

14 July 2023

Environment Agency Groundwater
Hydrology & Contaminated Land team
Warrington

For the attention of Lee Beveridge

Re: Tetrosyl Bevis Green Works, Bury Project (Ref: ENVPAC/1/GMC/00429)

Dear Lee,

Thank you for your recent letter (Ref: *SO/2022/122094/03-L01*, dated 27 April 2023) with regards to the DQRA undertaken by Groundtech Consulting (Ref: *GRO-21459-3710_1.2*, dated 22 November 2022).

The letter highlights the requirement of defining validation and verification criteria for the far southern area of site. Based on the requirements, we have developed site specific Level 3 (L3) Remedial Target Values (RTVs) for soils in the southern section of site. The RTVs are based on no degradation and 0m compliance point.

The following parameters were selected for all compounds:

Parameter	Value	Source of data
Porosity (Water Filled)	0.097 θ_w	Site won data (Laboratory testing conversion)
FoC (L1 Soil)	0.08561 (Fraction)	TOC database (HS1 Validation Exercise)
FoC (L3 Soil)	0.002 (Fraction)	TOC database (Rough Rock Database)
Length of source in direction of groundwater flow	20m	Conservatively estimated Hotspot width
Width of source perpendicular to groundwater flow	20m	Conservatively estimated Hotspot length

The following CoC specific parameters were used to calculate the L3 Soil RTVs for the southern section of site:

Compound	L3 RTV (mg/kg)	Henrys Law Constant (Dimensionless)	Source	KoC (l/kg)	Source
Benzene	0.19	0.228	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	67.6	SC050021/SR7
Toluene	4.23	0.272	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	204	SC050021/SR7
Ethylbenzene	4.64	0.323	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	447	SC050021/SR7
Xylene	3.84	0.276	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	457	SC050021/SR7

			Impact to Ground Water Soil Remediation Standards		
Aliphatic (C5-C6)	331	0.14	Online directory based on hexane	790	CL:AIRE: Petroleum Hydrocarbons in Groundwater
Aliphatic (C6-C8)	1680	0.272	No value for Aliphatic C6-C8 (Heptane) so Toluene value used as similarly ranged Toluene taken from: Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	4,000	CL:AIRE: Petroleum Hydrocarbons in Groundwater
Aliphatic (C8-C10)	300	0.276	No value for Aliphatic C8-C10 (Octane/Nonane) so Xylene value used as similarly ranged Xylene taken from: Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	32,000	CL:AIRE: Petroleum Hydrocarbons in Groundwater
Aliphatic (C10-C12)	60,800,000	0.0198	No value for Aliphatic C10-C12 so Naphthalene value used as similarly ranged Naphthalene taken from: Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards		CL:AIRE: Petroleum Hydrocarbons in Groundwater
Aromatic (C10-C12)	62.9	0.14	-	2,500	CL:AIRE: Petroleum Hydrocarbons in Groundwater
PCE	0.754	0.754	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	269	SC050021/SR7
TCE	0.396	0.422	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	141	SC050021/SR7
Dichloromethane	0.0682	0.098	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards	11.7	Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards
1-2 Dichloroethene	0.503	0.167	Chemical Properties for Calculation of	35.5	Chemical Properties for Calculation of

			<i>Impact to Ground Water Soil Remediation Standards</i>		<i>Impact to Ground Water Soil Remediation Standards</i>
<i>Phenol</i>	<i>0.18</i>	<i>0.065</i>	<i>Chemical Properties for Calculation of Impact to Ground Water Soil Remediation Standards</i>	<i>83.2</i>	<i>SC050021/SR7</i>

The Remedial Target Worksheets will be attached to the email to allow them to be reviewed, if you have any queries please do not hesitate to contact the undersigned.

Yours Sincerely
For Groundtech Consulting Limited



Luke Harrison
Senior Consulting Engineer
lh@groundtechconsulting.com

