Pollution Incident Response Management Plan

Tritton Mine (ML1544), Murrawombie Mine (ML1280), North East Mine (ML1383) and Avoca Tank (ML564)

Document No: TRL-HSET-MP-ENV-006 | **Version:** 1 | **Volume:** 4 | **Issue Date:** 16/08/2021 | **Last Review Date:** 16/08/2021 |

Author: Environmental Adviser/AARC Environmental Solutions

Approver: HSET Manager

Table of Contents

1.INTRODUCTION

Tritton Resources Limited (TRL), a wholly owned subsidiary of Aeris Resources Limited (Aeris), operates the Tritton Mine (TM) (ML1544), Murrawombie Mine (MM) (ML1280), North East Mine (ML1383) and Avoca Tank Project (ATP) (ML564). For the purposes of this document Murrawombie Mine, North East Mine and Avoca Tank Project are at times collectively referred to as Girilambone site/Girilambone Mine.

1.1. PURPOSE

The purpose of this Pollution Incident Response Management Plan (PIRMP) is to ensure that in the event of reportable pollution event; Tritton Mine (TM) employees manage the situation quickly and effectively, limiting the impact on employees, environment, landholders, reputation and assets.

1.2. SCOPE

This plan applies to all personnel at TM, which includes the Tritton mine site, Murrawombie, North East and Avoca Tank Project mine sites. This document is designed so that the site has a standardised response to a reportable pollution event. For minor, non-reportable spill events see the Spill Response procedure (TRL-ENV-PRO-004).

All onsite visitors must be under the direction of a fully inducted TM employee or contractor, who will be responsible for the visitor at all times, including during an emergency or crisis.

This document refers to response actions for site-based personnel only. Any large-scale incidents will require the Corporate Crisis Management Team (CMT) to convene. Guidance on the CMT is contained in the Aeris Resources Limited Crisis Management Plan.

It is important to note that this document was written to provide specific advice as directed by the Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012 and is to be made publicly available upon request. It is an overarching document outlining the response to a reportable pollution event as defined below. Procedures regarding incidents where an emergency has been declared are documented in the site Emergency Management Plan and other related documents.

1.3. REFERENCES

This plan meets requirements of the following:

- Protection of the Environment Operations Act 1997;
- Environmental guidelines: Preparation of pollution incident response management plans 2012;
- Aeris Health, Safety and Environment Management Procedure – No. 10, Emergency Preparedness and Response; and

- Environmental Protection Licences 11254 and 4501.

1.4. DEFINITIONS

Term	Definition
Reportable pollution event	An event that may cause material harm to the environment.
Material harm	An event that involves actual or potential harm to the health or safety of human beings or to ecosystems that is not **trivial**, or Incidents that are categorised as "Moderate" or higher as described in TM Escalation Procedure appended to the Pollution Incident Notification (TRL-ENV-PRO-003) procedure.
Minor spills	Incidents that are categorised as "Insignificant" or "Minor" as described in the TM Escalation Procedure appended to the Pollution Incident Notification (TRL-ENV-PRO-003) procedure.
Significant amount	Depending on the solution involved but 1000L can be used as a guide. A significance judgment is to be made by TM Environment personnel and/or the General Manager.

2. RESPONSIBILITIES

Role	Responsibilities
Managers	Ensure adequate resources and training is made available to all employees and contractors to enable compliance with this plan. Ensure all employees and contractors comply with this procedure.
Superintendents	Determine training needs to ensure employees understand the hazards and their obligations in respect to the response to a reportable pollution event.
Supervisors	Conduct regular site inspections to minimize the risk of environmental incidents and ensure incidents are communicated immediately to the Environment Team and other relevant persons.
Environment Team	Coordinate communication to the relevant authorities and key stakeholders and provide assistance in the management of a reportable pollution event. Ensure this document is reviewed annually.
All Staff and Contractors	Must comply with this plan and act in a manner which reduces the risk of a reportable incident from occurring.

3. HAZARDS

As defined above, a reportable incident is one that is not "trivial" or has a potential risk categorised as "moderate" or higher using the TM Escalation Procedure appended to the Pollution Incident Notification (TRL-ENV-PRO-003) procedure. Examples of these incidents are as follows:

- Significant amounts of tailings decant water outside the compacted footprint;
- Tailings infrastructure failure causing significant amounts of tailings to discharge onto earthen surfaces or waterways;
- Containment dam wall failures;
- Any discharge of contaminants (including copper concentrate) off a current operating lease; and
- Rupturing of above ground diesel tanks.

The hazards associated with these activities are tabled below (Table 1). All other hazardous materials are kept in minor storage.

Table 1 Pollutant Inventory

Material	Location	Maximum Quantity
Tailings	Tailings Storage Facility	21.2 million m3
Copper concentrate	Tritton Mine - Mill Area	5000t
Diesel Fuel	Tritton Mine	124000L
	Girilambone Mine	124000L
Lubricants	Tritton Mine - Heavy Vehicle Workshop	9000L
	Tritton Mine - Heavy Vehicle Workshop	1t
	Tritton Mine - Fixed Plant Workshop	8000L
	Tritton Mines - Light Vehicle Workshop	2000L
	Tritton Mine - Mill Area	5100L
	Tritton Mine - Mill Area	750kg
	Tritton Mine - Stores	36000L
	Tritton Mine - Stores	10t
	Tritton Mines - Underground	3000L
	Girilambone Mine - Workshop	8000L
	Girilambone Mine - Workshop	1t
Contaminated waters	Tritton containment dam	
	TSF decant	222ML
	Girilambone containment dam	150ML

	Girilambone Pregnant Liquor Ponds	2.4ML
	Heap Leach Pads	0.5ML
Sediment Laden Waters	Tritton Sediment Dam 1 - TSF	12ML
	Tritton Sediment Dam 2 - TSF	4ML
Emulsion	Tritton Mine - Magazine	60t
	Girilambone Mine - Magazine	64t
Shot Crete Additives	Tritton Mines - Batch Plant Area	12000L
Collector	Tritton Mine - Mill Area	2000L
	Tritton Mine - Stores	2000L
Sludgex	Tritton Mine - Mill Area	1500L
	Tritton Mine - Stores	1000L
Scaleguard	Tritton Mine - Mill Area	1500L
	Tritton Mine - Stores	2000L
Fluculant	Tritton Mine - Mill Area	2.5t
	Tritton Mine - Stores	4t
Lime	Tritton Mine - Mill Area	80t
	Tritton Mine - Batch Plant Area	50t
Cement	Tritton Mine - Paste Plant	440t
	Tritton Mine - Stores	10t

Tailings is classified as a miscellaneous dangerous good and contains residual waste materials from the copper concentration process which is predominately composed of waste rock with minor milling process constituents including lime, flotation reagent, flocculent and an anti-scaling agent. The hazard associated with a tailings spill is heavy metal loading of the receiving environment causing toxicity. For details on the human and ecological risk and handling instructions for this material refer to the product MSDS attached (Appendix 1).

Copper concentrate is classified as a miscellaneous dangerous good with sulfur (30-40%), iron (30-32%) and copper (24-26%) being the dominant components. The hazard associated with a concentrate spill is heavy metal loading of the receiving environment causing toxicity. For details on the human and ecological risk and handling instructions of this material refer to the product MSDS attached (Appendix 2).

Contaminated waters contain variable levels of pH and heavy metal concentrations which if released to the environment or ingested by humans can be toxic. These waters are not classified due to their inherent variability but may be considered hazardous for the purposes of this document.

For details concerning the likelihood of such hazards occurring and the controls in place to prevent or reduce the pollution event from occurring refer to the current TM Risk Register of which an excerpt may be found in Appendix 3.

4. TRAINING

Training is essential in maintaining a high level of response management capability. All Mine personnel receive an introduction to pollution response management during their induction. This training includes as a minimum:

- Pollution incident notification procedure;
- Types of incidents requiring regulatory notification; and
- General emergency response training

TM has an Emergency Response Team for responding to incidents that trigger site emergency procedures. Members are given training at regular intervals to be able to effectively deal with potential scenarios inherent to TM activities. Potential risks are highlighted in the TM site risk register and training needs are determined through this process. Training is delivered by experienced personnel with a combination of in-house and external providers. Further details on site emergency response procedures may be found in the site EMP.

