

Pollution Incident Response Management Plan For Cooma Wastewater Scheme

(This Plan should be read in conjunction with the CMSC Water & Wastewater Emergency Response and Crises Management Plan, and the CMSC Water & Wastewater Business Continuity Management Strategy Plan)

Background

On the 29th February 2012 an amendment to the Protection of the Environment Operations Act 1997 introduced a requirement for all licensees to prepare and implement a Pollution Incident Response Management Plan (PIRMP) for each of its licensed activities in accordance with the requirements set out in Part 5.7A of the PEOA Act 1997. The amendment included the provision that licensees may link individual PIRMP to their existing Emergency Response Plans SC502.

Definition of a 'pollution incident';

for the purpose of this response plan a pollution incident is a serious leak or spill of wastewater from the Cooma Wastewater System to the environment and where it results in actual or potential loss, or property damage of an amount, or amounts in aggregate exceeding \$10,000.
(See definition in the POEO Act Section 147)

License holder

Cooma Monaro Shire Council under the regulation of The Environment Protection Authority (EPA), NSW is the holder of License Number 6368 for Cooma and 1392 for Nimmitabel wastewater systems.

CMSC intends that this PIRMP's must be read in conjunction with the:

Cooma-Monaro Shire Council, Water & Wastewater Emergency Response and Crisis Management Plan, Jan 2012

Cooma- Monaro Shire Council, Water & Wastewater, Business Continuity Management Strategy Plan, Jan 2012

Cooma-Monaro Shire Council, Risk Assessment for Water Supply & Wastewater Workshop Report, Feb 2011; and

Cooma-Monaro Shire Council, PRP 100 Wastewater Overflow Investigations Report for the Cooma Wastewater System. *(EP License no 6368)*

The Cooma Wastewater System is made up of the following major assets:

- a) Wastewater Treatment Facilities – section 1.
- b) Pumping Stations – sections 2 to 6.
- c) Drainage systems – section 7.

Individual PIRMP's have been developed to address the specific hazards, risks and response required for each major asset of the scheme.

Objective of the plan:

The objective of this plan is to:

- Ensure that serious environmental consequences are negated by ensuring that appropriate pollution prevention measures are in place or immediately available to Cooma-Monaro Shire Council staff and Emergency Services through a comprehensive pollution incident response management plan (PIRMP).
- Ensure that CMSC staff are appropriately trained to manage and undertake pollution incident response and remediation measures in the event of spill or sewage discharge.
- Ensure that all affected parties are notified.

Section 1 – The Glen Wastewater Facility



<p>Cooma Monaro Shire Council 81 Commissioner Street Cooma NSW 2630</p> <p>Licensed Site Location (License No 6368)</p> <p>The Glen Wastewater Treatment Facility Glen Road Cooma NSW 2630</p>	<p>NGR: 690,000m 5,991,237m</p> <p>Map References: 149°12'15" Longitude 36°06'40" Latitude South</p> <p>Maps attached, page no 20 & 21</p>
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Overview of the Activities on site:

- The Glen Wastewater Treatment Facility collects and treats wastewater from the township of Cooma to standards required by the EPA NSW & NSW Office of Water (NOW) for the discharge of treated effluent, under licence, to Cooma Creek.

A failure of Glen Wastewater Treatment Facility has the potential to cause major environmental harm, to impact on Cooma Creek, but with insignificant public health consequences. Whilst the facility has physical containment and pollution control measures in place that will minimise the risk of a pollution incident occurring, it is recognised that there are residual risks of spillage/discharge to Cooma Creek that could have major environmental consequences.

Operating Hours:

The Glen Wastewater Treatment Facility operates continuously on demand 24 hours per day, 7 days per week. The operating system is fully automated utilising Programmable Logic Controllers (PLC's) and radio SCADA (telemetry) systems for monitoring and emergency response.

The facility is staffed 7 days a week, Monday to Friday from 6.00am to 3.00pm and Saturday, Sunday & Public Holidays from 6.00am to 12.00pm, by trained wastewater treatment plant operators or technicians.

Description of surrounding area:

The Glen Wastewater Treatment Facility is located on Council owned land, categorised as 'operational', above Cooma Creek at the end of Glen Road approximately 3.5 km due north of Cooma town centre. The environment surrounding the Facility is predominately native bush land with isolated dwellings. Cooma North residential area is the closest populated area approximately 1 km south east of the Facility and on the eastern side of Snowy Ridge.

Cooma Creek borders The Glen Wastewater Treatment Facility for 160 meters on its eastern boundary and at a distance of 30 meters from the facilities security fence.

Likelihood of a pollution incident occurring: *(The combination of design, construction, contingency planning and long-term maintenance for this facility should result in a system where overflows occur only in exceptional circumstances e.g. A catastrophic electrical or equipment failure/an earthquake damaging wastewater structures or underground pipeline).*

Rare but with Major Environmental Consequences:

Refer to the Cooma-Monaro Shire Council, Risk Assessment for Water Supply & Wastewater Workshop Report, February 2011.(appendix 'C' p1)

Hazards to human health & the environment at this site as a result of a failure of the Wastewater Treatment Facility and discharge of wastewater to the environment:

Risk assessments of the facility have concluded that in the event of a discharge or spillage of wastewater to the environment there would be **insignificant consequences to public and operational staff health but could have major environmental consequences.**

Hazard	Risk Rating Estimates		Contributing/Condition or Event	Action
	Likelihood	Consequence to the Environment		
Untreated or raw wastewater discharged to Cooma Creek.	Rare	Major	Major failure of the electrical energy or electricity supply or associated cables and associated equipment.	Activate emergency power procedure. Activate spill cleanup procedure.
Untreated or raw wastewater discharged to Cooma Creek.	Rare	Major	Major failure of equipment due to mechanical problems.	Activate replacement equipment procedure. Activate spill cleanup procedure.
Untreated or raw wastewater discharged to Cooma Creek.	Rare	Major	Major structural failure. Damaged wastewater structures or underground pipelines	Activate drainage system isolation procedure. Activate spill cleanup procedure.

Pollution Prevention/Mitigation Measures:

The Glen Wastewater Treatment facility has the following pollution prevention/mitigation measures incorporated into the facility design to minimise the risk of wastewater being spilled/discharged into Cooma Creek:

- The Glen Wastewater treatment facility electricity is supplied from Substation 11-3021 (500kVa) and the 11kV is a 1700 metre radial off Western Rural feeder that has backup from a second (2nd) feeder.
- Standby generators can be connected to the treatment facility station if a long duration electricity outage has been advised by Essential Energy. Permanent generator connection terminals have been constructed for each of the pumping stations.
- The Glen wastewater treatment Facility has the capacity to hold in the order of 24 hours of average dry weather flow (ADWF) before surcharging from the decanted effluent tank via the treated effluent outfall to Cooma Creek.

Emergency & Early Warning Systems:

The Glen Wastewater Treatment Facility has 61 separate process and equipment alarms linked to a 24 hour alarm system that notifies CMSC staff in the event of a system failure. In the event of a failure the telemetry system will keep attempting to make contact until such time as the call is answered.

The response time by CMSC staff in the event of a failure is less than one (1) hour.

