1. PURPOSE

The purpose of this Pollution Incident Response Management (PIRMP) is to describe Industrial Galvanizers' response to a potential pollution incident and to meet requirements of the Protection of Environment Operations Act 1997.

2. SCOPE

The plan covers the site operated by Industrial Galvanizers Pty Ltd located at Lot 2 Shellharbour Road, Port Kembla, NSW.

3. SITE DETAILS

Table 3-1 describes the subject site. The site is located in an established heavy industrial area of Port Kembla, NSW, located approximately 10km south of central Wollongong.

Table 3-1 Site Details

Item	Details
Site Name	Industrial Galvanizers (Port Kembla)
Site Owner	Industrial Galvanizers Corporation Pty Ltd
Site Address	Lot 2 Shellharbour Road, Port Kembla
Local Government Authority	Wollongong City Council
Current Zoning	Industrial Use
Site Area	Approximately 25,000m^2
Site Elevation	Approximately 0 - 5m AHD

The location of the site in a local context is shown in Figure 3-1.

3.1 Neighboring Land Uses

Land use of abutting properties to the west and south of the site is also industrial. The northern and eastern boundaries abut Coomaditchy Lagoon Reserve and the former landfill. Table 3-2 describes the neighbors immediately adjacent to the site, provided to assist in the effective communication of issues which may extend past the site boundary.

Table 3-2 Details of Neighboring Properties

No	Name	Location (relative to PK site)	Phone
1	Dean Industrial Pty Ltd	West Boundary	4276 1599
2	AE Baker	North/West Boundary	4274 2069
3	South Coast Equipment	South/West Boundary	4274 9077

3.2 Proximity to Local Sensitive Receptors

Potentially sensitive ecological and human receptors for the Industrial Galvanizers (Port Kembla) site have been identified as follows:

A. Ecological receptors:

- The underlying groundwater;
- Coomaditchy Lagoon Reserve;

B. Human Receptors:

- Neighboring properties.

3.3 Key Activities & Processes

3.3.1 Hot Dip Galvanizing

Galvanizing is a process undertaken to coat ferrous metals and metal products in a layer of zinc to prolong their life. The metal to be coated requires pre-treatment prior to being immersed into the zinc bath in order to remove rust, grease and other materials, and therefore to promote the galvanizing process.

Pre-treatment can include treatment of the metal with an alkaline degreasing solution, an acid pickling solution, water rinse, and a pre-flux solution. The pre-flux solution is usually comprised of zinc ammonium chloride ($ZnCl_2.3NH_4Cl$), and is used to promote the zinc-metal bond.

After pre-treatment, the metal is immersed in molten zinc followed by a quench bath.

Figure 3-2 shows a basic galvanizing flow diagram and expected emission points.

3.3.2 Chemical Storage and Handling

A number of chemicals are required for the galvanizing process and these are stored and handled on site. Some of the chemicals required for the process do not require storage at the site and these chemicals are delivered, as required, to site by bulk tanker and transferred directly to the appropriate process chemical tank.

For those chemicals that require storage on site, the chemical storage and processing areas comply with the relevant legal requirements and are maintained with the minimum storage quantities required to maintain operations.

Where bulk liquid chemicals are stored in the process tanks within the galvanizing building, the tanks are located within bunded areas so that any spills or drips from the tanks can be contained. Where drums and other packaged chemicals are stored, all liquid chemicals in drums are stored on spill control pallets.

Figure 3-1: Local Context of Port Kembla Site showing significant neighboring properties
Source: Google Earth.

Other measures implemented where chemicals are stored and handled include:

- Equipment for the cleanup of reasonably foreseeable spills or leaks of chemicals are kept on site and readily accessible;
- Placarding and signage for the site includes "HAZCHEM" outer warning placards and placards for all of the bulk processing tanks and packaged chemical storage areas.
- Material Safety Data Sheets (MSDS) for all substances stored and handled on the site are obtained and maintained up to date.
- All personnel responsible for chemical storage and handling activities are trained in the safe storage and handling of chemicals.

