



POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN - TOMAGO

Issued By: Environmental and OHS

Revision Date: 11/10/2019

Origin Date: 17/01/2012

Rev: 5

CHEMPROD NOMINEES PROPRIETARY LIMITED TRADING AS OMEGA CHEMICALS

109 Enterprise Drive, Tomago NSW 2322

(ENVIRONMENT PROTECTION LICENCE NUMBER: 2491)

Preamble

Omega Chemicals is committed to good environmental management practices. Our operations take care of the environment and we also endeavor all precautions on our client's sites while delivering chemicals. Omega Chemicals operates in accordance with our Environmental Management Systems which was prepared and is maintained in accordance with the requirements outlined in AS/NZS ISO 14001:2004. Omega staff as well as visitors and contractors are required to operate in accordance with our Environmental Policy and Procedures. Staff and contractors are trained in Omega Chemicals requirements as part of the induction program and regular refresher training is provided. Omega Chemicals is continually striving to improve its performance in all areas and aims to comply with applicable environment legislation and environmental permits. We have developed our controlling and prevention procedures in accordance with the Protection of the Environment Operations Act 1997 and frequently make reference to EPA's web site (<http://www.environment.nsw.gov.au>). We seek advice as and when required from EPA NSW.

Activities are carried out in a competent manner which includes:

- (a) the processing, handling, movement, and storage of materials and substances used
- (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated

Purpose of Pollution Response Management Plan

The plan is aimed at:

- ✓ minimizing the incident
- ✓ minimizing the environmental impact
- ✓ operating safely
- ✓ reporting to the relevant authorities
- ✓ safe disposal of waste generated through incident

Environment License

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Reviewed by/date: Hector Peterson 14/10/2019

Approved by: Les Fried MD on 16/10/2019

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Under section 55 of the Protection of Environmental Operations Act 1997, the Tomago Plant has been issued with an Environment licence number 2491 by the Environment Protection Authority (NSW).

Environment Monitoring

The site undertakes annual stack monitoring as part of the sites licence conditions. The stack testing is undertaken by NATA accredited laboratories/consulting organisations. Copies of reports are kept by the site and the Environment & OHS Manager.

Incident Reporting

Pollution incidents causing or threatening material harm to the environment must be notified **immediately** as per recent changes to part 5.7 of the *Protection of the Environment Operations Act 1997* (POEO Act).

A 'Pollution Incident' includes a leak, spill or escape of a substance, or circumstances in which this is likely to occur.

'Material harm' includes on-site harm, as well as harm to the environment beyond the premises where the pollution incident occurred.

Environmental Response

If pollution occurs, all necessary action should be taken to minimize the size and any adverse effects of the release. If the incident presents an immediate threat to human health or property, Fire and rescue NSW, the NSW Police and the NSW Ambulance Services should be contacted first for emergency assistance – phone 000. The other response agencies must still be contacted (EPA NSW, Port Stephens Council, Ministry of Health, WorkCover Authority) after that to satisfy notification obligations.

Omega Chemicals have signed an agreement with ISS First Response to deal with transport related incidents. Omega Chemicals can provide assistance to our customers if incident happens on their site.

Tomago Operations

Production of Liquid Alum T.I.F.

- ❖ The batch manufacturing of liquid aluminium sulphate T.I.F. grade shall be carried out in accordance with quality procedure TNQ-P02.
- ❖ The operation of the scrubber system shall be maintained throughout the whole

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batch cycle ensuring that:

- o the pH of the scrubber liquid is kept at a minimum of 10.
 - o the flow of the scrubbing liquid through the scrubber is monitored by the interlock system and it's associated alarms.
- ❖ The whole scrubber system including fan, pumps, tank and ducts shall be maintained in accordance with the above preventive maintenance procedures.

