

Alcoa Mill Products –Swansea
PPC Site Closure Report (Revision 2)

**Alcoa Mill Products, Waunarwydd Works, Waunarwydd,
Swansea SA1 1XH**

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1.0 BACKGROUND

This document represents the Site Closure Plan for:

*Alcoa Manufacturing (GB) Ltd
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Wanarwydd,
Swansea,
South Wales
SA1 1XH*

Alcoa Manufacturing (GB) Ltd, operating as Alcoa Mill Products – Swansea (EMP) submits this report to the Environment Agency (EA) for approval in advance of the closure, decommissioning of the site and subsequent permit surrender of its PPC Permit.

This document should be read in conjunction with EMP's IPPC permit application document and associated appendices.

This report application has been prepared on the behalf of EMP by ENVIRON UK Ltd using guidance published by the Environment Agency and, in particular, following the guidance provided in the "Guidance for Operators on the Requirements of Closure Site Reports in PPC Permit Surrender Applications". This report supersedes the original site closure plan submitted to the agency in June 2004 in response to IC9.12.

The purpose of this site closure plan is to demonstrate that the installation can be decommissioned and returned to a satisfactory condition whilst mitigating and avoiding any environmental pollution or human health risks.

EMP intends to cease operations and commence the closure of the site on the 10th February 2007. There are no proposals to relocate the site or processes to new premises. Upon the completion of the site closure, and decommissioning process, it is the intention of the company to market the premises for sale for redevelopment. In order to address the implications associated with de-commissioning of the installation and in accordance with the requirements of the application guidance, EMP has prepared a revised Site Closure Plan. This is presented within the sections below.

2.0 INTRODUCTION

The information set out in this section represents the methodology and techniques by which EMP will decommission its permitted installation and close the site. The detailed procedures and method statement detailing how individual pieces of plant will be dismantled and decommissioned are not included within this document.

The Site Closure Plan addresses the cessation of the activities described in the main application document and the decommissioning of the plant. Although there are no known areas where contamination has occurred during the lifetime of the permitted operation, there are a number of areas and processes which represent a potential source zone or contain materials that require a high level of environmental management in order to minimise the potential for contamination occurring during the decommissioning process. The principal objectives of the site closure plan are therefore:

- The removal of all potentially polluting materials from the site;
- Ensure that towards the end of the plant's life, ensure that all material stocks are managed down to minimise the quantities of unused chemicals and metals feedstock;
- Define a drain down and clean in place (CIP) strategy, focusing on environmentally acceptable practices;
- To define a removal strategy for all plant and equipment on site, to ensure that all plant and equipment are appropriately decommissioned with all residual risks removed;
- Carry out a visual assessment of all identified potential pollution sources on site to assess for likelihood of contamination having occurred over the PPC permit lifetime;
- To define an investigation strategy for all areas of site which are identified as having the potential for pollution;

EMP is committed to fully complying with all relevant legislative instruments and regulatory guidance documents that maybe in-place when site closure is undertaken.

The following information is intended to provide a guide for management of materials stored at site, and their disposition in the event that the operations cease. This document is not meant to be a definitive guide on the disposal of operational materials and waste arisings. Additional consideration of materials and quantities will be needed at closure time, and may have effect on the choice of disposal options taken. For example the volumes on hand, will determine whether disposal or return to supplier is the appropriate technique. Also included are the actions required should the site be demolished or transferred to new occupiers.

3.0 PLANT DECOMMISSIONING

Prior to the cessation of activities the production planning and procurement departments in all of the sites individual manufacturing centres will ensure that the process inventory of hazardous materials (hydraulic oils, rolling oils, process chemical, solvents and lacquers etc) are reduced to an practical minimum. Upon cessation of activities an audit of each manufacturing centre shall take place for the purposes of producing an inventory of all hazardous materials to be required for removal from site.

Wherever possible, any virgin process materials (being either solid, liquid or gas) shall be returned to the original supplier for reuse. Wherever possible any hazardous materials that can be safely processed through the on site effluent treatment facility, such as coil preparation line solution chemicals, shall be diluted, mixed and processed accordingly.

All remaining waste liquids that cannot be processed in this manner shall be disposed of through dedicated waste management contractors. Many materials are held on site are located within the process systems of the production line, these materials require transfer, pumping, draining and cleaning through the use of auxiliary pipe work and pumping systems. Decommissioning of all of these process areas will generate contaminated washings and purge waters. Wherever possible, these materials shall be transferred to the effluent treatment plant for disposal, or removed through dedicated waste management contractors.

Although a decision on which specific plant and equipment will be removed, dismantled or remain has yet to be taken in all cases, at the time of the Permit Surrender no pollution potential will remain on site in association with any plant and equipment within the PPC boundary.

In many cases, in particular the rolling mills and equipment with large hydraulic capacity, the hydraulic systems will remain operational in order to aid the decommissioning and dismantling process (roll and mill stand dismantling, platen removal). Once the hydraulic systems have been used for this purpose, they will be progressively dismantled and removed from site. Sections 3.1.to 3.7 identify the key materials at each manufacturing centre and associated ancillary plant and their associated environmental pollution potential. The tables provide a general description and generic waste identification.

These tables also identify infrastructure issues such as equipment basements, pits and subsurface services which will also require cleaning and inspection as part of the decommissioning process. The

key areas of the site with significant infrastructure issues are the Ingot Plant, Hotmill, Coldmill and coil preparation lines. Each of these areas has been identified as potential PPC source zones.

It is proposed that Alcoa will Surrender their PPC permit at a point where all identified PPC contamination issues have been investigated and any potential or identified pollution sources have been removed or remediated. Due to the timelines associated with the decommissioning and preparation for the site for sale, which may include the dismantling of all equipment and buildings, the PPC surrender is likely to take place at a stage in the project prior to the final decommissioning and demolition of the plant and equipment.

Notwithstanding the above the dismantling and decommissioning of plant and equipment shall be supervised by Alcoa engineering personnel and carried out by a qualified sub-contractor. No work will commence until a detailed risk assessment and method statement has been submitted to and approved to the satisfaction of Alcoa and its project environmental consultants.

The outline procedure through which each identified manufacturing centre will be decommissioned is shown within Sections 3.1 – 3.7 below.

3.1 *INGOT PLANT*

The Ingot Plant is considered to present a low/medium potential likelihood having caused pollution since the issuance of the PPC permit. The key areas of the Ingot Plant that will require inspection and potential investigation are bulk oil storage areas, the dross house and associated yard areas. The following list represents the materials used within the Ingot Plant that will require management and control exercised in their disposal at closure;

- Refractory materials, both from process waste and from new material, stores inventory.
- Various oils and greases used for general lubrication and maintenance of the equipment.
- Castor oil used as mould release agent for the casting operation.
- Hydraulic fluids including water based, material used within the casting pit systems.
- Cooling water containing biocides.
- Chlorine gas.
- Gas oil stored within the Ingot plant bulk storage tanks.
- Aluminium Dross.

The key environmental risks associated with these materials are as follows:

- Refractory materials – dusts/nuisance issues during the breaking out and disposal stages.
- Oil and greases – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.
- Cooling water containing biocide – ecological impacts associated with accidental release to controlled waters.
- Chlorine gas – gaseous release to environment leading to human health impacts, flora and fauna damage.
- Aluminium Dross – dust/nuisance issues during disposal, dust run off issues/contamination of surface water systems, groundwater impacts due to dust.

