



CERTIFICATE OF ANALYSIS

Work Order : **ES2521987**
Client : **WSP Australia Pty Ltd**
Contact : Ivan Ward
Address : LEVEL 27 680 GEORGE STREET
SYDNEY 2000
Telephone : ----
Project : 117623088 (PS134467)
Order number : 117623088/3
C-O-C number : ----
Sampler : Julia Hammans
Site : Wetherill Park
Quote number : WSP MSA 2025
No. of samples received : 7
No. of samples analysed : 7

Page : 1 of 11
Laboratory : Environmental Division Sydney
Contact : Andrew Wotherspoon
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 18-Jul-2025 14:09
Date Analysis Commenced : 18-Jul-2025
Issue Date : 24-Jul-2025 18:23



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
- 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
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, 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.

- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H⁺ to the Cations and Nitrate, SiO₂ and Fluoride to the Anions.
- EP074: The result for sample ES2521987_005 was confirmed by re-analysis.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Sub-Matrix: GROUNDWATER
(Matrix: WATER)

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	GW1	GW3	GW4	----	----
Sampling date / time				18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2521987-001	ES2521987-002	ES2521987-003	-----	-----	
				Result	Result	Result	----	----	
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	591	352	966	----	----	
Total Alkalinity as CaCO3	----	1	mg/L	591	352	966	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	179	224	457	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	147	369	2270	----	----	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	144	20	12	----	----	
Magnesium	7439-95-4	1	mg/L	49	26	159	----	----	
Sodium	7440-23-5	1	mg/L	110	337	1540	----	----	
Potassium	7440-09-7	1	mg/L	10	3	13	----	----	
EG020F: Dissolved Metals by ICP-MS									
Manganese	7439-96-5	0.001	mg/L	0.112	0.174	1.62	----	----	
Iron	7439-89-6	0.05	mg/L	<0.05	1.66	<0.05	----	----	
EG020T: Total Metals by ICP-MS									
Manganese	7439-96-5	0.001	mg/L	0.224	0.241	1.74	----	----	
Iron	7439-89-6	0.05	mg/L	0.30	8.22	0.32	----	----	
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	0.3	0.5	0.6	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.41	0.26	0.74	----	----	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	0.02	<0.01	0.01	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID				GW1	GW3	GW4	----	----
Sampling date / time				18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2521987-001	ES2521987-002	ES2521987-003	-----	-----
				Result	Result	Result	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued								
Nitrite + Nitrate as N	----	0.01	mg/L	0.02	<0.01	0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	19.7	22.1	92.8	----	----
ø Total Cations	----	0.01	meq/L	----	18.0	----	----	----
ø Total Cations	----	0.01	meq/L	16.2	----	81.0	----	----
ø Ionic Balance	----	0.01	%	----	10.4	----	----	----
ø Ionic Balance	----	0.01	%	9.52	----	6.81	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	10	38	14	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethene	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				GW1	GW3	GW4	----	----
Sampling date / time				18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2521987-001	ES2521987-002	ES2521987-003	-----	-----
				Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

				Sample ID	GW1	GW3	GW4	----	----
				Sampling date / time	18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2521987-001	ES2521987-002	ES2521987-003	-----	-----
					Result	Result	Result	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L		<5	<5	<5	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		92.9	96.7	98.8	----	----
Toluene-D8	2037-26-5	5	%		114	119	121	----	----
4-Bromofluorobenzene	460-00-4	5	%		110	114	112	----	----

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW1	SW2	QC100	QC100A	----
Sampling date / time				18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2521987-004	ES2521987-005	ES2521987-006	ES2521987-007	-----	
				Result	Result	Result	Result	----	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	12	197	15	----	----	
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	----	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	205	156	203	978	----	
Total Alkalinity as CaCO3	----	1	mg/L	205	156	203	978	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	88	<1	89	420	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	288	75	278	2350	----	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	35	27	35	12	----	
Magnesium	7439-95-4	1	mg/L	30	8	30	162	----	
Sodium	7440-23-5	1	mg/L	171	62	173	1550	----	
Potassium	7440-09-7	1	mg/L	5	9	5	13	----	
EG020F: Dissolved Metals by ICP-MS									
Manganese	7439-96-5	0.001	mg/L	0.018	0.249	0.019	1.63	----	
Iron	7439-89-6	0.05	mg/L	<0.05	3.85	<0.05	<0.05	----	
EG020T: Total Metals by ICP-MS									
Manganese	7439-96-5	0.001	mg/L	0.079	0.301	0.079	1.76	----	
Iron	7439-89-6	0.05	mg/L	0.36	8.36	0.38	0.33	----	
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	0.9	0.2	1.1	0.6	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.36	0.39	0.35	0.75	----	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	0.06	<0.01	0.06	<0.01	----	
EK058G: Nitrate as N by Discrete Analyser									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW1	SW2	QC100	QC100A	----
Sampling date / time					18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2521987-004	ES2521987-005	ES2521987-006	ES2521987-007	-----
					Result	Result	Result	Result	----
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L		0.43	0.06	0.41	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.49	0.06	0.47	<0.01	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		14.0	5.23	13.8	94.6	----
ø Total Cations	----	0.01	meq/L		11.8	4.93	11.9	81.7	----
ø Ionic Balance	----	0.01	%		8.79	2.95	7.35	7.31	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		10	76	10	13	----
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L		<5	<5	<5	----	----
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		<5	<5	<5	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L		<5	<5	<5	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	<5	<5	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	<5	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L		<50	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L		<50	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L		<50	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	<50	<50	----
1,1-Dichloroethene	75-35-4	5	µg/L		<5	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L		<5	<5	<5	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L		<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW1	SW2	QC100	QC100A	----
Sampling date / time				18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2521987-004	ES2521987-005	ES2521987-006	ES2521987-007	-----
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW1	SW2	QC100	QC100A	----
Sampling date / time				18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	18-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2521987-004	ES2521987-005	ES2521987-006	ES2521987-007	-----
				Result	Result	Result	Result	----
EP074F: Halogenated Aromatic Compounds - Continued								
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	90.5	89.7	103	91.6	----
Toluene-D8	2037-26-5	5	%	113	106	92.5	109	----
4-Bromofluorobenzene	460-00-4	5	%	106	100	102	103	----



Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124