

Mr. Daniel Kirk  
Environment Agency  
By email only

Friday 12 January 2024

Ref: K0182-LT-001

Re: Edwin Richards Quarry Soil Treatment Centre, Rowley Regis – K0182  
EPR/HP3632RP/V005 Not Duly Made Response

Dear Mr Kirk,

Please see below our response to the Not Duly Made questions issued by the Environment Agency (the Agency) on 13<sup>th</sup> December 2023 for the application to vary the Environmental Permit (EPR/HP3632RP) for the Soil Treatment Centre (STC) at Edwin Richards Quarry, Portway Road, Warley, B65 9BT (the Site).

For ease we repeat the Agency questions below with our responses provided in blue.

### **Agency Comments Concerning Fees**

Unfortunately, the application payment you sent is incorrect. You have submitted a revision to the application to add soil washing activities which has changed the original application fee to a revised fee of £74,761.

In addition, the calculation of the fee is not correct and therefore needs to be reviewed as outlined below.

Table 3 of application document Permit Variation Application Report No. K0182-BLA-R-ENV-00001 revision 2 provides a calculation of the application fee. The following fees are incorrect.

S5.6 A(1)(a) - ref 1.16.4 - Minor technical variation you have paid £1,600.10.

See page 60 of our charging scheme.

[The Environment Agency \(Environmental Permitting and Abstraction Licensing\) \(England\) Charging Scheme 2022 \(publishing.service.gov.uk\)](#)

The correct fee is £4,056.

Waste operation ref 1.16.12 variation to add a new activity, you have currently paid £3,965.

Please see section our guidance 3.8 'Add an activity to an existing permit'. If you want to vary your permit to add a new activity, you must pay the charge for a new activity.

[Environmental permits: when and how you are charged - GOV.UK \(www.gov.uk\)](#)

The correct fee is £7,930.

Based on this calculation the variation application fee should be recalculated to £81,182

**We have currently received £51,595.00. The revised application fee is £81,182. This leaves an outstanding balance of £29,587 to be paid before we can continue to work on your application.**

The additional fee of £29,587.10 has been paid via BACS transfer on 12<sup>th</sup> January 2024 under payment reference EPR/HP3632RP/V005 in error. We should be grateful for confirmation that this has been received.

### 1) Application fee abatement figures

For your proposed non-hazardous soil washing activity (waste operation) charging ref 1.16.12, you have currently stated that a 10% fee of £793 applies. As your abatement demonstration is for a new bespoke permit to include the waste operation as an activity which is similar to other operations, this would be a 50% fee. The correct application fee is £3,965.

**Please revised your new bespoke permit fee example in order to allow us to take the correct figure into account in the event of fee abatement.**

Table 1 of the Application Report (Report Ref: K0182-BLA-R-ENV-00001 Rev 3) has been revised to reflect the fee for item 1.16.2 as above.

### 2) Management plans abatement figure fee

You have stated that “The Agency has previously agreed to not charge the additional assessment charges where the application fee is subject to time and materials assessment as part of an abatement request.” This is not something which is stated in our charging scheme or guidance and may have been a case specific basis. Under our charging scheme management plans fees will need to be submitted unless stated otherwise in this guidance.

[Environmental permits and abstraction licences: tables of charges - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/environmental-permits-and-abstraction-licences-tables-of-charges)

You have requested we charge using time materials and abate as required. This time and materials assessment needs to acknowledge that 3 management plans need to be assessed. This must be accounted for in the new permit application charge fee example so we can take it into account when assessing whether an abatement is required.

**Please confirm the management plan fees for the noise management plan, odour management plan and emissions management plan as requested in Part F of the application form and recalculated the new bespoke application permit charge for abatement example.**

[Application for an environmental permit \(charges and declarations\): part F1 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/application-for-an-environmental-permit-charges-and-declarations-part-f1)

Table 1 of the Application Report (Report Ref: K0182-BLA-R-ENV-00001 Rev 3) has been revised to reflect the fees payable for the noise, odour and emissions management plans as above. Form

F1 has also been updated to reflect the management fees payable and a copy is provided at Appendix A of the reissued Application report.

## Agency Comments Concerning Technical Issues

### 3) Air emissions - bioremediation

Industrial Emission Directive IED Article 12 requires the nature and quantities of foreseeable emissions from the installation into each medium as well as identification of significant effects of the emissions on the environment.