Production of Liquid Ferric Sulphate

- ❖ The batch manufacturing of liquid ferric sulphate and plant maintenance shall be carried out in accordance with quality procedures TNQ-P03 and TNQ-P11.
- ❖ Operation of the scrubber system shall be maintained throughout the whole batch ensuring that:
 - o the pH of the scrubber liquid is kept at a minimum of 10.
 - o the flow of the scrubbing liquid through the scrubber is monitored by the Plant Manager continually monitors emission throughout the scrubber operation.
- ❖ The whole scrubber system including fan, pumps, tank and ducts shall be maintained in accordance with the preventive maintenance procedures.

Responsibilities

The Environmental & OHS Manager is responsible to ensure that incident related matters have been appropriately and promptly dealt with. This includes reporting to emergency services (Police, Ambulance, Fire and Rescue), if required, and relevant authorities (EPA NSW, Port Stephens Council, WorkCover, Ministry of Health).

The plant Manager is responsible for gathering all incident related information, on-site implementation procedure and carrying out 'Root Cause Analysis'. The Plant Manager to ensure that incident has been reported immediately and procedures undertaken have complied with the licence conditions.

Under the *Protection of the Environment Operations Act 1997* (POEO Act), the following people have a duty to notify a pollution incident occurring in the course of an activity that causes or threatens material harm to the environment:

- (a) the person carrying on the activity
- (b) an employee or contractor or sub-contractor carrying on the activity
- (c) an employer carrying on the activity
- (d) the occupier of the premises where the incident occurs

Notification to the relevant authorities must be given immediately i.e. promptly and without delay, after the person becomes aware of the incident.

Pre-emptive actions

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The site has two spill containment kits to deal with any minor chemical spills. The contents are regularly monitored and replenished. The staff is trained to use spill kit and disposal of contaminated hazardous waste. In case of major spill or loss of containment from storage tank, the site can call the external environment agencies (ISS First Response or Veolia or Transpacific). The details to deal with incidents are given in the Emergency Response Plan (document number: TNE-P02). The site does not have storm water inlet. Fire-extinguishers are kept to put out minor fire.

Communicating with neighbours

The site is located in the industrial/semi-rural suburb of the Port Stephens Local Government Area. Our immediate neighbours are Thomas Coffey and Glad MFG & Sales. The site is surrounded by bushes and there is a very limited habitation. There are no sensitive premises in close proximity. However, the Hazard and Reporting Document outlines need to communicate to neighbours who may be affected as a result of any incident. The type of incident (air, water or land pollution) and the volume shall be reported to the community. In case any incident happens, the neighbours will be notified immediately. Similarly, updates will be notified to the neighbours either by phone or in writing. The contact details for each neighbour are given in the Table 1.

Minimising harm to persons on the premises

Emergency Response Plan provides detailed procedure to deal with an incident vis-à-vis minimal or no harm to the person. It is the policies of the site that all workers on site must wear appropriate PPE (safety boot, glasses and protective clothing) including a helmet. Each visitor /driver is inducted to the site and PPE requirements are applied to all. In case of an incident where evacuation is required, ERP explains evacuation procedure and assembly area (as shown in the site plan). No one is allowed to return until all clear is given by the Warden / Plant Manager. In case of injury to any person, ambulance will be called immediately. If required, First aid can be administered to the affected person.

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Table 1: Relevant Authorities

Below is a listing of the relevant authorities and Omega Chemical personnel that may need to be contacted during or after an incident.

NAME	TITLE	CONTACT
Omega Chemicals Personnel		
Hector Peterson	Plant Manager	02 4964 8105 (B/H) 0439 476 132 (A/H)
Sharad Gupta	National Operations & EHS Manager	8368 8023 (B/H) 0400 226 793 (A/H)
Michael Fried	General Manager	9572 0078 (B/H) 0417 330 593 (A/H)
Les Fried	Managing Director	9572 0078 (B/H) 9578 3812 (A/H)
Owen Train	Fleet Coordinator	03 8368 8006 0417 107 454
Chris Turner	Accounts Manager	03 8368 8003 0432 685 187
Darren Lewis	Fleet Maintenance	03 8368 8029 0481 320 776
Emergencies		
State Emergency Services	Police, Fire Brigade, Ambulance	000
Hospital	Mater Hospital	02 4921 1211
Poisons Information Centre		13 11 26
Chemicals Management Spill and Clean-up		
Orica	Advice on Sulphuric acid Spills	1300 550 036
Transpacifc	Spills & Clean up	02 4967 6600
Velolia	Spills and Clean up	02 4903 4100 (BH) Call Sally 0437 677 487 (AH)
ISS First Response	Transport Spills	1300 131 001 (24hr service)
External Authorities		
EPA (NSW)	Incident reporting	13 15 55 (24hr service)
WorkCover	Incident reporting	02 9370 5000
Port Stephens Council	Incident reporting	02 4980 0255
Ministry for Health NSW	Incident reporting	02 9424 5918
Surrounding & Neighbours		
Western Boundary	Thomas Coffey	02 4964 8747
Southern Boundary	Glade MFG & Sales	02 4964 8077
Eastern Boundary	Omega Oxide Storage	02 4964 8105
Eastern Boundary	J.A.C. Pump Services P/L	0408 492 424
Southern Boundary	Abengoa-Cambell St	0499 993 440

NOTE: The EPA NSW has developed an on-line notification protocol (available at www.environment.nsw.au/pollution/notificationprotocol.htm)

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Emergency Plan

Reference to Emergency Response Plan – Tomago operations (Document no.: TNE-P02)

Table 2: Emergency Plan (Tomago) includes the following incidents:

Type of Emergency / incident	ERP Section	Page
Fire	3.1	4
Minor and major chemical Spills:	3.2	5
Sulphuric acid – Minor Spill	3.2.1	4
Sulphuric acid – Major Spill	3.2.2	4
Liquid Aluminium Sulphate & Ferric Sulphate – Minor Spill	3.2.3	6
Liquid Aluminium Sulphate & Ferric Sulphate – Major Spill	3.2.4	6
Injury - accident involving a fatality or multiple serious injuries.	3.3	8
Explosion- involving structural damage to the facility.	3.4	8
Bomb Threat - made to plant.	3.5	9
Natural Disaster - (e.g. severe storm, earthquake, flood) resulting in structural damage that interrupts business operations.	3.6	9
Riot - A Riot or strike that threatens life and/or property.	3.7	9
Water, Storm water & Sewage	3.8	10

In case of an emergency, the responsible person (the Plant Manager or the operator) is required to refer to the above plan and act accordingly.

Table 3: Inventory of pollutants

A. Inventory of Dangerous Chemicals Stored in Bulk

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Container ID	Material of Construction	Chemical Name	UN No.	Class	PG	Capacity (Litres)
Depot 1	Mild Steel	Sulphuric acid	1830	8	II	22,000
Depot 2	Mild Steel	Sulphuric acid	1830	8	II	55,000
Depot 3	Polypropylene	Sodium hydroxide	1824	8	II	37,000
Depot 5 & 6	Mild Steel	Ferric Sulphate Solution	1760	8	II	60,000
Depot 1	IBC	85% Phosphoric acid	1805	8	III	12,000
Factory	Pit	Processed / contaminated water	N/A	N/A	N/A	80,000
M1 & M2	Fiber Glass	Megapac 10 & 23	N/A	N/A	N/A	50,000
Silo	Mild Steel	Alumina Powder	N/A	N/A	N/A	100 tonnes

B. Packaged Dangerous Goods

Area	Chemical name	UN Number	Class	PG	Maximum Quantity
Depot 7	Sodium Hydroxide Solution	1824	8	II	5,000 L
	Zinc Chloride Solution	1840	8	II	2,000 L
	Ferric Chloride Solution	2582	8	II	60,000 L
	Sulphuric acid >50%	1830	8	II	10,000 L
Warehouse	Zinc Chloride	1840	8	III	950 kg
	Sodium Chlorite Solution	1908	8	II	2,000 L
	Sodium Hypochlorite Solution	1791	8	III	8,000 L
	Citric Acid	N/A	N/A	N/A	40 tons

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	Alum	N/A	N/A	N/A	50 tons
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6-8 Gas cylinders are also kept on the premises to operate forklifts.

