Question 6: *Provide a list of all unit processes employed for waste treatment at the installation. Describe the unit processes in terms of waste treated, the objective of treatment, and emissions from the treatment and material outputs from the treatment.*

Response

See the following tables in response to Question 6:

Table 6.1 overleaf details the unit processes to be carried out at the facility (both existing and proposed).

Table 6.2: As there are a large numbers of different EWC codes associated with certain unit activities this table details the wastes which are to be processed within each unit process.

Important note: Non-hazardous codes have not been generally listed included in Table 6.2 however it is proposed that the facility can continue to accept non-hazardous codes (as currently permitted) subject to the general conditions of the licence.

Table 6.1 Details of Unit processes (existing and proposed) to be carried out at the facility

Unit process	Objective of Treatment	Emissions from Treatment*	Material outputs from treatment	Fate of Material Outputs
Waste Oil Recovery	To process waste oils sufficiently so as produce a fuel oil suitable for use in specific processes (e.g. asphalt production & steam raising boilers);	Effluent which is either treated on site and discharged to sewer or shipped off site to an appropriate licensed waste facility;	i) Recovered fuel oil (11LS & 19LS); ii) Waste oily residues (which are shipped to appropriately licensed facilities for recovery or disposal);	i) 11LS is used as a fuel to dry stone in the production of asphalt ; 19LS is used as a fuel in steam raising boilers; ii) energy recovery
Soil Remediation	Reduce contaminant levels to facilitate disposal to non-hazardous landfills, recovery at inert landfills or other suitable facilities;	Fugitive emissions (e.g. dust, VOCs & Odour). Surface run off is collected and processed as waste effluent;	Inert soil, non-hazardous soil and hazardous soil for onward shipment to appropriately licensed facilities for recovery or disposal; Soil for reuse as fill; General Fill (stone, brick etc.);	Soil may be reused as soil or as engineering fill
Effluent Treatment	Reduction in contaminant levels to make it suitable for further treatment in a municipal wastewater treatment plant;	Processed effluent which is discharged to sewer under licence;	Filtercake	Bulked with other wastes for recovery/disposal at an appropriate licensed waste facility;
Sorting, shredding/ crushing/ compacting, mixing and or repackaging prior to onward recovery or disposal; Washing to remove residues;	Wastes are sorted to facilitate further processing or recovery /disposal at an appropriate licensed facility; Crushing/shredding of wastes is carried out to reduce volume or facilitate further separation of the shredded material (e.g. separation of different fractions	No significant emissions to air only fugitive emissions (see Q9). Waste water from washing of containers (e.g. wheelie bins for reuse);	Bulked or repackaged wastes. Wash water from cleaning of containers which is directed to effluent treatment system	Recovery/Disposal at an appropriate licensed waste facility; On-Site Effluent Treatment Plant

Unit process	Objective of Treatment	Emissions from Treatment*	Material outputs from treatment	Fate of Material Outputs
	for separate processing, recovery or disposal); Mixing of wastes is carried out to facilitate efficient handling/packaging and subsequent transportation; Decommissioning of pressurised flammable gas units to remove any residues of VOCs through a carbon filter ; Wastes are washed to reduce the hazardous residues and facilitate recovery/disposal at appropriate licensed facilities;			
Waste Transfer including: Bulking of liquid wastes in tanks or IBCs; Bulking of solid wastes in roofed & contained areas; Temporary storage of wastes pending onward shipment to appropriately licensed facilities;	Compatible wastes are bulked together to gain sufficient volume or condition the physical nature of the waste for economically efficient onward recovery/disposal; Interim storage of wastes to facilitate economic shipment of packaged wastes to appropriately licensed recovery/ disposal facilities;	No significant emissions to air other than fugitive emissions (see also Q 9);	Repackaged/bulk waste for onward shipment and recovery/disposal at an appropriate licensed waste facility;	Recovery/Disposal (Typically recovery as Energy from waste)
PROPOSED ADDITIONAL ACTIVITIES				
Recovery of liquid fertiliser from inorganic waste (neutralisation, filtering, potential addition of nutrients and testing to confirm	Removal of any contaminants or properties that would prevent the material from being used as a fertiliser; Addition of nutrients to further improve the value of the recovered material;	Fugitive emissions during unloading and processing (in an enclosed vessel);	Liquid Fertiliser; Any removed solids (from filtration) which will be packaged for onward shipment for recovery/disposal at an	Use of a fertiliser on land and/or in horticulture;

Unit process	Objective of Treatment	Emissions from Treatment*	Material outputs from treatment	Fate of Material Outputs
specification).			appropriately licensed facility;	
Pre-treatment of waste for incineration or co-incineration	Physical conditioning and homogenisation of the wastes to facilitate its' direct use in a cement kiln or other appropriately licensed energy recovery facility (Without such physical conditioning the wastes would not be in a suitable condition for direct use as fuel at these plants);	No emissions other than fugitive air emissions	Repackaged/bulk waste for onward shipment and recovery/disposal at an appropriate licensed waste facility;	Recovery as energy from waste;

* For the purpose of this table, emissions from treatment are viewed as those which are direct to air water or land. Material outputs include residues from processes.

Table 6.2 List of Wastes by Unit process

EWC Code	Description	Existing	Waste oil Recovery	Soil remediation	Effluent Treatment	Physico Chemical Treatment, Mixing, Bulking & Repackaging	Waste Transfer including Bulking	Recovery of inorganic waste	Pretreatment of waste for incineration or co-incineration
01 01 01	wastes from mineral metalliferous excavation								
01 01 02	wastes from mineral non-metalliferous excavation								
01 03 04*	acid-generating tailings from processing of sulphide ore								
01 03 05*	other tailings containing dangerous substances						x		
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05								
01 03 07*	other wastes containing dangerous substances from physical and chemical processing of metalliferous minerals								
01 03 08	dusty and powdery wastes other than those mentioned in 01 03 07								
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 07								
01 03 10*	Red mud from alumina production containing hazardous substances								
01 03 99	wastes not otherwise specified								
01 04 07*	waste containing dangerous substances from physical and chemical processing of non-metalliferous minerals						x		
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07								
01 04 09	waste sand and clays								
01 04 10	dusty and powdery wastes other than those mentioned in 01 04 07								
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07								
01 04 12	tailings and other wastes from washing and cleaning of minerals other than 01 04 07 and 01 04 11								
01 04 13	waste from stone cutting and sawing other than those mentioned in 01 04 07								
01 04 99	waste not otherwise specified								
01 05 04	freshwater drilling muds and wastes			x	x		x		x
01 05 05*	oil-containing drilling muds and wastes	Yes	x	x		x	x		x
01 05 06*	drilling muds and other drilling wastes containing dangerous substances	Yes	x	x		x	x		x
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06								
01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06								
01 05 99	wastes not otherwise specified			x		x	x		
02 01 01	sludges from washing and cleaning								
02 01 02	animal-tissue waste								
02 01 03	plant-tissue waste								
02 01 04	waste plastics (except packaging)					x	x		x
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site								
02 01 07	waste from forestry								
02 01 08*	agrochemical waste containing dangerous substances	Yes				x	x		x
02 01 09	agrochemical waste other than those mentioned in 02 01 08								
02 01 10	waste metal								
02 01 99	wastes not otherwise specified								
02 02 01	sludges from washing and cleaning								x
02 02 02	animal-tissue waste								x
02 02 03	materials unsuitable for consumption or processing								x
02 02 04	sludges from on-site effluent treatment								x
02 02 99	waste not otherwise specified								
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation								
02 03 02	waste from preserving agents								
02 03 03	wastes from solvent extraction								
02 03 04	materials unsuitable for consumption or processing								
02 03 05	sludges from on-site effluent treatment								
02 03 99	wastes not otherwise specified								
02 04 01	soil from cleaning and washing beet								
02 04 02	off-specification calcium carbonate								
02 04 03	sludges from on-site effluent treatment								
02 04 99	wastes not otherwise specified								
02 05 01	materials unsuitable for consumption or processing								
02 05 02	sludges from on-site effluent treatment								
02 05 99	wastes not otherwise specified								
02 06 01	materials unsuitable for consumption or processing				x				
02 06 02	wastes from preserving agents								
02 06 03	sludges from on-site effluent treatment								
02 06 99	waste not otherwise specified								
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials								
02 07 02	wastes from spirits distillation								
02 07 03	wastes from chemical treatment								
02 07 04	materials unsuitable for consumption or processing								

02 07 05	sludges from on-site effluent treatment								
02 07 99	waste not otherwise specified								
03 01 01	waste bark and cork								
03 01 04*	sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances					x	x		x
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04								
03 01 99	wastes not otherwise specified								
03 02 01*	non-halogenated organic wood preservatives					x	x		x
03 02 02*	organochlorinated wood preservatives						x		x
03 02 03*	organometallic wood preservatives					x	x		x
03 02 04*	inorganic wood preservatives					x	x		x
03 02 05*	other wood preservatives containing dangerous substances					x	x		x
03 02 99	wood preservatives not otherwise specified								
03 03 01	waste bark and wood								
03 03 02	green liquor sludge (from recovery of cooking liquor)								
03 03 05	de-inking sludges from paper recycling								
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard								
03 03 08	wastes from sorting of paper and cardboard destined for recycling								
03 03 09	lime mud waste								
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation								
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10								
03 03 99	wastes not otherwise specified								
04 01 01	fleshings and lime split wastes								
04 01 02	liming waste								
04 01 03*	degreasing wastes containing solvents without a liquid phase	Yes				x	x		x
04 01 04	tanning liquor containing chromium								
04 01 05	tanning liquor free of chromium								
04 01 06	sludges, in particular from on-site effluent treatment containing chromium								
04 01 07	sludges , in particular from on-site effluent treatment free of chromium								
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium								
04 01 09	wastes from dressing and finishing								
04 01 99	wastes not otherwise specified								
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)								
04 02 10	organic matter from natural products (for example grease, wax)								
04 02 14*	wastes from finishing containing organic solvents	Yes				x	x		x
04 02 15	wastes from finishing other than those mentioned in 04 02 14								
04 02 16*	dyestuffs and pigments containing dangerous substances					x	x		x
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16								
04 02 19*	sludges from on-site effluent treatment containing dangerous substances					x	x		x
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19								
04 02 21	wastes from unprocessed textile fibres								
04 02 22	wastes from processed textile fibres								
04 02 99	wastes not otherwise specified								
05 01 02*	desalter sludges								
05 01 03*	tank bottom sludges	Yes	x				x		x
05 01 04*	acid alkyl sludges						x		x
05 01 05*	oil spills	Yes	x			x	x		x
05 01 06*	oily sludges from maintenance operations of the plant or equipment		x	x		x	x		x
05 01 07*	acid tars						x		x
05 01 08*	other tars						x		x
05 01 09*	sludges from on-site effluent treatment containing dangerous substances	Yes					x		x
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09	Yes					x		x
05 01 11*	wastes from cleaning of fuels with bases								
05 01 12*	oil containing acids	Yes	x						
05 01 13	boiler feedwater sludges								
05 01 14	wastes from cooling columns								
05 01 15*	spent filter clays			x		x	x		
05 01 16	sulphur-containing wastes from petroleum desulphurisation								
05 01 17	bitumen	Yes					x		
05 01 99	wastes not otherwise specified								
05 06 01*	acid tars						x		
05 06 03*	other tars						x		
05 06 04	waste from cooling columns								
05 06 99	wastes not otherwise specified								
05 07 01*	wastes containing mercury					x	x		
05 07 02	wastes containing sulphur								

