SCIENTISTS
ENGINEERS
MANAGERS &
FACILITATORS

# COMSTOCK MINE
# SPILL MANAGEMENT PLAN

For
Zeehan Zinc Limited

September 2007
Revision 2

Project No:1292.001

Integrated Management System
QUALITY AS/NZS ISO 9001 | ENVIRONMENT AS/NZS ISO 14001 | OH&S AS/NZS 4801

# PREFACE

## LIMITATIONS STATEMENT

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## DOCUMENT CONTROL

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# 1 INTRODUCTION

The aim of this spill management plan is to outline the procedures that will be used by Zeehan Zinc (ZZ) to enable a timely, effective and coordinated response effort in the event of an oil spill at Comstock mine, Zeehan.

The plan applies to all ZZ employees and sub-contractors operating at the Comstock mine site. All personnel working on the Comstock mine site should be familiar with the contents of this spill management plan, and aware of their responsibilities and the correct actions to take when a spill occurs, or is discovered. Response teams should be trained and be familiar with the information in the plan.

This spill management plan has been initially produced in 2007. Future revisions will be made as progress in spill management at the Comstock mine develops.

## 1.1 BACKGROUND

The Comstock mine is based on a zinc (Zn), lead (Pb), and silver (Ag) deposit. A mill for ore processing was installed at the mine site in 2001/2002 and consists of a crushing, screening and gravity separation plant.

The Comstock mine is located approximately 5km west of the township of Zeehan, on the west coast of Tasmania. The four mining leases held by Oceania Tasmania[1] that cover Comstock mine operations are:

- ML 123M/1947 (145ha);
- ML 43M/1985 (80ha);
- ML 9M/1995 (11ha); and
- ML 9M/2002 (11ha).

All current and proposed operations of the Comstock mine are limited to the area covered by the mining lease.

## 1.2 PURPOSE

The purpose of this plan is to reduce loss and damage from fuel/ oil spills by:

a) clearly identifying the potential risks of fuel spills within the Comstock mining lease;

b) outlining available resources;

c) defining functions and responsibilities;

d) describing detailed response actions; and

e) continually improving the quality and adequacy of operational procedures and engineering controls.

[1] Oceania Tasmania Pty Ltd is a fully owned subsidiary of Zeehan Zinc Pty Ltd (ZZ).

### 1.2.1 Zeehan Zinc Response Priorities

The importance of safety of life in any emergency response situation is crucial. According to the circumstances of the spill and the prevailing conditions, the overall response priorities must be to:

1. *PROTECT HUMAN HEALTH AND SAFETY;*
2. *PREVENT DAMAGE TO HABITAT RESOURCES;*
3. *PREVENT DAMAGE TO SURROUNDING THREATENED FLORA/ FAUNA (IF APPLICABLE); AND*
4. *PREVENT DAMAGE TO SURROUNDING AMENITIES.*

***All drainage lines, creeks, streams, rivers etc, flowing to sources of fresh water have a VERY high priority for protection at all times.***

## 1.3 SCOPE OF THE PLAN

This spill management plan applies to the entirety of the Comstock mining lease, as outlined on the mining lease map (Appendix A). This plan further aims to restrict spills from reaching neighbouring locations that are in close proximity to the Comstock mining lease.

This plan describes the recommended response procedures for spills resulting from refuelling operations, failure of pipes, joints, small storage tanks, vehicle fuel and oil tanks and oil drums.

The response organisation structure and equipment are sufficient to contain and recover spills during routine operations. Routine operations refer to common operations that occur on the mining lease in the form of routine transfer, storage and usage of fuels, oils, chemicals and plant equipment that uses/transports fuels, oils or chemicals.

This plan is designed for recovering light fuels, oils, dangerous goods and hazardous chemicals. In the event of a spill that is beyond the mine's response capability, management should aim to contain the spill pending the arrival of external assistance.

## 1.4 HOW TO USE THE PLAN

This plan comprises three components:

- Part I: Strategic Information
- Part II: Operational Response
- Appendices

All personnel likely to play an active role in spill response procedures should be familiar with the whole contingency plan.

Personnel involved in routine transfer, storage and usage of fuels, oils, chemicals and plant equipment that uses/transports fuels, oils or chemicals on the mining lease should be familiar with Section 2, 'Spill Risk Environment'. A Spill Risk Assessment will be conducted when the Comstock mine is operational. The most significant guidance for 'actions' in the event of a spill is documented under Section 6, 'Operational Plan'.

***If in doubt about the procedures to follow, go to Section 6: Operational Plan.***

Section 6 describes response procedures and equipment lists through diagrams and decision guides.

The appendices include detailed reference information relating to specific aspects of the contingency plan that have been implemented, or require further development by ZZ. Links are provided to appendices throughout this Plan.

# 2 SPILL RISK ENVIRONMENT

## 2.1 EXISTING ENVIRONMENT

The Comstock mine is located approximately 5km west of the township of Zeehan, on the west coast of Tasmania. All current and proposed operations of the Comstock mine are limited to the area covered by the mining lease.

No threatened plant species or species of conservation significance have been identified within the mining lease. The Natural Values Report (DPIWE GIS Web Server) did not indicate the presence of any other threatened plant species within 500 metres of the mining lease boundary.

No threatened fauna species have been identified on the mining lease. A database search did not indicate the presence of threatened fauna species within 500 metres of the mining lease boundary. However, within 5 kilometres of the lease area, the database search indicated the presence of listed threatened fauna species (Table 1).

