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SOIL BASELINE SAMPLING REPORT

Technical Report Prepared For Indaver Ireland Ltd.

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1.0 INTRODUCTION

1.1 BACKGROUND AND SCOPE OF WORKS

AWN Consulting Ltd. (AWN) has been requested by Indaver Ireland Ltd. to carry out a soil site survey and baseline report as part of the EPA compliance requirements.

The scope of the soil baseline survey included the following:

- Drilling of five (5) no. environmental test holes (window sample boreholes) across the site area to examine soil conditions and if any infill or foreign material is present across the land. The auger rigs were drilled until bedrock was encountered.
- Logging of the arisings from each test hole in accordance with BS5930:2015, noting any field evidence of potential impact from hazardous substances.
- Collection of soil samples from each of the test holes for laboratory analysis focusing on potential constituents of concern.

The sampling boreholes were drilled by IGSL on the 9th November 2022 with a Terrier window sampling rig. All soil samples were collected in appropriate sample containers for the required analysis and stored, managed and seales in accordance with Section 8.2 of BS 10381-2:2002.

All laboratory testing was carried out at Element Laboratory, a UK Accreditation Service (UKAS) accredited laboratory located in Deeside, England. The laboratory is accredited under UKAS 4225 as well as to ISO/IEC 17025:2005.

The 5 no. soil samples were analysed for the following suite of parameters:

- Waste Acceptance Criteria suite in accordance with Council Decision 2003/33/EC (Rilta 2016 Revised WAC suite, see Table 1.1 below).
- VOCs plus tentatively identified compounds (TICs).
- Additional metals: Mn, Co, V and Sn.
- Additional PAH's: PFAS/PFOA.

Test Method	Code	Rilta Suite	ISO 17025	MDL	CEN references - EN/TS/TR
TM065	Asb	Fibre screen/ asbestos ID (HSG 248)	Y		
073S	pН	pH using Metrohn	Y	0.01pH units	
PM04	MC	Moisture content as % wet weight			
021S	TOC	TOC by combustion - carbonates removed with acid by eltra	Y	0.2%	EN 13137 Method B
030S		metals(As,Ba,Cd,Cr,Cu,Hg,Mo,Ni,Pb,Sb,Se,Zn)	Y	various	
038S	Hex Cr	Hexavalent Chromium plus Trivalent Chromium by calculation	N	0.3mg/kg	
031S	BTEX S	BTEX/MTBE by GC-FID	Y	5ug/kg	
086S	PCB-7 S	PCBs (7 congeners) by GC-MS	Y	5ug/kg	EN 15308 analysis GC-MS
036/005S	CWG	TPH CWG (Aliphatics C5-6,>6-8,>8-10,>10-12,>12-16,>16-21,>21- 35,>35-40) (Aromatics >C5-7,>7-8,>8-10,>10-12,>12-16,>16- 21,>21-35,>35-40) Extra banding Aliphatics C6-10,C10-25, C25- 35, Aromatics C6-10, C10-C25, C25-35	Y	various - see tab	
004S	PAH 17 S	PAH 17 by GC-MS (inc coronene) plus PAH (total 6)	Y	various	EN 15527 PAH GC-MS
		Benzo(j)fluoranthene	N	1mg/kg	
		CEN 10: leachate preparation (results expressed as mg/kg)			EN 12457-2 :2002
030W	Metals	As(0.025),Ba(0.03),Cd(0.005),Cr(0.015),Cu(0.07),Mo(0.02), Ni(0.02),Pb(0.05),Sb(0.02),Se(0.03),Zn(0.03)	Y	various (mg/kg)	EN 12506 / EN ISO 11885 ICP- OES
061W		Mercury by Cold Vapour Atomic Fluorescence	Y	0.1ug/kg	EN 13370 / EN 1483 CVAAS
073W	pН	Determination of pH (Metrohm)	Y	0.01pH units	
027W/173W		Chloride(3), Fluoride(3), Sulphate (0.5)	N	various (mg/kg)	EN 12506 /EN ISO 10304-1-2 liquid chromatography
026W		Phenol HPLC	Y	0.1mg/kg	
060W		DOC	N	20mg/kg	EN 1484
020W		TDS	N	350mg/kg	EN 15216

Table 1.1RILTA 2016 Suite

Appendix 1 presents the Laboratory report with analysis and results. Figure 1.1 below presents the site location.

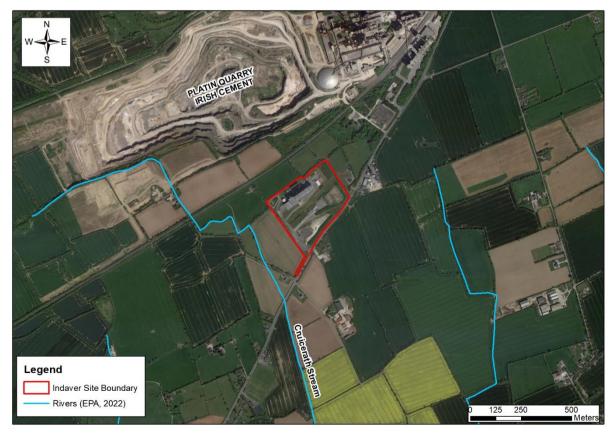


Figure 1.1 Site Location and Hydrological Environment (EPA, 2022)

2.0 SOIL AND GEOLOGICAL SETTING

The topography around the site is relatively flat with a slight fall from east to west within the boundary. The overall topography for the study area is relatively shallow with a general fall to the southeast towards the River Nanny. There are a number of hills located to the north with a peak of approx. +95mAOD and northwest, +121mAOD of the site. The general elevation of the site is approx. +30mAOD.in the north of the site and 35 mAOD to the south (at road height).

Construction of the facility occurred over 2008/2011, prior to this the lands were used for agricultural purposes only. Soil and groundwater samples collected as part of the baseline for the EIS study provided with planning for the current development (KTC/WYG, 2012) showed no evidence of soil or groundwater contamination at the site that indicate anything other than an agricultural use.

The Irish Cement Platin quarry is located immediately to the north of the site a number of other quarry/ mineral extraction sites are located to the west (Duleek Quarry) and east (Bellewstown Quarry). The immediate surrounding lands are used for agricultural purposes (grazing).

The GSI/Teagasc mapping shows that the soil type beneath the local area is comprises three (3) no. principal soil types. The majority of the site comprises Deep Well Drained Mineral – Mainly Acidic (AminDW). The northern portion of the site comprises Alluvial Mineral (AlluvMIN) and the north-central portion of the site comprises Poorly Drained Mineral (AminPD) (refer to Figure 2.2 below).

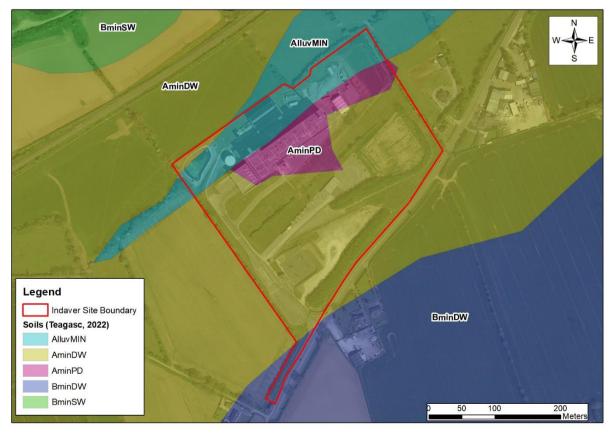


Figure 2.1 Soils Map (Teagasc, 2022)

The GSI/Teagasc mapping database of the subsoils in the area of the subject site indicates three (3) no. principal soil types, as shown in Figure 2.2 below. The subsoil types present across the site are as follows:

- Alluvium (A) in the northern portion of the site;
- Till derived from Namurian sandstones and shales (TNSSs) in the majority of the site; and
- Till derived from limestones (TLs) in the most south-western portion of the site.



Figure 2.2 Subsoil Map (Teagasc, 2022)

2.1.1 Regional Geology

The site is underlain by Lower Carboniferous Limestone bedrock which forms part of the Platin Formation. The Limestone is typically characterised by pale thick-bedded strata with minor shale, possibly dolomitised, with paleo-karstic features (GSI Sheet 16 and Meath Groundwater Protection Scheme).

Regional soils comprise the Dunboyne-Ashbourne soil complex. The parent material of the soil is drift deposits intermixed with local limestone and shale. This type of soil is generally poorly drained.

2.1.2 Regional Hydrogeology

The Platin formation has been classified as a regionally important karstified (diffuse) aquifer, displaying both karst and fracture flow. The aquifer is classed as having moderate vulnerability, related to the presence of thick boulder clay in the region. The site is located within the Bettystown Groundwater which has a WFD risk projection of "At risk" meaning it is at risk of failing to meet WFD objective. Figure 2.3 shows the



regional aquifer vulnerability map and the aquifer classification of the area surrounding the Indaver site.

Figure 2.3 Groundwater Vulnerability Map (GSI, 2022)

3.0 WINDOWS SAMPLING RECORDS

Site investigations were carried out by IGSL on the 9th of November, 2022 using a Terrier window sampling rig. The site investigations comprised drilling of five (5) no. environmental test holes (window sample boreholes) across the site area to examine soil conditions and if any infill or foreign material is present across the land in accordance with BS 5930:1999 Code of Practice for Site Investigations. The auger rigs were drilled until presumed / possible bedrock was encountered, noting any field evidence of potential impact from hazardous substances. Soil samples were collected from each of the test holes for laboratory analysis. Refer to Appendix 2 – WS Logs for further information regarding soil profile and observations of each individual window sample.

Brown gravelly silty CLAY was encountered in all window samples from ground level and the gravel was subangular to subrounded with cobbles (NATURAL GROUND). Refer to Figures 7.1 to 7.5 below for further information on the substrata encountered.