05 07 99	wastes not otherwise specified								
06 01 01*	sulphuric acid and sulphurous acid	Yes				x	x		
06 01 02*	hydrochloric acid	Yes				x	x		
06 01 03*	hydrochloric acid	Yes				x	x		
06 01 04*	phosphoric and phosphorous acid	Yes				x	x		
06 01 05*	nitric acid and nitrous acid	Yes				x	x		
06 01 06*	other acids	Yes				x	x		
06 01 99	wastes not otherwise specified	Yes				x	x		
06 02 01*	calcium hydroxide	Yes				x	x		
06 02 03*	ammonium hydroxide	Yes				x	x		
06 02 04*	sodium and potassium hydroxide	Yes				x	x		
06 02 05*	other bases	Yes				x	x		
06 02 99	wastes not otherwise specified	Yes				x	x		
06 03 11*	solid salts and solutions containing cyanides	Yes				x	x		
06 03 13*	solid salts and solutions containing heavy metals	Yes				x	x		
06 03 14	solid salts and solution other than those mentioned in 06 03 11 and 06 03 13	Yes				x	x		x
06 03 15*	metallic oxides containing heavy metals	Yes				x	x		x
06 03 16	metallic oxides other than those mentioned in 06 03 15	Yes				x	x		x
06 03 99	wastes not otherwise specified	Yes				x	x		x
06 04 03*	wastes containing arsenic	Yes				x	x		x
06 04 04*	wastes containing mercury	Yes				x	x		x
06 04 05*	wastes containing other heavy metals	Yes				x	x		x
06 04 99	wastes not otherwise specified	Yes				x	x		x
06 05 02*	sludges from on-site effluent treatment containing dangerous solutions	Yes				x	x		x
06 05 03	sludges from onsite effluent treatment other than those mentioned in 06 05 02	Yes				x	x		x
06 06 02*	wastes containing dangerous sulphides	Yes				x	x		x
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02	Yes				x	x		x
06 06 99	wastes not otherwise specified	Yes				x	x		x
06 07 01*	wastes containing asbestos from electrolysis	Yes					x		x
06 07 02*	activated carbon from chlorine production	Yes				x	x		x
06 07 03*	barium sulphate sludge containing mercury	Yes				x	x		
06 07 04*	solutions and acids, for example contact acid	Yes				x	x		
06 07 99	wastes not otherwise specified	Yes				x	x		
06 08 02*	waste containing dangerous silicones	Yes				x	x		x
06 08 99	wastes not otherwise specified	Yes				x	x		x
06 09 02	phosphorus slag	Yes				x	x		
06 09 03*	calcium-based reaction wastes containing or contaminated with dangerous substances	Yes				x	x		x
06 09 04	calcuim-based reaction wastes other than those mentioned in 06 09 03	Yes				x	x		
06 09 99	wastes not otherwise specified	Yes				x	x		
06 10 02*	wastes containing dangerous substances	Yes				x	x		x
06 10 99	wastes not otherwise specified	Yes				x	x		
06 11 01	calcium-based reaction wastes from titanium dioxide production	Yes				x	x		
06 11 99	wastes not otherwise specified	Yes				x	x		
06 13 01*	inorganic plant protection products, wood-preserving agents and other biocides	Yes				x	x		x
06 13 02*	spent activated carbon (except 06 07 02)	Yes		x		x	x		x
06 13 03	carbon black	Yes				x	x		x
06 13 04*	wastes from asbestos processing	Yes					x		x
06 13 05*	soot	Yes				x	x		x
06 13 99	wastes not otherwise specified	Yes				x	x		x
07 01 01*	aqueous washing liquids and mother liquors	Yes				x	x		x
07 01 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 01 04*	other organic solvents, washing liquids and mother liquors	Yes				x	x		x
07 01 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 01 08*	other still bottoms and reaction residues	Yes				x	x		x
07 01 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 01 10*	other filter cakes and spent absorbents	Yes				x	x		x
07 01 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11	Yes				x	x		x
07 01 99	wastes not otherwise specified	Yes				x	x		x
07 02 01*	aqueous washing liquids and mother liquors	Yes				x	x		x
07 02 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 02 04*	other organic solvents, washing liquids and mother liquors	Yes				x	x		x
07 02 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 02 08*	other still bottoms and reaction residues	Yes				x	x		x
07 02 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 02 10*	other filter cakes and spent absorbents	Yes				x	x		x
07 02 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 02 12	sludges from on-site effluent treatment other than those mentioned in 07 02 11	Yes				x	x		x
07 02 13	waste plastic	Yes				x	x		x
07 02 14*	wastes from additives containing dangerous substances	Yes				x	x		x

07 02 15	wastes from additives other than those mentioned in 07 02 14	Yes				x	x		x
07 02 16*	waste containing dangerous silicones	Yes				x	x		x
07 02 17	waste containing silicones other than those mentioned in 07 02 16	Yes				x	x		x
07 02 99	wastes not otherwise specified	Yes				x	x		x
07 03 01*	aqueous washing liquids and mother liquors	Yes				x	x		x
07 03 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 03 04*	other organic solvents, washing liquids and mother liquors	Yes				x	x		x
07 03 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 03 08*	other still bottoms and reaction residues	Yes				x	x		x
07 03 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 03 10*	other filter cakes and spent absorbents	Yes				x	x		x
07 03 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11	Yes				x	x		x
07 03 99	wastes not otherwise specified	Yes				x	x		x
07 04 01*	aqueous washing liquids and mother liquors	Yes				x	x		x
07 04 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 04 04*	other organic solvents, washing liquids and mother liquids	Yes				x	x		x
07 04 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 04 08*	other still bottoms and reaction residues	Yes				x	x		x
07 04 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 04 10*	other filter cakes and spent absorbents	Yes				x	x		x
07 04 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 04 12	sludges from on-site effluent treatment other than those mentioned in 07 04 11	Yes				x	x		x
07 04 13*	solid wastes containing dangerous substances	Yes				x	x		x
07 04 99	wastes not otherwise specified	Yes				x	x		x
07 05 01*	aqueous washing liquids and mother liquors	Yes				x	x		x
07 05 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 05 04*	other organic solvents, washing liquids and mother liquors	Yes				x	x		x
07 05 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 05 08*	other still bottoms and reaction residues	Yes				x	x		x
07 05 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 05 10*	other filter cakes and spent absorbents	Yes				x	x		x
07 05 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05 11	Yes				x	x		x
07 05 13*	solid wastes containing dangerous substances	Yes				x	x		x
07 05 14	solid wastes other than those mentioned in 07 05 13	Yes				x	x		x
07 05 99	wastes not otherwise specified	Yes				x	x		x
07 06 01*	aqueous washing liquids and mother liquors	Yes				x	x		
07 06 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 06 04*	other organic solvents, washing liquids and mother liquors	Yes				x	x		x
07 06 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 06 08*	other sill bottoms and reaction residues	Yes				x	x		x
07 06 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 06 10*	other filter cakes and spent absorbents	Yes				x	x		x
07 06 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11	Yes				x	x		x
07 06 99	wastes not otherwise specified	Yes				x	x		x
07 07 01*	aqueous washing liquids and mother liquors	Yes				x	x		x
07 07 03*	organic halogenated solvents, washing liquids and mother liquors	Yes				x	x		x
07 07 04*	other organic solvents, washing liquids and mother liquors	Yes				x	x		x
07 07 07*	halogenated still bottoms and reaction residues	Yes				x	x		x
07 07 08*	other still bottoms and reaction residues	Yes				x	x		x
07 07 09*	halogenated filter cakes and spent absorbents	Yes				x	x		x
07 07 10*	other filter cakes and spent sbsorbents	Yes				x	x		
07 07 11*	sludges from on-site effluent treatment containing dangerous substances	Yes				x	x		x
07 07 12	sludges from on-site effluent treatment other than those mentioned in 07 07 11	Yes				x	x		x
07 07 99	wastes not otherwise specified	Yes				x	x		x
08 01 11*	waste paint and varnish containing organic solvents or other dangerous substances	Yes				x	x		x
08 01 12	waste paint and varnish other than those mentioned in 08 01 11	Yes				x	x		x
08 01 13*	sludges from paint or varnish containing organic solvents or other dangerous substances	Yes				x	x		x
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13	Yes				x	x		x

08 01 15*	aqueous sludges containing paint or varnish containing organic solvents or other dangerous substances	Yes				x	x		x
08 01 16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15	Yes				x	x		x
08 01 17*	wastes from paint or varnish removal containing organic solvents or other dangerous substances	Yes				x	x		x
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17	Yes				x	x		x
08 01 19*	aqueous suspensions containing paint or varnish containing organic solvents or other dangerous substances	Yes				x	x		x
08 01 20	aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19	Yes				x	x		x
08 01 21*	waste paint or varnish remover	Yes				x	x		x
08 01 99	wastes not otherwise specified	Yes							x
08 02 01	waste coating powders	Yes							
08 02 02	aqueous sludges containing ceramic materials	Yes							x
08 02 03	aqueous suspensions containing ceramic materials	Yes							
08 02 99	wastes not otherwise specified	Yes							x
08 03 07	aqueous sludges containing ink	Yes							x
08 03 08	aqueous liquid waste containing ink	Yes							x
08 03 12*	waste ink containing dangerous substances	Yes				x	x		x
08 03 13	waste ink other than those mentioned in 08 03 12	Yes				x	x		x
08 03 14*	ink sludges containing dangerous substances	Yes				x	x		x
08 03 15	ink sludges other than those mentioned in 08 03 14	Yes				x	x		x
08 03 16*	waste etching solutions	Yes				x	x		
08 03 17*	waste printing toner containing dangerous substances	Yes				x	x		x
08 03 18	waste printing toner other than those mentioned in 08 03 17	Yes				x	x		x
08 03 19*	disperse oil	Yes				x	x		
08 03 99	wastes not otherwise specified	Yes				x	x		x
08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances	Yes				x	x		x
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09	Yes				x	x		x
08 04 11*	adhesive and sealant sludges containing organic solvents or other dangerous substances	Yes				x	x		x
08 04 12	adhesive and sealant sludges other than those mentioned in 08 04 11	Yes				x	x		x
08 04 13*	aqueous sludges containing adhesives or sealants containing organic solvents or other dangerous substances	Yes				x	x		x
08 04 14	aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13	Yes				x	x		x
08 04 15*	aqueous liquid waste containing adhesives or sealants containing organic solvents or other dangerous substances	Yes				x	x		x
08 04 16	aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15	Yes				x	x		x
08 04 17*	rosin oil	Yes				x	x		
08 04 99	wastes not otherwise specified	Yes				x	x		x
08 05 01*	waste isocyanates	Yes				x	x		
09 01 01*	water-based developer and activator solutions	Yes				x	x		
09 01 02*	water-based offset plate developer solutions	Yes				x	x		
09 01 03*	solvent-based developer solutions	Yes				x	x		
09 01 04*	fixed solutions	Yes				x	x		
09 01 05*	bleach solutions and bleach fixer solutions	Yes				x	x		
09 01 06*	wastes containing silver from on-site treatment of photographic wastes	Yes				x	x		
09 01 07	photographic film and paper containing silver or silver compounds	Yes				x	x		
09 01 08	photographic film and paper free of silver or silver compounds	Yes				x	x		
09 01 10	single-use cameras without batteries	Yes				x	x		
09 01 11*	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03	Yes				x	x		
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11	Yes				x	x		
09 01 13*	aqueous liquid waste from on-site reclamation of silver other than those mentioned in 09 01 06	Yes				x	x		
09 01 99	wastes not otherwise specified	Yes				x	x		
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)								
10 01 02	coal fly ash								
10 01 03	fly ash from peat and untreated wood								
10 01 04*	oil fly ash and boiler dust	Yes				x	x		
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form								
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form								
10 01 09*	sulphuric acid								
10 01 13*	fly ash from emulsified hydrocarbons used as fuel	Yes				x	x		x
10 01 14*	bottom ash, slag and boiler dust from co-incineration containing dangerous substances					x	x		x
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14								