**Table 1:** Threatened Fauna Species Recorded within the Comstock Mine Area.

| Scientific Name | Common Name | Comments |
|---|---|---|
| *Aquila audux fleayi* | Wedge-tailed Eagle | Suitable habitat present |
| *Dasyurus maculates* | Spotted-tailed Quoll | Suitable habitat present |
| *Sarcophilus harrisii* | Tasmanian Devil | Recorded in the area |
| *Accipter novae-hollandiae* | Grey Goshawk | Suitable habitat present |
| *Haliaeetus leucogaster* | White-bellied Sea Eagle | No suitable habitat present |
| *Halobaena caerulea* | Blue Petrel | No suitable habitat present |
| *Pachyptila turtur* | Fairy Penguin | No suitable habitat present |

## 2.2 FACILITY DESCRIPTION

### 2.2.1 Zeehan Zinc Response Priorities

Access to the mining lease is provided via Trial Harbour Road. This access point is the only entry and exit point to the Comstock mining lease. Refer to Appendix A for a detailed map of the facility.

*Oil Storage Facilities*

There are no bulk storage facilities on the site.

*Existing Containment Measures*

Presently, there are no containment measures or dedicated refuelling stands on the mining lease. Such measures are currently under development. Once operational, it is likely a 28,000L self-bunded fuel tank (transtank) will be utilised in the Contractors Laydown Area.

The floor of the Gravity Processing Plant drains into a single sump. Management measures to re-direct the liquids collected in the sump are under development.

### 2.3 OIL STORED AT THE FACILITY

Once the mine is operational, it is likely that apart from fuels, other dangerous goods and hazardous chemicals on the mining lease will be minor. Potential fuels, oils, dangerous goods and hazardous chemicals include:

- fuel – diesel and petroleum (approximately 28,000L of diesel will be stored in a self-bunded fuel tank);
- Lead (Pb) product;
- Zinc (Zn) product;
- Bulk Grease (200L drums will be stored within the Plant hardstand area);
- Bulk Oil (20 and 200L drums will be stored on liquid storage self bunded pallets);
- Degreasers (stored in a shallow bunded shipping container);
- Anti-freeze (stored in a shallow bunded shipping container);
- Epoxy mix (stored in a shallow bunded shipping container);
- Oxy and Acetylene (stored in an appropriate frame on the hardstand);
- Lubricants;
- refrigerants (in machine air-conditioners),
- laboratory reagents;
- flocculants; and
- lime for pH control.

Once operational, an audit identifying all oils, fuels, dangerous goods and hazardous chemicals (and quantities) kept on the Comstock mining lease will be conducted (Appendix B).

### 2.4 TRANSFER PROCEDURES

#### 2.4.1 Operations

Fuel is transported to the mining lease via a fuel truck, which is refuelled at Zeehan. All utility trays and small transport vehicles are also re-fuelled at Zeehan. Refuelling on the mining lease occurs via the trucks manual/electronic hose pump system. Equipment and storage tanks refuelled by the fuel truck are listed below:

- (TBA).

### 2.4.2 Inspections

An Inspection Schedule (Appendix C) will be developed when operational. The Inspection Schedule will ensure all storage tanks are visually inspected on a weekly basis for major tanks, after each fuel transfer operation, and as soon as possible following adverse weather, to check the integrity of storage systems. In addition, The Inspection Schedule will provide that all storage tanks are to be checked monthly to verify contents.

### 2.4.3 How Oil/Fuel/Dangerous Good/Chemical Products are Used

Oil, fuel, dangerous goods, and chemical products are used across the site for machinery and large vehicles that are operating in the pit. Small amounts of hydraulic oil are used for maintenance of the gravity processing plant. Where possible, vehicle maintenance occurs off-site.

Once operational, it is likely that diesel generator sets (with an 8-12 hour tank capacity) will be initially used in the Gravity Plant. It is expected that generator sets will require re-fuelling once or twice a day (day tanks 20-200 L capacity).

# 3 SPILL RISK ASSESSMENT

## 3.1 MIGRATION PATTERNS

Fuels, oils, hazardous and dangerous chemicals spread and penetrate into land areas at different rates; a fuels/oils ability to permeate land areas and its adhesion properties vary significantly. Viscous oils, such as lubricants and bunker fuels often form a tarry mess when spilled. Non-viscous products, such as diesel, move in a manner similar to that of water. For light products, the majority of spreading occurs immediately after a spill.

When light fuel is spilled on land, it runs off the surface in the same direction and manner as water. The fuel continues to move horizontally down-gradient until it is all absorbed or until it reaches an impermeable barrier, such as rock. Once fuels contact water-soluble material, it dissolves into, and is transported via groundwater.

Contours from the site plan indicate the natural path for spills on the Comstock mining lease is a southerly direction, towards the Tailings Dam and Polishing Pond areas.

The potential flow paths from specific hotspots on the Comstock mining lease are to be depicted in Appendix D, 'Spill Risk Assessment Map' (under development by ZZ).

**SPILLED FUEL WILL CONTINUE TO HAVE AN IMPACT AS LONG AS IT REMAINS IN THE ENVIRONMENT**

## 3.2 SENSITIVE LOCATIONS

No areas that are considered environmentally sensitive have been identified within the Comstock mining lease. Should sensitive flora or fauna be located within the mining lease in future, ZZ will revise the Spill Risk Assessment to ensure no damage is possible form routine operations.

The diverted Comstock Creek, as outlined on the mining lease map (Appendix A), runs through the western side of the mining lease boundary. Comstock Creek is heavily impacted by acid mine drainage generated predominantly by historical mining operations.

### 3.3 SPILL SCENARIOS

Spill scenarios are likely to arise from:

- Chemical/fuel spill from storage locations;
- Chemical/fuel spill from during transfer between tanks; and
- Chemical/fuel spill during routine operations on the mining lease.

The risk of spills that could occur during transfers from storages to generator sets, and any other spill scenarios, should be subject to a risk assessment in future. The risk assessment will allow high risk spill activities to be identified, and mitigation measures to be developed and implemented to address those risks. Mitigation measures may include additional signage, training, spill containment or alternative procedures.

As there are no bulk storages of fuel, oil, or other products on the Comstock mining lease, the most likely spill scenario is thought to be minor in nature, consisting of up to 50L of spilled product. The machine maintenance area has also been identified as a potential area for spills.

