



Site Protection and Monitoring Programme Cogent Power Ltd., Orb Works, Newport, South Wales, October 2019 Review

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Summary

Site Protection and Monitoring Programme Cogent Power Ltd., Orb Works, Newport, South Wales, October 2019 Review

Author(s): Dr. P. E. Knight

Reviewer(s): P Wheeler

Date of issue: 31 October 2019

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Security Code: R: all RD&T staff; named Tata Steel staff; named non-Tata staff

This document provides a review the Site Protection and Monitoring Programme (SPMP) for Orb Works, Newport submitted to Natural Resources Wales ("NRW") in pursuance of Condition 4.1.7 of Permit No.CP3333BQ (the "Permit") authorising the operation of Orb Works (the "installation"). The review also includes a copy of the groundwater data which is reviewed annually.

There has been little change in the nature and quantity of materials used in the process since the 2017 review.

Intermediate bulk container (IBC) storage requirements have been kept to a minimum and access security for the waste storage area has been maintained so that correct materials storage can be properly managed.

At the time of inspection there was only one outstanding corrective action from the 2017 SPMP inspection. Two drain seals are to be replaced and made available whenever the new Orthophosphate storage tank is being refilled.

The site walk over identified a small number of areas where some corrective actions will be required. It was noted that a makeshift system to capture hydraulic oil from the overhead parked crane had been created which is not suitably captured and maintained. The scrap area at the south of the site is not on hard standing and therefore any hydraulic oils etc within scrap products could potentially migrate to surface soils. At the time of the inspection a vehicle was parked in the area close to the hydrochloric acid tanks. Consideration should be given to restricting vehicular access to this area. The cover of BH4 was missing. It is recommended that this is replaced. It appeared that there had potentially been some leakage from transformer number 10 and bunding to the transformer areas should also be considered.

There were no changes to the process and no new tanks or bunds installed on site since the last inspection.

The Groundwater Review incorporating data up to the end of September 2019 is attached to the SPMP Report for completeness. There were no significant changes in the levels of pollutants analysed. Monitoring will continue on a quarterly basis and reported annually.

Customer: Tata Steel, Cogent Power Ltd. Orb Works, Newport, Gwent.

Approved by: Mr N Webb, Environment Manager, Orb Works

Site Protection and Monitoring Programme Cogent Power Ltd., Orb Works, Newport, South Wales, September 2019 Review

1. Introduction

The 2017 review at Orb Works has been undertaken by Dr. Peter Knight, Principal Land Quality Specialist, Tata Steel, Group Environment, Swinden Technology Centre, Moorgate, Rotherham, on behalf of Mr Nick Webb, Environmental Manager, Tata Steel, Cogent Power, Orb Works. A visual inspection of the Works was undertaken on 17th July 2019 by Peter Knight and Nick Webb.

The review is based upon the following documents:

- Application Site Report for PPC Application, Orb Electrical Steels Limited. Mr S McKenna, Corus Research, Development & Technology. 4th July 2004.
- Site Protection & Monitoring Programme Cogent Power Ltd., Orb Works, Newport. July 2017 and previous reports
- Groundwater Annual review data 2008 to current date (against baseline).

1.1 Site Location

The installation is located at Orb Works, Stephenson Street, Newport, South Wales. The centre of the site is approximately at National Grid Reference ST 32461 86349. The general setting of the site can be seen in Appendix A1, and the installation boundary can be seen in Appendix A2. There have been no changes to the site boundary since the last SPMP review.

1.2 Details of the Installation

Corus Orb Works was operated under IPPC Permit No. CP3333BQ (Ref. 4), for the surface treating of metals and associated activities. The works specialise in the development and manufacture of electrical steels for use in transformers, motors and other electromagnetic devices. The site has been associated with the manufacture of steel for more than 100 years and electrical steels since 1947.

A summary of the works processes is given in the 2015 SPMP review. There have not been any changes to the processes since the last inspection.

The current permit operating area plan as established in the 2013 SPMP Report is retained and shown in Appendix A.

2. Objectives

The objectives of this report are:

- To review operations at the installation against those referenced within the SPMP. Where changes have occurred, to document these, and where necessary, amend the assessment of land pollution potential presented within Appendix D2 of the ASR (Ref. 1);
- To review progress made, where the collection of Reference Data was deemed necessary.
- To review and, where necessary, suggest amendments to the Infrastructure Monitoring Programme.

3. Methodology

The assessment was undertaken in accordance with the UK Environment Agency Technical Guidance Note IPPC H7 (Ref.4).

4. Review of Operations

Since the June 2017 SPMP Review, there have not been any notable changes in the process lines.