10 01 16*	fly ash from co-incineration containing dangerous substances					x	x		x
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16								
10 01 18*	wastes from gas cleaning containing dangerous substances					x	x		x
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18								
10 01 20*	sludges from on-site effluent treatment containing dangerous substances					x	x		x
10 01 21	sluges from on-site effluent treatment other than those mentioned in 10 01 20								
10 01 22*	aqueous sludges from boiler cleansing containing dangerous substances					x	x		x
10 01 23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22								
10 01 24	sands from fluidised beds								
10 01 25	wastes from fuel storage and preparation of coal-fired power plants								
10 01 26	wastes from cooling-water treatment								
10 01 99	wastes not otherwise specified								
10 02 01	wastes from the processing of slag								
10 02 02	unprocessed slag								
10 02 07*	solid wastes from gas treatment containing dangerous substances					x	x		x
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07								
10 02 10	mill scales								
10 02 11*	wastes from cooling-water treatment containing oil		x			x	x		x
10 02 12	waste from cooling-water treatment other than those mentioned in 10 02 11				x				
10 02 13*	sludges and filter cakes from gas treatment containing dangerous substances								
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13								
10 02 15	other sludges and filter cakes						x		x
10 02 99	wastes not otherwise specified								
10 03 02	anode scraps								
10 03 04*	primary production slags								
10 03 05	waste alumina								
10 03 08*	salt slags from secondary production								
10 03 09*	black drosses from secondary production								
10 03 15*	skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities								
10 03 16	skimming other than those mentioned in 10 03 15								
10 03 17*	tar-containing wastes from anode manufacture								
10 03 18	carbon-containing waste from anode manufacture other than those mentioned in 10 03 17								
10 03 19*	flue-gas dust containing dangerous substances								
10 03 20	flue-gas dust other than those mentioned in 10 03 19								
10 03 21*	other particulates and dust (including ball-mill dust) containing dangerous substances								
10 03 22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21								
10 03 23*	solid wastes from gas treatment containing dangerous substances								
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23								
10 03 25*	sludges and filter cakes from gas treatment containing dangerous substances								
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25								
10 03 27*	wastes from cooling-water treatment containing oil	Yes	x						x
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27								
10 03 29*	waste from treatment of salt slags and black drosses containing dangerous substances								
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29								
10 03 99	wastes not otherwise specified								
10 04 01*	slags from primary and secondary production								
10 04 02*	dross and skimmings from primary and secondary production								
10 04 03*	calcium arsenate								
10 04 04*	flue-gas dust								
10 04 05*	other particulates and dust								
10 04 06*	solid wastes from gas treatment								
10 04 07*	sludges and filter cakes from gas treatment								
10 04 09*	wastes from cooling-water treatment containing oil		x			x	x		x
10 04 10	waste from cooling-water treatment other than those mentioned in 10 04 09								
10 04 99	wastes not otherwise specified								
10 05 01	slags from primary and secondary production								
10 05 03*	flue-gas dust								
10 05 04	other particulates and dust								
10 05 05*	solid waste from gas treatment								
10 05 06*	sludges and filter cakes from gas treatment								
10 05 08*	wastes from cooling-water treatment containing oil		x			x	x		x

10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08								
10 05 10*	dross and skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities								
10 05 11	dross and skimmings other than those mentioned in 10 05 10								
10 05 99	wastes not otherwise specified								
10 06 01	slags from primary and secondary production								
10 06 02	dross and skimmings from primary and secondary production								
10 06 03*	flue-gas dust								
10 06 04	other particulates and dust								
10 06 06*	solid wastes from gas treatment								
10 06 07*	sludges and filter cakes from has treatment								
10 06 09*	wastes from cooling-water treatment containing oil		x			x	x		x
10 06 10	waste from cooling-water treatment other than those mentioned in 10 06 09								
10 06 99	wastes not otherwise specified								
10 07 01	slags from primary and secondary production								
10 07 02	dross and skimmings from primary and secondary production								
10 07 03	solid wastes from gas treatment								
10 07 04	other particultes and dust								
10 07 05	sludges and filter cakes from gas treatment								
10 07 07*	wastes from cooling-water treatment containing oil		x			x	x		x
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07								
10 07 99	wastes not otherwise specified								
10 08 04	particulates and dust								
10 08 08*	salt slag from primary and secondary production								
10 08 09	other slags								
10 08 10*	dross and skimming that are flammable or emit, upon the contact with water, flammable gases in dangerous quanities								
10 08 11	dross and skimmings other than those mentioned in 10 08 10								
10 08 12*	tar-containing waste from anode manufacture								
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12								
10 08 14	anode scrap								
10 08 15*	flue-gas dust containing dangerous substances								
10 08 16	flue-gas dust other than those mentioned in 10 08 15								
10 08 17*	sludges and filter cakes from flue-gas treatment containing dangerous substances								
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17								
10 08 19*	wastes from cooling-water treatment containing oil		x			x	x		x
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19								
10 08 99	wastes not otherwise specified								
10 09 03	furnace slag								
10 09 05*	casting cores and moulds which have not undergone pouring containing dangerous substances								
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05								
10 09 07*	casting cores and moulds which have undergone pouring containing dangerous substances								
10 09 08	casting cores and moulds have undergone pouring other than those mentioned in 10 09 07								
10 09 09*	flue-gas dust containing dangerous substances								
10 09 10	flue-gas dust other than those mentioned in 10 09 09								
10 09 11*	other particulates containing dangerous substances								
10 09 12	other particulates other than those mentioned in 10 09 11								
10 09 13*	waste binders containing dangerous substances								
10 09 14	waste binders other than those mentioned in 10 09 13								
10 09 15*	waste crack-indicating agent containing dangerous substances								
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15								
10 09 99	wastes not otherwise specified								
10 10 03	furnace slag								
10 10 05*	casting cores and moulds which have not undergone pouring, containing dangerous substances								
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05								
10 10 07*	casting cores and moulds which have undergone pouring, containing dangerous substances								
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07								
10 10 09*	flue-gas dust containing dangerous substances								
10 10 10	flue-gas dust other than those mentioned in 10 10 09								
10 10 11*	other particulates containing dangerous substances								
10 10 12	other particulates other than those mentioned in 10 10 11								
10 10 13*	waste binders containing dangerous substances								
10 10 14	waste binders other than those mentioned in 10 10 13								

10 10 15*	waste crack-indicating agent containing dangerous substances								
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15								
10 10 99	wastes not otherwise specified								
10 11 03	waste glass-based fibrous materials								
10 11 05	particulates and dust								
10 11 09*	waste preparation mixture before thermal processing, containing dangerous substances								
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09								
10 11 11*	waste glass in small particles and glass powder containing heavy metals (for example from cathode ray tubes)								
10 11 12	waste glass other than those mentioned in 10 11 11								
10 11 13*	glass-polishing and -grinding sludge containing dangerous substances	Yes		x		x	x		x
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13	Yes		x		x	x		x
10 11 15*	solid wastes from flue-gas treatment containing dangerous substances								
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15								
10 11 17*	sludges and filter cakes from flue-gas treatment containing dangerous substances								
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17								
10 11 19*	solid wastes from on-site effluent treatment containing dangerous substances								
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19								
10 11 99	wastes not otherwise specified								
10 12 01	waste preparation mixture before thermal processing								
10 12 03	particulates and dust								
10 12 05	sludges and filter cakes from gas treatment								
10 12 06	discarded moulds								
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)								
10 12 09*	solid wastes from gas treatment containing dangerous substances								
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09								
10 12 11*	wastes from glazing containing heavy metals								
10 12 12	wastes from glazing other than those mentioned in 10 12 11								
10 12 13	sludge from on-site effluent treatment								
10 12 99	wastes not otherwise specified								
10 13 01	waste preparation mixture before thermal processing								
10 13 04	wastes from calcination and hydration of lime								
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)								
10 13 07	sludges and filter cakes from gas treatment								
10 13 09*	wastes from asbestos-cement manufacture containing asbestos								
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09								
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10								
10 13 12*	solid wastes from gas treatment containing dangerous substances					x	x		x
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12								
10 13 14	waste concrete and concrete sludge								
10 13 99	wastes not otherwise specified								
10 14 01*	waste from gas cleaning containing mercury								
11 01 05*	pickling acids	Yes				x	x		
11 01 06*	acids not otherwise specified	Yes				x	x		
11 01 07*	pickling bases	Yes				x	x		
11 01 08*	phosphatising sludges								x
11 01 09*	sludges and filter cakes containing dangerous substances								x
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09	Yes					x		x
11 01 11*	aqueous rinsing liquids containing dangerous substances		x		x	x	x		x
11 01 12	aqueous rinsing liquids other than those mentioned in 11 01 11								x
11 01 13*	degreasing wastes containing dangerous substances	Yes				x	x		x
11 01 14	degreasing wastes other than those mentioned in 11 01 13	Yes				x	x		x
11 01 15*	eluate and sludges from membrane systems or ion exchange systems containing dangerous substances					x	x		
11 01 16*	saturated or spent ion exchange resins					x	x		
11 01 98*	other wastes containing dangerous substances						x		x
11 01 99	wastes not otherwise specified								x
11 02 02*	sludges from zinc hydrometallurgy (including jarosite, goethite)					x	x		
11 02 03	wastes from the production of anodes for aqueous electrolytical processes								