The proposed increase in the amount of waste to be processed and addition of a bioremediation area served by an additional biofilter has the potential to impact on air emissions. The impact on air emissions from this change need to be quantified and the significance of the effects determined. The approach for this is outline in our application form and guidance (See below)

[Air emissions risk assessment for your environmental permit - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

[Application for an environmental permit: part C3 vary a bespoke installation permit - GOV.UK](http://www.gov.uk)

[https://checkpoint.url-protection.com/v1/url?o=www.gov.uk&g=ZGU1ODM3Yzc2Nzk0YzQzNw==&h=MmZhZjI1ZTk0ZjQxMzkxZWQ1YTM5OTM5ODVhNTY0YzBkZTRjZGZjNTIhNDQ5YmE0ZDgzMTJjYmJmNTQxYTM5Nw==&p=YzJlOmF5ZXNhOmM6bzpkNGJmN2I4NGQ1NzFmNjc3MjVhNjUxNTVmY2ZlMDBlZlZp2MTp0OIQ=\)](https://checkpoint.url-protection.com/v1/url?o=www.gov.uk&g=ZGU1ODM3Yzc2Nzk0YzQzNw==&h=MmZhZjI1ZTk0ZjQxMzkxZWQ1YTM5OTM5ODVhNTY0YzBkZTRjZGZjNTIhNDQ5YmE0ZDgzMTJjYmJmNTQxYTM5Nw==&p=YzJlOmF5ZXNhOmM6bzpkNGJmN2I4NGQ1NzFmNjc3MjVhNjUxNTVmY2ZlMDBlZlZp2MTp0OIQ=))

[https://checkpoint.url-protection.com/v1/url?o=www.gov.uk&g=ZGU1ODM3Yzc2Nzk0YzQzNw==&h=MmZhZjI1ZTk0ZjQxMzkxZWQ1YTM5OTM5ODVhNTY0YzBkZTRjZGZjNTIhNDQ5YmE0ZDgzMTJjYmJmNTQxYTM5Nw==&p=YzJlOmF5ZXNhOmM6bzpkNGJmN2I4NGQ1NzFmNjc3MjVhNjUxNTVmY2ZlMDBlZlZp2MTp0OIQ=\)](https://checkpoint.url-protection.com/v1/url?o=www.gov.uk&g=ZGU1ODM3Yzc2Nzk0YzQzNw==&h=MmZhZjI1ZTk0ZjQxMzkxZWQ1YTM5OTM5ODVhNTY0YzBkZTRjZGZjNTIhNDQ5YmE0ZDgzMTJjYmJmNTQxYTM5Nw==&p=YzJlOmF5ZXNhOmM6bzpkNGJmN2I4NGQ1NzFmNjc3MjVhNjUxNTVmY2ZlMDBlZlZp2MTp0OIQ=))

**For releases to air from the bioremediation process, submit an assessment of the impact your proposal will have on air emissions. This must include:**

**a) A quantification of changes to air emissions as a result of these proposals.**

**b) An assessment of the significance of the effects in line with our guidance (link above)**

**Note this can be in the form of a H1 risk assessment tool.**

The Agency's H1 risk assessment tool version 8 (H1 tool) was downloaded from the Agency's website. The H1 tool was used because it provides a conservative methodology that gives 'worst case' estimates.

The proposed new soil treatment area will reflect the current operations on the bioremediation pad already located at the STC.

The current covered biofilter is 20 m by 4 m, air from the bioremediation process is forced through the biofilter for abatement prior to discharge to atmosphere. The new biofilter, which will serve the new soil treatment area, will be similar in size and design to the existing biofilter utilising a wood medium filter. The biofilter design allows for a low rate of air flow through the biofilter media with a large surface area to intercept and/or treat particulates and odours.

The current biofilter is monitored in accordance with Table S3.1 of the existing environmental permit which requires monthly monitoring for Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), and Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX). The Agency's H1 risk assessment tool version 8 has been used to assess two point source emissions (i.e. the current biofilter and the new biofilter). The two emission points have been as a combined operation and the combined emissions of two biofilters. Emissions are based on the average and

maximum concentrations reported in 2023 for the current biofilter presented in Table 1. Flow and velocity are based on the maximum designed performance of the two biofilters presented in Table 2.