The maximum depth reached was 3.6m bgl in WS03 located along the sites northern boundary. The shallowest depths reached occurred in WS01 and WS02 located along the sites southern and northern boundary respectively.

Possible bedrock was encountered in all window samples from c. 1.9m to 3.6m bgl as stated above. The depth at which possible bedrock was encountered in each of the window samples is illustrated in Table 3.1 below:

Window Sample ID	Depth Reached (mbgl)	Comments
WS01	1.9m bgl	Obstruction – Possible Bedrock
WS02	1.95m bgl	Obstruction – Possible Bedrock
WS03	3.6m bgl	Obstruction – Possible Bedrock
WS04	3.2m bgl	Obstruction – Possible Bedrock
WS05	2.9m bgl	Obstruction – Possible Bedrock

Table 3.1	Strata Noted from Site Investigation	,

All window samples were terminated on contact with possible bedrock. No water strikes / ingresses were encountered in any of the window samples. Refer to Figure 3.1 below for the window sample locations in context of the site.



Figure 3.1Window Sample Points (Google Earth Pro, 2022)

4.0 SOIL QUALITY ASSESSMENT

There are no legislated threshold values for soils in Ireland. Soil samples were compared to Generic Assessment Criteria (GAC) derived to be protective of human health, water bodies (including groundwater) and also ecology for residential and commercial / industrial end use.

GAC in the UK has been derived using the Contaminated Land Exposure Assessment (CLEA) model to be protective of human health for a number of different land uses. Land Quality Management (LQM) and the CIEH (Chartered Institute of Environmental Health) developed a document in July 2009 detailing their own research and derivation of their own 'LQM GACs'. A total of 82 substances, including many organic substances had LQM GACs derived, for the standard land uses of residential, commercial / industrial and allotments. This was updated in 2015 following further research and the derived results are now called LQM / CIEH Suitable 4 Use Levels (S4UL). The LQM / CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and as transparently derived and cautious "trigger values" above which further assessment of the risks or remedial action may be needed. For each contaminant, S4ULs have been derived for six land use scenarios based on assessing exposure pathways in each planning scenario. In this instance, the commercial scenario has been considered. Soil type and soil organic matter (SOM) has an influence on the behaviour of contaminants. S4ULs have been derived for three SOM contents (1%, 2.5% and 6%) to cover the likely range in soils. A prudent approach has been taken by considering the lower 1% SOM content.

The UK values do not have any legal standing within the Republic of Ireland and no statutory guidance for assessing the significance of soil contamination currently exists. However, the values do provide a means of placing the data within context when considering magnitude of risk, and have been used in that capacity in this assessment.

In addition, in line with the requirement of Council Decision 2003/33/EC, during the site investigations, 5 no. samples were recovered from the on-site window sample locations and sent for analysis. In order to assess materials, which may be excavated and removed from site, in terms of waste classification, a selection of samples collected were analysed for a suite of parameters which allowed for the assessment of the soils in terms of total pollutant content for classification of materials as hazardous or non-hazardous referred to as the 'RILTA Suite'.

The parameter list for the RILTA suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, lead, nickel, mercury, zinc, chloride, fluoride speciated aliphatic and aromatic petroleum hydrocarbons, pH, soluble sulphate, sulphide, phenols, total dissolved solids, moisture content, soil organic matter and an asbestos screen. The total pollutant content analysis also provides analytical data which can be used to assess the quality of the subsoils underlying the site and allow an assessment of their suitability for a range of proposed uses against generic assessment criteria.

The RILTA Suite also includes those parameters specified in the EU Council Decision Establishing Criteria for the Acceptance of Waste at Landfills (Council Decision 2003/33/EC), referred to as Waste Acceptance Criteria (WAC), which for the solid samples are pH; total organic carbon (TOC); speciated aliphatic and aromatic

petroleum hydrocarbons; benzene, toluene, ethylbenzene and xylene (BTEX); phenol; polychlorinated biphenyls (PCB); and polycyclic aromatic hydrocarbons (PAH).

All parameter concentrations recorded values below the most conservative threshold value for the LQM / CIEH for HHRA (Human Health Risk Assessment) Residential Threshold at 1% SOM (refer to below).

In addition to the above mentioned suite of laboratory tests carried out, the following tests were undertaken:

- VOCs plus tentatively identified compounds (TICs);
- Additional metals: Mn, Co, V and Sn; and
- Additional PAH's: PFAS/PFOA.

The laboratory analysis did not identify any asbestos containing materials (ACMs) in any of the samples tested.

With regard to the WAC analysis, all samples recorded concentrations below the 'Inert' landfill waste acceptance criteria limit.

Refer to Table 4.1 below for further information on soil quality results.

			ty Results						
Sample ID					WS01	WS02	WS03	WS04	WS05
Laboratory	-				Element	Element	Element	Element	Element
Report					22/18605	22/18605	22/18605	22/18605	22/1860
Sample Type					Soil	Soil	Soil	Soil	Soil
Sample Depth					1.5	1.5	3.0	3.0	2.5
Sample Date	1				09/11/2022	09/11/2022	09/11/2022	09/11/2022	09/11/202
			LQM/CIEH S4ul for	LQM/CIEH S4ul for					
Parameters	Units	LOD	HHRA Residental	HHRA Commercial					
			Threshold (mg/kg)	Threshold (mg/kg)					
			((
Metals									
Antimony	mg/kg	<1	nv	nv	2	2	2	1	2
Arsenic	mg/kg	<0.5	40	640	19	12.1	11	9.1	12.7
Barium	mg/kg	<1	nv	nv	130	105	89	54	98
Cadmium	mg/kg	<0.1	85	190	1	1.1	0.7	0.8	0.7
Chromium	mg/kg	< 0.5	910	8,600	67.9	84.9	69.1	45.5	82.6
Cobalt	mg/kg	< 0.5	nv	nv	14.1	11.4	10.4	5.6	14.4
Copper	mg/kg	<1	7,100	68,000	34	35	32	21	32
Lead	mg/kg	<5	nv	nv	18	15	20	8	14
Manganese	mg/kg	<1	nv	nv	1,144	1.034	806	652	854
Mercury		<0.1	1.2	58vap (25.8)	1,144	1,004	-	052	004
	mg/kg	<0.1			4.7	5.5	4.1	4.5	3.6
Molybdenum Nickel	mg/kg	<0.1	nv 180	nv 980	4.7	5.5 43.3	4.1 36.2	4.5 22.6	3.0 52.4
	mg/kg								
Selenium	mg/kg	<1	430	12,000	2	-	2	2	-
Vanadium	mg/kg	<1	1,200	9,000	48	41	36	22	50
Zinc	mg/kg	<5	40,000	730,000	88	67	63	38	78
PAH MS									
Naphthalene	mg/kg	<0.04	2.3	190(76.4)sol	-	-	-	-	-
Acenaphthylene	mg/kg	<0.03	170	83000(86.1)sol	-	-	-	-	-
Acenaphthene	mg/kg	<0.05	210	84000(57.0)	-	-	-	-	-
Fluorene	mg/kg	<0.04	170	63000(30.9)sol	-	-	-	-	-
Phenanthrene	mg/kg	<0.03	95	22,000	-	-	-	-	-
Anthracene	mg/kg	<0.04	2,400	520,000	-	-	-	-	-
Fluoranthene	mg/kg	<0.03	280	23,000	-	-	-	-	-
Pyrene	mg/kg	<0.03	620	54,000	-	-	-	-	-
Benzo(a)anthracene	mg/kg	<0.06	7.2	170	-	-	-	-	-
Chrysene	mg/kg	<0.02	15	350	-	-	-	-	-
Benzo(bk)fluoranthene	mg/kg	< 0.07	nv	nv	-	-	-	-	-
Benzo(a)pyrene	mg/kg	< 0.04	2.2	35	-	-	-	-	-
Indeno(123cd)pyrene	mg/kg	< 0.04	nv	500	-	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	<0.04	0.24	4	_	-	_	-	-
		<0.04	320	3,900	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	<0.04							
Coronene	mg/kg		nv	nv	-	-	-	-	-
PAH 6 Total	mg/kg	< 0.22	nv	nv	-	-	-	-	-
PAH 17 Total	mg/kg	<0.64	nv	nv	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	<0.05	2.6	44	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	<0.02	77	1,200	-	-	-	-	-
Benzo(j)fluoranthene	mg/kg	<1	nv	nv	-	-	-	-	-
PAH Surrogate % Recovery	mg/kg	<0	nv	nv	95	94	91	88	90
Mineral Oil (C10-C40)	mg/kg	<30	nv	nv	-	-	-	-	-
Methyl Tertiary Butyl Ether	ug/kg	<5	nv	nv	-	-	-	-	-
Benzene	mg/kg	<0.005	0.38	27	-	-	-	-	-
Toluene	mg/kg	<0.005	880(869)vap	56,000(869)vap	-	-	-	-	-
Ethylbenzene	mg/kg	<0.005	83	5,700(518)vap	-	-	-	-	-
* *			m: 820	m: 6,200(625)vap					
m/p-Xylene	mg/kg	<0.005	p: 790	p: 5,900(576)sol	-	-	-	-	-
o-Xylene	mg/kg	<0.005	88	6,600(478)sol	-	-	-	-	-
e Aylone	ing/itg	-0.000		0,000(470)301	-		-	-	-
PCB 28	ua/ka	<5	D\/	DV/	-	-	-	-	-
PCB 28 PCB 52	ug/kg	<5 <5	nv	nv					
	ug/kg		nv	nv	-	-	-	-	-
PCB 101	ug/kg	<5	nv	nv	-	-	-	-	-
PCB 118	ug/kg	<5	nv	nv	-	-	-	-	-
PCB 138	ug/kg	<5	nv	nv	-	-	-	-	-
PCB 153	ug/kg	<5	nv	nv	-	-	-	-	-
PCB 180	ug/kg	<5	nv	nv	-	-	-	-	-
Total 7 PCBs	ug/kg	<35	nv	nv	-	-	-	-	-
	-							10 -	
Natural Moisture Content	%	<0.1	nv	nv	14.6	16.5	15.0	10.6	15.2
Moisture Content (% Wet Weight)	%	<0.1	nv	nv	12.7	14.2	13.0	9.6	13.2
Hexavalent Chromium	mg/kg	<0.3	6	33	-			-	-
Chromium III	mg/kg	<0.5	910	8,600	67.9	84.9	69.1	45.5	82.6
Total Organic Carbon	%	<0.02	nv	nv	0.65	0.5	0.63	0.22	0.25
	mg/kg	<1			-	1	2	2	-
Elemental Sulphur	I IIIu/Ku								
Elemental Sulphur pH			nv	nv	8.11	8.35	8.22	9.47	8.37
Elemental Sulphur pH	pH units	<0.01	nv	nv	8.11	8.35	8.22	9.47	8.37

