Kimberly-Clark

Barrow Mill

BAT conclusions (Pulp and Paper including board, tissue and speciality from RCF & virgin pulp)

January 2020

Responses from the original BAT Conclusions review in March 2015 have been reviewed and revised where necessary. The responses have been brought up-to-date and where necessary amended to accommodate the proposed modifications to site which include the installation of the new and modified facilities – TM5, Line 5 and Line 7 – and the removal of existing facilities – TM1 & TM4.

None of the BAT-Conclusions which were not applicable in 2015 have subsequently become applicable due to the proposed changes.

The following BAT-Conclusions are considered N/A to Barrow Mill current and future operations.

BAT 3, 4, 9, 11, 19-41, 48-51.

The previous BAT Conclusions report submitted in 2015 referred to Paper Machines as PM. This version refers to Tissue Machines as TM. TM and PM are interchangeable. For example PM3 = TM3.

8.1.1 Environmental management systems (EMS)

BAT 1

1. In order to improve the overall environmental performance of the plants for the production of pulp, paper and board, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:

   i. commitment of the management, including senior management; The scope (e.g. level of details) and nature of the EMS (e.g. standardised or non-standardised) will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.
   ii. definition of an environmental policy that includes the continuous improvement of the installation by the management;
   iii. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;
   iv. implementation of procedures paying particular attention to:
   (a) structure and responsibility
   (b) training, awareness and competence
   (c) communication
   (d) employee involvement
   (e) documentation
   (f) efficient process control
   (g) maintenance programmes
   (h) emergency preparedness and response
   (i) safeguarding compliance with environmental legislation;
   v. checking performance and taking corrective action, paying particular attention to:
   (a) monitoring and measurement (see also the Reference Document on the General Principles of Monitoring)
   (b) corrective and preventive action
   (c) maintenance of records
   (d) independent (where practicable) internal and external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;
   vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management;
   vii. following the development of cleaner technologies;
   viii. consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life;
   ix. application of sectoral benchmarking on a regular basis.

   Barrow Mill has an established Environmental Management System (EMS) to ensure that environmental protection is of primary consideration to the activities of the site. The EMS provides a documented environmental management plan written to implement the site's environmental policy, to make certain that all the effects of the activities of the site conform to the site policy and its associated objectives and targets, to continually reduce the impact on the environment and to strive for continuous improvement.

Kimberly-Clark Corporation has developed its own Environmental Health and Safety (EHS) management system that is aligned to, and functionally compatible with, ISO 14001 and ISO 18001. The alignment to ISO standards allows Barrow Mill to gain external certification of their Management System. Barrow Mill achieved ISO14001 certification in 2009 and has held it continuously since. A copy of the Site Environmental Policy and ISO14001 certificate is included in the Appendix – BAT 1 Kimberly-Clark policies.

The Kimberly Clark Corporate EHS MS has been implemented at Barrow Mill since 2005. Successful implementation of the KC MS is determined by an annual site based self-assessment, periodic internal Corporate EHS audits and third party external audits.

The KC and Barrow EHS MS is comprised of the following elements:

ELEMENT 1 - POLICY AND ORGANIZATION
Element 1.1 – EHS Policy
Element 1.2 – Leadership Roles and Responsibilities
Element 1.3 – EHS Steering Committee
Element 1.4 – Employee Involvement

ELEMENT 2 – PLANNING
Element 2.1 – Identification of EHS Regulatory and Legislative Requirements and KC Standards
Element 2.2 – EHS Aspects/Hazards and Impacts
Element 2.3 – Critical Task Analysis
Element 2.4 – Critical EHS Equipment
Element 2.5 – EHS Improvement Plan

ELEMENT 3 - IMPLEMENTATION AND OPERATION
Element 3.1 – Training Awareness and Competence
Element 3.2 – Communication
Element 3.3 – Control of Documents and Records
Element 3.4 – Operational Control
Element 3.5 – Emergency Preparedness and Response

ELEMENT 4 - CHECKING AND CORRECTIVE ACTION
Element 4.1 – Monitoring and Measurement
Element 4.2 – Evaluation of Regulatory Compliance
Element 4.3 – Incident Investigation
Element 4.4 – Planned Inspections
Element 4.5 – Corrective and Preventive Actions
Element 4.6 – EHS Assessments

ELEMENT 5 - MANAGEMENT REVIEW
Element 5.1 – Management Reviews

A management review to check the effectives of the EMS is carried out bi-annually to review EMS performance. References to Programs, Procedures or Work Instructions throughout this response are controlled documents forming part of the Site's EMS.

The EHS MS will be reviewed and amended as necessary to accommodate the proposed modifications discussed in the EPR Variation and to ensure continued compliance with the BAT1 requirements.

BAT 1 - COMPLIANT

8.1.2 Materials management & good housekeeping

BAT 2

2. BAT is to apply the principles of good housekeeping for minimising the environmental impact of the production process **by using a combination of the techniques given below:**

a. Careful selection and control of chemicals and additives
b. Input-output analysis with a chemical inventory, including quantities and toxicological properties
c. Minimisation of the use of chemicals to the minimum level required by the quality specifications of the final product
d. Avoiding harmful substances (e.g. Nonylphenol ethoxylate-containing dispersion or cleaning agents or surfactants) and substitution by less harmful alternatives)
e. Minimise the input of substances into the soil by leakage, aerial deposition and the inappropriate storage of raw materials, products or residues.
f. Establish a spill management programme and extend the containment of relevant sources, thus preventing the contamination of soil and groundwater
g. Proper design of the piping and storage systems to keep the surfaces clean and to reduce the need for washing and cleaning

All chemicals and raw materials are selected and used on site as per PR-27346 – Chemical Management Procedure (see Appendix - BAT 2). This procedure together with PR-27351 – Control of Spills Procedure (see below) addresses all of the techniques listed in BAT 2.

Wood pulp is either Elemental Chlorine Free (ECF) or Total Chlorine Free (TCF) and is low in BOD and COD loading. Biocide is used in TM3 & TM5, where microbiological activity can cause problems. Washouts are carried out on all machines as required. De-foamers used in Barrow mill are shown to have biodegradability >95%. Mercury free caustic is in use in the De-Inked Plant (DIP) process. All dyes used are non-toxic and harmless to aquatic life.

Chemical dosing is controlled according to PR-27346 – Chemical Management Procedure to ensure minimum quantities are used as required by the process and product requirements. Dosing of chemicals is proportional to production / flow rates. Routine checks are carried out to monitor addition rates and chemical strength. In addition the use of nutrient, boiler chemicals, biocides, clarifier chemicals and creping chemicals are monitored on a routine basis by external suppliers. All key process chemicals additions are interlocked to the appropriate process to prevent over dosing during a shut down.

Nonylphenol ethoxylate containing substances are not used on site and replacement chemicals are reviewed to ensure less harmful alternatives are considered. PR-27346 – Chemical Management Procedure ensures that the

introduction, delivery and storage, replenishment and use of hazardous substances are managed to prevent any harm to personnel or the environment. All materials are assessed through the site COSHH processes, and the Safety Management of Change processes. An inventory of all chemicals used on site, including quantities and toxicological properties is maintained within the site COSHH database (see also Table 1: Raw Material Inventory, below). The data gathered for all of these processes ensures consideration is given to the following concerns when selecting raw materials.

- Spillages
- Chemical content of material.
- Biodegradability
- Hazardous by products resulting from side reactions or natural breakdown of the material.
- Impacts on the Effluent Treatment Plant (ETP) and the discharges from the ETP.
- Dosing control

All chemicals are stored in bunded areas on impermeable ground and to the requirements of PR-27346 – Chemical Management Procedure. At no point are materials allowed to be transported over permeable ground. Delivery pipework is within the bunded or process area and any drain valves fitted to the bunds are locked. Inspections are carried out to verify the integrity of bunds.

Contamination of soil and groundwater is prevented as detailed in PR-27351 - Control of Spills Procedure (Appendix - BAT 2) and PR-29331 – Emergency Response Procedure.

Washouts and housekeeping is carried at periodic intervals on all paper machines, and the recycled fibre plant, as dictated by product quality specifications, machine runability and Health and Safety requirements.

The Materials management & good housekeeping procedures will be reviewed and amended as necessary to accommodate the proposed modifications discussed in the EPR Variation and to ensure continued compliance with the BAT2 requirements. The Project considered in the design phase the selection of chemicals for use in TM5, Line 5 and Line 7 to ensure that appropriate chemicals were selected and would be used, handled and stored in facilities that complied with the BAT2 requirements and in quantities that were minimized.

BAT 2 – COMPLIANT

Raw material/function	Chemical nature/ Composition	Addition rates	Addition point	Fate % to product	Fate % to ETP	Fate % to waste	Fate % to air	Environmental impact of raw material	Practical alternatives
Paper pulp	Wood pulp	Up to 100%	Hydrapulper	90%	10%	10%*	0%	Taken to animal bedding	None
Waste paper	Mixed papers	Up to 100 %	DIP Hydrapulper	75%	25%	25%*	0%	Taken to animal bedding	None
Solubiliser	Sodium hydroxide	0.3%	Bleaching tower to RF	Est 60%	Est 40%	0%	0%	Raises effluent pH.	None
Flocculent	Cationic polyacrylamide	0.1%	Effluent	0%	100%	0%	0%	Rapidly eliminated from the aquatic medium by irreversible absorption onto suspended matter	None
Flocculent	Anionic polymer	0.1%	Kroftas	0%	100%	0%	0%	Not expected to cause environmental problems	None
Coagulant	Cationic polymer	0% to 0.1%	Effluent	0%	100%	0%	0%	Not expected to cause environmental problems	None
Coagulant	Anionic water soluble polymer	0% to 1.0%	Krofta	Est 50%	50%	0%	0%	Not expected to cause environmental problems	None
Dry strength additive	Solution of modified natural polymer.	0.4%	Machine chests	Est 50%	Est 50%	0%	0%	Contributes to BOD Biodegradable No toxicity	None
Fabric cleaner	Aqueous alkaline solution of phosphate, inorganic salt and surfactant	Foam cleaner Shock addition	Felt	0%	100%	0%	0%	Not expected to cause environmental problems	None
Fabric cleaner	Caustic and surfactants in aqueous solution	0.7% to 1.0%	Belt presses	0%	100%	0%	0%	None established	None
Fabric cleaner	Solvent naphtha	Shock cleaner	Felts & wires	0%	Est 98%	0%	Est 2%	Toxic to aquatic life	
Felt Conditioner	Cationic polymer and surfactant in aqueous solution	0.2% to 0.8%	Felt	0%	100%	0%	0%	None established	None
Scale prevention	Polycarboxylate and Phosphonate in water	5-50mg/l	Vacuum seal pit	0%	100%	0%	0%	None established	None

Raw material/function	Chemical nature/ Composition	Addition rates	Addition point	Fate % to product	Fate % to ETP	Fate % to waste	Fate % to air	Environmental impact of raw material	Practical alternatives
Wet strength additive	Cationic polymer in aqueous solution	1% to 5% dependant on product	Machine chests	50%	50%	0%	0%	Not readily biodegradable.	None
Biocide	Mixture in solvent	5-15kg/day	Cooling tower	0%	100%	0%	0%	Not classified as dangerous to the environment	None
Biocide	Aqueous solution of quaternary ammonium salt and Bronopol	0.005%	Backwater	0%	100%	0%	0%	Toxic to aquatic life	None
Release agent	Fatty acid ester	0.07%	MG cylinders	Est 50%	Est 50%	0%	0%	No long term ecological problems	None
Defoamer	Emulsion of organic hydroxy compounds, fatty acid esters and surfactants	0.06%	Backwater	0%	100&	0%	0%	Biological Elimination 97%	None
Dye	Azo dyestuffs	Up to 0.2%	Stock system	Est 95%	Est 5.0%	0%	0%	No long term ecological problems	None

Table 1: Raw Material Inventory

8.1.3 Water and waste water management

BAT 5

In order to reduce freshwater use and generation of waste water, BAT is to close the water system to the degree technically feasible in line with the pulp and paper grade manufactured **by using a combination of the techniques given below.**

This BATC has associated Performance levels (AEPL) for waste water flow. You must indicate where in the appropriate ranges of AEPL's you currently are.

a. Monitoring and optimising water usage
(Generally applicable)
b. Evaluation of water recirculation options
(Generally applicable)
c. Balancing the degree of closure of water circuits and potential drawbacks; adding additional equipment if necessary
(Generally applicable)
d. Separation of less contaminated sealing water from pumps for vacuum generation and reuse
(Generally applicable)
e. Separation of clean cooling water from contaminated process water and reuse.
(Generally applicable)
f. Reuse of process water to substitute for freshwater (water recirculation and closing of water loops).
(Applicable to new plant and major refurbishments. Applicability may be limited due to water quality and/or product quality requirements or due to technical constraints (such as precipitation/incrustation in water system) or increase odour nuisance.)
g. In-line treatment of (parts of) process water to improve water quality to allow for recirculation or reuse.
(Generally applicable)

PR-27344 - Freshwater Management Procedure (see Appendix - BAT 5) defines the minimum requirements for the site to manage fresh water in an efficient and controlled way encompassing best practice and complying with Regulatory and Other requirements.

The site has established water usage as a Key Performance Indicator (KPI) and this data is reviewed daily, weekly and monthly during productions and management meetings. Information on water usage is shared through live data on active view at each of the Paper Machines. Dashboards and through the monthly Environment Meeting as specified in the site EMS.

Specific water usage on paper machine TM3 for the last 2 years is shown in the table below; together with estimated figure ranges for the new TM5. These are based on manufacturers data and will be validated upon start up. (Table 2: Barrow Water Usage).

		2018	2019	2020 Assumption	AEPL Weighted Range
TM5	Production (Tonnes)			70,000	
	Water Usage l/Minute			915	
	m^3/tonne			8 to 12	5.125-21.25m^3/tonne
PM 3	Production (Tonnes)	39223	40354	41930	
	Water Usage (m^3)	495396	644119	420000	
	m^3/tonne	12.63	15.96	10.00	5.125-21.25m^3/tonne

Table 2: Barrow Water Usage

Each of the paper machines has a filtration system on its primary water loop, which clarifies the white water and returns the filtrate for use as hydrapulper and consistency dilution water. Filtrated water usage for the machine showers on the felt and wire sections is maximised so as not to impact machine runnability or product quality. Excess white water from the paper machines is directed to the broke plants. All paper machines have the latest Dissolved Air Flotation (DAF) systems. Dependant on the paper machine and end use of the water, the clarified water from the DAFs passes through further fine screening before being used on the machine showers. A simplified diagram showing the water loops on both paper machines is included in the Appendix - BAT 5 (BAT 5 Water System Summary).

Backwater tanks have been sized so as to provide adequate storage to balance the generation of backwater and its requirement for stock dilution. No additional fresh water make-up is required on any of the white water or excess water storage tanks.

The wire and felt sections both require water continuously and intermittently for cleaning. In general the external showers are all provided by filtrated white water while the inside showers use freshwater.

All wash-down hoses use recycled water.

In line with other dust scrubbers on site, no recovery of waste water from Line 5 and 7 dust scrubbers is feasibility as the fibre content is very low and the fibres are short in length. The location of the scrubbers is distant from any point or drain where fibre can be recovered so we do not believe the recovery is practicable or cost effective.

The water and wastewater management procedures will be reviewed and amended as necessary to accommodate the proposed modifications discussed in the EPR Variation and to ensure continued compliance with BAT5 requirements. The Project considered in the design phase the use of water in TM5, Line 5 and Line 7 to ensure that water use could be minimized, water/wastewater could be recycled wherever possible and compliance with the BAT5 requirements was achieved. Water use monitoring is incorporated into the TM5 design, segregation and water recycling is available where possible. The water used for the dust scrubber systems associated with Lines 5 & 7 however cannot be reused as stated above but flowrates and disposal of dust contaminated wastewater will be optimized in the scrubber systems.

BAT 5 – COMPLIANT

8.1.4 Energy consumption and efficiency

BAT 6

In order to reduce fuel and energy consumption in pulp and paper mills, **BAT is to use technique (a) and a combination of the techniques given below.**

a. Use an energy management system that includes all of the following features:
   i) Assessment of the mills overall energy consumption and production.
   ii) Locating, quantifying and optimising the potentials for energy recovery
   iii) Monitoring and safeguarding the optimised situation for energy consumption
   (Generally applicable)
b. Incinerate waste and residues from the production of pulp and paper with high organic content and calorific value to recover energy
   (Only applicable if the recycling or reuse of wastes and residues from the production of pulp and paper with a high organic content and high calorific value is not possible)
c. Cover the steam and power demand of the production processes as far as possible by the cogeneration of heat and power (CHP)
   (Applicable for all new plants and for major refurbishments of the energy plant, as far as the economic viability is ensures. Applicability in existing plants may be limited due to the mills layout and available space)
d. Use of excess heat for the drying of biomass and sludge, to heat boiler feedwater and process water, to heat buildings, etc.
   (Applicability of this technique may be limited in cases where the heat sources and locations are far apart)
e. Use of thermo compressors
   (Applicable to both new and existing plants for all grades of paper and for coating machines, as long as medium pressure steam is available).
f. Insulation of steam and condensate pipe fittings
   (Generally applicable)
g. Use of energy efficient vacuum systems for dewatering
   (Generally applicable)
h. Use of high efficiency electrical motors, pumps and agitators
   (Generally applicable)
i. Use of frequency inverters for fans, compressors and pumps
   (Generally applicable)
j. Match steam pressure levels with actual pressure needs
   (Generally applicable)

Energy is a major cost element of site production and is therefore subject to regular management scrutiny under the Energy Management System. Energy use per asset is tracked on daily basis by the asset teams using Active View for live data in the Paper Machines. On a monthly basis the Site Energy and Climate Steering Committee meet and review electricity, gas, steam and water use against benchmark. The new TM5 and Lines 5 and 7 will be integrated into this system. Monthly reports are compiled detailing energy consumption across the site. This provides baseline data and monitors progress on energy reduction measures. In addition this data is used to compare actual energy usage against detailed site specific energy benchmarks and to ensure compliance with Corporate Environmental Performance Standards. Barrow Mill has a designated Energy Co-ordinator with responsibility for tracking energy use, monitoring energy efficiency and implementing capital energy projects. Energy use and progress against site

specific targets is tracked through the KC EHS Management System as described in BAT 1.

Barrow Mill has an Energy Management Policy (See Appendix – BAT1) and are subject to external ESOS audits. The last audit was undertaken in 2019.

TM5 includes an additional "Energy Management Module" within the Distributed Control System (DCS) that captures all electrical, steam and gas consumption for the process by area. This was purchased as an additional tool and can be used to aid process and energy optimisation.

TM5 incorporates an "Automatic Balance Control" for the hood and process air system to optimise and maintain energy consumption of the drying system, together with a remote connection to OEM for machine diagnostic and optimisation including energy performance

A list of waste generated on site is included in the Appendix - BAT 12 Waste Register. Where practical all wastes are recycled or re-used. De-Inked Plant rejects, and general waste are not suitable for recycling due to mixed nature of waste streams and are processed off-site into Refuse Derived Fuel (RDF) before being used as in a waste to energy plant. The calorific value of these materials is as shown below:

- DIP Rejects 33 – 44 MJ/kg
- General Waste 18 – 24 MJ/kg

Heat recovery is employed throughout the facility and includes air to air heat exchangers and air to water heat exchangers. TM3 has a heat exchanger on the hood exhaust, with a cascade hood arrangement to improve efficiency. The heat exchanger is used for both make-up air and combustion air. The air to air heat exchanger uses the hood exhaust air to heat up the incoming combustion & make-up air, thereby reducing the energy requirement. Heat from the boiler stacks is used to pre-heat boiler feedwater. TM5 incorporates a waste heat steam generator that will use excess heat from the drying hood system exhaust to generate steam from the Yankee separator condensate.

Thermo compressors are installed on all paper machines using steam for drying. TM3 uses one thermo compressor to control the Yankee steam pressure on the ingoing steam line to the Yankee and uses the main steam's motive force to draw in recirculated steam from the Yankee (standard on Yankee dryer technology). TM5 has a thermo compressors included in Yankee primary steam loop.

All steam and condensate systems so far as practicable are insulated to save energy and the reduce risk of burns to operators. Inspection and maintenance of the insulation is included in the Preventative Maintenance schedule.

Vacuum generation on all paper machines represent a major use of electrical energy and hence vacuum levels are carefully matched to production and process requirements. Energy efficient turbo-blowers are installed on the vacuum systems on both paper machines.

The design of suction pressure roll vacuum boxes and UHLE boxes are optimised to verify maximum de-watering at minimum energy use. Post Pressure Roll Consistency, vacuum levels and felt life are monitored to ensure excess vacuum pumps are not being operated.

Key to energy use on the machines is the forming, felt and pressure roll design. Felt design is a multi-axial press fabric which allows for excellent drainage and sheet dryness. Fabric vendors regularly monitor and report on the performance of the fabrics and ensure the latest design of clothing is utilised on the machines. Polyurethane Suction Pressure Roll covers are installed on TM3 and the drainage hole pattern was changed to increase the open area which effectively improves the post pressure roll consistency and consequently reduces drying energy. TM5 has improved mechanical pressing capability resulting in a reduced requirement for thermal drying.

All new motors purchased are IE3 with frequency inverters and IE4 for fixed speed. For motor selection, we use reputable suppliers such as ABB or Brook Crompton. Frequency invertors are used throughout the site on various applications. Energy consumption of pumps and fans throughout the facility is periodically reviewed and a cost: benefit analysis carried out on the applicability of installing further invertor drives.

Each boiler is fitted with a superheater and economiser for steam and water temperature control. Steam pressure at the boiler is 20 bar and this feeds into a common header that distributes steam to all paper machines and the DIP. Steam demand can range from 2-20 tonnes output and a common steam main desuperheater maintains the steam export temperature to Mill requirements. Each boiler was converted to dual fuel burners in the early nineties, natural gas or gas oil. The burners have air or steam atomisation when on oil and air if there is no steam. An automatic continuous blow down system maintains boiler total dissolved solids at the correct level.

The energy management procedures will be reviewed and amended as necessary to accommodate the proposed modifications discussed in the EPR Variation and to ensure continued compliance with BAT6 requirements. The Project considered in the design phase the use of energy in TM5, Line 5 and Line 7 to ensure that energy use could be minimized, energy recovery could be adopted wherever possible, energy efficient equipment was installed wherever practicable (for example VSDs) and compliance with the BAT6 requirements was achieved.

BAT 6 - COMPLIANT

8.1.5

BAT 7

In order to prevent and reduce the emission of odorous compounds originating from the waste water system, **BAT is to use a combination of the techniques given below.**

a. Design paper mill processes, stock and water storage tanks, pipes and chests in such a way as to avoid prolonged retention times, dead zones or areas with poor mixing in water circuits and related units, in order to avoid uncontrolled deposits and the decay and decomposition of organic and biological matter.
   (I Applicable for odours related to water system closure)
b. Use of biocides, dispersants or of oxidising agents (e.g. Catalytic disinfection with hydrogen peroxide) to control odour and decaying bacteria growth.
   (Applicable for odours related to water system closure)
c. Installation of internal treatment processes ("kidneys") to reduce the concentrations of organic matter and consequently possible odour problems in the white water system.
   (Applicable for odours related to water system closure)
a. Implementing closed sewer systems with controlled vents, using chemicals in some cases to reduce the formation of and to oxidise hydrogen sulphide in sewer systems.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
b. Avoid over-aeration in equalisation basins (balance tanks) but maintain sufficient mixing.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
c. Ensuring sufficient aeration capacity and mixing properties in aeration tanks; revise the aeration system regularly.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
d. Guarantee proper operation of secondary clarifier sludge collection and return sludge pumping.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
e. Limit retention time of sludge in sludge storages by sending the sludge continuously to the dewatering units.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
f. Avoid the storage of waste water in the spill basin (balance tank) longer than is necessary; keep the spill basin empty.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
g. If sludge dryers are used, treatment of thermal sludge dryer vent gases by scrubbing and/or bio filtration (such as compost filters).
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).
h. Avoid air cooling towers for untreated effluent by applying plate heat exchangers.
   (II. Applicable for odours related to waste water treatment and sludge handling, in order to avoid conditions where waste water or sludge becomes anaerobic).

Historically the facility does not have an issue with odorous compounds originating from the paper machine, DIP or effluent treatment plant. No external substantiated complaints related to odour have been received by the mill within the last 5 years.

All process tanks and agitators have been designed to optimise machine performance and therefore avoid prolonged water or stock retention. The continuous nature of the tissue process does not allow for stagnation within the water or stock loops. During routine fabric and felt changes all stock chests are cleaned out and no deposition issues have been identified during these shut downs.

Biocide is dosed into thick stock and back water loops as referenced in BAT 5.

Levels of organic matter in the white water systems are kept to a minimum by the use of dissolved air flotation (DAF) units on each paper machine. Each DAF is maintained by the paper machine asset team and a weekly service visit is made by an external contractor to ensure high solids removal efficiency (>85%) is maintained. Further clarification is also applied using various strainers and filters in order to minimise freshwater usage as referenced in BAT 5.

The effluent treatment plant (ETP) is designed to avoid odour build up and controlled according to the site Effluent Control Plan (see BAT 16). The aeration tank blowers are controlled using pressure, speed and on-line oxygen analysers allow visibility of correct dissolved oxygen levels. As the effluent plant is an activated sludge system correct oxygen levels must be maintained to prevent anaerobic conditions developing and filamentous bacteria flourishing. Over aeration is detrimental to the air distribution membranes and damages forming flocs preventing good settlement. The ETP balance tank has blowers (variable speed drives) and mixers to ensure even mixing and provide a consistent flow going forward.

Sludge is constantly pumped out of the primary ETP clarifiers and into the sludge tank as well as a direct sludge feed from the De-Inking Plant. From the ETP sludge tank the material is continuously pumped up to two belt presses where it is dewatered before disposal. An elephant filter was installed in 2017 to capture fibre from TM3 and TM4 before it went to effluent. This reduced crumble quantities significantly. TM5 will now be fitted to the elephant filter and with the removal of TM1 we anticipate crumble levels falling further. All waste water from the presses goes directly back into the ETP process and is not retained. Sludge exiting the belt presses is fed into a covered storage building. Housekeeping of sludge within the storage area is controlled according to Procedure PR-27338 Crumble Management (Currently under review - Available on-site). Continuous removal of the sludge and stock rotation of the shed prevents the potential build-up of odour.

Sludge dryers are not used on site and untreated or treated effluent is not cooled.

The Project considered in the design phase the potential for odour generation in TM5, Line 5 and Line 7 to ensure that odour potential was minimised wherever possible and compliance with the BAT7 requirements was achieved. No odorous chemicals are to be introduced to site as a result of the proposed modifications.

BAT 7 - COMPLIANT

8.1.6 Monitoring of key process parameters and of emissions to water and air

BAT 8

BAT is to monitor the key process parameters according to the table *(list)* given below.

Air

Pressure, temperature, oxygen, CO and water vapour content in flue-gas for combustion processes

(Continuous)

Parameter

Water

Water flow, temperature and pH

P and N content in biomass, sludge volume index, excess ammonia and ortho-phosphate in the effluent and microscopy checks of the biomass

(Periodic)

Volume flow and CH4 content of biogas produced in anaerobic waste water treatment

(Continuous)

H2S and CO2 contents of biogas produced in anaerobic waste water treatment

(Periodic)

All monitoring of key process parameters is carried out as required by the existing EPR permit (see below, Table 3: EPR Monitoring Requirements) Additional sampling is undertaken at the Effluent Treatment Plant to ensure process stability and includes tests such as sludge settlement, microscopy, and solids throughout the process.

The boilers are subject to standard tests on a daily basis (5 days) and weekly basis by an external contractor. The weekly service comprises of makeup water analysis comprising of total hardness, pH, Iron. Specific tests on alkalinity, pH, total dissolved solids, sulphite and polymer are conducted on the boilers. Carbon monoxide and oxides of nitrogen are monitored on the boilers emissions on a quarterly basis using an accredited MCERTS contractor as required by the EPR permit Weekly evaporation tests are conducted, with daily blow downs and continuous oxygen monitoring and temperature monitoring in the stack.

Particulates are monitored and measure by a third party specialist accredited to MCERTS on an annual basis. TM5, Line 5 and Line 7 will be incorporated into this testing regime.

All Water testing is carried out in accordance with current permit conditions

All ETP results are recorded on the Effluent Plant Daily Log (Excel spreadsheet) and results tracked during daily production meetings (see Appendix: BAT 8 - Copy of Effluent Plant Daily Log).

No anaerobic treatment plants are in operation on the site.

The Project results in the installation of 5 new point source emissions to air that it is envisaged will be included in the varied permit. It has been assumed that similar requirements for monitoring as currently required for the existing

sources will be specified and accordingly facilities to enable monitoring to be undertaken by MCERTS contractors are being installed on the new exhaust stacks. The project has no impact on the current arrangements for monitoring of the water discharges from site.

BAT 8 - COMPLIANT

BAT 10

BAT is to carry out the monitoring and measurement of emissions to water, as indicated below, on a regular basis according to EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards which ensure the provision of data of an equivalent scientific quality.

Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC)
Monitoring associated with BAT 19, BAT 33, BAT 40, and BAT 45
Daily

BOD_5 or BOD_7
Monitoring associated with BAT 19, BAT 33, BAT 40, BAT 45
Weekly

Total Suspended Solids (TSS)
Monitoring associated with BAT 19, BAT 33, BAT 40, and BAT 45
Daily

Total Nitrogen
Monitoring associated with BAT 19, BAT 33, BAT 40, and BAT 45
Weekly

Total Phosphorus
Monitoring associated with BAT 19, BAT 33, BAT 40, and BAT 45
Weekly

EDTA, DTPA
-
Monthly where EDTA or DTPA chelating agents are used in the process

AOX (according to EN ISO 9562:2004)
-
Once every two months, but N/A to plants that provide evidence that no AOX is generated or added via chemical additives and raw materials

Relevant metals (e.g. Zn, Cu, Cd, Pb,Ni)
-
Once per year

Monitoring of the above parameters is carried out to the methods and frequency specified in the permit. Copies of external test results confirming the test standards used are available as hardcopy at the facility.

The project does not impact the above monitoring requirements.

BAT 10 - COMPLIANT

8.1.7 Waste Management

BAT 12

In order to reduce the quantities of wastes sent for disposal, BAT is to implement a waste assessment (including waste inventories) and management system, so as to facilitate waste reuse, or failing that, waste recycling, or failing that, "other recovery", **including a combination of the techniques given below.**

a. Separate collection of different waste fractions (including separation and classification of hazardous waste)
(Generally Applicable)
b. Merging of suitable fractions of residues to obtain mixtures that can be better utilised.
(Generally Applicable)
c. Pre-treatment of process residues before reuse or recycling.
(Generally Applicable)
d. Material recovery and recycling of process residues on site.
(Generally Applicable)
e. Energy recovery on or off site from wastes with high organic content.
(For off-site utilisation the applicability depends on the availability of a third party)
f. External material utilisation.
(Depending on the availability of a third party)
g. Pre-treatment of waste before disposal.
(Generally Applicable)

A full list of wastes generated on site showing the European Waste Code (EWC), treatment and disposal method is shown in Appendix – BAT 12 (Waste Register). Waste is collected, handled, treated and disposed of in accordance with procedures PR-27330 - Duty of Care and PR – 27339 Control of Waste - Segregation and Handling (Appendix – BAT 12).

The Environmental Procedures referenced above provide for administration, recording, monitoring and auditing of waste disposal practices on site. The site waste management controls cover the following:

- Wastes routinely generated;
- Wastes currently authorised for disposal;
- Auditing contractors; and
- Provision of waste description and transfer notes
- Waste segregation and collection
- Pre-treatment of manufacturing wastes where applicable
- Material recovery and recycling

Releases of solid waste and sludges occur indirectly. All waste of this nature is collected in a controlled manner, appropriately stored, baled, compacted and consigned for off-site disposal, recycling or treatment observing the necessary duty of care using a registered contractor. Good broke produced on site is baled and reprocessed on site. Mixed broke is sold as a product for reuse.

No manufacturing wastes undergo thermal processing on-site and off-site energy recovery from waste is as described in BAT 6.

The waste management procedures will be reviewed and amended as necessary to accommodate the proposed modifications discussed in the EPR Variation and to ensure continued compliance with the BAT12 requirements. The Project considered in the design phase the generation of waste from TM5, Line 5 and Line 7 to ensure that waste generation could be minimized, waste could be reused & recycled wherever possible and compliance with the BAT12 requirements was achieved.

BAT12 - COMPLIANT

8.1.8 Emissions to Water

BAT 13

In order to reduce nutrient (nitrogen and phosphorus) emissions into receiving waters, **BAT is to substitute chemical additives with high nitrogen or phosphorus contents by additives containing low nitrogen and phosphorus contents.**

(Applicable if the nitrogen in the chemical additives is not bio available (i.e. It cannot serve as nutrient in biological treatment) or if the nutrient balance is in surplus).

Process additives or chemicals with high Nitrogen and Phosphorus content (see BAT 2 – Table 1) are not used on site. A nutrient containing N and P is added at the effluent plant in order to provide the necessary macro-nutrients for healthy biological growth.. See also BAT 16

The main sources of process water used in the mill is water abstracted from the soft water provided by UU from the River Duddon; hard water supplied by UU from Ormsgill; and borehole extraction on site. Seasonal variations in river flow can lead to occasional fluctuations in discharge N and P levels (although well within permitted limits).

The project does not impact the above arrangements.

BAT 13 - COMPLIANT

BAT 14

In order to reduce emissions of pollutants into receiving waters, **BAT is to use all of the techniques given below.**

a. Primary (physico-chemical) treatment
b. Secondary (biological) treatment

(Not applicable to plants where the biological load of waste water after the primary treatment is very low, making biological treatment technically or economically not viable, e.g. Some paper mills producing speciality paper).

The site ETP and mill water systems comprises of primary (dissolved air flotation and screening) and secondary (activated sludge) treatment.

After primary treatment (as described in BAT 5) the excess water from the paper machines and DIP flows through a coarse screen to the ETP balance tank

(capacity 4,000m^3). The balance tank provides dilution and mixing to give an even flow of consistent quality going forward.

From the balance tank the flow is regulated to two existing settlement ponds with a capacity of 2,000m^3. These ponds allow solid material to sink and be pumped out to the sludge tank, and clean water to flow through into the biological side of the plant. The sludge from the sludge tank is pumped over the belt presses to remove any water and produce effluent crumble.

Three Mixing chambers (selectors) with a total capacity of 187m^3 allow incoming water from the settlement ponds to mix with returned activated sludge and nutrients in the most effective way to control the biology downstream. The selectors provide aerobic conditions and nutrient for the biology to clarify the water.

Equal flows from the selectors continue through the two aerations basins (13,500m^3 capacity). Oxygen levels, pH, and nutrient levels are carefully controlled within the aeration tanks to allow the biology to thrive. The large capacity of the aeration tanks have been designed to allow optimum retention through this process before final treatment.

Final treatment consists of two sediment clarifiers where the sludge is separated by gravity from the cleaned water. Approximately 90% of the activated sludge is returned to the selector tanks, with the remainder wasted to control microbiological levels in the aeration tank. The treated water then flows to the treated water tank where it accumulates for re–use in the process. Excess treated water flows into controlled waters, Scarth Hole in Walney Channel.

The ETP has been designed to treat three million gallons of water per day. Capacity of the plant is such that from the point where in coming water comes into the balance tank to the discharge of clean, treated water takes approximately three days.

The project does not impact the above arrangements.

BAT 14 - COMPLIANT

BAT 15

When further removal of organic substances, nitrogen or phosphorus is needed, **BAT is to use tertiary treatment as described in section 8.7.2.2.**

Tertiary treatment is not a requirement. The plant has been designed to meet urban waste water treatment standards, and all discharge results are within existing permit limits.

The project does not impact the above arrangements.

BAT 15 – COMPLIANT

BAT 16

In order to reduce emissions of pollutants into receiving waters from biological waste water treatment plants, **BAT is to use all of the techniques given below.**

a. Proper design and operation of the biological treatment plant.
b. Regularly controlling the active biomass.
c. Adjustment of nutrient supply (nitrogen and phosphorus) to actual need of the active biomass.

The current effluent plant was constructed in 2001 and was designed to meet all applicable BATs. The Effluent Plant is manned 24 hours a day 365 days of the year with a 5 shift rota. There are day staff available in support.

The effluent plant is managed through the Effluent Plant Control plan. This is a detailed spreadsheet tool that covers all of the following elements:

Centreline settings, housekeeping, prevention checks, and maintenance schedules for the 6 process zones listed below.

1. Coarse screen, balance tank, primary settlement
2. Primary pumping pit
3. Flash mixing, selector and aeration
4. Secondary clarifier, RAS pumps and flume
5. Activated sludge/ chemical systems
6. Belt press and polymer.

A copy of the Effluent Plant Control Plan is available in hardcopy at the facility.

Daily testing is required as per current permit requirements as well as additional testing to aid process understanding (refer to BAT 8). The plant is controlled via a Distributed Control System (DCS) and visual monitoring of conditions throughout the process.

Sludge wastage is checked and adjusted according to a combination of sludge age, mixed liquor suspended solids in the aeration basin and visual inspection of the plant. Wastage of activated sludge is either increased or decreased to ensure optimum population of biology, ensuring good settlement and a sludge age of 25 days in winter and 20 days in the summer. Wastage levels and changes are documented as per the requirements of the Effluent Plant Control Plan.

Nutrient dosing is automatically metered. Nutrient residuals and changes to addition rates are documented as per the requirements of the Effluent Plant Control Plan.

The Project does not impact the above arrangements.

BAT 16 - COMPLIANT

8.1.9 Emissions of Noise

BAT 17

In order to reduce the emissions of noise from pulp and paper manufacturing, **BAT is to use a combination of the techniques given below.**

a. Noise reduction programme. Description: a noise-reduction programme includes identification of sources and affected areas, calculations and measurements of noise levels in order to rank sources according to noise levels and identification of the most cost effective combination of techniques, their implementation and monitoring
(Generally applicable)
b. Strategic planning of the location of equipment, units and buildings. Description: noise levels can be reduced by increasing the distance between the emitter and the receiver and by using buildings as noise screened
(Applicable to new plants. In the case of existing plants, the relocation of equipment and production units may be restricted by the lack of space or by excessive costs.)
c. Operational and management techniques in buildings containing noisy equipment. Description: this includes: improved inspection and maintenance of equipment to prevent failures; closing of doors and windows of covered areas; equipment operation by experienced staff; avoidance of noisy activities during night-time; provisions for noise control during maintenance activities
(Generally applicable)
d. Enclosing noisy equipment and units. Description: enclosure of noisy equipment such as wood handling, hydraulic units and compressors in separate structures, such as buildings or soundproofed cabinets where internal-external lining is made of impact-absorbent material
(Generally applicable)
e. Use of low-noise equipment and noise-reducers on equipment and ducts. *(Generally applicable)*
f. Vibration insulation. Description: vibration insulation of machineries and decoupled arrangement of noise sources and potentially resonant components
(Generally applicable)
g. Soundproofing of buildings. Description: this potentially includes use of; sound-absorbing materials in walls and ceilings; sound-isolating doors; double-glazed windows
(Generally applicable)
h. Noise abatement. Description: noise propagation can be reduced by inserting barriers between emitters and receivers. Appropriate obstacles include protection walls, embankments and buildings. Suitable noise abatement techniques include fitting silencers and attenuators to noisy items of equipment such as steam releases and dryer vents
(Applicable to new plants. In the case of existing plants, the insertion of obstacles may be restricted by the lack of space).
i. Use of larger wood-handling machines to reduce lifting and transport times and noise from logs falling onto log piles or the feed table.
(Generally applicable)
j. Improved ways of working, e.g. Releasing logs from a lower height onto log piles or the feed table; immediate feedback of the level of noise for the workers.

(Generally applicable)

Kimberly-Clark Barrow Mill is located in an industrial zone adjacent to the busy Park Road (A590) and within audible range of the developing off-shore wind farm. The mill operates continuously, 24 hours a day, seven days a week and emits steady noise principally from the paper machines and their associated steam vents, stacks, pumps, motors and compressors.

Noise monitoring is conducted by approved contractors inside the mill and at locations outside of the mill boundaries. All external noise results have been within acceptable limits.

Any noise complaints are handled in accordance with site Environmental Management System requirements.

All high end noise emitters such as compressors, blowers and hydraulic units are housed within sounds proof booths or inside existing buildings. External blower stacks are fitted with silencers. Infrequent operations such as 'blowdowns' are conducted according to set conditions that prescribe the time of day and length of activity for the operation.

All new equipment or changes to existing equipment would be required to go through the site Safety Management of Change process, SP03 SMOC (see Appendix - BAT 17). This procedure requires that the noise impact from site changes is considered before any changes are made and that those impacts are mitigated accordingly. In addition to SMOC all major re-builds are subject to planning approval and compliance to planning conditions.

Operational and Management techniques include on-site Condition Monitoring. This is carried out on a weekly basis according to the schedule which is contained within the E-Monitor VA management system, which is an on-line database. On-site contractors initially check all the machine readings and download the information into the system. In addition to routine monitoring any abnormal noise emissions would be recorded during these inspections. P3T Engineering analyse all the information on a weekly basis, this type of analysis can identify basic causes such as lack of lubrication, alignment to more severe conditions of equipment, such as being out of balance or having significant component failure. Once analysed, all the reports are sent directly to the Machine Engineers, Reliability Leader and Engineering planning to ensure corrective actions are put in place. Doors are maintained shut in order to comply with site noise limits and to meet British Retail Consortium Requirements.

The noise management procedures will be reviewed and amended as necessary to accommodate the proposed modifications discussed in the EPR Variation and to ensure continued compliance with BAT17 requirements. The Project considered in the design phase the generation of noise from TM5, Line 5 and Line 7 to ensure that noise generation could be minimized and compliance with the BAT17 requirements was achieved. Appropriate mitigation has been included in the new facilities where required. For example silencers on blowers & stacks etc.

BAT 17 - COMPLIANT

8.1.10 Decommissioning

BAT 18

In order to prevent pollution risks when decommissioning a plant, **BAT is to use the general techniques given below.**

a. Ensure that underground tanks and piping are either avoided in the design phase or that their location is well known and documented.
b. Establish instructions for emptying process equipment, vessels and piping.
c. Ensure a clean closure when the facility is shut down, e.g. To clean up and rehabilitate the site. Natural soil functions should be safeguarded, if feasible.
d. Use of a monitoring programme, especially relative to groundwater, in order to detect possible future impacts on site or in the neighbouring areas.
e. Develop and maintain a site closure or cessation scheme, based on risk analysis, that includes a transparent organisation of the shutdown work taking into account relevant local specific conditions.

All information included in the original IPPC application related to site decommissioning is still applicable. Existing underground pipes are tanks are documented on site engineering drawings and no new underground structures have been added since 2001. Future upgrades to the plant would go through the site Management of Change process (see also BAT 17) that would ensure impact to ground and groundwater was assessed during the initial project design.

No spills, incidents or uncontrolled discharges have occurred on site that would impact the results of the surveys completed for the IPPC Phase 1a Risk Assessment.

Ground condition risk assessment and monitoring is being completed in accordance with the current requirements of the environmental permit.

Demolition work completed in TM1 was done under CDM and in accordance with specific methods of work and risk assessments to minimise any risk of contamination. Contractor activities were closely monitored and photographed to demonstrate working practices.

Site closure or cessation would be carried out in accordance with the Barrow KC Site Closure Plan and in accordance with KC Corporate requirements.

The Project considered the requirements of BAT 18 during the design phase and ensured that compliance with BAT 18 was achieved. No underground tanks or pipework is to be installed and any potential future decommissioning issues were avoided where possible by specification of equipment and materials of construction and layout design. The site SCR monitoring regime is currently being revised. In addition any site closure or decommissioning plans for the site will be updated to accommodate the proposed modifications.

BAT 18 - COMPLIANT

8.5 BAT conclusions for processing paper for recycling

The BAT conclusions in this section apply to all integrated RCF mills and to RCF pulp mills. For integrated RCF paper mills, BAT 49, BAT 51, BAT 52c and BAT 53 of papermaking also apply, in addition to the BAT conclusions mentioned in this section.

8.5.1 Materials management

BAT 42

In order to reduce the risk of contamination or to prevent contamination of soil and groundwater and to reduce wind drift of paper for recycling and diffuse dust emissions from the paper for recycling yard, **BAT is to use one or a combination of the techniques given below.**

a. Hard surfacing of the storage area for paper for recycling
(Generally applicable)
b. Collection of contaminated run-off water from the paper for recycling storage area and treatment in a waste water treatment plant (uncontaminated rainwater e.g. From roofs can be discharged separately)
(Applicability may be restricted by the degree of contamination of run-off water (low concentration) and/or the size of the waste water treatment plants (large volumes))
c. Surround the terrain of the paper for recycling yard with fences against wind drift.
(Generally applicable)
d. Cleaning regularly the storage area and sweeping associated roadways and emptying gully pots to reduce diffuse dust emissions. This reduces wind-blown paper debris, fibres and the crushing of paper by on-site traffic that may cause additional dust emission, especially in the dry season.
(Generally applicable)
e. Storage of bales or loose paper under a roof to protect the material from weather influences (moisture, microbiological degradation processes etc).
(Applicability may be restricted by the size of the area)

Extensive concrete hard standing exists in all major operational areas. The concrete acts as a suitable and effective barrier to the potential contamination of soil and groundwater.

All bunded areas and external drains flow to the fresh water interceptor and then to the effluent treatment plant for treatment prior to licensed discharge into Walney Channel. No releases are envisaged from any dry or solid raw materials either by seepage or leaching. In all cases liquid releases would be diluted by the process effluent flow and treated in the effluent treatment plant.

A Grounds Audit is carried out by representatives of the Site Leadership team. Housekeeping issues and damage to hard standing would be recorded during these audits and all findings logged in the site Corrective and Preventive Action (CAPA) tool.

All raw materials, with the exception of some virgin fibre and recycled fibre bales, are stored under cover. There are two on site storage sheds which provide storage and some shelter from the prevailing wind. There is a high turnover of bales so accumulation of material is low. The site is swept by a mechanical sweeper. Site boundary and internal fences prevent drifting of loose material.

The existing arrangements for materials management at site are not to be significantly altered as a result of the proposed modifications. Appropriate arrangements have been considered for TM5, Line 5 and Line 7 where necessary - hardstanding, drainage and cleaning requirements etc.

BAT 42 - COMPLIANT

8.5.2 Waste water and emissions to water

BAT 43

In order to reduce fresh water use, waste water flow and the pollution load, ***BAT is to use a combination of the techniques given below.***

a. Separation of the water systems.
(see section 8.7.2.1)
b. Countercurrent flow of process water and water recirculation.
(see section 8.7.2.1)
c. Partial recycling of treated waste water after biological treatment.
(Many RCF paper mills recycle a partial stream of biologically treated waste water back into the water circuit, especially mills producing corrugated medium or testliner).
d. Clarification of white water
(see section 8.7.2.1)

Fresh water use within the DIP is managed as described in BAT 5. Unclarified water from the DIP process is collected separately from the other mill water systems and flows back through the DIP plant counter-current to stock flow. The unclarified water is used directly for pulper dilution and the excess flow passes to the DIP dissolved air flotation (Krofta) unit. Clarified water from the DIP Krofta is then used for stock dilution and non-critical shower water within the DIP. Excess DIP clarified water flows to the ETP balance tank. Final treated effluent is also returned to the mill when the Deink plant is operational at a maximum rate of 120m^3/hour for use on critical process showers and stock dilution.

The existing arrangements for waste water and emissions to water at site are not to be significantly altered as a result of the proposed modifications. Appropriate arrangements have been considered for TM5, Line 5 and Line 7 where necessary.

BAT 43 - COMPLIANT

BAT 44

In order to maintain advanced water circuit closure in mills processing paper for recycling and to avoid possible negative effects from the increased recycling of process water, ***BAT is to use one or a combination of the techniques given below.***

a. Monitoring and continuous control of the process water quality
(See section 8.7.2.1. Techniques a) to c) are applicable to RCF mills with advanced water circuit closure.)
b. Prevention and elimination of biofilms by using methods that minimise emissions of biocides.
(See section 8.7.2.1. Techniques a) to c) are applicable to RCF mills with advanced water circuit closure.)
c. Removal of calcium from process water by a controlled precipitation of calcium carbonate.
(See section 8.7.2.1. Techniques a) to c) are applicable to RCF mills with advanced water circuit closure.)

Primary and secondary treatment systems are continuously monitored via the site DCS. In addition the shift manufacturing team regularly monitor performance of the Krofta's, and the chemical supplier for the DAF's checks their process performance on a weekly basis. Stock chests and water loops are routinely ran empty and washed out during felt and fabric changes on the paper machines. Calcium carbonate build up within the mill water loops is not a significant issue and removal of calcium from the process water is not required. The TM3 Cooling Tower is monitored on a weekly basis by an external contractor. A copy of all internal and external monitoring data related to water systems is available in hardcopy at the mill.

The existing arrangements for water management at site are not to be significantly altered as a result of the proposed modifications. Appropriate arrangements have been considered for TM5 where necessary – for example monitoring and continuous control of process water quality and usage.

BAT 44 - COMPLIANT

BAT 45

In order to prevent and reduce the pollution load of waste water into receiving waters from the whole mill, **BAT is to use a suitable combination of the techniques specified in BAT 13, BAT 14, BAT 15, BAT 16, BAT 43 and BAT 44.**

(For integrated RCF mills, emissions from papermaking are included in the BAT-AELs since the white water circuits of the paper machine are closely connected with those of the stock preparation. Note: all BAT AEL's only apply to direct discharges from the installation and not to discharges to sewer.)

Table 8.19

BAT associated emission levels for the direct waste water discharge to receiving waters from the integrated production of paper and board from recycled fibres pulp, produced with deinking on site.

COD

0.9 - 3.0 (for tissue paper, levels up to 4kg/t may occur)
Yearly average in kg/t

Total Suspended Solids (TSS)

0.08 - 0.3. 0.1 - 0.4 for tissue paper
Yearly average in kg/t

Total N

0.01 - 0.1. 0.01 - 0.15 for tissue paper mills
Yearly average in kg/t

Total Phosphorus

0.002 - 0.01. 0.002 - 0.015 for tissue paper
Yearly average in kg/t

Adsorbable organically bound halogens (AOX)

0.05 for wet strength paper
Average of samples obtained during one year in kg/t

BOD

No BAT AEL set but expected to be low (around 25mg/l) as 24-hour composite sample

	2017	2018	2019	Weighted Range	Complaint (Y/N)
Nitrogen (kg/tonne)	0.083	0.050	0.048	0.01-0.15kg/t	Y
Phosphorous (kg/tonne)	0.017	0.005	0.009	0.0028-0.128kg/t	Y
COD (kg/tonne)	1.079	1.387	1.088	0.337-2.125 kg/t	Y
TSS (kg/tonne)	0.3176	0.3010	0.2890	0.04-0.3625kg/t	Y
AOX (kg/tonne)	0.0010	0.0008	0.0008	0.05 kg/t	Y

Table 4: ETP Emission Levels

Management of the ETP as per BAT 16 ensures the final discharges results are within the BAT AELs listed in Table 4.

BOD is sampled on a daily basis from the flume (spot sample unfiltered) to help manage the process. An additional sample is taken from composite sampler every 7 days in addition. BOD levels are generally single figures and tend to be very stable with little fluctuation.

Compliance with the current or any modified future BAT-AELs is envisaged as being achievable as a result of the proposed modifications. The proposed modifications are envisaged as resulting in a reduction in both flow and load to the existing ETP but this cannot be quantified at this stage.

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BAT 45 - COMPLIANT

8.5.3 Energy consumption and efficiency

BAT 46

In order to reduce energy consumption, **BAT is to reduce electrical energy consumption within RCF processing paper mills by use of a combination of the techniques given below.**

a. High consistency pulping for disintegrating paper for recycling into separated fibres *(New plants and for existing plants in case of major refurbishment)*
b. Efficient coarse and fine screening by optimising rotor design, screens and screen operation which allows the use of smaller equipment with lower specific energy consumption.
(New plants and for existing plants in case of major refurbishment)
Energy saving stock preparation concepts extracting impurities as early as possible in the re-pulping process, using less and optimised machine components, thus restricting energy intensive processing of the fibres.
(New plants and for existing plants in case of major refurbishment)

Waste paper recycling is carried out at 15- 18% consistency depending upon the grade of incoming wastepaper and the use of the RCF pulp.

The RCF plant underwent a major re-build in 2003 that included a new MAC (de-inking) cell, coarse screens, pulper rotor, fine screens and DCS. Current coarse and fine screens rotors and baskets are monitored regularly for excessive wear and replaced / re-built accordingly. No new equipment installation or major re-furbishment is planned for the RCF plant.

The current RCF plant produces up to 120 tonnes per day of de-inked stock utilising 80% woodfree and 20% woody waste paper. Grades of waste paper currently used are coloured heavy letter, multi-grades, sorted office waste, wood-free pams (pamphlets), mixed newsprint and woody pams.

The process is designed to take out large impurities as early as possible with progressive reduction in contamination removal as stock passes through the plant. The RCF can be broken down into 5 unit operations:

1. Pulping
2. Thick stock cleaning
3. Flotation (MAC cell)
4. Washing/thickening/disperging
5. High consistency storage and flow to paper machines.

1. Pulping

Waste paper and water are mixed and slushed by shearing action in a high consistency pulper. The waste paper is broken down and large particles of contaminants (plastics, rags, metal etc) are separated from the fibre. The stock discharges through a Poire, which screens out contaminants. The stock

is pumped to vessels referred to as "Dump Chest A and B" at approximately 4.5% consistency and the contaminants are collected in a skip for disposal as per BAT 12.

2. Thick Stock Cleaning

The purpose of this section is to remove the heavy weight contaminants (e.g. grit, staples, pins, and rubber bands) from the stock. The stock from the dump chests flows to the screen feed chest where the consistency is adjusted to 3.2%. Stock under pressure enters a high density centrifugal cleaner where some of the contaminants are removed from a junk trap and discharged to a skip. The accepted stock passes through a pressure screen, with holes. Here the rejects are removed continuously and allowed to flow to a smaller pressure screen with holes.

From this screen the accepted stock flows to a constant level headbox and through another pressure screen with slots. From here the stock is fed to the second section of the headbox for the next stage of the process. Rejects from the pressure screens are processed through additional screens to recover fibre. Rejects are thickened for disposal via a skip.

3. Flotation Cells

The purpose of this stage is to remove ink particles, and other small contaminants, from the stock. Stock from the headbox is first diluted with the backwater to approximately 1% consistency. Air is mixed into the thin stock. The air / stock mixture than passes through a state of the art MAC cell that utilises the hydrophobic nature of the ink particles to float the ink to the surface of the cascading cell. Cleaned stock from the MAC cell flows to the accepts tank and the contaminants are pumped to the Krofta sludge tank. From the accepts tank the stock is subjected to centrifugal cleaning and screening in order to remove stickies and fine contraries, and the cleaned stock passes to the cleaner accepts tank. Rejects are passed to a second, then tertiary stage to recover fibre. Rejects from here are sent to the effluent systems

4. Washing/Thickening/Disperging

The purpose of this stage is to clean the stock further by washing, thickening and disperging processes. The stock from the cleaner accepts tank flows into a Double Nip Thickener (DNT) where it is washed and thickened to remove any small contaminants. The stock leaving the DNT at about 10% consistency is processed to remove more water in a screw thickener system to achieve approximately 30% consistency. The stock is then heated and sent through a disperger. Any remaining impurities not removed are pacified and finely distributed in the stock.

5. High Consistency Storage and Flow to Machines

The purpose of this stage is to store the stock, at high consistency, before pumping to the machines. Stock enters the top of the bleach tower at 30% consistency. It flows slowly down the tower where, at the bottom, the stock is diluted to about 5% consistency and pumped to the final accepts chest. From there it is diluted to 4% and sent to the machines.

The project does not impact the above arrangements.

BAT 46 - COMPLIANT

8.6 BAT conclusions for paper making and related processes

The BAT conclusions in this section apply to all non-integrated paper mills and board mills and to the paper and board making part of integrated kraft, sulphite, CTMP and CMP mills. BAT 49, BAT 51, BAT 52c and BAT 53 of papermaking apply to all integrated pulp and paper mills. For integrated kraft, sulphite, CTMP and CMP pulp and paper mills, the reader should also refer to the process-specific BATs for pulping that apply, in addition to the BAT conclusions mentioned in this section.

8.6.1 waste water and emissions to water

BAT 47

In order to reduce the generation of waste water, **BAT is to use a combination of the techniques given below. See section 8.7.2.1 for detailed description of the technique**

a. Optimum design and construction of tanks and chests
(Applicable to new plants and to existing plants in case of a major refurbishment)
b. Fibre and filler recovery and treatment of white water
(Generally applicable)
c. Water recirculation
(Dissolved organic, inorganic and colloidal materials (DisCo) may restrict the water reuse in the wire section)
d. Optimisation of showers in the paper machine
(Generally applicable)

All process tanks, chests and agitators have been designed to optimise machine performance and therefore avoid prolonged water or stock retention.

Each paper machine operates with a dissolved air flotation unit as referenced in BAT 5 to ensure effective treatment of white water. There is a fresh water conservation programme (checklist on site database system – PIMS) on the paper machine that the crews work through as part of a shutdown plan to minimise any losses. Fibre recovery from TM3 TM5 drains is achieved through an elephant filter which separates the fibre out and returns it back into the tissue machine for re-use.

Each paper machine contains numerous showers such as lubrication showers, high pressure needle showers and felt flooded nip showers (see Appendix BAT 5 - Water System Summary). Shower Water is treated as necessary to achieve the clarity and quality for that shower application. All showers automatically shut off on shutdown and, depending upon the application, water feed pumps for the pumps are proportional to machine speed. The showers on TM3 tissue machine is operated in accordance with the KC Best Practice Felt and Fabric Showering document – a copy of which is available in hardcopy at the mill. TM5 Machine showers have been designed to latest OEM standard and KC best

practices. All shower pumps are pressure and flow controlled and linked to DCS system for optimising water and energy consumption.

Newly installed TM5 will have a high degree of water recirculation – see BAT 5 - water summary diagram.

The project considered the requirements of BAT47 within the design and specification of the new plant and equipment. The design and construction of tanks and chests has been optimised for TM5, fibre recovery and water recirculation have been implemented and showers in the paper machine have been optimised.