**Table 1 Air Emissions from Biofilter (based on data from January to September 2023)**

Release point	Parameter	Long term concentration mg/m <sup>3</sup>	Short term concentration mg/m <sup>3</sup>
Biofilter 1	Benzene (24h mean)	0.003	0.0118
Biofilter 1	Ethylbenzene	0.008	0.03
Biofilter 1	Naphthalene (24h mean)	0.004	0.006
Biofilter 1	Polycyclic aromatic hydrocarbons (PAH)-total content within PM10 fraction	0.111	0.118
Biofilter 1	Toluene	0.03	0.04
Biofilter 1	Xylene, o-, m-, p- or mixed isomers	0.038	0.15
Biofilter 2	Benzene (24h mean)	0.003	0.0118
Biofilter 2	Ethylbenzene	0.008	0.03
Biofilter 2	Naphthalene (24h mean)	0.004	0.006
Biofilter 2	Polycyclic aromatic hydrocarbons (PAH)-total content within PM10 fraction	0.111	0.118
Biofilter 2	Toluene	0.03	0.04
Biofilter 2	Xylene, o-, m-, p- or mixed isomers	0.038	0.15

**Table 2 Air Emissions Flow**

Release Point	Parameter	Input	Comment
Biofilter 1 & Biofilter 2	Effective height (m)	0	
	Total Flow (m <sup>3</sup> /hr)	10,000	Usual flow is approximately 3,000 m <sup>3</sup> /hr however the blowers are rated at 10,000 m <sup>3</sup> /hr.
	Efflux velocity (m/s)	0.035	Efflux velocity based on area of biofilter and flow.

The H1 tool shows the air emissions pass Test 1 and no further assessment is proposed to be undertaken for the point source emissions. The H1 tool Test 1 results are provided at Table 3.

**Table 3 H1 Tool Emissions to Air Test 1**

Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	%PC of EAL (long term)	>1% EAL (long term)	Short term EAL (ug/m3)	Short term PC (ug/m3)	%PC of EAL (short term)	>10% EAL (short term)
Benzene (24h mean)	5	0.00247	0.05%	pass	30	0.1508	0.50%	pass
Ethylbenzene	4410	0.00658	0.00%	pass	55200	0.65	0.00%	pass
Naphthalene (24h mean)	0	0.00329			3	0.0767	2.56%	pass

Substance	Long term EAL (ug/m3)	Long term PC (ug/m3)	%PC of EAL (long term)	>1% EAL (long term)	Short term EAL (ug/m3)	Short term PC (ug/m3)	%PC of EAL (short term)	>10% EAL (short term)
Polycyclic aromatic hydrocarbons (PAH)		0.09127				2.5567		
Toluene	1910	0.0247	0.00%	pass	8000	0.8667	0.01%	pass
Xylene, o-, m-, p- or mixed isomers	4410	0.0312	0.00%	pass	66200	3.25	0.00%	pass

The additional point source emission to air from the proposed new biofilter poses a negligible impact on air emissions as shown in the H1 tool.

The new and current biofilter emissions will be monitored in accordance with Table S3.1 of the Permit. Process monitoring of the biofilter to ensure performance is required to be undertaken in accordance with Table S3.3 of the Permit.

#### 4) Water Discharge Releases

You have provided a H1 assessment which includes a sample of effluent from bioremediation and soil washing process waters. It is however not made clear how this sample takes into account the increased waste processing tonnes and larger areas over which bioremediation will be undertaken. It needs to be clear how these changes could impact on the concentration and quantities of parameters in the sewer discharge. It is also not clear how you have assessed any specific hazardous pollutant that could be impacted by the changes proposed under this variation.

**Provide a justification for the parameters included in your H1 assessment and demonstrate you have fully assessed all the parameters in the discharge which could potentially be affected by increased emissions as a result of the increased annual tonnage for treatment via bioremediation and the increased area used for bioremediation.**

#### Overview of discharge from STC

Any treated process water from the bioremediation process is currently discharged to sewer under trade effluent consent reference: 007504V which also allows for the discharge of treated leachate from the Leachate Treatment Plant for the Edwin Richards Quarry landfill. The consent allows a maximum daily discharge of 400 m<sup>3</sup>/day and a maximum flow rate of 11 litres/second. An application has been submitted for a separate trade effluent consent application solely for the Soil Treatment Facility at the request of the Environment Agency. The trade effluent consent application proposes a volume of 100 m<sup>3</sup>/day and maximum flow rate of 2 litres/second applicable to only effluent from the STC. The effluent discharge will comprise process water from the bioremediation process post treatment and soil wash water post treatment.

As noted in the application the annual tonnage change will not impact on the treatment capacity of the current bioremediation area at the STC which is limited by the capacity of biopiles and duration of treatment. The additional bioremediation / soil washing area will allow additional treatment capacity and this has been factored in to the discharge volume and maximum flow rate modelled within the H1 tool.