Table 4.1 Soil Quality Results

 0.45
 Results exceed LQM/CIEH S4ul for HHRA Residential Threshold without homegrown produce at 1% SOM (mg/kg)

 0.45
 Results exceed LQM/CIEH S4ul for HHRA Commercial Threshold at 1% SOM (mg/kg)

 - Results below LOD
 nv Guideline threshold value not available

 nd Parameter not analised
 Normalised

<u>Notes</u>

HHRA 2015 - LQM/CIEH Suitable 4 Use Levels based on 'Commercial' and/or 'residential' land use using 1% SOM. Metals are compared against a 6% SOM

Sol : sol S4UL presented exceed the solubility saturation limit, which is presented in brackets Vap: vap S4UL presented exceed the vapour stauration limit which is presented in brackets

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Laboratory Prent Brenet Br	Sample ID					WS01	WS02	WS03	WS04	WS05
Report Supple Type Supple Type <t< th=""><th></th><th>1</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>		1								
Simple Dypel Sample D		1								
Sample Deigh 15 15 30 20 2.5 Parameters Units LOD CMICES Hate for Threshold (mpb) 1 15 15 3.0 2.5 Parameters Units LOD CMICES Hate for Threshold (mpb) 1 1.5 1.5 3.0 2.5 Parameters Units LOD CMICES Hate for Threshold (mpb) 1.5 1.5 3.0 2.5 Alguates mpb -0.1 1.5 2.0 1.5 1.6 2.0 1.0 1.0<										
Sample Dela Del 10022 Op112022		-								
Parameters Units Dub Low Cells Bail for HERA Resident Threshold (mg/s) Thr										
Parameters Units D.0 HHRA considential method (mg/k) HHRA conservation method (mg/k) The Low (mathed (mg/k)) The conservation method (mg/k) CS-06 mg/k -0.1 4.2 3.200 (394) sol - - 0.1 - CS-06 mg/k -0.1 2.0 2.000 (796) - - 0.1 - CS-06 mg/k -0.1 6.0 2.000 (796) - - 0.1 - CS-02 mg/k -7 65.000 1.600.000 - - - - CS-12-12 mg/k -7 65.000 1.600.000 - - - - CS-12-12 mg/k -7 65.000 1.600.000 - - - - CS-12-12 mg/k -7 1.600 2.6000 - - - - CS-12-12 mg/k	Sample Date	 ,				09/11/2022	09/11/2022	09/11/2022	09/11/2022	09/11/2022
Pict Ove Pice Model (mg/kg) Threshold (mg/kg) Threshold (mg/kg) PIP CVQ Pice Pice Pice Pice Pice Pice Pice Pice	_									
The Carlos Product	Parameters	Units	LOD							
Alphanes Image Image <thimage< th=""> Image Image <</thimage<>				Threshold (mg/kg)	Threshold (mg/kg)					
Alphanes Image Image <thimage< th=""> Image Image <</thimage<>										
C65-06 mphg 0.1 4.2 3.200 (201) sol -	TPH CWG									
Cob.Col mg/kg 0.1 100 7.800 (144)ed - - - - </td <td>Aliphatics</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Aliphatics									
Cob.Col mg/kg 0.1 100 7.800 (144)ed - - - - </td <td>>C5-C6</td> <td>mg/kg</td> <td><0.1</td> <td>42</td> <td>3,200 (304) sol</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>	>C5-C6	mg/kg	<0.1	42	3,200 (304) sol	-	-	-	-	-
Colo 10 mghq 0.1 2.7 2.000 (78) (rol 0) - - 0.1 - - C10-012 mgkq 4.2 130 59.000 (24) (rol 0) -<			<0.1	100		-	-	-	-	-
C10-C12 mphg 4.2 1.30 9.700 (48)ad - </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>0.1</td> <td>-</td> <td>-</td>						-	-	0.1	-	-
C12-C16 mg/kg 44 50.00 (24)sol -									-	
C16-C21 mg/kg 47 65.000 1.600,000 -										
Sc21-235 mg/kg 47 65,000 1.800,000 - </td <td></td>										
C35-C40 mg/kg -7 65.000 1.800.000 - FEC1ESC12 mg/kg 42 18000 38.0001 -										
Total alguables G-40 mg/ng										
Aromatics Product Sector maylor Sector maylor Sector										
CoSeC7 mg/kg 0.01 370 28.000(122)680 -		mg/kg	<26	nv	nv	-	-	-	-	-
SEC7-EC8 mg/ng 0.01 860 95,000(869)app 0 <th0< th=""> 0 0 0 <th0<< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th0<<></th0<>										
FEGREC10 mg/rg -0.1 47 5.000 ft3/sgp - - - -<						-	-	-	-	-
SEC8-EC10 mg/kg -0.1 47 3.500(613)/sep - - -						-	-	-	-	-
SEC10-EC12 mg/kg 4.2 250 16.000(364)sol - - - - SEC12-EC16 mg/kg 4.7 1900 28.000 - - - - SEC12-EC35 mg/kg 4.7 1900 28.000 - - - - - SEC3-EC40 mg/kg 4.7 1900 28.000 - - - - - SEC3-EC40 mg/kg 4.2 mv mv - - - - - SEC3-EC40 mg/kg 4.2 mv mv - - - - - SEC3-EC40 mg/kg 4.2 mv mv - - - - SEC3-EC40 mg/kg 4.5 mv mv - - - - SEC3-EC40 mg/kg 4.5 mv mv - - - - SEC4-A mg/kg 4.5 mv mv - - - - SEC4-A mg/kg 4.5 mv mv - - - - PFBA mg/kg 4.5 mv mv mv - <t< td=""><td>>EC8-EC10</td><td></td><td></td><td></td><td>3,500(613)vap</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></t<>	>EC8-EC10				3,500(613)vap	-	-	-	-	-
SEC12-C16 mg/kg r-4 1800 39,000(199a) -			<0.2	250		-	-	-	-	-
SECIE-C21 mg/kg r7 1900 28,000 - <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td>										-
>=EC21-EC35 mg/kg r7 1900 28,000 - - - - - Total anomatics C5-40 mg/kg c25 mv mv nv - - - - Total anomatics C5-40 mg/kg c25 mv mv nv - - - - PFAA ug/kg c05 mv mv nv - - - - - PFBA ug/kg c05 mv mv nv - - - - - PFPA ug/kg c05 mv mv mv - - - - - PFPA ug/kg c05 mv mv mv - - - - PFPA ug/kg c05 mv mv mv - - - - PFPA ug/kg c05 mv mv mv - - - - PFPA ug/kg c05 mv mv mv - - - - PFPA ug/kg c05 mv mv mv - - - PFPA <td></td>										
>EC3E-C40 mg/kg -7 1900 28,000 -										
Total aromatics C5-40 mg/kg <26 nv nv n -										
Total aliphatics and aromatics C5-40 mg/kg <52 mv mv - - - - - PFBA ug/kg <0.5										
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PFBA up/g 0.5 nv nv - - - - - HFPO-DA up/g 0.5 nv nv nv - - - - HFPO-DA up/g 0.5 nv nv nv - - - - PFBS up/g 0.5 nv nv nv - - - - PFBA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFDA up/g 0.5 nv nv nv - - - - PFDA up/g 0.5 nv nv nv - - - - PFDA up/g 0.5 nv nv nv<	Total aliphatics and aromatics C5-40	mg/kg	<52	nv	nv	-	-	-	-	-
PFBA up/g 0.5 nv nv - - - - - HFPO-DA up/g 0.5 nv nv nv - - - - HFPO-DA up/g 0.5 nv nv nv - - - - PFBS up/g 0.5 nv nv nv - - - - PFBA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFPA up/g 0.5 nv nv nv - - - - PFDA up/g 0.5 nv nv nv - - - - PFDA up/g 0.5 nv nv nv - - - - PFDA up/g 0.5 nv nv nv<										
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PFBS ug/kg 40.5 nv nv nv - - - - - 42 FTS ug/kg 41 nv nv nv - - - - 42 FTS ug/kg 41 nv nv nv - - - - PFPA ug/kg 40.5 nv nv nv - - - - PFPA ug/kg 40.5 nv nv nv - - - - ONA ug/kg 40.5 nv nv nv - - - - OPHA ug/kg 40.5 nv nv nv - - - - PFDA ug/kg 40.5 nv nv nv - - - - PFDA ug/kg 41 nv nv nv - - - - PFDA ug/kg 41 nv nv nv - - - PFDA ug/kg 41 nv nv - - - - PFDA ug/kg 41 nv nv nv		ug/kg		nv	nv	-	-	-	-	-
PFBS ug/kg 42 FTS ug/kg <1	HFPO-DA	ug/kg	<0.5	nv	nv	-	-	-	-	-
PFHAA ug/kg PF ug/kg PF ug/kg <td>PFBS</td> <td></td> <td><0.5</td> <td>nv</td> <td>nv</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>	PFBS		<0.5	nv	nv	-	-	-	-	-
42 FTS ug/kg <1	PFHxA		<0.5	nv	nv	-	-	-	-	-
FPEPA ug/kg <1 nv nv - - - - - - PFHpA ug/kg <0.5							-	-	-	-
PFPS ug/kg 0.5 nv nv - - - - - DONA ug/kg 0.5 nv nv nv - - - - - DONA ug/kg 0.5 nv nv nv - - - - - DONA ug/kg 0.5 nv nv nv - - - - - DONA ug/kg 0.5 nv nv nv - - - - - PFAG ug/kg 0.5 nv nv nv - - - - - 62 FTS ug/kg 0.5 nv nv nv - - - - - FOLEA ug/kg 0.5 nv nv nv - - - - - FOS ug/kg 0.5 nv nv nv - - - - - PFDA ug/kg 0.5 nv nv nv - - - - NMeFOSA ug/kg 0.5 nv nv nv - - - </td <td></td>										
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PFHS ug/kg <0.5 nv nv nv nv nv n -										
PFOA ug/kg <0.5 mv nv r. - - - - - 6 62 FTS ug/kg <0.5										
62 FTS ug/kg <1 nv nv nv - 3 - 13 3 PFHpS ug/kg <0.5										
PFHpS ug/kg <0.5 nv nv nv -										
FOUEA ug/kg <1 nv nv - - - - - - - - P PFNA ug/kg <0.5					nv	-	3	-	13	3
PFNA ug/kg <0.5 nv nv - <		ug/kg		nv	nv	-	-	-	-	-
FOSA ug/kg <1 nv nv - - - - - - PFOS ug/kg <0.5		ug/kg		nv	nv	-	-	-	-	-
PFOS ug/kg <0.5 nv nv nv -	PFNA	ug/kg	<0.5	nv	nv	-	-	-	-	-
PFOS ug/kg <0.5 nv nv nv -	FOSA	ug/kg	<1	nv	nv	-	-	-	-	-
N-MeFOSA ug/kg <1 nv nv - - - - - PFDA ug/kg <0.5	PFOS		<0.5	nv	nv	-	-	-	-	-
PFDA ug/kg <0.5 nv nv nv -						-	-	-	-	-
NEEFOSA ug/kg <1 nv nv nv -										
8:2 FTS ug/kg <1 nv nv nv -										
9CLPF3ONS ug/kg <0.5 nv nv nv -										
PFNS ug/kg <0.5 nv nv nv - - - - - PFUnA ug/kg <0.5										
PFUnA ug/kg <0.5 nv nv nv -										
N-MeFOSAA ug/kg <1 nv nv nv -										
N-EtFOSAA ug/kg <1 nv nv nv -								-		
PFDS ug/kg <0.5 nv nv nv - - 1.3 - - P PFDoA ug/kg <0.5								-		
PFDoA ug/kg <0.5 nv nv -										
PFUnDS ug/kg <0.5 nv nv nv -										
PFTrDA ug/kg <0.5 nv nv nv -						-		-		-
PFDoDS ug/kg <0.5 nv nv -				nv	nv	-	-	-	-	-
PFTeDA ug/kg <0.5 nv nv -		ug/kg		nv	nv	-	-	-	-	-
PFTeDA ug/kg <0.5 nv nv -	PFDoDS	ug/kg	<0.5	nv	nv	-	-	-	-	-
PFTrDS ug/kg <0.5 nv nv -					nv	-	-	-	-	-
PFHxDA ug/kg <2.5 nv nv -						-	-	-	-	-
PFODA ug/kg <2.5 nv nv -						-	-	-	-	-
8:2diPAP ug/kg <2.5										
Legend Image: Constraint of the state of										
0.45 Results exceed LQM/CIEH S4ul for HHRA Residential Threshold <u>without</u> homegrown produce at 1% SOM (mg/kg) 0.45 Results exceed LQM/CIEH S4ul for HHRA Commercial Threshold_at 1% SOM (mg/kg) - Results below LOD nv Guideline threshold value not available nd Parameter not analised	•.=••II / 1	- wg/Ng	-2.5	114	114	-	-	-	-	-
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0.45 Results exceed LQM/CIEH S4ul for HHRA Residential Threshold <u>without</u> homegrown produce at 1% SOM (mg/kg) 0.45 Results exceed LQM/CIEH S4ul for HHRA Commercial Threshold_at 1% SOM (mg/kg) - Results below LOD nv Guideline threshold value not available nd Parameter not analised	1									
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- Results below LOD nv Guideline threshold value not available nd Parameter not analised								at 1% SOM (mg/kg)	
nv Guideline threshold value not available nd Parameter not analised	<u>0.45</u>	Results exc	ceed LQM	CIEH S4ul for HHRA C	ommercial Threshold_at	1% SOM (m	g/kg)			
nv Guideline threshold value not available nd Parameter not analised		Results be	low LOD		-					
nd Parameter not analised				alue not available						
140162		arameter	not ditails							
	110105									