Chemical Product Inventory & Material Handling Sheets (Hazardous)				
Trade Name Substance	Solid/liquid/gas/powder	Maximum volume of storage	Location (marked on site plan)	Type of Containment
Ferrous Chloride Solution	Liquid	30,000 litres	Chemical Storage	Concrete bund area with a valved pipeline link to sludge lagoon No1. In the event of the concrete bund being compromised a gate valve can be opened and the Ferrous Chloride drained to Sludge Lagoon No1 for subsequent reprocessing.
Aluminium Sulphate	Liquid	30,000 litres	Chemical Storage	

Safety Equipment and Personal Protective Equipment		
Equipment	Location	Personnel Trained/Certified in use if equipment
3 Sets of Breathing Apparatus 1 Spare BA Cylinder	The Glen WTF. Blue cabinet on south wall of the laboratory	Water & Wastewater Supervisor – 0419 256 323 WTF Technician - 0409 669 576 Relief WTF Operator - 0409 669 576 Wastewater Drainage Operator - 0419 251 378
Confined spaces access equipment Harnesses, lanyards, lifelines, portable Davit, lifting tripod etc,	The Glen WTF. Electrical room Workshop	Water & Wastewater Supervisor – 0419 256 323 WTF Technician - 0409 669 576 Relief WTF Operator - 0409 669 576 Wastewater Drainage Operator - 0419 251 378

Pollution Prevention Equipment Inventory/(On site and Off Site Resources)			
Type	Amount	Equipment Location	Contact
Spill Sock	100 metres	The Glen Workshop	Water & Wastewater Supervisor – 0419 256 323
Sewer cleaning equipment	1	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Waste water pumps	4	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Pressure washers	1	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Duel Control Sweeper	1	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Various tipper trucks	7	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Tractor drawn road broom	1	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Backhoe loader	1	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Volvo loaders	2	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Tractors	3	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323
Portable generators (towable)	1	CMSC Works Depot Polo Flat	Water & Wastewater Supervisor – 0419 256 323

External Resources			
Service Provider	Service Providers address	Services supplied /available	Contact details
Top To Bottom Plumbing Cooma	69 Barron Street Cooma 2630	Truck mounted vacuum pump 9m ³ capacity, excavator, backhoe, tipper truck, skilled day labour.	02 6452 2410, mobile phone 0418 630 233
VanGlen Services Jindabyne	PO Box 457 Jindabyne 2627	Truck mounted vacuum pump 7.5m ³ capacity.	02 6456 7037, mobile phone 0429 809 995
South East Waste Recovery Pty Ltd	52 Jindabyne Road Berridale 2628	1 – 23,500 litre semitrailer mounted vacuum tank 1 – 5,000 litre truck mounted vacuum tank 1 – 2,500 litre 4WD mounted heavy sludge vacuum tank 1 – 12,500 litre vacuum tank, tipper truck mounted 1 – 27,000 road tanker trailer 1 - 4 inch non clog pump & generator	02 6456 4657 0428 409 669
Transpacific Industries Group	42 Aurora Avenue Queanbeyan 2620	Specialist chemical spills and emergency response company.	24 hour emergency spills response 1800 774 557 02 6297 8185
ALS Environmental Division Water Resources Group - Water sampling and reporting	16B Lithgow Street Fyshwick 2609	ALS Environmental Division Water Resources Group - Water sampling and reporting.	02 6202 5400

Emergency Power/Diesel Generator Hire		
Company Name	Generators Available	Contact details
Aggreko Generator Rentals	Sydney - up to 1250kVa	1800 808 109
Atlas Copco Sydney	Sydney – up to 1000kVa	13 34 20
Genlec Power Systems	Queanbeyan depot – up to 1000kVa	0416 314 010
SGH Southern Generators & Electrical	Queanbeyan – up to 1400kVa	1300 350 706
Genplus Hire & Sales	Queanbeyan – up to 1250 kVa single unit, up to 20,000 kVa combination	02 6297 2641 0412 663 566
Coates Hire	Fyshwick – up to 200kVa but can source larger items	02 6452 5460

CMSC staff responsible for the PIRMP		
Position	Phone number	Responsibilities
Director Engineering Services	0417 211 383	Authorisation & activation of the PIRMP.
Water & Wastewater Manager	0409 440 733	Liaison with EPA NSW. Notification of other relevant authorities listed in this plan. Management of a Pollution Incident Response.
Water & Wastewater Technical Officer	0409 627 026	Management of a Pollution Incident Response.
Water & Wastewater Supervisor	0419 256 323	Management of a Pollution Incident Response.
Water & Wastewater Technician	0409 669 576	Management of a Pollution Incident Response.

Procedures to be followed by CMSC (the license holder) in notifying a pollution incident:

The procedures to be followed by CMSC in the event of a pollution incident are set out in the CMSC Water & Wastewater, Emergency Response & Crisis Management Plan, (ER&CMP) which includes the following EPA requirements,

Immediate notification of relevant authorities by the ER&CMP authorised officer – Water & Wastewater Manager.

1. (i) Call 000, 'notify only' Fire and Rescue, no immediate threat to life or serious threat to property. **NO EMERGENCY RESPONSE REQUIRED**

(ii) Call 000 if the incident presents an immediate threat to human health or property. **EMERGENCY RESPONSE REQUIRED**

(Fire and Rescue NSW, the NSW Police Force and Ambulance Service of NSW are the first responders, responsible for controlling and containing incidents).

2. The Environment Protection Authority (EPA), NSW – Environment Line on 13 15 55

3. NSW Health – Emergency Number 0418 464 916

4. WorkCover 13 10 50

Communications

Persons through whom all communications are to be made and procedures to be followed for co-ordinating with the authorities and other persons that have been notified, including 'Property owners downstream on Cooma Creek' and 'External Organisations' are set out in SECTION 7, COMMUNICATIONS MANAGEMENT TEAM of the CMSC (ER&CMP).

Training

An annual desk top training exercise will be conducted with the staff responsible for the management and operation of the PIRMP. The support contractors/clean-up companies listed in the PIRMP will be invited to participate in the desk top exercise. A record of the exercise including the names of participants and issues raised will be maintained for each exercise and used to initiate improvements in the PIRMP.

An annual field training exercise will be conducted with the staff responsible for the management and operation of the PIRMP including the use of a range of equipment that could be required in a real event. A record of the exercise including the names of participants and issues raised will be maintained for each exercise and used to initiate improvements in the PIRMP.

The training exercise record can be found in CMSC's record management system. Container – SC502 – POLLUTION INCIDENCE RESPONSE MANAGEMENT.

Action Plan – in response to possible or actual effluent overflow from the Glen Wastewater Treatment Facility.		
CMSC Responsibility	Actions	Notes and Contact Details
Council staff receiving report	Report from the Public, Council staff or telemetry system <ul style="list-style-type: none"> - Obtain details of spill & location - Obtain contact details of person reporting the spill 	Report details of the spill to Wastewater Operator on call 0419 251 378
Wastewater Operator on Call	Notify Water & Wastewater Supervisor.	Report details of the spill to Water & Wastewater Supervisor 0419 256 323
Water & Wastewater Supervisor	Carry out Worksite Risk Assessment to identify; <ul style="list-style-type: none"> - Assess incident/take photographs to document the overflow/spill - Determine the cause of the failure/spill <ul style="list-style-type: none"> Electrical failure Mechanical Failure Blockage Structural Failure - Estimate of time to return the Glen Wastewater Treatment facility to full service. - Possible environmental concerns e.g. effluent overflows to the environment. - Extent of work to be carried out and if any hazards exist e.g. phone/power cables, gas &/or water, storm water drains etc. - If additional resources/materials are required e.g. personnel, suitable barricades, sandbags, sludge pump, vacuum truck etc. - Conduct Work Health Safety (WHS) risk assessment. - Personal Protective Equipment & Clothing (PPEC). - Manual handling issues. 	Site Risk Assessment IS-HR-HS-FM-00002

