



ANNUAL ENVIRONMENTAL REPORT

SPERRIN GALVANISERS (IRL) LIMITED

TYNAGH

LOUGHREA

COUNTY GALWAY

P0658-01

JANUARY 2011 TO DECEMBER 2011

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1.0 INTRODUCTION

In May 2004 Sperrin Galvanisers (Irl) Limited was granted an Integrated Pollution Control Licence (IPPC) P0658-01 by the Environmental Protection Agency for the processing of non-ferrous metals by thermal means in installations with batch capacity exceeding 0.5 tonnes.

In accordance with the IPPC licence an Annual Environmental Report (AER) for the facility must be submitted to the Environmental Protection Agency. This report covers the twelve month period from 1st January 2009 to 31st December 2010.

The content of the AER is based on *Schedule 4(i)* of the IPPC Licence and the report format follows guidelines set in the “Guidance Note for: Annual Environmental Reports” issued by the Environmental Protection Agency.

1.1 Site Location

The site is located at Derryfrench, Tynagh, Co. Galway, which is within the abandoned Tynagh mines complex. It is a ‘brownfield’ development, which has been brought back into productive use land located in a predominantly rural area. The site to which the IPPC Licence relates is approximately 0.85 Ha in size. The site layout comprises of a galvanising process plant, administration building and yard. Tynagh Energy Ltd. (plant operators GE Energy) is located on an adjacent site to Sperrin Galvanisers.

1.2 Site Contact Details

Sperrin Galvanisers (Ireland) Limited

Derryfrench

Loughrea

Tynagh

County Galway

Telephone: (090) 9745804

Fax: (090) 9745805

1.3 Activities Licenced

Sperrin Galvanisers (Ireland) Limited, under Section 83(1) of the said Act to carry on the following activity

: - the processing of non-ferrous metals by thermal means in installations with a batch capacity exceeding 0.5 tonnes

at Derryfrench, Tynagh, County Galway, subject to the following fourteen Conditions, with the reasons therefore and associated schedules attached thereto. (*IPC Licence Reg No. P0658-01*)

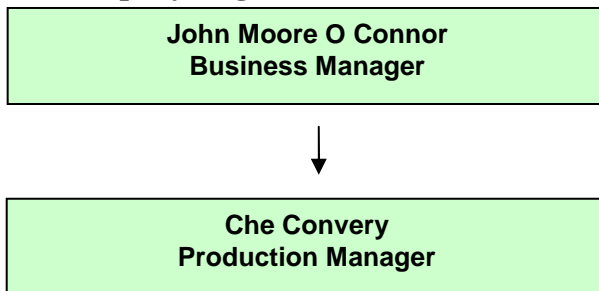
1.4 Process Description

The main purpose of the activities at the installation is the immersion of steel articles in molten zinc to apply a protective coating. All material processed by Sperrin Galvanisers Ltd. is in accordance with I.S. EN ISO 1461: 1999.

- Receiving, Storage and Handling of Raw Materials - All deliveries of materials take place during daytime hours. All storage areas are on an impermeable hard concrete standing to prevent pathways to ground water receptors.
- Pre-treatment and Degreasing – The iron or steel will be inspected prior to galvanising to determine if any pre-treatment is required, (such as degreasing, etc.). The galvanising reaction will only occur on a chemically clean surface. Like most coating processes the secret to achieving a good quality coating lies in the preparation of the surface. It is essential that this is free of grease, dirt and scale before galvanising takes place. Contamination is removed by a series of processes. Firstly we degrease using an orthophosphoric acid solution into which the component is dipped. Heavily soiled material may also be cleaned manually.

- Acid Pickling – This prepares the surface of the work by the removal of rust and scale. This is carried in our pickling baths, located within the pre-treatment bund, which contain up to 15% concentration of hydrochloric acid.
- Rinsing – This removes the hydrochloric acid that has adhered to the surfaces of the steel articles and prevents carryover of iron salts on the surface of the metal that would cause additional dross to be formed in the zinc bath. Rinse water, once the concentration of hydrochloric acid becomes too high, is removed from site for waste disposal.
- Fluxing – This is carried out in a bath of zinc ammonium chloride to prevent oxidation of the metal before it is dipped and to enable the zinc to wet the surface of the steel allowing a uniform coating of zinc to be achieved. The flux bath is maintained at 65-80°C.
- Galvanising – When the clean iron or steel components are dipped into the molten zinc (at 450°C) a series of zinc-iron alloy layers are formed by a metallurgical reaction between the iron and zinc. Upon withdrawal from the galvanizing bath a layer of molten zinc will be taken out on top of the alloy layer. This cools to exhibit the bright shiny appearance associated with galvanized products. During dipping the zinc bath is totally enclosed with the only openings being for the extract ducting, crane cables and door seals. Fume created during the dipping process, however, is extracted and vented through an automatic reverse jet type bag filter before being vented to atmosphere through a 0.9m diameter stack at an elevation of 13m.
- Storage and Handling of Finished Products - All storage areas of finished products are located on a hard standing concrete surface.
- Stripping – Another stage of the process is called stripping. This may be required on occasions to remove faulty coatings or to remove previously coated material.