5. Review of Corrective Actions Identified in 2017 Review

1. Two drain seals should be made available and should be used whenever the new Orthophosphate storage tank is being refilled. The Works EMS (PROC2851RA Off-Loading Aluminium Orthophosphate) should be updated to provide the correct instructions for this task. At the time of the inspection two drain seals had gone missing and are due to be replaced.

To be completed as soon as possible

6. Site Review and Observations July 2019

6.1 Area 1 Receiving Stores & Drum / IBC Storage Areas

The main bulk materials storage for 'building materials' (dry powders and refractory materials) is in a large section of the factory buildings reserved for this purpose. Liquid materials storage is now at a minimum and does not include any liquids with hazardous properties.

There have been no notable changes in storage arrangements since the last inspection. There were no issues with incorrect labelling of IBCs noted at the time of inspection. All self-bunded storage facilities were in good condition.

6.2 Area 2 Anneal Pickle Line (AP1)

No Change.

6.3 Area 3 Reversing Mills (RM1 & RM2)

Adjacent to Bay 11 entrance, the Paraffin Tank (capacity 1,500 litres) site conditions are unchanged.

The Diesel Tank (capacity 12,000 litres) self-bunded, shuttered, lockable industry standard storage and dispensing tank, conditions are unchanged.

6.4 Area 4: Decarburising Lines (D4 & D5)

The system has been assessed previously and there have been no changes.

6.5 Area 6: Final Anneal Coating Line (M2 / M3)

The site conditions for the Hydraulic Oil Storage Tank (1) in works area Bay 14 and the associated decanting shed and bunding are all unchanged.

6.6 Area 7: Boiler House

No change.

6.7 Area 8: Oil Recovery Plant and Effluent Treatment Plant

No change.

6.8 New Area 9: Recycling Zone

No Change.

7. Inspection and Monitoring Programme

The Environmental Monitoring Programme at Orb Works commenced with the first round of monitoring being completed on 7th February 2007. The procedures established will continue for the life of the Orb Operational Permit, and is subject to review, regular assessment and modifications where necessary. Recording and reporting of groundwater monitoring results is undertaken as part of the SPMP.

The Groundwater Review incorporating data up to the end of September 2019 is attached to the SPMP Report for completeness.

7.1 Environmental Monitoring Programme

7.1.1 Groundwater Monitoring

The groundwater data from May 2017 to September 2019 has been reviewed and there are no significant changes in the levels of pollutants analysed. As previously reported, there is no indication of any loss of containment associated with the potential sources 2.7 and 2.8 and there is no significant environmental impact present from the site on groundwater quality. A separate report has been prepared reviewing the groundwater composition trends for up to the end of September 2019, which is attached in Appendix. C.

7.1.2 Environmental Monitoring System - Cogent Orb Electrical Steels Integrated Management System

The instructions for the bund inspections, emptying and reporting have now been amended to reflect the current materials in use.

There have been no other changes to the EMS.

8. Observations for corrective action

There has been little change in the nature and quantity of materials used in the process since the 2015 review.

At the time of inspection there was only one outstanding corrective action from the 2017 SPMP inspection. Two drain seals are to be replaced and made available whenever the new Orthophosphate storage tank is being refilled.

The site walkover identified a small number of areas where some corrective actions will be required. It was noted that in Area 2 a makeshift system to capture hydraulic oil from the overhead parked crane had been created which is not suitably captured and maintained. The scrap area at the south of the site is not on hard standing and therefore any hydraulic oils etc within scrap products could potentially migrate to surface soils. At the time of the inspection a vehicle was parked in the area close to the hydrochloric acid tanks. Consideration should be given to restricting vehicular access to this area. The cover of BH4 was missing. It is recommended that this is replaced. It appeared that there had potentially been some leakage from transformer number 10 and bunding to the transformer areas should also be considered.

There were no changes to the process and no new tanks or bunds installed on site since the last inspection.

The Groundwater Review incorporating data up to the end of September 2019 is attached to the SPMP Report for completeness. There were no significant changes in the levels of pollutants analysed. Monitoring will continue on a quarterly basis and reported annually.

9. References

1. Application Site Report for PPC Application, Orb Electrical Steels Limited. Mr S McKenna, Corus Research, Development & Technology. 4th July 2004.
2. Design of a Site Protection and Monitoring Programme, Orb Electrical Steels Limited. Mr G Thomas, Cogent Power. 28th November 2005.
3. Site Investigation for Site Protection and Monitoring Programme: Orb Works, Newport. Enviros Consulting Ltd. March 2006.
4. Site Protection & Monitoring Programme and First Phase Reporting, Corus Orb Works, Newport. April 2007 (Ref. 4)
5. Site Protection & Monitoring Programme Cogent Power Ltd., Orb Works, Newport. June 2015
6. PPC Permit No. QP3333B4
7. Technical Guidance Note IPPC H7. Guidance on the Protection of Land, Under the PPC Regime; Application Site Report and Site Protection and Monitoring Programme. Environment Agency. August 2003.

