Enter the information into the fields below then press the "Answer Incident Questions" button.  
Please note that all fields are mandatory.

**What Has Occurred?**  
Incident Description:

**Where Has It Occurred?**  
Incident Location:

**Who Was Involved?**  
Personnel Involved:

**When Did It Occur?**  
Incident Date:

Incident Time:  (24 Hr format. eg. 15:00)

**What Is Happening Now?**  
Current Situation:

Incident Category:  Explosion  
 Fire  
 Inrush  
 Outburst  
 Strata Failure  
 Unknown

Select Email Recipients

Add To Or Edit Employee Email List

Click Individual Recipients To Select From 3 Listed or select all.  Selected Recipients:

|                     |        |       |
|---------------------|--------|-------|
| bill@bigpond.com    | Bloggs | Bill  |
| grugent@qmrs.com.au | Nugent | Geoff |
| jsmith@bigpond.com  | Smith  | John  |

Mail Subject

Message  
Incident Type: Fire  
Incident Description: Loader Fire reported by operator unable to extinguish with fire extinguisher and intensity increasing.  
Incident Date: 26/05/2011  
Incident Time: 9:00:00 AM  
Incident Location: MG401 Travel road 10 - 12 ct  
Involved: LW crew inbye (8 people) informed and evacuating via belt road. 501 development crew responding to fire.  
Current Situation:



# INCIDENT QUESTIONS

Incident Questions For: Loader Fire reported by operator unable to extinguish with fire extinguisher and intensity increasing.

Filter  
 Element: \*  Responsible:

**Hazards (8)** Incident Type: **Fire** Click on a Hazard to view questions related to that Hazard. Use the scrollbar at the extreme right of this screen to scroll through the Hazards if necessary.

- Atmospheric Conditions
- Ventilation Conditions
- Potential Explosion
- Fire
- Mines Rescue
- Information Control
- Strata Conditions
- Other Environmental Conditions

| Level 1 Questions: | Notes:   | Responsible Element:  | Answer:                                       | Relevant:                                  | Priority:                                     |
|--------------------|--|---|---|--|---|
| ▶                  | Have duplicate gas samples been taken/analysed from key locations?<br>Sourcing personell to take samples from TB hut   | Planning Coordinator<br>Atmospheric conditions Validated          | No <input type="button" value="History"/>     | Yes <input type="button" value="History"/> | Ignore <input type="button" value="History"/> |
|                    | Has the the integrity of the mine monitoring system been checked by a competent person?<br>VD monitoring system  | Planning Coordinator<br>System Integrity Verified                 | Review <input type="button" value="History"/> | Yes <input type="button" value="History"/> | High <input type="button" value="History"/>   |
|                    | Have the monitoring locations that best indicate the state of the incident been identified?<br>401 dog leg return TB4 and RT8, including main return TB 3 main fan RT 2  | Planning Coordinator<br>Sampling From the Most Appropriate Locati | Yes <input type="button" value="History"/>    | Yes <input type="button" value="History"/> | Ignore <input type="button" value="History"/> |
|                    | Are there any surface to in seam boreholes, Ballast holes, concrete drop holes or goaf drainage holes that can be used to augment<br>Ballast drop hole MG 401 15ct in TG 401 10 and c0ct ballast drop hole (plan attachede | Planning Coordinator<br>Sampling From the Most Appropriate Locati | Yes <input type="button" value="History"/>    | Yes <input type="button" value="History"/> | Medium <input type="button" value="History"/> |
|                    | Is there ready access to a GC at all times?  | Planning Coordinator  | Yes <input type="button" value="History"/>    | Yes <input type="button" value="History"/> | Ignore <input type="button" value="History"/> |