Plant Area	Production Centre	Equipment Reference	Description	Decommissioning Method	Disposal Method.
Ingot	Furnaces	Melting Furnaces A,B,C & Holding Furnace D including inline degassing units, and induction furnaces.	<ul style="list-style-type: none"> ➤ Main furnace structures ➤ Refractory materials ➤ Ancillary plant (Fans/motors/actuators) ➤ Launderers and connecting insulated troughs (launderers). 	<p>All furnaces shall be dismantled progressively in the following sequence;</p> <ul style="list-style-type: none"> ➤ Isolation of services (fuel, energy, water, speciality gases) ➤ Draining down of water cooling systems to sewer ➤ Breaking out and removal of refractory materials ➤ Draining down of all hydraulic fluids ➤ Dismantling and removal of metal casings and ductwork 	<ul style="list-style-type: none"> ➤ Material would be collected from the various maintenance points and loaded to skip. Analysis of this material has shown it to be inert in nature and would be disposed of as inert material to land fill. ➤ There are no known RCF or asbestos containing materials within the furnace refractory ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Ingot	Furnaces	Furnace Refractory Material Supplies	<ul style="list-style-type: none"> ➤ Refractory material held on site for maintenance and repair work.. ➤ Inventory of the various materials on hand would be assessed and identified for disposal 	Not applicable	Significant quantities and batched quantities of material would be returned to the supplier. Small quantities would be disposed of in skips with used refractory material and disposed of via land fill
Ingot	All sub sections	Oils, greases and Lubricants	<ul style="list-style-type: none"> ➤ All inventories of unused materials in sealed delivery containers would be identified ➤ Used or spent materials would be inventoried and transferred to disposal storage and transport containers 	<ul style="list-style-type: none"> ➤ Hydraulic systems decanted or held in intermediate storage tanks would be drained to suitable transportation vessels, and full inventories drawn up ➤ All vessels/storage tanks would be drained down, and clean in situ prior to removal 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Heavily contaminated or spent materials would be transferred to barrels and disposed off by incineration

Ingot	Casting Pit	Mould Lubricant	Castor oil for mould lubricant would be transferred to storage, for disposal or return	<p>Systems decanted or held in barrels of intermediate bulk containers.</p> <ul style="list-style-type: none"> ➤ All vessels/storage tanks would be drained down, and clean in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site ➤ All pit areas cleaned down and fluids removed from site ➤ All services to be disconnected ➤ All remaining waters pumped to the cooling tower systems <p>Note the pit sump pumps will be configured to remain operational such that any ground water ingress is pumped to sewer</p>	Used or recovered material to be dispatched to appropriate disposal or recovery facility
Ingot	Hydraulic Systems	Pit and Furnace Hydraulics	<ul style="list-style-type: none"> ➤ Hydraulic systems ➤ Platens ➤ Casting tables ➤ Hydraulic systems to be drained from operational tanks and pipe work systems and transferred to a suitable storage, or transportation vessel 	<ul style="list-style-type: none"> ➤ Hydraulic systems decanted or held in barrels or intermediate bulk containers ➤ All vessels/storage tanks would be drained down and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site 	<ul style="list-style-type: none"> ➤ Hydraulic Oils and fluids to be disposed of via recognised oil recycling agent or assigned to incineration facility ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Ingot	Casting Pit.	Cooling tower.	<ul style="list-style-type: none"> ➤ Main cooling tower structure ➤ Fan units ➤ Motors, gearboxes and drives ➤ Pumping plant and ancillary components 	<ul style="list-style-type: none"> ➤ All cooling waters to be pumped and drained to sewer system ➤ All cooling water tanks and sumps will be cleaned and disinfected ➤ After disinfection which all waters shall be pumped to sewer 	<ul style="list-style-type: none"> ➤ Waster water to be disposed of via Dwr Cymru in line with standard practice. ➤ All biocides to be either returned to suppliers or disposed of via licensed waste contractors. ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Ingot	Casting Pit.	Process Gas. Argon	<p>Argon gas held within site bulk storage facility will be carefully controlled during plant run down period prior to decommissioning schedule. Consideration will be given to reducing capacity of storage facilities as closure approaches.</p> <p>Unused gas at closure time will be quantified.</p>	<ul style="list-style-type: none"> ➤ Upon cessation of activities, unused gas will be returned to supplier for appropriate reuse ➤ Remaining argon will be discharged to atmosphere via the main ingot plant stacks ➤ Equipment shall be purged and removed 	Very small quantities held in distribution system will be vented

Ingot	Casting Pit.	Process Gas. Chlorine	<p>Chlorine gas held within site containers will be carefully controlled during plant run down period prior to decommissioning schedule</p> <p>Capacity of storage containers will be reduced as closure approaches</p> <p>Unused gas at closure time will be quantified.</p>	<ul style="list-style-type: none"> ➤ Upon cessation of activities, unused gas will be returned to supplier for appropriate reuse ➤ All chlorine delivery pipework and associated equipment shall be purged and removed 	<ul style="list-style-type: none"> ➤ Unused gas will be returned to supplier for appropriate disposal ➤ Very small quantities held in distribution system will be removed from pipe work to suitable containers and lines purged with Nitrogen. Gas with drawn from distribution pipe work will be returned to supplier for appropriate disposal ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Ingot	Dross House	Dross press, Dross, and yard areas	Dross	<ul style="list-style-type: none"> ➤ All dross shall be transferred into skips and transferred to neighbouring IMCO site ➤ Area shall be swept down by brush and all debris removed ➤ Drains will be isolated and dross area will be washed down into yard catchment pits ➤ Contaminated runoff shall be collected by licensed waste contractors 	Off site disposal via specialised waste contractor

3.2 **HOT ROLLING (HR)**

The Hot Rolling Department is considered to present a medium potential likelihood having caused pollution since the issuance of the PPC permit. The key areas of the Hot Rolling Department that will require inspection and potential investigation are the Hot Mill basements and coolant cellars, the oil filtration houses, the Scalper, the bulk oil and the waste oil storage areas and the electrical transformer compounds.

The following list represents the materials used within the Hot Rolling Department that will require management and control exercised in their disposal at closure:

- Various hydrocarbon based lubrication oils and greases used for general lubrication and maintenance of the equipment throughout the department.
- Specifically, rolling process oil used for lubrication and cooling of the roll stands.
- Hydraulic fluids used for mechanical systems at both the Scalper and Hot Rolling Mill.
- Refractory materials, used within the Preheat Furnaces but in small quantities and during rebuild.
- Cooling waters containing biocides.

The key environmental risks associated with these materials are as follows:

- Refractory materials – dusts/nuisance issues during the breaking out and disposal stages.
- Oil and greases (including mill coolants) – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.
- Cooling water containing biocide – ecological impacts associated with accidental release to controlled waters.

Plant Area	Production Centre	Equipment Reference	Equipment Description	Decommissioning Method	Disposal Method.
HR	Scalper-	Scalper Machine	Residual hydraulic and coolant systems	<ul style="list-style-type: none"> ➤ Services to be isolated as appropriate ➤ All liquids and intermediate tanks drained, cleaned and removed ➤ All major components removed (making use of machine hydraulics where possible) ➤ All plant and ancillary equipment progressively dismantled ➤ Once all equipment is removed a thorough inspection of all remaining areas will take place to observe potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Hydraulic Oils and fluids to be disposed of via recognised oil recycling agent or assigned to incineration facility ➤ All plant and equipment shall be transferred to another Alcoa manufacturing facility ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
HR	Scalping	Lubrication Systems	<ul style="list-style-type: none"> ➤ Hydraulic oils contained within hydraulic systems ➤ Motors, pumps and filter plant ➤ Pipework 	<p>All hydraulic fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels.</p> <ul style="list-style-type: none"> ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site ➤ All pit areas cleaned down and fluids removed from site ➤ All services to be disconnected ➤ All pit and sump areas inspected for integrity ➤ Once all equipment is removed a thorough inspection of all remaining areas will take place to observe potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Oils and greases suitable for return to vendor will be returned for re issue ➤ Recoverable material to be dispatched to suitable oil / grease reprocessing companies for recovery and reuse ➤ Spent or contaminated oils and lubricants to be disposed of via incineration ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
HR	Preheats	Preheat furnaces	<ul style="list-style-type: none"> ➤ Preheat oven ➤ Unused refractory and materials ➤ Charging trolleys 	<p>All preheat ovens shall be dismantled progressively in the following sequence;</p> <ul style="list-style-type: none"> ➤ Isolation of services (fuel, energy, water, speciality gases) ➤ Draining down of water cooling systems to sewer ➤ Breaking out and removal of refractory materials ➤ Draining down of all hydraulic fluids ➤ Dismantling and removal of metal casings and ductwork 	<ul style="list-style-type: none"> ➤ Unused materials to be returned to vendor for reuse ➤ Used and contaminated/recovered materials to be suitable bagged and marked and then disposed of via an appropriate disposal route