Appendix A: Figures

Contents

A1 Installation boundary

A2 Work Area Plan, Site Process Areas and Borehole locations

A5 Site Photographs from the July 2019 inspection

Reference Source no.

Appendix A1 Installation boundary



Reference Source no.

Appendix A2 Works Area Plan, Process Areas and Borehole locations



Appendix A5 Selected Photographs from the Site Visit 17th July 2019

Photo showing makeshift pipe from guttering capturing oil from overhead crane collected in bucket. Note spillage on floor.



Photo showing makeshift pipe from guttering capturing oil from overhead crane collected in IBC. No evidence of control on collection.



Overhead guttering collecting hydraulic oil from parked overhead crane.



Scrap / spares storage on bare ground



Scrap / spares storage on bare ground



Borehole 4 No Cover present



Hydrochloric acid tank – no barrier to prevent vehicular access



Appendix B: Assessment of Land Pollution Potential

Contents

B1 Assessment of Land Pollution Potential Tables

Activity	Photograph Number	Source Number	Substance	Volume (capacity)	Fugitive Emissions Assessment			1. Do Preventative Measures Exist?			2. There are NO records of pollution incidents or spills?	3. Are Preventative Measures Adequate? What is its condition?	4. Is there an adequate documented management system?	Have you answered "no" to any of the five questions?		Corrective action complete?
					Air Potential Risk	Land Potential Risk	Water Potential Risk	Air	Land	Water				YES Collect Reference Data	NO Collection of Reference Data is NOT Required	If NO then please provide progress
Anneal Pickle Line - Wheelabrator (Shot Blast)	Photograph 2.3	2.1	F55 Steel Shot (Solid)	1000kg	Yes	Yes	No	Extraction	Mechanical Collection & SOP	Mechanical Collection & SOP	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Acid Storage	Photograph 2.2	2.3A / 2.3B / 2.3C	36% HCl - Hydrochloric Acid	35'400L (Tank A) 35'400L (Tank B) 23'600L (Tank C)	Yes Odour	Yes	Yes	Extraction	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Post Pickle Coating Storage	Photograph 2.6	2.9	Houghto-Roll SPF 16	Up to 3 x 1,000L	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Pickling Tanks	Photograph 2.3	2.4A / 2.4B	15% W/V HCl - Hydrochloric Acid	20,000L (X2)	Yes Odour	Yes	Yes	Extraction / Scrubber	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Recycle Tank	#	2.5	Ferrous Chloride Solution (Approx. 40% w/v FeCl ₂ , 6% w/v HCl, balance water)	10,000L	Yes Odour	Yes	Yes	Extraction	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Post Pickle Coating Tank	#	2.10	10 - 12% Houghto-Roll SPF16 in water	7,000L	Yes Odour	Yes	Yes	Extraction	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Ferrous Chloride FeCl ₂ Storage Tank Settling Tank	Photograph 2.5	2.6	Ferrous Chloride Solution (Approx. 40% w/v FeCl ₂ , 6% w/v HCl, balance water)	39,150L	Yes Odour	Yes	Yes	Two stage process. Enclosed settling tank reduces odour discharge from storage tank	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Acid Lagoon (Waste Stream B)	Photograph 2.5	2.7	Typically ferrous chloride solution (Approx. 40% w/v FeCl ₂ , 6% w/v HCl, balance water)	174,700L	Yes Odour	Yes	Yes	SOP & limited odour after recycling	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Dilute Acid Lagoon (Waste Stream A)	Photograph 2.4	2.8	Dilute stream, containing mainly water (69%) with silica, magnesium oxide, iron, sulphate and ~ 1% sulphuric acid.	10,000L	Yes Odour	Yes	Yes	SOP & limited odour after recycling	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Hydraulic Ring Main - Storage Tank 1	Photograph 2.9	2.12	Hydraulic Oil	22,700L	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Spent Shot	Photograph 2.1	2.2	Typically >95% Iron and Iron Oxide. Other contaminants include; Cr (0.06%), Cu (0.06%), Mn (0.35%), Al (0.03%), P (0.02%) & Si (1.09%)	20,000Kg	Yes	Yes	Yes	Extraction	Mechanical Collection & SOP	Mechanical Collection & SOP	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal & Pickle Line Furnace Burners & Exhaust			CO ₂ /CO		Yes	No	No	SOP & Burner maintenance also periodic air and gas monitoring	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal Pickle Line - Side Trimming Burners			CO ₂ /CO		Yes	No	No	SOP & Burner maintenance also periodic air and gas monitoring	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Anneal & Pickle Line 1st and 2nd Fix Pumps & Pipework			All above		Yes Odour & Dust	Yes	Yes	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	