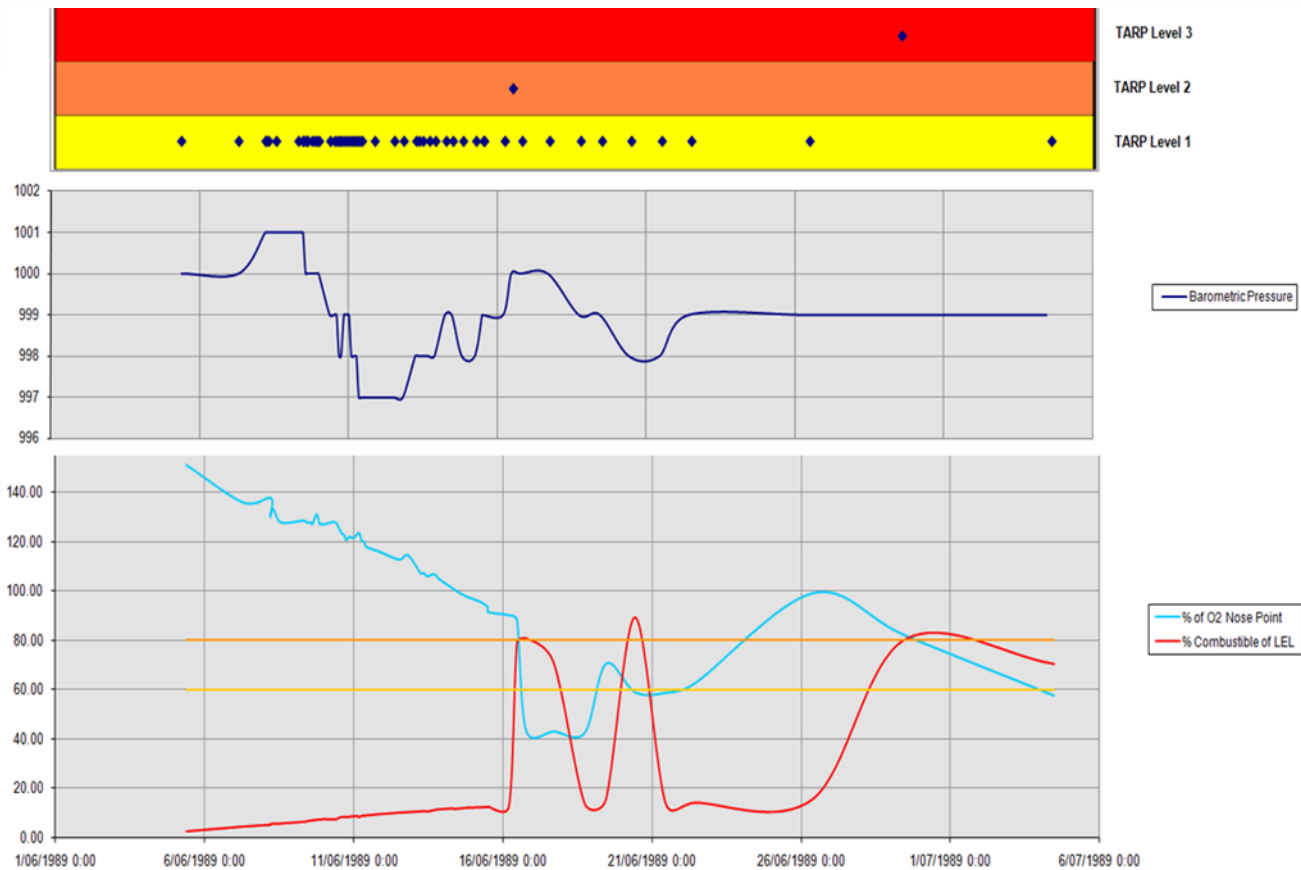
Record:   1 of 6

Any possible Level 2 questions are not visible because the selected Level 1 question has not been answered or is answered "No"