## 4 FACILITY ORGANISATION

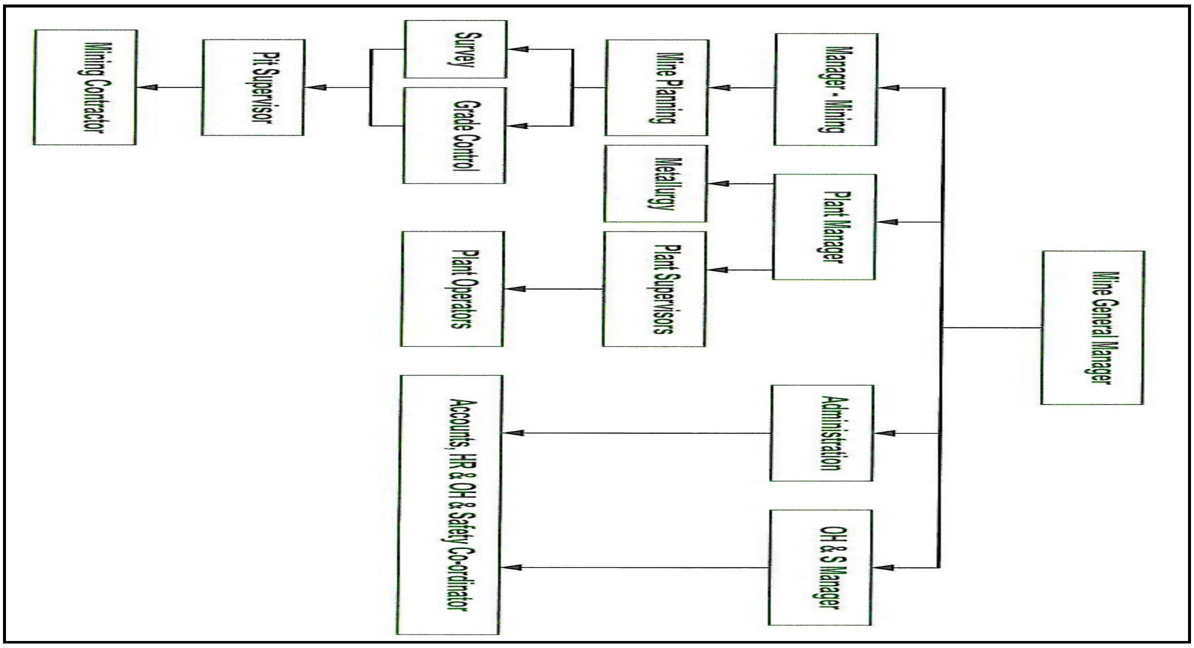
### 4.1 RESPONSE ORGANISATION

The organisational structure of Zeehan Zinc at the Comstock mining lease is highlighted in the Organisational Chart (next page). The Environmental Officer is responsible to the Mine Manager for overall coordination in the event of a spill within the Comstock mining lease. The Environmental Officer will inform any related agencies of the spill.

The Shift Manager will act as the On Scene Coordinator (OSC). The OSC is the overall coordinator of the spill response team, and is responsible for on-site strategic decisions and actions throughout each phase of a response operation.

Appendix E (TBA) describes the recommended response team organisation structure at the Comstock mine.

**Figure 1: Organisational Chart, Comstock Mine**




The following section outlines the roles and responsibilities of team members required to respond effectively and efficiently to spills at the Comstock mine. This structure will be reviewed when the mine is operational, and should be considered 'recommended only' until staff response capacity is determined at the site.

**Spill Response Roles and Responsibilities**

*Mine Manager*

1. Overall control of the response operation.
2. Organises environmental, technical, administrative and logistical support for the Shift Manager (On-Scene Coordinator) and response team.
3. Informs and updates the Director of any incident.
4. Liaises with Shift Manager throughout an incident.
5. Ensures that an *Actions and Communication Log* is kept at the Site Office.
6. Prepares draft press statements for release by the Mine Manager.
7. Notifies outside agencies where necessary.
8. Decides when to terminate a response operation.
9. Files, logs and reports photographic/video material of incident.

| |
|---|
| 10. Prepares final report on the spill for ZZ. |

| *Shift Manager (On-Scene Coordinator)* |
|---|
| 1. Initial on-site control of emergency shutdown. |
| 2. Responds to actions requested by Mine Manager and coordinates response team throughout an incident. |
| 3. Ensures that an *Incident Communications Log* is kept. |
| 4. Initial notification and classification of the spill. |
| 5. Determines priorities for protection in consultation with Environmental Officer. |
| 6. Prepares situation reports for Comstock Mine Director (Standard Report Form attached in Appendix F-TBA). |
| 7. Stands down the response team at the end of an incident as directed by Mine Manager (GMO). |
| 8. Orders material consumed during the response through the Environmental Officer. |
| 9. Ensures that the equipment is cleaned and that replacement parts are ordered. |
| 10. Prepares a final report on the spill for Mine Manager. |
| 11. Organises the annual site response exercise. |

| *Deputy On-Scene Co-Coordinator (DOSC)* |
|---|
| 1. Compiles a log of events and photographic record of operation. |
| 2. Advises the OSC on progress of the clean-up operation. |
| 3. Ensures the safety of personnel. |
| 4. Arranges field meals for the response team, if required. |
| 5. Arranges back-up response equipment as necessary. |
| 6. Plans for relief teams, if necessary. |

| *Plant Inspector* |
|---|
| 1. Brings the source of the spill under control and directs equipment deployment to meet the OSC's strategy. |
| 2. Supervises the transfer of equipment and directs its use. |
| 3. Advises on emergency fuel management and the integrity of oil storage facilities and pipelines. |
| 4. Advises on the emergency shutdown of site transfer systems. |

5. Procures emergency spare parts for fuel tanks and pipelines, as necessary.
6. Contacts ZZ for information and assistance regrading technical services.
7. Reviews fuel storage and transfer systems after an incident, and reviews fuel management systems to prevent a similar spill in the future.