HHRA 2015 - LQM/CIEH Suitable 4 Use Levels based on 'Commercial' and/or 'residential' land use using 1% SOM. Metals are compared against a 6% SOM

Sol : sol S4UL presented exceed the solubility saturation limit, which is presented in brackets Vap: vap S4UL presented exceed the vapour stauration limit which is presented in brackets

5.0 CONCLUSIONS

On the basis of the site investigation undertaken at the site and an assessment of source-pathways-receptors, the following conclusions have been made:

- In the site investigations undertaken, a review of the available soil quality confirms that there is no evidence of any residual contamination beneath the site.
- There is no evidence of historical contamination across the site.
- No exceedances of the most conservative threshold value for the LQM / CIEH for HHRA (Human Health Risk Assessment) Residential Threshold at 1% SOM were detected in any of the sampling points.
- Based on the laboratory results of the material sampled across the site all samples can be classified as non-hazardous.

6.0 **REFERENCES**

EPA, (2022). Environmental Protection Agency. Available on-line at: <u>https://gis.epa.ie/EPAMaps/</u> [Accessed: 13-12-2022].

GSI, (2022). Geological Survey of Ireland; Available on-line at: <u>http://www.gsi.ie</u> [Accessed: 13-12-2022].

7.0 SOIL PROFILE FIGURES



Figure 7.1 WS01 – Soil Profile



Figure 7.2 WS02 – Soil Profile



Figure 7.3 WS03 – Soil Profile



Figure 7.4 WS04 – Soil Profile



Figure 7.5 WS05 – Soil Profile

APPENDIX 1

Invader Ireland Ltd

LABORATORY RESULTS



Element Materials Technology Unit 3 Deeside Point Zone 3 Deeside Industrial Park Deeside CH5 2UA P: +44 (0) 1244 833780 F: +44 (0) 1244 833781

W: www.element.com

AWN Consulting Tecpro Building Clonshaugh Business & Technology Park Dublin Dublin 17 Ireland



Attention :	Marcello Allende
Date :	25th November, 2022
Your reference :	Indaver
Our reference :	Test Report 22/18605 Batch 1
Location :	-
Date samples received :	11th November, 2022
Status :	Final Report
Issue :	1

Five samples were received for analysis on 11th November, 2022 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Ly Rr

Liza Klebe Project Co-ordinator

Please include all sections of this report if it is reproduced

Client Name:
Reference:
Location:
Contact:
EMT Job No:

AWN Consulting Indaver -Marcello Allende

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

	Marcello A 22/18605	Allende								
EMT Sample No.	1-4	5-8	9-12	13-16	17-20]		
Sample ID	WS01	WS02	WS03	WS04	WS05					
Depth								Please se	e attached n	otes for all
COC No / misc									ations and a	
Containers	VJT	VJT	VJT	VJT	VJT					
Sample Date					09/11/2022					
Sample Type		Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1			 LOD/LOR	Units	Method No.
Date of Receipt	11/11/2022	11/11/2022	11/11/2022	11/11/2022	11/11/2022					NO.
Antimony	2	2	2	1	2			<1	mg/kg	TM30/PM15
Arsenic [#]	19.0	12.1	11.0	9.1	12.7			<0.5	mg/kg	TM30/PM15
Barium [#]	130 1.0	105 1.1	89 0.7	54 0.8	98 0.7			<1 <0.1	mg/kg mg/kg	TM30/PM15 TM30/PM15
Cadmium [#] Chromium [#]	67.9	84.9	69.1	45.5	82.6			<0.1	mg/kg	TM30/PM15
Cobalt [#]	14.1	11.4	10.4	5.6	14.4			<0.5	mg/kg	TM30/PM15
Copper [#]	34	35	32	21	32			<1	mg/kg	TM30/PM15
Lead [#]	18	15	20	8	14			<5	mg/kg	TM30/PM15
Manganese [#]	1144	1034	806	652	854			<1	mg/kg	TM30/PM15
Mercury [#]	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM30/PM15
Molybdenum [#]	4.7	5.5	4.1	4.5	3.6			<0.1	mg/kg	TM30/PM15
Nickel [#]	47.6	43.3	36.2	22.6	52.4			<0.7	mg/kg	TM30/PM15
Selenium [#]	2	<1	2	2	<1			<1	mg/kg	TM30/PM15
Tin "	<1	<1	1	<1	<1			<1	mg/kg	TM30/PM15
Total Sulphate as SO4 #	192	205	191	198	135			<50	mg/kg	TM50/PM29
Vanadium Water Soluble Boron [#]	48 0.6	41 0.4	36 0.5	22 0.3	50 0.5			<1 <0.1	mg/kg mg/kg	TM30/PM15 TM74/PM32
Zinc [#]	88	67	63	38	78			<5	mg/kg	TM30/PM15
ZIIIC				00				10	ingrig	
PAH MS										
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Phenanthrene [#]	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Pyrene [#]	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#] Chrysene [#]	<0.06 <0.02	<0.06 <0.02	<0.06 <0.02	<0.06 <0.02	<0.06 <0.02			<0.06 <0.02	mg/kg mg/kg	TM4/PM8 TM4/PM8
Benzo(bk)fluoranthene #	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene [#]	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
PAH 6 Total [#]	<0.22	<0.22	<0.22	<0.22	<0.22			<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64			<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	 	 	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	95	94	91	88	90			<0	%	TM4/PM8
VOC TICs	ND	ND	See Attached	ND	ND				None	TM15/PM10