HR	-	Hot Mill	<ul style="list-style-type: none"> ➤ Mill Stands ➤ Motors and hydraulic systems ➤ Coiling plant ➤ Hydraulic and coolant systems ➤ Extraction hoods and associated ductwork 	<ul style="list-style-type: none"> ➤ Services to be isolated as appropriate ➤ All liquids and intermediate tanks drained, cleaned and removed ➤ All major components removed (making use of machine hydraulics where possible) ➤ All plant and ancillary equipment progressively dismantled ➤ All ductwork removed and cleaned 	<ul style="list-style-type: none"> ➤ Hydraulic Oils and fluids to be disposed of via recognised oil recycling agent or assigned to incineration facility ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation ➤ All oil contaminated ductwork to be cleaned such they drain into existing cellars and/or areas served foul drains equipped with oil water interceptors
HR	Rolling Mill	Lubricating Oils and Greases systems	<ul style="list-style-type: none"> ➤ Bulk storage tanks ➤ Intermediate storage tanks ➤ Oil/Grease pumping and transfer equipment ➤ Filtration equipment and associated pipelines 	<ul style="list-style-type: none"> ➤ All lubrication fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site, with the key hydraulic system remaining operational ➤ All coolant cellar and pit areas cleaned down and fluids removed from site ➤ All pit and sump areas inspected for integrity ➤ All major components of mill dismantled ➤ All services to be disconnected ➤ Remaining mill equipment dismantled and removed ➤ Final clean down and inspection of mill cellars and pits 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Heavily contaminated or spent materials would be transferred to barrels and disposed off by incineration
HR	Rolling Mill	Coolant Cellars and coolant filtration plant	<ul style="list-style-type: none"> ➤ Cooling and hydraulic fluids ➤ Filtration plant and ancillary pumping equipment. ➤ Conditioning and treatment tanks ➤ Coolant collection sumps 	<ul style="list-style-type: none"> ➤ All coolant fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site, with the key hydraulic system remaining operational ➤ All coolant plant, pit and sump areas cleaned down and fluids removed from site ➤ All pit and sump areas inspected for integrity ➤ All major components of mill dismantled ➤ All services to be disconnected ➤ Remaining mill equipment dismantled and removed ➤ Final clean down and inspection of mill cellars and pits 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ Contaminated and spent material to be disposed of via specialist water treatment contractors and recovery contractors ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
HR	Rolling Mill	Cooling Tower.	<ul style="list-style-type: none"> ➤ Main cooling tower structure ➤ Fan units 	<ul style="list-style-type: none"> ➤ All cooling waters to be pumped and drained to sewer system 	<ul style="list-style-type: none"> ➤ Waster water to be disposed of via Dwr Cymru in line with standard practice

			<ul style="list-style-type: none"> ➤ Motors, gearboxes and drives ➤ Pumping plant and ancillary components 	<ul style="list-style-type: none"> ➤ All cooling water tanks and sumps will be cleaned and disinfected ➤ After disinfection which all waters shall be pumped to sewer 	<ul style="list-style-type: none"> ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
HR	Hot mill	Non operational Substations and transformer compounds	<ul style="list-style-type: none"> ➤ Transformer plant containing cooling oils ➤ Rectifier plant Containing Insulating oils, 	<ul style="list-style-type: none"> ➤ All equipment isolated ➤ All services disconnected ➤ Oil containing systems decanted or held in intermediate storage tanks would be drained to suitable transportation vessels ➤ All areas around base of transformers inspected for signs of contamination ➤ All vessels/storage tanks would be drained down, and clean in situ prior to removal ➤ All redundant plant to be removed off site for disposal ➤ Once redundant equipment has been removed a thorough inspection of all remaining areas will take place to observed potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All contaminated gravel material disposed to landfill ➤ All redundant plant to be removed off site for disposal or reuse by third party contractors
HR	Hot Mill	Waste Oil tanks farms	<ul style="list-style-type: none"> ➤ Waste oil tank ➤ Secondary containment and bund wall areas ➤ Pumping and pipework equipment 	<ul style="list-style-type: none"> ➤ All oils fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All tanks dismantled and removed ➤ All bund, containment and sump areas cleaned down and fluids removed from site ➤ All pit and sump areas inspected for integrity 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All tanks and associated plant to be removed off site for disposal or reuse by third party contractors

3.3 COLD ROLLING

The Cold Rolling Department is considered to present a high¹ potential likelihood having caused pollution since the issuance of the PPC permit. The key areas of the Cold Rolling Department that will require inspection and potential investigation are the Cold Mill basements and coolant cellars, the oil filtration houses, the soft ground areas around the mill extraction ducts, the bulk oil and the waste oil storage (Tank Farm) areas and the transformer compound areas.

The following list represents the materials used within the Cold Rolling Department that will require management and control exercised in their disposal at closure:

- Various hydrocarbon based lubrication oils and greases used for general lubrication and maintenance of the equipment throughout the department.
- Specifically, rolling process oil used for lubrication and cooling of the roll stands.
- Hydraulic fluids used for mechanical systems at both the Scalper and Hot Rolling Mill.
- Waste oils from waste oil tank farm and coolant treatment plant.
- Refractory materials, used within the annealing ovens.
- Cooling waters containing biocides.

The key environmental risks associated with these materials are as follows:

- Refractory materials – dusts/nuisance issues during the breaking out and disposal stages.
- Oil and greases (including mill coolants) – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.
- Cooling water containing biocide – ecological impacts associated with accidental release to controlled waters.

¹ Due to the aggressive nature of the coolant used within the Cold Mill processes there is a potential for concrete attack and degradation to have occurred within the Mill Cellars, Sumps and Coolant Filtration Plant. In addition, there is known contamination, believed to be historical, within the Cold Mill Tank Farm and adjacent areas, and visual evidence of surface contamination of the soft ground due to contaminated run off from the mill extraction systems.

Plant Area	Production Centre	Equipment Reference	Equipment Description	Decommissioning Method	Disposal Method.
CR	Annealing ovens	Controlled Atmosphere Furnaces.	<ul style="list-style-type: none"> ➤ Annealing ovens ➤ Unused refractory and materials ➤ Charging trolleys 	<p>All annealing ovens shall be dismantled progressively in the following sequence;</p> <ul style="list-style-type: none"> ➤ Isolation of services (fuel, energy, water, speciality gases) ➤ Draining down of water cooling systems to sewer ➤ Breaking out and removal of refractory materials ➤ Draining down of all hydraulic fluids ➤ Dismantling and removal of metal casings and ductwork 	<ul style="list-style-type: none"> ➤ Unused materials to be returned to vendor for reuse ➤ Used and contaminated/recovered materials to be suitable bagged and marked and then disposed of via an appropriate disposal route
CR	Cold Mill	Cold Mill	<ul style="list-style-type: none"> ➤ Mill Stands ➤ Motors and hydraulic systems ➤ Coiling plant ➤ Hydraulic and coolant systems ➤ Extraction hoods and associated ductwork 	<ul style="list-style-type: none"> ➤ Services to be isolated as appropriate ➤ All liquids and intermediate tanks drained, cleaned and removed ➤ All major components removed (making use of machine hydraulics where possible) ➤ All plant and ancillary equipment progressively dismantled ➤ All ductwork removed and cleaned ➤ Once all equipment has been removed a thorough inspection of all remaining areas will take place to observe potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Hydraulic Oils and fluids to be disposed of via recognised oil recycling agent or assigned to incineration facility ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation ➤ All oil contaminated ductwork to be cleaned such they drain into existing cellars and/or areas served foul drains equipped with oil water interceptors
CR	Rolling Mill	Lubricating Oils and Greases systems	<ul style="list-style-type: none"> ➤ Bulk storage tanks ➤ Intermediate storage tanks ➤ Oil/Grease pumping and transfer equipment ➤ Filtration equipment and associated pipelines 	<ul style="list-style-type: none"> ➤ All lubrication fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site, with the key hydraulic system remaining operational ➤ All coolant cellar and pit areas cleaned down and fluids removed from site ➤ All pit and sump areas inspected for integrity ➤ All major components of mill dismantled ➤ All services to be disconnected ➤ Remaining mill equipment dismantled and removed ➤ Final clean down and inspection of mill cellars and pits ➤ Once all equipment has been removed a thorough inspection of all remaining areas will take place to observe potential pollution pathways and associated ground contamination issues 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Heavily contaminated or spent materials would be transferred to barrels and disposed off by incineration

				<ul style="list-style-type: none"> ➤ Inspection observations will be fed into site investigation strategy 	
CR	Rolling Mill ancillary	Coolant Cellars and coolant filtration plant	<ul style="list-style-type: none"> ➤ Cooling and hydraulic fluids ➤ Filtration plant and ancillary pumping equipment ➤ Conditioning and treatment tanks ➤ Coolant collection sumps 	<ul style="list-style-type: none"> ➤ All coolant fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site, with the key hydraulic system remaining operational ➤ All coolant plant, pit and sump areas cleaned down and fluids removed from site ➤ All pit and sump areas inspected for integrity. ➤ All major components of mill dismantled ➤ All services to be disconnected ➤ Remaining mill equipment dismantled and removed ➤ Final clean down of mill cellars and pits ➤ Once all remaining equipment has been removed a thorough inspection of all remaining areas will take place to observe potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ Contaminated and spent material to be disposed of via specialist water treatment contractors and recovery contractors ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
CR	Rolling Mill ancillary	Cooling Tower.	<ul style="list-style-type: none"> ➤ Main cooling tower structure ➤ Fan units ➤ Motors, gearboxes and drives ➤ Pumping plant and ancillary components 	<ul style="list-style-type: none"> ➤ All cooling waters to be pumped and drained to sewer system. ➤ All cooling water tanks and sumps will be cleaned and disinfected ➤ After disinfection which all waters shall be pumped to sewer 	<ul style="list-style-type: none"> ➤ Waster water to be disposed of via Dwr Cymru in line with standard practice ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
CR	Cold mill ancillary	Non operational Substations and transformer compounds	<ul style="list-style-type: none"> ➤ Transformer plant containing cooling oils ➤ Rectifier plant Containing Insulating oils, 	<ul style="list-style-type: none"> ➤ All equipment isolated ➤ All services disconnected ➤ Oil containing systems decanted or held in intermediate storage tanks would be drained to suitable transportation vessels ➤ All areas around base of transformers inspected for signs of contamination ➤ All vessels/storage tanks would be drained down, and clean in situ prior to removal ➤ All redundant plant to be removed off site for disposal ➤ Once removed a thorough inspection of all remaining areas will take place to observe potential pollution 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All contaminated gravel material disposed to landfill ➤ All redundant plant to be removed off site for disposal or reuse by third party contractors