	<ul style="list-style-type: none"> - Traffic control methods/issues (where necessary). - Note prevailing weather conditions and obtain a 5 day forecast. - Complete or have completed appropriate forms e.g. Confined Space Entry Permit, Traffic Control Plan (TCP), Safe Work Method Statement (WMS) and Environmental Control Plan. 	
Water & Wastewater Supervisor	<ul style="list-style-type: none"> - Carry out site induction and/or toolbox meeting for all workers involved with the incident on the site (both council employees and contractors) so everyone is aware of their responsibilities and what work is to be carried out. 	
Water & Wastewater Supervisor	<p>Notify the Water & Wastewater Manager that the system failure/spill could have major environmental consequences:</p> <ul style="list-style-type: none"> - Provide an estimate of time to return the Glen Wastewater Treatment facility to full service. (Cooma Central and Cooma North Pumping Stations have 42.7 & 47.1 hours respectively ADWF storage capacity if required). - Confirm minor incident that can be managed by CMSC staff and/or local contractors. - Confirm major incident requiring the services of an accredited emergency pollution incident management company. 	Contact Water & Wastewater Manager 0409 440 733
Water & Wastewater Manager	<p>In the event of a major incident notify Director of Engineering who will authorise and activate the PIRMP:</p> <ul style="list-style-type: none"> - Notify The Environment Protection Authority (EPA), NSW. - Commence CMSC Water & Wastewater Emergency Response and Crises Management Plan, and the CMSC Water & Wastewater Business Continuity Management Strategy Plan. - If required, contact an accredited emergency pollution incident management company. e.g. Transpacific Industries Group (Canberra & Bega). 	<p>Director of Engineering 0417 211 383</p> <p>EPA 13 15 55</p> <p>24 hour emergency spills response 1800 774 557</p>

<p>Water & Wastewater Supervisor</p>	<ul style="list-style-type: none"> - Implement traffic control plan and pedestrian management plan at the Glen Wastewater Treatment Facility. - Implement environmental controls by placing absorption /containment barriers, sandbags between The Glen WWTF and Cooma Creek. - Implement Cooma Creek water sampling and testing plan. 	
<p>Water & Wastewater Supervisor/ Water & Wastewater Manager</p>	<p>General Procedure:</p> <p>Minor Incident</p> <ul style="list-style-type: none"> - Engage a local contractor from the list of clean up companies if required and commence pollution prevention/mitigation measures as required. Continue the process until such times as the surcharge ceases and/or the failure is corrected. Then commence clean-up, disinfection and incident reporting procedures. <p>Major Incident</p> <ul style="list-style-type: none"> - In the event that local resources are unable to contain and manage the spill, maintain all reasonable attempts to use available vacuum pumps to remove wastewater from the pump well and drainage system and continue with spill containment and clean up measures until such time as an external resource with the capacity to manage a major pollution incident is engaged and arrives on site. - If necessary engage external resources to project manage and implement the emergency response, waste removal and remediation works until such time as the surcharge ceases and/or the failure is corrected including clean-up, disinfection and incident reporting procedures. <p>Minor & Major Incident</p> <ul style="list-style-type: none"> - At the completion of the clean up and remediation works undertake a site inspection to confirm that the site has been successfully decontaminated. - Remove all temporary works and traffic control signs. - Undertake a debriefing with all staff and contractors and provide Council with an incident report for approval and forwarding to the EPA as required. 	

The Glen Wastewater Treatment Facility

Emergency Procedures



BUILDING	THE GLEN WASTEWATER TREATMENT FACILITY	EVACUATION ROUTE	DEPENDANT ON EMERGENCY
FLOOR	GROUND LEVEL	ASSEMBLY POINT	MAIN ENTRANCE GATE
WARDEN	OPERATOR ON DUTY	LOCATION OF EVACUATION MAP	1 - MAIN OFFICE 1 - HALLWAY 1 - LABORATORY 2 - FILTRATION SHED 1 - CHEMICAL ROOM
FIRST AID PERSONNEL	OPERATOR ON DUTY	COMMUNICATION CONTROL POINT	MAIN ENTRANCE GATE
HOURS OF OCCUPANCY	N/A	AFTER HOURS OCCUPANCY	OPERATOR ON CALL

SPECIFIC HAZARDS	N/A	SPECIFIC CONTROLS	N/A
AFTER HOURS HAZARDS	N/A	CONTROL MEASURES	N/A
EMERGENCY VEHICLES AREAS	MAIN ENTRANCE GATE		
POSSIBLE THREATS/TYPE OF EMERGENCIES	WASTEWATER SPILL, ELECTRICAL FAILURE, MECHANICAL FAILURE, STRUCTURAL FAILURE/COLLAPSE, BUSH FIRE, FLOOD, BOMB THREAT		

<p>EVACUATION PROCEDURE</p>	<ul style="list-style-type: none"> ▪ Staff/Contractors or visitors become aware that there is an emergency, could be:- Wastewater spill Smoke Flooding Bomb Threat The emergency could be reported by staff, contractors or visitor. ▪ If evacuation is to take place, the Water & Wastewater Supervisor or Operator on-call is to take charge as the Emergency Warden. <ol style="list-style-type: none"> 1. Evacuate staff, contractors and visitors as per evacuation procedure. 2. Ring 000. 3. If possible inform Management at Council Offices on 6455 1777 <p>Emergency warden to:</p> <ol style="list-style-type: none"> 1. Direct staff, contractors or visitors to the assembly point; 2. If possible, put on appropriate PPEC and ascertain type of spill or source of fire or flooding; 3. Keep people are away from hazardous areas. <ul style="list-style-type: none"> ▪ Emergency Warden to keep notes on activities including time for records, any possible review enquiry or investigation. ▪ If possible to use staff, contractors or visitors to close off access to prevent further persons entering the area and to only allow emergency services past the assembly point
<p>METHOD OF ACCOUNTING FOR PERSONS</p>	<p>Check names against attendance register/diary/site induction</p>

Properties Downstream of the Glen Wastewater Treatment Facility & Above Rock Flat Creek