*Environmental Officer/Recorder*

1. Records the initial and potential extent of the spill.
2. Identifies the resources most at risk and the likely environmental impact.
3. Records the measures used to control the spilled fuel/oil.
4. Advises the Mine Manager on the environmental content of the press statements.
5. Devises and coordinates scientific monitoring studies.

*Medical Officer*

1. Provides Personal Protective Equipment and ensures equipment is used in accordance with the OH & S Plan (Appendix G- TBA).
2. Prepares to treat any causalities.
3. Supervises establishment of temporary cleaning facilities.
4. Supplies materials for personnel decontamination.
5. Carries out medical screening of the Site Response Team.

## RESPONSE TEAM

The response team will draw the appropriate equipment from the appropriate locations (TBA), check, and test and deploy the appropriate equipment under the direction of the On-Scene Coordinator, Deputy On-Scene Coordinator and Plant Inspector.

*Heavy Equipment Operators* (if applicable)

1. Prepares vehicles and pumps and transports to spill site under direction of OSC.
2. Responsible for running pump at site of spill.
3. Responsible for construction of trenches/barriers under direction of OSC.

*Clean-up Workers*

1. Manually clean contaminated area.
2. Remove contaminated materials.
3. Assist in cleaning equipment soiled during spill and containment procedures.

*Cleaning Site Workers*

1. Set up and operate cleaning sites to remove spill residue from all response equipment prior to stock-take and re-stowage.

### 4.2 FACILITY ORGANISATION

The following specialist support will be generally available:

*Fire-fighting*

It is anticipated that the Emergency Response Plan for the lease will formalise any response requirements/systems to fire.

*Medical Staff.*

It is anticipated that the Emergency Response Plan for the lease will formalise any response requirements/systems to medical emergencies.

*Specialist Scientific Expertise*

If issues concerning flora and fauna arise, the Environmental Officer may contact the Department of Primary Industries and Water, or the Parks and Wildlife Service.

Refer to Appendix H for current Contact Details of the above specialist support (under development, TBA by ZZ).

## 5 RESPONSE NOTIFICATION

### 5.1 INITIAL ASSESSMENT

The Shift Manager must assess the initial report of the spill and take immediate action to protect the safety of life and property, and halt or minimise further spill where possible.

### 5.2 INITIAL NOTIFICATION

No later than 24 hours after becoming aware of the incident, the Shift Manager is required to notify the Comstock Mine Director by a telephone call to the 24-hour emergency number **1800 005 171.** Additionally, the Shift Manager will submit to the Director an ‘Incident Report Form’ (Appendix I) by facsimile to **03 6233 3800,** or by hand delivery. The Incident Report Form will outline the nature of the spill, the circumstances in which the spill occurred and the action taken to deal with the spill.

**The Incident Report Form must be provided irrespective of whether the person responsible for the activity has reasonable grounds for believing that the incident has already come to the notice of the Director or any other officer engaged in the administration or enforcement of the *Environmental Management and Pollution Control Act 1994.***

# 6 OPERATIONAL PLAN

## 6.1 DEPLOYMENT

Response teams will need to be mobilised for ALL Level 2 and 3 land-based spills. Subject to weather and safety conditions, mobilise the response team and appropriate equipment upon survey and assessment of the spill site.

**Level 1**

**Response Team NOT Required**

*A small spill occurring during routine transfer on land with estimated waste volumes less than 20 litres.*

These spills do not require response team mobilisation. The spill must be reported to the Shift Manager and cleaned up by the person discovering the spill using one of the proposed mini-spill kits located in key points around the mining lease.

Refer to Appendix J for locations of mini-spill kits and details of response equipment in each kit (under development).

**Level 2**

**Response Team Size Determined by the Shift Manager**

*A spill on land or water courses with estimated waste volumes of greater than approximately 20 litres.*

**Level 3**

**Any spill that cannot be handled by the response team. Response team mobilised pending arrival of outside assistance**

For any spills that cannot be handled by the response team, control and clean-up will require outside assistance. Containment and partial recovery should be achieved.

All personnel must be mobilised pending arrival of outside assistance.

## 6.2 SAFETY ISSUES

Updating this section is beyond the scope of this project. Safety issues will be included in the next review.

## 6.3 RESPONSE STRATEGIES

Upon discovering a spill, immediately consult the decision flow chart (below) and associated instruction boxes. The instruction boxes direct the user to the pull-out instruction cards which guide response actions from containment and recovery to waste disposal.

***LAND-BASED SPILLS***

*Recommended initial response actions for spills on site during routine transfer operations and from storage tanks and drums.*

*Spill scenarios addressed: transfers between fuel tanks, settling/day tank transfers, mobile tanks, and vehicle spills, spills during refuelling equipment, machinery and vehicles.*

*Pull-out instruction cards are provided for initial 'land-based' spill response options. (TBA)*

**SPILL DISCOVERED**

Identify source of spill

Stop flow of spill, if possible

Notify Shift Manager

Survey and assess spill site. Surveillance commences

Is the area safe for personnel?

**YES** → What is the estimated **QUANTITY** spilt?

**NO** → Standby and monitor

Record type spill, location of spill, soil/ground cover, and any other information that may be significant to review or further treatment

**LEVEL 1**
***Less than 20 litres***
Spiller, or discoverer of spiller, to clean up

Response team **not** mobilised

Access mini-spill kit nearby

Use Personal Protective Equipment

**LEVEL 2**
***More than 20 litres***

Team size determined by Shift Manager

Mobilise response team

Access spill response container

Use Personal Protective Equipment

**LEVEL 3**
Outside assistance required
Team mobilised pending arrival of external assistance

Mobilise response team

Access spill response container

Use Personal Protective Equipment

Can the spill be contained at the source?