				<p>pathways and associated ground contamination issues</p> <ul style="list-style-type: none"> ➤ Inspection observations will be fed into site investigation strategy 	
CR	Cold Mill ancillary	Cold mill tanks farms	<ul style="list-style-type: none"> ➤ Waste oil tank ➤ Secondary containment and bund wall areas ➤ Pumping and pipework equipment 	<ul style="list-style-type: none"> ➤ All oils fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels. ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal. ➤ All tanks dismantled and removed ➤ All bund, containment and sump areas cleaned down and fluids removed from site ➤ Once cleaned all pit and sump areas will undergo a thorough inspection to observe potential pollution pathways and further ground contamination issues.² ➤ Inspection observations will be fed into site investigation strategy. 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse. ➤ All tanks and associated plant to be removed off site for disposal or reuse by third party contractors
CR	Cold mill ancillary	Cold Mill Extraction Systems	<ul style="list-style-type: none"> ➤ Ductwork ➤ Abatement Plant ➤ Fan units 	<ul style="list-style-type: none"> ➤ All services disconnected ➤ All oils drained from receiving vessels, and transferred to suitable storage or transportation vessels ➤ All ducts and equipment cleaned in situ prior to removal. ➤ All equipment components dismantled and removed ➤ All surrounding embankments, soil and surface bund, containment and sump areas excavated and contaminated surface soil material removed ➤ All surrounding embankments and surface areas inspected for potential sub surface pollution.³ ➤ Once removed a thorough inspection of all remaining areas will take place to observe potential pollution pathways and associated ground contamination issues. ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All contaminated surface soils and gravel material disposed to landfill ➤ All redundant plant to be removed off site for disposal or reuse by third party contractors

² Note this area is known to be contaminated and has to be remediated prior to permit surrender.

³ This area is known to have a degraded base and potentially breached sump and cellar lining

3.4 FINISHING – COIL PREPARATION LINE (C.P.L.)

The Coil Preparation Line is considered to present a medium/moderate potential likelihood having caused pollution since the issuance of the PPC permit. The key areas of the Coil Preparation Line that will require inspection and potential investigation are the Collection Sumps and areas beneath the Coil Preparation Line Process tanks, the Effluent Treatment Plant Reaction Tanks, Chemical Storage Basement areas, the external areas for the bulk storage of chemicals.

The following list represents the materials used within the Coil Preparation Line that will require management and control exercised in their disposal at closure:

- Cleaning and pre-treatment process fluids (diluted acids and alkali's) that required management and disposal.
- Various Oils and greases used for general lubrication and maintenance of the equipment are used at all process centres.
- Bulk storage facilities for chromic acid based enchan compound, other acids and alkalis.
- Hydraulic are used fro mechanical actuation equipment at all process centres.
- Associated with the Coil Preparation Line is the Effluent Treatment Plant which has bulk storage facilities for coagulants and flocculants; reaction tanks for dosing and treatment; and flocculation and clarification tanks.
- Effluent treatment cake, processed through the vacuum drum and dispensed into a sealed skip.

The key environmental risks associated with these materials are as follows:

- Process Chemicals – historical loss/leakage of material to land/groundwater, accidental spillage of chemicals to land, controlled waters or foul.
- Bulk Chemicals – historical loss/leakage of material to land/groundwater impacts, accidental spillage of chemicals to land, controlled waters or foul, human health issues associated with inhalation/ingestion of chemicals, ecological impacts associated with loss to controlled waters.
- Oil and greases – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.
- Effluent Treatment Filter Cake – ecological impacts associated with accidental release to controlled waters, land contamination impacts due to spillage.

Plant Area	Production Centre	Equipment Reference	Description	Decommissioning Method	Disposal Method.
Finishing	Coil Preparation Line	Main plant	<ul style="list-style-type: none"> ➤ Tanks ➤ Spray bars ➤ Pumps and circulation equipment 	<ul style="list-style-type: none"> ➤ All tanks (bulk storage) inventories reduced to practical minimum ➤ Upon cessation of activities all residual treatment chemicals will be transferred to the ETP ➤ All tanks, spraybars and pipework will be purged of chemicals with rinsewaters and transferred to ETP ➤ All areas around the Coil Preparation line will then be cleaned and transferred to the ETP ➤ All services associated with the OL will then be isolated to ensure that no further chemical transfer can take place ➤ Thorough inspection of all sump and associated infrastructure areas will take place to observed potential pollution pathways and associated ground contamination issues ➤ Coil preparation line will then be dismantled and removed ➤ Once removed a thorough inspection of all remaining areas will take place to observed potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ All diluted and in process inventory chemicals will be transferred to ETP ➤ All rinsewaters, residual chemical residues and washwaters will be transferred to ETP ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse. ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Finishing	Coil Preparation Line	Lubricating Oils and Greases	<ul style="list-style-type: none"> ➤ Local oil tanks and lubrication pipelines 	<ul style="list-style-type: none"> ➤ All inventories of unused materials in sealed delivery containers would be identified ➤ Materials decanted or held in intermediate storage tanks would be drained to suitable transportation vessels, and full inventories drawn up ➤ Used or spent materials would be inventoried and transferred to disposal storage and transport containers. 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Heavily contaminated or spend materials would be transferred to barrels and disposed off via incineration ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Finishing	Coil Preparation	Process Cleaning Fluid.	<ul style="list-style-type: none"> ➤ Liquids only 	<ul style="list-style-type: none"> ➤ All inventories of unused materials in sealed delivery containers would be identified 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier

	Line			<ul style="list-style-type: none"> ➤ Materials held in process storage tanks would be drained to suitable transportation vessels, and full inventories drawn up these, will be processed through the effluent treatment facility 	<ul style="list-style-type: none"> ➤ Following treatment within the effluent treatment plant materials will be disposed of via the normally established route
Finishing	Coil Preparation Line	Process Pre treatment (conversion coating) Fluid.	<ul style="list-style-type: none"> ➤ Liquids only 	<ul style="list-style-type: none"> ➤ All inventories of unused materials in sealed delivery containers would be identified ➤ Materials held in process storage tanks would be drained to suitable transportation vessels, and full inventories drawn up these, will be processed through the effluent treatment facility 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Following treatment within the effluent treatment plant materials will be disposed of via the normally established route
Finishing	Effluent	Treatment plant reactor tanks	<ul style="list-style-type: none"> ➤ Reactor tanks 	<ul style="list-style-type: none"> ➤ Upon cessation of operation⁴ each of the ETP reaction tanks will be drained and cleaned ➤ All solids and sediments shall be removed from the tanks walls and bases and disposed of accordingly ➤ All tanks will pressure washed, drained and inspected for evidence of potential pollution pathways and associated ground contamination issues. ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ All liquids will be disposed to specialist waste contractors
Finishing	Effluent	Treatment plant chemical storage areas	<ul style="list-style-type: none"> ➤ Bulk storage tanks (acids, alkalis, coagulants etc) ➤ Pumps and pipework ➤ Secondary containment areas 	<ul style="list-style-type: none"> ➤ Upon cessation of operation each of the ETP storage tanks will be drained of residual chemicals and cleaned ➤ All tanks will pressure washed, drained and inspected ➤ All tanks will be dismantled and disposed ➤ All areas will be inspected for evidence of potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ All rinsewaters, residual chemical residues and washwaters will be transferred to ETP reactor tanks for treatment ➤ All recovered chemicals will be returned to suppliers ➤ All metal and metal components (tanks, pumps, pipework) would be sent for recycling/reclamation
Finishing	Effluent	Treatment plant vacuum drum and sludge collection	<ul style="list-style-type: none"> ➤ Vacuum drum ➤ Sludge conveyor ➤ Skip areas 	<ul style="list-style-type: none"> ➤ Upon cessation of operation the vacuum drum shall be cleaned and washed down into a sealed skip area ➤ Once clean the vacuum drum will be dismantled and disposed ➤ All areas in the vicinity of the vacuum drum will be inspected for evidence of potential pollution pathways 	<ul style="list-style-type: none"> ➤ All residual chemical residues and washwaters will be transferred to a specialist waste contractor for disposal ➤ All metal and metal components (tanks, pumps, pipework) would be sent for recycling/reclamation

⁴ The Effluent Treatment Plant will be one of the last operational ancillary plants within the site as it will be used wherever possible for the holding and treatment of decommissioning derived effluents.