Actions to be taken during or immediately after a pollution incident

Refer to the Emergency Response Plan which explains the detailed procedure to handle an incident. A generic description is given below which applies to most of the incidents:

- ❖ Assess the incident – Type of chemical, minor or major spill
- ❖ Wear appropriate PPE to deal with chemical
- ❖ Communicate with site personnel and neighbours (if required)
- ❖ Call emergency services as required
- ❖ Try to contain pollutant using spill kit if safe to do so
- ❖ Clean up the whole affected area
- ❖ Fill out details of the incident in the Hazard and Incident Reporting Form
- ❖ Notify to the Omega management team
- ❖ Notify relevant external authorities as listed in the Table 1
- ❖ Conduct “Root Cause Analysis” if required
- ❖ Dispose of solid or liquid waste in accordance with the operational procedures and as given in ERP
- ❖ Address identified actions as emerged out of “Root Cause Analysis”

Material and Safety Data Sheet

All Material Safety Data Sheets (MSDS) for all the dangerous goods kept on the premises are located in the:

- Manifest Box
- Register of Hazardous Chemicals / MSDS - filing cabinet
- MSDS are also included in the Driver’s manual to deal with transport related incident or incident which can happen at the customer’s site

Personal Protective Equipment (PPE)

Omega Chemicals shall use PPE where there is an area or task within a workplace that has been identified as posing an unacceptable risk to unprotected employees or contractors.

As such the basic PPE requirements shall be safety boots with steel caps, safety glasses with side shields, long pants and high visible vest. All employees or contractors must wear the above protective equipment at all times in the plant. For handling corrosives substances, the required PPE shall be goggles, hard hat, rubber gloves, full PVC suit and face shield.

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PPE is kept at various locations within the factory premises including all places where work related to chemical handling are carried out, in the control room and general administrative offices.

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Preliminary Risk Assessment

Qualitative Risk Assessment Criteria

The qualitative risk assessment criteria have been developed to identify key risks to the environment, society, heritage and business reputation. The criteria are based on a risk assessment matrix consistent with *Australian Standard AS4360 on Risk Management (AS4360)*. The qualitative assessment of risk severity and likelihood (refer to tables 4.1 To 4.3) were used to help provide a general assessment of the risks to the environment and community. The overall risk level was determined by using the matrix in Table 4.3.

Table 4.1 – Qualitative Measures of Environmental Consequences

Severity Level	Natural Environment	Legal/Government	Heritage	Community / Reputation/Media
(1) Insignificant	Limited damage to minimal area of low significance	Low-level legal issue. On the spot fine. Technical non-compliance prosecution unlikely. Ongoing scrutiny/attention from regulator	Low-level repairable damage to common-place structures.	Low level social impacts. Public concern restricted to local complaints. Could not cause injury or disease to people.
(2) Minor	Minor effects on biological or physical environment. Minor short-medium term damage to small area of limited significance.	Minor legal issues, non-compliance and breaches of regulation. Minor prosecution or litigation possible. Significant hardship from regulator.	Minor damage to items of low cultural or heritage significance. Mostly repairable. Minor infringement of cultural heritage values	Minor medium-term social impacts on local population. Could cause first aid injury to people. Minor, adverse local public or media attention and complaints.
(3) Moderate	Moderate effects on biological or physical environment (air, water) but not affecting ecosystem function. Moderate short-medium term	Serious breach of regulation with investigation or report to authority with prosecution or moderate fine possible. Significant difficulties in gaining future approvals.	Substantial damage to items of moderate cultural or heritage significance. Infringement	Ongoing social issues. Could cause injury to people, which requires medical treatment. Attention from regional media and/or heightened concern by local community. Criticism by Non-Government