BAT 47 - COMPLIANT

8.6.3 Waste generation

BAT 52

In order to minimise the amount of solid waste to be disposed of, **BAT is to prevent waste generation and to carry out recycling operations by the use of a combination of the techniques given below (also see general BAT 20).**

a. Fibre and filler recovery and treatment of white water. See section 8.7.2.1
(Generally applicable)
b. Broke recirculation system. Broke from different locations/phases of paper making process is collected, repulped and returned to the fibre feedstock.
(Generally applicable)
c. Recovery of coating colours/recycling of pigments. See section 8.7.2.1
d. Reuse of fibre sludge from primary waste water treatment. Sludge with a high fibre content from the primary treatment of waste water can be reutilised in a production process.
(Applicability may be limited by product quality requirements)

Water is recovered via the Kroftas for re use in the process. All water put to drain from the process is treated via the Effluent Treatment plant. Treated effluent is returned to the mill and used in the Deinking process for final and process dilution. In April 2017 an elephant filter was installed to recover fibre loss to drain from the tissue machines.

Barrow mill aims to reuse all broke on site with the exception of lotionised & treated facial tissue that cannot be used back into site processes due to contamination and foam issues. This material is currently recycled off-site. The paper machines have their own systems for re use of the broke

Coating colours / pigments are not applied at the Barrow facility.

In line with other dust scrubbers on site, no recovery of waste water from Line 5 and 7 dust scrubbers is feasibility as the fibre content is very low and the fibres are short in length. The location of the scrubbers is distant from any point or drain where fibre can be recovered so we do not believe the recovery is worthwhile or cost effective.

The project considered the requirements of BAT52 within the design and specification of the new plant and equipment. Recovery, reuse and recycling has been implemented for TM5 where practicable.

BAT 52 - COMPLIANT

8.6.4 Energy consumption and efficiency

BAT 53

In order to reduce the consumption of thermal and electrical energy, **BAT is to use a combination of the techniques given below.**

a. Energy saving screening techniques (optimised rotor design, screens and screen operation)
(Applicable to new mills or major refurbishments)
b. Best practice refining with heat recovery from the refiners
(Applicable to new mills or major refurbishments)
c. Optimised dewatering in the press section of paper machine/wide nip press
(Not applicable to tissue paper and many speciality paper grades)
d. Steam condensate recovery and use of efficient exhaust air heat recovery systems
(Generally Applicable)
e. High efficient refiners
(Applicable to new plants)
f. Optimisation of operation mode existing refiners (e.g. Reduction of "no load" power requirements)
(Generally applicable)
g. Optimised pumping design, variable speed drive control for pumps, gearless drives
(Generally Applicable)
h. Cutting edge refining technologies
(Generally Applicable)
i. Steam box heating of the paper web to improve the drainage properties/dewatering capacity
(Not applicable to tissue paper and many speciality paper grades)
j. Optimised vacuum system (e.g. Turbo fans instead of water ring pumps)
(Generally Applicable)
k. Generation optimisation and distribution net work maintenance
(Generally Applicable)
l. Optimisation of heat recovery, air system, insulation
(Generally Applicable)
m. Use of high efficient motors (EFF1)
(Generally Applicable)
n. Preheating of shower water with a heat exchanger
(Generally Applicable)
o. Use of waste heat for sludge drying or upgrading of dewatered biomass
(Generally Applicable)
p. Heat recovery from axial blowers (if used) for supply air of drying hood
(Generally Applicable)
q. Heat recovery of exhaust air from Yankee hood with a trickling tower
(Generally Applicable)
r. Heat recovery from the infrared exhaust hot air
(Generally Applicable)

Refining practices are based on specific targets to control specific energy per tonne produced. Plate design is selected in order to optimise finished product

quality and energy use based on the types of furnish utilised on the paper machine. Each refiner has a maintenance schedule specific to each paper machine. Inspections of plates and bearings are carried out four times a year on scheduled maintenance shuts. TM5 employs the latest OEM refiner design for reduced no-load power

In the boiler house, DCS systems show condensate return in the form of understanding what volumes of condensate return we are getting in terms of makeup water volume. Condensate return runs at 65% – 70%.

Paper machine halls and the de-inking plant are not heated or cooled. Extract fans are located throughout the manufacturing buildings and are controlled to achieve optimal ventilation as per Health and Safety guidelines.

Additional drying of the RCF sludge is not currently practical owing to the location of the sludge belt presses (ETP is located on the opposite side of the railway line).

Heat recovery from Yankee hoods is carried out as described in the BAT 6 response.

Axial blowers and infrared dryers are not used at the Barrow site.

TM5 has Energy saving screening through an optimised rotor design, screens and screen operation, together with the primary screen size in the stock approach reduced via double dilution for improved energy consumption. It also has the latest OEM refiner design for reduced no-load power. Dewatering is optimised via an extended Nip Press included in machine design. The Technology can dewater at up to 600kN/m which is at least 4 times greater than conventional tissue machine and approaches the mechanical dewatering limit of virgin fibre.

TM5's Yankee steam condensate from the separator is sent to a waste heat steam generator (WHSG). Remaining condensate not consumed in the WHSG is recovered to the hotwell and sent back to the boiler house. Air to air heat recovery from hood exhaust is used for pre-heating combustion and make up air for the hood process air system.

Variable speed drive control for pumps and fans have been installed where appropriate and both paper Machines incorporate have steam boxes included.

Both Paper Machines use turbo-blowers for reduced energy consumption versus LRVP (Liquid Ring Vac Pump).

Heat recovery is employed throughout the facility and includes air to air heat exchangers and air to water heat exchangers. TM3 has a heat exchanger on the hood exhaust, with a cascade hood arrangement to improve efficiency. The heat exchanger is used for both make-up air and combustion air. The air to air heat exchanger uses the hood exhaust air to heat up the incoming combustion & make-up air, thereby reducing the energy requirement. Heat from the boiler stacks is used to pre-heat boiler feedwater. TM5 incorporates a waste heat steam generator that will use excess heat from the drying hood system exhaust to generate steam from the Yankee separator condensate.

Thermo compressors are installed on all paper machines using steam for drying. TM3 uses one thermo compressor to control the Yankee steam pressure on the ingoing steam line to the Yankee and uses the main steam's motive

force to draw in recirculated steam from the Yankee (standard on Yankee dryer technology). TM5 has a thermo compressor included in Yankee primary steam loop

All steam and condensate systems so far as practicable are insulated to save energy and the reduce risk of burns to operators. Inspection and maintenance of the insulation is included in the Preventative Maintenance schedule.

All new motors purchased are IE3 with frequency inverters and IE4 for fixed speed. For motor selection, we use reputable suppliers such as ABB or Brook Crompton. Frequency inverters are used throughout the site on various applications. Energy consumption of pumps and fans throughout the facility is periodically reviewed and a cost: benefit analysis carried out on the applicability of installing further invertor drives.

Preheating of shower water with a heat exchanger is not included specifically for showers. However fresh water supply is sent through, and returned from, cooling loop which increases the temperature by approximately 10°C.

The Project considered the requirements of BAT53 within the design and specification of the new plant and equipment. Examples of the techniques to be implemented are given above.

BAT 53 - COMPLIANT

Certificate GB09/79275

The management system of

Kimberly-Clark Barrow

Barrow Mill, Park Road, Barrow In Furness,
Cumbria, LA14 4QX, UK

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities

Paper Tissue Manufacture and Conversion.

This certificate is valid from 15 December 2018 until 15 December 2021 and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 5. Certified since 15 December 2009

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

HC SGS14001 2015 0818

Environment Policy Statement

Barrow Mill is part of the Kimberly Clark Organisation. We recognise that our activities have both positive and negative impacts on the environment and that our activities are also affected by environmental conditions.

Environmental protection is an integral part of our business. We are committed to minimizing our impact on the environment through continuous improvement of our Environmental Management System and implementation of pollution prevention techniques and ensuring sustainability is embedded into everyday practice.

Our policy is founded on some guiding principles as follows:

- The Management Team will show leadership and commitment, and bear the responsibility for establishing, implementing, integrating and maintaining ISO 14001:2015 Environmental Management System as a vehicle for Co-ordinating the management of our environmental risks and performance with the aim of contributing to the environmental pillar of sustainability.
- Comply with all statutory environmental obligations as well as applicable Corporate Environmental Performance Standards and other requirements.
- Include consideration of environmental issues into all business strategies and initiatives.
- Ensure that protection of the environment is firmly embedded in both the Company's and employment culture; and we will endeavour to influence our suppliers and customers.
- Prevent pollution, reduce waste and minimise the consumption of resources.
- Consider the wider global impact of all our activities; including those of our suppliers, customers and stakeholders, with consideration to life cycle impacts of their aspects and activities.
- Use processes, practices or products which avoid, reduce or control pollution and result in environmental improvements.
- Communicate our environmental commitment and programmes to our workforce and encourage their active participation in carrying out tasks in an environmentally responsible manner; ensuring that an environmentally business strategy remains core to our business needs.
- Ensure contractors associated with Project work and activities comply to KC and legal requirements.

The success of the policy relies on everyone's participation

Signed:

Graham Ellis.....
PLANT DIRECTOR

John Carswell.....
ENGINEERING MANAGER

Nick Woods.....
SAFETY, ENVIRONMENT, LOGISTICS MANAGER

Paul Barker .....
PAPER MACHINE OPERATIONS MANAGER

Hayley Fenna.....
QUALITY LEADER

Mark Jackson.....
CONVERTING OPERATIONS MANAGER

Kim Stephenson.....
HR BUSINESS PARTNER

Andy Moonan.....
MILL IMPLEMENTATION LEADER

James Doughty.....
CONTINUOUS IMPROVEMENT/ MIT LEADER

DATE: 3rd December 2019

Energy Policy Statement

At Kimberly-Clark we believe action must be taken to address climate change. The implications of climate change, including extreme weather events, altered water distribution patterns and ecosystem disruption, could negatively impact our supply chain, our operations, our customers, and our employees.

Our Sustainability 2022 Energy & Climate strategy provides a comprehensive approach to energy management and Green House Gas (GHG) emissions reduction.

Aligned with this, at Barrow Mill we will:

- Implement energy projects, best practices, initiatives and technologies to ensure continuous improvement in the efficient use of energy and reduction of GHG emissions
- Design and implement energy efficiency solutions to create a competitive advantage
- Ensure the procurement of energy-efficient and low GHG emission equipment and technologies
- Collaborate with energy suppliers and external bodies to secure reliable and competitive energy solutions
- Seek opportunities to implement business-advantaged applications of alternative and renewable energy
- Implement and maintain a mill Energy Management System (EnMS) that engages employees in a culture of conservation to execute and sustain process improvements
- Developing energy and climate objectives that contribute to the achievement of the global sustainability energy and climate objectives
- The mill will ensure the availability of the information and allocation of resources necessary to achieve mill objectives and targets
- The mill will comply with applicable legal and regulatory requirements including local and K-C related to energy; use, consumption, efficiency and GHG emissions
- Communicate openly and honestly to all employees and other interested parties on our policies and programs for energy management

This policy will be reviewed regularly as part of the internal assessment process to ensure its applicability. The Energy Management System & the specific Key Performance Indicators will provide ways of assessing our Energy performance on a regular basis.

Graham Ellis .....
PLANT DIRECTOR

John Carswell.....
ENGINEERING MANAGER

Nick Woods.....
SAFETY ENVIRONMENT LOGISTICS MANAGER

Paul Barker.....
TISSUE MACHINE OPERATIONS MANAGER

Hayley Fenna.....
QUALITY LEADER

Mark Jackson.....
CONVERTING OPERATIONS MANAGER

Kim Stephenson.....
HR BUSINESS PARTER

Andy Moonan.....
MILL IMPLEMENTATION LEADER

James Doughty.....
CONTINUOUS IMPROVEMENT / MIT LEADER

Tuesday, 03 December 2019

Quality Policy Statement

Barrow Mill is part of the Kimberly Clark Organisation. The policy of Barrow Mill is to manufacture high quality, products to ensure the requirements of our consumers & customers are met. This achievement will result in securing efficiency, a strong customer focus and enhancement of long-term sustainability and profitability within the Organisation. Our policy is founded on some guiding principles as follows:

It is the Policy of Kimberly-Clark to design, manufacture and deliver products which meet or exceed customer expectations for quality, performance and value.

- The Leadership Team will demonstrate commitment, and bear the responsibility for establishing, implementing, integrating and maintaining the Quality Management System.
- To strive to provide Customer satisfaction (both internal and External Customers) by means of a "right first time" approach to everything we do.
- To produce safe & legal products which meet, or exceed, customer's expectations for quality, performance and value.
- To have a Quality Management System (QMS) covering all aspects of our work and which complies with the requirements of the Global Kimberly Clark Quality Management system.
- To strive to reduce process and product variability through active monitoring of results and consistent application of centrelining techniques in all process areas.
- Equally, every employee is responsible for, and will be trained to perform the duties required by his or her specific role.

The Organisation has a Policy of promoting continuous improvement and setting of Quality Objectives in line with the framework laid down within ISO 9001:2015 and BRC Consumer Products Standard. Site leadership will determine these objectives based on risk assessment and business need. These objectives and the Quality System will be monitored, measured, evaluated and enhanced regularly.

This Mill Quality Policy is, therefore, communicated to all employees on the understanding that it amplifies the corporate product quality policy and the underlining key aspects of continual improvement in everything we do.

The success of the policy relies on everyone's participation

Signed:

Graham Ellis.....
PLANT DIRECTOR

John Carswell.....
ENGINEERING MANAGER

Nick Woods.....
SAFETY, ENVIRONMENT, LOGISTICS MANAGER

Paul Barker.....
PAPER MACHINE OPERATIONS MANAGER

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HR BUSINESS PARTNER

Andy Moonan.....
MILL IMPLEMENTATION LEADER

James Doughty.....
CONTINUOUS IMPROVEMENT / MIT LEADER

DATE: 3rd December 2019

Kimberly-Clark		Barrow Mill Emergency Response Plan	
Document #:	PR-29331	**Revision:**	2
Document Type:	Procedure	**Status:**	Approved
Department Owner:	Occupational Safety	**Effective Date:**	May 20, 2019
Document Category:	Safety	**Document Owner:**	[redacted]

Document Classification: THIS DOCUMENT CONTAINS CONFIDENTIAL KIMBERLY-CLARK INFORMATION.

Document Disclaimer: Printed copies are only valid on the date printed unless controlled per a manual document control procedure and stamped as such.

1.0 OBJECTIVE

The purpose of this plan is to describe the systems and procedures for responding to emergency situations. KC Barrow has considered all Major Accident Hazards anticipated on site and the following scenarios at have been identified as constituting emergency incidents.

Fire/Explosion - all fires and explosions will constitute an on-site emergency.

Major Spillage - all spillages with potential to cause damage to the environment or presenting significant health and safety risks to staff, visitors or the public will constitute an on-site emergency.

Major Services Incident - damage to gas pipelines or suspected gas leaks will constitute an on-site emergency. Loss of other services with potential to cause damage to the environment or presenting significant health and safety risks to staff, visitors or the public will constitute an on-site emergency.

Bomb Threat – the discovery of suspect items or receipt of specific threats will constitute an on-site emergency.

Major Injury or Death - any event involving a serious injury to a Kimberly-Clark employee engaged in the performance of their duties; a Kimberly-Clark vendor providing a service at our facility (a contractor or technical representative); or a guest or visitor at our facility.

Legionella Positive Result – Any report of a Legionella positive detected during routine cooling tower water testing

Radioactive Sources – Damage to the source, its housing or its shutter or failure of the shutter to close; or Loss, theft or attempted theft of a source

Breach of Environmental Permit Condition – situations where Mill operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment.

All the above scenarios will require a decision about actions to be taken, reporting and whether an immediate site evacuation is required. This will be decided in accordance with the specific decision tree for each scenario.

If an incident prompts a full site evacuation, refer to the site emergency evacuation plan for roles and responsibilities to account for all staff and co-ordinate response in conjunction with emergency services.

2.0 SCOPE

This procedure is applicable to the Barrow Mill. It should be read in conjunction with PR#29330 – Barrow Mill Evacuation Procedure.

3.0 OVERVIEW

The Emergency Response Manual is intended to guide the prompt and effective handling of potential emergency events. It si intended to be used as first port of call for the SLG, Duty Manager and Shift Managers when incidents occur.

The Mill Crisis Management plan details procedures around providing a statement to the news media or general public.

4.0 ROLES AND RESPONSIBILITIES

The Mill Manager has overall responsibility for the Emergency Response Plan, including appointing a Program Coordinator to ensure full implementation of the Emergency Response Plan

Site Safety Leader will ensure the Emergency Response Plan meets safety regulatory requirements and conforms to Kimberly-Clark EHS Management System requirements.

Site Environmental Leader will ensure the Emergency Response Plan meets environmental regulatory requirements and conforms to Kimberly-Clark EHS Management System requirements.

In the event of any fire or explosion, all staff are responsible for initiating an emergency response by activation of the fire alarm. Other types of on-site emergencies require an initial assessment with reference to the decision tree for each scenario and a decision on whether an immediate site evacuation is required; this is the responsibility of the team manager or deputy of the area affected.

Once full site activation is initiated, the following roles are involved and specific responsibilities for each role are defined within the site emergency evacuation plan.

5.0 DEFINITIONS

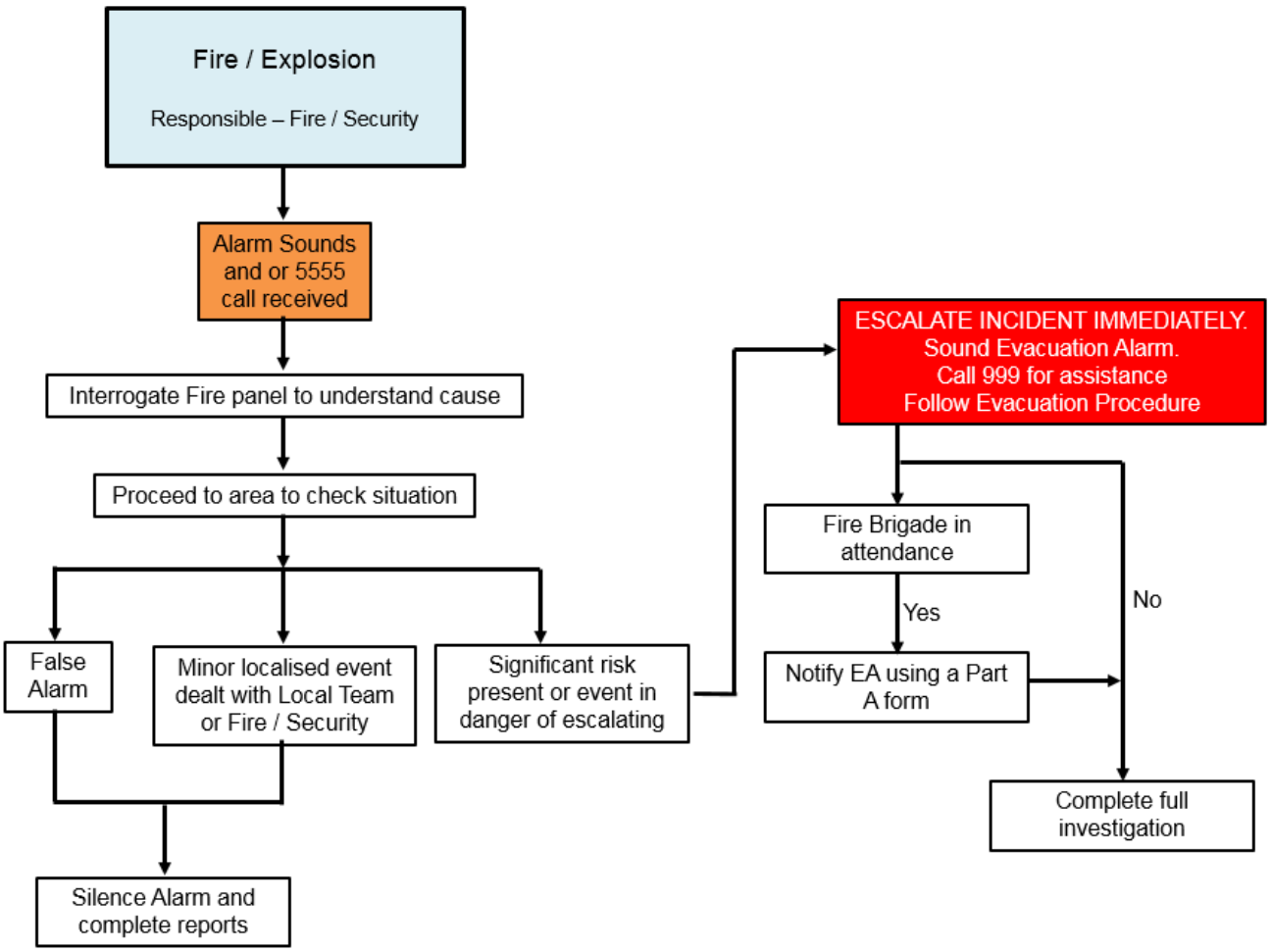
Emergency – any event which:

- Involves potential or actual loss of life or serious injury to customers, employees, or others affected by Kimberly-Clark's operations.
- Involves potential or actual environmental harm through the unintended release of hazardous materials
- Causes significant damage to the company's assets and necessitates at least a temporary interruption of normal production at our facility.
- Presents a potential for a significant adverse effect on the company's on-going operation, business reputation or financial results.

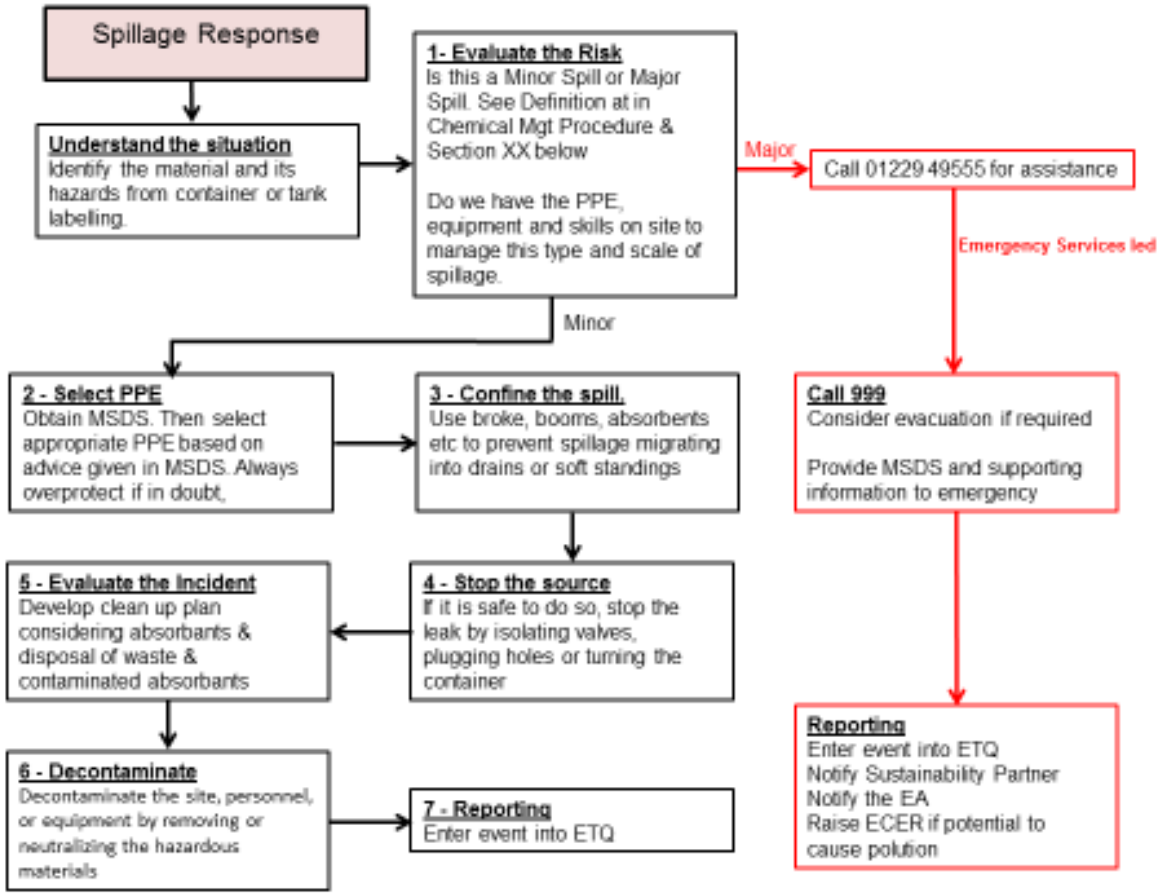
Examples of emergency situations would include an accidental death or situation which causes serious bodily injury, a major fire or explosion, a major spill or release of hazardous materials, an incident necessitating a cessation of operation, reports indicating that K-C customers may be endangered by use of one of our products, either as a result of a product manufacturing defect or as a result of tampering with the product by others, and a natural gas leak, chemical spill or other event affecting the community.

6.0 DECISION TREES

6.1 FIRE/EXPLOSION



6.2 SPILLAGE RESPONSE



Spillage Definitions

A major spillage shall be defined as a spill of any chemical that has potential to cause harm personel of environment, and for which the Mill does not have adequate skills or resource to safely manage. Ie flammables, toxics, etc The size of a spill is not neccesarily a contributing factor in catagorising the spillage as major.

A spillage checklist is provided as Appendix 1.

6.2.1 Spill Isolation and Containment Procedure

If the spill is on the roadway at the rear of the Mill use the drain covers in the spill kit in the area to seal the drains to prevent any part of the spill that enters surface water drains from going offsite. The important drains are colour coded RED.

All other drains on site end up at the Effluent Plant and could cause significant issues with water treatment. It is therefore important to minimise any spillage getting to drain. Action to be taken:-

- Prevent spillage entering the drain so far as possible
- Notify the Effluent Plant operator that you have had a spill, the nature of the spillage and the quantities that have got to drain.

6.2. 2 Actions to be Taken in the Event of a Spillage

Understand the situation
Identify the material and its hazards from container or tank labelling.

1. Evaluate the risk
a. Refer to material safety data sheet (MSDS) or Chemtag. Define spillage as minor or major based on information available.
b. If MAJOR RING 01229 495555 for assistance.

2. Select Personal Protective Equipment (PPE)
a. Consult the MSDS or chemtag for the recommended PPE.
b. If you are uncertain of the danger and the material is unknown, assume the worse and the use the highest level of protection.
c. PERSONAL SAFETY IS PARAMOUNT, ONLY TACKLE A SPILL IF YOU KNOW IT IS SAFE TO DO SO. NEVER PUT YOURSELF IN HARMS WAY

3. Confine the spill
Limit the spill by confining, blocking, diverting. Use broke, booms, absorbent mats, drain protectors, in the available spill kits.

4. Stop the source if it is safe to do so
a. Close off the valve if you can safely do so.
b. Turn the container upright.
c. Plug the hole using the appropriate spill kit contents.

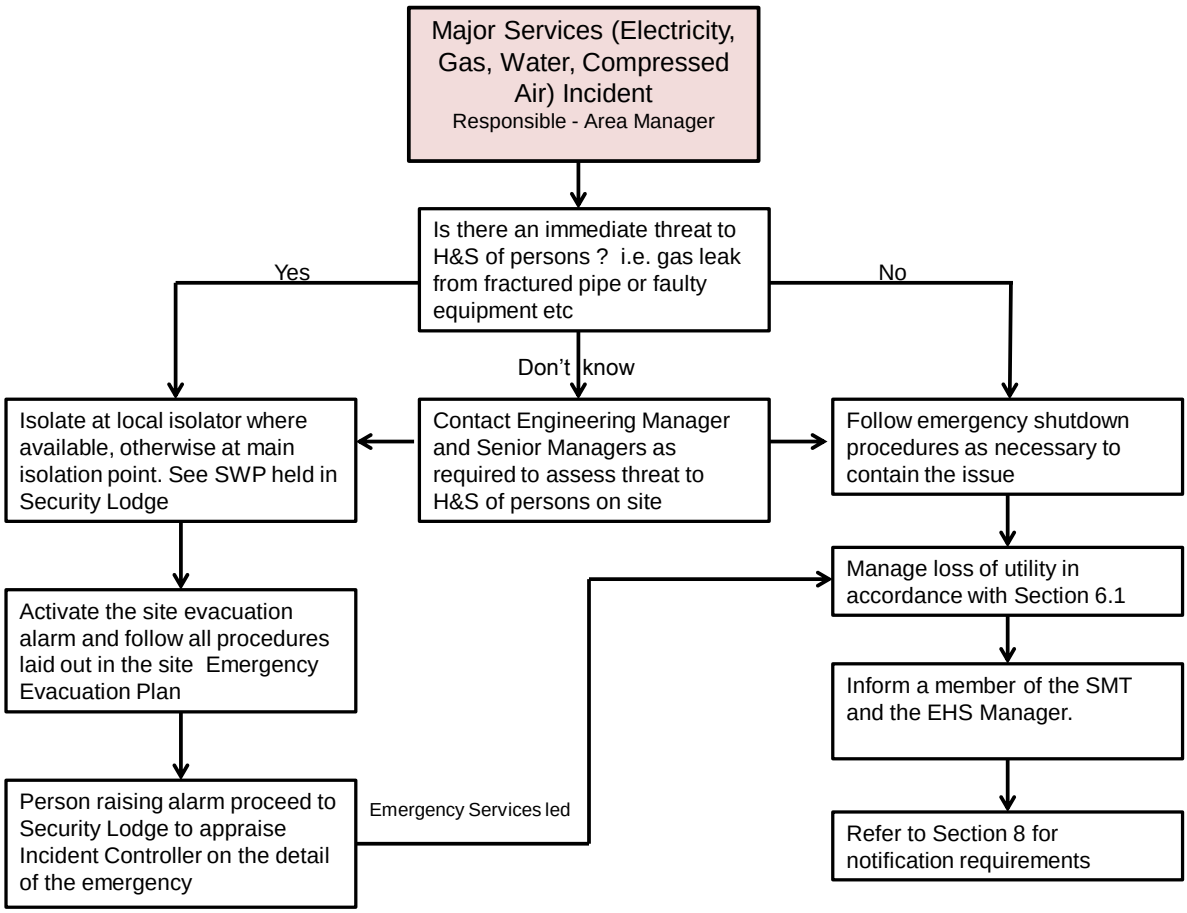
5. Evaluate the Incident and implement clean up and develop action plan:
a. Clean up ensuring personnel performing the task are: aware of the risks, trained and competent.
b. Use appropriate materials absorbent granules/pads/shovels
c. Dispose of oily contaminated booms, mats into blue plastic bags tied with cable ties and place in ‘oily rags’ drums for disposal. Shovel used absorbent granules into container / blue ‘special waste’ polyethylene bag for disposal by reputable disposal company.
d. Clean up equipment and surrounding area.

e. Complete preliminary incident investigation

6. **Decontaminate**- Decontaminate the site, personnel, or equipment by removing or neutralizing the hazardous materials that have accumulated during the spill. This may involve removing and disposing of contaminated media for example soil that may have been exposed.

