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Our Ref: 221025_LET_005A

30 August 2022

Bob Healy and Company Pty Ltd
463 Leeds Parade
ORANGE NSW 2800

Attention: Bob Healy

CONTAMINATION ASSESSMENT: LAND ADJACENT RAIL CORRIDOR – 463 LEEDS PARADE AND 440 CLERGATE ROAD, ORANGE NSW

Premise Australia Pty Ltd (Premise) has completed a contamination assessment of soil and sediment at the western boundary of land comprised of 463 Leeds Parade (Lot 15 in DP 6694) and 440 Clergate Road (Lots 2 and 3 in DP 255983) – the site – in Orange NSW.

BACKGROUND

The western boundary of the site borders the rail alignment of the Main Western Railway, where potential for contaminated soil has been identified. Chemicals of potential concern (COPC) that may have resulted in contamination of land include:

- Asbestos – historically used in brake machinery of train engines
- Total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH) – from spills and/or exhaust of diesel operated train engines, and treated rail sleepers
- Heavy metals – particularly chromium and arsenic from treated rail sleepers

A contamination migration pathway exists to the site via drainage channels (all COPC) and aerial deposition (asbestos only).

This environmental assessment has been conducted to establish the nature and extent of contamination impacts to soil which may have migrated to the site from the adjacent rail alignment.

METHODOLOGY

On 15 and 16 August 2022, seven (7) samples were collected from the western boundary of the site, corresponding to locations where drainage channels from the adjacent rail alignment was observed to enter the site. Where these drainage channels flow to nearby farm dams, sediment samples were collected from these dams where suspended sediment would be more likely to deposit.

An additional three (3) samples were collected at locations near to the rail alignment where deposition of airborne asbestos fibres may have occurred.

Soil and sediment samples were collected from the uppermost undisturbed layers at each sampling location, where potential for COPC was considered to be most likely. Sample locations are illustrated on **Figure 1** (attached).

Samples were collected directly by hand trowel. All samples were placed in clean, laboratory-supplied acid washed solvent rinsed glass jars with Teflon® lids. Samples were stored on ice in an esky whilst on-site and in transit to the laboratory. Soil and sediment samples were couriered to ALS Laboratories in Smithfield, NSW, who are NATA accredited to perform the scheduled analysis.

INVESTIGATION CRITERIA

The soil investigation levels utilised for this investigation are consistent with those described within the National Environment Protection Council (NEPC), Amended *National Environment Protection (Assessment of Site Contamination) Measure* 1999 (Amended ASC NEPM) 2013. Based on future uses at the site including residential with garden/accessible soil, corresponding investigation levels have been adopted.

ANALYTICAL RESULTS

No contamination impacts or evidence of stained material was apparent during collection of soil or sediment samples.

Results of analysis are included in **Table 1** (attached), and laboratory certificates have also been appended to this letter. All soil samples met the investigation criteria for the respective analytes.

Samples analysed for Asbestos, TPH and PAHs did not record concentrations of these analytes above the respective limits of detection. Heavy metals were recorded in all samples at concentrations below the adopted guidelines, and were considered to be representative of background levels.

SUMMARY

Based on known activities at and adjacent to the site, and analytical results of soil and sediment sampling conducted in August 2022, potential sources of contamination in the adjacent rail corridor are not considered to have impacted the site.

Accordingly, soil and sediment conditions of the site adjacent to the western boundary are considered to be consistent with proposed sensitive land uses (e.g. low density residential).

Please do not hesitate to contact us with any questions or comments you may have regarding this report.