1.5 Company Organisation Chart



Sperrin Galvanisers (Irl) Ltd. employs 27 people.

1.6 Environmental Policy

At Sperrin we are committed to protecting the environment, health, safety and welfare of its employees, customers, visitors and the community within which it operates so far as is reasonably practicable. We seek to be recognized in the galvanising industry as a leader in terms of environmental and health & safety care. Environmental and health & safety management programs are integrated into all aspects of our business and focus on continuous improvement, involvement at all levels of the organisation and striving to achieve sustainable development. The environmental, health & safety management programs in Sperrin seek to achieve the following:

- Compliance with all relevant EHS legislative and regulatory requirements.
- Promote continuous improvement through evaluation of EHS performance of our management programs.
- Establish EHS goals & objectives on an annual basis and review periodically.
- Minimize adverse EHS impacts through our activities
- Support research, training or agencies engaged in EHS matters.
- Maintain communication, participation and consultation processes to ensure employees, the community and other interested parties are informed on relevant EHS matters.
- Develop employee EHS awareness through ongoing relevant training programs.
- Encourage employees to meet their EHS legislative and regulatory requirements
- Audit and review of procedures and practices to help ensure continuous improvement.
- Maintain availability of EHS documentation to all employees and other interested parties such as manuals, procedures and risk assessments.

Sperrin promotes EHS leadership, responsibility and innovation in the management of all company facilities and operations. Senior management will lead the development and implementation of management programs, policies, audits, compliance monitoring, supervision of the EHS management system and provide public access to relevant EHS information. All managers are responsible for implementing assigned action programs based on this EHS policy and will provide sound EHS leadership to maintain appropriate records and demonstrate compliance with programs, permits and practices.

2.0 ENVIRONMENTAL MONITORING

This report presents information specifically for the monitoring period January 2011 to December 2011.

2.1 Surface Water

Surface water is monitored at the point SW1 under Schedule 3(i) of the IPC Licence Reg. No. P0658-01. A visual inspection was also completed on a weekly basis. Table 1 presents the surface water monitoring results.

Table 1: Surface Water Monitoring Results

<i>Test Parameter</i>	<i>Units</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>
<i>Iron (Total)</i>	<i>mg/L</i>	0.072	0.694	0.192	0.660
<i>pH</i>	<i>pH Units</i>	7.2	7.4	7.6	7.4
<i>COD</i>	<i>mg/L</i>	13	11	12	<10
<i>Zinc</i>	<i>mg/L</i>	2.038	0.935	3.097	0.660

2.2 Ground Water

Ground water is monitored annually at point GW1 and GW2 under Schedule 3(ii) of the IPC Licence Reg. No. P0658-01. Table 2 presents the surface water monitoring results.

Table 2: Ground Water Monitoring Results

<i>Analyst</i>			
<i>Location</i>		<i>GW1</i>	<i>GW2</i>
<i>Test Parameter</i>	<i>Units</i>		
<i>Iron (Total)</i>	<i>mg/L</i>	0.010	0.015
<i>pH</i>	<i>pH Units</i>	-	7.4
<i>Zinc</i>	<i>mg/L</i>	0.005	0.005
<i>Sulphate</i>	<i>mg/L</i>	-	-
<i>Total Coliform/100</i>	<i>MPN/100ML</i>	-	0
<i>ECOLI</i>	<i>MPN/100ML</i>	-	0
<i>Copper</i>	<i>mg/l</i>	<0.001	<0.001
<i>Conductivity</i>	<i>uS/cm</i>	-	545
<i>Cyanide</i>	<i>mg/l</i>	<0.005	<0.005
<i>Chromium</i>	<i>mg/l</i>	<0.0005	<0.0005
<i>Arsenic</i>	<i>mg/l</i>	0.0006	0.002
<i>Lead</i>	<i>mg/l</i>	<0.005	<0.005
<i>Mercury</i>	<i>mg/l</i>	<0.00005	0.00005

2.3 Air Emissions

Emissions to the Atmosphere are monitored under Schedule 1 (iii) of the IPC Licence Reg. No. P0658-01. The results of the analysis are summarised in the tables below.