3.3.3 Chemical Deliveries and Disposals

Chemical deliveries to the site take place in a couple of different ways. Some chemicals may be delivered to site in packages, i.e. drums, intermediate bulk containers (IBC's) or in solid form in the form of 25kg bags.

There are also specific bulk deliveries of process chemicals that are carried out in a designated chemical transfer area where there is a provision for emergency spill containment.

Disposal of waste process solutions and delivery of bulk liquid chemicals will be carried out approximately every three to four weeks. Other waste disposal activities such as process sludge disposal are expected to take place at approximately six monthly intervals.

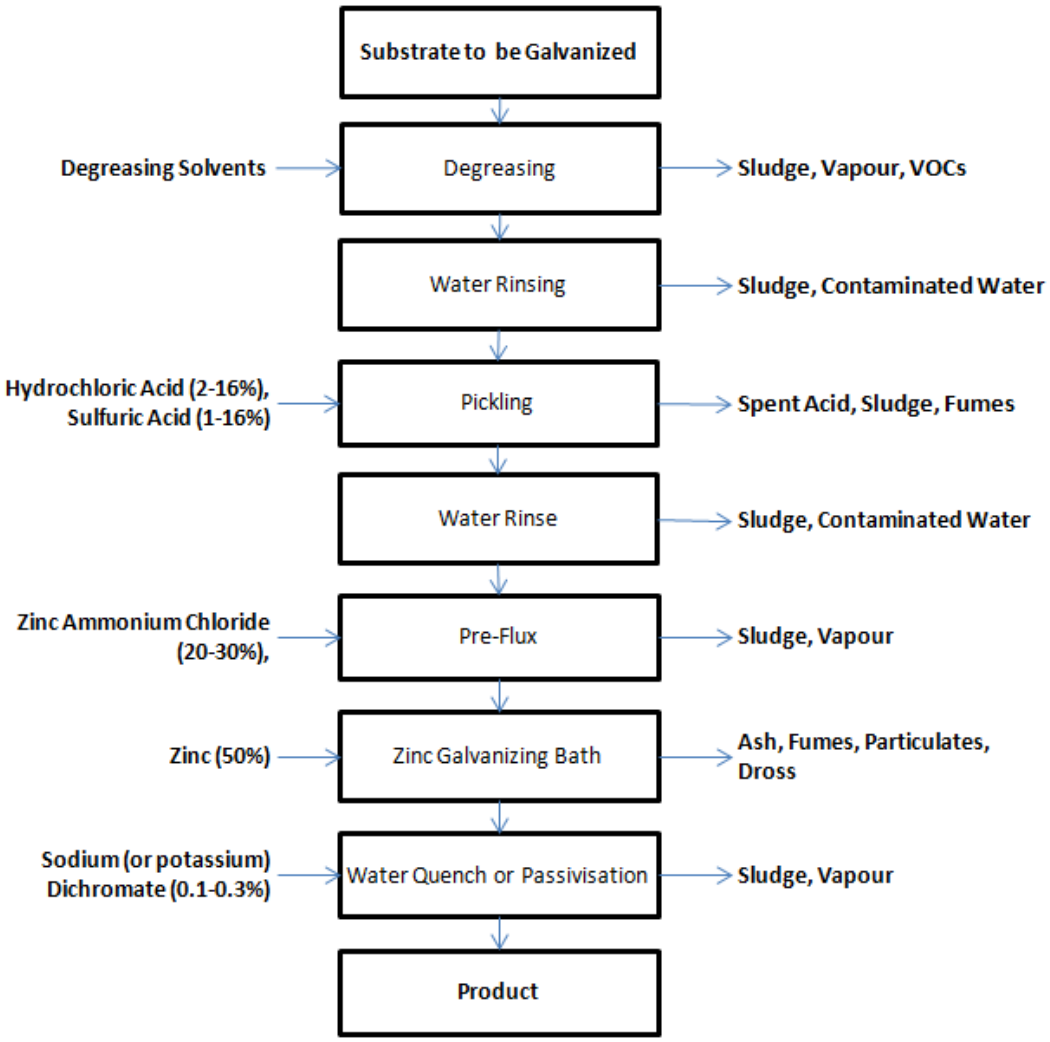
The area used for bulk chemical solution deliveries and disposals is a dedicated transfer area. The floor in this area is sloped so that any minor spillages will be directed to a collection sump.

