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TO: Natural Resources Wales

Morganite Special Carbons Ltd

SURFACE WATER RISK ASSESSMENT

Upper Fforest Way, Morriston, Swansea

1. Introduction

Morganite Special Carbons Ltd (Morganite hereafter)are required to make a formal response to a Regulation 60 request relating to the release of toxic metals to surface water.

The specific requirements associated with the Regulation 60 Notices are:

1) *For all discharges to surface water from the site, you must provide emissions data following for the following hazardous pollutants:*
   - *Cadmium;*
   - *Mercury;*
   - *Nickel;*
   - *Lead;*
   - *Benzene;*
   - *Polyaromatic hydrocarbons; and*
   - *Other relevant substances.*

   The emissions monitoring for these substances must be carried using the methods and standards described within the M18 guidance on 'Monitoring of discharges to water and sewer'.
2) *With reference to the risk assessment guidance, carry out the following guidance:*
   - *Screening tests for mercury, cadmium, nickel, lead, benzene, polyaromatic hydrocarbons and any other relevant substances.*
   - *For any substance that is not screened out by the screening test, you will need to carry out modelling, as described in the risk assessment 'Surface Water Risk Assessment for your Environmental Permit'.*

In accordance with the above request, Morganite have carried out a Surface Water Risk Assessment in accordance with the risk assessment guidance on the gov.uk website entitled "*Surface water pollution risk assessment for your environmental permit*".

A screening test has been carried out below using the following tables provided within the guidance:

- Fresh water specific pollutants and operational environmental quality standards (EQS); and
- Fresh waters priority hazardous substances, priority substances and other pollutants.

2. Site Activities

Morganite are permitted to operate an existing Part A(1) 'Non Ferrous Metals' Installation for their electrical carbon facility in Morriston, Swansea.

The Installation is regulated under Chapter 2 'Production and Processing of Metals', Section 6.2 Part A(1)(a) – '*Production of carbon or hard burned coal by means of incineration or graphitisation*';

Due to the unique nature of the processing activities carried out by Morganite a range of BAT Clauses are considered to apply across the Carbon/Graphite and the Lead/Copper production requirements.

The Morganite process is essentially a small scale carbon blending, pressing and impregnation process which in the course of uses kilns to fire pressed carbon blends to produce a carbonised product suitable for machining and assembly. The final product contains a number of metals most notably copper and lead, both of which are essential for the physical and electric properties of the final end product, namely carbon brushes and electrical contacts.

Although the manufacturing processes utilise lead and copper containing compounds, there are no process related discharges to controlled waters nor groundwater. The company does not store any raw materials or finished product in any external areas.

The nature of the storage (internally stored small sealed bags and barrel utilises) ensure that the potential for fugitive emissions and/or contaminated runoff is minimised.

All external areas of the site are constructed of sealed impermeable hardstanding. All surface water is discharged to a central containment reservoir and over pumped to controlled waters as required.

3. Screening Test

The first stage of the screening test does not identify any pollutants which are discharged from site. For completeness, the EQS table are shown in Table 1.1 and Table 1.2 below.

Table 1.1: Screening Test Against Fresh Water Specific Pollutants and Operational Environmental Quality Standards (EQS)

Hazardous Pollutants	Discharged by Process (Y or N)
Abamectin	N
Ammonia (un-ionised)	N
Arsenic	N
Azinphos-methyl – dissolved	N
Bentazone	N
Benzyl butyl phthalate	N
Biphenyl	N
Boron	N
Bromine - total residual oxidant	N
Bromoxynil	N
Carbendazim	N
Chloride	N
Chlorine - total residual oxidant	N
4-chloro-3-methylphenol	N
Chloronitro toluenes	N
2-chlorophenol	N
3-chlorophenol 4-chlorophenol total or individual monochlorophenols	N
Chlorothalonil	N
Chlorotoluron	N
Chlorpropham	N