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Assess	Property Address	NAR	Name	Phone	Property Name	Address	Town	Post Code
10000586	Mulach Street	40067	Diana Klima	6452 2576		1 Creek Street	COOMA	2630
10019636	1038 Monaro Hwy Bunyan	41968	W F Shanley	6452 3711	Homeleigh		BUNYAN	2630
10038628	112 Tillabudgerry Road	44361	BM & BN McCosker	6452 2729 (W) 6452 4239 (H)	Snowy Camping World	106 Sharp Street	COOMA	2630
10038636	114 Tillabudgerry Road	44363	HM & KA Whish	6452 3886		PO Box 665	COOMA	2630
10087351	Snowy Creek Avenue	43948	FL & AH Hitchcock	6458 7610		29 Jerrang Avenue	COOMA	2630
10038644	51 Snowy Creek Avenue	44365	T Krieger & CR Calnan	6452 7879		51 Snowy Creek Avenue	COOMA	2630
10019537	207 Rose Valley Road	41953	J McPhie & R Clubb	6452 4526	Brookfield Park		COOMA	2630
10087435	247 Cottage Hill Road	48114	DM Barron	6452 4515		PO Box 1282	COOMA	2630
10078657	Glen Road	47278	P & BH Learmont	4862 2387		PO Box 1550	BOWRAL	2576
10060408	383 Rose Valley Road	46678	Veramaur PtyLtd		Hadfield Park	Rose Valley Road	BUNYAN	2630
10060416	Rose Valley Road	40434	MA Blyton	6452 6788	Cosmos	Myalla Road	COOMA	2630
10038677	434 Mittagang Road	44368	KE & W Wakeley	6452 1538		PO Box 1372	COOMA	2630
10004000	Rose Valley Road	40456	LD, NJ & RA Norton	6454 2246	Hazelwood		ADAMINABY	2629
10038651	458 Mittagang Road	44367	PE Cheetham	6452 1973	Mangalli	PO Box 1082	COOMA	2630
10055606	508 Mittagang Road	46259	AM McGeehan & LJ Ryan			PO Box 48	COOMA	2630
10000578	Glen Road	40065	M Hanna & A Versace	6452 5664		PO Box 103	COOMA	2630
10004042	841 Monaro Hwy Bunyan	40461	IW Evans	6452 2266	Greenacres	841 Monaro Highway	BUNYAN	2630
10000529	845 Monaro Hwy Bunyan	40060	WR Priest	6452 1625	Nestlebrae	PO Box 5405	COOMA NORTH	2630
10000644	843 Monaro Hwy Bunyan	40073	RM & KG Eley	6452 4275	Willawong	843 Monaro Highway	COOMA	2630
10004018	Monaro Highway Bunyan	40459	LD & RL Norton	6454 2246	Hazelwood	212 Old Cemetery Road	ADAMINABY	2629
10085439	Monaro Highway Bunyan	47952	PJ Caldwell & JA Kennedy	6452 3060	Pusha Park	156 Rose Valley Road	BUNYAN	2630
10085421	89 Rose Valley Road	40470	AW & BL Caldwell	0427 446 150 6452 5353	Woolara	89 Rose Valley Road	BUNYAN	2630
10078798	21 Warm Corner Road	47295	MC & RM Reeve	64524364		P O Box 850	COOMA	2630

Properties Downstream of the Glen Wastewater Treatment Facility & Above Rock Flat Creek



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Assess	Property Address	NAR	Name	Phone	Property Name	Address	Town	Post Code
10078780	18 Warm Corner Road	47293	R & R Smith	6452 5725		18 Warm Corner Road	COOMA	2630
10078772	14 Warm Corner Road	47291	J & K McMahon	64524720	Wilandra	14 Warm Corner Road	COOMA	2630
10078764	8 Warm Corner Road	47289	LG & AJ Kain	0437 062 416		PO Box 7300	GERALDTON WA	6530
10078640	58 Glen Road	47276	SJ & LM Lloyd	6452 3939		58 Glen Road	COOMA	2630
10057925	42 Glen Road	46485	BM Williams	64524168 0428 484 249	Werrawee	42 Glen Road	COOMA	2630
10082733	26 Glen Road	47697	Brian G Stone	64525219		26 Glen Road	COOMA	2630
10062750	4 Glen Road	46880	JE & TA Heise	64522363		4 Glen Road	COOMA	2630
10081545	11 Eddie Place	47585	GA & LK Morris	64526997		11 Eddie Place	COOMA	2630
10081552	13 Eddie Place	42373	JS & EM Palinkas	0421 283 212		9 Barooka Avenue	COOMA	2630
10081578	37 Snowy Creek Avenue	64911	Lisa Drury			37 Snowy Creek Avenue	COOMA	2630
10081594	41 Snowy Creek Avenue	47591	SB & CJ Lukins	6452 5775 0414 670 181		41 Snowy Creek Avenue	COOMA	2630
10081602	49 Snowy Creek Avenue	47587	MG & IA Taffa	6452 7889	Winter Park	4 Willoughby Crescent	GILMORE	2905
10081305	471 Monaro Highway	42213	CA Evans	0408 002 724	Ti-Tree	471 Monaro Highway	COOMA	2630
10065548	Monaro Highway	41056	SA & LJ Eljuga	6454 4193 0408 235 893		23 Bransby Street	BREDBO	2626
10091619	Glen Road	40023	Dept. Lands	4824 3712		PO Box 748	GOULBURN	2580
10039329	Glen Road	44402	LJ & LM Narushevic	0409 198 377	Hatfarm	375 Mittagang Road	COOMA	2630
10091015	Glen Road	48387	KJ & AM Markham			PO Box 405	COOMA	2630
10092492	424 Rose Valley Road	64603	Jeanette M Palmer		Willow Bank	1101 Shannons Flat Road	COOMA	2630

IT IS INTENDED THAT ONLY COUNCIL OFFICERS ARE TO INITIATE EXTERNAL CONTACTS



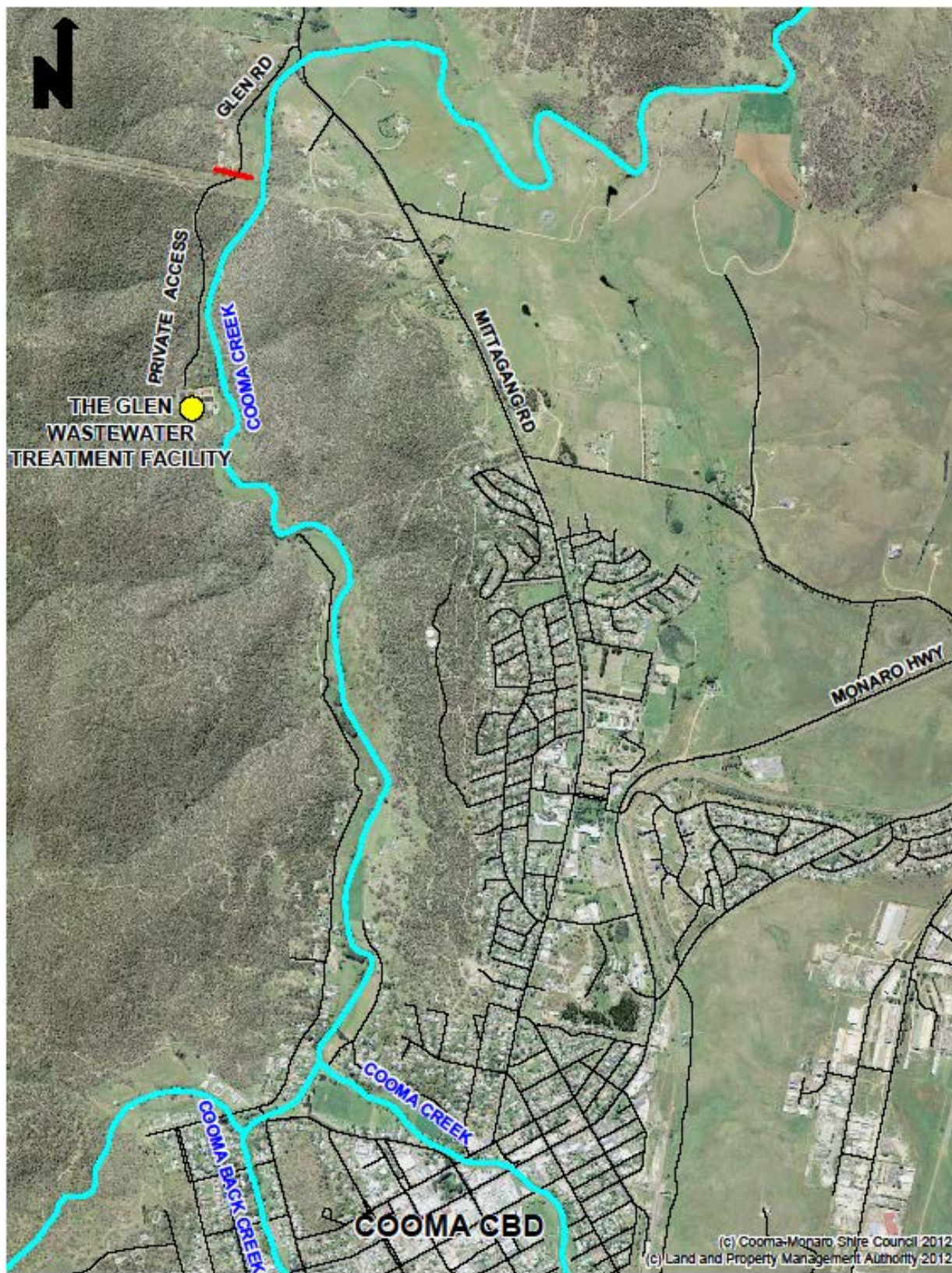
Initial reporting of all pollution incidents by the Public and Cooma-Monaro Shire Council staff must be to the Council Offices.