Yours sincerely

BRENDAN STUART
Environmental Scientist

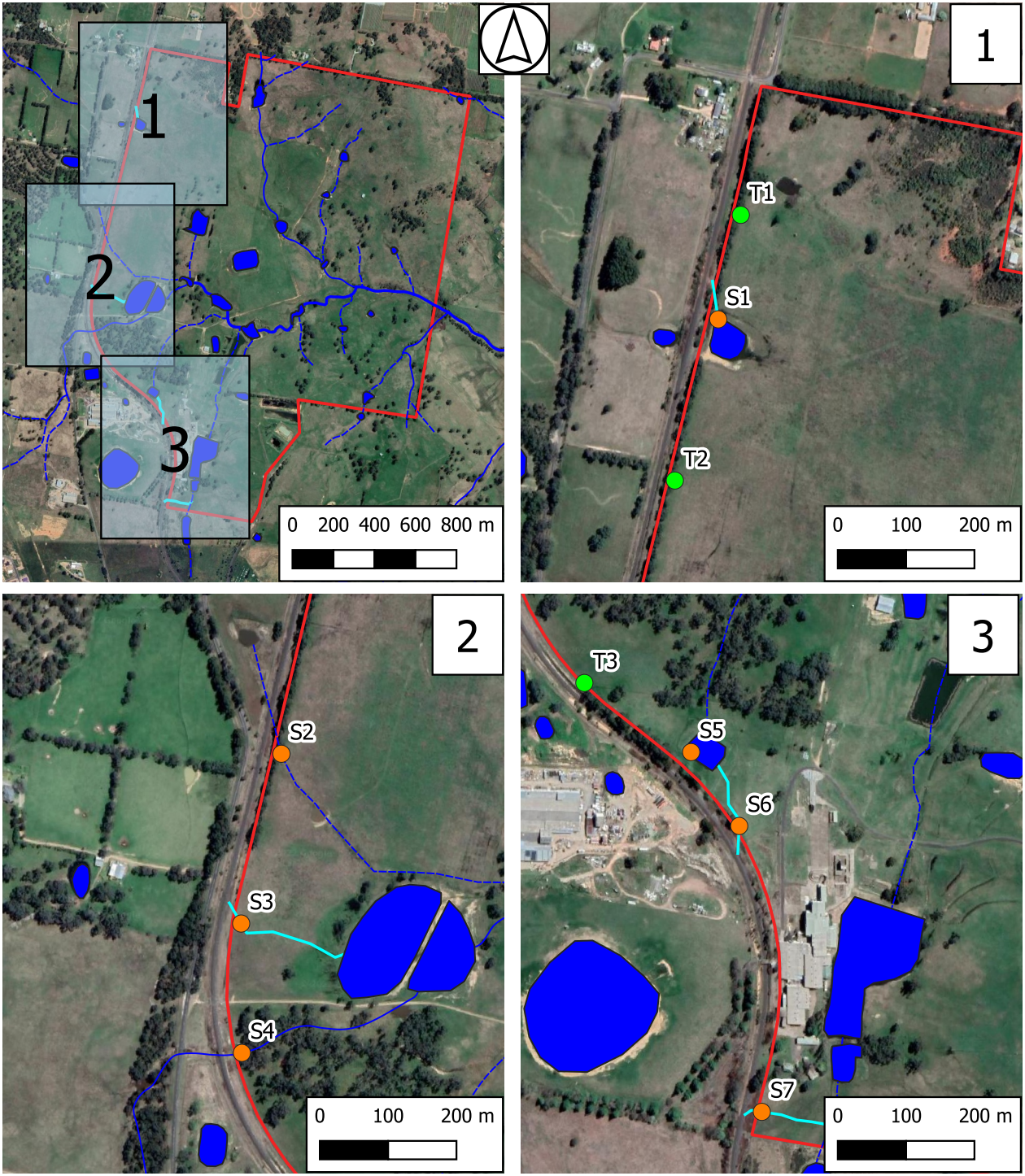
No. of Attachments – 3:
Figure 1 – Soil and Sediment Sampling Locations
Table 1 – Soil and Sediment Sampling Analytical Results, August 2022
ALS Laboratories Analytical Reports – August 2022

TABLE 1: 463 LEEDS PARADE AND 440 CLERGATE ROAD - Site Investigation, Soil and Sediment Sampling Analytical Results
AUGUST 2022