11 02 05*	wastes from copper hydrometallurgical processes containing dangerous substances								
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05								
11 02 07*	other wastes containing dangerous substances								
11 02 99	wastes not otherwise specified								
11 03 01*	waste containing cyanide								
11 03 02*	other wastes								
11 05 01	hard zinc								
11 05 02	zinc ash								
11 05 03*	solid wastes from gas treatment								
11 05 04*	spent flux								
11 05 99	wastes not otherwise specified								
12 01 01	ferrous metal filings and turnings								
12 01 02	ferrous metal dust and particles								
12 01 03	non-ferrous metal filings and turnings								x
12 01 04	non-ferrous metal dust and particles								x
12 01 05	plastics shavings and turnings								x
12 01 06*	mineral-based machining oils containing halogens (except emulsions and solutions)	Yes	x			x	x		x
12 01 07*	mineral-based machining oils free of halogens (except emulsions and solutions)	Yes	x			x	x		x
12 01 08*	machining emulsions and solutions containing halogens	Yes	x			x	x		x
12 01 09*	machining emulsions and solutions free of halogens	Yes	x			x	x		x
12 01 10*	synthetic machining oils	Yes	x			x	x		x
12 01 12*	spent waxes and fats					x	x		
12 01 13	welding wastes								
12 01 14*	machining sludges containing dangerous substances					x	x		x
12 01 15	machining sludges other than those mentioned in 12 01 14								x
12 01 16*	waste blasting material containing dangerous substances					x	x		x
12 01 17	waste blasting material other than those mentioned in 12 01 16								x
12 01 18*	metal sludge (grinding, honing and lapping sludge) containing oil					x	x		x
12 01 19*	readily biodegradable machining oil	Yes	x				x		
12 01 20*	spent grinding bodies and grinding materials containing dangerous substances					x	x		x
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20								x
12 01 99	wastes not otherwise specified								x
12 03 01*	aqueous washing liquids				x	x	x		
12 03 02*	steam degreasing wastes				x	x	x		
13 01 01*	hydraulic oils, containing PCBs ( )	Yes	x			x	x		
13 01 04*	chlorinated emulsions	Yes	x			x	x		
13 01 05*	non-chlorinated emulsions	Yes	x			x	x		
13 01 09*	mineral-based chlorinated hydraulic oils	Yes	x			x	x		
13 01 10*	mineral-based non-chlorinated hydraulic oils	Yes	x			x	x		x
13 01 11*	synthetic hydraulic oils		x			x	x		x
13 01 12*	readily biodegradable hydraulic oils	Yes	x			x	x		
13 01 13*	other hydraulic oils	Yes	x			x	x		x
13 02 04*	mineral-based chlorinated engine, gear and lubricating oils	Yes	x			x	x		x
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils	Yes	x			x	x		x
13 02 06*	synthetic engine, gear and lubricating oils	Yes	x			x	x		x
13 02 07*	readily biodegradable engine, gear and lubricating oils	Yes	x			x	x		
13 02 08*	other engine, gear and lubricating oils	Yes	x			x	x		x
13 03 01*	insulating or heat transmission oils containing PCBs	Yes	x			x	x		
13 03 06*	mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01	Yes	x			x	x		
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils	Yes	x			x	x		x
13 03 08*	synthetic insulating and heat transmission oils	Yes	x			x	x		x
13 03 09*	readily biodegradable insulating and heat transmission oils	Yes	x			x	x		
13 03 10*	other insulating and heat transmission oils	Yes	x			x	x		x
13 04 01*	bilge oils from inland navigation	Yes	x			x	x		
13 04 02*	bilge oils from jetty sewers	Yes	x			x	x		
13 04 03*	bilge oils from other navigation	Yes	x			x	x		
13 05 01*	solids from grit chambers and oil/water separators	Yes	x			x	x		x
13 05 02*	sludges from oil/water separators	Yes	x			x	x		x
13 05 03*	interceptor sludges	Yes	x			x	x		x
13 05 06*	oil from oil/water separators	Yes	x			x	x		
13 05 07*	oily water from oil/water separators	Yes	x			x	x		
13 05 08*	mixtures of wastes from grit chambers and oil/water separators	Yes	x			x	x		x
13 07 01*	fuel oil and diesel	Yes	x			x	x		x
13 07 02*	petrol	Yes	x			x	x		x
13 07 03*	other fuels (including mixtures)	Yes	x			x	x		x
13 08 01*	desalter sludges or emulsions	Yes	x			x	x		
13 08 02*	other emulsions	Yes	x			x	x		
13 08 99*	wastes not otherwise specified	Yes	x			x	x		x
14 06 01*	chlorofluorocarbons, HCFC, HFC					x	x		
14 06 02*	other halogenated solvents and solvent mixtures	Yes				x	x		
14 06 03*	other solvents and solvent mixtures	Yes				x	x		

14 06 04*	sludges or solid wastes containing halogenated solvents					x	x		
14 06 05*	sludges or solid wastes containing other solvents					x	x		
15 01 01	paper and cardboard packaging								
15 01 02	plastic packaging								
15 01 03	wooden packaging								
15 01 04	metallic packaging								
15 01 05	composite packaging								
15 01 06	mixed packaging								
15 01 07	glass packaging								
15 01 09	textile packaging								
15 01 10*	packaging containing residues of or contaminated by dangerous substances	Yes				x	x		x
15 01 11*	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers	Yes				x	x		
15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	Yes				x	x		x
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	Yes				x	x		x
16 01 03	end-of-life tyres	Yes				x	x		
16 01 04*	end-of-life vehicles	Yes				x	x		
16 01 06	end-of-life vehicles, containing neither liquids nor other hazardous components	Yes				x	x		
16 01 07*	oil filters	Yes				x	x		
16 01 08*	components containing mercury	Yes				x	x		
16 01 09*	components containing PCBs	Yes				x	x		
16 01 10*	explosive components (for example air bags)	Yes				x	x		
16 01 11*	brake pads containing asbestos	Yes				x	x		
16 01 12	brake pads other than those mentioned in 16 01 11	Yes				x	x		
16 01 13*	brake fluids	Yes				x	x		
16 01 14*	antifreeze fluids containing dangerous substances	Yes				x	x		x
16 01 15	antifreeze fluids other than those mentioned in 16 01 14	Yes				x	x		x
16 01 16	tanks for liquefied gas	Yes				x	x		
16 01 17	ferrous metal	Yes				x	x		
16 01 18	non-ferrous metal	Yes					x		
16 01 19	plastic	Yes				x	x		
16 01 20	glass	Yes				x	x		
16 01 21*	hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14	Yes				x	x		
16 01 22	components not otherwise specified	Yes				x	x		
16 01 99	wastes not otherwise specified	Yes				x	x		
16 02 09*	transformers and capacitors containing PCBs					x	x		
16 02 10*	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09					x	x		
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC	Yes				x	x		
16 02 12*	discarded equipment containing free asbestos								
16 02 13*	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	Yes				x	x		
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	Yes				x	x		
16 02 15*	hazardous components removed from discarded equipment	Yes				x	x		
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15	Yes				x	x		
16 03 03*	inorganic wastes containing dangerous substances			x	x	x	x		x
16 03 04	inorganic wastes other than those mentioned in 16 03 03			x	x	x	x		x
16 03 05*	organic wastes containing dangerous substances	Yes				x	x		x
16 03 06	organic wastes other than those mentioned in 16 03 05								
16 03 07*	Metallic mercury						x		
16 04 01*	waste ammunition								
16 04 02*	fireworks wastes								
16 04 03*	other waste explosives								
16 05 04*	gases in pressure containers (including halons) containing dangerous substances	Yes				x	x		x
16 05 05	gases in pressure containers other than those mentioned in 16 05 04	Yes				x	x		
16 05 06*	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals	Yes				x	x		x
16 05 07*	discarded inorganic chemicals consisting of or containing dangerous substances	Yes				x	x		x
16 05 08*	discarded organic chemicals consisting of or containing dangerous substances	Yes				x	x		x
16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08	Yes				x	x		x
16 06 01*	lead batteries	Yes				x	x		
16 06 02*	Ni-Cd batteries	Yes				x	x		
16 06 03*	mercury-containing batteries					x	x		
16 06 04	alkaline batteries (except 16 06 03)	Yes				x	x		
16 06 05	other batteries and accumulators	Yes				x	x		
16 06 06*	separately collected electrolyte from batteries and accumulators	Yes				x	x		
16 06 07*	Nickel-metal hydride (NiMH) batteries and accumulators					x	x		
16 06 08*	Lithium containing batteries and accumulators					x	x		
16 07 08*	wastes containing oil	Yes	x			x	x		x

16 07 09*	wastes containing other dangerous substances						x		x
16 07 99	wastes not otherwise specified								
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)								
16 08 02*	spent catalysts containing dangerous transition metals ( ) or dangerous transition metal compounds								
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified								
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)								
16 08 05*	spent catalysts containing phosphoric acid								
16 08 06*	spent liquids used as catalysts								
16 08 07*	spent catalysts contaminated with dangerous substances								
16 09 01*	permanganates, for example potassium permanganate						x		
16 09 02*	chromates, for example potassium chromate, potassium or sodium dichromate								
16 09 03*	peroxides, for example hydrogen peroxide								
16 09 04*	oxidising substances, not otherwise specified								
16 10 01*	aqueous liquid wastes containing dangerous substances				x	x	x		
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01								
16 10 03*	aqueous concentrates containing dangerous substances				x	x	x		
16 10 04	aqueous concentrates other than those mentioned in 16 10 03								
16 11 01*	carbon-based linings and refractories from metallurgical processes containing dangerous substances					x	x		
16 11 02	carbon-based linings and refractories fronm metallurgical processes other than those mentioned in 16 11 01								
16 11 03*	other linings and refractories from metallurgical processes containing dangerous substances					x	x		
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03								
16 11 05*	linings and refractories from non-metallurgical processes containing dangerous substances					x	x		
16 11 06	linings and refractories from non-metallurgical processes other than those mentioned in 16 11 05								
17 01 01	concrete								
17 01 02	bricks								
17 01 03	tiles and ceramics								
17 01 06*	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances			x		x	x		
17 01 07	mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06								
17 02 01	wood								
17 02 02	glass								
17 02 03	plastic								
17 02 04*	glass, plastic and wood containing or contaminated with dangerous substances	Yes		x		x	x		
17 03 01*	bituminous mixtures containing coal tar	Yes		x		x	x		x
17 03 02	bituminous mixtures containing other than those mentioned in 17 03 01	Yes		x		x	x		
17 03 03*	coal tar and tarred products	Yes				x	x		x
17 04 01	copper, bronze, brass								
17 04 02	aluminium								
17 04 03	lead								
17 04 04	zinc								
17 04 05	iron and steel								
17 04 06	tin								
17 04 07	mixed metals								
17 04 09*	metal waste contaminated with dangerous substances	Yes				x	x		
17 04 10*	cables containing oil, coal tar and other dangerous substances	Yes				x	x		x
17 04 11	cables other than those mentioned in 17 04 10								
17 05 03*	soil and stones containing dangerous substances	Yes		x		x	x		x
17 05 04	soil and stones other than those mentioned in 17 05 03	Yes		x		x	x		
17 05 05*	dredging spoil containing dangerous substances	Yes		x		x	x		
17 05 06	dredging spoil other than those mentioned 17 05 05	Yes		x		x	x		
17 05 07*	track ballast containing dangerous substances	Yes		x		x	x		
17 05 08	track ballast other than those mentioned in 17 05 07	Yes		x		x	x		
17 06 01*	insulation materials containing asbestos								
17 06 03*	other insulation materials consisting of or containing dangerous substances			x		x	x		
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03								
17 06 05*	construction materials containing asbestos ( )			x			x		
17 08 01*	gypsum-based construction materials contaminated with dangerous substances			x		x	x		
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01								
17 09 01*	construction and demolition wastes containing mercury			x		x	x		
17 09 02*	construction and demolition wastes containing pcb (for example pcb-containing sealants, pcb-containing resin-based floorings, pcb-containing sealed glazing units, pcb-containing capacitors)			x		x	x		
17 09 03*	other construction and demolition wastes (including mixed wastes) containing dangerous substances			x		x	x		