# ASSESSING RISK OF EXPLOSIBILITY





# ASSESSING RISK OF EXPLOSIBILITY

| EXPLOSIBILITY MATRIX       |  |  |   |  |   |  |
|----------------------------|--|--|---|--|---|--|
| % of Oxygen/Nitrogen Point | > 60%  | Level 1  |   | Level 2  |   | Level 3  |
|                            | 0 - 60%  |  |   | Level 1  |   | Level 1  |
|                            |  | 0 - 60%  | 60 - 80%  |  | > 80%   |  |
| Flamable Gas % LEL         |  |  |   |  |   |  |
| EXPLOSIBILITY TARP         |  |  |   |  |   |  |
| TARP LEVEL                 | Level 1  |  | Level 2   |  | Level 3   |  |
|                            | <i>Ignition Source eliminated or Unlikely to be present</i>  | <i>Ignition Source known or likely to be present</i> | <i>Ignition Source eliminated or Unlikely to be present</i> | <i>Ignition Source known or likely to be present</i> | <i>Ignition Source eliminated or Unlikely to be present</i> | <i>Ignition Source known or likely to be present</i> |
|                            | Rescuer may enter environment  |  | Rescuer may enter environment                               | Rescuer must not enter the environment               | Rescuer must not enter the environment                      | No Entry into the Mine                               |
|                            | Rescuers may operate adjacent to the environment   |  | Rescuers may operate adjacent to the environment            | Rescuers may operate adjacent to the environment     | Rescuers may operate adjacent to the environment            |  |
| GENERAL CONTROLS           |  |  |   |  |   |  |
| 1                          | Atmospheric Conditions must be continuously monitored by Rescuers underground and monitored and Trended on the surface by a competent person at all times while people are underground                 |  |   |  |   |  |
| 2                          | Prior to entry the assessment of relevant knowledge for mine re-entry must be completed and all information deemed to be adequate to determine explosibility risk level.                               |  |   |  |   |  |
| 3                          | When it can not be confirmed there are no potential ignition sources which may come into contact with a potentially explosive or explosive environment it must be taken that an ignition source exists |  |   |  |   |  |
| 4                          | The Level of assesment must be based on the highest level of risk within the mine not just the area which the rescue team is going to enter.   |  |   |  |   |  |
| 5                          | These control limits may only be modified when a full re-entry RA is undertaken for the specific emergency situation. The original risk assessment must be reviewed as part of this process.           |  |   |  |   |  |
| 6                          | Currency of the data must be taken into account when assessing gas results e.g Tube bundle lag times, Time bag samples were taken.   |  |   |  |   |  |
| 7                          | Sufficient time must be allowed for rescuers to exit the mine or atmosphere before the the enviornment enters unacceptable levels of risk  |  |   |  |   |  |



# PIKE RIVER MINE RE-ENTRY

## Objective

Effective natural stabilisation of the entire Pike River Mine underground environment.

## Task

Install a fit for purpose seal within 200m of the Portal entrance.





Re-Entry Control Questions ✖

Printable Document   Add New Control Q

**There is 1 set of Re-entry Control Questions associated with this Incident.**

**Mine Re-entry Critical Elements**

Incident Controller: Stephen Ellis   Mines Rescue Operations Manager: Trevor Watts   [Go To Explosibility Graph](#)

**Assessment Of Explosibility**

|  | Acknowledged                        | Time | Date      |
|--|-------------------------------------|------|-----------|
| 1. Prior to entry the assessment of relevant knowledge for mine re-entry must have been completed and all information has been deemed to be adequate to determine explosibility risk level.                | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| 2. Atmospheric conditions will be continuously monitored by rescuers underground and monitored and trended on the surface by a competent person at all times while people are underground.                 | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| 3. When it can not be confirmed there are no potential ignition sources which may come into contact with a potentially explosive or explosive environment it must be taken that an ignition source exists. | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| 4. The level of assessment is based on the highest level of risk within the mine not just the area which the rescue team is going to enter.  | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| 5. These control limits may only be modified when a full re-entry RA is undertaken for the specific emergency situation. The original risk assessment must be reviewed as part of this process.            | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| 6. Currency of the data has been taken into account when assessing gas results e.g Tube bundle lag times, Time bag samples were taken.   | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| 7. Sufficient time will be allowed for rescuers to exit the mine or atmosphere before the environment enters higher levels of risk anywhere in the mine.   | <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |

**Explosibility Level Where Teams Will Operate**

| Location          | TARP Level | Ig Source Present | Ignition Source | % LEL | % ONP | Trend                                   | Acceptable? |
|-------------------|------------|-------------------|-----------------|-------|-------|---|-------------|
| 200m inbye portal | Level 1    | Yes               | Spon Comb       | 2.2   | 15.4  | Trending Away From Explosive Atmosphere | Acceptable  |