Chromium (III) – dissolved	N
Chromium (VI) – dissolved	N
Cobalt – dissolved	N
Copper – dissolved	Compound use in process but not discharged to water
Coumaphos	N
Cyanide	N
Cyfluthrin	N
Cypermethrin	N
Demetons	N
Diazinon (sheep dip)	N
Dibutyl phthalate	N
3,4-dichloroaniline	N
Dichlorobenzene - total dichlorobenzene isomers	N
2,4-dichlorophenol	N
2,4-dichlorophenoxyacetic acid (2,4-D)	N
Dichlorvos	N
Diethyl phthalate	N
Diflubenzuron	N
Dimethoate	N
Dimethyl phthalate	N
Dioctyl phthalate	N
Doramectin	N
EDTA	N
Fenchlorphos	N
Fenitrothion	N
Flucofuron	N
Fluoride – dissolved	N
Formaldehyde	Potentially released to air by process – but no potential for release to water
Glyphosate	N
Hydrogen sulphide	N
Ioxynil	N
Iron – dissolved	N
Ivermectin	N
Linuron	N
Malachite green	N
Malathion	N
Mancozeb	N
Maneb	N
Manganese	N
MCPA	N
Mecoprop	N

Methiocarb	N
Mevinphos	N
Nitrilotriacetic acid (NTA)	N
Omethoate	N
PCSDs	N
Pendimethalin	N
Permethrin	N
pH	N
Phenol	N
Pirimicarb	N
Pirimiphos-methyl	N
Prochloraz	N
Propetamphos	N
Propyzamide	N
Silver – dissolved	N
Sulcofuron	N
Sulphate	N
Styrene	N
Tecnazene – total	N
Tetrachloroethane	N
Thiabendazole	N
Tin (inorganic) - total	N
Toluene	N
Total anions	N
Triallate	N
Triazaphos	N
Tributyl phosphate	N
1,1,1-trichloroethane	N
Triclosan	N
Triphenyltin and derivatives	N
1,1,2-trichloroethane	N
Vanadium	N
Xylene	N
Zinc - dissolved plus ambient background concentration	N

Table 1.2: Screening Test Against Fresh Priority Hazardous Substances, Priority Substances and Other Pollutants	
Hazardous Pollutants	Discharged by Process (Y or N)
Alachlor	N
Anthracene	N
Atrazine	N
Benzene	N
Benzo(a)-pyrene (BaP)	N

Benzo(b)-fluor-anthene	N
Benzo(k)-fluor-anthene	N
Benzo(g,h,i)-perylene	N
Brominated diphenylether	N
Cadmium and its compounds - dissolved	N
Carbon tetrachloride	N
Chlorfenvinphos	N
C10-13 chloroalkanes	N
Chlorpyrifos (chlorpyrifos-ethyl)	N
Cyclodiene pesticides	N
DDT total	N
Para-para-DDT	N
1,2-dichloro-ethane	N
Dichloro-methane	N
Di(2-ethylhexyl)-phthalate (DEHP)	N
Diuron	N
Endosulphan	N
Fluoranthene	N
Hexachloro-benzene	N
Hexachloro-butadiene	N
Hexachloro-cyclohexane	N
Indeno(1,2,3-cd)-pyrene	N
Isoproturon	N
Lead and its compounds – dissolved	Compounds use in process by not discharged to water.
Mercury and its compounds - dissolved	N
Naphthalene	N
Nickel and its compounds - dissolved	N
Nonylphenol (4-nonylphenol)	N
Octylphenol (4-(1,1',3,3'-tetramethyl-butyl)-phenol)	N
Pentachloro-benzene	N
Pentachloro-phenol	N
Polyaromatic hydrocarbons (PAH)	N
Simazine	N
Tetrachloro-ethylene	N
Tributyltin compounds (tributyltin-cation)	N
Trichloro-benzenes	N
Trichloro-ethylene	N
Tricholoro-methane (chloroform)	N
Trifluralin	N

4. Conclusions

Due to the site not releasing any of the identified hazardous pollutants, it is neither possible nor necessary to carry out a full surface water risk assessment.

Morganite does not release any hazardous pollutants from any aspect of their process. There is no waste water generated by the plant. All infrastructure at the site is sealed and controlled. Any diffuse emissions [accidentally] entering the surface water system are controlled through the use of a settlement lagoon and three stage, oil water and sediment interceptors.

There are no discharges to surface water from the site beyond uncontaminated 'clean' surface water.

The lack of any process effluent discharges from the process, rules out the potential for releases of hazardous (toxic metals [Cd, Hg, Ni, Pb], benzene, polyaromatic hydrocarbons) pollutants.

No further risk assessment is considered necessary.

A BAT Assessment has been carried out which indicates that the site is using BAT for all aspects of its operation, including surface water discharge.