7. **Complete reporting** – all spills must be logged in haztrax or Etq for investigation.

6.3 MAJOR SERVICES FAILURE



A major services failure checklist is provided as Appendix 3.

6.3.1 Utility Loss (electricity, gas, water)

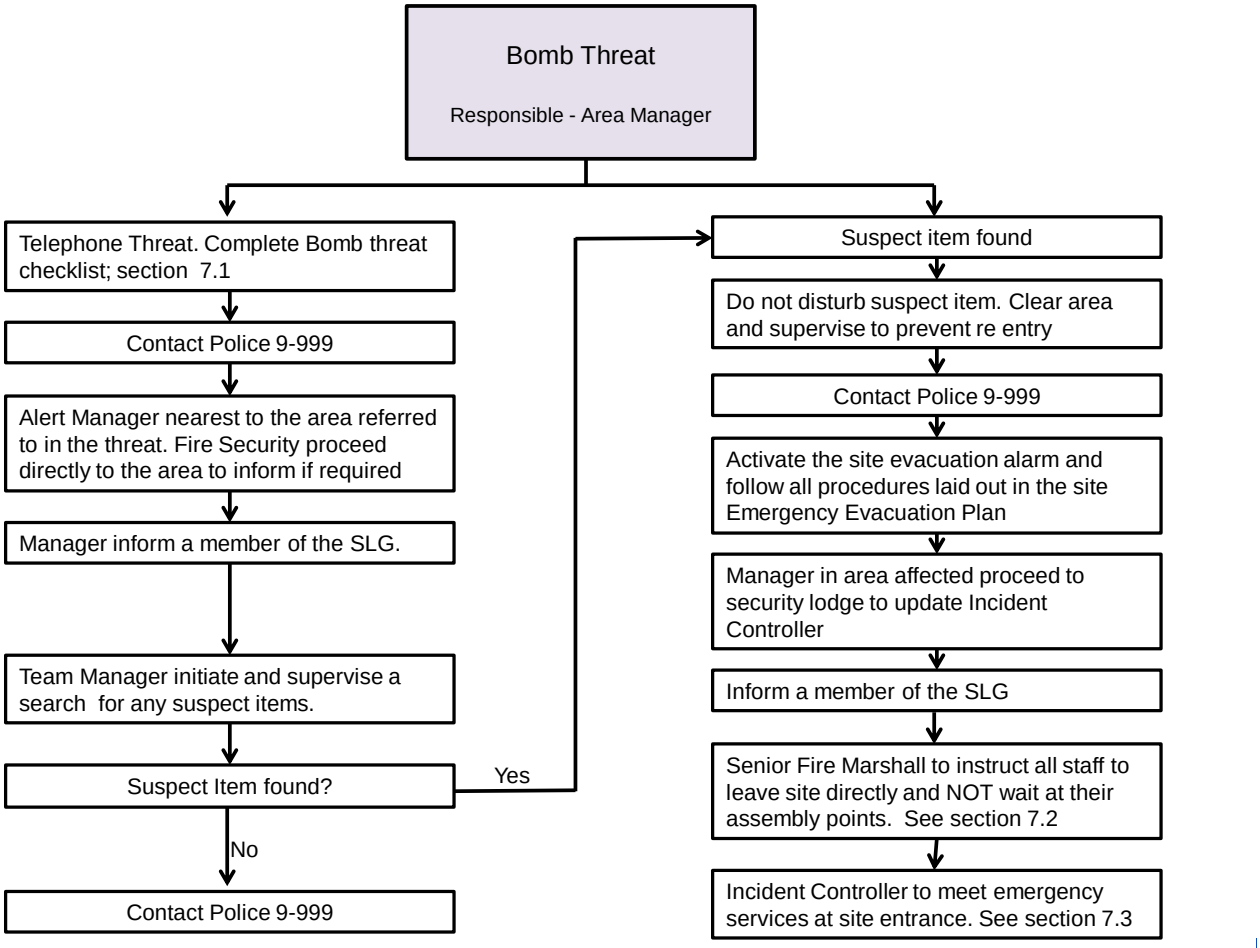
A copy of the emergency shutdown SWP is stored in the emergency file within the grab bag in ECC.

Make safe any equipment or processes affected in production areas.

Contact the relevant utility company (Appendix 7).

The decision on whether yo send colleagues home shall be determined, subject to the safety of the situation within the Mill (eg lighting), extent of impact (eg one area or whole Mill affected) and anticipated outage information received from utilities company.

6.4 BOMB THREATS



A bomb threat checklist is provided as Para 6.4.1

6.4.1 Telephone Procedure

Reception or Security staff record details of the telephone caller's message on the bomb threat checklist (example attached).

bomb-threat-checklist.pdf

6.4.2 Evacuation Procedure

In the event of an evacuation due to bomb threat, Senior Fire Marshalls instruct staff to leave site via the nearest entrance and NOT to remain at the on-site assembly points.

An alternative off-site location will be agreed between Senior Fire Marshalls and Incident Controller and communicated to staff prior to evacuation.

Senior Fire Marshall will remain at the alternative off-site location with their respective groups in 2-way radio contact with the Incident Controller and remain there until receiving further instruction.

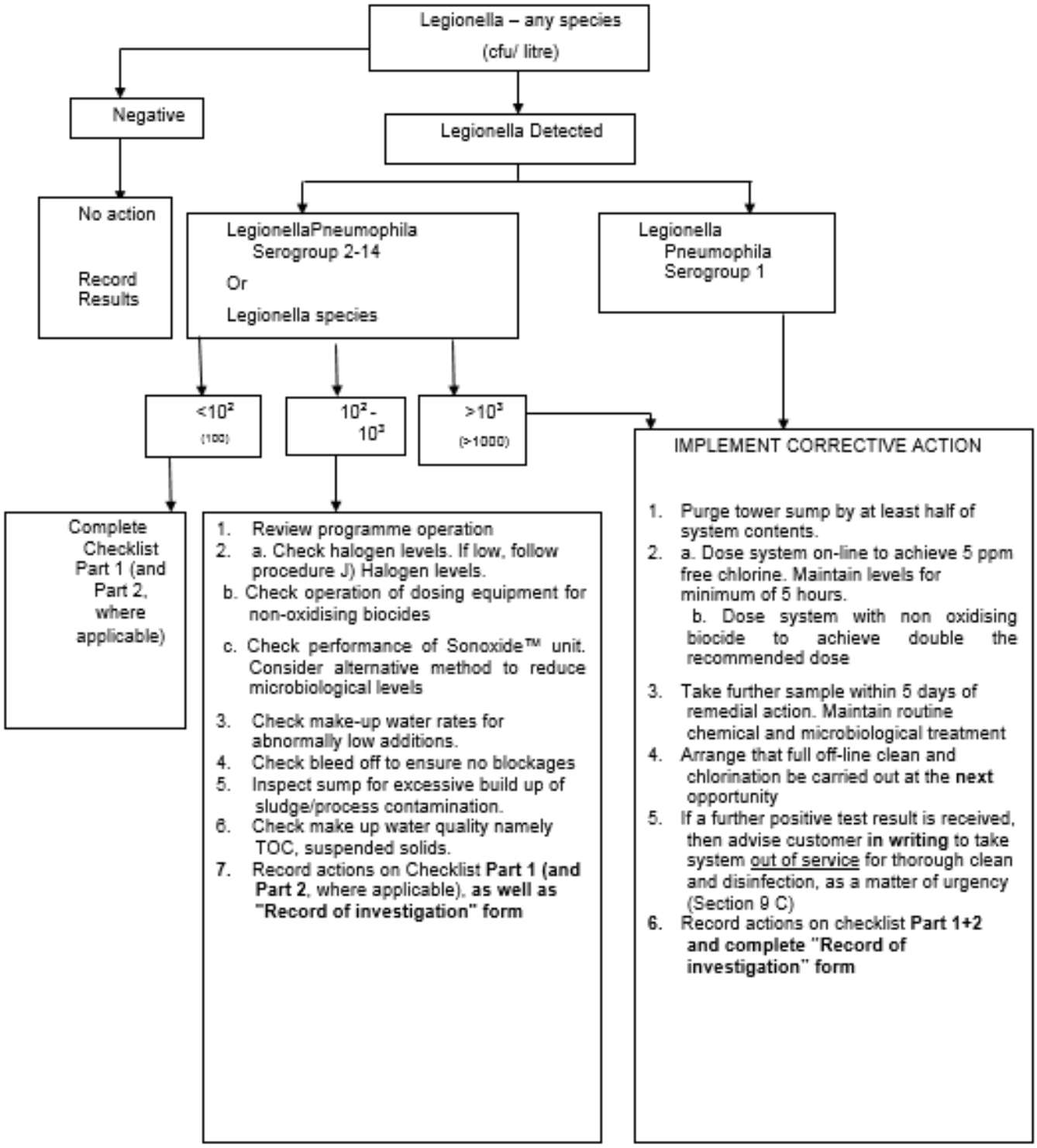
6.4.3 Incident Control

The Incident Controller shall contact the Police from the Security Lodge which shall be used as the Control Centre for the incident. The Incident Team shall support the Police in conducting a search of the premises and direct them to the location of any suspect items (Appendix 9 – Site Plan). Personal safety must remain paramount at all times.

The Incident Controller shall communicate that it is safe to re-enter the site following consultation with the Police Officer in charge.

The responsibility for the disposal of any identified or suspect device and evacuation of areas off-site lies with the Emergency Services.

6.5 Legionella Positive Result



6.5.1 Escalation Procedure based on Sero type and level

[redacted] to notify the following people on detection of a legionella positive by telephone and in writing by email with confirmation of Sero type and level.

6.5.2 Responsible persons

[redacted]

6.5.3 Cooling Tower Responsible Persons

PM1 cooling tower

[redacted]

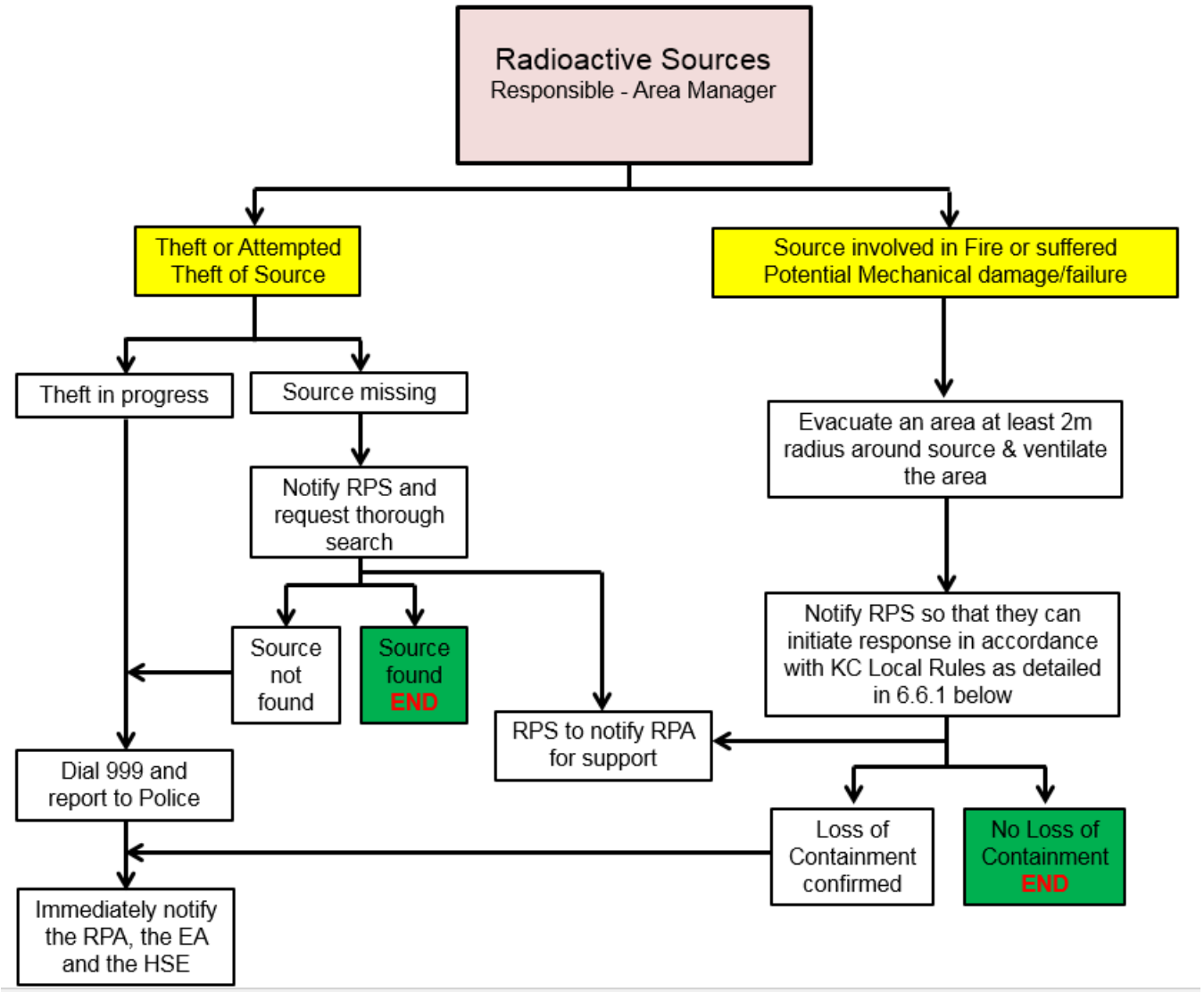
PM3 cooling tower

[redacted]

6.5.4 Training

Only the identified trained responsible persons on PM1 and PM3 are able to undertake the corrective action following a report of a confirmed legionella positive on the tower.

6.6 Radioactive Sources



6.6.1 Action to be taken for damage to the source, its housing or its shutter or failure of the shutter to close

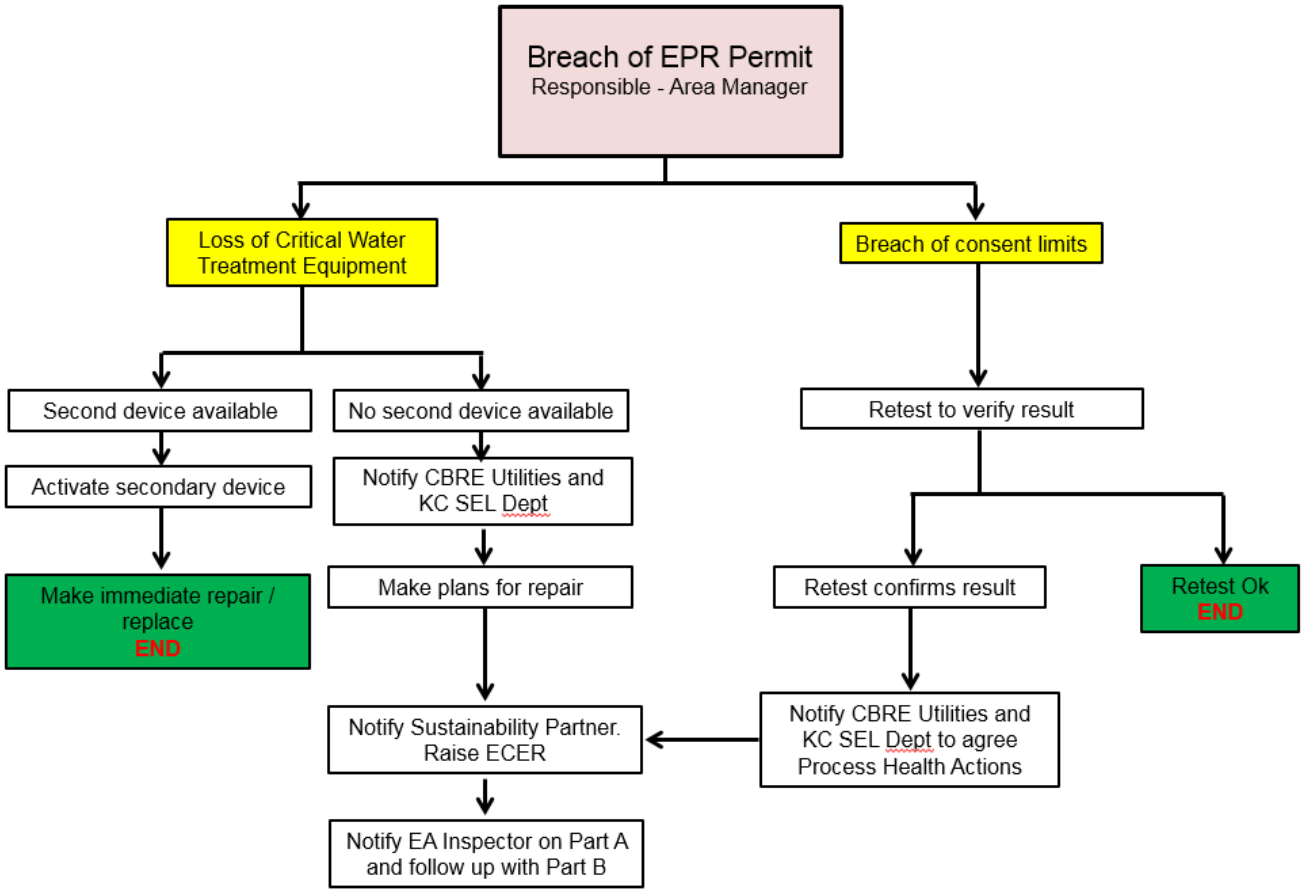
CONTACT THE RPA FOR ASSISTANCE AND IMPLEMENT THE FOLLOWING PLANS IN CONJUNCTION WITH THE KIMBERLEY CLARK EMERGENCY PROCEDURES

1. Do not attempt to retrieve or handle a source. **DOSE RATES CLOSE TO AN UNSHIELDED SOURCE ARE VERY HIGH.**
2. Evacuate an area 2 m from the gauge
3. Inform the RPS who should monitor the area around the gauge and cordon off anywhere the dose rate exceeds 20 cps; it is imperative that minimum time is spent carrying out the monitoring.
4. If dose rates in excess of 20 cps are measured open doors and windows to increase ventilation.
5. Do not re-enter the evacuated area until the RPS has used the radiation monitor to confirm that dose rates are at an acceptable level.
6. If dose rates remain consistently over 20 cps after 10 minutes the shielding may be damaged but the source capsule may still be intact.
7. If no dose rates in excess of 20 cps exist at 1 metre away continue to take measurements as you approach the gauge head but do not approach the gauge any further if you measure dose rates greater than 20 cps.
8. If there are no dose rates in excess of 20 cps continue to take measurements as you approach the gauge head and then all around the gauge head to confirm dose rates are less than 20 cps at the gap in the gauge heads. This confirms there is no damage to the shielding.
9. To confirm that the source is still within the gauge head, the head should be split and a reading taken above the source foil. This will be in the order of 200 to 1000 counts per second.
10. If it is suspected that an individual has been exposed, an RPS should be informed and a note any important details should be made, including:
    (i) the duration of exposure
    (ii) the distance from source
    (iii)shielding materials between the source and the individual

6.6.2 Action to be taken for Loss, theft or attempted theft of a source

1. If the theft of a source is in progress, inform the police immediately using Tel: 999.
2. If a source is lost an immediate search must be made by the RPS using the radiation monitoring instrument.
3. The RPA must be informed immediately.
4. If the source is not found after the immediate search an RPS must contact the following:
    (i) The HSE
    (i) The Environment Agency
    (ii) KC Sustainability Partner

6.7 Breach of Permit



7.0 EMERGENCY INCIDENT NOTIFICATION

7.1 EMEA Management

Senior Managers will contact EMEA Management for

- Accident involving fatality
- Incident which may affect the operation of the site or business
- Incident which may result in negative media coverage

The Crisis Management Plan will be initiated as required. A copy of the plan is held in the Mill Managers Office

7.2 Health and Safety Executive

Emergency incidents may need reporting to the HSE under RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations. Examples (not exhaustive)

- Death or Major Injury
- Explosion or fire causing suspension of normal work for over 24 hours
- Accidental release of any substance which may damage health
- Sudden, uncontrolled release in a building of flammable liquids or gases (quantity defined in RIDDOR)
- Electrical short circuit or overload causing fire or explosion

HSE will be notified by the SEL Manager or Senior Manager online or by telephone .

The types of circumstances where HSE may need to respond out of hours are:

- following a work-related death
- following a serious incident where there have been multiple casualties
- following an incident which has caused major disruption such as evacuation of people, closure of roads, large numbers of people going to hospital etc

If the incident fits these descriptions, there is a duty officer number for HSE (Appendix 7).

7.3 Environment Agency

If any spill has entered surface water drains United Utilities and Environment Agency will be notified by the SEL Manager or Senior Manager without delay by telephone (Appendix 7).

7.4 Communication to the Public

No direct contact with the media or members of the public shall be made, encouraged or agreed to. Contact with the media shall only be made by the Communications Manager. All employees shall be instructed not to divulge any information. All personnel shall refer enquiries through the Incident Controller who shall contact the Communications Manager.

8.0 TRAINING

All colleagues with a specific role in the On-Site Emergency Plan or the site Emergency Evacuation Plan will be trained in the duties they will be expected to perform. Training will be provided on commencement of the role, following any significant changes and refreshed on a regular basis.

All other colleagues will be briefed on the actions they are to take on discovery of any situation which may constitute an emergency.

APPENDIX 1: SPILLAGE CHECKLIST

Complete checklist for every major spillage and return to the SEL Manager.

ACTION	NOTES	DONE
Is there an immediate risk to the health and safety of colleagues? If YES, initiate emergency evacuation and inform Incident Controller of the emergency in the ECC.		
Remove all persons away from the area of the spill until the nature and risks presented have been reviewed and understood. Isolate area to prevent unauthorised access.		
If spill is in the roadway at the back of the Mill cover the red coloured drains if it is safe to do so.		
If spill has entered site drains notify the effluent plant operator that you have had a spill providing as much detail as possible.		
Identify the material spilled and the approximate amount lost. Refer to the MSDS to identify the risks associated with the material and the recommended spillage response.		
For flammable spills ventilate the area and eliminate all sources of ignition.		
Gather required PPE and spillage response materials ready to deal with spill.		
Brief colleagues involved in the response on the hazards associated with the material, the required PPE and the recommended spillage response.		
Wearing correct PPE, isolate source of spillage or minimise further loss if it is safe to do so.		
Review available data with specialists as necessary and agree appropriate clean up response. Clean up in accordance with agreed plan.		
Produce report for EHS Manager.		
NAME:	SIGNATURE:	DATE:

APPENDIX 2: MAJOR SERVICES FAILURE CHECKLIST

Complete checklist for every major services failure and return to the EHS Manager.

ACTION	NOTES	DONE
Is there an immediate risk to the health and safety of colleagues? If YES, isolate at local isolator where available, otherwise at main isolation point. Initiate emergency evacuation and inform Incident Controller of the emergency in the ECC.		
Follow the emergency shutdown procedure; a copy is stored in the emergency file within the grab bag in ECC.		
Make safe any equipment or processes affected by the failure.		
Contact the relevant utility company as required.		
Assess the impact of the failure and whether it is appropriate for colleagues to remain at work. This is based on Safety of the situation within the factory (eg lighting, heating etc) Extent of impact on factory (eg one department or whole site affected) Anticipated outage information received from the utilities company		
Inform a member of the SMT and EHS Manager of the situation within the factory. Agree course of action based on impact of the failure.		
Produce report for EHS Manager.		
NAME:	SIGNATURE:	DATE:

APPENDIX 3 - BOMB THREAT CHECKLIST

Complete checklist for every bomb threat and return to the EHS Manager.

ACTION	NOTES	DONE
Inform a member of the SLG and EHS Manager or Duty Manager (out of hours) of the situation.		
If this is a telephone threat, • Ensure the telephone procedure has been followed and associated bomb threat checklist completed. • Initiate and supervise a search for any suspect items if this is a telephone threat.		
If any suspect items are found DO NOT disturb and follow the rest of this checklist. If NO suspect item found, notify the police on 9-999 accordingly.		
Clear the area and supervise to prevent re-entry.		
Contact the police on 9-999 and advise them that an item has been found.		
Activate the site emergency evacuation alarm and proceed to the ECC to update Incident Controller that a suspect item has been found.		
Hand this check sheet to the Incident Controller who will assume control of the situation. Remain at the ECC to assist the Emergency Services.		
Incident Controller contact Senior Fire Marshalls and agree an alternative off-site location for all colleagues to assemble.		
Incident Controller request that Senior Fire Marshalls instruct all staff to leave site directly, DO NOT wait at their assembly points and proceed to the alternative off-site location.		
Incident Controller inform a member of the SMT and EHS Manager of the situation.		
Incident Controller remain at ECC to greet the Emergency Services and provide information on arrival. Remain available to assist the Emergency Services unless told otherwise.		
Produce report for EHS Manager.		
NAME:	SIGNATURE:	DATE:

DOCUMENT/RECORD RETENTION

Corporate Records Administration Record Number: ADM.60.10.00

Reason for New/Revised Document:
Update with additional flow charts
Approvals
[redacted];Approval;20-May-2019 11:14 BST [redacted];Approval;20-May-2019 12:13 BST

Kimberly-Clark		Chemical Management	
Document #:	PR-27346	**Revision:**	3
Document Type:	Procedure	**Status:**	Approved
Department Owner:	Environmental	**Effective Date:**	Sep 9, 2019
Document Category:	Environmental; Logistics; Quality; Safety	**Document Owner:**	[redacted]

1.0 OBJECTIVE

If chemicals and other hazardous materials are not properly controlled, they can harm site personnel, degrade the environment, and/or cause non-compliance with laws/regulations.

The purpose of this document is to ensure chemical use is managed in compliance with the K-C EHS Performance Standard and applicable regulatory requirements. Specifically, this program defines:-

- the responsibilities of process owner, facility leaders and others with designated duties in chemical management,
- chemical management procedures including new chemical approval, Chemical Risk Assessment, chemical inventory, hazard communication, chemical use and storage, training,
- contractor use of chemical, and program review process
- To ensure that the introduction, delivery and storage, replenishment and use of hazardous substances are managed to prevent any harm to personnel or the environment.
- Training requirements
- Critical Equipment and planned inspections

2.0 SCOPE

All chemicals used or stored by KC in the Barrow Mill are in scope of this procedure.

Contractors, both permanent and visiting are responsible for managing their own materials. This being from holding the relevant MSDS, to assessing risk, to use of the chemical and to final disposal. The processes for managing this are included in the Contractor Management program.

The chemical management program shall apply to the management of ALL KC chemicals used at the Barrow site, including:-

- Chemicals purchased through the purchasing department.
- Chemicals introduced through RSR and MSR and sMOC.
- Vendor samples.

3.0 LEGAL REQUIREMENTS

All applicable legislation relating to Chemical management is held on the online Simplifi package. Specifically these are:-

- Control of Substances Hazardous to Health Regulations
- HSE Exposure standards - EH40
- Classification, Labelling and Packaging Regulations
- REACH Regulations

The RP and DRP for Hazardous materials shall complete an annual EHS self – assessment, ensuring that improvements are driven through the Mill improvement plan and management review process.

4.0 ROLES AND RESPONSIBILITIES

4.1 Plant Director

The Plant Director has the overall responsibility to ensure the on-going effectiveness of the Chemical Management Program, including the following:

- Provide adequate resources to administer the Program
- Ensure that corrective actions for Program improvement are implemented.

4.2 Responsible Person & Deputy Responsible Person

The Responsible Person & Deputy Responsible Person have responsibility to ensure the on-going effectiveness of the Chemical Management Program, including the following:

- Understand KC and UK Legal aspects of the subject.
- Develop, document and sustain a Barrow Mill program.
- Program to include policies, procedures, forms, training materials etc.
- Communicate plans and identify training needs
- Ensure program is applied across all areas of Barrow Mill
- Define inspections and audits necessary to ensure compliance
- Complete annual self-assessment.
- Develop and manage improvement plans.
- Support audits or investigations involving application of the program.