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	widespread impacts (e.g. significant spills)		nt or cultural heritage/sc ared locations.	Organisations (NGO). Environmental credentials moderately affected.
(4) Major	Serious environmental effects with some impairment of ecosystem function. Relatively widespread medium-long term impacts	Major breach of regulation with potential major fine and/or investigation and prosecution by authority. Major litigation. Future projects approval seriously affected.	Major permanent damage to items of high cultural or heritage significance. Significant infringement and disregard of cultural heritage values.	On-going serious social issues. Could cause serious injury or disease to people. Significant adverse national media/public or NGO attention. Environmental/management credential significantly tarnished.
(5) Catastrophic	Very serious environmental effects with impairment or ecosystem function. Long-term, widespread effects on significant environment (e.g. national parks).	Investigation by authority with significant prosecution and fines. Very serious litigation, including class action. Licence to operate threatened.	Total destruction of items of high cultural heritage. Highly offensive infringement of cultural heritage.	Very serious widespread social impacts with potential to significantly affect the well-being of local community. Could kill or permanently disable people. Serious public or media outcry (international coverage). Damaging NGO campaign. Reputation severely tarnished.

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Table 4.2: Qualitative Measures of Likelihood

Level	Descriptor	Description	Guideline
A	Almost certain	Consequence is expected to occur in most circumstances	Occurs more than once per month
B	Likely	Consequences will probably occur in most circumstances	Occurs once every 1 month – 1 year
C	Occasionally	Consequences should occur at some time	Occurs once every 1 year – 10 years
D	Unlikely	Consequences could occur at some time	Occurs once every 1 year – 100 years
E	Rare	Consequences may only occur in exceptional circumstances	Occurs less than once every 100 years

Source: AS/NZS 4360:2004 Risk Management

Table 4.3: Qualitative Risk Matrix

Likelihood of the consequence	Maximum Reasonable Consequence				
	(1) Insignificant	(2) Minor	(3) Moderate	(4) Major	(5) Catastrophic
(A) Almost Certain	11 High	16 High	20 Extreme	23 Extreme	25 Extreme
(B) Likely	7 Moderate	12 High	17 High	21 Extreme	24 Extreme
© Occasionally	4 Low	8 Moderate	13 High	18 Extreme	22 Extreme
(D) Unlikely	2 Low	5 Low	9 Moderate	14 High	19 Extreme
(E) Rare	1 Low	3 Low	6 Moderate	10 High	15 High

Source: AS/NZS 4360:2004 Risk Management

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Table 5: Environmental Hazards, Risk Assessment and controls (Aspects Register)

Issue No.	Activity/Issue	Environmental Aspect	Environmental Impact	Environmental action	Current control	Consequence	Likelihood	Risk
TN 001	Washing of road tankers	Generation of wastewater	Soil contamination Potential groundwater contamination Waste disposal. Resource usage (water) Regulatory compliance Potential offsite migration	To direct all tanker wash water to the effluent pit	Wash water from road tankers is discharged to the effluent pit	2	D	L
TN 002	Washing of road tankers	Acid mist emission	Air quality Potential regulatory compliance Offsite migration	To limit, as far as is practicable, the discharge of acid fumes when washing road tankers	Prior to washing, all possible Sulphuric acid is pumped out of the tanker, minimising residue that will react with the wash water. Wash water from road tankers is discharged to the effluent pit	2	D	L
TN 003	Transfer of sulphuric acid to digester	Acid mist emission	Air quality Offsite migration of contaminants Potential infringement of licence conditions	To ensure emissions during acid addition are maintained below the maximum level specified in the environmental licence	The emission from the digester is passed through a single chamber scrubber with alkali scrubbing liquor.	1	D	L

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					<p>The pH of the scrubber liquor is tested prior to the acid addition and is maintained above 10 at all times to ensure effective operation of the scrubber.</p> <p>The flow rate of acid during the acid addition is maintained at approximately 115 litres per minute</p>			
TN 004	Transfer of hydrate into digester	Acid mist emission	<p>Air quality</p> <p>Offsite migration of contaminants</p> <p>Potential infringement of licence conditions</p>	<p>To ensure emissions during hydrate addition are maintained below the maximum level specified in the environmental licence</p>	<p>The emission from the digester is passed through a single chamber scrubber with alkali scrubbing liquor.</p> <p>The pH of the scrubber liquor is tested prior to the acid addition and is maintained above 10 at all times to ensure effective operation of the scrubber.</p> <p>The operator stops the feed of hydrate if excessive steam is emitted during</p>	2	C	M