Client Name: Reference:	AWN Cor Indaver	sulting					Report :	Solid						
Location: Contact: EMT Job No:	- Marcello / 22/18605	Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub Marcello Allende												
EMT Sample No.	1-4	5-8	9-12	13-16	17-20									
Sample ID	WS01	WS02	WS03	WS04	WS05									
Depth	1										Please see	e attached n	notes for al	
COC No / misc											abbrevia	itions and a	cronyms	
Containers	VJT	VJT	VJT	VJT	VJT									
Sample Date	09/11/2022	09/11/2022	09/11/2022	09/11/2022	09/11/2022									
Sample Type	Soil	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1	1								Martha	
Date of Receipt		11/11/2022	11/11/2022	11/11/2022	11/11/2022						LOD/LOR	Units	Methoo No.	
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2	<2						<2	ug/kg	TM15/PM	
Benzene [#]	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM	
Toluene [#]	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM	
Ethylbenzene [#]	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM	
m/p-Xylene [#]	<5	<5	<5	<5	<5						<5	ug/kg	TM15/PM	
o-Xylene #	<3	<3	<3	<3	<3						<3	ug/kg	TM15/PM	
Surrogate Recovery Toluene D8	107	107	103	115	114						<0	%	TM15/PM	
Surrogate Recovery 4-Bromofluorobenzene	87	93	84	94	95						<0	%	TM15/PM	
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	<30	<30	<30	<30						<30	mg/kg	TM5/PM8/Pf	
TPH CWG														
Aliphatics													1	
>C5-C6 (HS_1D_AL)*	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PN	
>C6-C8 (HS_1D_AL) *	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM	
>C8-C10 (HS_1D_AL)	<0.1	<0.1	0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM	
>C10-C12 (EH_CU_1D_AL) *	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM8/P	
>C12-C16 (EH_CU_1D_AL) *	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM8/P	
>C16-C21 (EH_CU_1D_AL)*	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/P	
>C21-C35 (EH_CU_1D_AL)*	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/P	
>C35-C40 (EH_1D_AL)	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/P	
Total aliphatics C5-40 (EH+HS_1D_AL)	<26	<26	<26	<26	<26						<26	mg/kg	TM5/TM36/PM8/PM1	
>C6-C10 (HS_1D_AL)	<0.1	<0.1	0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PN	
>C10-C25 (EH_1D_AL) >C25-C35 (EH_1D_AL)	<10	<10 <10	<10 <10	<10 <10	<10 <10						<10 <10	mg/kg	TM5/PM8/PI TM5/PM8/PI	
Aromatics	<10	<10	<10	<10	<10						<10	mg/kg	T WOT WOT	
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PN	
>EC7-EC8 (HS_1D_AR) *	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PN	
>EC8-EC10 (HS_1D_AR) [#]	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PN	
>EC10-EC12 (EH_CU_1D_AR)	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM8/PI	
>EC12-EC16 (EH_CU_1D_AR)#	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM8/PI	
>EC16-EC21 (EH_CU_1D_AR)#	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PI	
>EC21-EC35 (EH_CU_1D_AR) #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PI	
>EC35-EC40 (EH_1D_AR)	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PI	
Total aromatics C5-40 (EH+HS_1D_AR)	<26	<26	<26	<26	<26						<26	mg/kg	TM5/TM36/PM8/PM1	
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52	<52	<52	<52	<52						<52	mg/kg	TM5/TM36/PM8/PM1:	
>EC6-EC10 (HS_1D_AR) *	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM	
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10	<10						<10	mg/kg	TM5/PM8/P	
>EC25-EC35 (EH_1D_AR)	<10	<10	<10	<10	<10						<10	mg/kg	TM5/PM8/PI	
PCB 28 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PI	
PCB 52 [#]	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM	
DCR 101 #	-		-								-5		TM17/DN	

<5

<5

<5

<5

<5

<5

<5

<5

<5

<5

PCB 101 #

PCB 118[#]

TM17/PM8

TM17/PM8

<5

<5

ug/kg

ug/kg

Client Name: Reference:	AWN Cor Indaver	sulting				Report :		- L 250a al		lootio tub		
Location: Contact: EMT Job No:	- Marcello / 22/18605					Solids: V=	bug voc ja	r, J=250g gi	ass jar, T=p	astic tud		
EMT Sample No.	1-4	5-8	9-12	13-16	17-20					ľ		
Sample ID		5-8 WS02	9-12 WS03	WS04	WS05							
Depth												
COC No / misc											e attached n ations and a	
			N/IT									
Containers		VJT	VJT	VJT	VJT							
Sample Date												
Sample Type	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1					LOD/LOR	Units	Method
Date of Receipt	11/11/2022	11/11/2022	11/11/2022	11/11/2022	11/11/2022							No.
PCB 138 [#]	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 153 [#]	<5	<5	<5	<5	<5					<5	ug/kg	TM17/PM8
PCB 180 [#] Total 7 PCBs [#]	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35					<5 <35	ug/kg ug/kg	TM17/PM8 TM17/PM8
Total / PODS	200	100	100	200	100					100	ug/ng	
Phenol [#]	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	mg/kg	TM26/PM218
Natural Moisture Content	14.6	16.5	15.0	10.6	15.2					<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	12.7	14.2	13.0	9.6	13.2					<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/kg	TM38/PM20
Chromium III	67.9	84.9	69.1	45.5	82.6					<0.5	mg/kg	NONE/NONE
Total Cyanide [#]	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	mg/kg	TM89/PM4
Total Organic Carbon #	0.65	0.50	0.63	0.22	0.25					<0.02	%	TM21/PM24
Sulphide	<10	<10	<10	<10	<10					<10	mg/kg	TM107/PM4
Suphide		<10	<10	<10	210					<10	iiig/kg	1017/104
												-

Client Name:
Reference:
Location:
Contact:
EMT Job No:

AWN Consulting Indaver -Marcello Allende

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Contact: EMT Job No:	Marcello A 22/18605	Allende								
EMT Sample No.	1-4	5-8	9-12	13-16	17-20]		
Sample ID	WS01	WS02	WS03	WS04	WS05					
Depth										
COC No / misc									e attached n ations and a	
Containers	-	VJT	VJT	VJT	VJT					
Sample Date	09/11/2022	09/11/2022	09/11/2022	09/11/2022	09/11/2022					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1			100400		Method
Date of Receipt	11/11/2022	11/11/2022	11/11/2022	11/11/2022	11/11/2022			LOD/LOR	Units	No.
PFAAS										
PFBA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFPeA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
HFPO-DA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFBS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFHxA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
4:2 FTS	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
FPePA	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
PFPeS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFHpA DONA	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5			<0.5	ug/kg	TM135/PM120 TM135/PM120
PFHxS	<0.5	<0.5	<0.5	<0.5	<0.5 <0.5			<0.5 <0.5	ug/kg ug/kg	TM135/PM120
PFOA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
6:2 FTS	<1	3	<1	13	3			<1	ug/kg	TM135/PM120
PFHpS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
FOUEA	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
PFNA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
FOSA	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
PFOS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
N-MeFOSA	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
PFDA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
N-EtFOSA	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
8:2 FTS	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
9CI-PF3ONS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFNS PFUnA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120 TM135/PM120
N-MeFOSAA	<0.5 <1	<0.5 <1	<0.5 <1	<0.5 <1	<0.5 <1			<0.5 <1	ug/kg ug/kg	TM135/PM120
N-EtFOSAA	<1	<1	<1	<1	<1			<1	ug/kg	TM135/PM120
PFDS	<0.5	<0.5	1.3	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFDoA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFUnDS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFTrDA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFDoDS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFTeDA	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFTrDS	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	ug/kg	TM135/PM120
PFHxDA	<2.5	<2.5	<2.5	<2.5	<2.5			<2.5	ug/kg	TM135/PM120
PFODA	<2.5	<2.5	<2.5	<2.5	<2.5			<2.5	ug/kg	TM135/PM120
8:2diPAP	<2.5	<2.5	<2.5	<2.5	<2.5			<2.5	ug/kg	TM135/PM120
Elemental Sulphur	<1	1	2	2	<1			<1	mg/kg	TM108/PM114
рН#	8.11	8.35	8.22	9.47	8.37			<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1052	0.096	0.1003	0.1011	0.1019				kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09				kg	NONE/PM17

Client Name:							
Reference:							
Location:							
Contact:							
EMT Job No:							