4.3 COSHH Assessor

COSHH Assessors shall be responsible for assessing the materials in the circumstances of use and for identifying risk control measures. All colleagues completing COSHH assessments shall be formally trained in the KC COSH Assessment processes.

Assessors shall follow the sMOC Procedure for the introduction of a new material by obtaining MSDS or technical data sheets and seek approval through the sMOC system.

4.4 Safety Leader

The Mill Safety Leader shall review all MSDS and COSHH assessments to ensure that they meet the necessary standards.

4.5 Environment Engineer

The Mill Environment Engineer shall review all MSDS, COSHH assessments to ensure that environmental risks have been correctly identified and mitigated.

4.6 Purchasing & Planners

Purchasing & Planners shall ensure that all chemical purchasing is approved and orders placed. They shall maintain a minimum stock inventory to ensure the chemical storage area is not over stocked. Ensure that chemicals that arrive to site are delivered as per the site standard.

4.7 Buyer, Sourcing and Supply Management

Buyers, Sourcing and Supply Management hold responsibility for ensuring that all chemical purchasing are approved and shall considers the full scope of environmental impact when sourcing suppliers.

4.8 Vital Supplies

The Vital Supplies Team shall

Check Purchasing Orders are in place when materials arrive at the site. Whenever there is no PO in place, then the delivery shall be refused. Items are offloaded and into safe storage ensuring stock rotation. The team also ensures correct chemtags are relevant and at point of use.

4.9 Employees

Employees have the obligation to follow the requirements defined in chemical management program.

5.0 DEFINITION

Chemical - any element, compound, or mixture of elements and/or compounds produced by or used in a chemical process. Intended use of products should be considered when determining whether a product should be classified as a chemical (i.e. if a product is solid, but its use will result in a conversion to liquid or vapour form)

Container - any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank or similar that contains a chemical.

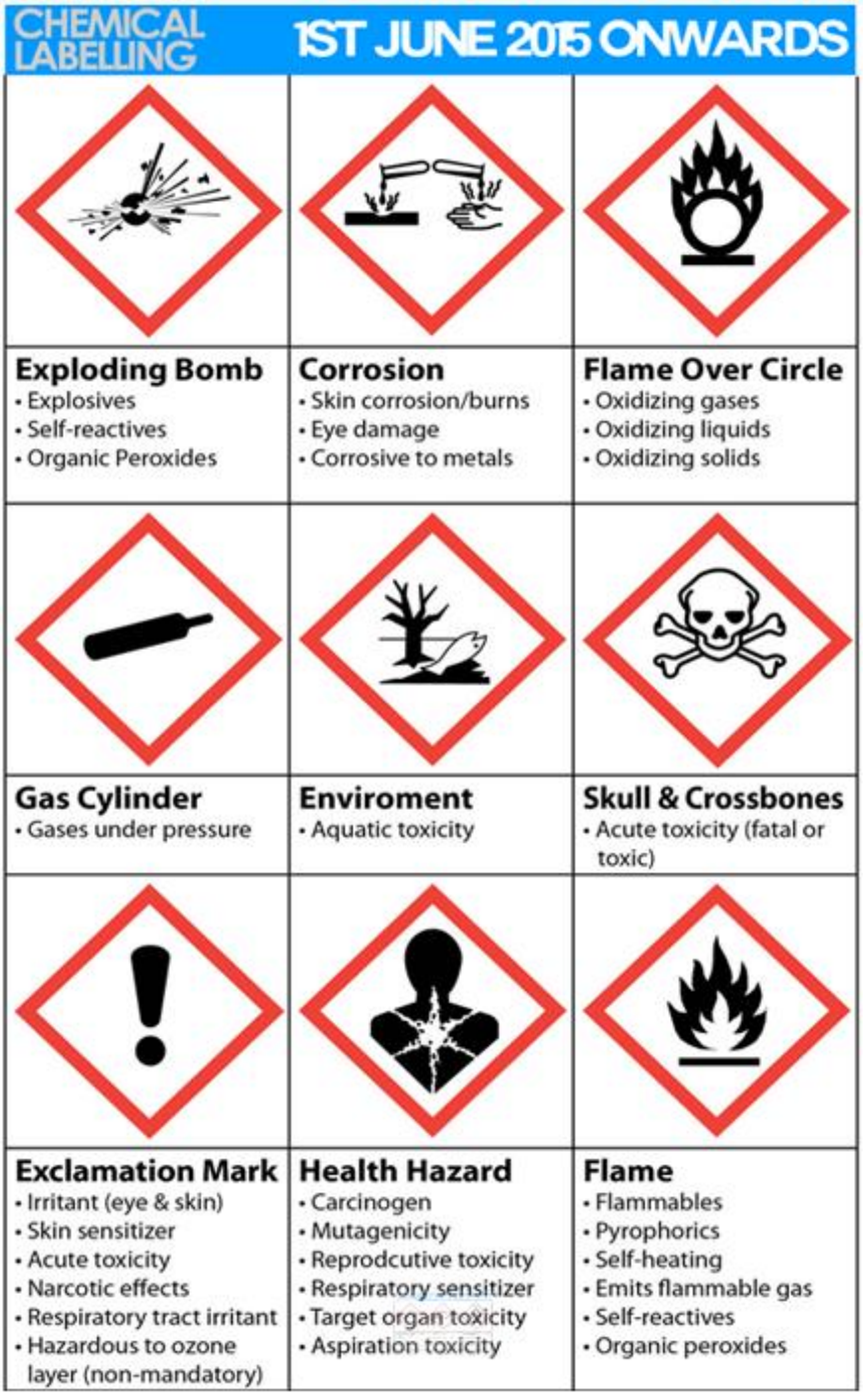
Material Safety Data Sheet (MSDS) - contains health, safety and environmental information.
Bunds – are structures to capture any leaks, spillage of store chemicals to prevent it interacting with the environment.

Workplace Exposure Limit (WEL) - legal limits set by the HSE on the amounts of many of the substances that can be present in workplace air.

COSHH Assessment- an assessment of risk for a material or mixture in its particular circumstances of use

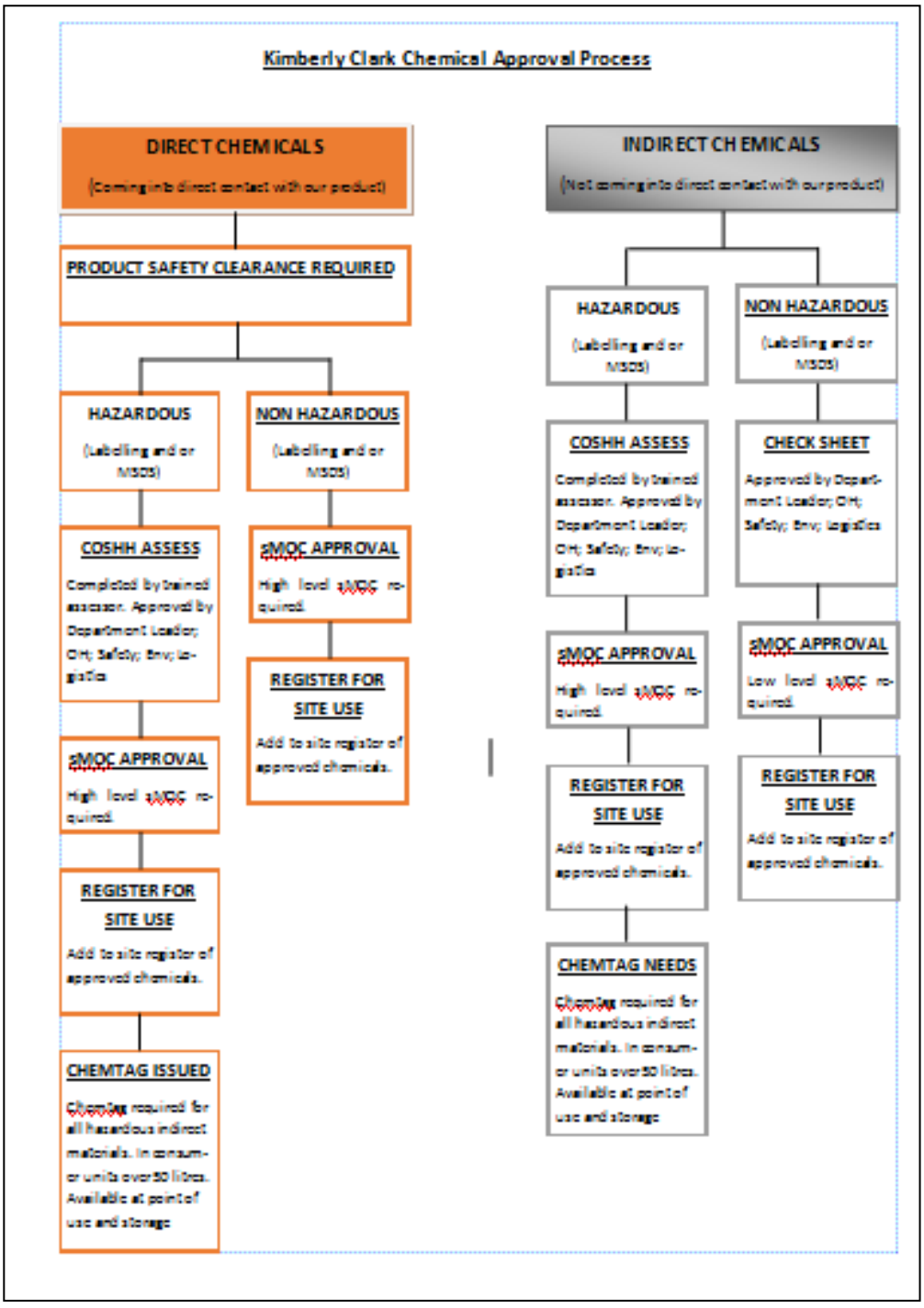
Chem Tag – a tag held at point of use to show the chemical hazards and emergency procedures. See flow charts which describe circumstances of use

Chemical Labels and their meanings:-


CHEMICAL LABELLING
1ST JUNE 2015 ONWARDS
Exploding Bomb
• Explosives
• Self-reactives
• Organic Peroxides
Corrosion
• Skin corrosion/burns
• Eye damage
• Corrosive to metals
Flame Over Circle
• Oxidizing gases
• Oxidizing liquids
• Oxidizing solids
Gas Cylinder
• Gases under pressure
Enviroment
• Aquatic toxicity
Skull & Crossbones
• Acute toxicity (fatal or toxic)
Exclamation Mark
• Irritant (eye & skin)
• Skin sensitizer
• Acute toxicity
• Narcotic effects
• Respiratory tract irritant
• Hazardous to ozone layer (non-mandatory)
Health Hazard
• Carcinogen
• Mutagenicity
• Reprodcutive toxicity
• Respiratory sensitizer
• Target organ toxicity
• Aspiration toxicity
Flame
• Flammables
• Pyrophorics
• Self-heating
• Emits flammable gas
• Self-reactives
• Organic peroxides

6.0 PROCEDURE

6.1 Chemical Approval



6.2 COSHH Assessment

All hazardous chemicals used on the m\ill are formally assessed and recorded on a COSHH Assessment.

Records of all COSHH Assessments are stored in the Blue Underground and are accessed by hyperlinks in the chemical inventory.

As and when chemicals are reviewed or requested consideration for avoiding harmful substances and substitution by less harmful alternatives must be considered.

6.3 Chemical Inventories & MSDS Management

Barrow Mill maintains a chemical inventory in Excel format that list all chemicals present at the facility. The spreadsheet is split by Asset on separate tabs. Each Tab being owned by the relevant Asset Leader, who maintain and update their own tab. It is accessed via the Safety Underground under the COSHH Tab. The inventory details:-

a. Chemicals used in production
b. Chemicals used in maintenance
c. Chemicals used in lab and office
d. Buildings and grounds maintenance chemicals
e. Fuels

The chemical inventory is updated each time a new chemical is approved and introduced to the facility. It is also updated whenever a revised MSDS is received at the Mill.

Formal review of COSHH Assessments and MSDS information is determined according to the following criteria:-

- Chemicals that are deemed low risk are reviewed every 5 years.
- Chemicals that are deemed high risk such as carry RISK labels on the MSDS or deemed above tolerable on the COSHH assessment, carry a 3 year review.
- If the MSDS changes or there is a change of use of the chemical, then the COSHH assessment must be reviewed again and submitted through the procedure above.

6.4 **Chemical Labelling and Signage**

6.4.1 Bulk and Semi Bulk Storage Tanks

All fixed storage tanks shall are labelled with the following information at the point of delivery and on the tank:

- Trade Name
- Chemical name
- Hazard warning symbols and warnings
- Tank capacity
- UN Number
- Unique material code

All associated pipework shall be labelled to show its contents and direction of flow. All signage and labelling must be replaced once it becomes faded.

6.4.2 Supplier Standard Units (IBCs, Drums, Sacks etc.)
Wherever practicable chemicals shall be retained and used from the original supplier packaging so that its identity and hazard warnings remain with it. Where this is not practicable and there is a need to decant into an alternative container, then the new container shall be clearly labelled with the chemical name and its hazard warnings.

6.4.3 Waste Materials
Waste materials shall be retained in original packaging wherever possible so that its labelling remains in place.

Where waste is pumped into alternative containers, all redundant labelling on the receiving container shall be removed or covered so that they are no longer legible; and new waste labels applied.

Details required to be placed on waste labels are defined in Procedure PR-27339 Control of Waste, segregation and Storage.

6.4.4 Trial Materials
All trial materials are brought onto site under and MSR / RSR and this process shall describe the process for left over materials at the end of the trial.

6.5 Chemical Storage
Chemical storage in specific work areas must be kept to the minimum amount necessary to perform job functions.

Production chemical usage will be tracked in an effort to limit chemical inventory levels.

Containers of flammable and combustible materials must be stored in type approved flammable storage cupboards away from ignition sources and with the doors kept closed when not in use. Such cabinets must display a flammable label on the doors.

Chemicals that have expired shall be disposed of via haz waste or returned to the manufacturer, as appropriate.

Chemical compatibility will managed by the Mill Logistics Team Leader to ensure that chemicals are stored in compatible groups, with incompatible materials separated as appropriate. Warm and cold storage facility exists at the site to allow further separation of different materials. Glues for example are stored in the warm store to prevent hardening. Cold store holds other materials that are temperature sensitive.

Chemicals shall be stored in appropriate containment reflective of the hazard presented by the material.

Where appropriate to the material, chemical storage areas shall be protected from exposure to weather and overheating.

Where ever chemicals are stored or handled appropriate spill kits shall be readily available.

Compressed gases cylinders shall be secured when in storage or transported. The valves shall be tightly closed when not in use and covered by a valve cap. The contents of gas cylinders shall be clearly identified. Empty gas cylinders shall be labelled empty and stored in designated areas outdoors. Cylinders shall be stored in areas where they are protected from mechanical damage away from truck movement. Incompatible gases must be stored separately. Gas cylinders must be not be stored near sources of ignition, heat or open flame.

SECONDARY CONTAINMENT/ BUNDS - Secondary containment for chemical storage shall be free of debris, chemical leakage and water and must be structurally sound. The exception is rain water may be present but the site shall have a cadence to remove the water that ensures containment is functional. The Environment Engineer must be consulted and must approved the emptying of bunds. If it is unclear what the material is then further testing must be conducted. The Effluent Treatment Plant must be informed also of any activity.

Oil Bunds in Oil storage areas- shall be free from debris and chemical leakage. The oil bunds in the oil storage locations are managed by [redacted]. The bunds are emptied by pumping from the bunds into containers and stored in hazardous waste for disposal.

All drain valves on secondary containment shall be locked off or plugged when not in use to prevent unauthorised discharge.

6.6 Waste Chemical storage Chemical Disposal

Waste chemicals will be held the hazardous waste compound until disposal can be arranged. Vital supplies maintain an inventory of all materials in the compound.

7.0 TRAINING

The EHS team, RP and DRP shall familiarise themselves on the KC performance standards- within 3 months of appointment.

COSHH Assessors – All colleagues completing COSHH assessments shall be formally trained in the requirements of COSHH and the KC assessment processes.

All colleagues shall receive general chemical awareness training on commencement with KC and receive periodic refresher training.

Colleagues dealing with major spillage shall be trained in the Mill spillage procedures

8.0 CRITICAL EQUIPMENT AND PLANNED INSPECTION

The following items are considered to be critical equipment to the Chemical Management Program.

Equipment	Planned Inspection	Who?	How often?	Where are the records kept
Structural Bunding	Visual	LSW	6 Monthly	ETQ
Portable Bunds	Visual	LSW	6 Monthly	ETQ
Emergency showers and eye wash stations	Flush, clean and inspect	CBRE	Weekly	CBRE
Spillage Kits	Sealed / Contents present	Visual	LSW	ETQ
Air monitoring equipment (Flow)	Calibration	Process Engineering	Annual	Eng Admin Office
LPG tanks and associated equipment	Inspection and Service	Flogas	Annual	Vital Supplies Office

9.0 EMERGENCY RESPONSE & COMMUNICATION

Emergency response procedures are detailed in PR29331 – Emergency Response Plan, which includes plans for major spillage and fire. Procedures for minor spillages are documented in the Control of Spills, PR27351.

The results of emergency response drills will be communicated to the Mill through the EHS Steering Committee. Results may also be communicated through other promotional or written material.
Crisis Management plans have been established and are available on the Share Point.

10.0 MANAGEMENT OF CHANGE

All chemical changes at the Barrow Mill go through the formal sMOC process at the appropriate level. See section 6.1 for details of levels required.

11.0 AUDITING AND CHECKING

This program is subject to self-assessment on an annual basis. Key controls of this program are audited and verified through Leader Standard Work, with all non-conformances captured and tracked through ETQ.

12.0 REFERENCES / EXHIBITS

SP 22 Goods In and Out Control
PR- 27238 Control of Environmental Incidents
PR- 27339 Duty of Care Waste Management
PR – 29331 Barrow Mill Emergency Response Procedure
Management of Change Procedure
COSHH Assessment Form
SWP's for chemical offload.

External Reference(s)
EHS - 1. Chemical Management
ISO-14001-2015 - 4.0 Context of the organization
ISO-14001-2015 - 5.0 Leadership
ISO-14001-2015 - 6.0 Planning
ISO-14001-2015 - 7.0 Support
ISO-14001-2015 - 8.0 Operation

DOCUMENT/RECORD RETENTION

Corporate Records Administration Record Number: ADM.60.10.00

The **Corporate Records Administration** website is located at: http://www.cra.kcc.com/

Reason for New/Revised Document:
Amend to reflect 3rd party chemicals and chemtag definition This is not a formal suggestion. Simply attempting to clear the document lock on this record. No changes requested to the document.
Approvals
[redacted];Approval;02-Sep-2019 09:57 BST [redacted];Approval;09-Sep-2019 08:22 BST

Kimberly-Clark		Control of Spills	
Document #:	PR-27351	**Revision:**	0
Document Type:	Procedure	**Status:**	Approved
Department Owner:	Environmental	**Effective Date:**	Aug 14, 2017
Document Category:	Environmental; Legal; Safety	**Document Owner:**	[redacted]

1.0 OBJECTIVE

To describe the manner in which all spills on site should be contained and controlled in order to minimise any environmental impact.

2.0 SCOPE

This procedure applies to all team members and personnel working in all asset areas on discovering or dealing with a spill including chemicals, oils or paints.

Applicable Organization(s):
Barrow Mill

Business Unit(s):
Family Care; K-C Professional

Applicable Department(s):
General Site / Utilities; Operations

3.0 OVERVIEW

Most industrial and commercial sites have the potential to cause significant environmental harm and to threaten water supplies and public health. At the Barrow site measures have been taken to ensure spill risks are kept to a minimum. Specific measures include: secondary containment, fill procedures, training and supervision of deliveries.

There will always be a residual risk of a spillage that could cause serious environmental problems.

The environmental impact of such an incident may be long term and, in the case of groundwater, may persist for decades or even longer. As a result, the legal consequences and clean-up operation can be costly. Rivers, sewers, culverts, drains and water distribution systems

all present routes for pollutants to travel off-site. As a result, the effects of a discharge may not be evident on site but may become apparent some distance away.

In most cases, an incident need not result in serious environmental damage, providing appropriate pollution prevention measures are in place.

Contraventions of our IPPC permit have to be reported in timely fashion to the Environment Agency by the SEL Manager or Environment Engineer.

4.0 ROLES & RESPONSIBILITIES

Mill Manager

- The Mill Manager has the overall responsibility to ensure the on-going effectiveness of the Control of Spills and to provide adequate resources to do this.

Security

- In the case of a spill being reported by phoning 5555, Security must contact the Shift Manager.

Shift Manager

- The Shift Manager has the responsibility of co-ordinating the response of a report of a spill to the Duty Manager.

Asset Leaders

- Have the responsibility of auditing the spill kits in their areas and ensuring all kits are fully stocked. They will identify any training needs their operators require to ensure competency when dealing with a spill. Investigate and report any spills both minor and major

Employees.

- Should have the responsibility to conform to the requirements of the control of spills procedure and to report any equipment faults.

In the event of a spill, both minor and major then the shift manager must be informed without delay, in conjunction with a HAZTRAX / EtQ report.

5.0 DEFINITIONS

Minor Spill- small leak that are detected early and present no immediate danger to personnel or the environment that can easily contained.

Major Spill- large leak that is not contained, progressive and could cause harm to personnel or have a significant impact on the environment.

6.0 PROCEDURE

If a spill occurs at the Barrow Site the following measures on site are in place to prevent significant harm to the environment.

- All external drains flow to an interceptor where any spills can be contained.
- PM3 and PM4 drains flow via DIP top hats to the balance tank where any spills can be diluted or isolated.
- PM1 drains flow to the Krofta sump and any flow from these goes back into the De-Inking process.

The Effluent Plant must be informed of any spillage on site.

ACTIONS TO BE TAKEN IN THE EVENT OF A SPILLAGE: 7 steps of spill response

On DISCOVERING A SPILL:

1. **Access the risk, refer to material safety data sheet (MSDS) or Chemtag**

- Is the spill minor or major?

If MAJOR RING 5555 for assistance.

- Identify the material (label)
- Does the spill present a risk to human health? (through release of toxic vapours). Refer to the relevant COSHH data.
- Does the substance present a risk to the Environment or a risk to property?
- Eliminate the risks, and when safe to do so.

2. **Select Personal Protective Equipment (PPE)**

   Consult the MSDS or chemtag for the recommended PPE. If you are uncertain of the danger and the material is unknown, assume the worse and the use the highest level of protection. **PERSONAL SAFETY IS PARAMOUNT, ONLY TACKLE A SPILL IF YOU KNOW IT IS SAFE TO DO SO. NEVER PUT YOURSELF IN HARMS WAY**

3. **Confine the spill**

   - Limit the spill by confining, blocking, diverting. Use broke, booms, absorbent mats, drain protectors, in the available spill kits.

4. **Stop the source if it is safe to do so :**

   - Close off the valve if you can safely do so.
   - Turn the container upright.
   - Plug the hole using the appropriate spill kit contents.

5. **Evaluate the Incident and implement clean up and develop action plan:**

   a. Clean up ensuring personnel performing the task are: aware of the risks, trained and competent.

   b. Use appropriate materials absorbent granules/pads/shovels

   c. Dispose of oily contaminated booms, mats into blue plastic bags tied with cable ties and place in 'oily rags' drums for disposal. Shovel used absorbent granules into container / blue 'special waste' polyethylene bag for disposal by reputable disposal company.

   d. Clean up equipment and surrounding area.

   e. Complete preliminary incident investigation

6. **Decontaminate**- Decontaminate the site, personnel, or equipment by removing or neutralizing the hazardous materials that have accumulated during the spill. This may involve removing and disposing of contaminated media for example soil that may have been exposed.

7. **Complete reporting** – all spills must be logged in haztrax or Etq for investigation.

NOTIFICATIONS TO CORPORATE IN THE EVENT OF A MAJOR SPILL

In the event of a major spill that has necessitated reporting to the Environment Agency a decision on further internal communications will be taken following the guidance found in the Crisis Manual. If communication to corporate personnel is necessary then the decision and protocol for external communications will rest with them.

7.0 REFERENCES / EXHIBITS

Crisis Management

PR- 27346 Chemical Management.

PR- 27330 Duty of Care Waste management

PR- 27238 Control of Environmental Incidents

Document Control Document(s) (if applicable):

External Reference(s) (if applicable):

System Elements (if applicable):
EHS - 1. Chemical Management
EHS - 3.5 Emergency Preparedness and Response
EHS - 4.3 Incident Investigation
ISO-14001-2015 - 8.2 Emergency preparedness and response
ISO-14001-2015 - 5.0 Leadership
ISO-14001-2015 - 7.0 Support
ISO-14001-2015 - 9.0 Performance evaluation

Other Reference(s) / Exhibit(s) (if applicable):
N/A

DOCUMENT/RECORD RETENTION

Corporate Records Administration Record Number: ADM.60.10.00

The **Corporate Records Administration** website is located at: http://www.cra.kcc.com/

Reason for New/Revised Document:
Procedure move to EtQ
Approvals
[redacted];Approval;Thursday, 3 August 2017 16:48:25 o'clock BST [redacted];Approval;Monday, 7 August 2017 08:36:25 o'clock BST [redacted];Approval;Monday, 14 August 2017 08:55:34 o'clock BST

Kimberly-Clark		Fresh Water Management	
Document #:	PR-27344	**Revision:**	1
Document Type:	Procedure	**Status:**	Approved
Department Owner:	Environmental	**Effective Date:**	Oct 11, 2019
Document Category:	Environmental; Operations	**Document Owner:**	[redacted]
Document Classification: THIS DOCUMENT CONTAINS CONFIDENTIAL KIMBERLY-CLARK INFORMATION. Document Disclaimer: Printed copies are only valid on the date printed unless controlled per a manual document control procedure and stamped as such.			

1. OBJECTIVE

The purpose of this procedure is to define the minimum requirements for the site to manage fresh water in an efficient and controlled way encompassing best practice and complying with Regulatory and Other requirements.

2. SCOPE

This procedure applies to Barrow Mill processes which use fresh water provided by all sources including groundwater, municipal supplies or private utilities.

The scope of this procedure also includes the management of fresh water in accordance with the requirements of:

- Barrow Mill's EPR operating permit No BJ7611IY
- Corporate environmental standards and other requirements.

Applicable Organization(s):
Barrow Mill

Business Unit(s):
Family Care; K-C Professional

Applicable Department(s):
General Site / Utilities; Operations

3. DEFINITIONS

Groundwater – water withdrawn from subsurface sources e.g. Borehole.

Surface Water – water withdrawn for lakes, rivers or other similar water bodies

Best Practice Document: Manuals developed by Kimberly-Clark technical experts for guidance in attaining the most efficient process/es.

4. LEGAL REQUIREMENTS

The K-C Environmental Management System requires that each facility develop and implement a program to manage the use of fresh water in the various operations and processes at the site. This program should identify the specific activities that are taken by the site to conform to this requirement and to maintain compliance with any regulatory or other legal requirements.

All applicable legislation relating to freshwater management is held on the online Simplifi package.

Barrow Mill operates under the Environmental Permitting Regulations 2016, EPR permit BJ7611IY: Under BAT 5 of the BREF compliance our AEPL target is 21.25m3/t

Barrow Mill abstracts water from 2 onsite Boreholes under the following licenses:
North borehole – 26 74 811 017
South Borehole- 26 74 811 015

Other Requirements

KC Sustainability Data- (Sofi)

Enter on a Monthly basis the freshwater consumption into Sofi, refer to PR-27280 for instruction on data entry. This is so that water use can be calculated and tracked.

Under the Sustainability 2022 Program the site must maintain their water intensity from 2015 (baseline year) and have continuous improvement program. (Barrow 21.5m3/t)

EHS Self-Assessment

RP and DRP to define management strategy and complete an annual EHS self- assessment and improvements driven through the improvement plan.

5. CRITICAL TASKS

Critical tasks for freshwater management are those that if not completed have a high probability of resulting in exceeding a regulatory requirement, damage to environment or negative public attention.

Task	Who?	Frequency	Where are the records held
Track & monitor water usage data	Asset leader Process engineer Lead hand	Daily / weekly / monthly	Tier 2,3, 4

Recycling rate is at target: Pm3 krofta outlet flow TM5 krofta outlet flow DIP krofta outlet flow EP sub water returns flow	Lead Hand/ Process Engineers	Shiftly	PIMS / DCS
North borehole South Borehole Meter reads	Environment Engineer/ Site Utilities [redacted]	Monthly	Green underground

CRITICAL EQUIPMENT

Critical equipment is equipment required to meet the freshwater consumption target set by regulation or KC standard.

Equipment	Inspection Frequency	Who?	Where are the records held?
Kroftas: Visual check scoop running, mat healthy, ADT centerlines Pm3 Pm4	Daily	MTM's	N/A
Maintenance : wheels, sensors	Quarterly	Asset Team	SAP PM

Turbidity meter PM4	Annually	Asset team	SAP PM
Recycling technologies: Long loop- EP subs water- Filter	Daily	EP maintenance team	SAP PM / MAXIMO

6. TRAINING

The Barrow training department has identified individuals that require training as per legal requirements relating to freshwater management.