17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03								
18 01 01	sharps (except 18 01 03)								
18 01 02	body parts and organs including blood bags and blood preserves (except 18 01 03)								
18 01 03*	wastes whose collection and disposal is subject to special requirements in order to prevent infection								
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)					x	x		x
18 01 06*	chemicals consisting of or containing dangerous substances					x	x		x
18 01 07	chemicals other than those mentioned in 18 01 06								
18 01 08*	cytotoxic and cytostatic medicines					x	x		x
18 01 09	medicines other than those mentioned in 18 01 08	Yes				x	x		x
18 01 10*	amalgam waste from dental care	Yes				x	x		
18 02 01	sharps except (18 02 02)								
18 02 02*	wastes whose collection and disposal is subject to special requirements in order to prevent infection					x	x		x
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection								
18 02 05*	chemicals consisting of or containing dangerous substances					x	x		x
18 02 06	chemicals other than those mentioned in 18 02 05								
18 02 07*	cytotoxic and cytostatic medicines					x	x		x
18 02 08	medicines other than those mentioned in 18 02 07								
19 01 02	ferrous materials removed from bottom ash								
19 01 05*	filter cake from gas treatment					x	x		x
19 01 06*	aqueous liquid wastes from gas treatment and other aqueous liquid wastes				x	x	x		x
19 01 07*	solid wastes from gas treatment					x	x		x
19 01 10*	spent activated carbon from flue-gas treatment					x	x		x
19 01 11*	bottom ash and slag containing dangerous substances					x	x		x
19 01 12	bottom ash and slag other than those mentioned in 19 01 11								
19 01 13*	fly ash containing dangerous substances					x	x		x
19 01 14	fly ash other than those mentioned in 19 01 13								
19 01 15*	boiler dust containing dangerous substances					x	x		x
19 01 16	boiler dust other than those mentioned in 19 01 15								
19 01 17*	pyrolysis wastes containing dangerous substances					x	x		x
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17								
19 01 19	sands from fluidised beds								
19 01 99	wastes not otherwise specified								
19 02 03	premixed wastes composed only of non-hazardous wastes								
19 02 04*	premixed wastes composed of at least one hazardous waste					x	x		x
19 02 05*	sludges from physico/chemical treatment containing dangerous substances					x	x		x
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05	Yes		x		x	x		x
19 02 07*	oil and concentrates from separation	Yes	x			x	x		x
19 02 08*	liquid combustible wastes containing dangerous substances					x	x		x
19 02 09*	solid combustible wastes containing dangerous substances					x	x		x
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09								
19 02 11*	other wastes containing dangerous substances					x	x		x
19 02 99	wastes not otherwise specified								
19 03 04*	wastes marked as hazardous, partly ( ) stabilised						x		x
19 03 05	stabilised wastes other than those mentioned in 19 03 04								
19 03 06*	wastes marked as hazardous, solidified						x		x
19 03 07	solidified wastes other than those mentioned in 19 03 06								
19 03 08*	Partly stabilized mercury					x	x		
19 04 01	vitrified waste								
19 04 02*	fly ash and other flue-gas treatment wastes						x		x
19 04 03*	non-vitrified solid phase						x		x
19 04 04	aqueous liquid wastes from vitrified waste tempering								
19 05 01	non-composted fraction of municipal and similar wastes								
19 05 02	non-composted fraction of animal and vegetable waste								
19 05 03	off-specification compost								
19 05 99	wastes not otherwise specified								
19 06 03	liquor from anaerobic treatment of municipal waste								
19 06 04	digestate from anaerobic treatment of municipal waste								
19 06 05	liquor from anaerobic treatment of animal and vegetable waste								
19 06 06	digestate from anaerobic treatment of animal and vegetable waste								
19 06 99	wastes not otherwise specified								
19 07 02*	landfill leachate containing dangerous substances								
19 07 03	landfill leachate other than those mentioned in 19 07 02								
19 08 01	screenings								
19 08 02	waste from desanding								
19 08 05	sludges from treatment of urban waste water	Yes			x	x	x		x
19 08 06*	saturated or spent ion exchange resins					x	x		x

19 08 07*	solutions and sludges from regeneration of ion exchangers					x	x		x
19 08 08*	membrane system waste containing heavy metals					x	x		x
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats	Yes					x		x
19 08 10*	grease and oil mixture from oil/water separation other than those mentioned in 19 08 09					x	x		x
19 08 11*	sludges containing dangerous substances from biological treatment of industrial waste water					x	x		x
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11	Yes					x		x
19 08 13*	sludges containing dangerous substances from other treatment of industrial waste water					x	x		x
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13	Yes					x		x
19 08 99	wastes not otherwise specified								
19 09 01	solid waste from primary filtration and screenings			x		x	x		
19 09 02	sludges from water clarification								
19 09 03	sludges from decarbonation								
19 09 04	spent activated carbon	Yes					x		
19 09 05	saturated or spent ion exchange resins								
19 09 06	solutions and sludges from regeneration of ion exchangers								x
19 09 99	wastes not otherwise specified								
19 10 01	iron and steel waste								
19 10 02	non-ferrous waste								
19 10 03*	fluff-light fraction and dust containing dangerous substances					x	x		x
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03								
19 10 05*	other fractions containing dangerous substances					x	x		x
19 10 06	other fractions other than those mentioned in 19 10 05								
19 11 01*	spent filter clays	Yes					x		x
19 11 02*	acid tars						x		x
19 11 03*	aqueous liquid wastes						x		x
19 11 04*	wastes from cleaning of fuel with bases						x		x
19 11 05*	sludges from on-site effluent treatment containing dangerous substances	Yes					x		x
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05								
19 11 07*	wastes from flue-gas cleaning								
19 11 99	wastes not otherwise specified								
19 12 01	paper and cardboard								
19 12 02	ferrous metal								
19 12 03	non-ferrous metal								
19 12 04	plastic and rubber								
19 12 05	glass	Yes					x		
19 12 06*	wood containing dangerous substances			x		x	x		x
19 12 07	wood other than that mentioned in 19 12 06								
19 12 08	textiles								
19 12 09	minerals (for example sand, stones)			x		x	x		
19 12 10	combustible waste (refuse derived fuel)	Yes					x		
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances			x		x	x		x
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Yes		x		x	x		
19 13 01*	solid wastes from soil remediation containing dangerous substances	Yes		x		x	x		x
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01	Yes		x		x	x		
19 13 03*	sludges from soil remediation containing dangerous substances	Yes		x		x	x		x
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03	Yes		x		x	x		
19 13 05*	sludges from groundwater remediation containing dangerous substances	Yes		x		x	x		x
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05	Yes		x		x	x		
19 13 07*	aqueous liquid wastes and aqueous concentrates from groundwater remediation containing dangerous substances	Yes	x						
19 13 08	aqueous liquid wastes and aqueous concentrates from groundwater remediation other than those mentioned in 19 13 07	Yes			x				
20 01 01	paper and cardboard								
20 01 02	glass	Yes					x		
20 01 08	biodegradable kitchen and canteen waste								
20 01 10	clothes								
20 01 11	textiles								
20 01 13*	solvents	Yes					x		x
20 01 14*	acids	Yes					x		x
20 01 15*	alkalines	Yes					x		x
20 01 17*	photochemicals						x		x
20 01 19*	pesticides	Yes					x		x
20 01 21*	fluorescent tubes and other mercury-containing waste	Yes				x			

20 01 23*	discarded equipment containing chlorofluorocarbons	Yes				x	x		x	
20 01 25	edible oil and fat	Yes					x		x	
20 01 26*	oil and fat other than those mentioned in 20 01 25						x		x	
20 01 27*	paint, inks, adhesives and resins containing dangerous substances	Yes				x	x		x	
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27	Yes				x	x		x	
20 01 29*	detergents containing dangerous substances						x		x	
20 01 30	detergents other than those mentioned in 20 01 29									
20 01 31*	cytotoxic and cytostatic medicines						x		x	
20 01 32	medicines other than those mentioned in 20 01 31									
20 01 33*	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries						x			
20 01 34	batteries and accumulators other than those mentioned in 20 01 33									no
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components ( )	Yes					x			no
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	Yes					x			no
20 01 37*	wood containing dangerous substances	Yes		x			x		x	
20 01 38	wood other than that mentioned in 20 01 37									
20 01 39	plastics									
20 01 40	metals	Yes					x			
20 01 41	wastes from chimney sweeping									
20 01 99	other fractions not otherwise specified									
20 02 01	biodegradable waste									
20 02 02	soil and stones	Yes		x						
20 02 03	other non-biodegradable wastes									
20 03 01	mixed municipal waste									
20 03 02	waste from markets									
20 03 03	street-cleaning residues			x		x	x			
20 03 04	septic tank sludge									
20 03 06	waste from sewage cleaning									
20 03 07	bulky waste									
20 03 99	municipal wastes not otherwise specified									

Question 7: *In relation to the following waste treatment activities in particular:*

- *Treatment of waste oils, and*
- *Treatment of contaminated soil*

And an elaboration on the summary information provided in Question 6 above, provide a detailed description of the process undertaken. Provide schematic and flow diagrams, to illustrate treatment steps.

Response: Please see details outlined below for waste treatment activities set out above.

1. FUEL OIL RECOVERY PROCESS

a) Pre-acceptance

Prior to wastes oils being accepted for recovery processing they are subjected to a number of waste acceptance controls, including:

- Formal waste oil acceptance and collection procedures are in operation to set out the criteria for collecting and accepting waste oils for recovery.
- Our drivers are trained to monitor the oils proposed for collection. Any oils suspected of having a low flash point (<66^{o}C) or exhibiting any properties inconsistent with oil based products are sampled and tested in our laboratory before their collection is carried out.
- Flashpoint testing is used (along with other parameters) to minimize the content of any low flashpoint materials in the waste oil and ensure that only waste oils with a flash point >66^{o}C are be put through the full recovery process.
- Any low flash point materials (e.g. petrol's/mixed fuels) are segregated and stored in a dedicated underground tank, such material does not enter our waste oil recovery process.
- Some waste oils with a flash point below 66^{o}C (e.g. kerosene) may undergo some basic processing on site (e.g. filtered) but only at relatively low temperatures (normally ambient) and are not heated at all above their flashpoint (i.e. 38 ^{o}C for Kerosene).