3.3.4 Typical Emissions

Galvanizing generally produces emissions to air as well as waste. Hydrochloric acid fumes may be emitted from process tanks, while ammonia and ammonium chloride emissions to air can occur from the pre-flux solution and during the immersion of steel into the galvanizing bath.

Waste liquids may be generated from spent pre-treatment solutions and from quenching activities after galvanizing. Waste liquids are controlled on site and transferred off-site under a trade waste agreement or via approved waste disposal contractors (i.e. no emissions are expected).

The galvanizing process also generates solid wastes. Solid wastes include a zinc oxide ash that is periodically removed from the surface of the galvanizing bath and zinc iron alloy dross removed from the bottom of the galvanizing bath, as well as solids in spent solutions and wastewater treatment sludge.



Source: Queensland Department of Environment and Heritage, 1998.

Figure 3-2: The basic galvanizing process steps and likely emission points

3.3.5 Auszinc Operations

AusZinc purchases, stores and recycles zinc residues generated by the galvanising industry. Products from this operation include various zinc oxide grades for use in the refining and agricultural industries. A flow chart showing the basic processing steps of the zinc recycling process is shown in Figure 3-3.

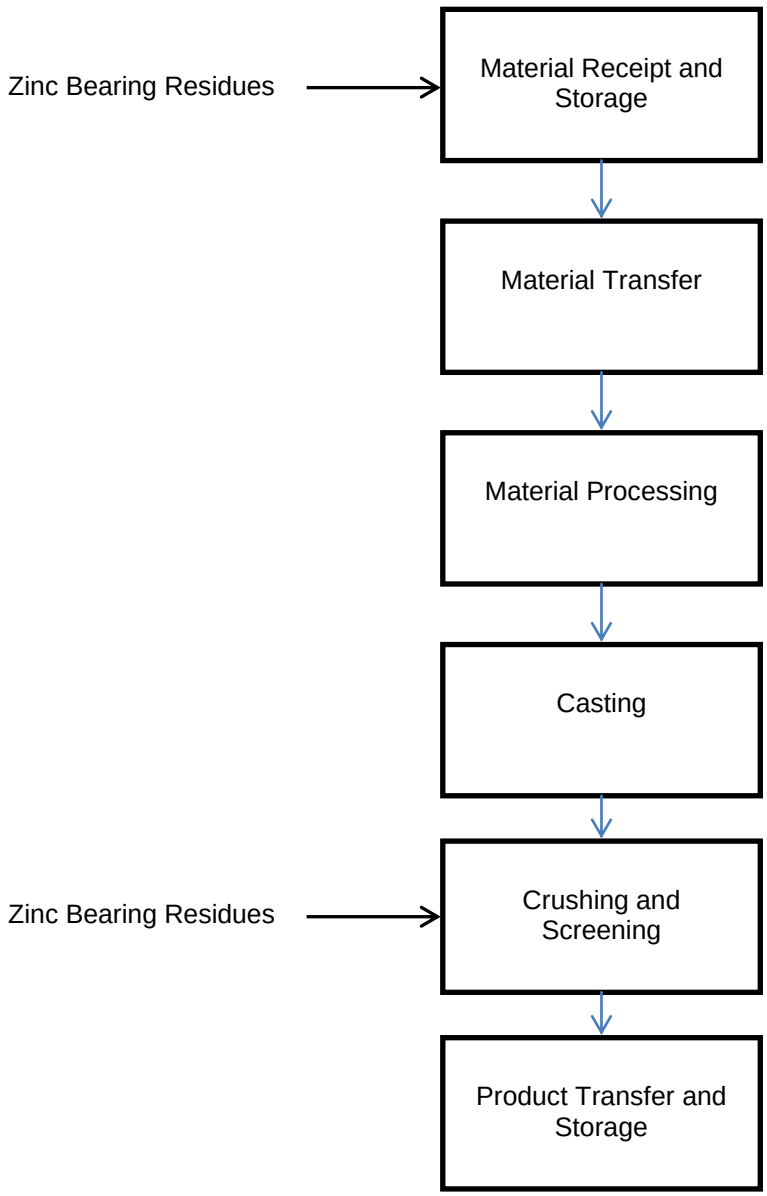


Figure 3-3: The basic zinc residue recycling process

4. RISK IDENTIFICATION

The following documents have been used to assist in the preparation of this PIRMP.