5. DUST MITIGATIONS MEASURES

For dust mitigation TM utilize water carts around the surface operations, along with sprinklers on the conveyor belts, crushers and the decline. Sprinklers are also positioned on top of the heap leach pads to reduce the effects of dust.

6. POLLUTION INCIDENT RESPONSE

Reportable pollution incidents that do not trigger site emergency procedures are detailed below in two categories to maintain compliance with the site EMP;

6.1. TAILINGS SPILL

Examples of a tailings spill include, but are not limited to:	
☐ Dam wall failure and release	☐ Pipe rupture and release
☐ Major pump failure/Pump house loses power	

First person on scene:

- ☐ Stop work in the area and turn off all machinery and vehicles
- ☐ Report spill to your supervisor
- ☐ Remove injured people from danger and render first aid
- ☐ Wear appropriate PPE as per the product MSDS and if possible, attempt to stop the flow
- ☐ If possible, contain the spill with barriers, earth bunds and block drains
- ☐ Await further assistance and / or instructions from Supervisor/ Superintendent, HSET Department or attending Emergency Services
- ☐ Be prepared to handover the scene to Emergency Services and assist as directed.

Supervisor:

- ☐ Ensure all actions above have been carried out
- ☐ Take control of the area and inform the HSET Department and Department Manager
- ☐ Attempt to stop the flow of the material and contain the spill if safe to do so
- ☐ Commence clean-up if possible
- ☐ Establish an exclusion zone around the spill and post sentries if required. Deny access to the area to non-essential personnel
- ☐ Carry out instructions from HSET or Emergency Services
- ☐ Maintain control of the area until relieved

Important considerations:

- ☐ If the spill is uncontrollable activate site emergency procedures
- ☐ If necessary, temporarily slow down or shut down concentrator operations
- ☐ Mobilize heavy equipment to assist with clean up, as required
- ☐ Additional equipment or personnel may be required to assist with clean-up
- ☐ If clean-up is remote or lengthy, consider the welfare of clean-up teams
- ☐ Names and details of fatalities should not be stated over the radio
- ☐ Don’t provide details of fatalities or injured people to family, friends, members of the public or media
- ☐ Once the response is over, preserve the scene to ensure it remains unchanged
- ☐ Begin recording details of the incident and prepare for incident reporting and investigation activities i.e. what occurred, date, time, location, list of witnesses.

6.2. OTHER HAZARDOUS MATERIALS SPILL

Examples of a hazardous material spill include, but are not limited to:	
☐ Hazardous chemical spill	☐ Corrosive substance spill
☐ Concentrate spill	☐ Hydrocarbon spill
☐ Flammable substance spill	☐ Solution spill

First person on scene:

- ☐ Stop work in the area and turn off all machinery and vehicles
- ☐ Evacuate area if material causes dangerous fumes, especially if spill is in confined space or non-ventilated area
- ☐ Remove injured people from danger and render first aid
- ☐ For flammable materials, identify and remove any sources of ignition
- ☐ Turn off any air conditioners and exhaust fans and close all windows and doors
- ☐ Notify your Supervisor when safe to do so
- ☐ If possible, contain the spill with barriers, earth bunds and block drains.
- ☐ Attempt to clean the spill area if:
    - o Sufficient amounts of the correct absorbent materials are available
    - o The appropriate PPE is available and worn
    - o Adequate disposal containers are available for chemical and absorbent materials
- ☐ Warn others of the danger and keep people clear of the area. Notify staff and visitors to muster to a central point if required
- ☐ Remain upwind of fumes and smoke
- ☐ Await further assistance and / or instructions from Supervisor/ Superintendent, HSET Department or attending Emergency Services

Supervisor:

- ☐ Ensure all actions above have been carried out
- ☐ Take control of the area and inform the HSET Department and Department Manager
- ☐ Ensure people have been evacuated to a safe location (upwind and uphill) for materials that cause dangerous fumes, especially if spill is in confined space or non-ventilated area
- ☐ Attempt to identify the hazardous material and collect the MSDS sheets
- ☐ Attempt to stop the flow of the material and contain the spill
- ☐ Establish an exclusion zone around the spill and post sentries if required. Be prepared to deny access to the area to non-essential personnel
- ☐ Carry out instructions from HSET or Emergency Services
- ☐ Maintain control of the area until relieved

Important considerations:

- ☐ Notify environmental personnel and use spill kits where appropriate.
- ☐ Additional equipment or personnel may be required to assist with clean-up
- ☐ If clean-up is remote or lengthy, consider the welfare of clean-up teams
- ☐ Names and details of fatalities should not be stated over the radio
- ☐ Don’t provide details of injured people to family, friends, members of the public or media
- ☐ Once the response is over, preserve the scene to ensure it remains unchanged
- ☐ Begin recording details of the incident and prepare for incident reporting and investigation activities i.e. what occurred, date, time, location, list of witnesses.

6.3. NOTIFICATIONS

Anyone observing a reportable incident is to report it immediately using the following Pollution Incident Notification (TRL-ENV-PRO-003) procedure, refer to Appendix 4.

6.4. SITE PLANS

For locations of potentially affected zones for a given pollution event see Appendix 5 for the Tritton site and Appendix 6 for the Girilambone site. For a description of the Girilambone mining area and Tritton mining area see Plan 2 and 2b respectively.

7. INCIDENT CONCLUSION

The termination of the incident response will be at the discretion of the Mine Manager or designate. As soon as practicable after the conclusion of the incident TM will undertake the following:

- Conduct an internal investigation into the incident and make recommendations;
- Audit of the response by all teams will be reviewed; and
- Reviewed the effectiveness of all related procedures and practices.

8. TESTING OF THE PIRMP

The PIRMP will be tested annually and will include:

- A desktop review of the plan to ensure that the information is accurate and up to date.
- A drill exercise to simulate one of the potential incidents identified within the risk assessment in Appendix 4 document will be revised annually.

As it is a requirement of the legislation, this plan will also be tested within one month of and reportable pollution incident occurring onsite.

Table 2 – Register for Testing the PIRMP

Date of Test	People Involved	Comments/Outcomes
26/04/2017	HSET Manager, Emergency Response & Training Coordinator and	A mock scenario of a large hydrocarbon spill (1000L) was conducted to ensure that sufficient control, contain and clean up was implemented adhering to the PIRMP.

	Environmental Advisor.	
14/09/2018	Environmental Advisor, Mill Maintenance Supervisor, boilermaker.	A mock scenario of a hydrocarbon spill was conducted to ensure that sufficient control, containment and clean up was implemented adhering to the PIRMP.
30/8/2019	Processing Manager, Senior Risk and Compliance Officer, Environmental Advisor.	The mock scenario used to test the PIRMP was a failure of an embankment wall at the Tritton Tailings Storage Facility. The test involved clean-up of mine tailings following a level 3 (Dam Safety Emergency Plan) tailings dam embankment wall failure.
31/7/2020	Senior Environmental Advisor, Light Vehicle Supervisor.	A mock scenario of a hydrocarbon spill in the light vehicle workshop was undertaken to test that staff understood the processes and location of resources for clean up as specified in the PIRMP.
30/7/2021	Senior Environmental Advisor, Processing Trainer.	A mock scenario involving a tailings pipeline failure in close proximity of the Processing Plant was conducted to test the PIRMP. The scenario included leak detection methods, notifications, spill response and clean up procedures.

9. RECORDS

All records associated with a reportable incident are located electronically M:\HSET\03_Environmental\4.0 Operation\4.9 Incidents. Records associated with document revision or incident reviews are captured within the sites incident management software (In Control).