				<ul style="list-style-type: none"> ➤ and associated ground contamination issues. ➤ Inspection observations will be fed into site investigation strategy 	
Finishing	Effluent	Treatment plant clarifier and precipitation tanks	<ul style="list-style-type: none"> ➤ Above ground clarifier and precipitation tanks 	<ul style="list-style-type: none"> ➤ Upon cessation of operation⁵ each of the tanks will be drained and cleaned ➤ All solids and sediments shall be removed from the tanks walls and bases and disposed of accordingly ➤ All tanks will pressure washed, drained and inspected for evidence of potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ All residual chemical residues and washwaters will be transferred to a specialist waste contractor for disposal ➤ All metal and metal components (tanks, pumps, pipework) would be sent for recycling/reclamation
Finishing	Effluent.	Process Gas. Sulphur Dioxide	<ul style="list-style-type: none"> ➤ Bulk gases 	<ul style="list-style-type: none"> ➤ SO₂ held within site containers will be carefully controlled during plant run down period prior to decommissioning schedule. Capacity of storage containers may be reduced as closure approaches ➤ Upon cessation of operations all systems shall be isolated and disconnected ➤ Any recoverable gas from the distribution pipelines will be collected and returned to bulk storage tanks ➤ All pipelines shall be purged through the SO₂ scrubber with Inert gas ➤ Dismantling of pipelines and associated equipment shall commence ➤ Any unused gas at closure time will be quantified and returned to suppliers as required ➤ Once removed a thorough inspection of all remaining areas will take place to observed potential pollution pathways and associated ground contamination issues. ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Unused gas will be returned to supplier for appropriate reuse ➤ Gas recovered from distribution pipe work will be returned to supplier for appropriate disposal
Finishing	Effluent.	Lime Storage	<ul style="list-style-type: none"> ➤ Solid lime (powder) 	<ul style="list-style-type: none"> ➤ Stocks of lime for pH control during effluent treatment process will be carefully considered during plant run down period. This will assure a minimum stock on hand at shut down 	<ul style="list-style-type: none"> ➤ Unused material will be returned to supplier for appropriate reuse ➤ Residual material within system shall be processed through ETP

⁵ The Effluent Treatment Plant will be one of the last operational ancillary plants within the site as it will be used wherever possible for the holding and treatment of decommissioning derived effluents.

				<ul style="list-style-type: none"> ➤ Remaining material will be quantified ➤ Residual material within system shall be processed through ETP 	
Finishing	Effluent.	DI water generator. Acid / Alkali regeneration materials	<ul style="list-style-type: none"> ➤ Di plant ➤ Acid tanks ➤ Dosing tanks ➤ Pumps and pipework 	<ul style="list-style-type: none"> ➤ Stocks of materials for regeneration of the ion exchange beds during production of DI water will be carefully controlled during run down period. This will assure a minimum stock on hand at shut down ➤ Remaining material will be quantified and returned to suppliers ➤ Upon cessation of operations all systems shall be isolated and disconnected ➤ All pipelines shall be purged with clean water ➤ Dismantling of pipelines and associated equipment shall commence ➤ Once removed a thorough inspection of all remaining areas will take place to observed potential pollution pathways and associated ground contamination issues. ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Unused material will be returned to supplier for appropriate reuse, or disposed of directly following discussion with supplier and appropriate authorities ➤ All metal and metal components (Tanks, Motors, fans, actuators) would be sent for recycling/reclamation
Finishing	Effluent	Lubricating Oils and Greases	<ul style="list-style-type: none"> ➤ Local oil tanks and lubrication pipelines 	<ul style="list-style-type: none"> ➤ All inventories of unused materials in sealed delivery containers would be identified ➤ Materials decanted or held in intermediate storage tanks would be drained to suitable transportation vessels, and full inventories drawn up ➤ Used or spent materials would be inventoried and transferred to disposal storage and transport containers 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Heavily contaminated or spent materials would be transferred to barrels and disposed off via incineration ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation

3.5 FINISHING – COIL COATING LINE (C.C.L.)

The Coil Coating Line is considered to present a medium/moderate potential likelihood having caused pollution since the issuance of the PPC permit. The key areas of the Coil Coating Line that will require inspection and potential investigation are the Bulk Lacquer and Solvent Tanks.

The following list represents the materials used within the Coil Coating Line that will require management and control exercised in their disposal at closure:

- Various Oils and greases used for general lubrication and maintenance of the equipment are used at all process centres.
- Bulk storage facilities for solvents and lacquers.
- Barrelled Storage of solvents and lacquers.
- Hydraulic used for mechanical actuation equipment at all process centres.

The key environmental risks associated with these materials are as follows:

- Bulk storage of lacquers and solvents – historical loss/leakage of material to land/groundwater impacts, accidental spillage of chemicals to land, controlled waters or foul, human health issues associated with inhalation/ingestion of chemicals, ecological impacts associated with loss to controlled waters.
- Oil and greases – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.

Plant Area	Product ion Centre	Equipment Reference	Description	Decommissioning method	Disposal Method.
Finishing	C.C.L	Main plant process line	<ul style="list-style-type: none"> ➤ Coil Coating line ➤ Thermal oxidiser plant ➤ Stack and ancillary plant 	<ul style="list-style-type: none"> ➤ Upon cessation of plant all barrelled products will be removed ➤ All services will be disconnected ➤ All raw material inputs (lacquer feed pipes, waxes) will be isolated and disconnected ➤ All plant and equipment shall be disassembled 	<ul style="list-style-type: none"> ➤ All plant will be relocated and transferred to another Alcoa manufacturing facility ➤ Any residual non recyclable wastes will be transferred to specialist waste management companies for disposal
Finishing	C.C.L.	Lubricating Oils and Greases	<ul style="list-style-type: none"> ➤ Local oil tanks and lubrication pipelines 	<ul style="list-style-type: none"> ➤ All inventories of unused materials in sealed delivery containers would be identified. ➤ Materials decanted or held in intermediate storage tanks would be drained to suitable transportation vessels, and full inventories drawn up ➤ Used or spent materials would be inventoried and transferred to disposal storage and transport containers 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Heavily contaminated or spend materials would be transferred to barrels and disposed off via incineration ➤ Oils recovered to be dispatched to oil recovery specialist in order to recover available material for reuse ➤ All metal and metal components (Motors, fans, actuators) would be sent for recycling/reclamation
Finishing	C.C.L	Misc. Thermal Insulating Materials	<ul style="list-style-type: none"> ➤ Solid Insulating materials 	<ul style="list-style-type: none"> ➤ Unused materials on hand for maintenance and repair will be inventoried in order to prepare for optimal disposal ➤ Used material or small quantities of unused material to be collected and an inventory developed 	<ul style="list-style-type: none"> ➤ Unused materials to be returned to vendor for reuse ➤ Used and contaminated/recovered materials to be suitable bagged and marked and then disposed of via an appropriate disposal route
Finishing	C.C.L	Lacquer Bulk.	<ul style="list-style-type: none"> ➤ Bulk liquids ➤ Tanks ➤ Supply pipework and associated pumpsets 	<ul style="list-style-type: none"> ➤ Stocks of bulk lacquer of all types will be carefully controlled during run down period. This will assure a minimum stock on hand at shut down ➤ Remaining material will be quantified and returned to suppliers ➤ All remaining materials shall be disposed of to specialist waste contractor 	<ul style="list-style-type: none"> ➤ Material remaining in storage at closure, will be removed and transferred for suitable vessels for storage and / or disposal ➤ Initial objective will be to return unused material to manufacturer for recycling / reuse. ➤ Material unsuitable for return will be transported to a specialist recovery company or to a suitable disposal contractor