Activity	Photograph Number	Source Number	Substance	Volume (capacity)	Fugitive Emissions Assessment			1. Do Preventative Measures Exist?			2. There are NO records of pollution incidents or spills?	3. Are Preventative Measures Adequate? What is its condition?	4. Is there an adequate documented management system?	Have you answered 'no' to any of the above questions?		Corrective action complete?
					Air Potential Risk	Land Potential Risk	Water Potential Risk	Air	Land	Water				YES Collect Reference Data	NO Collection of Reference Data is NOT Required	If NO then please provide progress
Reversing Mills - Paraffin Storage Tank	Photograph 3.10	3.1	Paraffin Oil	2,273 litres	Yes Odour	Yes	Yes	Mechanical seal	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Hydraulic Oil Storage Tanks	Photograph 3.2	3.2A / 3.2B	MOR Hydraulic Oil	14,048 litres (X2) (1 tank redundant)	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Gear Oil Storage Tank	Photograph 3.3	3.3	Gear Oil	13,638 l	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Morg Oil Storage Tank	Photograph 3.3	3.4	Morg Oil	13,638 l	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Denco System - Tank 1 - Clean	Photograph 3.6	3.7A	6.0 - 8.0% Rolkleen EP3420 Emulsion	35,000 l	Yes Odour	Yes	Yes	Mechanical seal	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Denco System - Tank 1 - Dirty	Photograph 3.6	3.7B	6.0 - 8.0% Rolkleen EP3420 Emulsion	1,000 l	Yes Odour	Yes	Yes	Mechanical seal	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Denco System - Tank 2	Photograph 3.6	3.7C	6.0 - 8.0% Rolkleen EP3420 Emulsion	35'000L	Yes Odour	Yes	Yes	Mechanical seal	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - Denco System - Tank 3	Photograph 3.6	3.7D	6.0 - 8.0% Rolkleen EP3420 Emulsion	35'000L	Yes Odour	Yes	Yes	Mechanical seal	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mill Number 1 - Internal Tank	#	3.8	6.0 - 8.0% Rolkleen EP3420 Emulsion	11,365 l	Yes Odour	Yes	Yes	Extraction	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mill Number 2 - Internal Tanks	#	3.9A / 3.9B	4.5 - 6.0% Rolkleen EP3420 Emulsion	22,731 l (X2)	Yes Odour	Yes	Yes	Extraction	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
			4.5 - 6.0% Rolkleen EP3420 Emulsion		Yes Odour	Yes	Yes	Extraction	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - HF-400 / EP3420 Storage Tanks	Photograph 3.4	3.5	Rolkleen EP3420	15,820 l (X2)	Yes Odour	Yes	Yes	Mechanical Seal	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Reversing Mills - 1st and 2nd Fix Pumps & Pipework			All above		Yes Odour	Yes	Yes	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	

Activity	Photograph Number	Source Number	Substance	Volume (capacity)	Fugitive Emissions Assessment			1. Do Preventative Measures Exist?			2. There are NO records of pollution incidents or spills?	3. Are Preventative Measures Adequate? What is its condition?	4. Is there an adequate documented management system?	Have you answered 'no' to any of the above questions?		Corrective action complete?
					Air Potential Risk	Land Potential Risk	Water Potential Risk	Air	Land	Water				YES Collect Reference Data	NO Collection of Reference Data is NOT Required	
D4 / D5 Coating Line - Magnesium Oxide Storage	Photograph 4.2	4.3	Magnesium Oxide	40,000kg	No	No	No	N/A	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Magnesium Oxide Coating - Ethylene Glycol Storage Tank	Photograph 4.6	4.6	Ethylene Glycol	6,903 l	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Magnesium Oxide Coating - Sumps	Photograph 4.5	4.4A / 4.4B	Magnesium Oxide (Slurry)	4,000 l (X2)	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Magnesium Oxide - Mixing Tanks	Photograph 4.3	4.5A / 4.5B	Magnesium Oxide (Slurry)	1,200 l (X2)	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Furnace Burners & Exhaust & Burn Off Fume			CO ₂ /CO / Soot		Yes	No	No	SOP & Burner maintenance also periodic air and gas monitoring	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
1st and 2nd Fix Pumps & Pipework			All above		No	Yes	Yes	N/A	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Stack with Torch Burners			CO ₂ /CO		Yes	No	No	SOP & Burner maintenance also periodic air and gas monitoring	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 Entry Seal Torch Burners			CO ₂ /CO		Yes	No	No	SOP & Burner maintenance also periodic air and gas monitoring	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Ammonia Storage Compound			Ammonia	530kg (Up to x20)	Yes	No	No	Alarm System	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
D4 / D5 Nitride Exhaust Stack & Burners			CO ₂ /CO		Yes	No	No	SOP & Burner maintenance	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	