				Sample ID	S1	S2	S3	S4	S5	S6	S7	T1	T2	T3
				Sample Date	16/08/2022	16/08/2022	15/08/2022	15/08/2022	15/08/2022	15/08/2022	15/08/2022	16/08/2022	16/08/2022	15/08/2022
Group	**Analyte**	**LOR**	**Units**	**Criteria**	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS
Physical Parameters	Moisture Content	1	%	-	**35.2**	**43.3**	**29.5**	**19**	**23**	**26.3**	**28.8**	-	-	-
Trace Metals	Arsenic (As)	5	mg/kg	100	**24**	**21**	**26**	**13**	**9**	**17**	**5**	-	-	-
	Cadmium (Cd)	1	mg/kg	20	< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-
	Chromium (Cr)	2	mg/kg	-	**50**	**71**	**23**	**68**	**24**	**31**	**11**	-	-	-
	Copper (Cu)	5	mg/kg	6000	**52**	**62**	**18**	**48**	**13**	**37**	**14**	-	-	-
	Lead (Pb)	5	mg/kg	300	**43**	**67**	**15**	**16**	**9**	**12**	**15**	-	-	-
	Mercury (Hg)	0.1	mg/kg	40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	-	-
	Nickel (Ni)	2	mg/kg	400	**10**	**15**	**7**	**10**	**6**	**11**	**4**	-	-	-
	Zinc (Zn)	5	mg/kg	7400	**35**	**155**	**39**	**12**	**30**	**40**	**26**	-	-	-
Total Recoverable Hydrocarbons	TRH C6-C10	10	mg/kg	700	< 10	< 10	< 10	< 10	< 10	< 10	< 10	-	-	-
	TRH C6-C10 less BTEX (F1)	10	mg/kg	45	< 10	< 10	< 10	< 10	< 10	< 10	< 10	-	-	-
	TRH >C10-C16	50	mg/kg	1000	< 50	< 50	< 50	< 50	< 50	< 50	< 50	-	-	-
	TRH >C10-C16 less Naphthalene (F2)	50	mg/kg	110	< 50	< 50	< 50	< 50	< 50	< 50	< 50	-	-	-
	TRH >C16-C34	100	mg/kg	2500	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-
	TRH >C34-C40	100	mg/kg	10000	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-
	TRH C10-C40	50	mg/kg	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	-	-	-
Total Petroleum Hydrocarbons	TRH C6-C9	10	mg/kg	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10	-	-	-
	TRH C10-C14	50	mg/kg	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	-	-	-
	TRH C15-C28	100	mg/kg	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-
	TRH C29-C36	100	mg/kg	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-
	TRH C10-C36	50	mg/kg	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	-	-	-
BTEXN Analytes	Benzene	0.2	mg/kg	0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	-	-	-
	Toluene	0.5	mg/kg	160	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Ethylbenzene	0.5	mg/kg	55	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	meta- & para-Xylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	ortho-Xylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Total Xylenes	0.5	mg/kg	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Sum of BTEX	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	-	-	-
	Naphthalene (VOC)	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-
Polynuclear Aromatic Hydrocarbons	Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Benzo(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Benzo(b&j)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Benzo(ghi)perylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Dibenzo(ah)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Indeno(1,2,3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Naphthalene	0.5	mg/kg	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Total PAHs	0.5	mg/kg	300	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
	Benzo(a)pyrene TEQ (half LOR)	0.5	mg/kg	3	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	-	-	-
	Benzo(a)pyrene TEQ (LOR)	0.5	mg/kg	-	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	-	-	-
	Benzo(a)pyrene TEQ (zero)	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-
Asbestos ID	Asbestos Detected*	0.1	g/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Estimated Fibres	5	Fibres	Nil	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

mg/kg	milligrams per kilogram
LOR	limit of reporting
PS	primary sample
TEQ	toxicity equivalent quotient
Criteria	Criteria adopted from *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013) - HSL / HIL / Mgmt Limits, 'Residential with garden / accessible soil'

within criteria
criteria exceeded



LEGEND

- Study Area
- Sediment Sample
- Soil Sample

Strahler Streams:

- Order 1
- Order 2
- Order 3

- Drainage Line
- Farm Dam

Premise

Rosedale Gardens Estate

FIGURE 1

Soil and Sediment Sampling Locations

Source: NSW Six Maps

EPSG:28355 Prepared by: Michelle Lindsay Date: 26/8/2022 Directory: \\orange\Orange\General\Temp\Brendan\Clergate Healy\GIS\Contam Inv.qgz