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					the addition of hydrate			
TN 005	Damaged concrete in loading bay	Discharge to soil	Potential contamination of soil and groundwater Potential offsite migration Potential infringement of licence conditions	To prevent offsite migration of contaminants and on site contamination of soil	Loading bay is connected to the effluent pit by an underground pipeline	1	D	L
TN 006	Loading and unloading of bulk chemicals	Potential spillage	Potential contamination of soil and groundwater Potential offsite migration. Potential infringement of licence conditions	To avoid spillage of material during loading and unloading of road tankers and, should a spillage occur, contain the spill on site	Loading/unloading of road tankers is carried out in the loading bay which drains to the effluent pit. The level of the effluent pit is maintained such that there is enough capacity to contain a minimum of 110% of the largest tanker compartment. Loading/unloading is supervised by the tanker driver or a competent staff member. Drivers are competent in the loading of	2	C	M

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					tankers by way of training and/or previous experience			
TN 008	Loading/unloading vehicles on driveway	Potential spillage	Potential contamination of soil and groundwater Potential offsite migration. Potential infringement of licence conditions	To ensure that spillage of material is avoided during loading/unloading and, where spillage occurs, material is prevented from migrating offsite	Forklift operators are instructed to exercise due care when loading/unloading chemicals. Any spilled material is promptly cleaned up	1	B	M
TN 009	Storage of ferric chloride in shed	Potential leakage	Potential waste disposal. Potential offsite migration. Potential infringement of licence conditions	To ensure that ferric chloride is not spilled on site and that any spillage is promptly cleaned-up and properly disposed of.	IBCs used for the storage of ferric chloride are inspected upon return and damaged containers are removed from service. The storage shed has a grated drain around it's internal perimeter that discharges to the effluent pit	1	D	L
TN 010	Scrubber operation	Discharge to air	Air quality. Offsite migration. Compliance with regulations	To ensure that emissions from the scrubber stack comply with the requirements of the environmental license	The pH of the scrubber liquor is tested prior to the addition of acid to the batch. Soda ash is	2	D	L

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Revision Date: 11/10/2019

Origin Date: 17/01/2012

Rev: 5

					added to the scrubber liquor if the pH recorded is below 10. The flow of liquor through the scrubber is visually monitored throughout the hydrate addition. Emissions from the scrubber are monitored annually by an approved consultant in accordance with regulatory guidelines.			
TN 011	Storage of IBCs under awning	Potential spillage	Potential stormwater contamination Potential waste disposal. Potential offsite migration. Potential infringement of licence conditions	To ensure that no material is spilled from IBCs and, should a spill occur, that no spilled material is permitted to migrate offsite	IBCs that are damaged are removed from service. Forklift drivers are instructed to exercise due care when handling IBCs (especially when full)	1	D	L
TN 012	Storage of granular alum in the shed	Leakage of packaging	Resource usage Waste disposal	To minimise the amount of material spilled in the shed and to ensure that any spilled material is promptly repackaged	Forklift drivers are instructed to take care when stacking and transferring pallets. Damaged bags are promptly	2	D	L

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Reviewed by/date: Hector Peterson 14/10/2019

Approved by: Les Fried MD on 16/10/2019

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				or reprocessed	repaired or the material is repackaged into new bags. Stock rotation ensures that once placed, pallets are not moved until dispatched. Spilled material is promptly swept up and reprocessed through the alum plant			
TN013	Storage of bulk liquid chemicals	Potential leak from storage tanks	Potential offsite migration. Compliance with regulations	To ensure that all bulk chemical storage tanks have appropriate secondary containment	Sulphuric acid is stored in one tank of 250 tonne capacity respectively. The tank is located inside a bund and can be drained via a common valve to the effluent pit. The acid tank is subjected to ultrasonic thickness testing every three years to ensure they remain suitable for storage of sulphuric acid. The scrubber liquor tank and the alum	2	D	L