Activity	Photograph Number	Source Number	Substance	Volume (capacity)	Fugitive Emissions Assessment			1. Do Preventative Measures Exist?			2. There are NO records of pollution incidents or spills?	3. Are Preventative Measures Adequate? What is its condition?	4. Is there an adequate documented management system?	Have you answered 'no' to any of the five questions?		Corrective action complete?
					Air Potential Risk	Land Potential Risk	Water Potential Risk	Air	Land	Water				YES Collect Reference Data	NO Collection of Reference Data is NOT Required	If NO then please provide progress
Final Anneal Coating - Coating Preparation - Storage Tank	Photograph 6.4	6.7	Aluminium Orthophosphate Storage Tank	1 x14,600 l 1 x16,000 l	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal Coating - Coating Preparation - Storage Tank	Photograph 6.4	6.8	Colloidal Silica Storage Tank	36,000L	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal Coating -Coating Preparation - Mixing & Recirc Tanks	Photograph 6.4	6.9	M2 Coating	1,000L (X4)	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal Coating Recirc Tank			M3 Coating	1,000l	No	Yes	Yes	N/A	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal Coating - Catchment Sump	Photograph 6.5 / 6.6	6.10	M2 Coating, iron, silica, magnesium oxide	8,000-10,000L	Yes	Yes	Yes	SOP	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal Coating - Catchment Sump	Photograph 6.5 / 6.6	6.10	M3 Coating, iron, silica, magnesium oxide	8,000-10,000L	Yes	Yes	Yes	SOP	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal - Furnace Burners & Exhaust. M3 Only. M2 extracted			CO ₂ /CO		Yes	No	No	SOP & Burner maintenance also periodic air and gas monitoring	N/A	N/A	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Final Anneal - 1st and 2nd Fix Pumps & Pipework			All above		No	Yes	Yes	N/A	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	

Activity	Photograph Number	Source Number	Substance	Volume (capacity)	Fugitive Emissions Assessment			1. Do Preventative Measures Exist?			2. There are NO records of pollution incidents or spills?	3. Are Preventative Measures Adequate? What is its condition?	4. Is there an adequate documented management system?	Have you answered 'no' to any of the five questions?		Corrective action complete?
					Air Potential Risk	Land Potential Risk	Water Potential Risk	Air	Land	Water				YES Collect Reference Data	NO Collection of Reference Data is NOT Required	If NO then please provide progress
Oil Recovery Plant (Various Tanks - TPS, DAF Tanks)	Photograph 8.4	8.2	Water / Waste Oil	113,652L (Cumulative Volume)	Yes Odour	Yes	Yes	SOP	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Oil Recovery Plant (Large Tank)	Photograph 8.2	8.3A	Water / Waste Oil	272,766L	Yes Odour	Yes	Yes	SOP	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Oil Recovery Plant (Smaller Tank - Mainly Waste Oil)	Photograph 8.2	8.3B	Waste Oil	90,922L	Yes Odour	Yes	Yes	SOP	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Oil Recovery Plant - Central Sump	#	8.10	Waste Oil	3,000L	Yes Odour	Yes	Yes	SOP	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Effluent Treatment Plant - Filter Cake	Photograph 8.11	8.6	Fe(iii) - 75.8%, Ca - 6%, Cr(VI) - 0.2%, Al - 0.3%, Si - 5.3%, Mg - 2.5%, Cl - 2%	76,800Kg	No	Yes	Yes	N/A	Bunded, wheel wash for vehicles, registered carriers	Bunded, wheel wash for vehicles, registered carriers	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Effluent Treatment Plant - Various Tanks (Cumulative Volume)	Photograph 8.10	8.7	Effluent - Stream A / Stream B / Aqueous Stream ORP	775,040L (Cumulative Volume)	Yes Odour	Yes	Yes	SOP	Bunded	Bunded	No	Yes - Good Quality	ISO 14001 Accredited		✓	
Effluent Treatment Plant - Slaking Tanks	#	8.8	Calcium Hydroxide	4,500L (x2)	Yes Dust	Yes	Yes	SOP and water spray system	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
Effluent Treatment Plant - Lime Silo	#	8.9	Calcium Oxide	70,000Kg	Yes Dust	Yes	Yes	SOP and Mechanical filtration system	Bunded	Bunded	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
ORP 1st and 2nd Fix Pumps & Pipework			All above		Yes	Yes	Yes	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	
ETP 1st and 2nd Fix Pumps & Pipework			All above		Yes	Yes	Yes	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Mechanical and electrical maintenance procedures/Shift pre-flight checks. All pipework above floor level making detection easy	Yes	Yes - Good Quality	ISO 14001 Accredited		✓	