**YES** → Contain and recover at source
Instruction Card X
(under development)

**NO** → Is the spill migrating towards drainage lines or creeks?

**YES** → Protect/ isolate drainage lines etc. from moving spill

**NO** → Contain and recover spill down-slope from source
Instruction Card X
(under development)

Recover spill materials

1. Obtain sample of liquid spilt
2. Check booms for effectiveness
3. Pump and transfer pooled spillage to 200L drums or waste oil containers
4. Continue clean-up measures as necessary
5. Dispose of used clean-up materials in designated waste containers

Clean-up methods for spills are described in Section 6.7 of this plan

Spill recovery complete

Demobilise equipment and personnel

1. Clean equipment in contained cleaning area
2. List maintenance and consumables requirements
3. Restow equipment in container
4. Stand down response personnel and arrange for decontamination and medical screening

## 6.4 COMMUNICATIONS

Updating this section is beyond the scope of this project. A Communications Plan will be included in the next review (Appendix K).

## 6.5 SURVEILLANCE

Surveillance should be commenced by the Environmental Officer from the moment the spill is discovered. The purpose of surveillance is to locate slicks and determine their direction of movement. Appendix D – Spill Risk Assessment Map, provides an indication of the possible flow directions of spilled products from key locations across the mining lease.

The surveillance operation should also record all of the equipment deployed and actions taken over the duration of the response operation.

For oil spills, the spill should be marked out into a sampling grid. This allows clearer identification of the sections of land contaminated by the spill over time and can allow clean-up priorities to be established once the initial response operations have ceased.

Surveillance procedures are the responsibility of the Environmental Officer and the Deputy On-Scene Coordinator.

## 6.6 ENVIRONMENTAL ASSESSMENT

The environmental assessment and monitoring of a spill is the responsibility of the Environmental Officer.

Clearly marked samples of the spilled product and contaminated sediments may need to be collected over the duration of the emergency response operation. Samples of the spilled products are necessary to determine the properties of the oil at given times and locations. The properties of the samples can be measured to indicate potential or accurately damaging effects of the oil and the most appropriate disposal methods for a range of contaminated products. Assessments of sampled oil can also allow the development of long term restoration strategies.

Monitoring of associated groundwater may also be necessary. If wildlife is contaminated by the spill, The Environmental Officer should contact the Department of Primary Industries and Water (DPIW), or Parks and Wildlife Tasmania (Appendices H and K).

## 6.7 CLEAN-UP METHODS

Initial clean-up methods will be limited to mechanical removal, manual removal, natural recovery, the construction of barriers and the application of sorbent materials.

The objective of this Spill Management Plan is to provide guidance for the INITIAL response operation to efficiently contain and recover spills to minimise their potential impacts upon the environment, and to minimise losses in economic productivity at the Comstock mining lease. Additional resources will be needed for protracted cleanup operations, particularly in the provision of waste storage containers for various forms of contaminated waste.

### 6.8 RESTORATION

Clean-up methods aim to restore the environment to its original (pre-spill) condition. A visual assessment will identify the endpoint to clean-up operations.

# 7 WASTE DISPOSAL

### 7.1 STORAGE

Presently, there are no dedicated waste oil/chemical facilities on site. When operational, a waste disposal and storage procedure will be implemented.

It is expected that waste oils will be collected in 200L drums and stored on self bunded pallets until disposed of as per Section 7.2. All storage procedures will be in accordance with AS 1940:2004 *The storage and handling of flammable and combustible liquids.*

### 7.2 DISPOSAL

When operational, dedicated waste storage and disposal area shall be identified. Frequent disposal or removal of wastes to West Coast Council, or other waste disposal site approved by the Director of Environmental Management will be required.

Unless otherwise approved in writing by the Director of Environmental Management, no material with the potential to cause environmental harm shall be disposed of on the Comstock mining lease.

All staff and contractors involved in the disposal of waste from the mining lease will hold all necessary Waste Transport Business Environment Protection Notices (WTB-EPNs) under the *Environmental Management and Pollution Control Act 1994* and will comply with the Australian Code for the Transport of Dangerous Goods by Road or Rail (ADG Code).

# 8 DEMOBILISATION

### 8.1 PERSONNEL DECONTAMINATION

A suitable building will be to be identified by the Shift Manager in which facilities and materials may be provided for personnel decontamination. Those personnel involved must be screened by a Medical Officer on completion of response operations (decontamination).

### 8.2 EQUIPMENT

Cleaning areas must be established for all equipment used. As it may be some considerable time before the equipment is employed again, a maintenance check should be carried out at the same time.

Protective clothing will be selected that may be disposed of after use rather than attempting to clean it. Any maintenance needed should be scheduled as soon as possible and requisitions raised for any item in need of replacement.

# 9 POST SPILL MONITORING

Liaison will be maintained between the Shift Manager, Environmental Officer and ZZ on the need for an on-going post spill monitoring program.

# 10 REPORTING

The Shift Manager must submit a report on the oil spill outlining the cause and the extent of the incident, the response action taken and the effectiveness of this action, the known environmental impact, damage, loss of assets or resources, debrief outcome, estimated costs and any further action required. Spills requiring the submission of a report are outlined in Table 2.

**Table 2:** Reporting Hydrocarbon Spills (Best Practice Environmental Management in Mining - Environmental Incident Reporting).

| **Location** | **0-19L** | **20-49L** | **50-99L** | **100-199L** | **>200L** |
|---|---|---|---|---|---|
| **In Pit** | NR | NR | NR | R | R |
| **Out of Pit** | | | | | |
| **Into or Near a Watercourse** | R | R | R | R | R |
| **Unsealed Areas** | R | R | R | R | R |
| **Uncontained Spill on Concrete** | NR | R | R | R | R |
| **Contained Spill on Concrete** | NR | NR | R | R | R |
| **Within Bunded Areas** | NR | NR | NR | NR | R |

**R = Required**

**NR = Not Required**

# 11 REVIEW

After the submission of a report (as above), ZZ will review its emergency preparedness and response procedures, to allow for continual improvement in emergency spill response procedures on the Comstock mining lease.