				<ul style="list-style-type: none"> ➤ Tanks shall be drained and vented ➤ All services shall be disconnected ➤ Dismantling of pipelines and associated equipment shall commence ➤ Once removed a thorough inspection of all remaining areas will take place to observed potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	
Finishing.	C.C.L	Lacquer Barrelled.	205L liquids	<ul style="list-style-type: none"> ➤ Stocks of bulk lacquer of all types will be carefully controlled during run down period ➤ This will assure a minimum stock on hand at shut down. Remaining material will be quantified and returned to supplier ➤ All storage areas will be clear and inspected ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Unused material to manufacturer for recycling / reuse ➤ Material unsuitable for return will be transported to a specialist recovery company or to a suitable disposal contractor ➤ All empty barrels shall be reclaimed/reused
Finishing.	C.C.L	Barrelled Petrolatum Wax.	205L liquids	<ul style="list-style-type: none"> ➤ Stocks of wax will be carefully controlled during run down period. This will assure a minimum stock on hand at shut down 	<ul style="list-style-type: none"> ➤ Sealed unused barrels will be returned to manufacturer for recycling / reuse ➤ Material unsuitable for return will be transported to a specialist recovery company or to a suitable disposal contractor
Finishing.	C.C.L	M.E.K. Bulk.	Bulk liquids	<ul style="list-style-type: none"> ➤ Stocks of bulk lacquer of all types will be carefully controlled during run down period. This will assure a minimum stock at shut down ➤ Remaining material will be quantified and returned to suppliers ➤ All remaining materials shall be disposed of to specialist waste contractor ➤ Tanks shall be drained and vented ➤ All services shall be disconnected ➤ Dismantling of pipelines and associated equipment shall commence ➤ Once removed a thorough inspection of all remaining areas will take place to observed potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ Material remaining in storage at closure, will be removed and transferred for suitable vessels for storage and / or disposal ➤ Initial objective will be to return unused material to manufacturer for recycling / reuse. ➤ Material unsuitable for return will be transported to a specialist recovery company or to a suitable disposal contractor

3.6 FINISHING – CUT TO LENGTH LINE, SLITTER AND PACKING

The Cut to Length Line, Slitter and Packing Stations are considered to present a low potential likelihood having caused pollution since the issuance of the PPC permit. The key areas of these lines that will require inspection will be the hydraulic and lubrication systems. The following list represents the materials used within the finishing area that will require management and control exercised in their disposal at closure:

- Various Oils and greases used for general lubrication and maintenance of the equipment.
- Hydraulic fluids including water based, material used within the casting pit systems.

The key environmental risks associated with these materials are as follows:

- Oil and greases – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.

Plant Area	Product ion Centre	Equipment Reference	Description	Decommissioning method	Disposal Method.
Finishing	S11 C.T.L. Packing	Main Equipment	<ul style="list-style-type: none"> ➤ Cut to length Line ➤ Slitter ➤ Packing stations 	<ul style="list-style-type: none"> ➤ Services would be disconnected ➤ All hydraulic fluids and lubricants to be drain from plant and equipment ➤ All equipment shall be disassembled and removed 	<ul style="list-style-type: none"> ➤ All plant and equipment shall be transferred to other Alcoa facilities where possible ➤ All unusable equipment shall be recycled/reclaimed where possible
Finishing.	S11 C.T.L. Packing	Hydraulic Systems	<ul style="list-style-type: none"> ➤ Pumps ➤ Hydraulic power packs ➤ Associated pipelines 	<ul style="list-style-type: none"> ➤ All hydraulic fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal. ➤ All fluids would be drained to suitable transportation vessels, and removed from site, with the key hydraulic system remaining operational 	<ul style="list-style-type: none"> ➤ Hydraulic Oils and fluids to be disposed of via recognised oil recycling agent or assigned to incineration facility
Finishing	C.T.L Pack Line	Lubricating Oils and Greases systems	<ul style="list-style-type: none"> ➤ Oil/Grease pumping and transfer equipment ➤ Filtration equipment and associated pipelines 	<ul style="list-style-type: none"> ➤ All lubrication fluids will be drained from bulk and intermediate tanks and transferred to suitable storage or transportation vessels ➤ All vessels/storage tanks would be drained down, and cleaned in situ prior to removal ➤ All fluids would be drained to suitable transportation vessels, and removed from site, with the key hydraulic system remaining operational 	<ul style="list-style-type: none"> ➤ Unused and sealed material supplies would be returned to supplier ➤ Recovered materials from intermediate storage and small volumes would be transferred to suitable transportation vessels and disposed of via Oil and lubricant recycling company ➤ Contaminated or spent materials would be transferred to barrels and disposed off by incineration

3.7 AUXILLIARY PLANT AND BUILDINGS

The auxiliary plant and associated buildings are considered to present a medium potential likelihood having caused pollution since the issuance of the PPC permit. The key areas that will require inspection will be the liquid/chemical storage areas within the store complex, the compressor house, the boiler plant house, the waste management storage areas (barrels) and the drainage system interceptors. The following list represents the materials used/stored within these areas that will require management and control exercised in their disposal at closure:

- Water treatment chemicals.
- Hydrocarbons within the drainage oil interceptors.
- Various Oils and greases used for general lubrication and maintenance of the equipment are used at all process centres.
- Bulk fuel oils within stores compound.
- Bulk storage of chemicals in IBC within the stored areas.

The key environmental risks associated with these materials are as follows:

- Oil and greases (including compressor condensate and contaminated runoff) – historical leaks and contamination of land and groundwater, accidental spillage/releases to controlled waters, foul water and land.
- Chemicals – historical loss/leakage of material to land/groundwater impacts, accidental spillage of chemicals to land, controlled waters or foul, human health issues associated with inhalation/ingestion of chemicals, ecological impacts associated with loss to controlled waters.

Plant Area	Production Centre	Equipment Reference	Description	Decommissioning method	Disposal Method.
Aux	Boiler House	Boiler and ancillary plant	<ul style="list-style-type: none"> ➤ Boiler plant ➤ Water feed and distribution pumps and equipment ➤ Condensate and Bulk Water Tanks 	<ul style="list-style-type: none"> ➤ Boiler plant to be isolated and services removed ➤ Water drained down from systems ➤ Storage tanks to be emptied and flushed ➤ Plant to be decommissioned and removed from site ➤ Building and ancillary areas to be inspected 	<ul style="list-style-type: none"> ➤ Water to be disposed of to sewer following agreement with Dwr Cymru or disposed of appropriately ➤ All plant and equipment to be removed and reclaimed where possible ➤ All non reclaimable wastes to be disposed by specialist contractors
Aux	Boiler House	Liquid chemicals	<ul style="list-style-type: none"> ➤ Water Treatment Chemicals 	<ul style="list-style-type: none"> ➤ All materials will be carefully controlled during run down to minimise stock on hand at closure 	<ul style="list-style-type: none"> ➤ All materials will be returned to suppliers under pre-agreed contract for reuse or disposal
Aux	Stores	All solid materials	<ul style="list-style-type: none"> ➤ All Materials 	<ul style="list-style-type: none"> ➤ All materials will be carefully controlled during run down to minimise stock on hand at closure 	<ul style="list-style-type: none"> ➤ All materials will be returned to suppliers under pre-agreed contract or disposed of appropriately.
Aux	Stores	All liquid materials	<ul style="list-style-type: none"> ➤ All liquid chemicals 	<ul style="list-style-type: none"> ➤ All materials will be carefully controlled during run down to minimise stock on hand at closure. ➤ Once removed a thorough inspection of all former storage areas will take place to observed potential pollution pathways and associated ground contamination issues. ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ All materials will be returned to suppliers under pre-agreed contract or disposed of appropriately ➤ Any non returnable chemicals/substances shall be disposed of through specialist contractors
Aux	Stores		<ul style="list-style-type: none"> ➤ Diesel Tank 	<ul style="list-style-type: none"> ➤ Diesel purchase will be carefully controlled during run down to minimise stock on hand at closure ➤ All tanks will be emptied and cleaned ➤ All tanks and equipment shall be removed and decommissioned ➤ Once removed a thorough inspection of all former storage areas will take place to observed potential pollution pathways and associated ground contamination issues ➤ Inspection observations will be fed into site investigation strategy 	<ul style="list-style-type: none"> ➤ All diesel will be transferred to other companies operating at site or other Alcoa facilities in UK

Aux	Site drainage systems	Site drainage systems	<ul style="list-style-type: none">➤ Collection sumps➤ Oil water interceptors	<ul style="list-style-type: none">➤ At conclusion of business at site, all site interceptors and collection sumps to be cleaned thoroughly➤ All waste materials will be collected and removed from site➤ All collection sumps and interceptors shall be left n operational status	<ul style="list-style-type: none">➤ Removed oily material to be treated at a recycling specialist or disposed of through appropriate disposal route
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4.0 CLEAN-UP OF SURFACE WATER SYSTEMS

Upon completion of the removal of any potentially contaminating process or material materials from site, the surface water systems will be drained and cleaned and the waste disposed at a suitably licensed site.