Appendix C: Groundwater Monitoring Data Review

To: Nick Webb
From: Peter Knight
Our reference:
Date: 31st October 2019

Subject: Cogent Power, Orb Electrical Steels, Groundwater Review for the period Sept 2018 to Sept 2019

Dear Nick,

This memo reports on the groundwater monitoring results collected as part of the Site Protection and Monitoring Program ('SPMP') for Cogent Power's Orb Electrical Steels, Newport, as required as part of condition 4.1.7 of Permit No CP333BQ which authorises the operation of Orb Works. The SPMP, Reference Data and First Phase Reporting were submitted to the Environment Agency (the 'Agency') in March 2007. Upon agreement of the SPMP by the Agency, groundwater monitoring has been undertaken as per the condition set out in the plan. The monitoring frequency was reduced by agreement from monthly to quarterly basis and this note reports on the results obtained from the borehole monitoring from September 2018 to September 2019 and also presents, in the charts shown in the Appendix, the cumulative data obtained from the site from the date that the data collection was started.

Water samples at the site have been collected quarterly intervals between September 2018 and September 2019. The laboratory certificates for these samples are attached

The objectives of the groundwater monitoring are:

- to monitor the effectiveness of infrastructure and management procedures and provide a warning of loss of containment,
- defensive monitoring of a sensitive receptor (e.g. River Usk Estuary), and
- to assist at Permit Surrender by:
 - a) determining the movement of pollutants onto or off the site of the installation,
 - b) determining the movement of pollutants within a site, and
 - c) Providing data on long-term trends.

The monitoring suite is based upon the two potential contaminant sources identified from Reference Data and continued groundwater monitoring is required as a result of inadequate secondary and tertiary containment:

- *Source 2.7 the Anneal Pickle Line – Acid Lagoon (Waste Stream B),*
- *Source 2.8 the Anneal Pickle Line – Dilute Acid Lagoon (Waste Stream A),*

This groundwater monitoring review aims to:

- Identify if there is any deviation from the Reference Data collected
- Identify if there is any long term trend present indicative of a containment breach from the two sources.
- Identify if there are increases in concentrations of contaminants within groundwater that could be as a result of other sources.

Acidity / Alkalinity Data (pH)

The pH levels in all boreholes remained fairly neutral in 2017/2018 ranging from 7.15 in BH 5 to 8.22 in BH4(S).

Chloride data

Chloride levels in all the boreholes showed a generally decreasing trend. BH2 showed a slightly elevated level of chloride of 197 mg/l in May 2019 however this decreased back to 55.9mg/l in the September 2019 sample.

Phosphate (as P)

No results for Phosphate were obtained for the period September 2018 – September 2019

Phosphorus (as P dissolved)

In the May 2018 data a spike in concentration of P (dissolved) in BH5 (deep) was recorded at 25.9 mg/l. This had reduced to 12.9 mg/l in December 2018 and 1.2mg/l in September 2019. All other results were similar to previous rounds with the exception of BH3 in the September 2019 round of monitoring. This showed a spike of 31.5 mg/l. Given previous results from this BH it would suggest that this is an anomaly. Future sampling rounds will confirm if this is the case.

Chromium (as Cr total dissolved)

The use of chromium at the site ceased a number of years ago. The chromium values for the deep borehole monitoring points were all similar and fluctuated between the laboratory detection limit and 0.006 mg/l Cr (total) between 2018 and 2019

Aluminium (Al)

No significant levels of aluminium were identified in any of the boreholes.

Manganese (Mn)

The 2018-2019 data shows similar Mn concentrations at or below 1 mg/l level for all sampled boreholes with the exception of BH3 which had an average concentration of 3.8mg/l over the four rounds of monitoring in 2018/19 and one marginally elevated concentration of 3.16mg/l in BH1D for the September 2019 monitoring round.

Magnesium (Mg)

Levels of Magnesium have remained fairly consistent in each borehole with one exception in Borehole 3 where there was a spike of 248 mg/l in September 2019. This is the highest result recorded in the borehole since monitoring began and could be an anomaly. However, further monitoring will be required to confirm this.

Copper (Cu dissolved)

No significant levels of copper were identified in any of the boreholes.

Zinc (Zn dissolved)

No significant levels of copper were identified in any of the boreholes.

Conclusions

The groundwater data from September 2018 to September 2019 has been reviewed and there are no significant changes in the levels of pollutants analysed.

Results were generally similar to previous rounds with the exception of a small spike Phosphorous and Magnesium recorded in BH3 during the September 2019 round of monitoring. This showed a spike of 31.5 mg/l for phosphorous and 248 mg/l for magnesium. Given previous results from this BH it would suggest that these are anomalies. Future sampling rounds will confirm if this is the case.