**Highest Explosibility Level For Mine**

| Location | TARP Level | Ig Source Present | Ignition Source | % LEL | % ONP | Trend                                | Acceptable? |
|----------|------------|-------------------|-----------------|-------|-------|--------------------------------------|-------------|
| PRDH45   | Level 1    | Yes               | Spon Comb       | 14.2  | 11.8  | Trending Toward Explosive Atmosphere | Acceptable  |

**Assessment Of Toxicity**

Expected Toxic Gas concentrations where Mines Rescue Team will operate. (Note: there are no exclusion limits for Toxic or Oxygen Deficient Atmospheres for Mines Rescue Members wearing Breathing Apparatus) [Save](#)

| Location 1        |               |               |     |       |      |        | Location 2 |        |          |               |               |     |       | Location 3 |        |      |        |          |               |               |     |       |      |        |      |       |
|-------------------|---------------|---------------|-----|-------|------|--------|------------|--------|----------|---------------|---------------|-----|-------|------------|--------|------|--------|----------|---------------|---------------|-----|-------|------|--------|------|-------|
| Location          | Time Valid To | Date Valid To | O2% | COppm | CO2% | H2Sppm | CH4%       | Other  | Location | Time Valid To | Date Valid To | O2% | COppm | CO2%       | H2Sppm | CH4% | Other  | Location | Time Valid To | Date Valid To | O2% | COppm | CO2% | H2Sppm | CH4% | Other |
| 200m inbye portal | 20:00         | 3/07/2011     | 1.9 | 0     | 0.0  | 0      | 0.1        | N2 98% | PRDH 45  | 20:00         | 3/07/2011     | 1.4 | 30    | 0.1        | 0      | 0.7  | N2 97% | NA       |               |               |     |       |      |        |      |       |

Record: 1 of 1



**Mine Re-entry Critical Elements**

**Assessment Of Explosibility**

1. Atmospheric conditions will be continuously monitored by rescuers underground and monitored and trended on the surface by a competent person at all times while people are underground.
2. Prior to entry the assessment of relevant knowledge for mine re-entry must have been completed and all information has been deemed to be adequate to determine explosibility risk level.
3. When it can not be confirmed there are no potential ignition sources which may come into contact with a potentially explosive or explosive environment it must be taken that an ignition source exists.
4. The level of assessment is based on the highest level of risk within the mine not just the area which the rescue team is going to enter.
5. These control limits may only be modified when a full re-entry RA is undertaken for the specific emergency situation. The original risk assessment must be reviewed as part of this process.
6. Currency of the data has been taken into account when assessing gas results e.g Tube bundle lag times, Time lag samples were taken.
7. Sufficient time will be allowed for rescuers to exit the mine or atmosphere before the environment enters higher levels of risk anywhere in the mine.

| Acknowledged                        | Time | Date      |
|-------------------------------------|------|-----------|
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |
| <input checked="" type="checkbox"/> | 9:30 | 3/07/2011 |

**Exclusivity Level Where Teams Will Operate**

| Location          | TARP Level | Ig Source ? | Ignition Source | % LEL | % ONP | Trend                                   | Acceptable? |
|-------------------|------------|-------------|-----------------|-------|-------|---|-------------|
| 200m inbye portal | Level 1    | Yes         | Spon Comb       | 2.2   | 15.4  | Trending Away From Explosive Atmosphere | Acceptable  |

**Highest Explosibility Level For Mine**

| Location | TARP Level | Ig Source ? | Ignition Source | % LEL | % ONP | Trend                                | Acceptable? |
|----------|------------|-------------|-----------------|-------|-------|--------------------------------------|-------------|
| PRDH45   | Level 1    | Yes         | Spon Comb       | 14.2  | 11.8  | Trending Toward Explosive Atmosphere | Acceptable  |