10. DOCUMENTS

The following documents are contain specific information relating to the pollution response:

- Tritton Mines Emergency Response Plan (available to all staff through the intranet)
- Tritton Mines Risk Register (Appendix 3)
  TRL-ENV-PRO-003 Pollution Incident Notification (Appendix 4)

APPENDIX 1 – TAILINGS SDS

Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Address Yarrandale Road, Hermidale, NSW, Australia, 2831
Telephone (02) 6838 1100
Emergency 0418 451 530
Email mhanlon@tritton.com.au
Fax (02) 6838 1101
Web Site
Supplier Name TRITTON COPPER MINES

PRODUCT NAME COPPER TAILS - TRITTON

Use(s) COPPER PRODUCTION WASTE, MILL CONCENTRATOR TAILS
Synonym(s) MILL TAILINGS, WASTE

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA
NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE
UN No. None Allocated **DG Class** None Allocated **Subsidiary Risk(s)** None Allocated
Hazchem Code None Allocated **Pkg Group** None Allocated **EPG** None Allocated

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Formula Conc. CAS No.
COPPER Cu approx. 0.20%
SILICA, CRYSTALLINE – QUARTZ Si-O2 approx. 30%
SULPHUR S approx. 20%
IRON Fe approx. 18%

4. FIRST AID MEASURES

Eye Flush gently with running water for 15 minutes.
Skin Remove contaminated clothing and gently flush affected areas with water. Seek medical attention if irritation develops. Launder clothing before reuse.
Inhalation Leave exposure area immediately. If assisting a victim, avoid becoming a casualty, wear a Class P2 (Particulate) respirator where an inhalation risk exists. Apply artificial respiration if victim has stopped breathing. Seek urgent medical attention.
Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.
Advice to
Doctor Treat symptomatically
First Aid
Facilities Eye wash facilities and safety shower should be available.

5. FIRE FIGHTING MEASURES

Fire and Explosion This material does not give a flash point by conventional test methods.
Extinguishing Dry agent, carbon dioxide or foam. Prevent contamination of drains or waterways. Absorb runoff with sand or similar.
Flammability No lower or upper flammability limits in air.
Hazchem Code None

6. ACCIDENTAL RELEASE MEASURES

Spillage No special procedures are required for cleanup of spills or leaks of this material. Avoid methods that result in airborne dispersal or water pollution. Caution should be exercised regarding personnel safety.

7. STORAGE AND HANDLING

Handling Store in a cool, dry well ventilated area away from foodstuffs, oxidising agents and acids. If stored in bulk, minimise dust generation by covering with a tarp or similar. If stored in packages, ensure packages are adequately labelled, and check regularly for leaks or spills.
Storage Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas (eg. if container is damaged).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Do not inhale dust or fume. Use in well ventilated areas. In poorly ventilated areas or when heated, use with local or extraction ventilation at source. Maintain dust levels below the recommended exposure standard.
Exposure
Standards COPPER (7440-50-8)
ES-TWA: 1 mg/m3 (copper dust or mist), 0.2 mg/m3 (copper fume) WES-TWA: 1 mg/m3 (copper dust or mist), 0.2 mg/m3 (copper fume)
SILICA, CRYSTALLINE - QUARTZ (14808-60-7)
ES-TWA: 0.1 mg/m3 (Silica Quartz, respirable, NOHSC)
ES-TWA#: 0.1 mg/m3 (QLD); 0.15 mg/m3 (NSW)
WES-TWA: 0.2 mg/m3
IRON (7439-89-6)
ES-TWA: 5 mg/m3 Iron oxide fume
PPE Wear a faceshield, dust-proof goggles, coveralls and rubber or PVC gloves. At high dust levels, wear an Air-line respirator. Where an inhalation risk exists, wear a Class P2 (Particulate) Respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: GROUND ROCK P80 75microns, GRAY COLOR
Solubility (water): INSOLUBLE
Odour: SLIGHT METALLIC ODOUR **Specific Gravity:** 2.9 (Approximately)
pH: NOT AVAILABLE **% Volatiles:** NOT AVAILABLE
Vapour Pressure: NOT AVAILABLE **Flammability:** COMBUSTIBLE
Vapour Density: NOT AVAILABLE **Flash Point:** NOT AVAILABLE
Boiling Point: NOT AVAILABLE **Upper Explosion Limit:** NOT AVAILABLE
Melting Point: NOT AVAILABLE **Lower Explosion Limit:** NOT AVAILABLE
Evaporation Rate: NOT AVAILABLE **Autoignition Temperature:** NOT AVAILABLE
Exposure Standard: 0.1 mg/m3 Crystalline silica quartz (respirable)

10. STABILITY AND REACTIVITY

Reactivity Incompatible with acids (forming toxic and flammable hydrogen sulphide gas) and oxidising agents (eg. hypochlorites, peroxides).
Decomposition
Products May evolve toxic sulphur dioxide, hydrogen sulphide and copper oxides when heated to decomposition. Copper oxides that may be present may evolve sulphur dioxide when wet and heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Health Hazard
Summary Moderate toxicity. Use safe work practices to avoid direct eye-skin contact and dust inhalation. Crystalline silica is classified as carcinogenic to humans (IARC Group 1). Chronic over exposure to crystalline silica may result in lung fibrosis. Chronic or high level exposure to copper may cause liver, kidney and blood damage. Over exposure to metal fumes may result in metal fume fever.
Eye Low to moderate irritant. Exposure may result in irritation, pain and redness.
Inhalation Irritant. Exposure to fine dust or fume may cause irritation of the nose and throat with ulceration of the nasal septum, and could also cause metal fume fever. Prolonged and repeated inhalation of respirable silica may result in pulmonary fibrosis (silicosis).
Skin Irritant. Prolonged contact may result in irritation, rash and discolouration. Over exposure to copper may cause allergic contact dermatitis, although rare.
Ingestion Moderate toxicity. Ingestion may result in nausea, vomiting, abdominal pain and diarrhoea. Large doses may result in blood and liver/kidney damage. Due to product form, ingestion is considered unlikely.
Toxicity Data SILICA, CRYSTALLINE - QUARTZ (14808-60-7) Carcinogenicity: Classified as a human carcinogen (IARC Group 1)
SULPHUR (7704-34-9) LC50 (Inhalation): 1660 mg/m3 (mammal)
IRON (7439-89-6) LD50 (Ingestion): 20000 mg/kg (guinea pig)

12. ECOLOGICAL INFORMATION

Environment Limited ecotoxicity data.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer if additional information is required.
Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Shipping Name None Allocated
UN No. None Allocated
DG Class None Allocated
Subsidiary Risk(s) None Allocated
Hazchem Code None Allocated
Pkg Group None Allocated
EPG None Allocated

15. REGULATORY INFORMATION

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional
Information RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.
ABBREVIATIONS:
mg/m3 - Milligrams per cubic metre
ppm - Parts Per Million
TWA/ES - Time Weighted Average or Exposure Standard.
CNS - Central Nervous System
NOS - Not Otherwise Specified
pH - relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline.
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
M - moles per litre, a unit of concentration.
IARC - International Agency for Research on Cancer.
PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.
HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

APPENDIX 2 – COPPER CONCENTRATE MSDS

Straits

Safety Data Sheet
Tritton Copper Concentrate

1. IDENTIFICATION

GHS Product Identifier	**Tritton Copper Concentrate**
Supplier Name	**Straits Resources Limited (ABN 30 147 131 977)**
Address	Tritton Copper Mine, Yarrandale Road , Hermidale , NSW, 2831Australia
Telephone	+61 (2) 6838 1100
Fax	+61 (2) 6838 1101
Emergency	Jamie Barrow – 04 4868 8826 (8:00am – 5:00pm)
Synonym(s)	Copper cons, Tritton concentrate, Tritton Copper Concentrate
Use(s)	Copper production, Smelter Feed
SDS Date	July 2015

2. HAZARDS IDENTIFICATION

GHS classification of the substance/ mixture **Not classified**

Precautionary statement – Response
P314 Get medical advice/attention if you feel unwell
P390 Absorb spillage to prevent material damage

Precautionary statement – Storage
P406 Store in corrosive resistant container

Precautionary statement – Disposal
P501 Dispose of waste according to applicable local and national regulations.

Supplemental Information

The information under this heading is not mandatory under WHS regulations. It is provided as information on other GHS hazard classes and categories and/or environmental hazards that are outside the scope of the WHS regulations.

GHS classification: Hazardous to the Aquatic Environment - Acute Hazard Category 2 and Chronic Hazard Category 3

Hazard Statement
H401 Toxic to aquatic life
H412 Harmful to aquatic life with long lasting effects

Precautionary statement – Prevention
P273 Avoid release to the environment.

Straits

Safety Data Sheet

Tritton Copper Concentrate

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Proportion (%)
Sulphur	7704-34-9	30 – 40
Iron	7439-89-6	30 - 32
Copper, as Chalcopyrite ($CuFeS_2$)	7440-50-8	> 24 - 26
Zinc	7440-66-6	2 - 4
Quartz (SiO_2 crystalline silica)	14808-60-7	1 - <10
Lead	7439-92-1	0-<0.05
Ingredients determined not to be hazardous	-	Balance

4. FIRST AID MEASURES

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use a Full-face Class P2 (Particulate) respirator or an Air-line respirator where an inhalation risk exists. Apply artificial respiration if not breathing.

Ingestion Do not induce vomiting. Wash out mouth thoroughly with water. Seek medical attention.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor. Seek medical attention.

Eye contact If in eyes, hold eyelids apart and flush the eyes continuously with running water. Remove contact lenses. Continue flushing for several minutes until all contaminants are washed out completely. If symptoms develop and/or persist seek medical attention.

First Aid Facilities Eye wash facilities and safety shower should be available.

Advice to Doctor Treat symptomatically.

Other Information For advice in an emergency Jamie Barrow – 04 4868 8826 (8:00am – 5:00pm) or Poisons Information Centre 13 11 26 or a doctor

Straits

Safety Data Sheet
Tritton Copper Concentrate

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Dry agent, carbon dioxide or foam. Hazchem code: 2Z
Hazards from Combustion Products	Copper oxides that may be present may evolve sulphur dioxide when wet and heated to decomposition.
Specific Hazards Arising From The Chemical	The product is combustible. Dust may form explosive mixtures with air. It may evolve toxic gases (sulphur/ copper oxides, hydrogen sulphide) when heated to decomposition.
Decomposition Temperature	Not available
Precautions in connection with Fire	Fire fighters should wear full protective clothing and self- contained breathing apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours and fumes. Water fog may be used to cool intact containers and nearby storage areas. Fight fire from safe location. This product should be prevented from entering drains and watercourses.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	**For non-emergency personnel** No action should be taken involving any personal risk or without suitable training. Clear area of all unprotected personnel. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (PPE). Contact emergency services where appropriate. **For emergency responders** If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Eliminate all ignition sources. Avoid generating dust. *See also information in for non-emergency personnel.*
Environmental precautions	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (soil, sewers, waterways or air).

Straits

Safety Data Sheet
Tritton Copper Concentrate

Methods and materials for containment and clean up procedures

Small spill
Move containers from spill area. Vacuum or sweep up material using PPE if dusty and return to process if possible.

Large spill
Move containers from spill area. Prevent entry into sewers, waterways, basements or confined areas. Vacuum or sweep up material using PPE, return to process if possible or place in designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. STORAGE AND HANDLING

Precautions for Safe Handling	Provide adequate ventilation. Some sulphide concentrates may slowly oxidize in storage and generate sulphur dioxide as well as deplete the oxygen content of a confined space. The atmosphere within confined spaces containing concentrate must be tested before entry and the area thoroughly ventilated or self-contained breathing apparatus used, if conditions warrant. Avoid inhalation of dust and contact with skin and eyes. Avoid contact with molten material. Do not use water on molten material. Use appropriate tools. Wear appropriate personal protective equipment. Avoid contact with sharp edges and hot surfaces. Use work methods which minimize dust production. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Follow special national provisions related to work with lead and its compounds. Observe good industrial hygiene practices.
Conditions for Safe Storage, including any Incompatibilities	Store locked up. Keep dry. Store away from incompatible materials. Some sulphide concentrates may oxidize and generate heat during storage.

Straits

Safety Data Sheet
Tritton Copper Concentrate

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Limit (OEL) values

No exposure value assigned for this material by Safe Work, Australia. However, the available Safe Work, Australia Exposure Standards for ingredients are listed below.

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

Ingredient	TWA mg/m^3
Copper (fume)	0.2
Copper, dusts & mists (as Cu)	1
Iron oxide fume (Fe_2O_3) as (Fe)	5
Iron salts, soluble, as Fe	1
Lead Inorganic dusts and fumes (as Pb)	0.15
Zinc Oxide (dust)	10
Silica, Crystalline Quartz	0.1

Source: American Conference of Governmental Industrial Hygienists (ACGIH)

Biological Limit Values (BLV) Lead, 30 µg/100ml (ACGIH BEI)

Appropriate Engineering Controls This substance is hazardous and should be used with a local exhaust ventilation system, drawing solid/dust away from workers' breathing zone.

Respiratory Protection If engineering controls are not effective in controlling airborne exposure then an approved P2 (particulate) respirator with a replaceable dust/particulate filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

Eye Protection Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform to relevant regulations. Eye protection should conform to Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

Straits

Safety Data Sheet
Tritton Copper Concentrate

Hand Protection	Wear gloves of impervious material such as PVC or rubber gloves. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Occupational exposure gloves should conform to relevant regulations. Reference should be made to AS/NZS 2161.1: Occupational Protective Gloves – Selection, Use and Maintenance.
Body Protection	Suitable protective work wear e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Solid
Appearance	Dark grey powder, lumps or agglomerates
Solubility (Water)	Not available
Odour	Slight odour
pH	Not available
Vapour Pressure	Not Relevant
Vapour Density	Not Relevant
Boiling Point	Not Relevant
Melting Point	Not Available
Evaporation Rate	Not Relevant
Auto Ignition Temperature	Not Available
Flammability	Combustible
Flash Point	Not Available
Upper Explosion Limit	3.8 – 4.0 (Approximately)
Lower Explosion Limit	Not Available

10. STABILITY AND REACTIVITY

Reactivity	Upon contact with acids, hydrogen sulphide, an extremely toxic gas is evolved. Many sulphides react violently with oxidisers to evolve a strongly irritant gas, sulphur dioxide.
Chemical Stability	Stable under normal conditions of storage and handling.
Conditions to Avoid	Dust accumulation. Avoid excessive heat. Avoid contact with incompatible substances. Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials	Acids and oxidising agents.
Hazardous Decomposition Products	Under fire conditions this product may emit toxic and/or irritating fumes and gases including silicon/copper/ sulphur oxides and hydrogen sulphide. Copper oxides that may be present may evolve sulphur dioxide when wet and heated to decomposition.

Straits

Safety Data Sheet
Tritton Copper Concentrate

Possibility of Hazardous Reactions	Reacts with incompatible materials.
Hazardous Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	No toxicity data available for this material.
Ingestion	Moderate toxicity. Ingestion may result in nausea, vomiting, abdominal pain and diarrhoea. Ingestion of large quantities may result in liver, kidney and blood damage. Ingestion is considered unlikely due to product form.
Inhalation	Irritant. Over exposure to dust or fumes may result in irritation of the nose and throat with ulceration of the nasal septum, and could also cause metal fume fever. Chronic exposure to this material may aggravate existing respiratory disorders and lung disorders such as bronchitis, emphysema and asthma. Onset and progression are related to dust concentrations and duration of exposure.
Skin	Irritant. Contact may result in irritation, redness and rash. May cause discolouration of the skin. Over exposure to copper may cause allergic contact dermatitis, although rare.
Eye	Eye contact may cause mechanical irritation. May result in mild abrasion.
Respiratory sensitisation	Not expected to be a respiratory sensitiser.
Skin Sensitisation	Not expected to be a skin sensitiser.
Germ cell mutagenicity	Not considered to be a mutagenic hazard.
Carcinogenicity	Not considered to be a carcinogenic hazard. This product contains crystalline silica. Crystalline Silica (respirable size ≤ 7 µm) has been classified by the International Agency for Research on Cancer (IARC) as Carcinogenic to Humans (Group 1). Lead compounds, inorganic are listed as a Group 2A: Probably carcinogenic to humans according to International Agency for Research on Cancer (IARC). Lead compounds, organic are listed as a Group 3: Not classifiable as to carcinogenicity to humans according to International Agency for Research on Cancer (IARC).
Reproductive Toxicity	Not considered to be toxic to reproduction.
STOT-single exposure (STOT-SE)	Not expected to cause toxicity to a specific target organ following single exposure.
STOT-repeated exposure (STOT-RE)	Causes damage to organs through prolonged or repeated exposure.
Aspiration Hazard	Not expected to be an aspiration hazard.