AWN Consulting Indaver -Marcello Allende

22/18605

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Job No:	22/18605									
EMT Sample No.	1-4	5-8	9-12	13-16	17-20					
Sample ID	WS01	WS02	WS03	WS04	WS05					
Depth								Diagon on	o ottoobod n	otoo for all
COC No / misc									e attached n ations and a	
Containers	VJT	VJT	VJT	VJT	VJT					
Sample Date										
Sample Type	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1			 LOD/LOR	Units	Method
Date of Receipt	11/11/2022	11/11/2022	11/11/2022	11/11/2022	11/11/2022					No.
Dissolved Antimony#	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Arsenic [#]	<0.0025	<0.0025	<0.0025	0.0027	<0.0025			<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	<0.025	0.027	<0.025			<0.025	mg/kg	TM30/PM17
Dissolved Barium [#]	0.006	0.005	0.004	<0.003	0.003			<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.06	0.05	0.04	< 0.03	<0.03			<0.03	mg/kg	TM30/PM17
Dissolved Boron [#] Dissolved Boron (A10) [#]	<0.012 <0.12	<0.012 <0.12	<0.012 <0.12	<0.012 <0.12	<0.012 <0.12			<0.012 <0.12	mg/l	TM30/PM17 TM30/PM17
Dissolved Boron (A10)	<0.12	<0.12	<0.12	<0.12	<0.12			<0.12	mg/kg mg/l	TM30/PM17 TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	< 0.005	<0.0005	<0.0005			<0.0005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015			<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015	<0.015			<0.015	mg/kg	TM30/PM17
Dissolved Copper [#]	<0.007	<0.007	<0.007	<0.007	<0.007			<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07			<0.07	mg/kg	TM30/PM17
Dissolved Lead [#]	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM30/PM17
Dissolved Lead (A10)#	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum [#]	<0.002	0.005	0.008	0.010	<0.002			<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) *	<0.02	0.05	0.08	0.10	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Nickel [#]	<0.002	<0.002	0.003	<0.002	<0.002			<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	0.03	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Selenium [#]	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) [#]	<0.03	<0.03	<0.03	< 0.03	<0.03			<0.03	mg/kg	TM30/PM17
Dissolved Zinc#	0.003	< 0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) [#]	<0.03 <0.00001	<0.03 <0.00001	<0.03 <0.00001	<0.03 <0.00001	<0.03 <0.00001			<0.03 <0.00001	mg/kg	TM30/PM17 TM61/PM0
Mercury Dissolved by CVAF [#] Mercury Dissolved by CVAF [#]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001	mg/l mg/kg	TM61/PM0
Mercury Dissolved by CVA	0.0001	20.0001	<0.000 T	20.0001	<0.000 T			20.0001	ing/ig	
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM26/PM0
Fluoride	0.5	0.4	0.4	0.5	0.4			<0.3	mg/l	TM173/PM0
Fluoride	5	4	4	5	4			<3	mg/kg	TM173/PM0
Sulphate as SO4 [#]	3.4	0.5	2.3	3.0	3.2			<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	34	5	23	30	32			<5	mg/kg	TM38/PM0
Chloride [#]	0.5	<0.3	0.4	0.8	<0.3			<0.3	mg/l	TM38/PM0
Chloride [#]	5	<3	4	8	<3			<3	mg/kg	TM38/PM0
Ammoniacal Nitrogen as N [#]	<0.03	<0.03	0.19	<0.03	<0.03			<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as N [#]	<0.3	<0.3	1.9	<0.3	<0.3			<0.3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	7	3	<2			<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	70	30	<20			<20	mg/kg	TM60/PM0
Total Dissolved Solids #	86	65	71	74	105			<35	mg/l	TM20/PM0
Total Dissolved Solids #	860	650	710	740	1050			 <350	mg/kg	TM20/PM0

Client Name:	
Reference:	
Location:	
Contact:	

AWN Consulting Indaver -Marcello Allende 22/18605

VOC Report : Solid

EMT Sample No. Sample ID Depth COC No / misc Containers Sample Date Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	Soil 1 11/11/2022 <2 <2	5-8 WS02 V J T 09/11/2022 Soil 1 11/11/2022	9-12 wso3 V J T 09/11/2022 Soil 1		17-20 WS05					
Sample ID Depth COC No / misc Containers Sample Date 0 Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	WS01 V J T 09/11/2022 Soil 1 11/11/2022 <2 <2	WS02 V J T 09/11/2022 Soil 1	WS03 V J T 09/11/2022 Soil	WS04 V J T 09/11/2022	WS05					
Depth COC No / misc Containers Sample Date 0 Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	V J T 09/11/2022 Soil 1 11/11/2022 <2 <2 <2	V J T 09/11/2022 Soil 1	V J T 09/11/2022 Soil	V J T 09/11/2022						
Depth COC No / misc Containers Sample Date 0 Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	V J T 09/11/2022 Soil 1 11/11/2022 <2 <2 <2	V J T 09/11/2022 Soil 1	V J T 09/11/2022 Soil	V J T 09/11/2022						
COC No / misc Containers Sample Date 0 Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	09/11/2022 Soil 1 11/11/2022 <2 <2	09/11/2022 Soil 1	09/11/2022 Soil	09/11/2022	VJT					
Containers Sample Date 0 Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#] 1	09/11/2022 Soil 1 11/11/2022 <2 <2	09/11/2022 Soil 1	09/11/2022 Soil	09/11/2022	V.IT			Please see	e attached n	otes for all
Sample Date 0 Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#] 1	09/11/2022 Soil 1 11/11/2022 <2 <2	09/11/2022 Soil 1	09/11/2022 Soil	09/11/2022	V.IT			abbrevia	ations and a	cronyms
Sample Type Batch Number Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	Soil 1 11/11/2022 <2 <2	Soil 1	Soil							
Batch Number Date of Receipt 1 VOC MS I Dichlorodifluoromethane I Methyl Tertiary Butyl Ether* I	1 11/11/2022 <2 <2	1		Soil	09/11/2022 Soil					
Date of Receipt 1 VOC MS Dichlorodifluoromethane Methyl Tertiary Butyl Ether*	<2 <2 <2			1	1					Method
Dichlorodifluoromethane Methyl Tertiary Butyl Ether [#]	<2			11/11/2022	11/11/2022			LOD/LOR	Units	No.
Methyl Tertiary Butyl Ether #	<2									
		<2	<2	<2	<2			<2	ug/kg	TM15/PM10
01.1		<2	<2	<2	<2			<2	ug/kg	TM15/PM10 TM15/PM10
Chloromethane [#] Vinyl Chloride	<3 <2	<3 <2	<3 <2	<3 <2	<3 <2			<3 <2	ug/kg ug/kg	TM15/PM10 TM15_A/PM10
Bromomethane	<1	<1	<1	<1	<1			<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE)#	<6	<6	<6	<6	<6			<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7	<7	<7	<7			<7	ug/kg	TM15/PM10 TM15/PM10
trans-1-2-Dichloroethene # 1,1-Dichloroethane #	<3 <3	<3 <3	<3 <3	<3 <3	<3 <3			<3 <3	ug/kg ug/kg	TM15/PM10 TM15/PM10
cis-1-2-Dichloroethene [#]	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10 TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Chloroform [#]	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10 TM15/PM10
1,1-Dichloropropene [#] Carbon tetrachloride [#]	<3 <4	<3 <4	<3 <4	<3 <4	<3 <4			<3 <4	ug/kg ug/kg	TM15/PM10 TM15/PM10
1,2-Dichloroethane [#]	<4	<4	<4	<4	<4			<4	ug/kg ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6	<6			<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Bromodichloromethane # cis-1-3-Dichloropropene	<3 <4	<3 <4	<3 <4	<3 <4	<3 <4			<3 <4	ug/kg ug/kg	TM15/PM10 TM15/PM10
Toluene [#]	<3	<3	<3	<3	<3			<3	ug/kg ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Dibromochloromethane # 1.2-Dibromoethane #	<3 <3	<3 <3	<3 <3	<3 <3	<3 <3			<3 <3	ug/kg ug/kg	TM15/PM10 TM15/PM10
Chlorobenzene [#]	<3	<3	<3	<3	<3			<3	ug/kg ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Ethylbenzene [#]	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	<5	<5	<5	<5			<5	ug/kg	TM15/PM10
o-Xylene#	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10 TM15_A/PM10
Styrene Bromoform	<3 <3	<3 <3	<3 <3	<3 <3	<3 <3			<3 <3	ug/kg ug/kg	TM15_A/PM10
Isopropylbenzene [#]	<3	<3	<3	<3	<3			<3	ug/kg ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane [#]	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10 TM15/PM10
2-Chlorotoluene 1,3,5-Trimethylbenzene [#]	<3 <3	<3 <3	<3 <3	<3 <3	<3 <3			<3 <3	ug/kg ug/kg	TM15/PM10 TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3			<3	ug/kg ug/kg	TM15/PM10
tert-Butylbenzene [#]	<5	<5	<5	<5	<5			<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6	<6	<6	<6			<6	ug/kg	TM15/PM10
sec-Butylbenzene#	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
4-Isopropyltoluene	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene [#]	<4 <4	<4 <4	<4 <4	<4 <4	<4 <4			<4 <4	ug/kg ug/kg	TM15/PM10 TM15/PM10
n-Butylbenzene	<4	<4 <4	<4	<4	<4			<4 <4	ug/kg ug/kg	TM15/PM10
1,2-Dichlorobenzene [#]	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene	<7	<7	<7	<7	<7			<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Naphthalene 1,2,3-Trichlorobenzene	<27 <7	<27 <7	<27 <7	<27 <7	<27 <7			<27 <7	ug/kg ug/kg	TM15/PM10 TM15/PM10
Surrogate Recovery Toluene D8	<7 107	</td <td><!--</td--><td><!--</td--><td><!--</td--><td></td><td></td><td><7 <0</td><td>ug/kg %</td><td>TM15/PM10 TM15/PM10</td></td></td></td>	</td <td><!--</td--><td><!--</td--><td></td><td></td><td><7 <0</td><td>ug/kg %</td><td>TM15/PM10 TM15/PM10</td></td></td>	</td <td><!--</td--><td></td><td></td><td><7 <0</td><td>ug/kg %</td><td>TM15/PM10 TM15/PM10</td></td>	</td <td></td> <td></td> <td><7 <0</td> <td>ug/kg %</td> <td>TM15/PM10 TM15/PM10</td>			<7 <0	ug/kg %	TM15/PM10 TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	87	93	84	94	95			<0	%	TM15/PM10