All prior to the draining and cleaning of the systems, all yard areas and drainage system will be cleaned down and flushed through to remove any residual hydrocarbon contamination.

All interceptors will then be re-filled with clean water so that the integrity of the system can be maintained.

5.0 DISMANTLING OF BUILDINGS

A decision on whether the dismantling and demolition of buildings will take place has not yet been decided by Alcoa. In the event that the site building are to be demolished a thorough review of the sites Asbestos register shall be made in accordance with HSE guidelines MDHS100 'surveying, sampling and assessment of asbestos containing materials' a thorough 'Type 3', full access survey will be carried out.

Any asbestos identified at this stage will be removed by appropriately licensed removal specialists with the agreement of the Health and Safety Executive and the Environment Agency.

The general construction of the site buildings are steel portal framework, with block work lower walls and aluminium profiled sheet skins. All building materials, with the exception of any ACM's, will be removed and reclaimed/recycled through appropriate sub-contractors.

Any contaminated materials (oil contamination or chemically degraded) would be sent to a suitably licensed disposal facility. All dismantling and demolition of buildings shall be carried out by a qualified sub-contractor. No work will commence until a detailed risk assessment and method

statement has been submitted and approved by both Alcoa and to the satisfaction of their environmental consultants.

This work, if arising will occur after the submission of the PPC Permit Surrender

7.0 SITE INVESTIGATION STRATEGY

In accordance with EA PPC Guidance H8, Alcoa will carry out an intrusive investigation in all areas where a potential pollution pathway, or known contamination has arisen over the permit lifetime. This investigation will be scoped with full agreement with the Environment Agency, following a detailed site inspection and walkover of all production areas of site within the PPC boundary. The inspection will be carried out by appropriately qualified third parties within all areas of the site that have been identified within Section 3.1 to 3.7.

The site inspection process will include the following key aspects;

- Detailed visual inspection of all sumps, cellars and subsurface structures on site with an identified pollution potential. This inspection will concentrate on integrity of sumps, linings/membrane and underground services such as ducts and pipework
- Detailed visual inspection of all bulk storage tanks, associated secondary containment areas and loading and unloading areas
- Concrete core samples of all areas where there is a high likelihood of pollution having occurred. i.e. in areas where;
 - significant hydrocarbon staining is present,
 - degradation of concrete floors/cellars/ducts has occurred
 - breaching of floor/cellars/duct linings have occurred
- Intrusive site investigation, sampling and analysis of soils and groundwaters in all areas where there is a likelihood of contamination arising, or insufficient data is available to be able to make a determination.
- Development of a remediation strategy for any areas where contamination associated with the PPC source zones is observed.

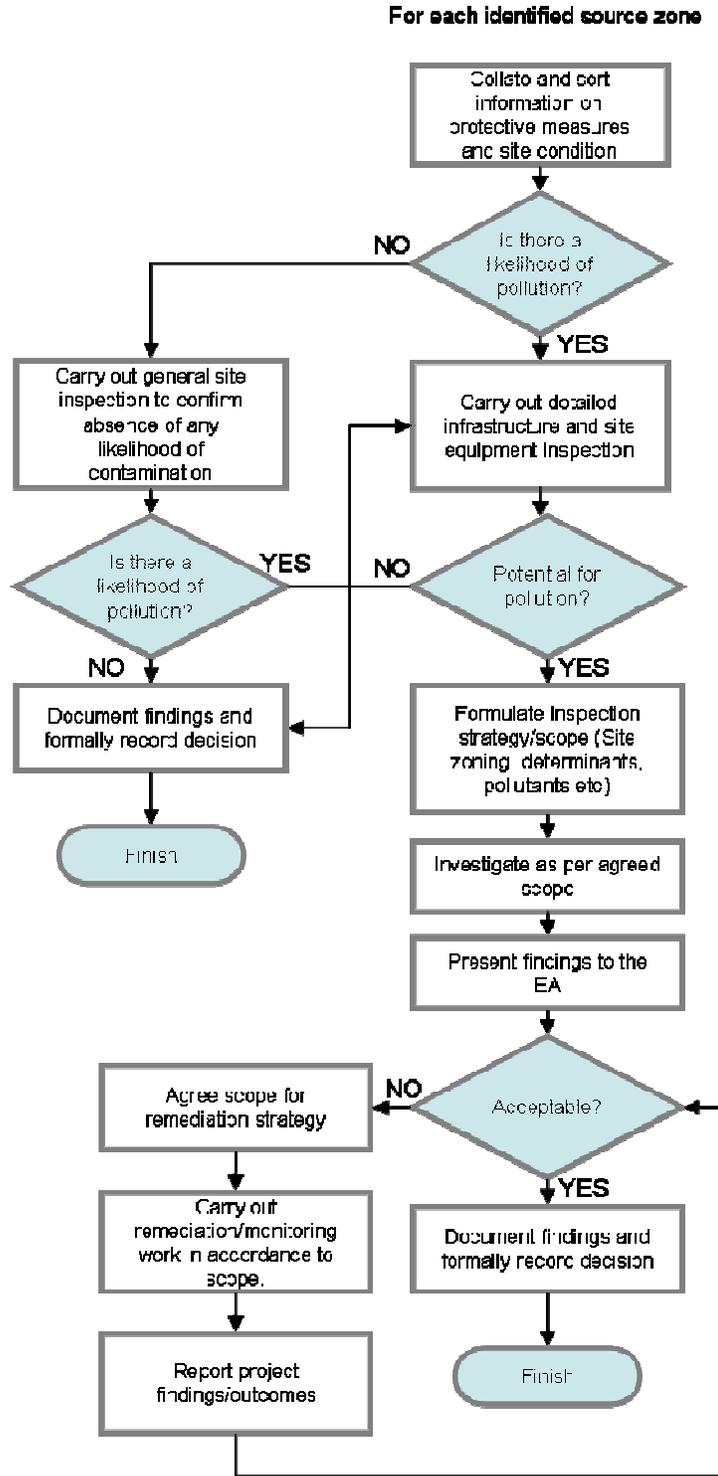


FIGURE 1 – SITE INVESTIGATION METHODOLOGY

8.0 EMERGENCY CONTINGENCY

Throughout the decommissioning and closure process EMP will have on hand the Waunarlwydd Works emergency response team. This team will be able to provide the full response of emergency measures, spillage response, fire control, and first aid.

All contractors on site will be working under the responsibility of the appointed lead contractor who will be contractually obliged to ensure that safe systems of work and emergency control measures are provided for all personnel working on the project.

The Alcoa EHS team will remain present throughout all stages of the site closure and decommissioning process and will oversee the correct deployment of this decommissioning programme.

This team is planned to remain in place until the final sale and disposal of the site.

9.0 ENVIRONMENTAL MONITORING

Alcoa will undertake ongoing environmental monitoring throughout the equipment decommissioning and building dismantling stages. Due to the relatively high sensitivity of the site location, within 100m of a residential area, it is proposed that periodic day time and night time environmental noise monitoring, as well as air quality (dust) monitoring will be carried out. All activities involving the decommissioning and demolition of the site shall be carried during daytime operating hours (08:00 – 18:00).

All contractors will be required to employ noise and dust mitigation measures during all stages of demolition.

10.0 SALE OR TRANSFER OF LAND

In the event that the land occupied by Alcoa is to be sold or transferred to new owners, Alcoa will undertake a full risk based intrusive site investigation in any area where insufficient site characterisation information is available.

This report will take into account off all operations on the land (including historic issues and cross boundary issues) and the associated impact on the soil and groundwater beneath the site.

Should any contamination be identified, the necessary remediation would be carried out or the liabilities transferred to the new occupier as agreed by both parties and any regulatory authorities.

These investigations and remediation activities will take place outside of the Permit Surrender Process.