**Assessment Of Toxicity**

Expected Toxic Gas concentrations where Mines Rescue Team will operate. (Note: there are no exclusion limits for Toxic or Oxygen Deficient Atmospheres for Mines Rescue Members wearing Breathing Apparatus)

| Location 1        |               |             |               |             |              | Location 2 |               |             |               |             |              | Location 3 |               |             |               |             |              |
|-------------------|---------------|-------------|---------------|-------------|--------------|------------|---------------|-------------|---------------|-------------|--------------|------------|---------------|-------------|---------------|-------------|--------------|
| Location          | Time Valid To |             | Date Valid To |             |              | Location   | Time Valid To |             | Date Valid To |             |              | Location   | Time Valid To |             | Date Valid To |             |              |
| 200m inbye portal | 20:00         |             | 3/07/2011     |             |              | PRDH 45    | 20:00         |             | 3/07/2011     |             |              | NA         |               |             |               |             |              |
| <b>O2%</b>        | <b>COppm</b>  | <b>CO2%</b> | <b>H2Sppm</b> | <b>CH4%</b> | <b>Other</b> | <b>O2%</b> | <b>COppm</b>  | <b>CO2%</b> | <b>H2Sppm</b> | <b>CH4%</b> | <b>Other</b> | <b>O2%</b> | <b>COppm</b>  | <b>CO2%</b> | <b>H2Sppm</b> | <b>CH4%</b> | <b>Other</b> |
| 1.9               | 0             | 0.0         | 0             | 0.1         | N2 98%       | 1.4        | 30            | 0.1         | 0             | 0.7         | N2 97%       |            |               |             |               |             |              |

**Incident Controller:** Stephen Ellis

**Mines Rescue Operations Manager:** Trevor Watts

**Signature:** \_\_\_\_\_

**Signature:** \_\_\_\_\_



AuthorityTo Enter X

Printable Document Add New Auth To Enter Note that blue fields are mandatory.

**There is 1 Authority To Enter associated with this Incident.**

| Colliery                  | Time              | Date      | Nature Of Incident  | Incident Location                   | Incident Time  | Incident Date | LAR/NLAR   |              |
|---------------------------|-------------------|-----------|---|-------------------------------------|--|---------------|------------|--------------|
| Pike River                | 9:30              | 3/07/2011 | Explosions and subsequent fire at Pike River Mine. Mine has been sealed and fire brought under control. | Top of drift - 3ct pit bottom.      | 15:30  | 19/11/2010    | NLAR       |              |
| Team Captain              | Team Name         |           |   | Barometer                           | Fan Pressure   | Power         | Air Supply | Water Supply |
| T'Wahi (T1) G Forsyth(T2) | Team 1 and Team 2 |           |   | 985 falling                         | N/A  | N/A           | N/A        | N/A          |
|                           |                   |           |   | Mine Plan Version For Area Of Entry | Latest Mine and Operational Area Atmospheric Monitoring Trends |               |            |              |
|                           |                   |           |   | Drift cross section                 | Supplied   |               |            |              |

| Expected Physical and Environmental Conditions | Location and Condition                               | Time | TARP Level Mine   | TARP Level Where Teams Will Operate | Ignition Source Presence and Location         |
|--|--|------|---|-------------------------------------|---|
| Strata Conditions:                             | Assessed as secure by previous teams to 300m         | 9:00 | Level 1   | Level 1                             | Potential sponcomb pit bottom. SC TARP Normal |
| Visibility:                                    | Very Good  | 9:00 | % LEL   | % LEL                               |   |
| Water Hazards and Extent:                      | Constant water make in drift - potential slip hazard | 9:00 | 14.2  | 2.2                                 |   |
| Debris Hazard and Extent:                      | some HT electrical cable on floor. Generally clear   | 9:00 | % ONP   | % ONP                               |   |
| Roadway Conditions For Travel:                 | Stone floor with water make                          | 9:00 | 11.8  | 15.4                                |   |
| Thermal Conditions:                            | N/A  | 9:00 | Ig Source Present   | Ig Source Present                   |   |
|  |  |      | Yes   | Yes                                 |   |
|  |  |      | <input type="button" value="Update"/> Update the values above to those on the latest Re-Entry Control Questions form. (Use your 'Esc' key to undo an update.) |                                     |   |

| Authorisation To Enter Location | Date Valid To | Time Valid To | Incident Controller | Mines Rescue Official's Name |
|---------------------------------|---------------|---------------|---------------------|------------------------------|
| Up to 200m inbye portal         | 3/07/2011     | 20:00         | Stephen Ellis       | Trevor Watts                 |