- EPA Guidelines – Preparation of Pollution Incident Response Management Plans
- Protection of the Environment Legislation Amendment Act 2011 (POELA Act)
- Environmental Aspects and Impacts Register
- Emergency Procedures Manual
- Dangerous Goods Manifest

4.1 Risk Assessment Process

The environmental risk assessment identifies aspects that may cause a risk of harm to the environment and assesses the level of impact. Environmental risk assessments are used for determining the significance of impacts on the environment and the sensitivity associated with the impact. The process of risk assessment is explained below.

1. Determine the level of impact (Health and Safety OR Environmental) and the level of "Sensitivity" of that incident occurring

Add the level of impact and the sensitivity,

	0	1	2	3	4	5
Heath and Safety (injury)	No injury.	Minor injury or first aid needed. No time lost.	Moderate injury requiring <7calendar days absence from work.	Significant injury >7 to <31 calendar days absence from work.	Serious injury resulting in more than 31 days absence from work.	Fatality or permanent disability.
Environment (impact)	No impact.	Minor environmental damage. Contained on worksite and quick clean up possible.	Moderate environmental impact. Issue affects more than just the worksite. Quick clean up possibe	Significant local impact on or off the worksite which will require a longer term clean up.	Major but reversible environmental damage. Full clean up will be extremely difficult and expensive.	Catastrophic and irreversible environmental damage. Full cleanup is not possible.
Sensitivity	No Repercussions.	Minor adverse local attention or complaints.	Attention from local media or heightened local concern. Non-compliance with regulatory and licence requirements.	Significant adverse attention from national media/local govt. Significant breach of legislation with report to authority/fine.	Serious public/media outcry (international coverage). Major breach of regulations with litigation, potential criminal charges or major compensation implications.	International condemnation. Very serious breach. Prosecution including class actions and/or potential culpability/manslaughter implications. Loss of licence to operate.

2. **Assess the likelihood of that impact and sensitivity occurring from 1 to 5**

3. **Using the table below, line up the relevant consequence witb the proposed frequency**

   (I.e. Likelihood "3", Consequence "7", would equal "21" or High Risk

			CONSEQUENCE (injury/impact + sensitivity)									
			Minor 1	**Minor 2**	**Moderate 3**	**Moderate 4**	**Significant 5**	**Significant 6**	**Major 7**	**Major 8**	**Catastrophic 9**	**Catastrophic 10**
FREQUENCY	5	**Almost certain to happen** (everyday or weekly event)	**LOW risk score 5**	**LOW risk score 10**	**MEDIUM risk score 15**	**MEDIUM risk score 20**	**HIGH risk score 25**	**HIGH risk score 30**	**EXTREME risk score 35**	**EXTREME risk score 40**	**EXTREME risk score 45**	**EXTREME risk score 50**
	4	**Very likely to happen** (typically once a month)	**LOW risk score 4**	**LOW risk score 8**	**MEDIUM risk score 12**	**MEDIUM risk score 16**	**HIGH risk score 20**	**HIGH risk score 24**	**HIGH risk score 28**	**HIGH risk score 32**	**EXTREME risk score 36**	**EXTREME risk score 40**
	3	**Moderately possible** (prior history of occurrence in process - typically 1 per yr)	**LOW risk score 3**	**LOW risk score 6**	**LOW risk score 9**	**LOW risk score 12**	**MEDIUM risk score 15**	**MEDIUM risk score 18**	**HIGH risk score 21**	**HIGH risk score 24**	**HIGH risk score 27**	**HIGH risk score 30**
	2	**Unlikely** (typically once in 5 yrs)	**INSIGNIFICANT risk score 2**	**INSIGNIFICANT risk score 4**	**LOW risk score 6**	**LOW risk score 8**	**MEDIUM risk score 10**	**MEDIUM risk score 12**	**MEDIUM risk score 14**	**MEDIUM risk score 16**	**HIGH risk score 18**	**HIGH risk score 20**
	1	**Rare / Practically impossible** (typically once in 25yrs)	**INSIGNIFICANT risk score 1**	**INSIGNIFICANT risk score 2**	**INSIGNIFICANT risk score 3**	**INSIGNIFICANT risk score 4**	**LOW risk score 5**	**LOW risk score 6**	**MEDIUM risk score 7**	**MEDIUM risk score 8**	**MEDIUM risk score 9**	**MEDIUM risk score 10**