The combined discharge will comprise either bioremediation process water from two soil bioremediation areas (existing and proposed) or a combination of soil wash water and bioremediation process water (new soil wash area and existing bioremediation area).

The process water from the washing of soils containing heavy metals will have a composition that reflects the heavy metals within the soils. The most reported heavy metals are arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

A core purpose of the bioremediation treatment process is to ensure that the hydrocarbon content of any effluent fluids contain negligible hydrocarbons. The ammoniacal-N content is typically low. However, as ammoniacal-N is an added nutrient used to stimulate the biodegradation process, there will always be a control on the quantity of ammonium that could potentially be present in a discharged effluent. Ammoniacal-N is therefore also monitored for process control purposes.

### ***On-site treatment***

The soil wash water is to be treated by a water treatment plant where the water is mixed with flocculant and allowed to separate in the bespoke lamella system. The flocculation is capable of removing heavy metals from solution. The clean overflow water then passes into the clean water tank where it is stored ready to be pumped under pressure back to the log-washer unit for use in the process.

The process water from the biopiles is treated via separation and filtration to remove residual hydrocarbons as summarised below.

- Settlement tank – physical separation
- Oil water separator tanks – physical separation
- Sand filter – filtration
- Granular activated carbon filter – filtration and treatment.

The on-site treatment has been designed to effectively treat the process water from the bioremediation and soil washing processes to facilitate recirculation to maximise water re-use in activities that are water intensive. Any surplus process water once treated is to be discharged to sewer. The current permitted activities on the site resulted in discharges of 3,341 m<sup>3</sup> of effluent to sewer in 2022 and 3,667 m<sup>3</sup> in 2023 (up to November 2023) which equates to approximately 10 m<sup>3</sup>/day.

### **H1 risk assessment tool**

The surface water risk assessment tool submitted with the application has been updated using the Agency's H1 risk assessment tool version 8 and to include the air emissions assessment addressed in response to question 4.

The H1 tool reflects the total discharge volume from both the existing and proposed soil treatment areas and reflects the maximum discharge to sewer that will occur from the entire STC (100 m<sup>3</sup>/day and maximum flow rate of 2 litres/second). This is considered a very conservative approach when considering the historical discharge volumes, which are generally much lower than this.

The surface water risk assessment and subsequent H1 tool modelled substances routinely tested in the bioremediation process at the site using data reported in 2022 / 2023 and data from the soil wash water from similar sites operated by Operator. Data was available for treated and untreated

soil wash water and for conservatism the maximum concentrations were used in the H1 tool to account for the lack of data available. Only substances tested for and those listed within the H1 tool have been modelled.

The list of substances used in the tool are presented below in Table 4 with the corresponding maximum concentrations. For conservatism the maximum concentrations were used for the average concentration.

The effluent discharge to sewer is subsequently treated at Severn Trent Ray Hall Treatment Works which uses Biological Sand Filtration Treatment prior to discharge to the River Tame. Sewage treatment reduction factors applicable to filtration were taken from the spreadsheet available on the gov.uk website.

**Table 4 Maximum concentrations for soil wash water and bioremediation process water – H1 tool**

Substance	Soil washing process water max conc(µg/l)	Bioremediation process water max conc (µg/l)	H1 tool input - modelled average and maximum effluent conc, (µg/l)	STRF proportion remaining
Ammonia (un-ionised)	80	50,000	50,000	0.08
Arsenic	9.3	1.3	9.3	0.89
Boron	260	150	260	
Cadmium and its compounds (dissolved, water hardness < 40 mg/l Ca CO3)	0.96	0.11	0.96	0.89
Chloride	150,000	20,000	150,000	1
Chromium III (95%ile) (dissolved)	5	8.7	8.7	0.16
Copper - bioavailable	80	37	80	0.58
Cyanide	10	140	140	0.32
Iron (dissolved)	440	63	440	0.48
Lead and its compounds (dissolved)	18	0.83	18	0.67
Manganese	0.2	0.05	0.2	
Mecoprop (95%ile)	Not tested	0.08	0.08	1
Mercury and its compounds (dissolved)	23	2	23	1
Nickel and its compounds (dissolved)	40	36	40	1
Sulphate	340,000	380,000	380,000	1
Tin (inorganic) - dissolved	1,000	1	1,000	
Trichloromethane	Not tested	17	17	

The H1 tool shows all substances pass by Test 3 with the majority of substance excluding copper and tin passing Test 2. The H1 tool output table is provided at Table 5.