**Contact: Business hours 02 6455 1777
After hours 0419 251 378**

External Contacts for The Glen Wastewater Treatment Facility, Pollution Incident Response Management Plan

Name	Contact	Business Contact
The Environment Protection Authority (EPA), NSW	131 555	131 555
Cooma Fire Brigade	000	6452 2037 0407299 008
NSW Health – Emergency Number – Senior EHO	0418 464 916	02 6080 8900
WorkCover	13 10 50	
Police, Fire, Ambulance Emergency	000	000
Police – Local Command	000	6452 0099
Rural Fire Service – Emergency Management Centre	000	6455 0455
SES	13 25 00	6455 4801
Essential Energy – Electricity Utility Control Centre	13 20 80	
NSW Health – Division of Analytical Laboratories (DAL)	02 9646 0222	
NSW Food Authority	1300 552 406	
Catchment Management Authority – Environment & Heritage	6452 1455	
Department of Primary Industries – Office of Water District Office Agriculture	6452 1455 6455 7200	

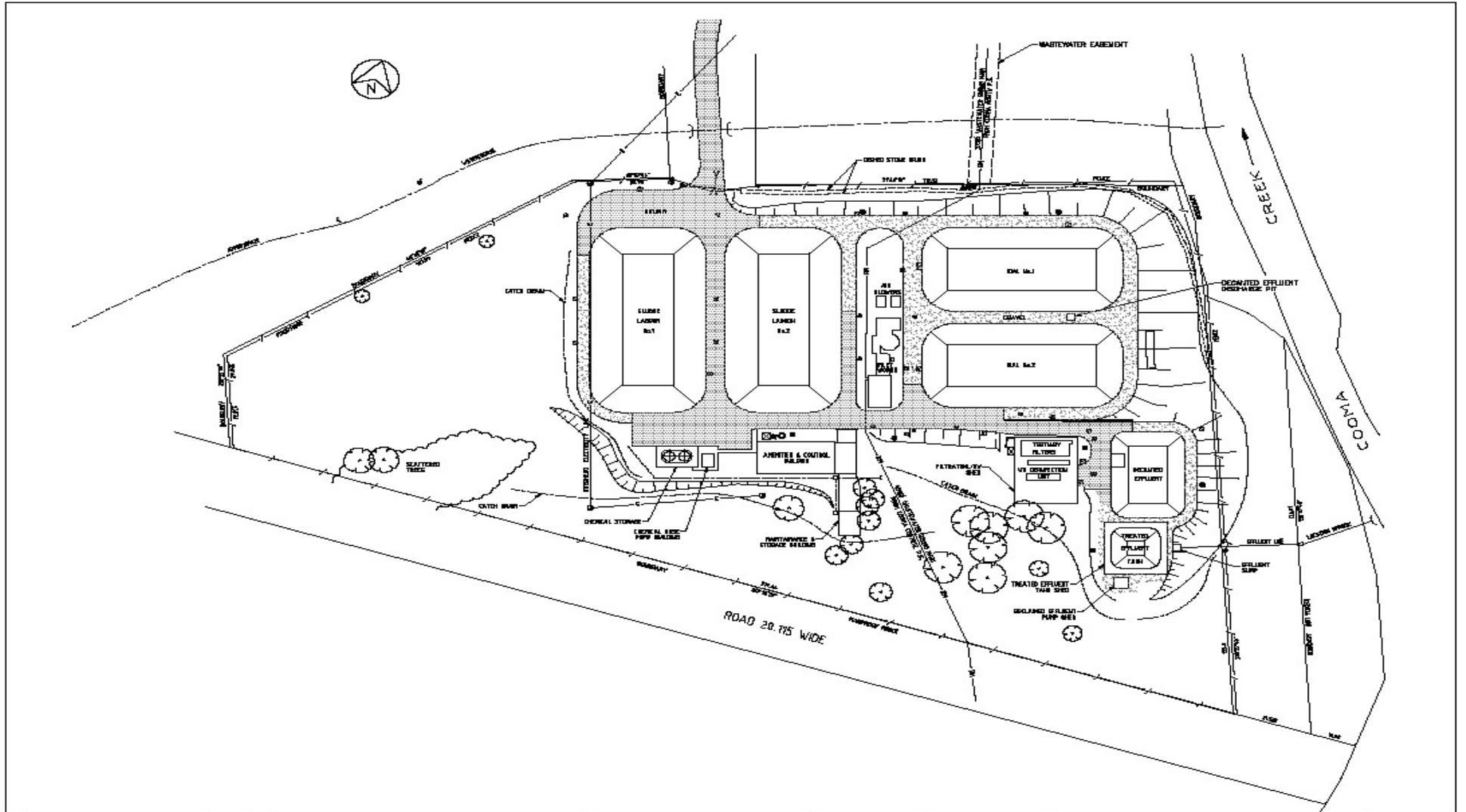
Current EPA mandatory requirement, is that the first four (4) agencies listed must be notified of any major spill