Record: 1 of 1



MRAS - [Authority To Enter]

Close Print Email Report As PDF Create And Save PDF Open Saved PDFs Folder

Type a question for help

**Authority To Enter**

|                            |                     |                     |
|----------------------------|---------------------|---------------------|
| <b>Colliery:</b>           | <b>Time Issued:</b> | <b>Date Issued:</b> |
| Pike River                 | 9:30                | 3/07/2011           |
| <b>Team Captain:</b>       | <b>Team Name:</b>   |                     |
| T.Waiki (T1) G Forsyth(T2) | Team 1 and Team 2   |                     |

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**Nature Of Incident:**  
Explosions and subsequent fire at Pike River Mine. Mine has been sealed and fire brought under control.

|                                |                       |                       |                    |
|--------------------------------|-----------------------|-----------------------|--------------------|
| <b>Incident Location:</b>      | <b>Incident Time:</b> | <b>Incident Date:</b> | <b>LAR /NIAR:</b>  |
| Top of drift - 3rd pit bottom. | 15:30                 | 19/11/2010            | NLAR               |
| <b>Barometer:</b>              | <b>Fan Pressure:</b>  | <b>Power:</b>         | <b>Air Supply:</b> |
| 885 falling                    | N/A                   | N/A                   | N/A                |

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|   |                     |                   |
|---|---------------------|-------------------|
| <b>Associated Documents:</b>                                    | <b>Version:</b>     | <b>Signature:</b> |
| Current Mine Plan For Area Of Entry:                            | Drift cross section | _____             |
| Latest Mine and Operational Area Atmospheric Monitoring Trends: | Supplied            | _____             |

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|   |  |             |
|---|--|-------------|
| <b>Expected Physical and Environmental Conditions</b> | <b>Location and Condition</b>                        | <b>Time</b> |
| Strata Conditions:                                    | Assessed as secure by previous teams to 300m         | 9:00        |
| Visibility:   | Very Good  | 9:00        |
| Water Hazards and Extent:                             | Constant water make in drift - potential slip hazard | 9:00        |
| Debris Hazard and Extent:                             | some HT electrical cable on floor. Generally clear   | 9:00        |
| Roadway Conditions For Travel:                        | Stone floor with water make                          | 9:00        |
| Thermal Conditions:                                   | N/A  | 9:00        |

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|   |                |              |              |                                |
|---|----------------|--------------|--------------|--------------------------------|
| <b>TARP Level Mine:</b>                     | <b>Level 1</b> | <b>% LEL</b> | <b>% OMP</b> | <b>Ignition Source Present</b> |
|   |                | 14.2         | 11.8         | Yes                            |
| <b>TARP Level Where Teams Will Operate:</b> | <b>Level 1</b> | <b>% LEL</b> | <b>% OMP</b> | <b>Ignition Source Present</b> |
|   |                | 2.2          | 15.4         | Yes                            |

**Ignition Source Presence and Location:** Potential sponcomb pit bottom. SC TARP No

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|                                |                         |                       |                       |
|--------------------------------|-------------------------|-----------------------|-----------------------|
| <b>Authorisation To Enter:</b> | <b>Location:</b>        | <b>Date Valid To:</b> | <b>Time Valid To:</b> |
|                                | Up to 200m inbye portal | 3/07/2011             | 20:00                 |

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|                     |                                      |                   |
|---------------------|--------------------------------------|-------------------|
| <b>Approved By:</b> | <b>Incident Controller:</b>          | <b>Signature:</b> |
|                     | Stephen Ellis                        | _____             |
|                     | <b>Mines Rescue Official's Name:</b> | _____             |
|                     | Trevor Watts                         | _____             |

Page: 14 of 1 No Filter

Ready 80%



Actions

Please note that Blue fields are mandatory.