Table 3: A1 – Bag Filter Monitoring Results

	<i>Units</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>ELV</i>
<i>Temperature</i>	$^{\circ}\text{C}$	16.5	21.3	21	6.9	-
<i>Flow rate</i>	$\text{N m}^3/\text{hr}$	14,266	14,087	13,165	14,307	15,500
<i>Particulates</i>	mg/Nm^3	0.98	5.0	<0.00006	0.01	5
<i>Lead (Pb)</i>	mg/Nm^3	<0.005	<0.0016	<0.0083	0.05	0.1
<i>Zinc (Zn)</i>	mg/Nm^3	0.045	0.006	0.0065	0.07	0.2
<i>Cadmium(Cd)</i>	mg/Nm^3	<0.005	<0.0016	<0.002	0.03	0.05
<i>Chlorides (as HCL)</i>	mg/Nm^3	1.01	<0.95	1.88	<0.15	10
<i>Ammonia</i>	mg/Nm^3	0.28	<0.28	<0.4	<0.09	-

Table 4: A2 -Furnace Exhaust Monitoring Results

Emission Source	A2 (Furnace Exhaust)		
Temperature, $^{\circ}\text{C}$	430		
Parameter	Concentration mg/Nm^3 @ actual O_2	Concentration mg/Nm^3 @ 3% O_2	Mass Emission Rate, Kg/hr
CO	150	188.81	-
NO _x as NO ₂	84.05	105.8	-
SO ₂	<2.86	<3.6	-
O ₂ %	6.7	-	-

Efficiency %	69.5		
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Table 5: A3 - Diffuse Emissions of Hydrogen Chloride Monitoring Results

Emission Source	A3- Diffuse Emissions of Hydrogen Chloride
Date of Sampling	2011
Chloride (as HCL) mg/Nm³	1.93
ELV Chloride (as HCL) mg/Nm³	10

2.4 Noise

The day and night time surveys were carried out on the 30th June, 19th August, 1st September and 2nd September of 2011 respectively. Noise levels were determined at five locations. The results are presented in Tables 6 and 7 which present the day and night time noise results respectively. Analysis of the results from this noise survey indicates that the noise levels at the noise sensitive receptor are not adversely impacted upon by the site related activities.

Table 6: Day time noise monitoring results

Location	L_{Aeq} dB	L_{A10} dB	L_{A90} dB	Description of Sources
N1	64.7	65.2	60	Process noise from reversing beacons on forklifts, steel bangs from dejigging, idling engines of trucks, extractor fan
N2	57.1	56.8	43.4	Process noise from reversing beacons on forklifts, steel bangs, idling engines of trucks, extractor fan
N3	57.5	57.9	44.6	Process noise from reversing beacons on forklifts, steel bangs
N4	54.1	52.9	45.1	Process noise from reversing beacons on forklifts, steel bangs, idling engines of trucks
NSR1	60.1	55.5	35.4	Some site and non site related vehicles on main road, intermittent steel bangs, typical rural sounds such as bird song, rustling of foliage

NSR2	58.4	55	35.1	Some site and non site related vehicles on road, intermittent banging steel from the plant building, process noise barely audible
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Table 7: Night time noise monitoring results

Location	L_{Aeq} dB	L_{A10} dB	L_{A90} dB	Description of Sources
N1	59.6	57.6	36	Similar to daytime, process noise from reversing beacons on forklifts, steel bangs, idling engines of trucks, extractor fan
N2	59.8	60.4	37.7	Process noise from reversing beacons on forklifts, steel bangs, idling engines of trucks, extractor fan
N3	68.4	63.4	58.7	An idling forklift truck engine, process noise from reversing beacons on forklifts, steel bangs
N4	65	64.8	59.2	Process noise from reversing beacons on forklifts, steel bangs, idling engines of trucks
NSR1	61.5	62.7	59.1	Some site and non site related vehicles on road, intermittent steel bangs, farm machinery in operation in close proximity, birdsong
NSR2	58.2	60	44.9	Some site and non site related vehicles on road, birdsong predominant in quiet periods, intermittent steel bangs, process noise barely audible

3.0 WASTE MANAGEMENT

A summary of the annual waste disposal data was submitted electronically in accordance with the AER Electronic Reporting System & PRTR Requirements. See Appendix 1 for a copy of this data titled, ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE.