The site has a specific training program related to freshwater management for affected employees and records held by the Training department.

New employees are informed of where our freshwater comes from as part of the environmental induction.

EHS Manager and Environmental Co-Ordinator will have overview of EPS 2.0 Freshwater management within 3 months of hire date.

Mill Manager - Provide necessary resources and assign the responsible personnel for the management of water use at the facility. Ensure that compliance and conformance is maintained, and any corrective/preventive actions are tracked to completion.

Operations Managers are responsible for ensuring water use in their operations is within agreed targets and that best practice is followed where possible.

Asset Leaders are responsible for ensuring their teams are aware of the importance of water use efficiency and the asset targets. They also have the responsibility for making sure water use on their asset is monitored, recorded and reported to all appropriate persons/the site.

Process Engineers/Technicians are responsible for identifying and implementing best practice in respect of fresh water use both in the process and other uses e.g. cleaning, water leaks. They are also responsible for ensuring that the process waste water is of an acceptable quality.

7. DOCUMENTATION

Permit/ Authorisations

Environmental Permitting Regulations 2016, EPR permit BJ7611IY, dated 16/06/2016

North borehole abstraction license - 26 74 811 017

South Borehole abstraction license - 26 74 811 015

Mcerts: Minimum Requirements for the Self-Monitoring of Flow, Version 4.0 August 2014, issued 22/01/2019.
Site Inspection (valid from) 07/11/2018.

Monitoring and Measurement

Asset water use efficiency shall be a topic of the daily individual asset meetings and if targets are exceeded action should be planned and implemented.

Water use efficiency is reviewed though the tiered meeting structures against target. If targets are exceeded, they should be investigated.

Live monitoring of data is available, and this ensures we keep track of our water consumption. Alarms will go off informing operators of the water usage is high so adjustments can be made where appropriate.

Monthly meter reads are taken and tracked against tonnages to determine m3/t and shared at the Energy and climate steering committee.

Verification of freshwater usage can be determined by calculating the total incoming water versus the discharge.

Borehole abstraction has limited abstraction determined hourly, daily and annually. The pumps are limited to these restrictions to prevent over abstraction. Each borehole has a condition whereby abstraction shall not take place when the groundwater level as observed at the Agency's borehole at Ormsgill is greater than 8.5 metres below Ordnance Datum. 6 monthly borehole levels can be checked online at the web address below.
https://www.gaugemap.co.uk/#!Map/Summary/10808/6184

Water volume use and bone dry metric tonnes are reported on a monthly basis for assessment against the Corporate Benchmark. The measurements are then compared to the following targets.

Paper Machine	Facility Water Use Target (cubic meters/BDMT)
PM3	15
PM4	27
Site (Bref limit)	21.25

Water Performance is reported to the Environment Agency on an annual basis.

Water abstraction from the two onsite boreholes is reported annually to the Environment Agency via the online reporting tool.

Operational controls

General:

All water use on site should be identified and well understood. In particular fresh water supply and use should be measured and documented.

An overall site water system description should be maintained to enable good understanding of how the site water system and each individual water using asset interact.

Each tissue machine asset shall maintain water system descriptions which are detailed enough to enable audit and control of water usage. Drawings and diagrams in either electronic or hard copy should be used where possible to help simplification.

Information on water use efficiency should be presented and shared with all those who have an interest and especially the team members who can affect water usage.

Tissue Machines:

For each tissue machine up to date knowledge of specific water use shall be maintained by the Asset Team. This shall include a schematic and detailed diagrams of the systems using water and how they interact. A description of the overall system shall also be maintained by the asset team.

Each tissue machine asset shall monitor water use versus production and will take appropriate action to maintain usage within agreed targets.

The emptying of tanks should be avoided if possible other than for extended shuts.

Start up and shut down procedures are completed by lead hands and handed to shift manager.

Converting Assets:

Each asset team should have up to date knowledge of the water systems in their asset area. Schematics and detailed drawings of the water systems should be maintained by the asset teams.

Mitigation plan when outside of operating ranges

The DCS system in the boiler house provides live information of incoming water and Braithwaite tank levels. Should levels drop or any significant problems arise with freshwater usage, the site services team will be contacted to resolve the issue.

The Effluent Plant maintains the EP balance tank level at <70% and if levels start to rise and they see an increasing freshwater usage they engage the escalation procedure to the shift manager.

High freshwater usage checklist was developed to address such incidents and is available at the link below.
If freshwater usages are seen and cannot be got hold of by the individual assets the shift manager must complete a freshwater checklist. If conditions cannot be controlled the duty manager must be informed and a decision regarding asset shut down must be considered if balance tank reaches 95%.

S:\Corporate\Site Information\OAIS\Green\Training\Effluent Plant

8. AUDITING AND CHECKING

LSW has been developed for freshwater management to confirm that operational risk controls for freshwater consumption are being completed and effective.

9. MANAGEMENT OF CHANGE

Any site changes that could influence the use of fresh water must be taken through the Management of Change process to ensure full consideration of all facets of the change is given and that where appropriate mitigation measures are planned and undertaken.

10. REFERENCES / EXHIBITS

Energy Summary.xlsx

KCSDB Monthly Sofi 5 Report

Barrow Mill Tiered Scorecard

Freshwater checklist

Document Control Document(s) (if applicable):

External Reference(s) (if applicable):

System Elements (if applicable):
EHS - 2. Fresh Water Management
ISO-14001-2015 - 4.0 Context of the organization
ISO-14001-2015 - 5.0 Leadership
ISO-14001-2015 - 6.0 Planning
ISO-14001-2015 - 7.0 Support
ISO-14001-2015 - 8.0 Operation
ISO-14001-2015 - 9.0 Performance evaluation

Other Reference(s) / Exhibit(s) (if applicable):
N/A

DOCUMENT/RECORD RETENTION

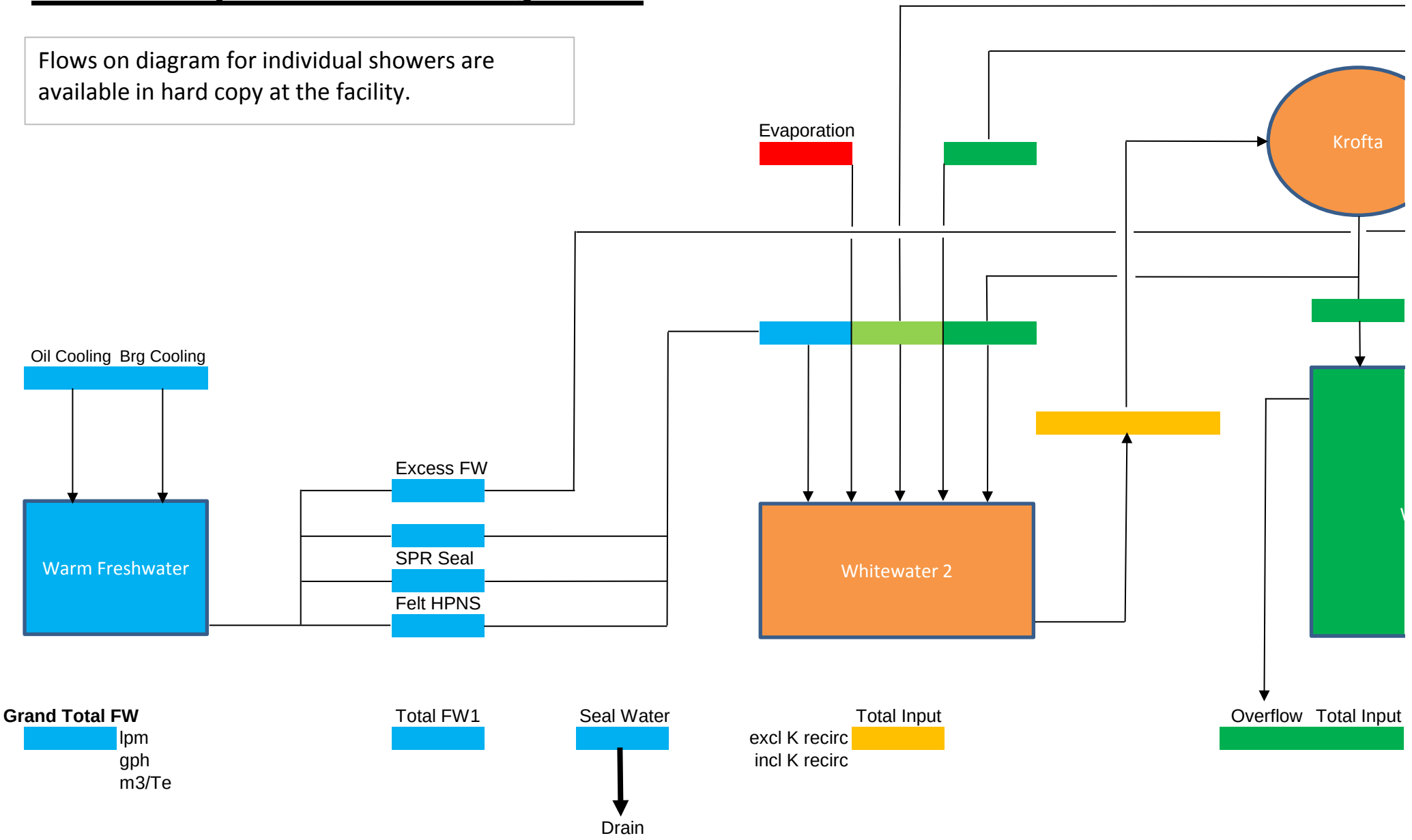
Corporate Records Administration Record Number: ADM.60.10.00

The **Corporate Records Administration** website is located at: http://www.cra.kcc.com/

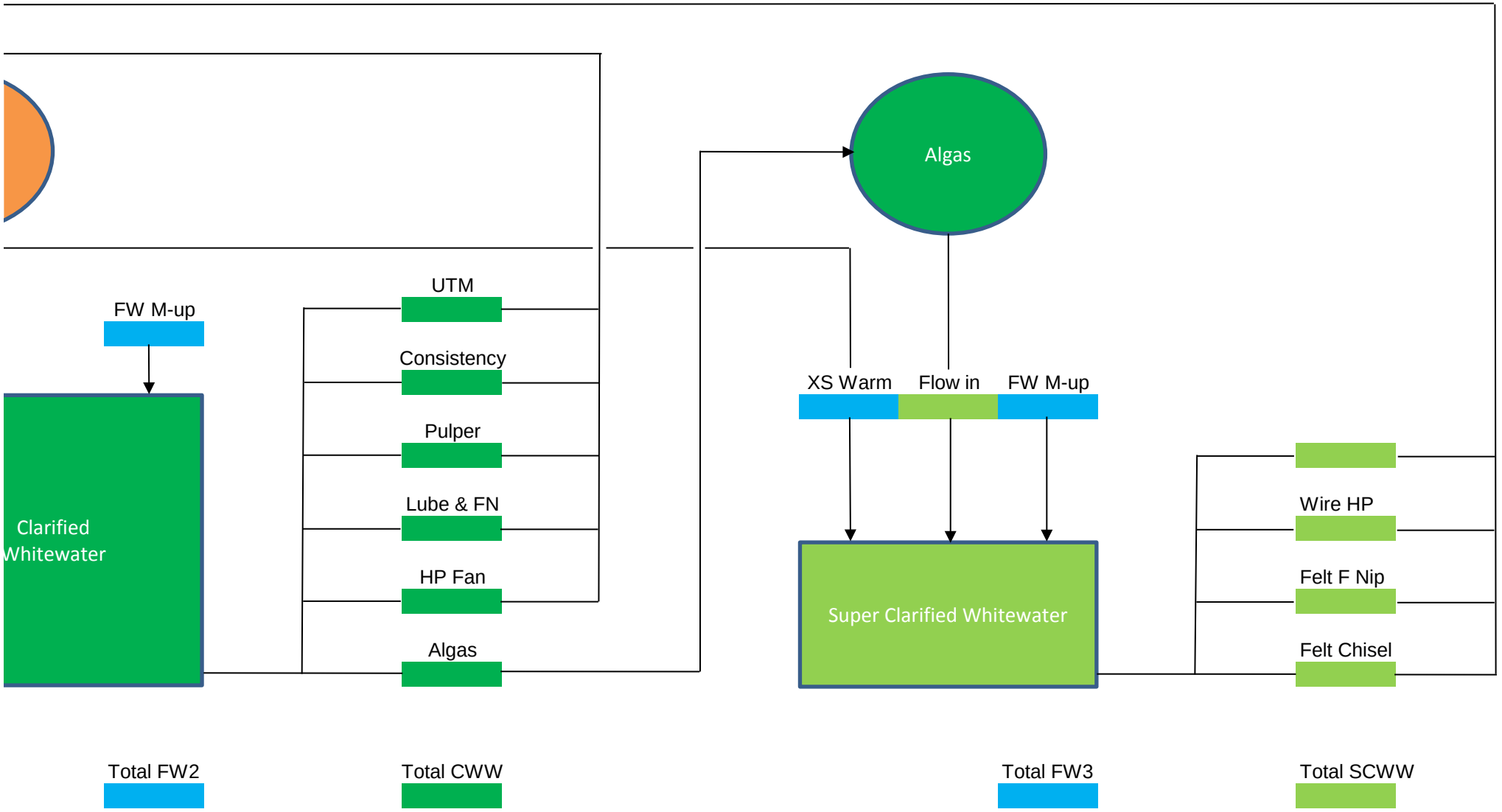
Reason for New/Revised Document:
Review of current program to align to KC EHS standard
Approvals
[redacted];Approval;02-Oct-2019 14:57 BST [redacted];Approval;09-Oct-2019 07:23 BST [redacted];Approval;11-Oct-2019 11:00 BST

PM3 Simplified Water System

Flows on diagram for individual showers are available in hard copy at the facility.

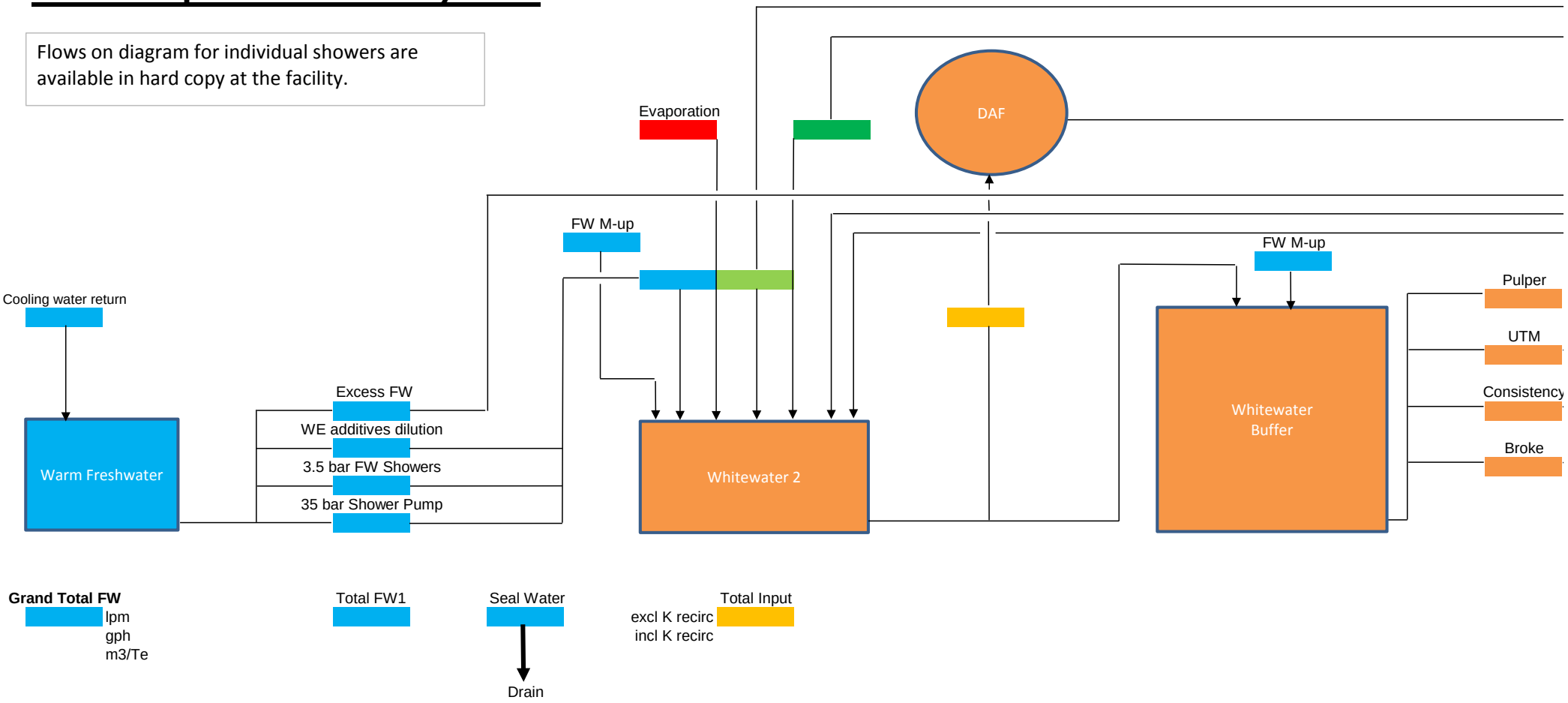


Grand total FW also equals the sum of Evaporation & CWW Overflow & Seal water - which is technically correct!

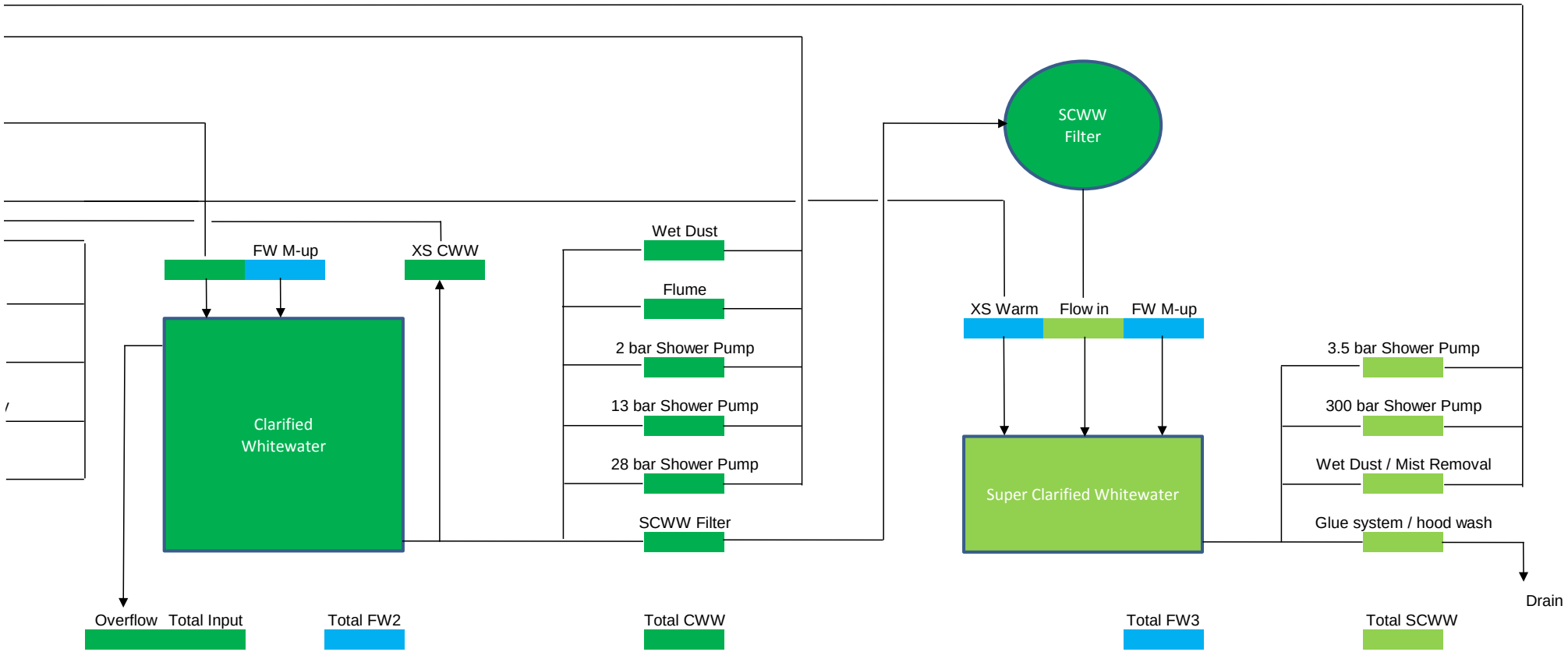

Algas
FW M-up
UTM
Consistency
Pulper
Lube & FN
HP Fan
Algas
Clarified Whitewater
XS Warm
Flow in
FW M-up
Super Clarified Whitewater
Wire HP
Felt F Nip
Felt Chisel
Total FW2
Total CWW
Total FW3
Total SCWW

TM5 Simplified Water System

Flows on diagram for individual showers are available in hard copy at the facility.



Grand total FW also equals the sum of Evaporation & CWW Overflow & Seal water - which is technically correct!


SCWW
Filter
FW M-up
XS CWW
Wet Dust
Flume
2 bar Shower Pump
13 bar Shower Pump
28 bar Shower Pump
SCWW Filter
Clarified
Whitewater
XS Warm
Flow in
FW M-up
Super Clarified Whitewater
3.5 bar Shower Pump
300 bar Shower Pump
Wet Dust / Mist Removal
Glue system / hood wash
Drain
Overflow
Total Input
Total FW2
Total CWW
Total FW3
Total SCWW

Date	Saturday	14/09/19	Operator:	Days	Nights

10	TSS ppm	Water to sea
06:00	8	1.264
08:00	7	1.086
10:00	11	1.092
12:00	9	1.095
14:00	8	1.104
16:00	11	1.109
18:00	8	1.122
20:00	14	1.134
22:00	12	1.147
00:00	9	1.155
02:00	15	1.161
04:00	13	1.162

	Composite	Treated Water	Primary Accepts	Balance Tank	Aeration North	Aeration South	F M C	R A S
pH		6.56	6.34	6.67				6.61
TSS	11	8	66	1293	1381	1354	1351	3143

	Days		Nights	
	Press 1	Press 2	Press 1	Press 2
Sludge Flow	850	0	900	0
Polymer Bias	.60	0	0.6	0
Cake Solids %	56.84	0	38.4	0
Shift Press Checks	Done	0	Done	Done

Sludge Const. %	0		0
Flume pH Min	7.21		7.24
Flume pH Max	7.28		7.40
Flume temp °C Max	22.8		22.8
Volume Kgalls	561	1.16 mgpd	599

	Phosphate	Ammonia	Nitrate
Composite	4.6	0.07	0.6
Primary Accepts	5.1	0.63	0.4
Selectors	4.3	0.81	0.4
Balance Tank	2.7	0.33	0

Primary Accepts COD	364
Composite COD	37.6

Sludge Depth	
North	2'
South	3'

F/M Ratio Basins	0
F/M Ratio Selectors	1.1

Coarse Screen TSS			
06.00	830	18.00	1148
09.00	1101	21.00	604
12.00	1058	24.00	911
15.00	967	03.00	873

	Days		Nights	
	Level (%)	Flow (M^3/hr)	Level (%)	Flow (M^3/hr)
Balance Tank	60.7	200.0	67.0	220.0

	Actual	Target
RAS flow	200	
WAS flow	2	15.7
Sludge Age	125.1	20

D.O.	Selectors	0

	Basin 1	Basin 3/4
South	0	0
North	0	0

V30	
FMC	450
RAS	970

nutrient tank level %	62.1

BOD	Test	Reading
Composite	Bottle 8	3
Primary Accepts	Bottle 7	110

Bins emptied (Day Shift)	5

Bins emptied (Night Shift)	0

Daily Checks

Shower Bars cleaned on Presses	0
Press Room Floor - Hosed Down	Done

Weekly Checks

Biology examined (microscope) - images saved	0
NIVUS Flume Flow Recorder - head cleaning	0

Kimberly-Clark		Control of Waste, Segregation, Handling and Storage	
Document #:	PR-27339	**Revision:**	1
Document Type:	Procedure	**Status:**	Approved
Department Owner:	Environmental	**Effective Date:**	Jan 2, 2019
Document Category:	Environmental; Legal; Logistics; Safety	**Document Owner:**	[redacted]

1. OBJECTIVE

To describe the method by which waste materials are segregated for reprocessing, recycling and disposal.

2. SCOPE

This procedure applies to Barrow processes or activities which have the potential to generate waste that must be managed by the site including project work.

This procedure covers waste segregation, handling and storage processes operated by the Barrow site.

Applicable Organization(s):
Barrow Mill

Business Unit(s):
Family Care; K-C Professional

Applicable Department(s):
General Site / Utilities; Operations

3. DEFINITIONS

Waste characterisation- the process used to identify whether or not a waste is hazardous or non-hazardous and to determine the proper management of the waste.

Hazardous waste- a discarded material that due to its chemical or physical makeup may contain constituents that are regulated and must be managed in a way to minimise their impact on the environment.

4. EHS Risks

Wastes if not responsibly managed can cause environmental damage and/or regulatory non-compliance event. In addition, we must reduce, reuse, and recycle the wastes we produce. Further, we must move these wastes to higher value uses.

5. RESPONSIBILITIES

Mill Manager- Provide necessary resources and assign the responsible personnel for the management of wastewater generated, treated, and discharged at the facility. Ensure that compliance and conformance is maintained and any corrective/preventative actions are tracked to completion.

RP and DRP Complete an annual EHS self – assessment and improvements are driven through the improvement plan and management review process

SEL Manager, Logisitcs Teamleader; Environment Engineer, Procurement are responsible for:

- Completing waste vendor approvals to ensure the waste contractor is reputable and can manage the volumes and streams of waste generated.
- Complete duty of Care audits to ensure final destination of the waste has been diposed ethically.

Vital Supply Driver is responsible for :

- The collecting and emptying of the skips and checks waste has been collected into the correct bins.
- Emptying of polythene, cardboard/coreboard and wood into the respective larger receptacles ready for the Waste Contractor to collect.
- General waste must be bagged before it is placed into the waste skip.
- They also return the empty skips back to the assets once empty.
- Ensure all skips are labelled and will reinstate labels if labels are fund to be missing.
- Escalate to the waste contractor should skips require emptying.

Site Waste Contractor is responsible for:

- Ensuring skips/ hazardous waste compound is not overflowing.
- The collection and removal of the Barrow site's waste and in turn replacing the full skips with a replacement, ensuring the empty skip is labelled identifying its contents.
- Completing a KC weighbridge ticket and associated waste transfer note before removing the full skip off site.
- Ensuring the consignee returns are completed for the hazardous waste and provided to Kimberly Clark.

Employees are responsible for **:**

- Ensuring waste segregation is completed by putting the correct waste in the correct receptacle.
- All general waste is bagged
- Do not allow bins to overflow
- awareness training- sustainability V2022 goals, waste segregation, types of waste generated, collection & suitable containers.

6. TRAINING

Mill Manager- Provide necessary resources and assign the responsible personnel for the management of wastewater generated, treated, and discharged at the facility. Ensure that compliance and conformance is maintained and any corrective/preventative actions are tracked to completion.

EHS Manager, Environmental Coordinator, RP & DRP - will have overview of EPS 6.0 Waste Management within 3 months of hire. Waste vendor approval.

RP and DRP Complete an annual EHS self – assessment and improvements are driven through the improvement plan and management review process

Employees – awareness training- sustainability V2022 goals, waste segregation, types of waste generated, collection & suitable containers.

Vital Supply Team- spill response, transport and movement of wastes around the site.

Required Training Program Elements

Procedure PR 27339 – Control of Waste, Segregation, Handling and Storage provides the teaching and explanation of the following:

Identification of wastes and recyclable materials generated.

Location of storage.

Regulatory requirements applicable to the site and materials.

Segregation of wastes and recyclable materials.

Shipment of wastes and recyclable materials.

Container management procedures.

Emergency response procedures for spills, accidental releases,

K-C Sustainability 2022 Program goals and requirements.

7. LEGAL REQUIREMENTS

Barrow Mill operates under EPR permit BJ6711IY and as such is permitted to use waste types and quantities for production of paper and to abide requirements detailed below.

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

All applicable legislation relating to waste management is held on the online Simplifi package.

Other Requirements

KC Sustainability Data- (Sofi)

Enter on a Monthly basis the waste and recycling data into Sofi, refer to PR-27280 for instruction on data entry. This is to determine the landfill diversion rates, disposal costs and recycling revenues to be calculated and tracked.