| Date/<br>Time       | Action   | Responsible | Priority | Due Date/<br>Due Time | Compl Date/<br>Compl Time | Comment  |
|---------------------|--|-------------|----------|-----------------------|---------------------------|--|
| 28/06/2011<br>9:00  | Transport DMS Placer pump and all assc. Equipment to portal area. Must be placed under Leanto.     | Logistics   | Medium   | 28/06/2011<br>12:00   | 28/06/2011<br>11:00       | Confirmed with Steve Jones (DMS) all required equipment delivered to site.   |
| 28/06/2011<br>9:00  | Prepare shipping container doors for opening   | Operations  | High     | 28/06/2011<br>12:30   | 28/06/2011<br>12:30       | Completed by Team 1  |
| 28/06/2011<br>9:00  | Reconnaissance of first 300m of main drift to assess roadway strat an conditions                   | Operations  | High     | 28/06/2011<br>12:30   | 28/06/2011<br>12:30       | Completed by Team 1. Geotechnical conditions assessed as good up to 300m. Some HT cable on floor walking conditions generally good |
| 28/06/2011<br>9:00  | Temporary seal site selected and marked  | Operations  | High     | 28/06/2011<br>12:30   | 28/06/2011<br>12:30       | Completed by Team 1. Temp seal location 170m from portal   |
| 28/06/2011<br>12:30 | Installation of intercom at seal site  | Operations  | Medium   | 28/06/2011<br>16:30   | 30/06/2011<br>19:00       | Intercom run to 70m mark requires 100m more cable  |
| 28/06/2011<br>12:30 | Extension of atmosperic monitoring lines and hooked up to system                                   | Logistics   | Medium   | 28/06/2011<br>17:00   | 3/07/2011<br>15:00        | 3 TB lines extended to 195m distance. Requires connecting to System.   |
| 28/06/2011<br>15:30 | Cut conveyor belt and remove section of conveyor structure at temporary seal site                  | Operations  | High     | 28/06/2011<br>19:30   | 28/06/2011<br>16:30       | Cleared and prepared by team 2. 2 HT cables split and seperated. 1 remaining on roof no issue. Belt split and structure seperated. |
| 28/06/2011<br>15:30 | Water in main drift to be channeled into drain   | Operations  | Medium   | 29/06/2011<br>19:30   | 28/06/2011<br>16:30       | Completed by Team 2.   |
| 28/06/2011<br>15:30 | Temporary seal site keyed into floor   | Operations  | High     | 28/06/2011<br>19:30   | 28/06/2011<br>19:30       | Completed by Team 1 (2nd run)  |
| 28/06/2011<br>15:30 | Transportation of scaffolding and temporary seal construction materials inbye inert lock           | Operations  | High     | 29/06/2011<br>13:00   | 29/06/2011<br>12:30       | Team 1 took all required materail for seal into air lock. Transported required materials for inbye skin to seal site               |
| 28/06/2011<br>17:30 | Reinstall water trap at portal out to road. Also silicon seal door at end of day. Ensure effective | Logistics   | High     | 28/06/2011<br>19:30   | 28/06/2011<br>19:30       | PRCL installed water trap at seal site. Issue overnight with water leakage.  |
| 29/06/2011<br>9:00  | Allocate PRCL Personnel to monitor and maintain water trap 24/7                                    | Logistics   | High     | 29/06/2011<br>10:00   | 29/06/2011<br>10:00       | PRCL has allocated 2 personell D/S and N/S to maintain and monitor water trap.   |
| 29/06/2011<br>9:00  | RT O2 sensor in portal connected to monitoring sytem   | Logistics   | Medium   | 29/06/2011<br>19:00   | 29/06/2011<br>18:00       | Solid Energy employee on site 29/6/2011 to install. Cmpleted   |

Record: 1 of 71



**Actions Report  
Incomplete Actions**

**Incident Description: Explosions and subsequent fire at Pike River Mine. Mine has been sealed and fire brought under control.**