Straits

Safety Data Sheet
Tritton Copper Concentrate

Toxicity Data	**SULPHUR (7704-34-9)** LC_{50} (Inhalation): 1660 mg/m³ (mammal) LD_{Lo} (Ingestion): 175 mg/kg (rabbit) **QUARTZ (SILICA CRYSTALLINE) (14808-60-7)** LC_{Lo} (Inhalation): 300 ug/m³/10 years (human) LD_{Lo} (Intratracheal): 200 mg/kg (rat) LD_{Lo} (Intravenous): 20 mg/kg (dog) TC_{Lo} (Inhalation): 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) **LEAD (7439-92-1)** LD_{Lo} (Ingestion): 160 mg/kg (pigeon) LD_{Lo} (Intraperitoneal): 1 g/kg (rat) TC_{Lo} (Inhalation): 10 ug/m³ (human; liver changes) TD_{Lo} (Ingestion): 450 mg/kg/6 years (woman; CNS) **IRON (7439-89-6)** LD_{50} (Ingestion): 20000 mg/kg (guinea pig) LD_{Lo} (Intraperitoneal): 20 mg/kg (rabbit) TD_{Lo} (Ingestion): 77 mg/kg (child) **COPPER (7440-50-8)** LD_{50} (Intraperitoneal): 3500 ug/kg (mouse) LD_{Lo} (Subcutaneous): 375 mg/kg (Rabbit) TD_{Lo} (Ingestion): 120 ug/kg (human - gastrointestinal upset)
Other Information	Repeated exposure to respirable crystalline silica dust may lead to silicosis, or other serious delayed lung injury. The onset of silicosis is usually slow and lung damage may occur even when no symptoms or signs of ill-health have occurred. Silicosis can develop to a more serious degree even after exposure has ceased, and may also lead to other diseases including heart disease and scleroderma. Exposure by inhalation may aggravate pre-existing upper respiratory and lung disorders such as bronchitis, emphysema and asthma.
Information on the likely routes of exposure	The relevant routes of exposure are oral, dermal, and inhalation.

12. ECOLOGICAL INFORMATION

Ecotoxicity	This product has been classified as hazardous to the aquatic environment, acute hazard (Category 2) and chronic hazard (Category 3). Chalcopyrite is an insoluble compound; release of copper after exposure to the environment and formation of copper oxides will be a slow process, but will contribute to leachable metal levels above environmental limits. Copper is an aquatic toxin
Persistence and degradability	Not relevant for naturally-occurring inorganic compounds.
Mobility	Not available
Bioaccumulative Potential	This material and its components are not expected to bio accumulate
Environmental Protection	Prevent large amounts from entering waterways, drains and sewers.

Straits

Safety Data Sheet
Tritton Copper Concentrate

13. DISPOSAL CONSIDERATIONS

Disposal considerations	Dispose of waste according to applicable local and national regulations. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes including emptied containers are controlled wastes and should be disposed of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport (ADG Code)	This material is not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG, 2014).
Air Transport (ICAO/IATA):	Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.
Marine Transport (IMO)	Proper Shipping Name: N.O.S. (contains chalcopyrite $CuFeS_2$) in presence of soluble sulphate and soluble chloride) EMS No.: F-A, S-B Special Provisions: 223, 274
	Not classified as harmful to the marine environment (HME) under MARPOL Annex V (MEPC.201(62), 2011).
Shipping name:	Metal sulphide concentrate MHB

Straits

Safety Data Sheet
Tritton Copper Concentrate

Under the International Maritime Solid Bulk Cargoes Code (IMSBC) which came into force on 1 January 2013 the Tritton copper concentrate should be shipped as a Group A cargo (liable to liquefy) and a Group B cargo (chemical hazard – based on its MHB corrosion to metals classification)

Note that this material has been tested according to the fifth revised edition of the United Nations publication entitled "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" (ST/SG/AC.10/11/Rev.5/Amendment1).

15. REGULATORY INFORMATION

Poison Schedule	Classified as a Scheduled 7 (S7) Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). Schedule 7 Poisons should be available only to specialised or authorised users. Special regulations restricting their availability, possession, storage or use may apply.
AICS	All components of this product are listed on the Australian Inventory of Chemical Substances (AICS), or otherwise are in compliance with the NICNAS requirements.

16. OTHER INFORMATION

SDS Creation	July 2015.

REFERENCES

ACGIH. (2001). Documentation of TLVs and BEIs. American Conference of Governmental Industrial Hygienists. 2nd Edition.

ACGIH. (2004). Documentation of the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) - Chromium and Inorganic Compounds.

ADG. (2014). Australian Code for the Transport of Dangerous Goods by Road & Rail. Seventh edition, Version 7.3 (August 2014). Victoria: National Transport Commission.

IMO. (2012). International Maritime Dangerous Goods (IMDG) Code (V 11). Incorporates Amendment 36-12. International Maritime Organization.

IMO. (2013). International Maritime Solid Bulk Cargoes Code Incorporating Amendment 02-13.

MEPC.201 (62). (2011). Amendments to the protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973. Adopted 15th July 2011.

APPENDIX 3 – TM RISK REGISTER

RISK CONTEXT				RISK ANALYSIS AND EVALUATION								
Risk Summary				Energy & Causes				Current Controls		Current Risk		
Department	**Area**	**Activity/Category**	**Top Event - Risk Description** (Include Activity, Product, Service description etc)	**Energy Type** (Hazard/Threat)	**Energy Context**	**Event mechanism/Cause/Contributing factors(s)**	**Maximum reasonable Consequence**	**Current Controls**	**Risk Category - Major Impacted Area**	**Consequence**	**Likelihood**	**Risk Level**
HSET	Environment	Surfacewater Management	Contamination due to a breach of Containment Dam 1 dam wall or overtopping	Chemical/contaminant	Potential for spillage/release of chemicals	Insufficient Storage Capacity Excessive Consecuitive Rainfall Events	Contaminatioin of Surface Water Contaminated Water discharged from Site Breach of License Conditions	CD1 maintained at minimal water levels as per Surface Water Management Plan Management strategy for containment	Legal Compliance	2	D	12 HIGH
HSET	Environment	Groundwater Management	Further contamination from the Heap Leach Pads (W-drains and rainfall run-off).	Chemical	Potential for spillage/release of chemicals	Failure of lining in W-drains. Excessive rainfall (inadequate drainage capabilities of access roads).	Contamination of surface and groundwater. Financial penalties for non-compliance.	Weekly inspections. Groundwater monitoring. Maintenance of access roads (drainage).	Legal Compliance	3	e	20 MODERATE
HSET	Environment	Hydrocarbon Storage and Handling	The spill of hydrocarbon or chemical compounds outside of designated bunded areas during transportation, storage or use	Chemical/contaminant	Potential for spillage/release of chemicals	Failure of bunding (overtopping, structural). Failure of load security during transportation. Storage vessel damage or failure. Malfunction of transportation vessel. LTA handling practices.	Legal prosecution. Environmental damage (contamination).	Chemicals stored in bunded aareas. Vehicles site compliant. Spill response procedures (CCC). Training and awareness through inductions. Bunded areas designed to contain chemical/hydrocarbon stored. Personnel trained in handling and storage of chemicals and hydrocarbons. Incident reporting. Adequate storage vessels used on-site. Monthly environmental inspections. Bunding at hydrocarbon laydown area to be improved.	Legal Compliance	3	d	17 MODERATE
HSET	Environment	Surfacewater Management	Contamination from water runoff from the Waste Rock Emplacement	Chemical/contaminant	Potential for spillage/release of chemicals	Excessive rainfall event. Insufficient drainage. Inadequate capping of waste rock dump.	Contamination of surface water. Contaminated water discharged from site. Financial penalties for non-compliance.	Drainage of waste rock dumps. Capping of WRE's. Quarterly WRE run-off water quality monitoring. Drains around Tritton WRE.	Legal Compliance	4	c	18 MODERATE
HSET	Environment	Surfacewater Management	Contamination of a local waterway or off site water storage dam	Chemical/contaminant	Potential for spillage/release of chemicals	Insufficient Storage Capacity Failure of Dam Wall Failure of contaminated water pipe lines	Contamination of a local waterway or off site water storage dam Financial Penalties Strained Community Relations.	Established dam storage capacities. Engineering certificates for TSF. Waterpipe integrity inspections. Diversion drains.	Legal Compliance	4	d	21 LOW