In addition to these acceptance controls further testing of various parameters is carried out at various stages during the processing steps to ensure that final product specifications will be met before oil can be moved on to the next stage of process.

The processing of waste oil at the Facility to produce a recovered fuel involves the following steps:

b) Preliminary Dewatering & Precipitation

For high water/solids content waste oils, these are processed separately (normally in tanks 16, 18, 19 & 26). This is carried out to separate the aqueous phase from the oil which then allows the oil obtained from this process to be handled in the same manner as other low water content oils. This separation of oil and water is achieved through heating of the waste stream to a temperature of 50 - 80^{o}C and if necessary demulsifying chemicals may be used to help phase separation. Heating of oils is carried out by means of steam coils within tanks. When the desired heat has been achieved the steam feed is turned off and the tank contents are allowed to settle into aqueous and hydrocarbon phases. Settled water (aqueous phase)

is subsequently removed to the effluent treatment process. The oil phase is then pumped over to tanks (normally tanks 13- 15) where it will join the pre-process as outlined in section c below. Precipitated solids settle in the tank and are removed from the tank periodically.

c) Pre-Processing

Low water content oils directly received into the plant and oil received from the preliminary dewatering process are stored in a number of bulk storage tanks (e.g. tanks 11-15), depending on the quality and composition these are selected for the production different fuel products.

The contents of these tanks are heated (with chemical demulsifying agents added as necessary) and the oil is then processed as may be necessary through filters and centrifuges to remove solids and water. Alternatively steam powered heat exchanges can be used to heat the oil for centrifuging or filtering. Typical operating temperatures of the oil during this stage range from 60 - 80^{o}C. Depending on the nature of the oil heat may not need to be applied at all. The oil is then pumped to other tanks pending further processing (currently involving tanks 7, 8, 24, 25 & 32).

d) Dewatering & 'De-metalising'

Standard Specification Fuels (11LS)

Oils which are selected for our standard grade fuels are pumped from interim storage tanks (e.g. tanks 11-15) through the filtering/centrifuging process, to remove solid/particulate matter and water. Once oils which are of sufficiently low water content and sufficient quality they may not require any further processing and are pumped directly to blending tanks. Oils which do not meet the required water specification are pumped to the chemical dewatering tanks (currently Tanks 7, 8, 24, 25 & 32).

As part of the dewatering process the dewatering tanks (7, 8, 24, 25 & 32) are used to heat the pre-processed oil to approximately 80^{o}C when a chemical demulsifying agent is added and the tank and the contents are agitated mechanically. After agitation the contents are left to settle and separate into the different phases. The bottom aqueous phase is removed from the tank for interim storage pending further treatment or disposal. Oils which have sufficiently low water content are pumped directly to blending tanks

High Specification Fuels (19LS)

Suitable pre-processed oils are selected and pumped to the process tanks (currently tanks 7 & 8). In tanks 7 & 8 oils are dewatered and 'de-metalised' by the addition of chemical agents this involves heating the oil to ~80^{o}C, addition of the chemical agents with mechanical agitation before the contents are allowed to settle. The precipitated water and sludge is removed and pumped to a storage tank (e.g.9 &10) pending onward disposal.

Oil from this process may then be filtered/centrifuged as necessary and pumped to a blending/finishing tanks (e.g. Tanks 1, 2, 4, 5, 6, SS2 & SS3, 20, 23 51).

As detailed in the answers to Questions 11 & 15, Enva is currently in the process of designing a new continuous process (rather than batch process) to dewater oil. This additional process would substitute for the current technique of chemical dewatering of oils.

e) Blending/Finishing

All fully reprocessed oils are tested to ensure they meet the specification limits for all parameters for 11LS or 19LS as appropriate. Once confirmed to meet the desired specification the recovered oil is then placed in storage pending delivery to customers.

Subsequent to this the fully recovered oils may be blending with a virgin oil gas oil/HFO (and any other fuel additives as necessary) as necessary to meet the specific viscosity required by an individual customer.

Processed oils from for our standard fuel specification are typically transferred to blending/finished tanks SS1 or R20. Processed oils from our high specification fuel are typically transferred to blending/finished tanks 1, 2, 4, 5, 6, SS2 and SS3.

f) Process Control

SCADA, (Supervisory Control And Data Acquisition) Interlocks etc.

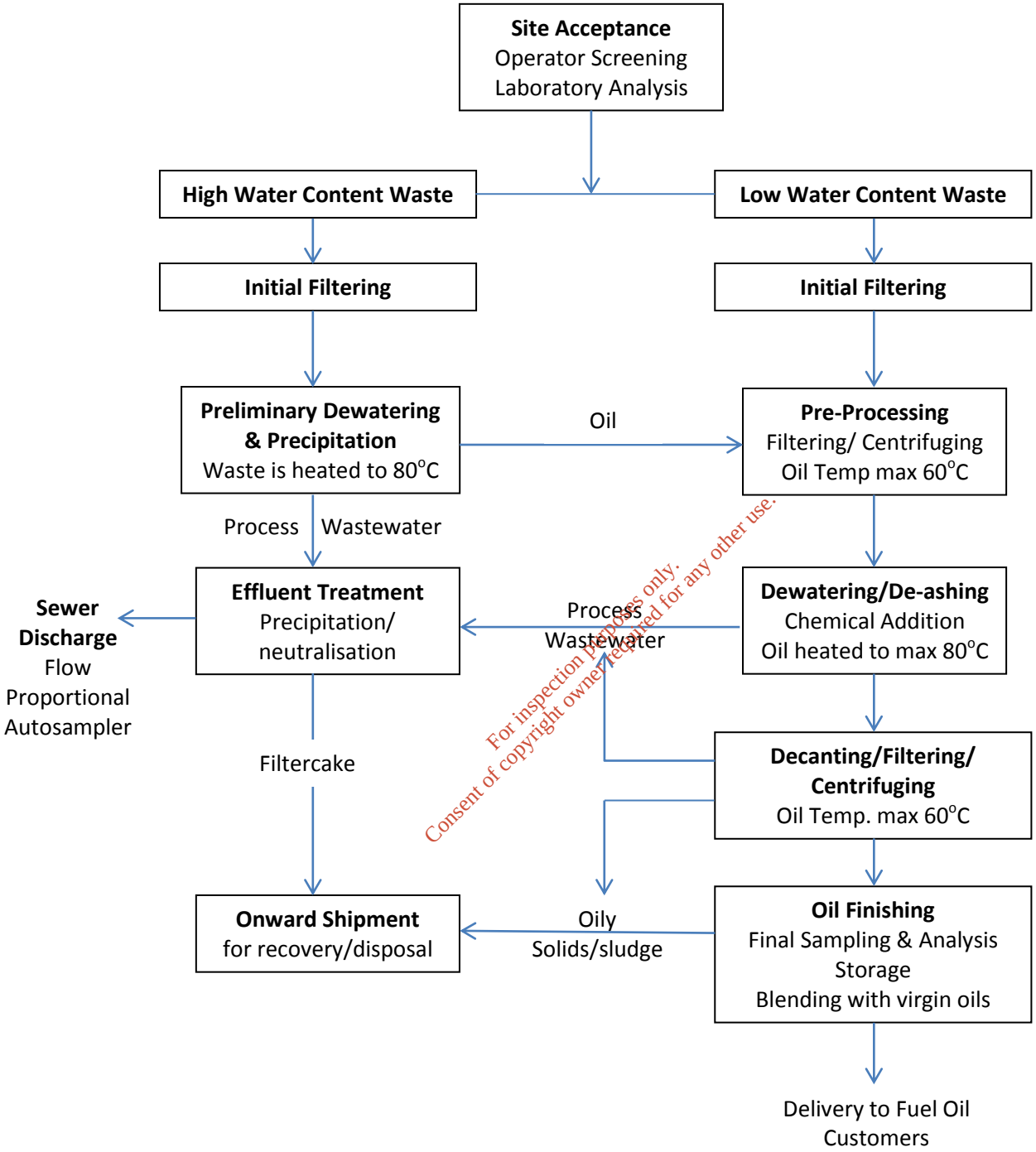
The oil recovery process is largely controlled by a PC based SCADA which monitors tank contents, temperatures and controls the pumps used to transfer tank contents from one tank to another. This also provides for interlocking of tank levels with pumps to prevent over fills as well as preventing the overheating of tank contents. As a simple energy efficiency measure, heating of tanks can be automatically programmed to allow heating of tanks to continue when the facility is unmanned or set the heating of a particular tank to start or continue (after hours) for a stated period of time.

Effluent treatment

The effluent treatment process consists of a number of unit operations. Wastewater is primarily generated from tanks 18 and 19 from which it is passed through an inclined plate oil water separator (located in the tank farm) and is then pumped to the wastewater storage/reactor tanks (e.g. R1, R2 & WW3 and WW4. Similarly other tanks within the tank-farm (e.g.16, 26, 37, SS1, SS2 or tankers of aqueous waste) can discharge aqueous effluent directly to the oil water separator and on to the effluent treatment plant. The effluent treatment plant consists of two reactors where lime slurry, and other effluent treatment aids (flocculants, activated carbon etc.) can be added to the effluent prior to passing the effluent through a filter-press to remove the solids as a filter-cake. The treated effluent is then pumped through a storage tank (e.g. WW1 or WW2) prior to discharge to sewer under license. The discharge is released to sewer at a controlled rate using an automated valve controlled by the SCADA. Filter-cake is removed from the filter-press for onward disposal.

A separate SCADA system controls the effluent treatment plant & effluent discharge system. Tanks 1 and 2 contain the effluent for final discharge. This effluent is tested in accordance with the requirements of the licensed sewer discharge parameters. When the effluent is ready for discharge the discharge valve is opened via the SCADA. The operator can set the volume (dependent on COD) to be discharged over one day and the system then automatically controls the flow rates to achieve this in line with the permitted discharge rates. Once the total volume has reached the quantity set for the batch release this shuts the valve and no more effluent is released.

Figure 7.1 Fuel Oil Recovery Process Flow



2. Contaminated Soil Remediation & Transfer Process

Introduction

Enva has been operating a soil remediation and bulking facility at the Facility since 2000. Enva accept contaminated soil and other wastes of similar character (e.g. filter cake, interceptor solids, dredging waste etc.) at the facility for treatment via mechanical processing followed by remediation or export abroad.

All treatment and storage activities are carried out in purpose built roofed buildings. The area is fully contained (concrete surface & bunding) with all run-off collected and passed through an interceptor.

Contaminated solid wastes are accepted at the facility derive from a range of sources including domestic home heating oil spills, redevelopment of sites with historical contamination, oil water separator solids and other incidents leading to arising's of contaminated materials (i.e. tanker roll-overs, tank leaks, tank over fills etc.).