As previously reported, there is no indication of any loss of containment associated with the potential sources 2.7 and 2.8 and there is no significant environmental impact present from the site on groundwater quality.

It is understood that Tata Steel are considering closing the Orb site and there is a possibility that the current process may not continue in the longer term. However, until a decision has been made it is proposed to continue the frequency of monitoring on a quarterly basis and the site needs to ensure that this is undertaken at the appropriate interval. The basis for this proposal is that

- The site has an environmental management systems accredited to ISO 14001 standard.
- Groundwater data has not shown anything that would be indicative of leakage from the acid lagoons.
- Visual inspection of other tanks and bunds confirms that there are no leaks from other potential sources and that the secondary and preventative containment infrastructure remains intact.

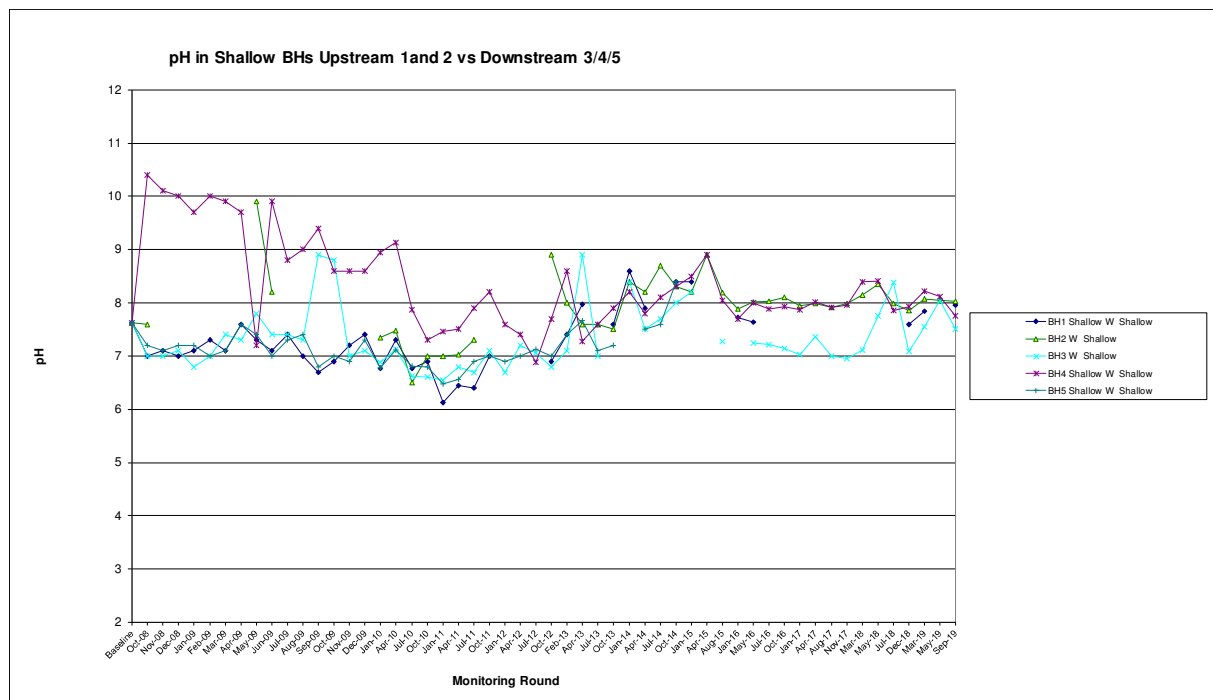
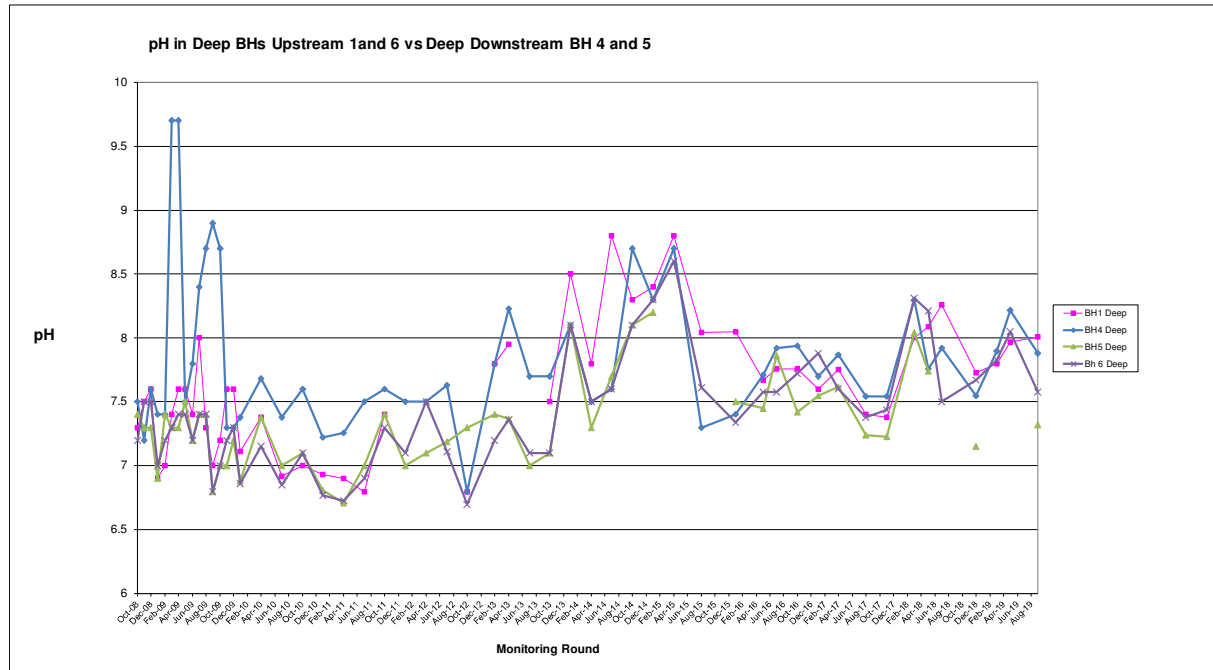
Quarterly monitoring should be ensured at the site and coupled with the inspection program and management under the ISO 14001 EMS this will ensure that the objectives of the monitoring, as detailed above, are met.