Job number:	22/18605	Method:	VOC
Sample number:	9	Matrix:	Solid
Sample identity:	WS03		
Sample depth:			
Sample Type:	Soil		
Units:	ug/kg		

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
4551-51-3	1H-Indene, octahydro-, cis-	6.405	87	129
3282-53-9	Cyclohexene, 1-butyl-	6.719	92	199
91-17-8	Naphthalene, decahydro-	6.847	96	322
	cis-Decalin, 2-syn-methyl-	7.091 - 7.400	94,97	166
2958-76-1	Naphthalene, decahydro-2-methyl-	7.167 - 7.272	94,97	190

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		85.8			
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-			
Particle Size <4mm =	>95%						
EMT Job No		22/18605	Land	fill Waste Ac			
Sample No		3		Criteria Lin	nits		
Client Sample No		WS01					
Depth/Other							
Sample Date		09/11/2022	Inert	Stable Non-reactive	Hazardous		
Batch No		1					
Solid Waste Analysis							
Total Organic Carbon (%)	0.65		3	5	6		
Sum of BTEX (mg/kg)	<0.017		6	-	-		
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-		
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30		500	-	-		
PAH Sum of 6 (mg/kg)	<0.22		-	-	-		
PAH Sum of 17 (mg/kg)	<0.64		100	-	-		
Eluate Analysis	10:1 concn leached A10		le	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg			
	mg/kg			mg/kg			
Arsenic	<0.025		0.5	2	25		
Barium	0.06		20	100	300		
Cadmium	< 0.005		0.04	1	5		
Chromium	<0.015		0.5	10	70		
Copper	<0.07		2	50	100		
Mercury	< 0.0001		0.01	0.2	2		
Molybdenum	<0.02		0.5	10	30		
Nickel	<0.02		0.4	10	40		
Lead	<0.05		0.5	10	50		
Antimony	<0.02		0.06	0.7	5		
Selenium	<0.03		0.1	0.5	7		
Zinc	<0.03		4	50	200		
Chloride	5		800	15000	25000		
Fluoride	5		10	150	500		
Sulphate as SO4	34		1000	20000	50000		
Total Dissolved Solids	860		4000	60000	100000		
Phenol	<0.1		1	-	-		

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		93.3		
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-		
Particle Size <4mm =	>95%					
EMT Job No		22/18605	Land	fill Waste Ac	ceptance	
Sample No		7		Criteria Lin		
Client Sample No		WS02				
Depth/Other						
Sample Date		09/11/2022	Inert	Stable Non-reactive	Hazardous	
Batch No		1				
Solid Waste Analysis						
Total Organic Carbon (%)	0.50		3	5	6	
Sum of BTEX (mg/kg)	<0.017		6	-	-	
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-	
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30		500	-	-	
PAH Sum of 6 (mg/kg)	<0.22		-	-	-	
PAH Sum of 17 (mg/kg)	<0.64		100	-	-	
	10:1		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg			
Eluate Analysis	concn leached		le	eaching test	using	
Eluate Analysis	leached A10		le	eaching test I 12457-2 at	using	
	leached A10 mg/kg		le BS EN	eaching test I 12457-2 at mg/kg	using L/S 10 l/kg	
Arsenic	leached A10 mg/kg <0.025		le BS EN 0.5	eaching test I 12457-2 at mg/kg 2	using L/S 10 l/kg 25	
Arsenic Barium	leached A10 mg/kg <0.025 0.05		le BS EN 0.5 20	eaching test 12457-2 at mg/kg 2 100	using L/S 10 l/kg 25 300	
Arsenic Barium Cadmium	leached A10 mg/kg <0.025 0.05 <0.005		0.5 20 0.04	eaching test 12457-2 at mg/kg 2 100 1	using L/S 10 l/kg 25 300 5	
Arsenic Barium Cadmium Chromium	leached A10 mg/kg <0.025 0.05 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	using L/S 10 l/kg 25 300 5 70	
Arsenic Barium Cadmium Chromium Copper	leached A10 mg/kg <0.025 0.05 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	aching test 12457-2 at 2 100 1 10 50	using L/S 10 l/kg 25 300 5 70 100	
Arsenic Barium Cadmium Chromium Copper Mercury	leached A10 mg/kg <0.025		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 0 0 0 0.2	using L/S 10 l/kg 25 300 5 70 100 2	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	leached A10 mg/kg <0.025		0.5 20 0.04 0.5 2	aching test 12457-2 at 2 100 1 10 50	using L/S 10 I/kg 25 300 5 70 100	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	leached A10 mg/kg <0.025		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 0 0 0.2 10 10 50 0.2 10 10	using L/S 10 l/kg 25 300 5 70 100 2 30 40	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	leached A10 mg/kg <0.025		Ic 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 0 0.2 10 10 50 0.2 10 10	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	leached A10 mg/kg <0.025		le BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 0 50 0.2 10 50 0.2 10 0.2 10 0.7	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	leached A10 mg/kg <0.025		Ic 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 0 10 50 0.2 10 10 0.2 10 0.2 0.5	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5 5 7	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	leached A10 mg/kg <0.025		Ic 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 0.2 10 0.2 10 50 0.2 50 0.2 10 50 50	using L/S 10 l/kg 25 300 5 70 100 2 30 40 50 5 5 7 200	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	leached A10 mg/kg <0.025		le BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 0 0.2 10 0.2 10 0.2 10 10 10 50 0.2 10	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5 7 200 25000	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	leached A10 mg/kg <0.025		le BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 0 10 50 0.2 10 10 50 0.2 10	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5 7 200 25000 500	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	leached A10 mg/kg <0.025		le BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	mg/kg 2 100 1 10 50 0.2 10 10 50 0.2 10	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5 7 200 25000 500 500 5000	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	leached A10 mg/kg <0.025		le BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 0 10 50 0.2 10 10 50 0.2 10	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5 7 200 25000 500	

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		89.4	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-	
Particle Size <4mm =	>95%				
EMT Job No		22/18605	Land	fill Waste Ac	centance
Sample No		11	Lana	Criteria Lin	
Client Sample No		WS03			
Depth/Other			-		
Sample Date		09/11/2022	Inert	Stable	Hazardous
Batch No		1		Non-reactive	
Solid Waste Analysis					
Total Organic Carbon (%)	0.63		3	5	6
Sum of BTEX (mg/kg)	<0.017		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)			500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached A10		le	values for co eaching test I 12457-2 at	using
	mg/kg			mg/kg	
Arsenic	<0.025		0.5	2	25
Barium	0.04		20	100	300
Cadmium	< 0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	< 0.0001		0.01	0.2	2
Molybdenum	0.08		0.5	10	30
Nickel	0.03		0.4	10	40
Lead	<0.05		0.5	10	50
Antimony	<0.02		0.06	0.7	5
Selenium	<0.03		0.1	0.5	7
Zinc	<0.03		4	50	200
Chloride	4		800	15000	25000
Fluoride	4		10	150	500
Sulphate as SO4	23		1000	20000	50000
Total Dissolved Solids	710		4000	60000	100000
Phenol	<0.1		1	-	-
Dissolved Organic Carbon	70		500	800	1000

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		88.9	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-	
Particle Size <4mm =	>95%				
EMT Job No		22/18605	l an d		
Sample No		15	Land	fill Waste Ac Criteria Lin	
		WS04	_		
Client Sample No Depth/Other		W304	_		
Sample Date		09/11/2022	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.22		3	5	6
Sum of BTEX (mg/kg)	<0.017		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)			500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	_
PAH Sum of 17 (mg/kg)	<0.22		100	-	_
	<0.04		100	_	_
			-		
Eluate Analysis	10:1 concn leached A10		le	values for co eaching test I 12457-2 at	using
	mg/kg			mg/kg	
Arsenic	0.027		0.5	2	25
Barium	<0.03		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	< 0.0001		0.01	0.2	2
Molybdenum	0.10		0.5	10	30
Nickel	<0.02		0.4	10	40
Lead	<0.05		0.5	10	50
Antimony	<0.02		0.06	0.7	5
Selenium	<0.03		0.1	0.5	7
Zinc	<0.03		4	50	200
Chloride	8		800	15000	25000
Fluoride	5		10	150	500
Sulphate as SO4	30		1000	20000	50000
Total Dissolved Solids	740		4000	60000	100000
Phenol	<0.1		1	-	-
Dissolved Organic Carbon	30		500	800	1000