Prior to acceptance onsite, the waste is subject to the Soil Acceptance Procedure which specifies the frequency and range of analysis to be undertaken on waste dependent on the source of contamination and history of the site. All waste received into the facility are subject to a routine process involving mechanical treatment (segregation and/or washing) followed by further segregation. Following initial segregation, separate waste fractions can undergo either or a combination of the following treatment or storage options:

1. Bioremediation (e.g. stimulation of existing or addition of microbial populations);
2. Physico-Chemical Stabilisation (e.g. chemical oxidation or use of binding agents);
3. Storage/bulking with similar wastes pending onward shipment;

Proposed additional process:

4. Soil & Grit Washing

Soil Management Process

1. Pre Acceptance/Site Assessment

The process starts with waste characterisation generally involving site investigation reports which have already been undertaken to determine the history of the site and identify possible contaminants in the soil. Where sufficient data is not available a sampling programme is undertaken and laboratory analysis carried out to adequately characterise the contamination present. These investigations are normally carried out by third party consultants working for the land owner/developer. Where wastes are only to be exported (not remediated) the acceptance criteria will be based on the available outlets for the waste.

2. Acceptance & Transport

Material is normally transported to the facility in bulk (using consignment notes where the waste is hazardous) via a suitably permitted haulier and accepted onsite as per the soil acceptance procedure.

3. Preliminary Processing - Mechanical Screening

Wastes accepted for processing are normally screened to remove stone and mineral fractions with the remaining fines fraction then segregated and stockpiled depending on the intended process (i.e. treatment or storage pending onward shipment). The stone/mineral fraction is then tested and if required washed using dedicated washing equipment to remove contamination. Segregated stone fractions are stockpiled, sampled and undergo chemical parameter analysis and engineering test classification to ensure suitability for reuse prior to removal offsite as a general fill product.

Waste streams from washing of the stone/mineral fraction includes:

1. Wash-water: Wash-water is decanted from the wash-water settlement tank and reused in the washing system; Excess or saturated wash-water is transferred to the effluent treatment system for treatment on site;
2. Sediments: Sediments that settle out from the stone washing process are dewatered from the settlement tank and then undergo further treatment or recovery in our Soil & Grit Treatment process.

4. Treatment/Remediation

After preliminary processing, soil fines can undergo any of the following treatment / storage options:

1. Bioremediation (e.g. stimulation of existing or addition of microbial populations);
2. Soil Stabilisation (e.g. chemical oxidation or use of binding agents);
3. Storage/bulking with similar wastes pending onward shipment;
4. Soil washing (Proposed)

4.1 Bioremediation

Segregated fines suitable for bioremediation treatment are bulked together in preparation for the biological treatment process. Preparation may as necessary involve the addition of relevant micro-organisms, nutrients and conditioning agents which create the optimum growing conditions for the micro-organisms to metabolise the organic contamination.

Bioremediation treatment is a naturally derived process that involves the metabolism of petroleum hydrocarbons (or other biodegradable contaminants) producing less toxic compounds. The microorganisms used by Enva are naturally occurring (as distinct from genetically modified) and are organisms that are present in normal soils though at much lower numbers.

The bioremediation process takes place by controlling a number of parameters (nutrients, moisture and oxygen) within the soils to be treated thereby creating the optimum environment for microorganisms to multiply and metabolise organic pollutants present in the waste. This bioremediation process can reduce the time required to degrade organic pollutants from years to months and in the process represents a viable and clean technology to reduce pollution.

The Bioremediation process can take place over a period of weeks to months depending on the level of contamination or physical characteristics of the soil/waste matrix. During this time, liquid nutrients are added and the pH, temperature and moisture content of the treated material is monitored to ensure optimum conditions are maintained for the efficient metabolization of organic pollutants by the bacterial microorganisms. Mechanical aeration is a key element to this process as is the requirements for suitable ambient air temperatures.

Periods of low ambient temperatures can significantly reduce the metabolic rate of the microorganisms and hence slow down the bioremediation process.

Typically, for commercially treated wastes, the remediation process can take 2 months to achieve the desired levels prior to recovery offsite (though this would vary with the nature of the material and contamination present). Prior to removal offsite for recovery at permitted or licensed inert recovery facilities, all stockpiles are sampled based on the inert waste criteria specified in the soil management SOP. Stockpiles of wastes undergoing treatment are analysed for a full spectrum of relevant parameters including but not limited to Mineral Oil, Benzene, Toluene, Ethyl-Benzene & Xylene (BTEX) and Polycyclic Aromatic Hydrocarbons. In addition a leachate sample is generated for each of the samples and also analysed for relevant parameters.

Depending on the quality and physical characteristics of the material being processed, run-off/leachate can sometimes be produced during the bioremediation treatment. Any runoff/leachate generated during the bioremediation process is captured via a run-off contained drainage system and is normally recirculated back over the stockpile undergoing treatment as this liquid normally contains viable bacteria which can act to enhance and invigorate the bioremediation process within the stockpile undergoing treatment.

4.2 Physico-Chemical Stabilisation

Physico-Chemical Stabilisation involves chemical and/or physical remediation of bulk wastes/soils. The process includes the application of oxidising agents (e.g. peroxide) which are used to break down hydrocarbon compounds and can be particular useful technique where large complex hydrocarbons are present (as these are metabolised very slowly by microorganisms). Other techniques involve specially modified clays and/or specialist chemical stabilisation additives being applied to the waste for the effective remediation of inorganic contamination in soils. The stabilisation agents function by chemically reacting with and immobilizing a wide range of inorganic (and some organic) contaminants. The inorganic contaminants are chemically bound into the soil and are not bioavailable or able to leach out of the treated waste.

By using a specially selected mixture of modified clays and chemical stabilisation agents, these stabilisation techniques are used for the effective treatment of the following groups of contaminants:-

- Aromatic Hydrocarbons
- Aliphatic Hydrocarbons
- Heavy Metals
- Tributyltin

The ex-situ application of the technology as a stabilisation process incorporates the use of a purpose designed clay-additive slurry, which is mixed with the contaminated material using conventional plant and equipment. The treatment slurry is prepared in enclosed mixing tanks with rotating paddles, these would be located within the contained area of the remediation pads. The slurry is sprayed onto the waste as it is screened or otherwise processed (e.g. screening bucket) to ensure thorough mixing. The treated waste is then left to stabilise relevant contaminants are chemically fixed within the physical matrix of the treated material.

The treated material is monitored and analysed the removed offsite as waste for recovery or disposal to an approved outlet (e.g. typically to inert/non-hazardous landfill).

There is no separate waste streams produced as a result of the process.

4.3 Storage pending export

Storage pending export of bulk soil/waste within the soil facility is utilised when material is not suitable for treatment via bioremediation or stabilisation. Bulk wastes for export are stored in dedicated roofed contained storage areas at the facility pending export to approved outlets normally outside of Ireland for recovery or disposal. Bulk wastes are shipped to pre-approved destination facilities normally to other EU countries under Transfrontier Shipment License (TFS) and typically in consignments ranging in size from 2,500 – 4,000 tonnes.

4.4 Proposed Washing Process – Soil & Grit

The proposed process for washing of soils & grits (as well as other similar materials such as dredging waste, screenings etc.) will utilise specialist processing plant and equipment for the effective separation of the input waste into its constituent parts together with the separation of soluble and insoluble contaminants.

The proposed washing plant operates on the same principle as a washing plant utilised in the quarrying sector to separate input wastes into differently sized fractions (e.g. sand, clay and aggregate) from a pre-processed feedstock.

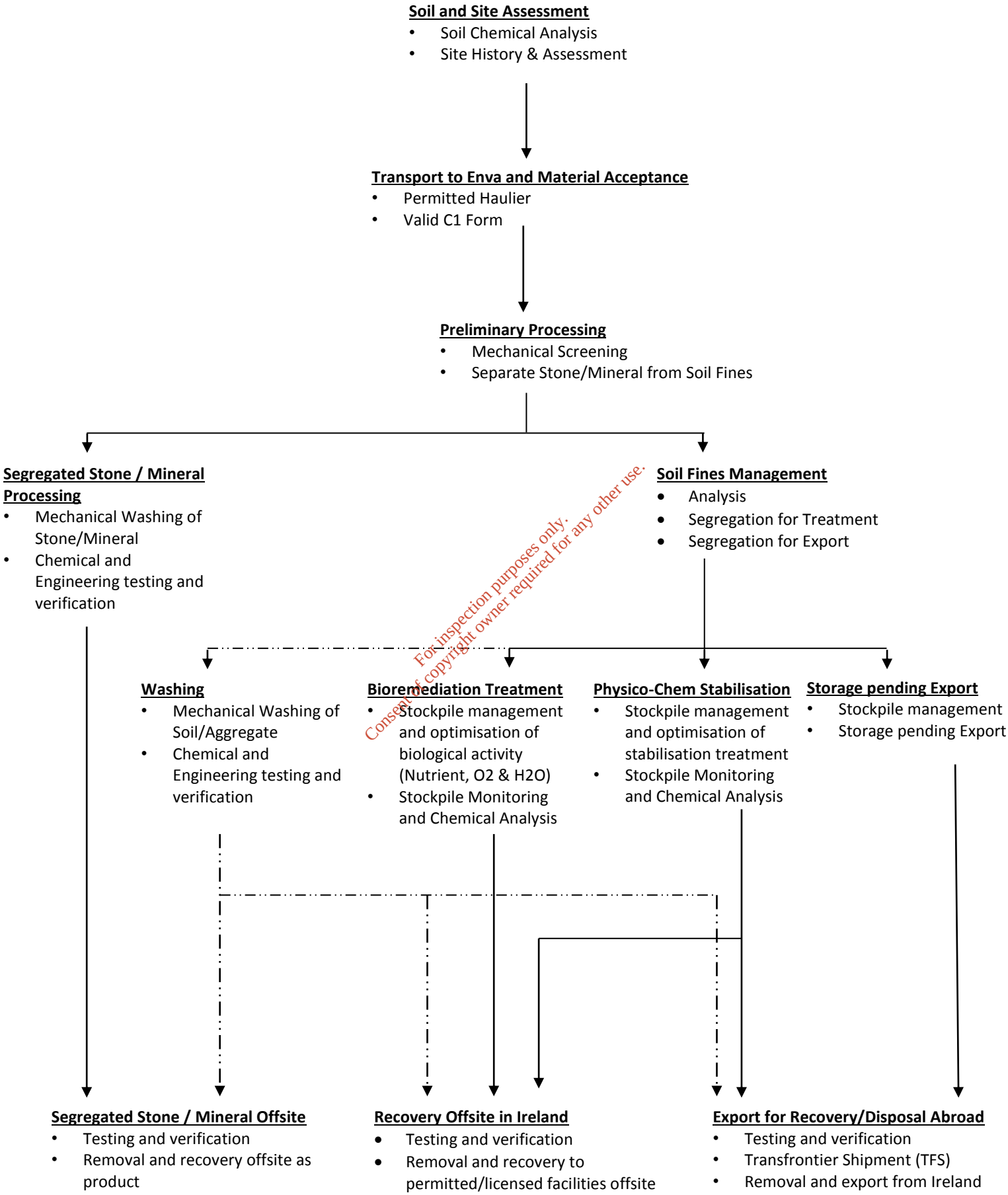
Washing would be carried out after the initial mechanical processing where separated fines would then be immersed in water and passed through a hydro-cyclone to separate sand and aggregate from the clay/organic fraction. While not normally required biodegradable surfactants may be added to the wash water to assist the washing process.