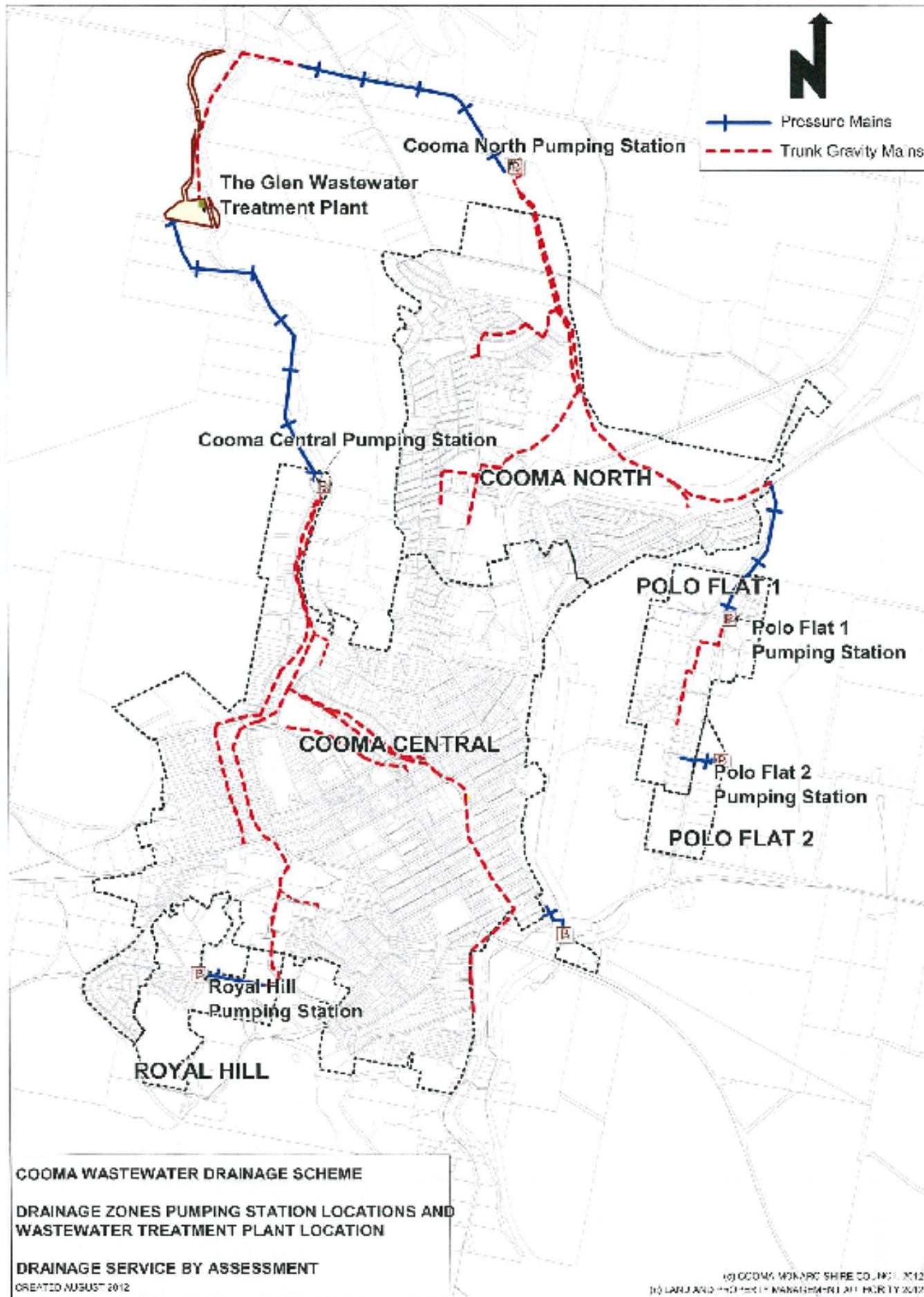
**THE GLEN WASTEWATER TREATMENT FACILITY - LOCATION PLAN
POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN**



**THE GLEN WASTEWATER TREATMENT FACILITY - SITE PLAN
POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN**



		SCALES PLAN LONGITUDINAL SECTION—HORIZ CROSS SECTION—VERT	1:500 _____ _____ _____ _____ _____ _____	SHEET DETAIL GENERAL LAYOUT	SURVEYED BY	DESIGNED BY	COOMA—MONARO SHIRE COUNCIL THE GLEN WASTEWATER TREATMENT FACILITY	SHEET OF	
						FIELD BOOK		DRAWN BY	PLAN NUMBER
						LEVEL BOOK		CHECKED BY	
IF	AMENDMENT	DATE	APP'D		DAVIN	APPROVED		0963-B	
						MANAGER WATER & WASTEWATER			



Safety Data Sheet



1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FERRIC CHLORIDE SOLUTION

Other name(s): Ferric chloride liquor.

Recommended use of the chemical and restrictions on use: For metal etching and effluent treatment.

Supplier: Orica Australia Pty Ltd
ABN: 99 004 117 828
Street Address: 1 Nicholson Street,
 Melbourne 3000
 Australia

Telephone Number: +61 3 9665 7111
Facsimile: +61 3 9665 7937
Emergency Telephone: 1 800 033 111 (ALL HOURS)

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS SUBSTANCE.

Classification of the substance or mixture:

- Corrosive to Metals - Category 1
- Acute Oral Toxicity - Category 4
- Skin Corrosion - Sub-category 1B
- Eye Damage - Category 1

SIGNAL WORD: DANGER



Hazard Statement(s):

- H290 May be corrosive to metals.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.

Precautionary Statement(s):

Prevention:

- P234 Keep only in original container.
- P260 Do not breathe mist / vapours / spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves / protective clothing / eye protection / face protection.

Product Name: FERRIC CHLORIDE SOLUTION
Substance No: 000033756801

Issued: 19/01/2015
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Response:

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
 P363 Wash contaminated clothing before re-use.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER or doctor/physician.
 P390 Absorb spillage to prevent material damage.

Storage:

P405 Store locked up.
 P406 Store in corrosive resistant container with a resistant inner liner.

Disposal:

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Poisons Schedule (SUSMP): None allocated.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Ferric chloride	7705-08-0	30-60%	H290 H302 H314
Water	7732-18-5	30-60%	-

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. For all but the most minor symptoms arrange for patient to be seen by a doctor as soon as possible, either on site or at the nearest hospital.

Skin Contact:

If spilt on large areas of skin or hair, immediately drench with running water and remove clothing. Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre or a doctor.

Eye Contact:

Immediately wash in and around the eye area with large amounts of water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport promptly to hospital or medical centre.

Ingestion:

Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

Indication of immediate medical attention and special treatment needed:

Treat symptomatically. Can cause corneal burns.

5. FIRE FIGHTING MEASURES

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Suitable Extinguishing Media:

Not combustible, however, if material is involved in a fire use: Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Unsuitable Extinguishing Media:

Water jet.

Hazchem or Emergency Action Code: 2X

Specific hazards arising from the substance or mixture:

Non-combustible material.

Special protective equipment and precautions for fire-fighters:

Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:

Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:

Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Neutralise with lime or soda ash. Collect and seal in properly labelled containers or drums for disposal. Wash area down with excess water.

7. HANDLING AND STORAGE

Precautions for safe handling:

Avoid skin and eye contact and breathing in vapour, mists and aerosols.

Conditions for safe storage, including any incompatibilities:

Store in cool place and out of direct sunlight. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Iron salts, soluble (as Fe): 8hr TWA = 1 mg/m³

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

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Appropriate engineering controls:

Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Orica Personal Protection Guide information (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Orica Personal Protection Guide No. 1, 1998: D - OVERALLS, CHEMICAL GOGGLES, FACE SHIELD, GLOVES (Long), APRON, RUBBER BOOTS.



Wear overalls, chemical goggles, face shield, elbow-length impervious gloves, splash apron or equivalent chemical impervious outer garment, and rubber boots. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. If determined by a risk assessment an inhalation risk exists, wear a suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Colour:	Dark Red
Odour:	Acidic
Solubility:	Miscible with water.
Specific Gravity:	1.45
Relative Vapour Density (air=1):	Not available
Vapour Pressure (20 °C):	Not available
Flash Point (°C):	Not applicable
Flammability Limits (%):	Not applicable
Autoignition Temperature (°C):	Not applicable
Boiling Point/Range (°C):	105-110
pH:	<2

10. STABILITY AND REACTIVITY

Reactivity:	Reacts with alkalis. Reacts with metals liberating flammable hydrogen gas.
Chemical stability:	Stable under normal conditions of use.
Possibility of hazardous reactions:	Reacts exothermically with alkalis . Hydrolysis produces hydrogen chloride.

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Conditions to avoid: Avoid contamination with foreign materials.