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		88.6				
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-				
Particle Size <4mm =	>95%							
EMT Job No	No 22/18605				Landfill Waste Acceptance			
Sample No		19		Criteria Lin	nits			
Client Sample No		WS05						
Depth/Other								
Sample Date		09/11/2022	Inert	Stable Non-reactive	Hazardous			
Batch No		1						
Solid Waste Analysis								
Total Organic Carbon (%)	0.25		3	5	6			
Sum of BTEX (mg/kg)	<0.017		6	-	-			
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-			
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30		500	-	-			
PAH Sum of 6 (mg/kg)	<0.22		-	-	-			
PAH Sum of 17 (mg/kg)	<0.64		100	-	-			
Eluate Analysis	10:1 concn leached		le	values for co eaching test I 12457-2 at I	using			
	A10 mg/kg			mg/kg				
Arsenic	< 0.025		0.5	2	25			
Barium	<0.03		20	100	300			
Cadmium	< 0.005		0.04	1	5			
Chromium	<0.015		0.5	10	70			
Copper	< 0.07		0.0	-	-			
	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		2	50	100			
Mercurv			2	50 0.2	100 2			
Mercury Molybdenum	<0.001 <0.02				100 2 30			
Mercury Molybdenum Nickel	<0.0001		0.01	0.2	2			
Molybdenum	<0.0001 <0.02 <0.02		0.01 0.5 0.4	0.2 10 10	2 30			
Molybdenum Nickel Lead	<0.0001 <0.02 <0.02 <0.05		0.01 0.5 0.4 0.5	0.2 10 10 10	2 30 40 50			
Molybdenum Nickel Lead Antimony	<0.0001 <0.02 <0.02 <0.05 <0.02		0.01 0.5 0.4	0.2 10 10 10 0.7	2 30 40			
Molybdenum Nickel Lead Antimony Selenium	<0.0001 <0.02 <0.02 <0.05		0.01 0.5 0.4 0.5 0.06	0.2 10 10 10	2 30 40 50 5			
Molybdenum Nickel Lead Antimony	<0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.01 0.5 0.4 0.5 0.06 0.1 4	0.2 10 10 0.7 0.5 50	2 30 40 50 5 7 200			
Molybdenum Nickel Lead Antimony Selenium Zinc	<0.0001 <0.02 <0.02 <0.05 <0.02 <0.03		0.01 0.5 0.4 0.5 0.06 0.1 4 800	0.2 10 10 0.7 0.5 50 15000	2 30 40 50 5 7 200 25000			
Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <0.03 <3 4		0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	0.2 10 10 0.7 0.5 50 15000 150	2 30 40 50 5 7 200 25000 500			
Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <0.03 <3 4 32		0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	0.2 10 10 0.7 0.5 50 15000 150 20000	2 30 40 50 5 7 200 25000 500 5000			
Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 4		0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	0.2 10 10 0.7 0.5 50 15000 150	2 30 40 50 5 7 200 25000 500			

Client Name:	AWN Consulting
Reference:	Indaver
Location:	-
Contact:	Marcello Allende

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
22/18605	1	WS01		1-4	No interpretation possible
22/18605	1	WS02		5-8	No interpretation possible
22/18605	1	WS03		9-12	No interpretation possible
22/18605	1	WS04		13-16	No interpretation possible
22/18605	1	WS05		17-20	No interpretation possible

Matrix : Solid

Client Name: Reference:	AWN Consulting Indaver		
Location:	-		
Contact:	Marcello Allende		

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
22/18605	1	WS01		4	Matthew Turner	22/11/2022	General Description (Bulk Analysis)	Brown soil/Stone
					Matthew Turner	22/11/2022	Asbestos Fibres	NAD
					Matthew Turner	22/11/2022	Asbestos ACM	NAD
					Matthew Turner	22/11/2022	Asbestos Type	NAD
22/18605	1	WS02		8	Simon Postlewhite	22/11/2022	General Description (Bulk Analysis)	Brown soil/stones
					Simon Postlewhite	22/11/2022	Asbestos Fibres	NAD
					Simon Postlewhite	22/11/2022	Asbestos ACM	NAD
					Simon Postlewhite	22/11/2022	Asbestos Type	NAD
22/18605	1	WS03		12	Matthew Turner	22/11/2022	General Description (Bulk Analysis)	Brown soil/Stone
					Matthew Turner	22/11/2022	Asbestos Fibres	NAD
					Matthew Turner	22/11/2022	Asbestos ACM	NAD
					Matthew Turner	22/11/2022	Asbestos Type	NAD
22/18605	1	WS04		16	Matthew Turner	22/11/2022	General Description (Bulk Analysis)	Brown soil/Stone
					Matthew Turner	22/11/2022	Asbestos Fibres	NAD
					Matthew Turner	22/11/2022	Asbestos ACM	NAD
					Matthew Turner	22/11/2022	Asbestos Type	NAD
22/18605	1	WS05		20	Catherine Coles	23/11/2022	General Description (Bulk Analysis)	soil,stone
					Catherine Coles	23/11/2022	Asbestos Fibres	NAD
					Catherine Coles	23/11/2022	Asbestos ACM	NAD
					Catherine Coles	23/11/2022	Asbestos Type	NAD

Client Name: AWN Consulting Reference: Indaver

Location:

Contact: Marcello Allende

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EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason				
	No deviating sample report results for job 22/18605									

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/18605

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation. Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
со	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
Ν	Client Sample
ТВ	Trip Blank Sample
ОС	Outside Calibration Range
	1

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/18605

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

EMT Job No: 22/18605

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.	Yes		AR	Yes
ТМЗО	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co- elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co- elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes

EMT Job No: 22/18605

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377- 3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM108	Determination of Elemental Sulphur by Reversed Phase High Performance Liquid Chromatography with Ultra Violet spectroscopy.	PM114	End over end extraction of dried and crushed soil samples for organic analysis. The solvent mix varies depending on analysis required			AD	Yes

EMT Job No: 22/18605

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM135	Analysis of PFAS compounds in Water and Soil by LC-MS/MS	PM120	Methanol/NH4OH Extraction for PFAS Analysis by LC-MS - As received solid samples are extracted in Methanol: Ammonium Hydroxide solution by Sonication and End over End shaker.			AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Method Code Appendix

APPENDIX 2

Invader Ireland Ltd

Window Sample (WS) Logs

		Window Sam	nple Log: WS01	
awn consulting			Sheet 1/1	
AWN Project Ref: 227501.0667 Client: Indaver Irel Ground Level (mAOD): No value Grid Reference: 706122E, 770972N Location: Meath	and Ltd.		Excavation date: Geology log:	09/11/2022 AW
SUBSURFACE PROFILE	Depth mbgl (mAOD)	Lithology	Backfill Details/ Sa	amples taken
Ground surface				
0.1 Brown gravelly silty CLAY. Gravel is subangular to subrounded with cobbles (NATURAL GROUND). 0.3 0.4 0.5 0.6 0.7 0.8 0.9 0.9 1.0 1.1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 Possible Bedrock - Obstruction 2.0 End of Window Sample 1.9 mbgl 2.1 End of Window Sample 1.9 mbgl 2.2 3 2.4 5 2.6 3.1 3.1 3.1 3.2 3.3 3.4 3.5	1.9	g Rig)	Sample WS01 taken	
Comments: No sign of contamination.	Water Strik			-
Contractor: IGSL	Static Wat	er Level (mbgl):	-	

awnconsulting		Window San	nple Log: WS02 Sheet 1/1	
AWN Project Ref: 227501.0667 Client: Indaver Irela Ground Level (mAOD): No value Grid Reference: 706211E, 770965N Location: Meath	and Ltd.		Excavation date: Geology log:	09/11/2022 AW
SUBSURFACE PROFILE	Depth mbgl (mAOD)	Lithology	Backfill Details/ S	amples taken
Ground surface 0.1 Brown gravelly silty CLAY. Gravel is subangular to subrounded with cobbles (NATURAL GROUND). 0.3 4 0.4 5 0.6 7 0.7 8 0.9 10 1.1 1.2 1.3 1.4 1.5 1.6 1.6 7 1.7 1.8 1.8 Possible Bedrock - Obstruction 2.0 End of Window Sample 1.95 mbgl 2.1 2.3 2.3 3.4 2.5 3.6 2.6 3.7 2.8 3.0 3.1 3.1 3.2 3.3 3.4 3.5 Excavation Method: Mechanical Excavation (Terrier Wind) Comments: No sign of contamination.	1.95 ow Samplin	g Rig)	Sample WS02 taken	
Comments: No sign of contamination.		kes (mbgl): er Level (mbgl):		-
			-	

awnconsulting Window Sample Log: WS03	
Sheet 1/1	
AWN Project Ref: 227501.0667 Client: Indaver Ireland Ltd. Excavation date:	09/11/2022
Ground Level (mAOD): No value Grid Reference: 706273E, 771065N Location: Meath Geology log:	AW
Grid Reference: 706273E, 771065N Location: Meath Geology log:	Avv
SUBSURFACE PROFILE Depth mbgl (mAOD) Lithology Backfill Details/ Sat	nples taken
Ground surface	
0.1 Brown gravelly silty CLAY. Gravel is subangular to subrounded with oxboles (NATURAL GROUND). 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 3.6 9 3.6	
^{3.7} End of Window Sample 3.6 mbgl	
Excavation Method: Mechanical Excavation (Terrier Window Sampling Rig)	
Comments: No sign of contamination.	
Water Strikes (mbgl): - - Contractor: IGSL Static Water Level (mbgl): -	-

awnconsulting		Window San	nple Log: WS04	
awnoonsurring			Sheet 1/1	
AWN Project Ref:227501.0667Client: Indaver IndGround Level (mAOD):No value	eland Ltd.		Excavation date:	09/11/2022
Grid Reference: 706274E, 771067N Location: Meath			Geology log:	AW
SUBSURFACE PROFILE	Depth mbgl (mAOD)	Lithology	Backfill Details/ S	amples taken
Ground surfact Comments: No sign of contamination. Ground surfact	3.2	g Rig)	Sample WS04 taken	
Contractor: IGSL		kes (mbgl):		-
	Static Wat	er Level (mbgl):	-	

	10					
	awpeonsulting		Window San	nple Log: WS	S05	
	awn consulting			She	et 1/1	
	I Project Ref: 227501.0667 Client: Indaver Irela	and Ltd.		Excavation date	e: (9/11/2022
	nd Level (mAOD): No value Reference: 706315E, 770799N Location: Meath			Geology log:		AW
	SUBSURFACE PROFILE	Depth mbgl (mAOD)	Lithology	Backfill Detai	ls/ Sam	oles taker
	Ground surface	(11/102)				
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0	Possible Bedrock - Obstruction	2.9		Sample WS05 ta	ken	
3.1 3.2 3.3 3.4	End of Window Sample 2.9 mbgl					
3.5						
ľ	Excavation Method: Mechanical Excavation (Terrier Windo	ow Samplin	g Rig)			
ŀ	Comments: No sign of contamination.					
		Water Stril	kes (mbgl):	-	-	-
ľ	Contractor: IGSL	Static Wat	er Level (mbgl):		-	