The sand and aggregate fraction would be passed over a dewatering bed to remove excess water where it would be then stockpiled and analysed pending removal offsite. If the sand & aggregate meet the necessary chemical and physical specifications they will be marketed for reuse as recovered materials. Wash-water from this process will be directed to the onsite oily water/effluent treatment system for processing prior to discharge to sewer.

The clay/organic fraction extracted from the washing stage of the process will be directed to dewatering equipment (e.g. settlement,/filtering/centrifuge). Soluble pollutants are removed into the effluent which is then managed as per the wash-water process above. Insoluble pollutants are bound in the clay/organic cake produced from the centrifuge. This clay fraction is then stockpiled and analysed for its suitability for inclusion in additional treatment process (e.g. stabilisation, bioremediation) or export.

Washing of soils and other bulk waste streams to remove soluble and insoluble pollutants is a recognised and very effective process for the treatment and decontamination of polluted soils. Soil with clay fractions up to 30% can be effectively remediated through the process. By-products produced from the process would usually include:

1. Clean Sand – Suitable for reuse recovery offsite (45% of feedstock);
2. Clean aggregates – Suitable for reuse recovery offsite (25% of feedstock);
3. Dewatered clay fraction – Suitable for further treatment or export (20% of feedstock);
4. Process wash-water – suitable for reuse in the washing plant or discharge from site after treatment.



Question 8: *Provide a detailed analysis of the waste types accepted at the installation in the last 3 years and the treatment process to which they are subjected at the installation.*

Response:

Waste volumes accepted on site for the previous 3 years and 2016 year to date are included in Tables 8.1 to 8.4 below.

As a complete stock balance is carried out annually, 2016 treatment figures are those which are available at this point.

Table 8.1: Waste types accepted for the Reporting year 2016 (Year to date)

List of Waste (LoW) code	Quantity accepted (tonnes)	Treatment process	Treatment Output
17 05 03*	1304.8	Biological/physico/chemical remediation	Non hazardous Soil for recovery or inert landfill. EWC 17 05 04 Recovered Stone for reuse as general fill
13 01 10*	5.8	Recovery of oil as fuel	Recycled Fuel oil product - End of waste
13 02 08*	4826.99		
13 05 01*	49.64		
13 05 02*	5.24		
13 05 03*	88.82		
13 05 07*	210.538		
13 05 08*	129.94		
13 08 02*	122.34		
13 08 99*	1.757		
16 07 08*	8.149		
08 01 11*	155.81	Sorting, shredding/ crushing/ compacting, mixing and or repackaging prior to onward recovery/disposal	Sent for onward recovery for use as a fuel - EWC 08 01 11*
08 01 12	2.073		Sent for onward recovery for use as a fuel - EWC 08 01 12*
08 03 08	6.059		Sent for onward recovery for use as a fuel - EWC 08 03 08*
08 03 12*	3.169		Sent for onward recovery for use as a fuel - EWC 08 03 12*
08 03 13	3.649		Sent for onward recovery for use as a fuel - EWC 08 03 13*
08 04 09*	0.075		Sent for onward recovery for use as a fuel - EWC 08 04 09*
16 01 07*	178.371		Exported off site for recovery - EWC 16 01 07*
15 01 10*	30.137		Not available
20 01 27*	17.973		
02 01 08*	0.04		
09 01 02*	1.641		
13 07 01*	159.32		
13 07 02*	6.28		
13 07 03*	10.25		
15 02 02*	114.735		
16 01 12	4.895		
16 01 13*	3.123		
16 01 14*	2.28		
16 01 15	15.479		
16 01 22	0.02		
16 05 04*	9.349		
16 05 06*	1.559		
16 05 08*	1.08		
16 06 01*	197.297		
16 06 05	0.666		
18 01 09	0.342		
20 01 19*	0.914		
20 01 21*	0.824		
20 01 25	10.22		
20 01 40	43.199		
20 03 06	2		
16 10 02	18.02		

Table 8.2: Waste types accepted for the Reporting year 2015			
List of Waste (LoW) code	**Quantity accepted (tonnes)**	**Treatment process**	**Treatment Output**
13 05 01*	366.8	Biological/physico/chemical remediation	Non hazardous Soil for recovery or inert landfill. EWC 17 05 04 Recovered Stone for reuse as general fill
17 05 03*	5,745.00		
13 05 02*	22.36		
13 02 08*	17,852.00	Recovery of oil as fuel	Recovered Fuel oil product
13 05 03*	398.52		
13 08 02*	234.76		
13 01 13*	5.43		
13 05 08*	75.91		
13 01 10*	2.75		
13 05 07*	0.05		
13 03 07*	2.04		
13 01 11*	0.73		
16 01 07*	696.82	Sorting, shredding/ crushing/ compacting, mixing and or repackaging prior to onward recovery/disposal	Exported off site for recovery - EWC 16 01 07*
08 01 11*	657.84		Sent for onward recovery for use as a fuel - EWC 08 01 11*
08 01 12	20.63		Sent for onward recovery for use as a fuel - EWC 08 01 11*
08 01 17*	1.45		Sent for onward recovery for use as a fuel - EWC 08 01 17
13 08 99*	11.26		Exported off site for recovery or disposal
08 01 13*	18.85		
20 01 21*	2.52		
16 06 01*	686.75		
15 02 02*	436.179		
16 07 08*	34.568		
16 01 13*	8.91		
13 07 03*	127.50		
13 07 02*	19.68		
16 05 04*	31.12		
09 01 02*	1.71		
15 01 10*	128.68		
20 01 27*	20.35		
08 04 09*	0.199		
16 05 06*	11.82		
16 05 08*	22.62		
08 03 12*	17.924		
06 02 04*	0.66		
20 01 19*	0.73		
10 01 04*	0.37		
16 01 14*	10.26		
20 01 14*	6.61		
08 03 13	13.53		
08 03 08	11.37		
16 01 12	17.983		
20 01 25	62.077		
16 10 02	3.96		
16 01 15	184.28		
16 06 05	0.425		
16 05 09	0.04		
20 01 40	161.823		
16 01 22	0.22		
19 09 04	25.28		
07 05 11*	3.96		
16 06 04	0.10		
18 01 09	0.30		
20 01 28	0.28		
20 03 03	15.14		

Table 8.3: Waste types accepted for the Reporting year 2014			
List of Waste (LoW) code	**Quantity accepted (tonnes)**	**Treatment process**	**Treatment Output**
13 05 01*	316.8	Biological/physico/chemical remediation	Non hazardous Soil for recovery or inert landfill. EWC 17 05 04 Recovered Stone for reuse as general fill
17 05 03*	1,583.92		
13 05 02*	101.20		
17 05 04	80.54		
13 02 08*	16,407.00	Recovery of oil as fuel	Recovered Fuel oil product
13 05 03*	344.19		
13 08 02*	33.64		
13 01 13*	4.51		
13 05 08*	10.94		
13 02 05*	5.48		
13 01 10*	4.02		
13 03 10*	3.92		
08 01 13*	18.28	Sorting, shredding/ crushing/ compacting, mixing and or repackaging prior to onward recovery/disposal	Sent for onward recovery for use as a fuel - EWC 08 01 13*
08 04 13*	3.77		Sent for onward recovery for use as a fuel - EWC 08 04 13*
16 01 07*	641.62		Exported off site for recovery - EWC 16 01 07*
08 01 11*	462.68		Sent for onward recovery for use as a fuel - EWC 08 01 11*
08 01 12	16.95		Sent for onward recovery for use as a fuel - EWC 08 01 12
13 08 99*	1.26		Exported off site for recovery or disposal
20 01 21*	1.82		
16 06 01*	995.79		
15 02 02*	420.452		
16 07 08*	40.219		
16 01 13*	7.99		
13 07 03*	114.53		
13 07 02*	6.56		
16 05 04*	21.55		
09 01 02*	1.65		
15 01 10*	109.13		
20 01 27*	0.82		
08 04 09*	3.01		
16 05 06*	12.60		
16 05 08*	6.90		
17 02 04*	0.13		
08 03 12*	18.624		
06 02 04*	0.029		
20 01 19*	7.35		
10 01 04*	282.00		
06 03 15*	6.35		
16 01 14*	41.17		
20 01 14*	0.84		
19 11 05*	4.00		
08 03 13	3.45		
08 03 08	6.39		
16 01 12	22.428		
20 01 25	69.469		
16 10 02	2.28		
16 01 15	167.62		
16 05 05	0.04		
16 06 05	0.388		
16 05 09	2.11		
20 01 40	164.508		
16 01 22	0.47		
19 09 04	16.36		

Table 8.4: Waste types accepted for the Reporting year 2013			
List of Waste (LoW) code	**Quantity accepted (tonnes)**	**Treatment process**	**Treatment Output**
17 05 03*	4,830.89	Biological/physico/chemical remediation	Non hazardous Soil for inert landfill. EWC 17 05 04 Stone produced -End of waste
13 02 08*	19,395.00	Recovery of oil as fuel	Recovered Fuel oil product
13 08 99*	3.60		
13 01 13*	2.16		
13 04 03*	11.25		
13 05 07*	0.50		
13 02 05*	0.04		
13 07 01*	12.35		
13 05 03*	88.27	Sorting, shredding/ crushing/ compacting, mixing and or repackaging prior to onward recovery/disposal	Exported off site for recovery or disposal
13 08 02*	7.80		
13 05 01*	89.28		
08 01 13*	1.49		
08 04 15*	0.55		
05 01 03*	30.63		
20 01 21*	1.79		
16 01 07*	659.74		
16 06 01*	855.60		
15 02 02*	407.721		
16 07 08*	30.08		
16 01 13*	9.09		
13 07 03*	57.76		
13 07 02*	0.92		
16 05 04*	20.12		
08 01 11*	318.39		
09 01 04*	0.731		
09 01 02*	0.90		
15 01 10*	178.98		
16 05 07*	0.29		
20 01 27*	4.30		
08 04 09*	0.095		
16 05 06*	37.21		
16 05 08*	0.95		
06 02 05*	0.00		
14 06 03*	0.00		
17 02 04*	0.00		
08 03 12*	5.88		
07 01 04*	0		
06 02 04*	5.46		
20 01 19*	0.00		
06 01 03*	0.00		
10 01 04*	0.00		
12 01 09*	0.99		
06 04 05*	45.34		
06 03 15*	13.72		
16 01 21*	28.75		
16 01 14*	2.12		
20 01 14*	0.02		
08 03 14*	1.76		
06 01 06*	2.12		
13 01 10*	3.66		
16 01 12	26.409		
20 01 25	69.17		
08 04 16	74.32		
16 10 02	0.00		
08 04 10	0.49		
16 01 15	153.51		
16 06 05	0.5		
16 05 09	1.58		
20 01 40	73.426		
16 01 03	0		
17 05 04	100.06		
20 03 06	22.28		
19 08 05	0.00		
19 08 02	24.06		
16 01 22	0.68		
07 05 11*	0		
19 09 04	40.42		
20 01 36	0.01		
16 01 19	0.54		
02 07 04	10.48		
19 02 06	47.32		