4.2 Hazard Identification

The major activities and/or hazards that could cause potential significant pollution type incidents on this site will include:

Emergency Fire Situation

In the event of a major fire on site, there is the potential risk of the inner lining of the tanks within the galvanizing building being damaged, leading to a large scale chemical spill on site and corrosive and toxic fumes. The risk of offsite release is a potential, although the tanks are located within a spill containment bund. The likelihood of this situation eventuating is rare.

Chemical and Waste Storage and Handling

The storage and handling of solid and liquid wastes on site generate the potential for a spillage of these wastes during storage and handling. The resultant spill may generate the potential for soil and groundwater impact; however the likelihood of this risk has been assessed as rare.

4.3 Emergency Response Equipment

The site maintains the following:

- Spill kits
- External spill control assistance (Transpacific Industries)
- Fire extinguishers
- Fire hose reels
- Water pumps

4.4 Inventory of Potential Pollutants – including maximum storage volume

Substance	Class	Sub Risk	UN No.	Pack Group	Hazchem Code	Maximum Storage Volume (kL)
Sodium Hydroxide Solution (approx. 12%)	8	N/A	1824	II	2R	23kL
Hydrochloric Acid Solution	8	N/A	1789	II	2R	120kL
Corrosive Liquid, Acidic, Inorganic, N.O.S	8	N/A	3264	III	2X	25kL
Water reactive solid, Toxic NOS	4.3	N/A	3134	III	4Y	1000 tonne
Diesel Fuel	C1	N/A	00C1			2kL

5. INCIDENT RESPONSE PROCEDURE

The nature and direction of the incident will determine the most appropriate neighbors to be notified as per Section 3.

Notification of neighbors will be conducted via telephone or knocking on door if contact cannot be made via telephone.

5.1 Immediate Incident Response Procedure

5.1.1 Employee Procedure

<table>
<tr><td>Safety First</td><td colspan="3">• Care for workers - Evacuate Area,
• Care for the Environment – e.g. Contain spills, put out fires; ONLY if safe to do so</td></tr>
<tr><td rowspan="4">Treatment</td><td colspan="3">Provide First Aid or Medical Treatment, if required</td></tr>
<tr><td>Dr: M.J. O’Halloran</td><td>Dr: M.J. O’Halloran</td><td>Dr: M.J. O’Halloran</td></tr>
<tr><td>Ambulance:</td><td>Ambulance:</td><td>Ambulance:</td></tr>
<tr><td>Hospital:
WOLLONGONG</td><td>Hospital:
WOLLONGONG</td><td>Hospital: WOLLONGONG</td></tr>
<tr><td>Minor Spills</td><td colspan="3">• Stop the source of the spill immediately if it is safe to do so
• Contain the spill (Spill Kits) and control its flow from the site
• Report the spill to the NSW Operations Manager or SITE Operations Manager if pollution has escaped the site or if the spill has potential to harm the environment
• Be safe rather than sorry; Report any pollution incident no matter how small, to the Manager</td></tr>
<tr><td>Major Spills</td><td colspan="3">• For large-scale hazardous spills call NSW Fire and Rescue immediately on 000 zero.
• Control pollution flow from the site where possible
• Report the spill to the NSW Operations Manager or SITE Operations Manager if pollution has escaped the site or if the spill has potential to harm the environment
• Call Transpacific Industries (TPI) with details of spill so their emergency response crews can assist. 1800 774 557 (24hr Emergency Response Hotline)
• Call Key People listed below in order</td></tr>
<tr><td rowspan="7">Notify Key People</td><td colspan="3">Key people to be notified – work down the list until contact is made verbally</td></tr>
<tr><td>Plant Manager</td><td></td><td>Phone:</td></tr>
<tr><td>Operations Supervisors</td><td></td><td>Phone:</td></tr>
<tr><td>General Manager</td><td></td><td>Phone:</td></tr>
<tr><td>Engineering Manager</td><td></td><td>Phone:</td></tr>
<tr><td>OHSE Manager</td><td></td><td>Phone:</td></tr>
<tr><td>Sales & Trading Manager</td><td></td><td>Phone:</td></tr>
<tr><td>Media Relations</td><td colspan="3">In the event of any pollution related incident, ONLY the General Manager or his delegate are authorized to make any statements to the media or public.</td></tr>
</table>