RISK CONTEXT				RISK ANALYSIS AND EVALUATION								
Risk Summary				Energy & Causes				Current Controls		Current Risk		
Department	**Area**	**Activity/Category**	**Top Event - Risk Description** (Include Activity, Product, Service description etc)	**Energy Type** (Hazard/Threat)	**Energy Context**	**Event mechanism/Cause/Contributing factors(s)**	**Maximum reasonable Consequence**	**Current Controls**	**Risk Category - Major Impacted Area**	**Consequence**	**Likelihood**	**Risk Level**
HSET	External Relations	Air Quality Management	Emission of excessive dust from mining operations. Resulting in complaints from neighbours.	Physical	Dust	Heap Leach Pads. Unsealed roads. Haulage operations. Crushing/processing of ore. TSF operations. Construction operations (earthworks, heavy mobile equipment). Excessive dust or lost product when transporting ore/product via the public road	Excessive complaints from neighbours affecting community relations. Potential breach of licenses.	Dust suppression (water sprays, water carts). Dust monitoring. Complaints register. Yarrandale Rd sealed.	Legal Compliance	4	e	**23** **LOW**
HSET	Environment	Hydrocarbon Storage and Handling	Inadequate disposal of waste hydrocarbon/chemical contaminated materials	Chemical/contaminant	Storage/Disposal requirements not met	LTA training and awareness. Human Error - Disposal of hydrocarbons within general waste.	Legal prosecution. Environmental damage (contamination).	Induction includes awareness of environmental requirements in relation to handling, storage and disposal of waste. Site notice board communication. Toolbox talks. Appropriately labelled waste disposal vessels/areas. Site landfill inspections.	Legal Compliance	4	d	**21** **LOW**
HSET	Environment	Hydrocarbon Storage and Handling	The spill of hydrocarbon or chemical compounds within designated bunded areas such as re-fueling areas, stores warehouse/laydown yard and washdown bay	Chemical/contaminant	Potential for spillage/release of chemicals	Failure of containment vessel. Fuel overflow during re-fuelling. Damage of containment vessels.	Minimal operational cost.	Bioremediation facility. Chemicals stored in bunded aareas. Spill response procedures (CCC). Training and awareness through inductions. Bunded areas designed to contain chemical/hydrocarbon stored. Personnel trained in handling and storage of chemicals and hydrocarbons. Incident reporting. Adequate storage vessels used on-site. Monthly environmental inspections.	Operational	5	d	**24** **LOW**
HSET	Environment	Waste Disposal	Failure of the septic system	Biological	Other	System malfunction (pumps, pipes, tanks etc). Inadequate servicing.	Environmental impact. Biological health impacts.	Servicing/maintenance schedule. Weekly inspections. Inoxious vapour.	Environmental	4	d	**21** **LOW**
HSET	Environment	Natural Distasters	Bushfire - Either starting a bushfire or being caught up in one	Fire	Potential for fire	Drought. Lightening. Seasonal fuel build-up (leaves, grass etc). Vehicle/machinery malfunction. Hot work. Human error or sabotage. Hot weather. High winds.	Serious injury or Fatility. Property damage. Environmental impact. Equipment damage. Community impacts (farm land residents).	Bushfire management plan. Fire breaks. Emergency response (internal and external). Evacuation procedures. Preventaive maintenance for vehicles/machinery. Hot work permit system.	Health & Safety	1	e	**11** **HIGH**
HSET	Environment	Natural Distasters	Flooding on surface.	Flood	Potential for flood	Excessive rainfall event. Failure of drainage. Failure of containment dams.	Property damage. Equipment damage. Environmental impact. Operational cost. Community relations impact.	Drainage lines. Containment dams. Pumping systems.	Legal Compliance	4	D	**21** **LOW**

APPENDIX 4 – TRL-ENV-PRO-003 POLLUTION INCIDENT NOTIFICATION

Tritton Mines

Pollution Incident Notification

Table of Contents

1. INTRODUCTION

1.1 PURPOSE

The purpose of this Pollution Incident Notification procedure (PIN) is to ensure that in the event of reportable pollution incident; Tritton Mines notify relevant authorities and key stakeholders quickly and effectively, limiting the impact on landholders, employees, environment, reputation and assets.

1.2 SCOPE

This plan applies to all personnel at Tritton Mines, which includes Tritton Mine site, Girilambone, North East Mine and Avoca Tank Project sites. This document is designed so that the site has a standardized response to a reportable pollution event. For minor spill events see the Spill Response procedure (TRL-ENV-PRO-004).

All onsite visitors must be under the direction of a fully inducted Tritton Mines employee or contractor, who will be responsible for the visitor at all times, including during an emergency or crisis.

This document refers to notification actions for site-based personnel only. Any large-scale incidents will require the Corporate Crisis Management Team (CMT) to convene. Guidance on the CMT is contained in the Aeris Resources Limited Crisis Management Plan.

It is important to note that this document was written to provide specific advice as directed by the Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012 and to be made publicly available. It is an overarching document outlining the immediate notification response to a reportable pollution event as defined below. Specific emergency response actions are documented in the site Emergency Management Plan and other related documents.

1.3 REFERENCES

This plan meets requirements of the following legislation:

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012
- Aeris Health, Safety and Environment Management Procedure – No. 10, Emergency Preparedness and Response
- Tritton Mines Pollution Incident Response Management Plan

1.4 DEFINITIONS

Term	Definition
Reportable pollution event	An event that may cause material harm to the environment.

Term	Definition
Material harm	An event that involves actual or potential harm to the health or safety of human beings or to ecosystems that is not **trivial**, or Incidents that are categorised as “Moderate” or higher as described in the Tritton Mines Escalation Procedure (see Appendix 1).
Minor spills	Incidents that are categorised as “Insignificant” or “Minor” as described in the Escalation Procedure (see Appendix 1).

2. RESPONSIBILITIES

Role	Responsibilities
Managers	Ensure adequate resources and training is made available to all employees and contractors to enable compliance with this procedure. Ensure all employees and contractors comply with this procedure.
Superintendents	Determine training needs to ensure employees understand the hazards and their obligations in respect to the response to a reportable pollution event.
Supervisors	Conduct regular site inspections to minimize the risk of environmental incidents and ensure incidents are communicated immediately to the Environment Team and other relevant persons.
Environment Team	Coordinate communication to the relevant authorities and key stakeholders and provide assistance in the management of a reportable pollution event. Ensure this document is reviewed annually.
All Staff and Contractors	Must comply with this plan and act in a manner which reduces the risk of a reportable incident from occurring.