Incompatible materials: Incompatible with alkalis , oxidising agents , and metals .

Hazardous decomposition products: None known.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion: Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.

Eye contact: A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.

Skin contact: Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.

Inhalation: Breathing in mists or aerosols may produce respiratory irritation.

Acute toxicity: No LD50 data available for the product. For the constituent Ferric chloride :
 Oral LD50 (rat): 316 mg/kg.
 Oral LD50 (mice): 200 mg/kg.

Chronic effects: No information available for the product.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.

Terrestrial toxicity: Harmful to terrestrial species.

13. DISPOSAL CONSIDERATIONS

Disposal methods:
 Refer to Waste Management Authority. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.



UN No: 2582
Transport Hazard Class: 8 Corrosive
Packing Group: III

Product Name: FERRIC CHLORIDE SOLUTION
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Proper Shipping Name or Technical Name: FERRIC CHLORIDE SOLUTION
 Hazchem or Emergency Action Code: 2X

Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No: 2582
 Transport Hazard Class: 8 Corrosive
 Packing Group: III
 Proper Shipping Name or Technical Name: FERRIC CHLORIDE SOLUTION

IMDG EMS Fire: F-A
 IMDG EMS Spill: S-B

Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No: 2582
 Transport Hazard Class: 8 Corrosive
 Packing Group: III
 Proper Shipping Name or Technical Name: FERRIC CHLORIDE SOLUTION

15. REGULATORY INFORMATION

Classification:

This material is hazardous according to Safe Work Australia; HAZARDOUS SUBSTANCE.

Classification of the substance or mixture:

Corrosive to Metals - Category 1
 Acute Oral Toxicity - Category 4
 Skin Corrosion - Sub-category 1B
 Eye Damage - Category 1

Hazard Statement(s):

H290 May be corrosive to metals.
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.

Poisons Schedule (SUSMP): None allocated.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

'Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 2014.

This safety data sheet has been prepared by Orica Toxicology & SDS Services.

Product Name: FERRIC CHLORIDE SOLUTION
 Substance No: 000033756801

Issued: 19/01/2015
 Version: 5

Safety Data Sheet



Reason(s) for Issue:
5 Yearly Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Orica Limited cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Orica representative or Orica Limited at the contact details on page 1.

Orica Limited's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

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CHEMPROD NOMINEES PTY. LTD. A.B.N. 32 982 143 022 / A.C.N 005 032 744 T/A

OMEGA CHEMICALS

Manufacturers of Aluminium Sulphate – Suppliers of Industrial Chemicals



Date of Issue: 27 March 2012

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MATERIAL SAFETY DATA SHEET

LIQUID ALUMINIUM SULPHATE

1. Identification of Product & Supplier

Product Name:	Aluminium Sulphate Liquid.
Other Names:	Sulphate of Alumina, Alum, Papermakers Alum, Filter Alum, Liquid.
Manufacturers Product Code:	Liquid Aluminium Sulphate T.I.F
Use:	Treatment of municipal water supplies, sewage and industrial effluents; paper manufacturing; tanning; chemical intermediate for other aluminium compounds; clarifying oils and fats; antiperspirants; pesticides; fireproofing and waterproofing cloths; waterproofing concrete; catalyst for oil refining.
Manufacturer:	Omega Chemicals, 55 Fitzgerald Road, Laverton North, Victoria 3026.
Phone:	(03) 8368 8000

2. Hazard Identification

Classified as Hazardous according to the criteria of Safe Work Australia.

Classified as a Non Dangerous Good according to the ADG Code.

IRRITANT!

LIQUID ALUM – GRANULATED ALUM – SULPHURIC ACID – CAUSTIC SODA – FERRIC SULPHATE

Omega Chemicals

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Risk Phrases:

R36/38 Irritating to eyes and skin.

Safety Phrases:

- S1/S2 Keep locked and out of the reach of children.
- S3/S9 Keep container in a cool, well-ventilated place.
- S24/25 Avoid contact with skin and eyes.
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S27 Take off immediately all contaminated clothing.
- S28 After contact with skin, wash immediately with plenty of water.
- S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S38 In case of insufficient ventilation, wear suitable respiratory equipment.
- S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible).
- S62 If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.
- S63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.
- S64 If swallowed rinse mouth with water, (only if the person is conscious).

3. Composition/Information on Ingredients

Ingredients:	CAS Number	Proportion:
Aluminium Sulphate	10043-01-3	47%
Water	7732-18-5	Balance to 100%

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4. First Aid Measures

For advice, contact Poisons Information Centre on 131 126 or a Doctor.

- Ingestion:** Immediately rinse mouth with water. Give plenty of water to drink. **DO NOT** induce vomiting. If vomiting occurs give further water. Never give anything by mouth if victim is rapidly losing consciousness. **Seek immediate medical attention.**
- Eyes:** Immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. **Seek medical assistance.**
- Skin:** Remove all contaminated clothing without delay. Wash skin gently and thoroughly with copious amounts of water. If irritation occurs, seek medical attention.
- Inhalation:** Remove the source of contamination or move the victim to fresh air; avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical attention.
- Advice to Doctor:** Treat symptomatically.

Additional Information

- Aggravated medical conditions caused by exposure:** Persons with pre-existing skin disorders may be more susceptible to the effects from this product.

5. Fire Fighting Measures

- Extinguishing Media:** In case of fire, use an appropriate extinguishing media (water fog or if unavailable fine water spray, foam, carbon dioxide, dry chemical powder) that is the most suitable for surrounding fire conditions. Keep containers cool with water spray. If safe to do so, remove containers from path of fire. Suppress (knock-down) gases, vapours and mists with a water spray jet.
- Hazards from Combustion:** Product is non-flammable.
- Flammability Conditions:** Product is a non-flammable liquid.
- Hazchem Code:** N/A.
- Special Protective Precautions and Equipment for Fire Fighters:** Fire fighters should wear a self-contained breathing apparatus and full protective clothing along with protective equipment. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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6. Accidental Release Measures

Emergency Procedure:	Evacuate all unnecessary personnel. Work upwind. Increase ventilation. Use water spray to disperse vapours. Personnel involved in the clean-up should wear full protective clothing; self-contained breathing apparatus may be needed for prolonged periods of exposure. Avoid walking through spilled product as it may be slippery. Cover drains. Collect, bind and pump off spills. Do not allow product to enter drains, sewers, waterways or soil. If contamination of drains has occurred, advise the local emergency services.
Methods and Materials for Containment and Clean Up:	Contain spilled product using absorbent (soil or sand). Prevent run off into drains, sewers waterways or soil. Collect and seal in properly labelled drums ready for appropriate disposal. Dilute remaining product with water, neutralize with lime or soda ash and hold contaminated water for treatment. For large spills notify local emergency services.

7. Handling and Storage

Precautions for Safe Handling:	Irritant liquid. Ensure an eye bath and safety shower are available and ready for use. Use only in a well-ventilated area. Prevent the build-up of mists in the work atmosphere. Avoid inhalation of mists, and skin or eye contact. Wear appropriate protective equipment to prevent inhalation, skin and eye contact when mixing and using. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet. Keep containers sealed when not in use.
Container Type:	Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer. Store and transport in corrosion-resistant containers made of stainless steel, rubber-lined steel, PVC, fibreglass or polyethylene.
Conditions for Safe Storage, including any Incompatibles:	Store in a cool, dry, well-ventilated area out of direct sunlight. Do not store with incompatible products such as acids, sodium hydroxide and other alkalis. Do not store with any foodstuffs. In very dilute aqueous solutions, this product may hydrolyse to form some sulphuric acid. Strong aqueous solutions of aluminium sulphate will readily react with sodium hydroxide and other alkali to form a thick slippery paste or jell. Mildly corrosive to metals and concrete.