APPENDIX 1- PHOTOLOG OF KEY POTENTIAL SOURCE AREAS



Photo 1: Ingot Plant – Potential Source Zone – Dross House



Photo 2: Ingot Plant – Potential Source Zone – Bulk Fuel Storage

Title: PPC Site Closure Report	Approved: SMB	Project-No.: 1 64-C11505	Date:
Site: Swansea			Jan 2007
Client: Alcoa Mill Product	ENVIRON		



Photo 3: Hotmill – Potential Source Zone - Scalper



Photo 4: Hotmill – Potential Source Zone – Waste Oil Tank Farm

Title: PPC Site Closure Report	Approved: SMB	Project-No.: 1 64-C11505	Date:
Site: Swansea			Jan 2007
Client: Alcoa Mill Product	ENVIRON		



Photo 5: Hotmill Area – Potential Source Zone – Transformer compound

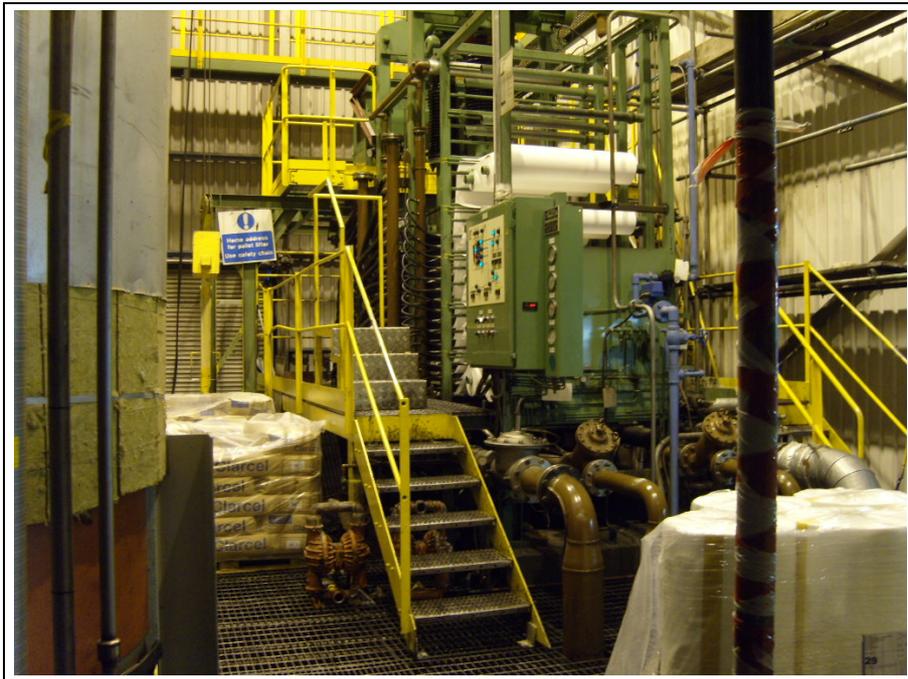


Photo 6: . Hotmill Area – Potential Source Zone – Mill Coolant Filtration plant

Title: PPC Site Closure Report	Approved:	Project-No.:	Date:
Site: Swansea	SMB	1 64-C11505	Jan 2007
Client: Alcoa Mill Product	ENVIRON		



Photo 7: Cold Mill Area – Potential Source Zone –Mill Extraction and HT compound



Photo 8: Cold Mill Area – Potential Source Zone – Tank Farm

Title: PPC Site Closure Report	Approved: SMB	Project-No.: 1 64-C11505	Date:
Site: Swansea			Jan 2007
Client: Alcoa Mill Product	ENVIRON		



Photo 9: Coil Prep Line – Potential Source Zone – Process tanks



Photo 10: Coil Prep Line – Potential Source Zone - Effluent Treatment Plant Tanks

Title: PPC Site Closure Report	Approved: SMB	Project-No.: 1 64-C11505	Date:
Site: Swansea			Jan 2007
Client: Alcoa Mill Product	ENVIRON		



Photo 9: Coil Coating Line – Potential Source Zone – Lacquer Tanks



Photo 10: Coil Coating Line – Potential Source Zone – Solvent Tanks

Title: PPC Site Closure Report	Approved: SMB	Project-No.: 1 64-C11505	Date:
Site: Swansea			Jan 2007
Client: Alcoa Mill Product	ENVIRON		



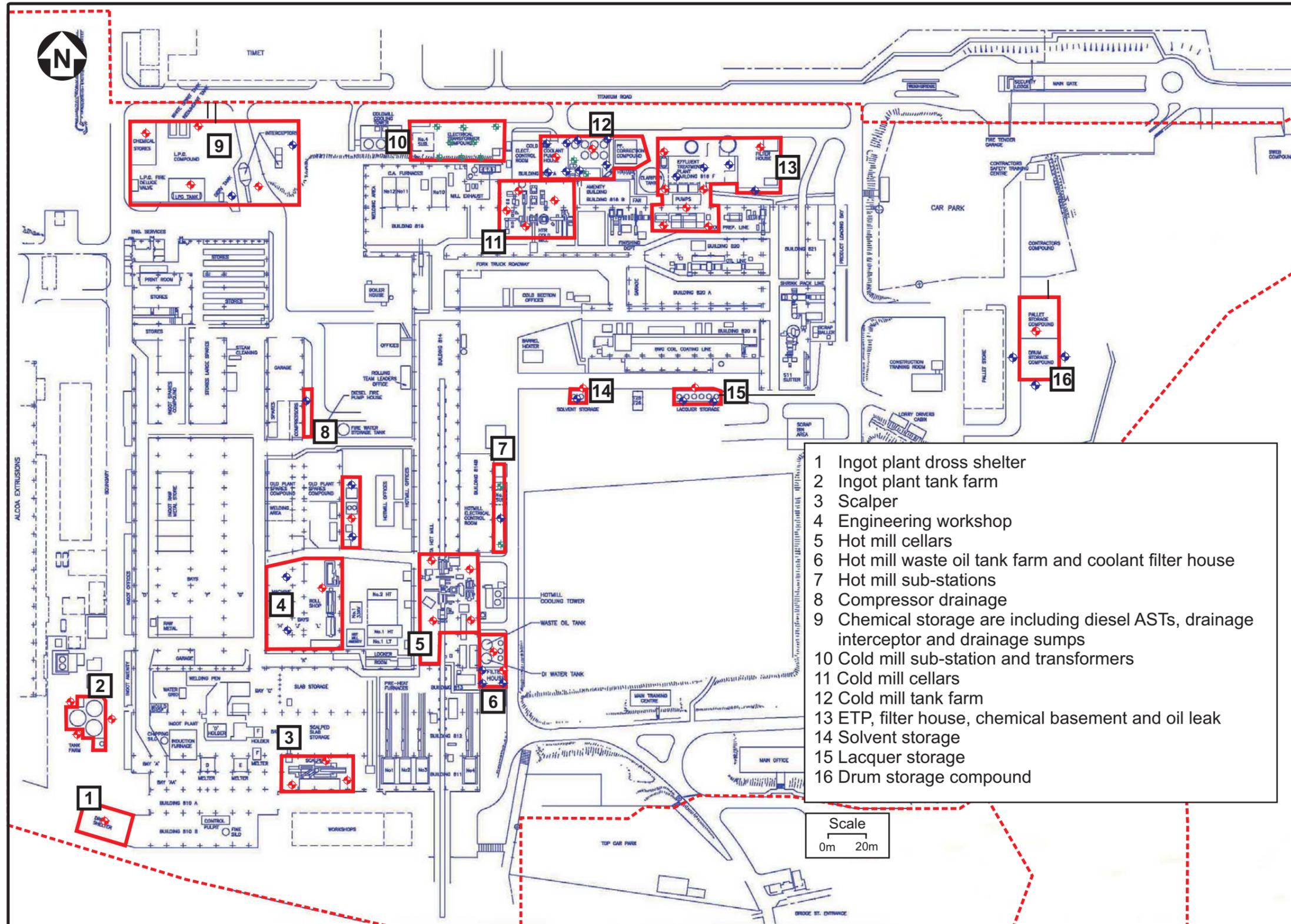
Photo 9: Auxiliary Area – Potential Source Zone – Waste Storage Areas



Photo 10: Auxiliary Area – Potential Source Zone – Liquid Storage Areas (Stores)

Title: PPC Site Closure Report	Approved: SMB	Project-No.: 1	Date:
Site: Swansea		64-C11505	Jan 2007
Client: Alcoa Mill Product	ENVIRON		

APPENDIX 2 - FIGURES



- 1 Ingot plant dross shelter
- 2 Ingot plant tank farm
- 3 Scalper
- 4 Engineering workshop
- 5 Hot mill cellars
- 6 Hot mill waste oil tank farm and coolant filter house
- 7 Hot mill sub-stations
- 8 Compressor drainage
- 9 Chemical storage are including diesel ASTs, drainage interceptor and drainage sumps
- 10 Cold mill sub-station and transformers
- 11 Cold mill cellars
- 12 Cold mill tank farm
- 13 ETP, filter house, chemical basement and oil leak
- 14 Solvent storage
- 15 Lacquer storage
- 16 Drum storage compound

Legend

- ALCOA Site Boundary
- PPC Zone Boundaries
- ⊕ Monitoring Borehole
- ⊕ Monitoring Window Sample Hole
- ⊕ Hand Excavated Sample



**Alcoa Mill Products, Swansea
Site Closure Support**

Figure 1
Identified PPC
Potential Source Zones
and Proposed
Sample Locations

Client: Alcoa

Scale: Refer to Scale Bar

Project No.: 64-CBP8802

Date: January 2007