3. PROCEDURES

1.5 INTERNAL NOTIFICATION OF A REPORTABLE POLLUTION EVENT

Anyone observing a reportable pollution event is to report it immediately using the Escalation Procedure attached (Appendix 1) in addition to the Environment Team (0429 888 032).

The 24hr internal contact for reportable incidents is your direct Manager and HSET Manager or alternately the General Manager (if they cannot be contacted) on the below numbers:

- People & Safety Manager – Mr Talan Breaden - 0448 382 473
- Processing Manager – Mr Jamie Barrow - 0448 688 826

- General Manager – Mr David Hume - 02 6838 1100

For a major pollution event that threatens or has caused harm to human life use the standard emergency notification process outlined below first.

Onsite primary:	**Alternate/ external:**
Radio - Channel 1	Telephone – 02 6838 1111

In all instances, the caller is to state:
"Emergency, Emergency, Emergency"
Caller's name
The nature of the emergency
The exact location of the emergency
The assistance required
Number of persons involved

The caller is to remain at the scene and in contact with the call centre until no longer required.

If emergency communication is made by radio, all site personnel will cease transmission immediately on hearing the "Emergency, Emergency, Emergency" call.

If contact cannot be established via the methods outlined above, the emergency is to be declared via 000 (0-000 for internal phones) to the government emergency services. The 000 operator will request the caller provide details of the incident.

1.6 EXTERNAL NOTIFICATION OF A REPORTABLE POLLUTION EVENT

Upon notification of a reportable pollution event the HSET manager or General Manager are to inform the following relevant authorities as deemed appropriate **immediately**:

(a) the Environmental Protection Agency hotline on 13 15 55;

(b) the Bogan Shire Council on (02) 6835 9000;

(d) the Ministry of Health Public Health Unit located in Dubbo on

- (02) 6885 8666 (Dubbo Base Hospital) ask for Public Health Officer on call, if no answer:

- 0418 866 397 ask for the Public Health Officer on call;

(e) the SafeWork NSW on 13 10 50; and

(f) Fire and Rescue NSW Nyngan office on (02) 6832 1014.

However, as described above, in a life threatening emergency always call 000.

The following information is to be recorded using the External Notification Form attached in Appendix 4 and provided to the EPA along with any other relevant bodies indicated above:

(a) the time, date, nature, duration and location of the incident;

(b) the location of the place where pollution is occurring or is likely to occur;

(c) the nature, the estimated quantity or volume and the concentration of any pollutants involved, if known;

(d) the circumstances in which the incident occurred (including the cause of the incident, if known);

(e) the action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution, if known;

(f) other information prescribed by the regulations.

1.7 RECEIVING ENVIRONMENT LANDHOLDER/S AND NEIGHBOUR/S NOTIFICATION OF A REPORTABLE POLLUTION EVENT

Following notification to the relevant authorities the landholder/s on which the event has occurred and their immediate neighbour/s are to be informed as soon as practicable.

Appendix 2 (not attached for privacy reasons) contains a list of the neighbouring properties and their registered owners. This document should be viewed with the Cadastral Map attached (Appendix 3) to identify affected properties. Appendix 2 is not made public for privacy reasons but can be made available by contacting the HSET department or General Manager.

The relevant landholder/s and neighbours are to be kept informed on matters related to the event on a regular basis (at least daily) or whenever new information is made available.

4. ATTACHMENTS

Appendix 1 – Tritton Mines Escalation Procedure

Appendix 2 – Neighbour Contact List (see HSET or GM)

Appendix 3 – Tritton Mines Area Cadastral

Appendix 4 – External Notification Information

Aeris TRITTON OPERATIONS

APPENDIX 1 - INCIDENT NOTIFICATION MANAGEMENT

Potential Consequence Rating	Action	Incident Owner	Reporting Requirements			Level of Investigation
			Incident Category	Manager Notification	Time Frame	
INSIGNIFICANT • First aid injury only; • Low level soreness or small amount of pain; • Minor impact, easily corrected with no loss of production o No or very low environmental impact; o Process underway to rectify the situation within half a shift with no production loss; • Environmental impact confined to a small area; • <$5,000	• Preserve site/scene • Provide First Aid services • Record • Return to work	Supervisor	All	Supervisor	Immediate	Triton Incident Form 5 Why's – PBPD Incident Form section Supervisor to complete investigation
			All	Dept. Manager	ASAP (within 24hrs)	
MINOR • Medical Treatment Injury (MTI); • Restricted Work Injury (RWI); • Presented to hospital (no overnight stay); • Low environmental impact; o Rapid clean-up by internal staff or contractors; o Impact contained to area already impacted by operations; • Minor damage to equipment or infrastructure with minimal loss of production 8-12hrs • Production loss for over 8 hrs • $5,000 - $50,000	• Preserve site/scene • Provide First Aid services • Record • Risk Assess task to ensure repeat occurrence is eliminated (sign off incident owner); • Return to work	Superintendents	All	Supervisor	Immediate	Triton Incident Form 5 Why's – PBPD Incident Form section Superintendent to complete investigation
			All	Superintendents	Immediate	
			All	Dept. Manager	ASAP (within 24hrs)	
			Injuries	Dept. Manager	Immediate	
			Injuries	General Manager	Immediate	
MODERATE • Single Lost Time Injury (LTI); • Short term hospitalisation (< 7 days); • Reversible impairment to human health; • Damage to equipment or infrastructure causes production to cease Greater than 12 hrs - < 1 week; • Moderate environmental impact; o Clean-up by internal staff or contractors; o Impact confined within lease boundary; • $50,000 - $100,000	• Preserve site/scene • Provide First Aid services • Record • Risk Assess task to ensure repeat occurrence is eliminated (sign off incident owner); • Return to work • Environmental incidents to be reported to regulatory bodies under guidance of the HSET and the GM immediately	Dept. Manager	All	Supervisor	Immediate	Triton Incident Form ICAM Investigation owned Dept. Manager
			All	Superintendents	Immediate	
			All	Dept. Manager	Within 2 hrs.	
			Injuries	Dept. Manager	Immediate	
			Injuries	HSET Manager	Immediate	
			Injuries	General Manager	Immediate	
			All	Corporate Team	ASAP (within 24hrs)	
MAJOR • Multiple Lost Time Injuries; • Extended hospital treatment (>7 days); • Permanent disability < 30%; • Serious long-term health issue; • Damage to equipment or infrastructure causes production to cease > 1 month; • Major environmental impact; o Considerable clean-up effort required by internal staff and external contractors; o Impact may extend across lease boundary; • $100,000 - $800,000	• Preserve site/scene • Provide First Aid services • Record • Risk Assess task to ensure repeat occurrence is eliminated (sign off incident owner); • Return to work • Environmental incidents to be reported to regulatory bodies under guidance of the HSET and the GM immediately	General Manager	All	Supervisor	Immediate	Triton Incident Form ICAM Investigation owned by General Manager
			All	Superintendents	Immediate	
			All	Dept. Manager	Immediate	
			All	HSET Manager	Immediate	
			All	General Manager	Immediate	
			All	Corporate Team	ASAP (within 2hrs)	
CRITICAL • Permanent disability > 30%; • One or more fatalities; • Damage to equipment or infrastructure causes production to cease > 1 month; • Severe environmental impact; o Likely species destruction and long recovery period; o Extensive clean-up using external resources; o Impact on a regional scale; • > $800,000	• Preserve site/scene • Provide First Aid services • Record • Risk Assess task to ensure repeat occurrence is eliminated (sign off incident owner); • Return to work • Environmental incidents to be reported to regulatory bodies under guidance of the HSET and the GM immediately	General Manager	All	Supervisor	Immediate	Triton Incident Form ICAM Investigation owned by General Manager
			All	Superintendents	Immediate	
			All	Dept. Manager	Immediate	
			All	HSET Manager	Immediate	
			All	General Manager	Immediate	
			All	Corporate Team	Immediate	

❖ Electric Shock injuries requires the notification to the Electrical Superintendent immediately

❖ If an employee is injured the supervisor must accompany them throughout the process (to First Aid room or Hospital – to ensure medical treatment is received and the recommendations of the treating doctor are followed)