5.1.2 Management Procedure

1. The **GENERAL MANAGER** is responsible for notifying the authorities and neighbors in order as listed below.
2. If the General Manager is not available or immediately contactable, the **PLANT MANAGER** shall be the person to take the responsibility for notifying the authorities immediately.
3. In the event that the GM or PLANT MANAGER are both not available or contactable, the **OPERATIONS SUPERVISORS** shall be the person to take the responsibility for notifying the authorities immediately.
4. Upon receipt of information regarding any pollution related incident on site, the PLANT MANAGER or Operations Supervisors must notify the **GENERAL MANAGER IMMEDIATELY.**
5. **Last resort,** the responsibility to call the relevant authorities will reside with the HSE Coordinator or the Maintenance Manager in the event the GM, the Operations Manager and the Site Operations Manager have not been contactable.
6. In the event of a major incident on site, **ONLY** the General Manager or his delegate, shall be authorized to make any statements to the media or public.

SITE MANAGEMENT TEAM		**AUTHORITIES TO NOTIFY OF POLLUTION INCIDENTS**
General Manager	**Phone:**	**Environment Protection Authority (EPA)** **Tel: 131 555**
Plant Manager	**Phone:**	**Public Health Unit** **Tel: (02) 9391 9000**
Operations Supervisor	**Phone:**	**WorkCover NSW** **Tel: 131 050**
Engineering Manager	**Phone:**	**Wollongong Council** **Tel: (02) 4227 7111**
OHSE Manager	**Phone:**	**Fire and Rescue NSW** **Tel: 000**

6 TRAINING AND TESTING

6.1 Training Requirements

- All new employees are to receive a site induction that introduces the Environmental Policy, objectives and targets, environmental responsibilities and key environmental management rules and policies.
- All personnel are to be re-inducted at regular intervals, including team leaders and supervisors.
- Key emergency response personnel are to be provided with spill control training at least once every two years, or more frequently if emergency team members change.
- Toolbox sessions shall cover Environmental matters covering a variety of relevant topics at regular intervals. Toolbox sessions should also cover any environmental incidents recorded and reported.
- Environmental work instructions must be communicated to all employees so that employees have an understanding of relevant environmental management procedures relevant to their work areas.
- Key personnel will be assessed for their competency against this work instruction on an annual basis.

6.2 Plan testing, review and maintenance

- An exercise drill will be completed randomly at least on an annual interval.
- This PIRMP will be reviewed on an annual basis or following a significant pollution incident covering deficiencies identified in drills.
- A level of supervision to ensure ongoing compliance will be provided (audits, monthly inspections, hazard reporting etc.)

7. APPROVAL & HISTORY

Issue	Amended paragraphs/pages	Amendment Details	Date Issued
1	New WI Issue	New WI Issue	August 2012

Document Author: Pam Johnson

Reviewed by: _____
Matthew Brett
Plant Manager

Approved by: _____
Alex Spillett
General Manager