Subject to a final decision regarding closure of the site the next Groundwater Samples should be taken in December 2019, Mar 2020 and May 2020 and the next Groundwater Review Report should be undertaken when the data from the May 2020.

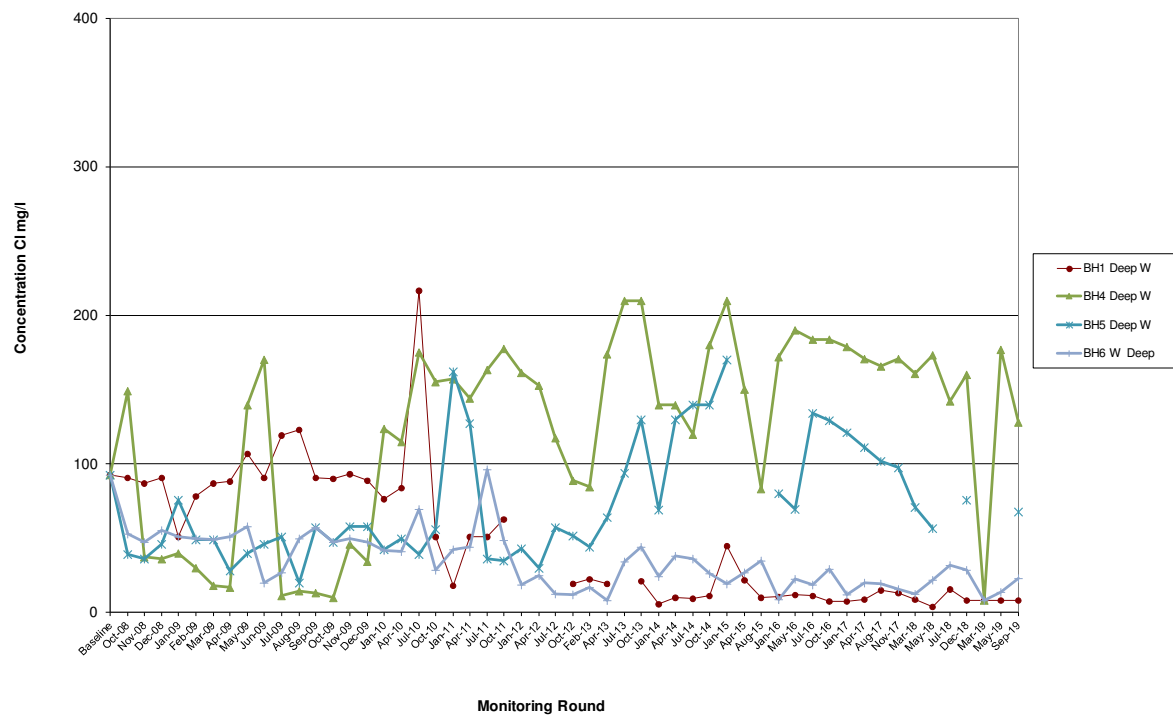
Kind regards,

Peter Knight
Tata Steel Land Quality Team

APPENDIX: BOREHOLE DATA CHARTS



Chloride in Deep BHs Upstream 1and 6 vs Deep Downstream BH 4 and 5



Chloride in Shallow BHs Upstream 1and 2 vs Downstream 3/4/5