**Table 5 H1 tool output table for emissions to water**

Substance	Freshwater test 1	Freshwater test 2	Freshwater test 3	Freshwater test 4a	Freshwater test 4b
Ammonia (un-ionised)	Pass				
Arsenic	Fail	Pass			
Boron	Pass				
Cadmium and its compounds (dissolved, water hardness < 40 mg/l Ca CO3)	Fail	Pass			
Chloride	Pass				
Chromium III (95%ile) (dissolved)	Fail	Pass			
Copper (dissolved, bioavailable)	Fail	Fail	Pass	Pass	Pass
Cyanide	Pass				
Iron (dissolved)	Fail	Pass			
Lead and its compounds (dissolved)	Fail	Pass			
Manganese	Pass				
Mecoprop (95%ile)	Pass				
Mercury and its compounds (dissolved)	Fail	Pass			
Nickel and its compounds (dissolved)	Fail	Pass			
Sulphate	Fail	Pass			
Tin (inorganic) - dissolved	Fail	Fail	Pass	Pass	Pass
Trichloromethane	Pass				

Certain substances are not available for assessment in the H1 tool. Table 6 presents the maximum concentrations of substances tested for in the soil wash water and bioremediation process water against their relevant EQSs where applicable.

**Table 6 Maximum concentrations for soil wash water and bioremediation process water – substances not available in H1 risk assessment tool**

Substance	Soil wash water max conc (µg/l)	Bioremediation process water max conc (µg/l)	AA EQS (µg/l)	MAC EQS (µg/l)
Antimony (Dissolved)	3	5.7		
Aluminium (Dissolved)	78	28		
Barium (Dissolved)	44	47		
Molybdenum (Dissolved)	14	41		
Selenium (Dissolved)	1.4	1.3		



Substance	Soil wash water max conc (µg/l)	Bioremediation process water max conc (µg/l)	AA EQS (µg/l)	MAC EQS (µg/l)
Silver (Dissolved)	<10	<0.05	0.05	0.1
Vanadium (Dissolved)	<2	1.5	20	
Zinc (Dissolved)	18	270	10.9	
Chromium VI	<3	<3	3.4	
Polyaromatic Hydrocarbons (PAHs)	<0.01	<0.01	0.00017	0.27 (Benzo(a)pyrene)
BTEX (Benzene, EthylBenzene, M/P Xylene, O Xylene, Toluene, Methyl tert-Butyl Ether)	<1	<1	10 (Benzene)	
Total Petroleum Hydrocarbons (TPH)	60	180		

The discharge from the soil treatment areas will be subject to the limits applied by the trade effluent consent and subject to regular monitoring as required by Table S3.2 of the Permit to ensure compliance. An overview of the maximum concentrations reported in 2023 compared to the trade effluent consent limits is presented in Table 7 below.

**Table 7 2023 Maximum effluent concentrations**

Parameter	Limit	Maximum reported in 2023
Ammonia Load	60 kg	
Ammoniacal Nitrogen	50 mg/l	50 mg/l
C.O.D	1500 mg/l	81 mg/l
Chromium	2 mg/l	0.0087 mg/l
Copper	2 mg/l	0.037 mg/l
Lead	2 mg/l	0.00083 mg/l
MCCP	4.6 g per day	0.036 mg/l
Nickel	2 mg/l	0.27 mg/l
pH	>6 - <10	8.6 mg/l
Phosphorus	25 mg/l	1.4 mg/l
Soluble Methane	0.14 mg/l	<0.05 mg/l
Sulphate	1000 mg/l	640 mg/l
Sulphides	1.0 mg/l	0.068 mg/l
Suspended Solids	400 mg/l	160 mg/l
Visible Oil & Grease	None visible	None visible
Zinc	2 mg/l	0.27 mg/l

## 5) Odour trigger levels

The following aspect is usually part of duly making and preferably should be addressed at this stage.

Odour management plans are required to specify parameters to be measured and trigger levels for corrective action. Therefore your odour management plan will need to be updated to confirm what specific onsite parameters will trigger corrective action to minimise odour.

**Please update your odour management plan to identify the parameters which indicate the potential for odour and the triggers you will apply to these parameters to indicate the point at which corrective action will be taken.**

The Odour Management Plan (Report Ref: K0182-BLA-R-ENV-00006 Revision 3) has been updated to include trigger levels.

We trust that the information provided above is sufficient to allow the application to be duly made.

Yours sincerely  
For Ayesa,



Claire Finney BSc MSc AssocMCIWM  
**Principal Consultant**