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					<p>storage tanks are located in the same bund</p> <p>The alum digester is located in a bund that has a drain valve, enabling any spilled material to drain to the effluent pit. This valve is padlocked in the closed position and is replaced immediately once the bund is drained.</p>			
TN014	Alum and Ferric Sulphate Batching - Acid dilution.	Acid mist emission	Discharge to air Compliance with regulations	To comply with the emission criteria set by the regulatory authority and avoid offsite impacts	A wet scrubber is employed to neutralise acid mist in the exhaust from the alum and ferric sulphate digesters. The scrubber liquor is recirculated from a tank which is dosed with soda ash. In order to maintain effective scrubbing of the exhaust gas, the pH of the scrubber liquor is tested prior to each batch	2	C	M

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					and maintained at or above pH 10			
TN015	Ferric Sulphate Batching - Placement of iron oxide alongside factory pending use	Spillage to ground	Soil contamination, potential groundwater contamination. Compliance with regulations	To avoid spilling material on unpaved areas or areas that discharge off site	A slurry tank has been purchased and installed. In addition, a storage facility for the iron oxide has been built on the adjacent site. This will enable the iron oxide to be added to the process without the need for storage in the unpaved area	1	D	L
TN016	Chemical Storage - Transfer of iron oxide from storage to Omega Chemicals site	Spillage on road	Offsite discharge	To prevent spillage of chemicals beyond Omega Chemicals property boundary	The iron oxide is stored in a storage facility and can be inducted to the process without leaving Omega Chemicals site	1	E	L
TN017	Chemical Storage - Storage of bulk liquid chemicals.	Potential leak to ground	Potential soil and groundwater contamination.	To eliminate potential for spillage or leak from bulk tanks contaminating soil and groundwater	All storage tanks are bunded. Reaction vessels are also located in bunded areas. Spillage outside the bunded area drains to the effluent pit. All bunds are drained into the effluent pit from	2	D	L

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					which the water is recycled into the alum process. All bulk storage tanks are visually inspected and some are ultrasonically tested to determine their wall thickness and overall integrity. Those tanks requiring ultrasonic testing are tested each three years or earlier if required.			
TN018	Waste Management - Storage of used pallets on the unpaved area.	Rainwater may carry chemical residues to the ground	Soil contamination, potential groundwater contamination	To avoid contamination of soil from empty pallets	Pallets stored in storage facility when not in use	1	E	L
TN019	Waste Management - Use of bulk bags for hydrate and iron oxide	Disposal of bags to landfill	Waste disposal. Resource usage.	To minimise solid waste production	Alumina hydrate storage facility installed on site.	1	E	L
TN020	Decanting chemicals into IBCs	Potential spillage	Waste disposal	To ensure that any chemicals spilled during filling of IBC's is managed appropriately and that spills are avoided in the first instance	Decanting of chemicals into IBC's is carried out in the vehicle loading bay from which any accidentally spilled	2	C	M

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					material can be directed to the effluent pit. The decanting hose is fitted with a shut off valve and the hose is drained into the vessel upon completion. The hose is washed in the loading area after use			
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TRAINING / Drill

Regular training sessions shall be held during which the Pollution Response management Plan will be applied.

The plan shall be reviewed and updated following the training / drills, if necessary.

References

1. Protection of the Environment Operations Act 1997 (POEO Act)
2. Protection of the Environment Legislation Amendment Act 2011 (Amendment Act)
3. www.environment.nsw.gov.au
4. www.legislation.nsw.gov.au
5. Emergency Response Plan – Tomago Operations (TNE-PO2)
6. EPA NSW – Environmental guidelines
7. Environment Operating procedures – Tomago Plant (TNE-P01, TNE-P03, TNE-F02)
8. Manufacturing Procedures (TNQ-P02, TNQ-P03)

Current review date	11 th October 2019
Previous review Date	8 th October 2013
Revised by	Sharad Gupta
Reviewed by	Hector Peterson
Approved by	Les Fried

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