Information and Communication

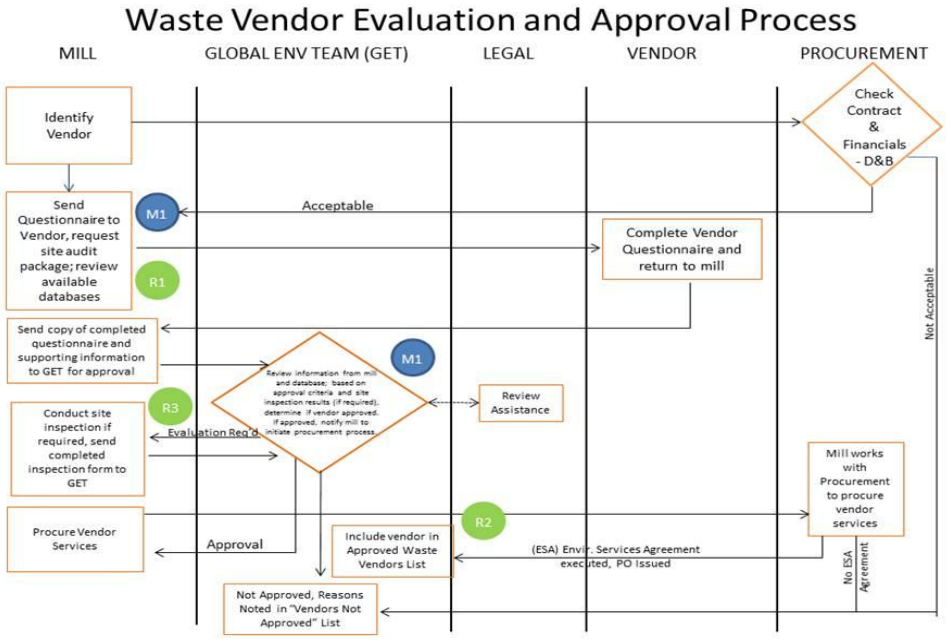
Required notifications to applicable authority are dictated by permit BJ7611IY and method for reporting externally is described in procedure PR-27280 Environmental Monitoring and Reporting

8. WASTE VENDOR APPROVAL

This process ensures that intended management or disposal practices are followed.

Waste vendor approval procedure is available on the Sustainability site on KC's intranet at the link below.

https://kimberlyclark.sharepoint.com/sites/c549/Waste/Pages/Waste-Vendor-Approval-Process.aspx



9. WASTE MINIMISATION

Site activities drive the volumes of waste. Barrow Mill has been zero landfill since March 2013.

Due to legislation changing rapidly concerning the ways we must dispose of waste and increased disposal costs there is more of a need to adopt the waste hierarchy.

When disposing of waste we must consider these 5 steps in order. They are known as the 'waste hierarchy'.

1. Prevent – e.g. use fewer and less hazardous materials, and use things for longer.
2. Reuse.
3. Recycle.
4. Recover – e.g. anaerobic digestion or incineration for energy recovery.
5. Dispose – e.g. landfill and incineration without energy recovery.

KC's Vision 2022 Program Goals is to be zero landfill.

Barrow Mill operates under a zero waste to land fill since March 2013.

Barrow Mill needs to understand cradle to grave for all its waste materials generated and as such has a waste register which is available on the green underground..

The importance to reduce waste arises from three key areas:

a) Employee and customer expectations

b) Pressures from the EA to improve recycling fulfil waste hierarchy

c) Increasing costs for disposal

Hierarchy of Control Measures

Principles behind waste reduction follow the hierarchy of control measures

10. WASTE RECYCLING & OPERATIONAL REQUIREMENTS

Waste register is available on the green underground which provides the following information

- Waste description – E.g. Plastic, wood, cardboard
- Measure – skip size
- Disposal Or Recovery Code
- EWC- European Waste Code
- Method of removal e.g. RoRo
- Approved Carriers information
- Waste Carriers License including Expiry Date
- Approved Disposal / Disposal Site Address – waste transfer station
- Waste Management Permit
- 1st Stage of Disposal / 2nd Stage Disposal

- Waste Hierarchy

Equipment is maintained on site to assist in the management of waste materials generated by the site and to minimise the potential for impact to the environment should a release occur.

The following has been adopted as part of the waste management program:

Waste Containers/ skips

- All containers for use in managing waste will be made of a material that is compatible with the waste material placed in it.
- All waste receptacles will kept on hard standing
- All containers/skips will be labelled to identify the materials that can be placed into them.
- All external skips will be labelled with the EWC code, material and location number identified.

- All containers/ skips will be stored in a manner to minimise the potential for spills or releases to occur.
- All containers will be stored in a manner to minimise potential for reaction with incompatible materials.

See Appendix A – list of wastes & locations generated at site
See Appendix B- location map

Waste storage areas (Skip centre)

- Waste is stored in a safe, secure areas that has adequate measures in place to contain or manage any spills or releases that could occur.
- All waste is stored on hard standing
- Waste will be placed into the area by authorised personnel.
- All wastes are stored in a manner that minimises the potential of the waste impacting storm water runoff.

- The site monitors the generation of waste on a weekly, and monthly basis.

- Waste accumulation and storage areas are routinely inspected to ensure the waste is being collected and stored properly.

Hazardous waste compound

- Waste is stored in a safe, secure area with limited controlled access prior to disposal.

- Waste will be placed into the area by authorised personnel.

- Waste accumulation and storage areas are routinely inspected to ensure the waste is being collected and stored properly.
- Other hazardous wastes are stored in approved containers dictated by the nature of the waste.
- All labels must be filled out with indelible or permanent ink markers available from Stores.
- Each item of hazarodus waste has to be booked into the compound by the V/S team.
- A full inventory of items stores in the compound is held by V/S

Waste oil tank

- Waste oil is stored in a double bunded tank
- Filling of the tank is controlled by the site lubrication contractor
- Emptying of the tank is arranged through the V/S team

11. CRITICAL TASKS

Task	Inspection needed	Who?	How often?	Where are the records kept
Duty of Care	Site visit; cradle to grave	Env Co & Logistics Leader	Based on risk	Green underground; audits; DOC
Inspection of hazardous waste area	Visual Inspection	Env Co & Logistics Leader	Bi monthly	Findings raised in EtQ
Skip Centre	Visual Inspection	Env Co & Logistics Leader	Bi monthly	Findings raised in EtQ
Vendor approval	Follow vendor approval process	Env Co & Procurement	Upon supplier change	Green Underground; vendor approval.

12. CRITICAL EQUIPMENT

Equipment	Inspection needed	Who?	How often?	Where are the records kept
Skip centre	Visual Inspection	Env Co & Logistics Leader	Bi monthly	Findings raised in EtQ
Inspection of hazardous waste area	Visual Inspection	Env Co & Logistics Leader	Bi monthly	Findings raised in EtQ
Interceptor	Visual Inspection	Env Co & Logistics Leader	2x annually (wet weather)	Green underground; audits; site env audit. Findings; raised in EtQ
Compactor	Cleaning regimes Health check/service Skip changes	Pm1/DIP team Packawaste Suez/FCC	As per production schedule of DIP 2x year or as and when called out As and when skip is full	PM1 asset team PM1 asset team Weighbridge tickets
Bunds	Visual Inspection	SEL Manager & Safety Advisor	2x annually	Blue underground; Safety audits;

				Planned Inspection
Spill kits	Visual Inspection	Visual	LSW	EtQ

13. WASTE SEGREGATION

INVENTORY

The 'Waste Register' is a process manual for all wastes produced at the Barrow site and is available on the green underground.

The inventory below is the main wastes generated on site.

The waste register held on the green underground provides a full inventory of all wastes generated including construction/ demolition and hazardous wastes.

Volumes are based on 2017 data

Material name	**Description**	**Generation Process**	**Composition**	**Regulatory Characteristics**	**Estimated Volume per annum (t)**	**Point of Generation**	**Storage Location**	**Disposal/Recycling Outlet**
Poly	Excess plastic wrap/ packaging	Wrapping of reels and final product	Clear & Printed polyurethane	Solid	150	Mill wide, predominantly converting	Internal bins and skips External skip, skip centre	Recycled
Cardboard	cardboard boxes and tissue boxes	Excess packaging	Cardboard	Solid	340	Converting/paper machine	Internal skips External skip, skip centre	Recycled
General waste	Municipal waste	Food waste, mixed wastes, sweepings	Food packaging, rubber, cross-contaminated waste. General waste	Solid	400	Mill wide	Internal bins and skips External skip, skip centre FEL Canteen bins	Recovery – waste to energy

Material name	**Description**	**Generation Process**	**Composition**	**Regulatory Characteristics**	**Estimated Volume per annum (t)**	**Point of Generation**	**Storage Location**	**Disposal/Recycling Outlet**
Broke	Off quality tissue with lotions	Lotion on tissue	Tissue and surface coating of tissue	Solid	450	Multifolder	Dedicated broke bin/ external skip	Recycled
Sludge	By product of tissue manufacture	Waste water treatment plant	Tissue fibre and water. 50% dry solids	Solid	23,000	Primary clarifier Krofta Sludge tanks at mill	Hardstand area at EP	Beneficial use – animal bedding.
Woods	Woods	Excess blade packaging, damaged pallets	Wood	Solid	100	Mill wide	Dedicated internal and external skip	Recycled
Crud	Excess recrepe	Blade takes excess recrepe material from the cylinder	Recrepe chemistry/fibre	Solid	460	PM4 paper machine	Dedicated internal skip to external skip	Recovery – waste to energy
Scrap metal	Waste metals	Disused metal, loose and baled wire	Mixed metals	Solid	380	Mill wide	External skips	Recycled

Material name	**Description**	**Generation Process**	**Composition**	**Regulatory Characteristics**	**Estimated Volume per annum (t)**	**Point of Generation**	**Storage Location**	**Disposal/Recycling Outlet**
Screening Rejects	Plastics / by product od DIP	Waste screened from DIP process	Plastics predominantly	Solid	1000	DIP	2 x external skips Compactor	Recovery – waste to energy
WEEE	Electrical and Electronic wastes	End-of-life electrical and electronic equipment	Glass, circuit boards, aluminium, plastic, metals	Solid	10	Site wide	External skip	Recycled
Machine Cores	Cardboard cores used in reels	End of life cores, paper machine/converting	Cardboard & glue	Solid	500	Paper machine & Converting	External skip	Recycled
Septic	Septic waste	Sewage	Organic material/ water	Liquid	400	Site wide	Septic tanks	Recycled

In order to minimise the amount of waste material which is disposed of, a colour coordination of skips has been implemented at the Barrow site. This allows for good segregation of all waste types and the prevention of recyclable material being disposed of in general waste skips.

PROJECT WORK

Waste can only be disposed of by an approved KC Vendor.

Prior to starting any work, potential wastes generated need to be to be:

- Identified
- Assigned an EWC code
- Disposal code
- Suitable receptacle.

All licences and permit numbers, need to be provided to establish if the contractor can handle / transport the waste and to determine if final the destination is permitted to receive the waste, should the waste generated not follow the site's waste register.

It is the responsibility of the project team to ensure that all the relevant information listed in the above bullet point is provided to the South gate to ensure the weighbridge and WTN are completed corrected.

.

RECYCLATES

The following materials are permitted to be recycled into the following colour coded skips

- Grey – General Waste- Food waste, mixed wastes. Must be sealed/bagged.
- Blue – Polythene- Clear & printed plastics. Must be sealed/bagged

- Straw – Cardboard/Coreboard
- Cream – Broke
- Brown – Wood
- Orange/ Blue – Metal

BROKE

There are 3 skips on the waste storage area for:

KCP Broke

Good Broke

Facial Tissue (Mixed broke)

Good Broke and KCP Broke such as slab, nubbins, logs which cannot be recycled through the Cedar Broke Plant, 10Ft and 12ft Pulper or the baler, these skips are a last resort.

Facial Tissue which cannot be consumed in the above manner is placed in the Facial Tissue (Mixed Broke) skip.

METAL

There are metal skips on site for the following category of metal:

1. Pulp wire from pulp bales
2. Sharps such as log saw blades
3. Dr Blades from the paper machines.

WEEE Waste (Waste Electrical and Electronic Equipment)

It is end-of-life electrical and electronic equipment. It includes anything with a plug, batteries or that needs charging. This includes washing machines, vacuum cleaners, toasters, all IT and telecoms equipment (with the exemption of display screens), radios, electric drills. There is an 8YD enclosed skip available for this type of special waste.

It is important WEEE waste is segregated to reduce the environmental impacts of unwanted electrical and electronic equipment at end-of-life disposal

Disposal is through a certified vendor.

COMPUTER SCREENS

All CRT (Cathode-Ray tube) and TFT (thin-film-transistor) screens need to be included on a hazardous waste consignment. **They must not be disposed of via the WEEE Waste**.

The recycling of TFT screens presents a new problem for the industry. Their intricate design and inclusion of backlighting systems means that they must be manually broken down prior to any further recycling activities. Older models contain Brominated flame retardants and most contain Mercury salts in the backlights. Both compounds are hazardous to health and the environment.

Plasma Displays present a similar issue, however, , the screen is typically filled with a liquid that has to be drained from the unit in accordance with guidance of Best Available Treatment. Recovery and Recycling Techniques before any further recycling work can be carried out.

DAF Materials

DAF waste applies to all materials such as packaging that may be obsolete or glues that may be out of date. This type of waste disposal is controlled through the planning department and Waste Contractor.

Construction Waste

Construction waste skips are issued on request to prevent contamination and removed on the completion of the work.

Please contact CBRE if a skip is required.

HAZARDOUS WASTE

Waste is considered 'hazardous' under environmental legislation when it contains substances or has properties that might make it harmful to human health or the environment. This does not necessarily mean it is an immediate risk to human health.

If in doubt as to whether any waste is Hazardous Waste – contact the Site Environment Engineer or Site Logisitcs Team leader.

All hazardous waste is logged on a hazardous waste log and marked as removed when Hazardous waste is collected by the Site Waste Contractor. The Hazardous Waste Log is a temporary record reflecting only the current contents of the locked storage area.

HAZARDOUS WASTE INCLUDES BUT IS NOT RESTRICTED TO:

BATTERIES- Nickel cadmium/ lead/ alkaline

Batteries must not be put in general waste bins.

Nickel Cadmium

- . labelled waste receptacle is available outside Engineering stores
- NICKEL-CADMIUM BATTERIES MUST NOT BE MIXED WITH OTHER TYPES OF BATTERIES

Lead

- labelled waste receptacle is available outside Engineering stores
- Terminals must be taped up prior to disposal

Alkaline

- labelled waste receptacle is available outside Engineering stores

AEROSOLS

- Red wheelie bin is available outside engineering stores for the disposal of waste aerosols.
- Once the wheelie bin is full, Vital Supply empties the bin into a chemsafe stored in the hazardous waste compound.

Waste Oil and Oil containing absorbents, Oil Filters Grease Cartridges

- Small amounts of waste oil and oil by-products over a long period of time may have an adverse effect on the environment if not disposed of properly
- There is a designated area for oil waste at the Barrow site in PM3/4 basement. Chemsafes are provided for the disposal of oily rags
- Site Lubrication contractors are responsible for the storage of all oil waste on site. All oil waste is stored in waste oil storage container before it is pumped into a bunded tank.
- Once full the waste contractor will arrange for collection, ensuring replacement Chemsafes are provided and a goods out note is received.

Chemical Containers with residue

- Empty IBCs are returned to Schultz via V/S
- All containers containing non -hazardous or hazardous residue must be disposed of via hazardous waste.
- **ADHOC Hazardous waste**

Generally the assets dispose of obsolete chemicals, mixed glues, fragrance in an IBC. This type of material goes through the hazardous waste channel by means of hazardous waste transfer as detailed below.

Manufacturing Team Member- fills out a hazardous waste internal transfer form which is kept in Vital Supply.

Giving details on container type, quantity and hazard classification.

Waste sticker is provided to apply to the container in question and details contents and hazard classification.

Vital Supply will remove and place in the hazardous waste comppund in preparation for disposal.

Site Waste Contractor will then arrange for specialist disposal of all hazardous waste.

Fridges/ Air conditioning Units

These must be transferred to the hazardous waste compound (as above) for degassing and labelling by an approved vendor before disposal to the metal waste skip.

Glues

Specialist glue disposal will need to follow the hazardous waste channel detailed above in adhoc hazardous waste.

Lighting Waste

Fluorescent lamps are considered a hazardous waste due to the mercury levels contained in the lamps. Therefore, all fluorescent lamps, high intensity lamps, and other mercury containing lamps must be managed in compliance with the regulations.

There is a designated skip (coffin) available, for disposal of fluorescent tubes.

Round bulbed lights are separated and put into clip top drum for disposal adjacent to the fluro coffin.

Once full the waste contractor will arrange for collection, ensuring replacement skip is provided and a goods out note is received.

Paint Tins

A chemsafe is available location no- . Once full the waste contractor will arrange for collection, ensuring replacement receptacles are provided and a goods out note is received.

Asbestos

All asbestos is managed according to procedure PR- 29513 and disposal ismanaged through an approved vendor.

14. PERMITS/AUTHORISATIONS

The waste register is a live document and is reviewed on a quarterly basis.

The register includes all waste carriers licences and expiry dates.

suez

	Waste description	PK grp	R-Phrases	H codes	D Or R Cod	EWC	Method of dispatch	Approved Carriers	Waste Carriers License	Expiry Date
1	General Waste	N/A	N/A	N/A	R12	20-03-01	T/waste	[redacted]	[redacted]	[redacted]
2	Septic Waste	N/A	N/A	N/A	R10	20-03-04	RORO			
3	Machine Cores	N/A	N/A	N/A	R5	20-01-01	RORO			
4	General Waste	N/A	N/A	N/A	R12	20-03-01	RORO			
5	PM4 CRUD	N/A	N/A	N/A	R12	03-03-10	RORO			
6	Plastic Packaging	N/A	N/A	N/A	R5	15-01-02	RORO			
7	KCP BROKE	N/A	N/A	N/A	R5	03-03-08	RORO			
8	MIXED BROKE	N/A	N/A	N/A	R5	03-03-08	RORO			
9	Cardboard/Coreboard	N/A	N/A	N/A	R5	15-01-01	RORO			
10	Good Tissue Broke	N/A	N/A	N/A	R5	03-03-08	RORO			
11	Screening rejects	N/A	N/A	N/A	R12	03-03-07	Skip			
12	Poire Rejects	N/A	N/A	N/A	R12	03-03-07	RORO			
13	Poire Rejects - Drying Trial	N/A	N/A	N/A	R13	03-03-08	RORO			
14	Metal	N/A	N/A	N/A	R4	20-01-40	RORO			
15	Constution/Demolition	N/A	N/A	N/A	R5	17-09-04	Skip			
16	Baling Wire (Baled)	N/A	N/A	N/A	R4	20-01-40	RORO			
17	Baling Wire (Loose)	N/A	N/A	N/A	R4	20-01-40	RORO			
18	Wooden Packaging	N/A	N/A	N/A	R5	15-01-03	RORO			
19	WEEE	N/A	N/A	H14	R13	16-02-14	Skip			
20	Oil Contaminated Card and Floor Sweepings	N/A	R20/21/22 R45 R50/53	H5 H7 H14	R13	15.01.10*	Curtainside			
21	Plastic /Metal Drums Clean & Washed Out	N/A	N/A	N/A	R13	15 01 06	Curtainside			
22	Oil Chemical	N/A	R20/21/22 R45 R50/53	H5 H7 H14	R13	13 02 05*	Curtainside			
23	Oxidising Solid Corrosive N.O.S (Bromo - chloro, 5,5- dimethyl hydantoin mixture) - Spectrus OX1203 (Biocide)	II	R22 R31 R34 R50	H5 H8 H12 H14	R1	16 05 08*	Curtainside			

15. MONITORING, RECORD KEEPING AND REPORTING

Procedure PR27280 Environmental Monitoring and Reporting procedure describes the reporting requirements for waste management.

All wastes are identified and labelled with the appropriate EWC code and dedicated location (see appendix in PR-27339 Control of waste, segregation, handling & storage procedure).

All wastes leaving the Barrow site are weighed on and off over the site weighbridge.

All WTN and weighbridges are collated and volumes from the weighbridge are inputted into an excel spreadsheet on the S drive: Corporate; Material Flow location.

All waste leaving site must have a Waste Transfer Note detailing the following:

The requirements are in the Waste Regulations (England and Wales) 2014,

- Brief written description of the waste;
- The correct EWC (European Waste Catalogue) code. This is a six digit code that describes your waste;
- Description of how the waste is contained e.g. in bags, skips or loose;
- SIC code.
- Waste hierarchy declaration
- Indication of the quantity.
- Producer information
- Carrier or disposal site
- Waste carriers licence number and vehicle registration number;
- Address of where the waste was transferred;
- Date of when the transfer took place;
- Signed by both parties involved in the transfer.

For non-hazardous waste, there is not a requirement to have a note every time; Barrow Mill has 'season ticket'. This is one waste transfer note that can cover you for up to 12 months but details all the information above.

If there is not a season ticket in place the WTN needs to be completed as stated above.

Hazardous waste volumes are adhoc and these as removed as and when required. All records are held in Vital Supply.

16. OPERATIONAL RISK CONTROLS

Operational Controls

All external skips have a unique skip location and are labelled.

Skip Storage areas include:

- Hazardous waste area is locked and controlled.
- All on hard standing.
- Access control
- Weather protection- there is no weather protection and all skips are open to the elements. This is mitigated by not disposing in high winds. Industrial cleaners complete a daily perimeter fence litter picking activity.
- Emergency response equipment and how to deal with spills is documented in PR-27351 Control of Spills procedure.

Administrative Controls

All waste volumes are tracked weekly on the material flow folder on the S drive. Monthly data is tracked on the green underground under waste.

Season tickets are in place for the main wastes generated at the site.

Employees are responsible for ensuring the correct waste is put in the correct receptacle.

Vital Supply drives then remove the contents into the external skips and escalates as and when skips require emptying.

On site waste RORO driver is responsible for removing/ exchanging the external skips over the weighbridge to the waste transfer station for disposal.

17. EMERGENCY RESPONSE PLANNING

KC conducts Vendor approval prior to awarding contracts. This is to ensure the waste company is reputable and has the capacity to handle all wastes and volumes generated. This is supported by conducting annual duty of care audits.

All hazardous waste is controlled on site by the V/S team and is stored in a locked compound prior to disposal.

In the event of a spill follow the PR-27351 Control of Spills procedure, phone 0122949555 for assistance. .

18. PLANNED INSPECTIONS

Inspection	Frequency	Who	Records held
Visual inspections External skips	Daily	RORO driver	N/A
Visual inspection of internal & external skips	Daily	V/S team	N/A
Visual inspection of all skips	Bi - Monthly	RP & DRP	Green underground

19. MANAGEMENT OF CHANGE

All site changes go through the sMOC procedure where any impact to waste management would be discussed.

20. EVALUATION, CHECKING & IMPROVEMENT

The review of all environmental aspects including waste management are completed at the EHS Steering Committee and 6 monthly Management Review. The review creates a prioritised action plan.

Any actions arising from planned inspections are raised in the Etq system. Review of incidents / non-conformances are reviewed at the EHS steering committee and management review.

. Actions form self-assessment are logged on the CAPA log held on the green underground and are reviewed as part of the EHS Steering Committee and Management Review.

All waste transfer notes are reconciled and reviewed with the waste contractor prior to approval.

21. RECORD RETENTION

OPR.10.25.00	Hazardous Waste Manifests & Records of Transfer, Disposition (Record 'waste')	Manifests and records of transfer or disposal pertaining to hazardous materials and/or other substances.	**50 years**
OPR.10.27.00	Hazardous Waste Audits and Inspections (Record 'waste')	Reports from vendors regarding hazardous and solid waste and its treatment.	**10 years**

1.0 REFERENCES / EXHIBITS

Waste Register

WEEE Regulations

Hazardous waste regulations

PR- 27330 Waste management Duty of Care

Document Control Document(s) (if applicable):

External Reference(s) (if applicable):

System Elements (if applicable):
EHS - 6. Waste Management
ISO-14001-2015 - 4.0 Context of the organization
ISO-14001-2015 - 5.1 Leadership and commitment
ISO-14001-2015 - 5.3 Organizational roles, responsibilities and authorities
ISO-14001-2015 - 6.0 Planning
ISO-14001-2015 - 7.0 Support
ISO-14001-2015 - 8.1 Operational planning and control
ISO-14001-2015 - 9.1 Monitoring, measurement, analysis and evaluation

Other Reference(s) / Exhibit(s) (if applicable):
N/A

DOCUMENT/RECORD RETENTION

Corporate Records Administration Record Number: ADM.60.10.00

The **Corporate Records Administration** website is located at: http://www.cra.kcc.com/

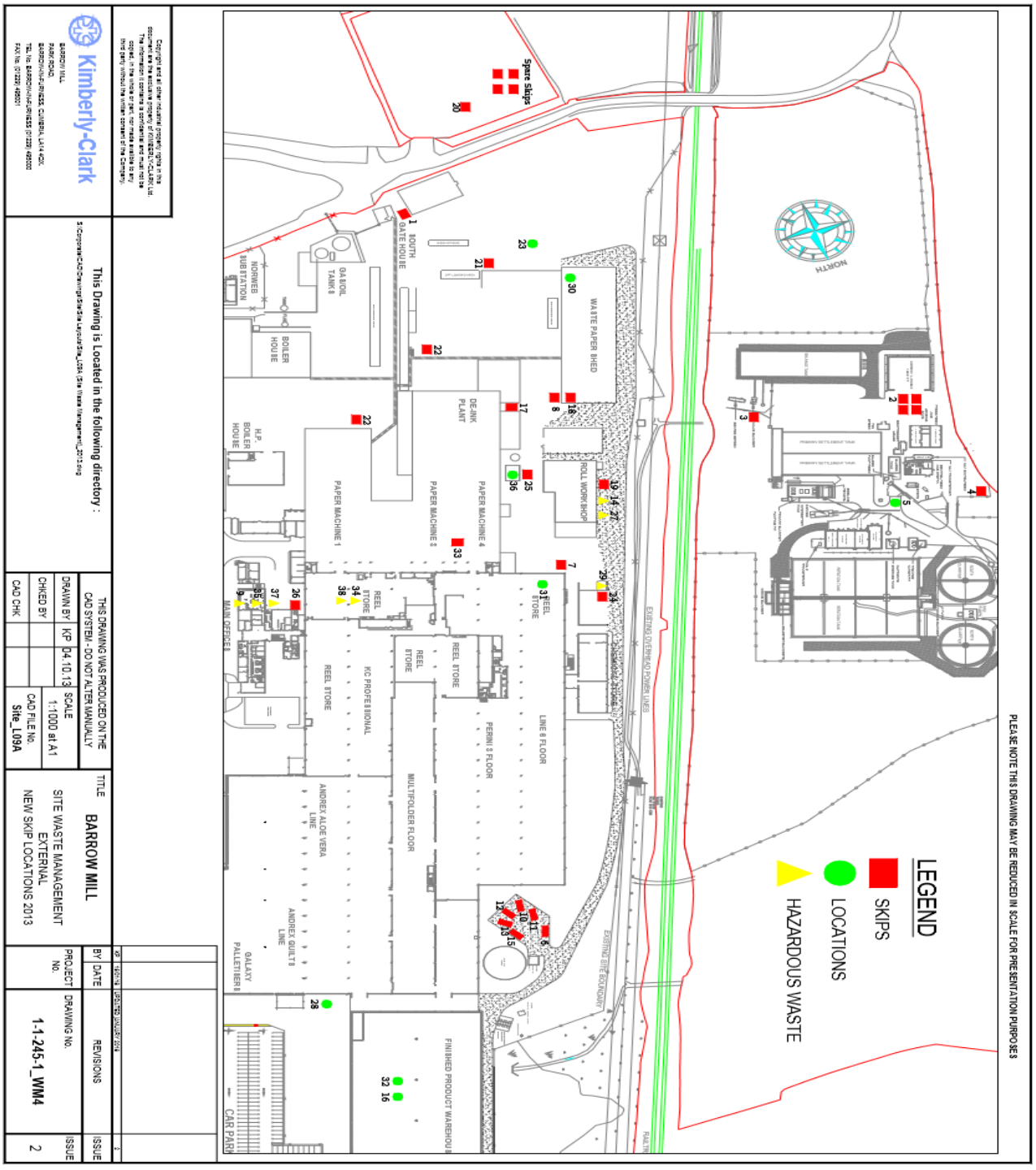
Reason for New/Revised Document:
Review of procedure to align to new EHS standard.
Approvals
[redacted];Approval;14-Dec-2018 16:50 GMT [redacted];Approval;21-Dec-2018 08:03 GMT [redacted];Approval;02-Jan-2019 07:49 GMT

APPENDIX A – LIST OF LOCATIONS & WASTE CODES

Barrow Mill Skip Locations & Waste Codes 2018

Loc.	Area	Material Description	European Waste Code (EWC)
1	South Gate	General Waste	20-03-01
2	Effluent Plant	Animal Bedding	03-03-05
3	Effluent Plant	General Waste (Flume)	20-03-01
4	Effluent Plant	General Waste	20-03-01
5	Effluent Plant	Septic tank waste	20-03-04
11	Skip Centre	KCP Line1 Broke	03-03-08
10	Skip Centre	Polythene	15-01-02
6	Skip Centre	MachineCores	20-01-01
12	Skip Centre	Mixed Broke	03-03-08
13	Skip Centre	Cardboard	15-01-01
15	Skip Centre	Good Broke	03-03-08
30	Waste Paper Shed	Reject Waste Paper Bales	03-03-08
18	Waste Paper Shed	Poire Waste	03-03-07
8	Waste Paper Shed	PM4 Crud	03-03-10
17	De Ink Plant West	Sreening Rejects	03-03-07
20	Trailer Park	Builders waste	17-09-04
21	Pulpyard	Baled wire	20-01-40
22	Pulpyard	Loose wire	20-01-40
23	Pulpyard	Septic tank waste	20-03-04
28	Distribution	Septic tank waste	20-03-04
32	Distribution	Mixed Broke Bales	03-03-08
16	Distribution	Multifolder Baled Balm	03-03-08
25	Roll Workshop (East)	Scrap metal (Machine Blades)	20-01-40
19	Roll Workshop (West)	Scrap metal (Vairious)	20-01-40
14	Roll Workshop (West)	Fluro Tubes (Haz Waste)	*20-01-21
27	Roll Workshop (West)	Electrical waste (Weee)	16-02-14
7	Vital Supplies	General Waste	20-03-01
24	Vital Supplies	Wood waste	15-01-03
31	Vital Supplies	Rolled film	15-01-02
29	Vital Supplies	Hazardous Waste(Compound)	Various
36	PM4 Chemical Kitchen	Waste Oil Tank (Haz Waste)	13-05-07
33	PM4 Basement	Oil,Rags,Fillters etc. (Haz Waste)	
26	Canteen(west)	Canteen waste	20-03-01
37	Canteen(west)	Spent Paint Tins (Haz Waste)	
35	Canteen(west)	Empty Printer cartridges (Haz Waste)	
9	Canteen(west)	Waste Inks Fluids (in sealed bottles only) (Haz Waste)	
38	Engineering Stores	Spent Batteries (Haz Waste)	
34	Engineering Stores	Spent Aerosols (Haz Waste)	

APPENDIX B- LOCATION MAP


LEGEND
SKIPS
LOCATIONS
HAZARDOUS WASTE
PLEASE NOTE THIS DRAWING MAY BE REDUCED IN SCALE FOR PRESENTATION PURPOSES
NORTH
Spare skips
SOUTH GATEHOUSE
WASTE PAPER BHED
BOILER HOUSE
DE-INK PLANT
H.P. BOILER HOUSE
PAPER MACHINE 1
PAPER MACHINE 3
PAPER MACHINE 4
ROLL WORK SHOP
REEL STORE
MAIN OFFICES
KC PROFESSIONAL
MULTIFOLDER FLOOR
PERINI 8 FLOOR
LINE 8 FLOOR
ANDREX ALOE VERA LINE
ANDREX QUILTED LINE
GALAXY PALLETISER 8
FINISHED PRODUCT WAREHOUSE
CAR PARK
EXISTING OVERHEAD POWER LINES
EXISTING SITE BOUNDARY
RAILWAY
Kimberly-Clark
BARROW MILL
PARK ROAD
BARROW-IN-FURNESS, CUMBRIA, LA14 2DL
TEL No: BARROW-IN-FURNESS (01229) 492000
FAX No: (01229) 492031
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S:\Corporate\CAD\Drawings\Site Layout\Site_Lay\Site Waste Management_2013.dwg
THIS DRAWING WAS PRODUCED ON THE CAD SYSTEM - DO NOT ALTER MANUALLY
DRAWN BY KP 04.10.13
CHKED BY
CAD CHK
SCALE 1:1000 at A1
CAD FILE No. Site_L09A
TITLE
BARROW MILL
SITE WASTE MANAGEMENT
EXTERNAL
NEW SKIP LOCATIONS 2013
PROJECT No.
DRAWING No. 1-1-245-1_WM4
BY DATE REVISIONS ISSUE
2

Kimberly-Clark		Duty of Care Waste Management	
Document #:	PR-27330	**Revision:**	0
Document Type:	Procedure	**Status:**	Approved
Department Owner:	Environmental	**Effective Date:**	Aug 1, 2017
Document Category:	Environmental; Legal; Safety	**Document Owner:**	[redacted]

1.0 OBJECTIVE

To ensure all wastes produced at Barrow Mill is managed responsibly by means of storage, transportation, and disposal in accordance with 'duty of care'.