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8. Exposure Controls

National Exposure Standards:	Aluminium Sulphate: No specific exposure standard. Aluminium soluble salts (as Aluminium): AU OEL: 2 mg/m ³ .
Biological Limit Values:	No data available
Engineering Controls:	Select suitable materials for the construction of storage tanks, containers, pipe valves and fittings. Ensure adequate ventilation using a combination of natural and local or general exhaust as appropriate. Keep containers closed when not in use in a well-ventilated area.
Personal Protection:	<p>Respirator: If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable mist filter should be used .</p> <p>Eyes: Chemical splash goggles or safety glasses with side shields and a full-face shield as appropriate should be used.</p> <p>Hands: Wear elbow-length gloves of impervious material, PVC or rubber should be suitable.</p> <p>Clothing: Protective overalls, splash apron and rubber boots.</p>

After using this product always wash hands before smoking, eating, drinking or using the toilet.
Wash contaminated clothing and other protective equipment before storage or re-use.

9. Physical and Chemical Properties

Core Information

Appearance:	Clear to straw coloured liquid.
Formula:	Al ₂ (SO ₄) ₃ 14 H ₂ OCl.
Odour:	Odourless.
pH:	2.0 – 2.7.
Vapour Pressure:	No data available.
Vapour Density:	No data available.
Boiling Point:	120°C.
Freezing Point:	-15°C.

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Solubility (in Water):	Miscible.	
Specific Gravity:	1.31 (at 20°C).	
Flash Point:	N/A.	
Flammability Limits (as Percent Volume in Air):	Lower Explosive Limit	N/A.
	Upper Explosive Limit	N/A.
Ignition Temperature:	No data available.	

Additional Information

Specific Heat Value:	No data available.	
Particle Size:	No data available.	
Volatile Organic Compounds Content (VOC):	No data available.	
Viscosity:	No data available.	
Percent Volatile:	No data available.	
Octanol/Water Partition Coefficient:	No data available.	
Saturated Vapour Concentration:	No data available.	
Additional Characteristics:	Insoluble in alcohol.	
Flame Propagation/Burning Rate of Solid Materials:	No data available.	
Properties that may Initiate or Contribute to the Intensity of a Fire:	No data available.	
Potential for Dust Explosion:	N/A.	
Reactions that Release Flammable Gases or Vapours:	No data available.	
Fast or Intensely Burning Characteristics:	No data available.	
Non-Flammables that Could Contribute Unusual Hazards to a Fire:	No data available.	
Release of Invisible Flammable Vapours and Gases:	No data available.	

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Decomposition Temperature: No data available.

Evaporation Rate: No data available.

10. Stability and Reactivity

Chemical Stability:	Stable under normal conditions of storage and handling. In very dilute aqueous solutions, this product may hydrolyse to form some sulphuric acid.
Conditions to Avoid:	Heat-sensitive, avoid exposure to extreme heat and high temperatures. Avoid sources of ignition.
Incompatible Materials:	Mildly corrosive to metals and concrete. Avoid contact with mild steel, acids, sodium hydroxide and other alkalis. Keep away from all foodstuffs.
Hazardous Decomposition Products:	Hazardous decomposition products include sulphur dioxide (SO ₂) and sulphur trioxide (SO ₃) and dilute sulphuric acid.
Hazardous Reactions:	Strong aqueous solutions of aluminium sulphate will readily react with sodium hydroxide and other alkali to form a thick slippery paste or jelly. Mildly corrosive to metals and concrete. Thermal decomposition will produce dilute sulphuric acid.

11. Toxicological Information

Toxicity Data

LD50:	6207 mg/kg (mouse, oral, <i>as solid aluminium sulphate</i>).
LD50:	1930 mg/kg (rat, intraperitoneal, <i>as solid aluminium sulphate</i>).
Neurotoxicity:	Injection of aluminium salts directly into the brain of animals caused functional and structural damage.
Inhalation:	Prolonged inhalation of 2 to 4 mg/m ³ of aluminium sulphate caused scarring of upper lung tissue.

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Acute (short term)

- Ingestion:** May be harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhoea, bleeding stomach, gastrointestinal irritation, incoordination, muscle spasm and kidney damage.
- Eye:** Can cause moderate to severe irritation and inflammation to the eyes.
- Skin:** Can cause irritation to open cuts and wounds.
- Inhalation:** Breathing in mists or aerosols may cause sore throat and coughing, and irritation to the respiratory tract, nose and throat.

Chronic (long term)

- Skin:** Repeated or prolonged exposure may numbness of the fingers.
- Ingestion:** Repeated ingestion of this product may cause phosphate deficiency which can weaken bones.

12. Ecological Information

- Ecotoxicity:** No data available.
- Persistence and Degradability:** No data available.
- Mobility:** No data available.

Additional Information

- Environmental Fate (Exposure):** No data available.
- Bio accumulative Potential:** No data available.
- Other Adverse Effects:** Discharge into the environment must be avoided. Avoid contaminating waterways, drains and sewers.

13. Disposal Considerations

- Disposal Methods:** Dispose of in accordance with all local, state and federal regulations. Refer to appropriate State Waste Disposal Authority. Observe local regulations. After dilution and careful neutralisation, approved liquid waste land fill site may be suitable.
- Special Precautions for Landfill or Incineration:** No data available.

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14. Transport Information

UN Number: None allocated.

UN Proper Shipping Name: Aluminium Sulphate Liquid.

Dangerous Goods Class: None allocated.

Subsidiary Risk: None allocated.

Packaging Group: None allocated.

Special Precautions for User: Irritant.

Hazchem Code: N/A.

15. Regulatory Information

Poisons Schedule: N/A.

EPG: N/A.

AICS Name: Sulphuric acid, aluminium salt (3:2).

Additional information: No data available.

16. Other Information

Revision Details

Date of Issue: 27 March 2012.

Reason for Revision: 5 year review. Updated to a new format. Additional information added.

Literature References

Chemical Rubber Company: Handbook of Chemistry and Physics, 85th Edition.

Safe Work Australia: Hazardous Substances Information System (HSIS) Exposure Standards Data-Base, December 2010.

National Transport Commission: Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7.

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Abbreviations

- CAS Number:** Chemical Abstract Service Registry Number.
- EPG:** Emergency Procedure Guide.
- LD50:** Lethal Dose 50%: The lowest concentration at which approximately 50% of test animals will die when given the specified dose by mouth.
- ADG Code:** Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7.
- AICS Name:** Australian Inventory of Chemical Substances Name.
- OEL:** Occupational Exposure Level.
- N/A:** Not Applicable.

Disclaimer

This Material Safety Data Sheet is offered solely for information, consideration and investigation to determine the suitability of various health and safety precautions as may be required under the user's specific conditions and processes. All such conditions and processes are beyond the control of Omega Chemicals.

The information contained herein is based on data available to Omega Chemicals from both our own technical sources and recognised published references and is believed to be both accurate and reliable. Omega Chemicals however provides no warranties, either expressed or implied, and assumes no responsibility for the accuracy or completeness of this information.

Omega Chemicals reserves the right to revise this Material Safety Data Sheet as information becomes available. The user has the responsibility, by making contact with this company or otherwise to make certain the Material Safety Data Sheet is the latest issue.

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