4.0 ENERGY CONSUMPTION

Resources consumed at Sperrin Galvanisers Ltd. include electricity, LPG and diesel. The following tables present the sources of energy use and the quantities of each used on site for the period of the report.

Table 9: Work Areas and Energy Usage at Sperrin Galvanisers.

<i>Work Area</i>	<i>Activity/Area</i>	<i>Source of Energy</i>
<i>Galvanising Plant</i>	Cranes: Jigging/Dejigging	Electricity
	Prefluxing	Electricity: Heat Exchange
	Dipping	LPG Gas
	Forklift	Diesel
<i>Office</i>	General work area	Electricity
<i>Site Vehicles</i>	Delivery/ Collection	Diesel

Table 10: Energy Consumed in 2011

<i>Energy Stream</i>	<i>Annual Quantity</i>	<i>Units</i>
<i>Electricity</i>	237,270	kWh
<i>LPG</i>	223,916	Litre
<i>Diesel (Forks and Road Trucks)</i>	112,476.15	Litre

Table 11: Electricity 3 Year Trend

Usage	2008	2009	2010	2011
<i>Totals kWh</i>	362,561	210,699	220,209	237,270

5.0 ENVIRONMENTAL INCIDENTS

There were no environmental incidents during the reporting period.

6.0 COMPLAINTS

There were no complaints during the year relating to the facility.

7.0 ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

The table below summarises the objectives achieved to date:

Table 12: Environmental Management Programme (EMP) Report 2011

<i>No.</i>	<i>Licence Objectives</i>	<i>Licensee Targets</i>
<i>1</i>	Ensure compliance with IPC Licence	Completed
<i>2</i>	Completion of Methodology for Determining Enforcement Category of Licences	Completed
<i>3</i>	Ensure correct classification and justification for all hazardous wastes leaving the site	Completed
<i>4</i>	Ensure correct segregation of wastes across the site and install designated bins for any spray cans which may be used on site	Completed
<i>5</i>	Reevaluate the sizing of the interceptor to ensure it is of adequate size for the size of the site	Completed
<i>6</i>	Update trigger levels and action levels for surface water parameters following any investigations	Completed
<i>7</i>	Carry out further environmental training with staff members	Incomplete
<i>8</i>	Investigate any breaches in groundwater parameters	Completed
<i>9</i>	Investigate any environmental or tonal noise detected at the noise sensitive location after the annual survey is complete	Completed
<i>10</i>	Draft an inspection checklist for examining the condition of the hard standing areas on the site to ensure protection of groundwater	Incomplete
<i>11</i>	Update the Emergency Response Procedure in line with new guidance letter received on the 31 st December 2010	Completed

The following table is a schedule of objectives and targets that have been set out by Sperrin Galvanisers Ltd for 2012, in order to reduce any environmental impacts and improve environmental practices.

Table 13: Schedule of Environmental Objectives and Targets for 2012

<i>No.</i>	<i>Licence Objectives</i>	<i>Licensee Targets</i>
<i>1</i>	EMS maintenance & IPC compliance.	Continuous
<i>2</i>	Completion of Methodology for Determining Enforcement Category of Licences.	Q2 2012
<i>3</i>	Protection of Soil and Water Receptors Report.	Q1 2012
<i>4</i>	Upon completion of “Soil and Water Receptors Report”, implement outstanding measures as soon as practicable to ensure no pathways exist to contaminate ground water beneath the site.	Q2 2012
<i>5</i>	Repair any defects in roof structure in to prevent rainwater ingress.	Q1 2012
<i>6</i>	Update trigger levels and action levels for surface water parameters following any investigations	Q3 2012
<i>7</i>	Carry out further environmental training with staff members	Q3 2012
<i>8</i>	Investigate any breaches in groundwater parameters	Continuous
<i>9</i>	Further investigate any environmental or tonal noise detected at the noise sensitive location after the annual survey is complete	Q2 2012
<i>10</i>	Draft an inspection checklist for examining the condition of the hard standing areas on the site to ensure protection of groundwater	Q2 2012
<i>11</i>	Review all bunded structures and carry out a visual inspection.	Q2 2012

<i>12</i>	Repair or replace broken downpipes or downpipes in need of repair to ensure roof water runoff is captured effectively.	Q2 2012
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