2.0 SCOPE

Barrow Mill's Duty of Care we must:

- Classify the waste as hazardous or non- hazardous so it can be dealt with correctly.
- Register the site as a hazardous waste producer
- Environmental Permit dictates the management of waste on site.
- Store the waste safely and securely.
- Adhere to the requirements when moving waste off site.
- Check and audit that contractors who handle our waste are licenced to do so.

Duty of Care lasts from the moment Barrow Mill produces the waste until we pass it to a licensed waste business to deal with.

Barrow Mill has the responsibility to check how waste providers manage our waste to ensure they are following the duty of care.

Barrow Mill operates a zero to landfill policy.

Applicable Organization(s):
Barrow Mill

Business Unit(s):
Family Care; K-C Professional

Applicable Department(s):
General Site / Utilities; Operations

3.0 ROLES AND RESPONSIBILITIES

Mill Manager - has the overall responsibility to ensure the on-going effectiveness of the Duty of Care Waste Management Program including the following:

- Provide adequate resources to administer the Program
- Ensure that corrective actions for Program improvement are implemented.

Purchasing- Arranges contract with properly registered and licensed waste vendor with input from the site as to the required technical specifications.

Environment Engineer- Performs regular checks that the waste vendor maintains all appropriate licenses/registrations/permits for the wastes involved. Conducts duty of Care audits to ensure our waste is being appropriately managed. Maintain records and reports relating to waste including types and volumes.

Logistics Team Leader- liaises with the Site Waste Manager to ensure all skips are emptied and to ensure that we receive true value of our waste.

Information Coordinator- Collates and reconciles the volumes and costs from the WTN and raises purchase requisitions for waste services.

4.0 DEFINITIONS

Waste is defined as any material or item which you have no further use for, and are discarding it.

Duty of Care responsibility of any commercial activity to manage the waste it produces safely and responsibly.

5.0 PROCEDURE

When disposing of waste we must consider these 5 steps in order. They are known as the ‘waste hierarchy’.

1. Prevent – e.g. use fewer and less hazardous materials, and use things for longer.
2. Reuse.

3. Recycle.

4. Recover – e.g. anaerobic digestion or incineration for energy recovery.

5. Dispose – e.g. landfill and incineration without energy recovery.

TO COMPLY WITH DUTY OF CARE, WE MUST:

Waste Classification

Waste can only be transferred only with a full written description – this now includes the European Waste Code (EWC) and this will appear on the Waste Transfer Note. If the EWC is not listed on the transfer note then a full list of relevant codes can be found on the Site EMS.

If the waste is hazardous it needs to be dealt with by a specialist waste company. Hazardous waste must be kept separate from non- hazardous waste.

Storage and Transport of Waste

All wastes must be stored in specific designated areas with all skips being clearly labelled and in a manner to prevent exposure to the external environment.

Waste must be transferred from the Site only to a Company registered as a carrier of controlled waste under the Controlled Waste (Registration of Carriers & Seizure of Vehicles) Regulations 1991.

ii) All disposers of waste must be in possession of a current waste disposal license valid for that type of waste.

Site Procedure for Transport of Waste

The current status of carrier and disposal licenses for all registered companies used by KC Barrow Mill is checked on an annual basis and listed on the Waste folder within the EMS.

All waste generated on site is segregated and shipped to a specific, numbered, on site location. For each location and specific waste type a description of the waste at that location is given

using the appropriate EWC number. When a skip lorry arrives on site to remove a waste load it is weighed on the KC weighbridge by the Security person at the South Gate House. It is then weighed again when leaving site with its load. The system used is the Avery Weightronix (AWT) into which the security person keys various pieces of information including the vehicle registration, the company, and the type of material to be taken off site and so on. The AWT system produces a ticket that details the weight of the waste (1st vehicle weight minus 2nd vehicle weight). The vendor's driver produces a Waste Transfer Note that details the location and type of waste but not the EWC. The security person staples the WTN to the weighbridge ticket and both are sent to the Information Coordinator in the Operations Support Department for collation and reconciliation with the vendor's information. When reconciled the information from the weighbridge tickets and WTN is input to a monthly spreadsheet held on S:\Corporate\Material Flow\Materials Co-ordinator\WASTE

Hazardous Waste

Barrow Mill is registered as a hazardous waste producer. This license is renewed on an annual basis by the Environment Engineer.

The classification of hazardous waste is complex and the details given below should be taken as a guide only. If there is any doubt as to the status of a material the **Site Waste Manager** must be consulted.

HAZARDOUS WASTE INCLUDES BUT IS NOT RESTRICTED TO:

Normal Batteries

Lead Acid Batteries

Aerosols

Waste Oil and Oil containing absorbents,

Oil Filters

Grease Cartridges

All Chemicals and Chemical Containers with residue,

Used spill Kits

Waste Ink

Fluorescent Tubes

Sharps

Refrigerators or Air-conditioning Units containing accelerant fluid.

Due to the nature of hazardous waste and the more complex route of disposal each consignment of hazardous waste should be treated individually.

The following procedures are laid down by law. Any attempt to deviate from it is likely to leave both employees and Barrow Mill liable to fines and even imprisonment for individuals.

Before allowing any hazardous waste to leave the Site the producer must identify to the Mill Logistics Team Leader the exact type and quantity of the waste in the following way:

The following deals with the 'internal' collection, transport, storage and tracking of hazardous wastes.

1. Waste "Originator" to identify all types of waste to be disposed of and where possible have a relevant Material Safety Data Sheet available.
2. Hazardous Waste Internal Transfer form and Waste Labels to be obtained from Vital Supplies
3. "Originator" to complete Hazardous Waste Internal Transfer form Part A
4. "Originator" must ensure waste to be transported is securely contained and readily identifiable using yellow waste label.

Note: Transfer all necessary details from the corresponding HWIT form to the waste label, including the unique 5 digit serial number. Smaller containers may be banded together and covered by one waste label.

5. "Originator" to contact Vital Supplies providing location and details of waste to be removed.
6. Vital Supplies to check off details provided on HWIT form against waste load and labelling.
7. Vital Supplies to sign off waste load on HWIT Part B.

Note: Vital Supplies may refuse load if not correctly presented (indicated in Part A)

8. Green copy of HWIT form to be left with "Originator" once signed off.
9. Vital Supplies to transfer waste to approved storage facility and locate in designated area.
10. Vital Supplies to retain White copy of HWIT form in appropriate file.
11. Yellow copy of HWIT form to be sent to Environment Co-ordinator for auditing.

This is obligatory, and is essential to ensure that no inadvertent breaches of the legislation are committed.

The Logistics Team Leader will liaise with the Site Waste Manager to agree and arrange for the specialist removal of the hazardous waste ensuring the site is issued a waste consignment note.

Check and Audit

On a monthly basis, the Environment Engineer conducts a site environmental audit inspecting the waste storage area. Internal audits are conducted annually to ensure compliance with this procedure.

On an annual basis or where practically possible, duty of care audits are conducted on our waste handlers to ensure we have confidence they are adhering to duty of care.

6.0 REFERENCES / EXHIBITS

Barrow Mill Waste Register

Legal Register on Simplifi

Document Control Document(s) (if applicable):

External Reference(s) (if applicable):

System Elements (if applicable):
EHS - 6. Waste Management
ISO-14001-2015 - 4.2 Understanding the needs and expectations of interested parties
ISO-14001-2015 - 4.3 Determining the scope of the environmental management system
ISO-14001-2015 - 5.1 Leadership and commitment
ISO-14001-2015 - 6.1.2 Environmental aspects
ISO-14001-2015 - 6.1.3 Compliance obligations
ISO-14001-2015 - 7.1 Resources
ISO-14001-2015 - 7.2 Competence
ISO-14001-2015 - 7.3 Awareness
ISO-14001-2015 - 7.5 Documented information

Other Reference(s) / Exhibit(s) (if applicable):
N/A

DOCUMENT/RECORD RETENTION

Corporate Records Administration Record Number: ADM.60.10.00

The **Corporate Records Administration** website is located at: http://www.cra.kcc.com/

Reason for New/Revised Document:
Procedure move to Etq
Approvals
[redacted];Approval;Tuesday, 1 August 2017 13:15:33 o'clock BST [redacted];Approval;Tuesday, 1 August 2017 13:38:15 o'clock BST

Ref	Waste description	D Or R Code	EWC	1st Stage of Disposal	2nd Stage Dispos
1	General Waste	R1	20-03-01	2. Transfer Station	5. Reprocessing
2	Septic Waste	R10	20-03-04	4. Treatment	4. Treatment
3	Machine Cores	R5	20-01-01	2. Transfer Station	6. Recycling
4	General Waste	R1	20-03-01	2. Transfer Station	5. Reprocessing
5	PM4 CRUD	R1	03-03-10	2. Transfer Station	5. Reprocessing
6	Plastic Packaging	R5	15-01-02	2. Transfer Station	6. Recycling
7	KCP BROKE	R5	03-03-08	2. Transfer Station	6. Recycling
8	MIXED BROKE	R5	03-03-08	2. Transfer Station	6. Recycling
9	Cardboard/Coreboard	R5	15-01-01	2. Transfer Station	6. Recycling
10	Good Tissue Broke	R5	03-03-08	2. Transfer Station	6. Recycling
11	Screening rejects	R1	03-03-07	2. Transfer Station	5. Reprocessing
12	Poire Rejects	R1	03-03-07	2. Transfer Station	5. Reprocessing
13	Metal	R4	20-01-40	2. Transfer Station	6. Recycling
14	Constution/Demolition	R5	17-09-04	2. Transfer Station	6. Recycling
15	Baling Wire (Baled)	R4	20-01-40	2. Transfer Station	6. Recycling
16	Baling Wire (Loose)	R4	20-01-40	2. Transfer Station	6. Recycling
17	Wooden Packaging	R5	15-01-03	2. Transfer Station	6. Recycling
18	WEEE	R13	16-02-14	2. Transfer Station	6. Recycling

Waste Heirarchy	Other Info
Recovery	Turned into RDF
Recycle	
Recycle	
Recovery	Turned into RDF
Recovery	Turned into RDF
Recycle	
Recycle	
Recycle	
Recycle	
Recycle	
Recovery	Turned into RDF
Recovery	Turned into RDF
Recycle	
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Kimberly-Clark Barrow Mill

sMOC Procedure

Safety Management of Change

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1 OBJECTIVE

Achieve an accident and incident free workplace by ensuring all workplace changes to process, equipment and procedures are designed to be safe to persons, assets and the environment. The procedure will:-

- Prevent personal injury
- Prevent property damage resulting from changes that compromise the integrity of critical and or hazardous systems processes and equipment.
- Prevent loss of production or production materials.
- Ensure ongoing compliance with regulatory requirements.
- Achieve excellence in Change Management
- Ensure due considerations are given to all aspects of a change that may impact any of the above
- Ensures that changes are efficient with overall faster implementation and fewer re-designs thereby lowering the cost of change.

2 SCOPE

This standard applies to all employees and areas of the Barrow Mill.
This procedure should be followed by any person requesting a workplace change to existing plant and equipment that doesn't qualify as a 'replacement in kind' or for any RSR/MSR or for any capital appropriation.

3 ROLES & RESPONSIBILITIES

Change Team is a cross functional team that is responsible for implementing the change from concept to completion. Individual roles are detailed below.

Change Coordinator Leads Change through sMOC process; assures all tasks, training & documentation complete. Communicates key info to Change Team.

Mill sMOC Coordinator Person who has responsibility for coordinating all site sMOC's to ensure a consistent approach is taken. Arranges and attends all gate meetings for Medium and high sMOC's, sends weekly reports to all leaders on the health of their area of responsibility and direct reports, keeps the senior leadership team informed monthly by chairing and preparing a health check presentation, arranging quarterly audits and managing the documentation of all sMOC's raised, health check presentations and quarterly audits.

Deputy Mill sMOC Coordinator to assist sMOC coordinator with their duties and to stand in in the absence of the sMOC coordinator

Team Leader This is the Operations Manager position for Barrow mill. Ensures sMOC process compliance with deputies. Authorizes design phase to begin. Needs to be accountable for changes to his asset areas of responsibilities.

Mill Manager Person accountable for the entire facility. Attends all High level meetings for information on the proposed change and authorises at gate 3 for start-up if happy that all safety aspects are managed.

Engineering Manager Manages an Engineering unit which provides equipment, processes, facilities and technical vision. Attends all gate meetings for medium and high risk.

Training Coordinator A person that is responsible for providing required training to employees affected by the Change.

Safety Representative Knowledgeable in area hazards & related safety considerations; usually the site safety leader or Safety Manager.

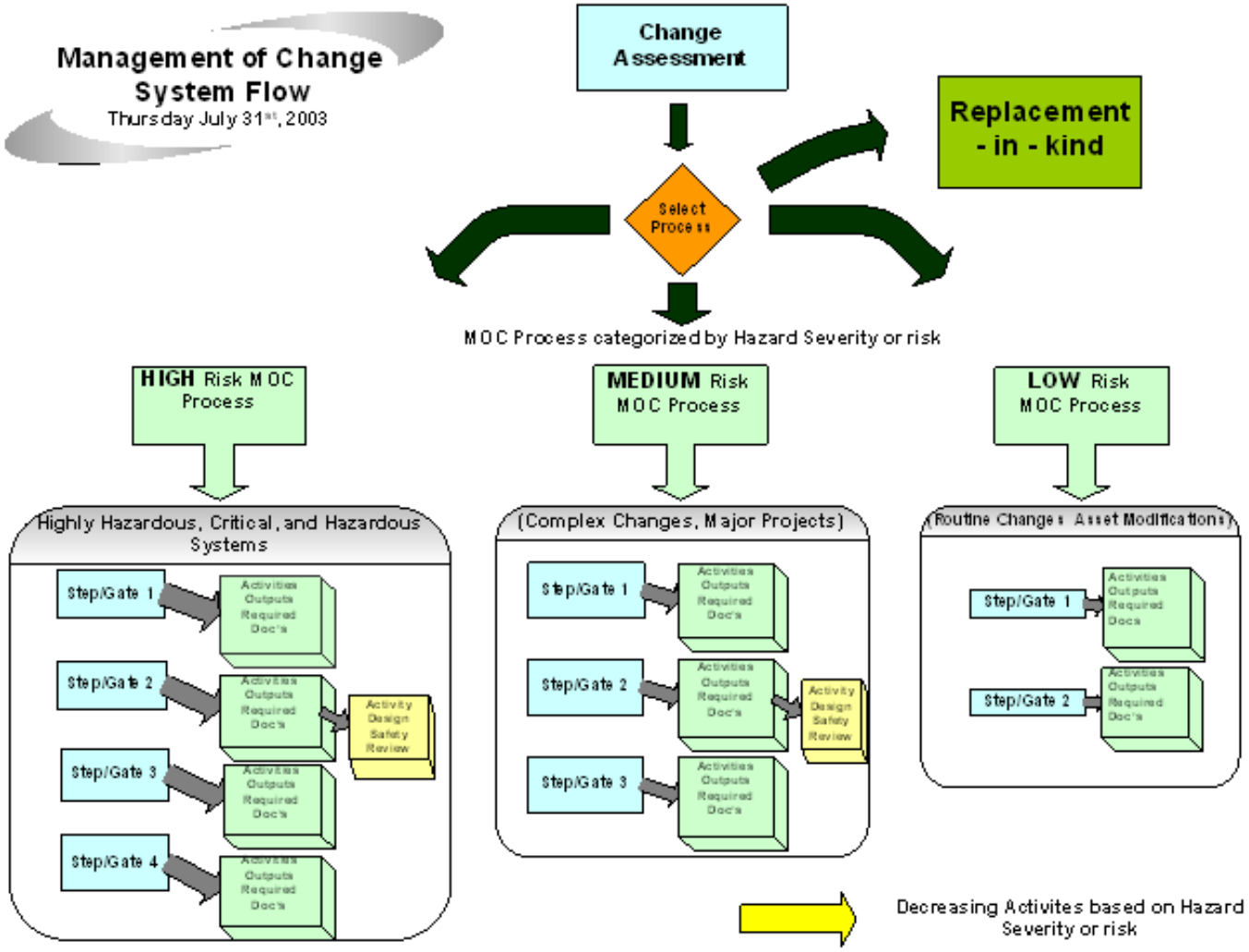
Maintenance/Construction Coordinator Responsible for ensuring that equipment or mechanical changes are installed properly and are functioning as required before start-up.

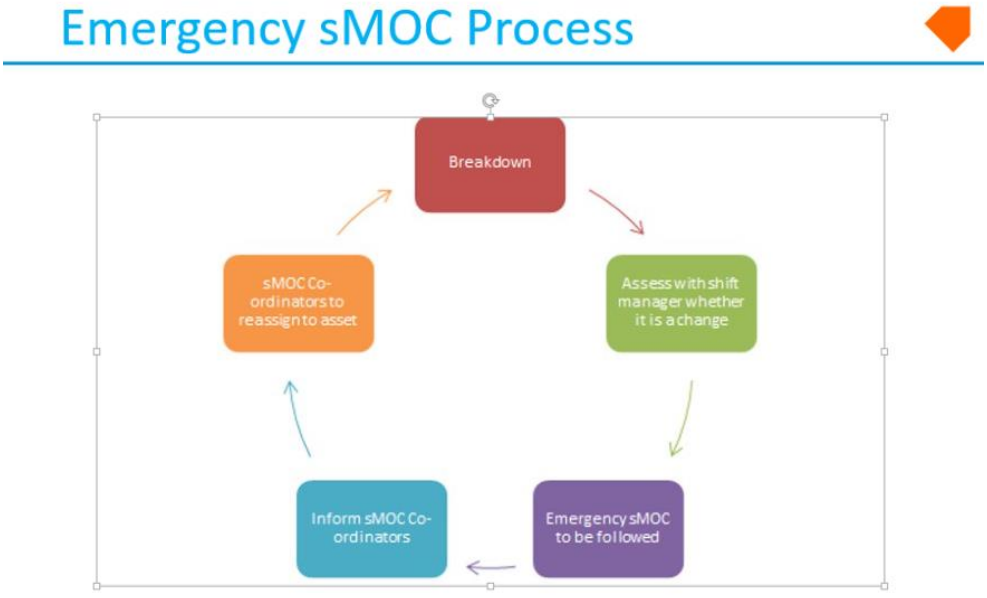
Asset Leader The leader accountable for that asset, and for the process area affected by the change. This position is key to all successful sMOC's as the asset leader attends and approves all gate meetings and is the sole person responsible for giving authorisation to close out an sMOC.

4 Purpose

1. Strengthen the commitment to safety and environmental awareness in equipment and facility design.
2. Ensure that designs and processes meet safety and environmental codes, policies, and guidelines.
3. Provide uniform procedures for implementing Safety and Environmental Reviews for projects of all sizes.
4. Provide for uniform documentation related to the safety of individuals and the environment for all maintenance and project activity.
5. Ensure consistency across the Barrow site in implementing design changes safely.
6. To ensure all capital projects follow the sMOC process before approval and during implementation.
7. To ensure all RSR's/MSR's follow the sMOC process to ensure a safe trial plan.

Decision Tree:





5 PROCEDURE

PART 1 – sMOC PROCEDURE

The Management of Change Program is a tool to help achieve excellence in Safety and Loss Control. sMOC is focused on safety and is self contained, however, the program will “point” to other necessary activities, procedures or processes that need to be addressed in order to complete a change.

The Management of Change Program has three (3) basic components;

1. Change Assessment
2. Selecting the Process level to best manage the change (high, medium or low).
3. Implementing the process to manage the change

All three of these components are required to properly control changes.

The link to the sMOC home page can be found on the SAFETY line of the site Information Management System (underground). Alternatively documents can be found on SharePoint.

Step A – Access change/Create number.

This page is asking you to selected the mill location, enter you personal BID number and give the change a meaningful title.
You are then required to select the mill asset and give your reason why the change is not defined as a ‘replacement in kind’.

On completion of the first two screens your sMOC change number should be assigned (BRW-xxxxx).

Step B – Select process level.

You are then asked to select the process level that best covers the risk level of the change.

<u>High Risk Change</u>
-A change that has a high chance of loss.
Changes that involve High Risk require use of the HR sMOC Process.

<u>Medium Risk Change</u>
-A change that has a medium chance of loss.
Changes that involve Medium Risk require use of the MR sMOC process.

<u>Low risk Change</u>
-A change that has a low chance of loss.
Changes that involve Low Risk require use of the LR sMOC process.

The process level can be either selected manually if the change coordinator has enough knowledge of the system and the change, or the change can be selected using the Process Selection Questions (preffered method).

The first 15 questions tests the change for a High risk. If any of the 15 questions is answered with ‘YES’ then the sMOC will default to a HIGH risk.
The next 12 questions test the change for a MEDIUM risk. If any of the 12 questions is answered with ‘YES’ the sMOC will default to a MEDIUM risk.

If neither the high or medium risk questions prove a YES then the sMOC will default to a LOW risk.

Once the process is selected to manage the change, the following is required:

- For A High Risk sMOC Process Change

Complete four Steps and Gates obtaining key authorization at each gate

- For A Medium Risk sMOC Process Change

Complete three Steps and Gates obtaining key authorization at each gate

- For A Low Risk sMOC Process Change

Complete two Steps and Gates obtaining key authorization at each gate

NOTE: For a Replacement in Kind, no sMOC process is required, and the work would proceed utilizing the normal facility practices.

STEPS define specific and unique phases of a change. Individual STEPS may take weeks or months. Each step contains a list of activities.

GATES are required decision points where changes are approved to the next STEP, recycled or discontinued. Each Gate requires discussion of specific questions before authorization is granted to move to the next STEP.

For the purpose of this procedure the following steps are for a MEDIUM risk sMOC requiring 3 steps/gates. A low risk would require similar activities but only 2 steps/gates. A high risk would require the same activities but 4 steps/gates.

Step 1 – Complete Basis of Change.

Each step lists activities that are to be completed. The list of activities required in Step one are:

Online

- Complete Basis of Change
- Assign Change Team members
- Print sMOC activities list
- Print Authorization Form
- Print the Basis Of Change document
- Complete Step one Activity status
- Complete Gate one status

Offline

- Schedule gate meeting
- Assemble Gate meeting documentation
- Hold the Gate meeting

Gate One – Change team meeting

The purpose of Gate One is to gain consensus and approval to move forward with the proposed change. This meeting may is expected to be semi-forma. The end result is to determine if the proposed change should move forward and what activities are required to manage the change.

There are three (3) possible outcomes of the gate meeting

1. The change is authorized to move forward
    a. The sMOC process level is left as previously determined
    b. The sMOC process level is changed
2. The change is canceled and all work on the change stops
3. The change is held where the change team needs additional information to make a final decision and a follow up gate meeting will be held to make a final determination.

The output of the Gate One is the signed Authorization form and the “sMOC activities” list that must be completed in step two.

Step 2 – Design & Design Review.

The purpose of step two in the Medium Risk sMOC process is to manage the change through design and design review. Work on the actual change begins in Step two. The specific activities that were agreed to at the Gate one meeting are considered mandatory moving forward.
The list of activities for Step two are:

- Online
  - Activate/select required sMOC step activities (as determined in Gate one)
  - Complete the Scope of Change
  - Complete the Safety Review Checklist (mandatory)
  - Complete the Safety Review Checklist – Mill Specific (Mandatory)
  - Identify sMOC specific hazards
  - Complete SOP/SWP checklist
  - Complete Step two Activity status
  - Complete Gate two status
- Offline
  - Hold reoccurring Change team meetings
  - Schedule gate meeting
  - Assemble Gate meeting documentation
  - Hold the Gate meeting
- External to sMOC
  - Complete Potential Problem analysis
  - Start the Design Safety Review process
  - Complete Chemical Change assessment
  - Complete Environmental assessment
  - Start Risk Assessment process
  - Complete Mill Specific activities
  - Complete Design of Change

Gate Two – Change team meeting

In the Gate two meeting, the design is reviewed by the Change Team and any issues or concerns are addressed. The following are the basic questions that must be answered by the change team at the gate two meeting;

- Is this change still viable?
- Is the design viable and safe?
- Are we confident that the change will go to plan?
- How will the Change team take this Change forward?

The Change Coordinator is to have the necessary information/documentation available to answer any questions that may arise. This highlights the need for regular updates with the change team and other stakeholders.

If the Change team agrees that the change can move forward, Gate Two of the Medium Risk sMOC process Authorization Form is signed to authorize Change Coordinator to move to Step three - Installation and Start-up.

Step Three – Installation and Start up

The purpose of step three in the Medium Risk sMOC process is to manage installation and start up. Training, as built drawings, SOPs, and all other activities required to complete the change are done in this step.
The list of activities for Step three are:

- Online
  - Print Notice of Change
  - Complete Step three Activity status
  - Complete Gate three status
- Offline
  - Post Notice of Change
  - Schedule gate meeting
  - Assemble Gate Meeting documentation and technical file for change
  - Hold the Gate meeting
  - Submit Completed authorization form and technical file to Mill sMOC Coordinator
- External to sMOC
  - Install change
  - Train all affected employees
  - Start up
  - Complete DSR process
  - Demobilize
  - Complete appropriate technical documents
  - Compile required project documentation in a technical file for the change

Gate Three - Change team meeting

In the Gate three meeting, the Change Coordinator and the Asset leader for the area impacted by the change review the work, agree that all expectations were met, the change was implemented safely, and the required sMOC process activities were completed. If acceptable, they both sign the Medium Risk sMOC process Authorization form.

The Change Coordinator issues the completed Authorization form and the signed sMOC activities list, in the form of a technical file, to the mill sMOC Coordinator to be filed for future reference per documentation control guidelines.
These technical files are to be stored by the Engineering Administrator for a minimum of 2 years.

6 REFERENCES

7 RECORD & DOCUMENT

Records of sMOC are electronically stored as part of the system software. Copies of the sMOC signed authorisation form, basis of change and the signed activities check list area scanned into the Barrow SharePoint along with any additional information that the change coordinator requires to be kept.

8 REVISION HISTORY

Issue No1 23/04/09 – First issue.
Issue No2 19/12/17- Second Issue.