**WHAT HAVE WE LEARNED FROM THIS INCIDENT?**

# APPENDICES

Appendix A: Mining Lease Map
Zeehan Zinc Ltd, TBA

Appendix B: Dangerous Goods Audit
Zeehan Zinc Ltd, TBA

Appendix C: Site Inspection Schedule
Zeehan Zinc Ltd, TBA

Appendix D: Spill Risk Assessment Map
Zeehan Zinc Ltd, TBA

Appendix E: Response Team Organisation
Zeehan Zinc Ltd, TBA

Appendix F: Standard Report Form
Zeehan Zinc Ltd, TBA

Appendix G: Occupational Health and Safety Plan
Zeehan Zinc Ltd, TBA

Appendix H: Facility Organisation Contact Details
Zeehan Zinc Ltd, TBA

Appendix I: Incident Report Form
SEMF Pty Ltd, 2007

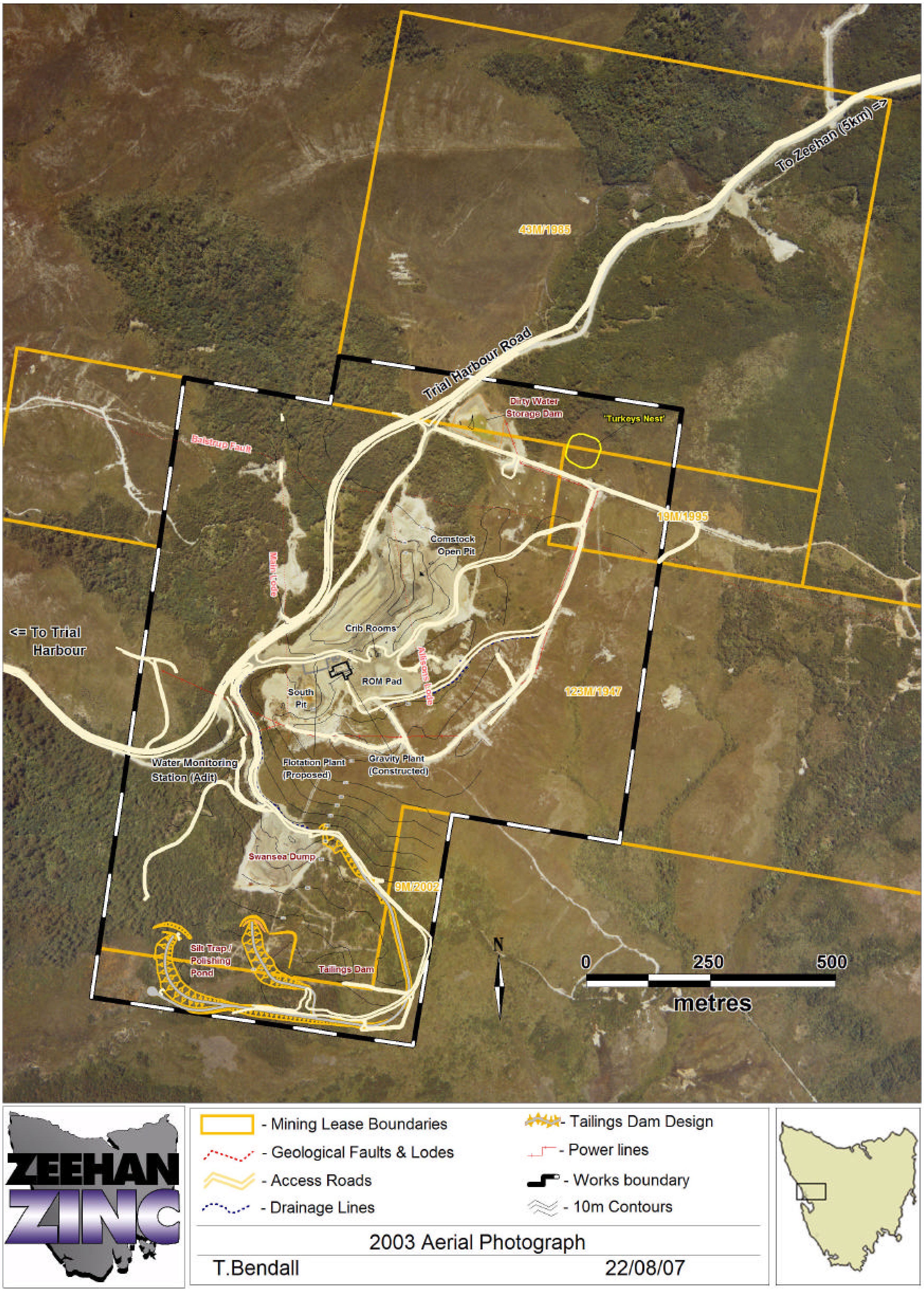
Appendix J: Location and Details of Spill Response Kits
Zeehan Zinc Ltd, TBA

Appendix K: Communications Plan
Zeehan Zinc Ltd, TBA

## Appendix A: Mining Lease Map

Zeehan Zinc Ltd, TBA

# THE COMSTOCK MINE



**Appendix B: Dangerous Goods Audit**

Zeehan Zinc Ltd, TBA

*Required in Future Review*

## Appendix C: Site Inspection Schedule

Zeehan Zinc Ltd, TBA

## Appendix D: Spill Risk Assessment Map

Zeehan Zinc Ltd, TBA

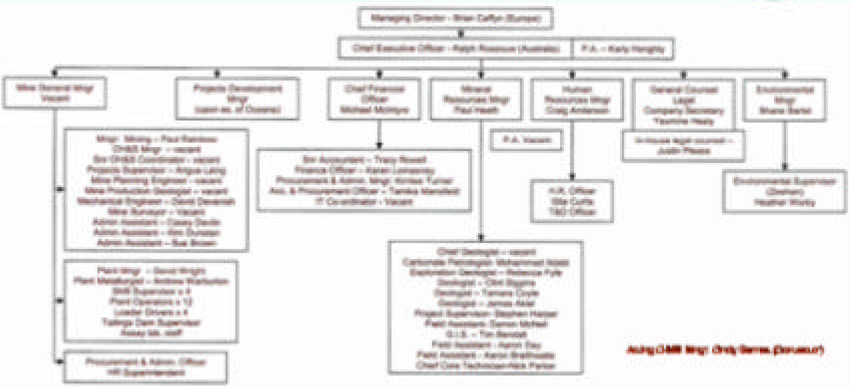
# Appendix E: Response Team Organisation

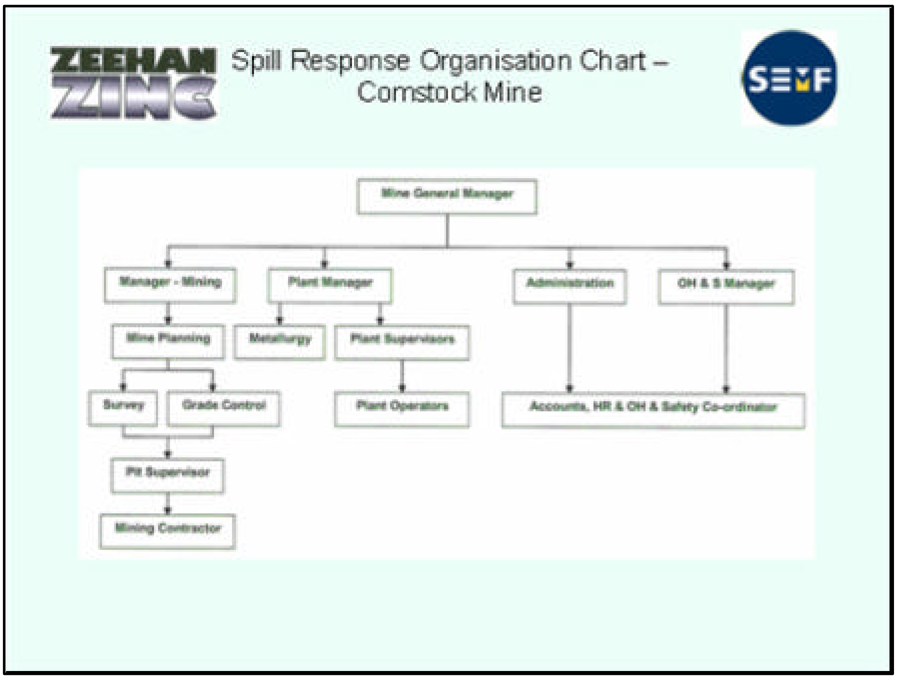
# Fuel Spill Response Team
# JOB CARDS

**Who does what during initial spill response operations?**

Refer to Comstock Mine Spill Management Plan for further details of response activities.

## Zeehan Zinc Ltd Organisation Chart






## Spill Response Job Card 1:

### *Mine Manager*

- Overall control of the response operation.
- Organises environmental, technical, administrative and logistical support for the Shift Manager (On-Scene Coordinator) and response team.
- Informs and updates the Director of any incident.
- Liaises with Shift Manager throughout an incident.
- Ensures that an *Actions and Communication Log* is kept at the Site Office.
- Prepares draft press statements for release by the Mine Manager.
- Notifies outside agencies where necessary.
- Decides when to terminate a response operation.
- Files, logs and reports photographic/video material of incident.
- Prepares final report on the spill for ZZ.

## Spill Response Job Card 2:

### *Shift Manager (On-Scene Coordinator)*

- Initial on-site control of emergency shutdown.
- Responds to actions requested by Mine Manager and coordinates response team throughout an incident.
- Ensures that an *Incident Communications Log* is kept.
- Initial notification and classification of the spill.
- Determines priorities for protection in consultation with Environmental Officer.
- Prepares situation reports for Comstock Mine Director (Standard Report Form attached in Appendix F- TBA).
- Stands down the response team at the end of an incident as directed by Mine Manager (GMO).
- Orders material consumed during the response through the Environmental Officer.
- Ensures that the equipment is cleaned and that replacement parts are ordered.
- Prepares a final report on the spill for Mine Manager.
- Organises the annual site response exercise.

## Spill Response Job Card 3:

### *Deputy On-Scene Co-Coordinator (DOSC)*

- Compiles a log of events and photographic record of operation.
- Advises the OSC on progress of the clean-up operation.
- Ensures the safety of personnel.
- Arranges field meals for the response team, if required.
- Arranges back-up response equipment as necessary.
- Plans for relief teams, if necessary.

## Spill Response Job Card 4:

### *Plant Inspector*

- Brings the source of the spill under control and directs equipment deployment to meet the OSC's strategy.
- Supervises the transfer of equipment and directs its use.
- Advises on emergency fuel management and the integrity of oil storage facilities and pipelines.
- Advises on the emergency shutdown of site transfer systems.
- Procures emergency spare parts for fuel tanks and pipelines, as necessary.
- Contacts ZZ for information and assistance regrading technical services.
- Reviews fuel storage and transfer systems after an incident, and reviews fuel management systems to prevent a similar spill in the future.