| Responsible              | Date/<br>Time       | Action  | Priority | Due Date/<br>Due Time | Comment |
|--------------------------|---------------------|---|----------|-----------------------|---------|
| <b><u>Logistics</u></b>  |                     |   |          |                       |         |
|                          | 19/07/2011<br>17:00 | Confirm helicopter for shift inspection 1000hrs 20/7                                | High     | 19/07/2011<br>18:00   |         |
|                          | 19/07/2011<br>17:00 | Source 6 BG4 and deliver to FAB   | Medium   | 19/07/2011<br>19:00   |         |
|                          | 19/07/2011<br>13:30 | Procure 10 buckets mortar, 4 shovels and deliver to FAB                             | Low      | 20/07/2011<br>13:00   |         |
| <b><u>Operations</u></b> |                     |   |          |                       |         |
|                          | 19/07/2011<br>14:00 | construct water trap at portal doors as per work plan 001                           | High     | 19/07/2011<br>20:00   |         |
|                          | 19/07/2011<br>12:00 | Extend inert line from portal to seal site and connect as per seal design 001       | Medium   | 20/07/2011<br>12:00   |         |
| <b><u>Planning</u></b>   |                     |   |          |                       |         |
|                          | 19/07/2011<br>17:05 | Review data for TB line 10 and report to Incident controller                        | High     | 19/07/2011<br>18:00   |         |
|                          | 19/07/2011<br>17:00 | Develop contingency plan for seal re-design and completion in case of pump failure. | Medium   | 20/07/2011<br>12:00   |         |
|                          | 19/07/2011<br>16:00 | Integrity test all TB line and supply results to IMT                                | Low      | 21/07/2011<br>15:00   |         |



Current Situation For: Explosions and subsequent fire at Pike River Mine. Mine has been sealed and fire br...

Date/Time Current Situation

|                    |  |
|--------------------|--|
| 3/07/2011<br>18:00 | Hebel block wall completed 1715hrs. Drift effectivley sealed @170m All atmospheric conditions stable throughout mine. O2 2.26% @ potal mointor (Inbye Seal). Objective achieved, IMT dissolved 1800hrs.                                    |
| 3/07/2011<br>9:38  | IMT convened 0845hrs. Concurred to complete seal with Hebel blocks and moratr. Will require approx 80 blocks. Team 1 to establish base for for wall on top of grout. Small increase in O2 at PRDH45 (Expected.) O2 falling at Portal 1.9%. |
| 2/07/2011<br>19:34 | Last team out 1929hrs. Remaining distance to roof 1.9m RH side 1.6m Lh side..Pumping slow and strata binder setting slw also pushing seal out. Proposal to finish seal with Hebel blocks to roof with mortar.                              |
| 2/07/2011<br>15:04 | Team entered 1100hrs, pumping recommenced 1200hrs. Product quality poor for the first hour. Team 1 exite 1300hrs. Team 2 entered 1315hrs pumped to 2.2m exited 1515. Grout flow slow. Team 2 enterd 1530 due out 1730.                     |

Record:   1    of 24



**Current Situation Report**

**Incident Date:** 19/11/2010  
**Incident Time:** 15:30  
**Incident Type:** Fire

**Incident Description:** Explosions and subsequent fire at Pike River Mine. Mine has been sealed and fire brought under control.



| Date      | Time  | Current Situation  |
|-----------|-------|--|
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| 2/07/2011 | 10:19 | IMT resumed 09:00; Atmospheric readings stable all TARPS remain stable. TB pressure slight increase due to frost. Lines continually monitored for failure. Seal fill tactics agreed and confirmed as per decision previous IMT 2 teams to portal 10:00hrs. |
| 1/07/2011 | 19:00 | IMT concurred to fill remainder of seal with 6m3 Hebel Blocks and 6m3 Strata Binder. Pump with "Blue Heeler" and Clarke M150 pumps. Contingency to use Pitcrete spray and Piccola pump. All to start normal time tomorrow.                                 |
| 1/07/2011 | 17:30 | Pumping continued for 5 hrs seal fill to 1.6m. IMT informed at 1700hrs not enough grout to complete job only 1m left. IMT reconvened 17:15. All atmospheric conditions stable. Team 2 exited 18:20hrs.   |
| 1/07/2011 | 11:00 | IMT resumed 800hrs All gas readings and trends within acceptable limits. Permit to Enter issued to 0900 - 2000hrs. Team 1 entered @ 1015hrs. Pumping commenced 2 lines blocked. 1 line left and new line ordered from town.                                |



## TASK COMPLETED



- Task completed in 6 days
- 2 NZMRS teams per day
- All equipment manually transported to seal site
- Atmospheric conditions @ seal site 2-3% O<sub>2</sub>  
remainder N<sub>2</sub>. Temp approx 12°C