Appendix 2: Neighbour Contact List

Property	Owner	Contact_1	Contact_2	Contact_3	Phone_1	Phone_2	Phone_3	UHF	Comments
ANGLE BAR									
ARGYLE									
AVOCA									
AVONDALE									
AVONDALE									
AVONDALE									
BALD HILL									
BALGILLO									
BANOON									
BANOON									
BELMORE									
BERWICK									
BIRRIMBA									
BOGAN DOWNS									
BONNY DUNDEE									
BOORARA									
BOX FLAT									
BROOMFIELD									
BUCKEROO									
BUDGERY									
BUNDONG									
BUNGARLEY									
BUNYARRA									
BUNYARRA									
BYLONG									
BYLONG									
CARRINYA									
CLAREMONT									
COLLYBURL									
COLOSSAL									
COOLABAH STATION									
COOMA									
COREEN									
COURTLANDS									
DOUBLE TANKS									
DOUBLE TANKS									
EINALLA									
EINALLA									
ELMORE									
EMU									
EULA									
EXLEY									
FAIRFIELD									
FAIRFIELD									

Property	Owner	Contact_1	Contact_2	Contact_3	Phone_1	Phone_2	Phone_3	UHF	Comments
FAIRLIGHT									
FERNDALE									
GEWEROO									
GLEN IDYLL									
GLENARIFF									
GLENDALE									
GLENEDEN									
GLENENAR									
GLENHOPE									
GLENORMISTON									
GLENORMISTON									
GOREE									
GUNDAUR									
GUNDOOEE									
HOPETOUN									
INNAMINNA									
INVERNESS									
IONA									
KALLARA									
KARINGAL									
KEELEY									
KILLAWARRA									
KOOKABAA									
KOOREGAH									
KURRAJONG									
KYABRA									
LAROO									
LIGNUM									
LINDSAY PARK									
LISKEARD									
MAYFIELD									
MIRADONG									
MORELLA									
MORILLA									
MULGA									
MULGA									
MUNDA									
MYALL									
NARRINGA									

Property	Owner	Contact_1	Contact_2	Contact_3	Phone_1	Phone_2	Phone_3	UHF	Comments
OKEH									
OLD WHITEROCK									
PORAKA									
QUANDONG									
RAMSAY PARK									
RED TANK									
REDLANDS									
RESEARCH STATION									
REWA									
ROCKYVIEW									
ROSEDALE									
ROSLYN									
RUNNYMEDE									
STRATHERN									
TCP									
THE BROTHERS									
THE COWAL									
THE GLEN									
THORNDALE									
TIVERTON									
TONKEY									
TUBBAVILLA									
WARDS BLOCK									
WARRAGEE									
WAVERLEY									
WENDOUREE									
WESTLYN									
WESTWOOD									
WILGA									
WILGA BONE									
WILGA DOWNS									
WILGADALE									
WILGALONG									
WILGAREE									
WINDELLA									
WODALLA									
WONGA									
WONGALA									
WOODBURN									
WOODLANDS									
WOODLANDS									
WYOLA									
YARREN HUT									
YARRENDALE									
YUMBA THUDDI									

APPENDIX 3 - Tritton Mines Area Cadastral

APPENDIX 4 - External Notification Information			
Reporting Person:			
Position:			
Date:		Time:	
Brief Description:			
Time of Incident:		Location:	
Pollutant:		Volume (EST):	
Details of Injuries: (if required)			
Cause:			
Immediate Action:			

Regulatory Bodies Notified:		
Environmental Protection Agency -	13 1555	☐
Bogan Shire Council -	(02) 6835 9000	☐
Public Health Officer -	(02) 6885 8666	☐
	0418 866 397	☐
WorkCover Authority -	13 1050	☐
Fire and Rescue	(02)6832 1014	☐

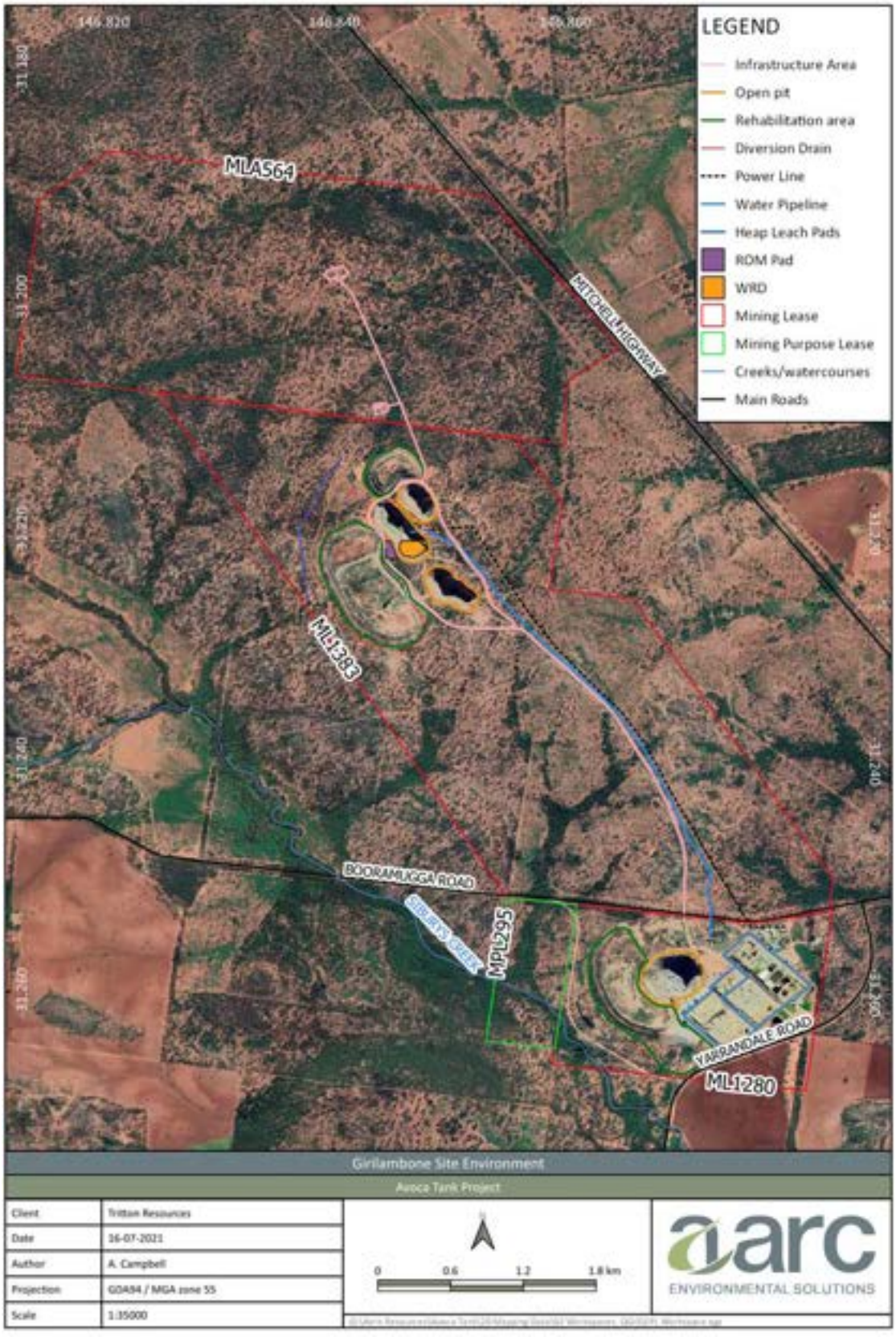
Information received from the Regulatory:

Neighbours Contacted:

APPENDIX 5 – TRITTON POLLUTION INCIDENT MAP

APPENDIX 6 – GIRILAMBONE POLLUTION INCIDENT MAP

APPENDIX 7 - PLAN 2: GIRILAMBONE SITE ENVIRONMENT



APPENDIX 8 - PLAN 2B: TRITTON SITE ENVIRONMENT