## Spill Response Job Card 5:

### *Environmental Officer/Recorder*

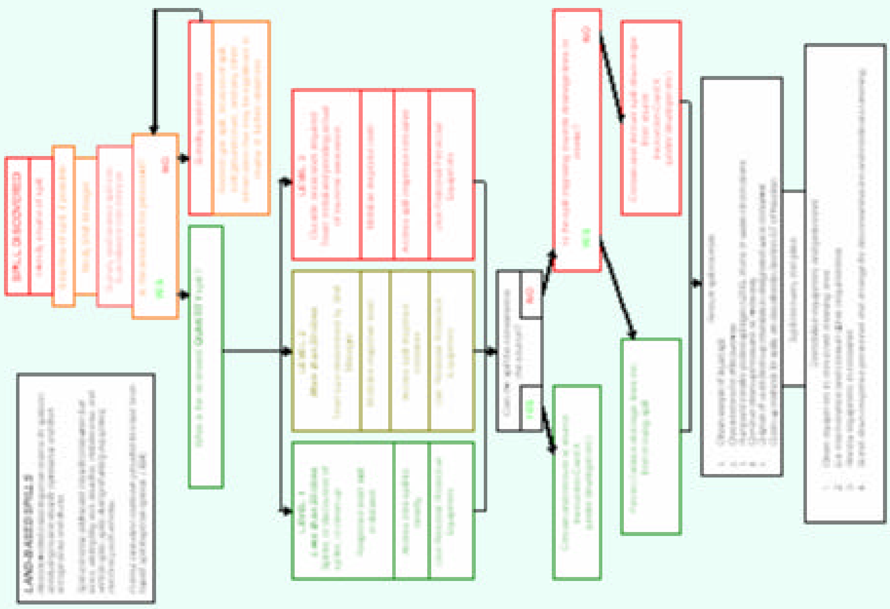
- Records the initial and potential extent of the spill.
- Identifies the resources most at risk and the likely environmental impact.
- Records the measures used to control the spilled fuel/oil.
- Advises the Mine Manager on the environmental content of the press statements.
- Devises and coordinates scientific monitoring studies.

## Spill Response Job Card 6:

### *Medical Officer*

- Provides Personal Protective Equipment and ensures equipment is used in accordance with the OH & S Plan (Appendix G- TBA).
- Prepares to treat any causalities.
- Supervises establishment of temporary cleaning facilities.
- Supplies materials for personnel decontamination.
- Carries out medical screening of the Site Response Team.

Organisational Flow Diagram



**Appendix F: Standard Report Form**

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**Appendix G: Occupational Health and Safety Plan**

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## Appendix H: Facility Organisation Contact Details

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## Appendix I: Incident Report Form

SEMF Pty Ltd, 2007

**Incident Report Form**
**Comstock Mine**
**Zeehan Zinc Pty Ltd**

**INITIAL REPORT** **MINE DIRECTOR TO COMPLETE**

FORM NUMBER ______________________________
DATE OF REPORT ______________________________
TIME OF REPORT ______________________________
DATE OF INCIDENT ______________________________
NAME OF SHIFT MANAGER ______________________________
SIGNATURE OF SHIFT MANAGER ______________________________
CONTACT DETAILS OF SHIFT MANAGER
TEL: ____________________
MOBILE: ____________________
EMAIL: ____________________

**Section 1. Type of Incident (Shift Manager to Complete)**

(Please Tick) Injury: ☐ Illness: ☐ Environmental: ☐
Property Damage: ☐ Spill: ☐

**Section 2. Incident Details (Shift Manager to Complete)**

TIME OF INCIDENT: ____________________ am/pm

LOCATION OF INCIDENT: department ____________________ location (area) ______
____________

SHIFT ARRANGEMENT AT THE TIME OF THE INCIDENT:
Day: ☐
Afternoon: ☐
Night: ☐
Overtime: ☐

INCIDENT DETAILS (brief description of incident & causes – what happened):
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
__________________________________________________

**Section 3. Employees/Contractors Involved in the Incident (Shift Manager to Complete)**

**Individual A**

SURNAME: ______________________ FIRST NAME: ________________

POSITION: ______________________ SEX: M/F

EMPLOYMENT CATEGORY: __________________________________________

CONTACT DETAILS:

TEL: ________________ MOBILE: ______________________

EMAIL: ________________ ADDRESS: ______________________

**Individual B**

SURNAME: ______________________ FIRST NAME: ________________

POSITION: ______________________ SEX: M/F

EMPLOYMENT CATEGORY: __________________________________________

CONTACT DETAILS:

TEL: ________________ MOBILE: ______________________

EMAIL: ________________ ADDRESS: ______________________

**Individual C**

SURNAME: ______________________ FIRST NAME: ________________

POSITION: ______________________ SEX: M/F

EMPLOYMENT CATEGORY: __________________________________________

CONTACT DETAILS:

TEL: ________________ MOBILE: ______________________

EMAIL: ________________ ADDRESS: ______________________

**Section 4. Incident Outcome (Shift Manager to Complete)**

RETURNED TO NORMAL DUTIES: ☐

DOCTOR/HOSPITAL REFERRAL (if applicable): ☐ ______________________
(which hospital/Doctor attended)

OTHER (please describe): ______________________________________

**Section 5. Details of Injury/s Sustained (if applicable) (Shift Manager to Complete)**

NATURE OF INJURY (identify injured body part and injury sustained – *cut, burn, break, crush*)

______________________________________

WAS FIRST AID TREATMENT ADMINISTRATED YES ☐ NO ☐

IF YES, WHAT FIRST AID WAS ADMINISTRATED

______________________________________

NAME OF FIRST AID PROVIDER ______________________
SIGNATURE OF FIRST AID PROVIDER ______________________

NAME OF REPORTING PERSON ______________________
SIGNATURE OF REPORTING PERSON ______________________

**Section 6. Property Damage (if applicable) (Shift Manager to Complete)**

ESTIMATED PROPERTY DAMAGE ______________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
________________________________________

**Section 7. Sign-Off (Mine Director to Complete)**

NAME OF SHIFT MANAGER ________________________
_____

SIGNATURE OF SHIFT MANAGER ________________________
_____

NAME OF COMSTOCK MINE DIRECTOR ______________________________

SIGNATURE OF COMSTOCK MINE DIRECTOR ______________________________

## Appendix J: Location and Details of Spill Response Kits

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**Appendix K: Communications Plan**

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*IN NEXT REVIEW*