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2229379**	Page	: 1 of 9
Client	: **PREMISE NSW Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: BRENDAN STUART	Contact	: Customer Services ES
Address	: 154 Peisley St, Orange 2800	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 0263935000	Telephone	: +61-2-8784 8555
Project	: 221025	Date Samples Received	: 17-Aug-2022 16:52
Order number	: ----	Date Analysis Commenced	: 20-Aug-2022
C-O-C number	: ----	Issue Date	: 24-Aug-2022 17:30
Sampler	: Brendan Stuart		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	S3	S4	S5	S6	S7
			Sampling date / time	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00
Compound	CAS Number	LOR	Unit	ES2229379-001	ES2229379-002	ES2229379-003	ES2229379-004	ES2229379-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	29.5	19.0	23.0	26.3	28.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	No
Organic Fibre	----	0.1	g/kg	No	No	No	No	No
Sample weight (dry)	----	0.01	g	934	878	763	569	647
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	26	13	9	17	5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	23	68	24	31	11
Copper	7440-50-8	5	mg/kg	18	48	13	37	14
Lead	7439-92-1	5	mg/kg	15	16	9	12	15
Nickel	7440-02-0	2	mg/kg	7	10	6	11	4
Zinc	7440-66-6	5	mg/kg	39	12	30	40	26
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	S3	S4	S5	S6	S7
				Sampling date / time	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00
Compound	CAS Number	LOR	Unit		ES2229379-001	ES2229379-002	ES2229379-003	ES2229379-004	ES2229379-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**72.9**	**71.7**	**73.6**	**73.8**	**74.7**
2-Chlorophenol-D4	93951-73-6	0.5	%		**85.9**	**84.6**	**86.3**	**86.5**	**88.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	S3	S4	S5	S6	S7
				Sampling date / time	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00	15-Aug-2022 00:00
Compound	CAS Number	LOR	Unit		ES2229379-001	ES2229379-002	ES2229379-003	ES2229379-004	ES2229379-005
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	0.5	%		72.8	72.1	69.8	68.7	74.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.4	95.4	95.9	97.5	99.6
Anthracene-d10	1719-06-8	0.5	%		89.0	89.5	89.2	90.7	91.2
4-Terphenyl-d14	1718-51-0	0.5	%		92.1	91.6	92.6	94.2	94.9
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		79.7	84.8	76.7	74.8	88.4
Toluene-D8	2037-26-5	0.2	%		97.0	98.0	93.9	97.7	95.9
4-Bromofluorobenzene	460-00-4	0.2	%		101	111	103	103	109

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	T3	S1	S2	T1	T2
			Sampling date / time	15-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00
Compound	CAS Number	LOR	Unit	ES2229379-006	ES2229379-007	ES2229379-008	ES2229379-009	ES2229379-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	35.2	43.3	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	No
Organic Fibre	----	0.1	g/kg	No	No	No	No	No
Sample weight (dry)	----	0.01	g	906	31.4	29.2	29.4	52.6
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	24	21	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	50	71	----	----
Copper	7440-50-8	5	mg/kg	----	52	62	----	----
Lead	7439-92-1	5	mg/kg	----	43	67	----	----
Nickel	7440-02-0	2	mg/kg	----	10	15	----	----
Zinc	7440-66-6	5	mg/kg	----	35	155	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	T3	S1	S2	T1	T2
				Sampling date / time	15-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00
Compound	CAS Number	LOR	Unit		ES2229379-006	ES2229379-007	ES2229379-008	ES2229379-009	ES2229379-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**74.9**	**73.4**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**88.4**	**86.8**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	T3	S1	S2	T1	T2
				Sampling date / time	15-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00	16-Aug-2022 00:00
Compound	CAS Number	LOR	Unit		ES2229379-006	ES2229379-007	ES2229379-008	ES2229379-009	ES2229379-010
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	0.5	%		----	70.2	70.5	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	100	97.4	----	----
Anthracene-d10	1719-06-8	0.5	%		----	92.6	90.2	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	97.0	93.7	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	80.2	78.6	----	----
Toluene-D8	2037-26-5	0.2	%		----	76.3	80.7	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	85.4	97.2	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S3 - 15-Aug-2022 00:00	Soil sample.
EA200: Description	S4 - 15-Aug-2022 00:00	Soil sample.
EA200: Description	S5 - 15-Aug-2022 00:00	Soil sample.
EA200: Description	S6 - 15-Aug-2022 00:00	Soil sample.
EA200: Description	S7 - 15-Aug-2022 00:00	Soil sample.
EA200: Description	T3 - 15-Aug-2022 00:00	Soil sample.
EA200: Description	S1 - 16-Aug-2022 00:00	Soil sample.
EA200: Description	S2 - 16-Aug-2022 00:00	Soil sample.
EA200: Description	T1 - 16-Aug-2022 00:00	Soil sample.
EA200: Description	T2 - 16-Aug-2022 00:00	Soil sample.

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils