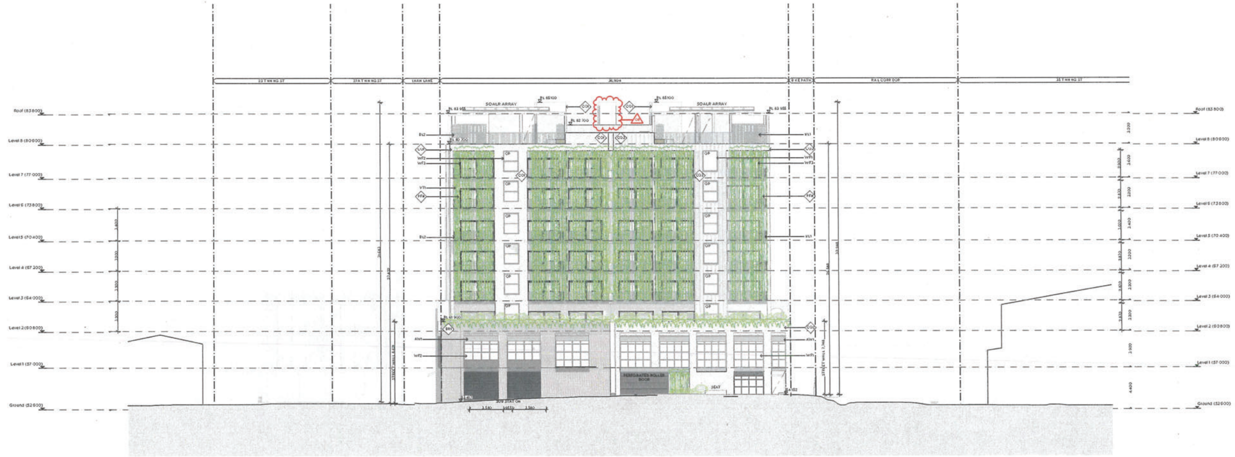
APPENDIX A: DEVELOPMENT PLANS



NORTH ELEVATION
1:200

EAST ELEVATION
1:200

MATERIAL LEGEND

- BALUSTRADE
- RECYCLED BRICKWORK
- PRECAST PANEL
- TEXTURED PRECAST
- STEELWORK
- CEMENT SHEET
- CHAINWIRE MESH
- CANVAS AWNING
- CLEAR GLAZING
- TRANSLUCENT GLAZING
- TIMBER BATTENS

BREATHE ARCHITECTURE

THE COMMONS
9 FLORENCE ST
BRUNSWICK 3056
VIC AUSTRALIA
+61 3 9381 2007
www.breathe.com.au

TOWN PLANNING

REV	ISSUE TITLE	COMMENT	DATE
02	Consultant Issue		8/13/2020
03	Consultant Updates	General Amendments	8/27/2020
04	Updates to Consultants	Apartment Layout Amendments	9/10/2020
06	Issue for Town Planning		9/11/2020
07	Additional Information		10/20/2020
08	Amended Eastern Apartments	Layout Amendments	11/2/2020

LOCATION
215-219 Albion Street Brunswick VIC 3056

PROJECT TITLE
Nightingale Albion

JOB	PLOT DATE	ARCHITECT	CAD	SCALE
1816	11/2/2020	JM	AA	1:200@A1

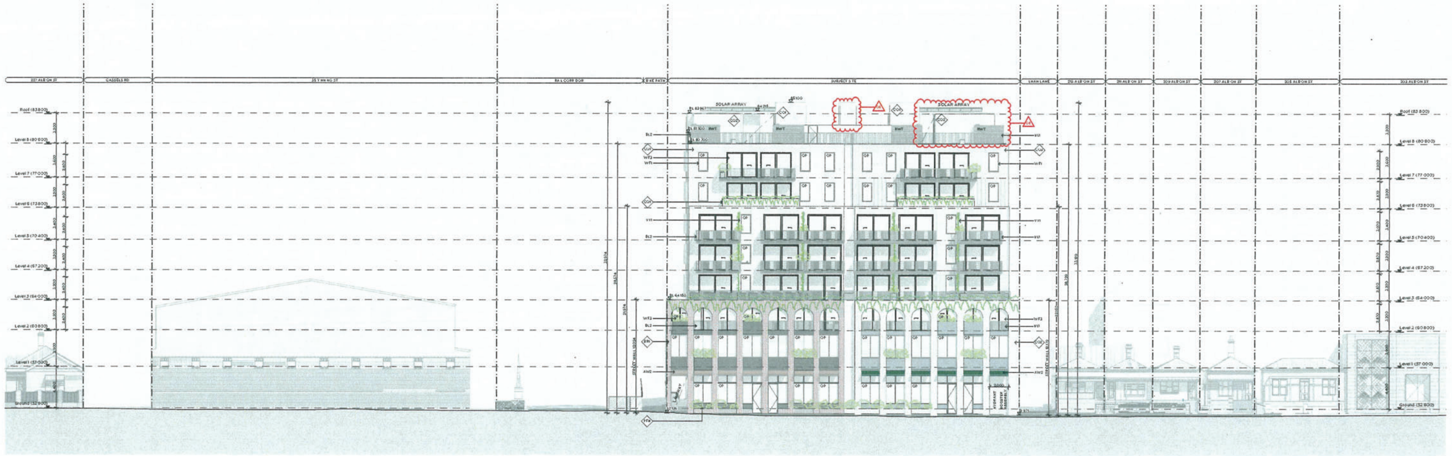
DRAWING TITLE
Proposed Elevations

REVISION
08

DRAWING
TP08

MATERIAL LEGEND

- BALUSTRADE
- RECYCLED BRICKWORK
- PRECAST PANEL
- TEXTURED PRECAST
- STEELWORK
- CEMENT SHEET
- CHAINWIRE MESH
- CANVAS AWNING
- CLEAR GLAZING
- TRANSLUCENT GLAZING
- TIMBER BATTENS



1 SOUTH ELEVATION

2 WEST ELEVATION

BREATHE ARCHITECTURE

THE COMMONS
9 FLORENCE ST
BRUNSWICK 3056
VIC AUSTRALIA
+613 9381 2007
www.breathe.com.au

TOWN PLANNING

REV	ISSUE TITLE	COMMENT	DATE
02	Consultant Issue		8/13/2020
03	Consultant Updates	General Amendments	8/27/2020
05	Updates to Consultants		9/10/2020
06	Issue for Town Planning		9/11/2020
07	Additional Information		10/30/2020
08	Amended Eastern Apartments	Layout Amendments	11/2/2020

LOCATION
215-219 Albion Street Brunswick VIC 3056

PROJECT TITLE
Nightingale Albion

JOB	PLOT DATE	ARCHITECT	CAD	SCALE
1816	11/2/2020	JM	AA	1:200@ A1

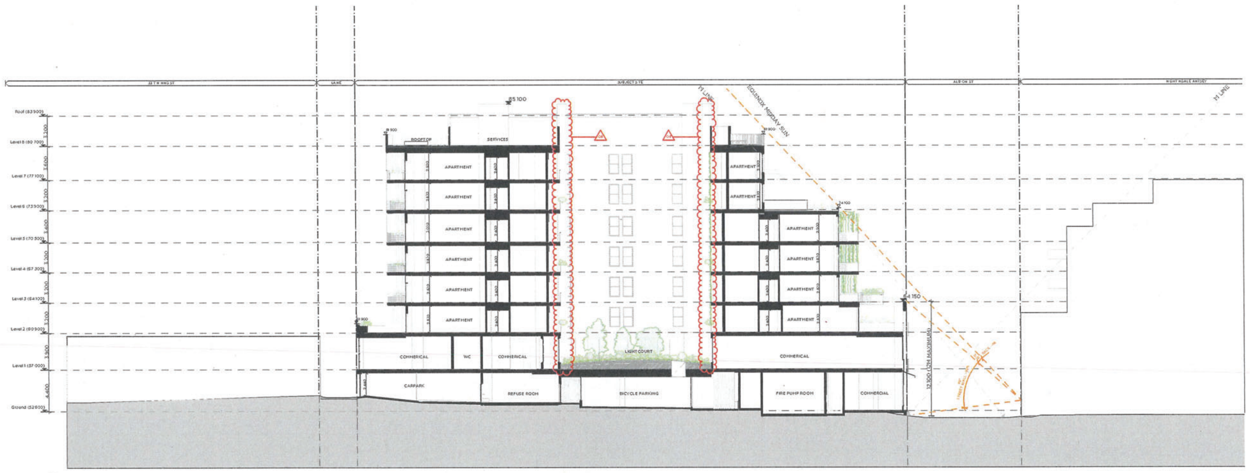
DRAWING TITLE
Proposed Elevations

REVISION
08

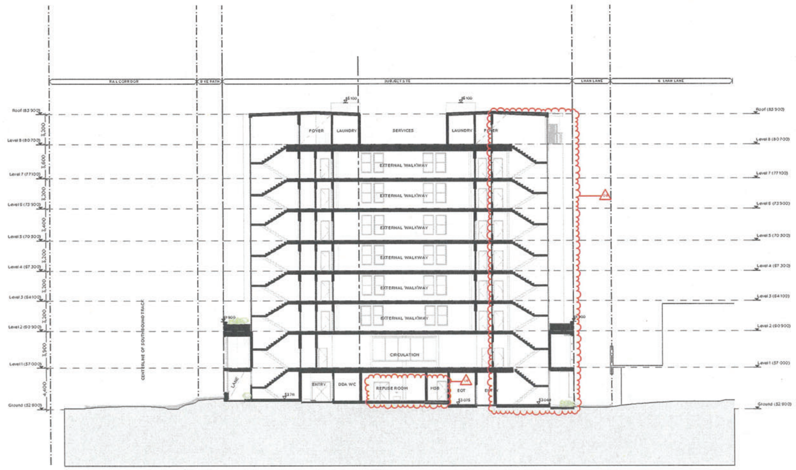
DRAWING
TP09

MATERIAL LEGEND

- BALUSTRADE
- RECYCLED BRICKWORK
- PRECAST PANEL
- TEXTURED PRECAST
- STEELWORK
- CEMENT SHEET
- CHAINWIRE MESH
- CANVAS AWNING
- CLEAR GLAZING
- TRANSLUCENT GLAZING
- TIMBER BATTENS



Section A
1:200



Section B
1:200

REV	ISSUE TITLE	COMMENT	DATE		
01	Preliminary Consultant Issue		7/31/2020	07	Additional Information		10/30/2020
02	Consultant Issue		8/13/2020	08	Amended Eastern Apartments	Layout Amendments	11/2/2020
03	Consultant Updates	General Amendments	8/27/2020				
04	Updates to Consultants		9/10/2020				
05	Issue for Town Planning		9/11/2020				

BREATHE ARCHITECTURE

THE COMMONS
9 FLORENCE ST
BRUNSWICK 3056
VIC AUSTRALIA
+61 3 9381 2007
www.breathe.com.au

TOWN PLANNING

CHECK ALL DIMENSIONS PRIOR TO COMMENCEMENT OF WORK. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS, CONSULTANTS DOCUMENTS AND SPECIFICATIONS. SEEK CLARIFICATION OF INCONSISTENCIES / CONFLICTS FROM ARCHITECT. FIGURED DIMENSIONS TAKE PRECEDENCE. DO NOT SCALE DRAWINGS.

LOCATION
215-219 Albion Street Brunswick VIC 3056

PROJECT TITLE
Nightingale Albion

JOB	PLOT DATE	ARCHITECT	CAD	SCALE
1816	11/2/2020	JM	AA	1:200@A1

DRAWING TITLE
Proposed Sections

REVISION
08

DRAWING
TP11

APPENDIX B: REGISTERED BORE SEARCH

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

215 - 219 Albion St Brunswick - Groundwater Database Bore Radius Search Coordinates

Centre of Site		
Easting	**Northing**	**Radius Required (m)**
320 406.0	5 818 829.0	1000
Distance from Centre (m)	707	707
Minimum Extent of Radius	**319699**	**5818122**
Maximum Extent of Radius	**321113**	**5819536**

1.00 RADIUS (km)

DISTANCE (m)*	Angle (east-west axis)	Direction Cell 1	Site ID	MGA Zone	Easting	Northing	Date Completed	Total Depth (m)	Uses	Lithlogy
40	53	SW	WRK097504	55	320382	5818797	5/02/2017	20	OBSERVATION	-
178	62	NW	WRK983506	55	320322	5818986	-	25	-	-
199	86	S	WRK076661	55	320420	5818630	1/01/2013	17	OBSERVATION	-
199	86	S	WRK076662	55	320420	5818630	1/01/2013	17	OBSERVATION	-
199	86	S	WRK076664	55	320420	5818630	1/01/2013	17	OBSERVATION	-
199	86	S	WRK076665	55	320420	5818630	1/01/2013	17	OBSERVATION	-
199	86	S	WRK076666	55	320420	5818630	1/01/2013	17	OBSERVATION	-
200	85	S	WRK076663	55	320425	5818630	1/01/2013	20	OBSERVATION	-
265	79	S	WRK103493	55	320357	5818569	13/11/2017	17	OBSERVATION	-
333	80	S	WRK103491	55	320347	5818501	15/11/2017	14	OBSERVATION	-
352	86	S	WRK103492	55	320381	5818478	14/11/2017	15	OBSERVATION	-
422	83	S	WRK103490	55	320353	5818410	15/11/2017	14	OBSERVATION	-
485	89	N	WRK983626	55	320396	5819314	-	25	-	-
793	78	S	WRK060138	55	320570	5818053	1/01/2013	11	OBSERVATION	-
794	76	S	WRK058986	55	320594	5818058	1/01/2010	11	OBSERVATION	-
801	75	S	WRK074363	55	320609	5818054	1/01/2012	11	OBSERVATION	-
803	76	S	WRK060139	55	320604	5818051	1/01/2013	11	OBSERVATION	-
804	77	S	WRK066619	55	320590	5818046	1/01/2012	15	OBSERVATION	BASALT
804	77	S	WRK066620	55	320590	5818046	1/01/2012	15	OBSERVATION	BASALTIC CLAYS
806	77	S	WRK074364	55	320590	5818044	1/01/2012	11	OBSERVATION	BASALTIC CLAY/WEATHERED BASALT
806	76	S	WRK074362	55	320607	5818048	1/01/2012	11	OBSERVATION	BASALTIC CLAYS/WEATHERED BASALT
811	76	S	WRK060140	55	320606	5818043	1/01/2010	11	OBSERVATION	BASALT
813	73	N	WRK991974	55	320648	5819605	-	25	-	HIGHLEY WEATHERED BASALT
825	75	S	WRK058987	55	320622	5818033	1/01/2012	11	OBSERVATION	BASALT
825	78	S	WRK058988	55	320578	5818022	1/01/2010	12	OBSERVATION	BASALT
840	75	N	WRK100651	55	320617	5819642	22/06/2017	14	OBSERVATION	BASALT
866	72	N	WRK100649	55	320675	5819652	1/06/2017	14	OBSERVATION	BASALT
893	77	S	WRK099775	55	320604	5817958	7/04/2017	13.7	OBSERVATION	-
906	78	S	WRK099774	55	320600	5817944	6/04/2017	13.2	OBSERVATION	-
906	78	S	WRK099776	55	320600	5817944	7/04/2017	13.5	OBSERVATION	-

APPENDIX C: HISTORICAL TITLES

Historical Search

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 30/11/2020 01:44 PM

Volume 3768 Folio 516
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 03433 Folio 587

THE IMAGE OF THE FOLIO CEASED TO BE THE DIAGRAM LOCATION ON 11/09/2002 05:01:26 AM

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
14/07/2003	14/07/2003	AC195101N	Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
RUBINO LORISO
MICHELINA LORISO
TO:
G.O.R.M. PTY. LTD.

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
G.O.R.M. PTY. LTD. of 28 HAROLD STREET THORNBURY VIC 3071
AC195101N 14/07/2003

25/06/2008	25/06/2008	AF928851J	Y

CAVEAT
CAVEAT AF928851J 25/06/2008
Caveator
UGG AUSTRALIA PTY LTD
Capacity PURCHASER/FEE SIMPLE
Lodged by
GEORGE ERLICHSTER
Notices to
GEORGE ERLICHSTER of 110 BALACLAVA ROAD CAULFIELD VIC 3161

28/08/2008 28/08/2008 AG052108N Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
G.O.R.M. PTY LTD
TO:
UGG AUSTRALIA PTY LTD

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
UGG AUSTRALIA PTY LTD of 215 ALBION STREET BRUNSWICK VIC 3056
AG052108N 28/08/2008
AND LAPSING OF CAVEAT AF928851J

28/08/2008 28/08/2008 AG052109L Y

MORTGAGE OF LAND
MORTGAGE AG052109L 28/08/2008
AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

19/04/2013 19/04/2013 AK299692L (O) Y

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AG052109L

19/04/2013 19/04/2013 AK299693J (O) Y

MORTGAGE OF LAND
MORTGAGE AK299693J 19/04/2013
NATIONAL AUSTRALIA BANK LTD

30/11/2015 30/11/2015 AM363252T Y

CAVEAT
CAVEAT AM363252T 30/11/2015
Caveator
MICHAEL O'KEEFFE
Grounds of Claim
AGREEMENT WITH THE FOLLOWING PARTIES AND DATE.
Parties
THE REGISTERED PROPRIETOR(S)
Date
23/11/2015
Estate or Interest
FREEHOLD ESTATE
Prohibition
ABSOLUTELY
Lodged by
KLIGER PARTNERS
Notices to
KLIGER PARTNERS of 2/280 QUEEN STREET MELBOURNE VIC 3000

29/02/2016 29/02/2016 AM596195C (O) Y

WITHDRAWAL OF CAVEAT
CAVEAT AM363252T REMOVED

29/02/2016 29/02/2016 AM596196A (O) Y

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AK299693J

29/02/2016 29/02/2016 AM596197X (O) Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
UGG AUSTRALIA PTY LTD
TO:
FLASK WALK HOLDINGS PTY LTD 609592038

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
FLASK WALK HOLDINGS PTY LTD of 47 STREETON CRESCENT IVANHOE EAST VIC 3079
AM596197X 29/02/2016

29/02/2016 29/02/2016 AM596198V (O) Y

MORTGAGE OF LAND
MORTGAGE AM596198V 29/02/2016
WESTPAC BANKING CORPORATION

15/03/2018 15/03/2018 AQ823545F (E) N

CAVEAT
CAVEAT AQ823545F 15/03/2018
Caveator
NIGHTINGALE ACQUISITION PTY LTD
Grounds of Claim
PURCHASERS' CONTRACT WITH THE FOLLOWING PARTIES AND DATE.
Parties
THE REGISTERED PROPRIETOR(S)
Date
08/03/2018
Estate or Interest
FREEHOLD ESTATE
Prohibition
ABSOLUTELY
Lodged by
MADGWICKS
Notices to
JACLYN TANG of LEVEL 6 140 WILLIAM STREET MELBOURNE VIC 3000

08/11/2018 08/11/2018 AR633274L (E) N

APPLICATION TO NOMINATE AN ECT TO AN ELECTRONIC INSTRUMENT
ELF Id: 3306638

08/11/2018 08/11/2018 AR633275J (E) N

APPLICATION TO NOMINATE AN ECT TO AN ELECTRONIC INSTRUMENT
ELF Id: 3306638
Removed by Dealing AR640463S

09/11/2018 09/11/2018 AR640463S (E) N

WITHDRAWAL OF CAVEAT
CAVEAT AQ823545F REMOVED

09/11/2018 09/11/2018 AR640464Q (E) N

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AM596198V

09/11/2018 09/11/2018 AR640465N (E) N

TRANSFER OF LAND BY ENDORSEMENT
FROM:

FLASK WALK HOLDINGS PTY LTD 609592038
TO:
NIGHTINGALE ALBION LAND HOLDING PTY LTD 628477976
RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
NIGHTINGALE ALBION LAND HOLDING PTY LTD of LEVEL 3 423 BOURKE STREET
MELBOURNE VIC 3000
AR640465N 09/11/2018

CANCELLED

09/11/2018 09/11/2018 AR640466L (E) N

MORTGAGE OF LAND
MORTGAGE AR640466L 09/11/2018
NATIONAL AUSTRALIA BANK LTD

19/11/2019 20/11/2019 AS724195R (E) N

AGREEMENT SECTION 173 PLANNING AND ENVIRONMENT ACT 1987
AGREEMENT Section 173 Planning and Environment Act 1987
AS724195R 19/11/2019

STATEMENT END

VOTS Snapshot

Volume 03768 Folio 516
124006625244C
Produced 14/07/2003 11:56 am

LAND DESCRIPTION

Lot 1 on Title Plan 567753V (formerly known as part of Portion 125 Parish of Jika Jika).
PARENT TITLE Volume 03433 Folio 587
Created by instrument 0738502 21/02/1914

REGISTERED PROPRIETOR

Estate Fee Simple
Joint Proprietors
RUBINO LORISO
MICHELINA LORISO both of 28 HAROLD ST THORNBURY 3071
T443554G 02/12/1994

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP567753V FOR FURTHER DETAILS AND BOUNDARIES

Entered in the Register Book,
Vol. 3768 Fol. 753516

DIEU ET MON DROIT

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1890."

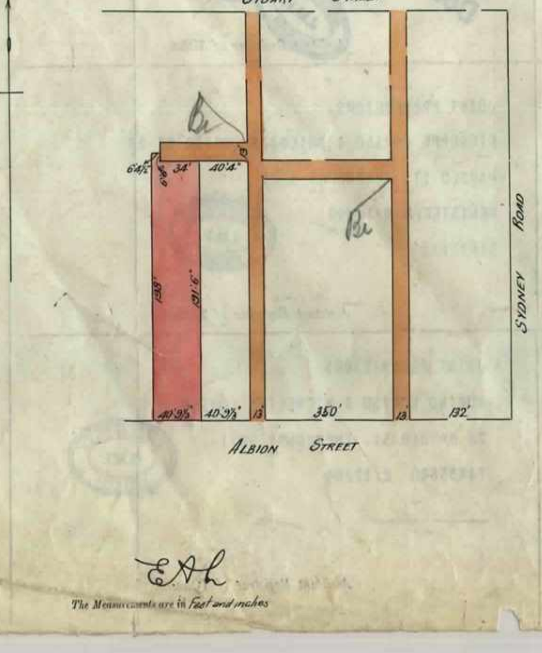
Arthur Henry Bates Noble of 32 Albion Street Brunswick Jeweller is now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All that piece of Land, delineated and coloured red on the map in the margin, being part of Crown Portion One hundred and twenty-five Parish of Jika Jika County of Bourke Together with a right of carriage way over the roads colored brown on the said map

ORIGINAL CERTIFICATE ~~CROWN GRANT.~~
Not to be dealt with outside the Titles Office.

Dated the Twenty-first day of February thousand nine hundred and fourteen.

Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO.



EAL

The Measurements are in Feet and inches

T03768-516-1-4

15 ml

Vol. 3433 Fol. 686587 Transfer. 738562 Application

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Mortgage DISCHARGED [signature] Assistant Registrar of Titles 18th December 1934	The 21st February 1914 at 10.50 a.m.	Arthur Henry Bates Noble to The Commissioners of the State Savings Bank of Victoria [signature] Assistant Registrar of Titles.	330981

SO No. A190607 Arthur Henry Bates Noble died on 26 February 1956 Probate of his Will has been granted to Catherine Maud Noble of 28 Albion Street West Brunswick Widow Dated 14 July 1956 [signature] Assistant Registrar of Titles

PROPRIETOR
H.D. LEE (AUSTRALIA) PTY. LTD. OF HUME HWY. WODONGA
REGISTERED 18/12/87
N200202C
(OFFICE OF TITLES M.L.T. VICTORIA)
Assistant Registrar of Titles.

Catherine Maud Noble of 28 Albion Street West Brunswick Widow is now the proprietor of the within described estate by transfer registered on 17 July 1956 and numbered A190608 [signature] Assistant Registrar of Titles
4/8/56

PROPRIETOR
PALMLEA PTY. LTD. OF 758 HIGH ST. THORNBURY
REGISTERED 1/9/89
P405518S
(OFFICE OF TITLES M.L.P. VICTORIA)
Assistant Registrar of Titles.

Norman Joseph Heymanson of 15 Park Crescent Bentleigh Manufacturer is now the proprietor of the within described estate by transfer registered on 9 September 1958 and numbered A601395 [signature] Assistant Registrar of Titles,
10/12/58

MORTGAGE
PERMANENT TRUSTEE COMPANY LTD.
REGISTERED 1/9/89
P405519P
(OFFICE OF TITLES M.L.P. VICTORIA)
Does not now affect 09 OCT 1992 S163313J (OFFICE OF TITLES J.M.V. VICTORIA)
Assistant Registrar of Titles.

BARDEN CLOTHING PROPRIETARY LIMITED of 33 Tinning Street Brunwick is now the proprietor
Registered 7th December 1965
No.C377533
(OFFICE OF TITLES KWC VICTORIA)

JOINT PROPRIETORS
GIUSEPPE LORISO & ORTENZIA LORISO OF 28 HAROLD ST. THORNBURY 3071
REGISTERED 9/10/92
S163313J
(OFFICE OF TITLES J.M.V. VICTORIA)
Assistant Registrar of Titles.

MORTGAGE to THE COMMERCIAL BANK OF AUSTRALIA LIMITED
Registered 10th December 1965
No.C382993
DISCHARGED 18 DEC 1987 (OFFICE OF TITLES M.L.T. VICTORIA) (OFFICE OF TITLES C. B. VICTORIA)

JOINT PROPRIETORS
RUBINO LORISO & MICHELINA LORISO
28 HAROLD ST. THORNBURY 3071
T443554G 2/12/94
(OFFICE OF TITLES G.W.L. VICTORIA)

Assistant Registrar of Titles.

Historical Search

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 30/11/2020 01:55 PM

Volume 4751 Folio 084
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 04022 Folio 269

THE IMAGE OF THE FOLIO CEASED TO BE THE DIAGRAM LOCATION ON 12/09/2002 05:01:25 AM

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
07/04/2005	21/04/2005	AD544932Q	Y

AMENDMENT OF MORTGAGEE NAME
MORTGAGE U469658Y 22/10/1996
AMP BANK LIMITED
TRANSFER OF MORTGAGE W342509X 12/10/1999
AMENDMENT OF MORTGAGEE NAME AD544932Q 07/04/2005

25/06/2013	26/06/2013	AK423658Y	Y

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE U469658Y

25/06/2013	26/06/2013	AK423659W	Y

Cancelled by AK423659W

STATEMENT END

VOTS Snapshot

Volume 04751 Folio 084
124013887175X
Produced 21/04/2005 12:51 pm

LAND DESCRIPTION

Lot 1 on Title Plan 694780G (formerly known as part of Portion 125 AT BRUNSWICK Parish of Jika Jika).
PARENT TITLE Volume 04022 Folio 269
Created by instrument 1125628 05/09/1923

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
LESTAR INVESTMENTS PTY. LTD. of 110 PEEL ST NORTH MELBOURNE 3051
U469657C 22/10/1996

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE U469658Y 22/10/1996
GIO BUILDING SOCIETY LIMITED
TRANSFER OF MORTGAGE W342509X 12/10/1999

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP694780G FOR FURTHER DETAILS AND BOUNDARIES

Entered in the Register Book

Vol 4751 Fol. 950084

T04751-084-1-8

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1915."

Joseph Renshaw of 30 Albion Street West Brunswick Engineer is - - - - - - -

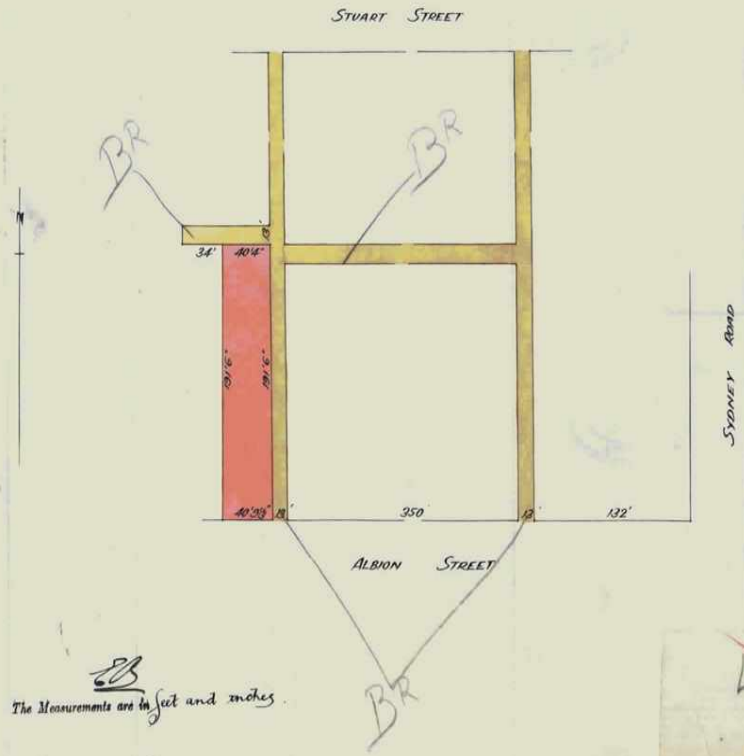
now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All that piece of Land, delineated and coloured red on the map in the margin being part of Crown Portion One hundred and twenty-five at Brunswick Parish of Jika Jika County of Bourke Together with a right of - - - carriage way over the roads colored brown on the said map - - - - - - - - - - - - - - -

Dated the Fifth day of September One thousand nine hundred and twenty-three.

Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO.

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.



4022-269

Vol. 4022. Fol. 804269 Transfer. 1125628 Application

Nature of Instrument.	Time of its Production for Registration.	To whom given.	Number or Symbol thereon.
JOSEPH RENSHAW died on 5th May 1966 Probate of his Will has been granted to JOSEPH CHARLES CYRIL RENSHAW of 9 Orrong Grove Caulfield Engineer Dated 30th September 1966 No C604007	OFFICE OF TITLES R. L. VICTORIA	PROPRIETOR LESTAR INVESTMENTS PTY. LTD. 110 PEEL ST. NORTH MELBOURNE 3051 U469657C 22/10/96 OFFICE OF TITLES S.T.	
KYND INVESTMENTS PROPRIETARY LIMITED of 4 Hume Road Caulfield is now the proprietor Registered 14th April 1967 No. C751530	OFFICE OF TITLES J.V.F. VICTORIA	MORTGAGE CORNERSTONE BUILDING SOCIETY LIMITED U469658Y 22/10/96 OFFICE OF TITLES S.T.	
MORTGAGE to JOSEPH CHARLES CYRIL RENSHAW Registered 14th April 1967 No. C751531 DISCHARGED 31 OCT 1968	OFFICE OF TITLES J.V.F. VICTORIA	TRANSFER OF MORTGAGE U469658Y TO GIO BUILDING SOCIETY LIMITED W342509X 12/10/1999 OFFICE OF TITLES A.G.I. VICTORIA	
MOTEK BRAJTBERG Company Director and BLUMA BRAJTBERG Company Director both of 14 Highland Avenue Balwyn are now JOINT PROPRIETORS Registered 31st October 1968 No.D231127	OFFICE OF TITLES L. B. VICTORIA		
MORTGAGE to THE AUSTRALASIAN TEMPERANCE AND GENERAL MUTUAL LIFE ASSURANCE SOCIETY LIMITED Registered 31st October 1968 No.D231128 DISCHARGED C.R.B.	OFFICE OF TITLES L. B. VICTORIA		
CAVEAT No. C564080 LODGED CAVEAT WITHDRAWN 28 NOV 1988	24 MAR 1977 OFFICE OF TITLES I.R.S. VICTORIA		
MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA Registered 28 JUL 1992 No. D454780C DISCHARGED 31 JUL 1992 OFFICE OF TITLES P.M.C. VICTORIA OFFICE OF TITLES I.P.G. VICTORIA			
MOTEK BRAJTBERG OF 7 TARA CT. DONCASTER IS NOW THE SURVIVING PROPRIETOR REGISTERED 14/7/92 S11702E OFFICE OF TITLES P.M.C. VICTORIA			

Historical Search

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 30/11/2020 01:44 PM

Volume 4802 Folio 318
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 04022 Folio 269

THE IMAGE OF THE FOLIO CEASED TO BE THE DIAGRAM LOCATION ON 26/09/2002 05:01:26 AM

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
18/08/2007	18/08/2007	AF281680M	Y
DISCHARGE OF MORTGAGE MORTGAGE(S) REMOVED X116621P			
18/08/2007	18/08/2007	AF281681K	Y
MORTGAGE OF LAND MORTGAGE AF281681K 18/08/2007 NATIONAL AUSTRALIA BANK LTD			
19/11/2019	20/11/2019	AS724195R (E)	N
AGREEMENT SECTION 173 PLANNING AND ENVIRONMENT ACT 1987 AGREEMENT Section 173 Planning and Environment Act 1987 AS724195R 19/11/2019			
01/07/2020	01/07/2020	AT390999V (E)	N
APPLICATION TO NOMINATE AN ECT TO AN ELECTRONIC INSTRUMENT ELF Id: 204776947 Removed by Dealing AT395886H			
02/07/2020	02/07/2020	AT395886H (E)	N

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AF281681K

02/07/2020 02/07/2020 AT395887F (E) N

TRANSFER OF LAND BY ENDORSEMENT
FROM:
KL PORTFOLIO PTY LTD
TO:
NIGHTINGALE ALBION LAND HOLDING PTY LTD 628477976
RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
NIGHTINGALE ALBION LAND HOLDING PTY LTD of "BREATHE ARCHITECTURE" UNIT 2
9
FLORENCE STREET BRUNSWICK VIC 3056
AT395887F 02/07/2020

08/07/2020 08/07/2020 AT410207E (E) N

APPLICATION TO NOMINATE AN ECT TO AN ELECTRONIC INSTRUMENT
ELF Id: 204856794
Removed by Dealing AT410415W

08/07/2020 08/07/2020 AT410415W (E) N

MORTGAGE OF LAND
MORTGAGE AT410415W 08/07/2020
NATIONAL AUSTRALIA BANK LTD

STATEMENT END

VOTS Snapshot

Volume 04802 Folio 318
124023026185R
Produced 18/08/2007 11:11 am

LAND DESCRIPTION

Lot 1 on Title Plan 712069E (formerly known as part of Portion 125 AT BRUNSWICK Parish of Jika Jika).
PARENT TITLE Volume 04022 Folio 269
Created by instrument 1146634 15/01/1924

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
KL PORTFOLIO PTY LTD of 234 BALACLAVA RD CAULFIELD 3162
W666089X 17/03/2000

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE X116621P 25/10/2000
COMMONWEALTH BANK OF AUSTRALIA

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP712069E FOR FURTHER DETAILS AND BOUNDARIES

Entered in the Register Book

Vol. **4802** Fol. **960318**

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1915."

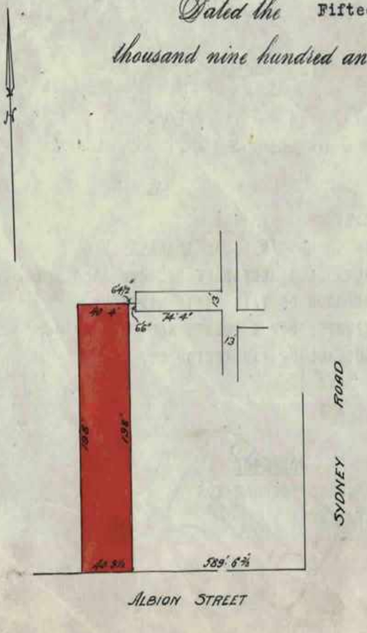
Donald Macdonald Gentleman and Frances Macdonald Married Woman both of 34 --- Albion Street West Brunswick are now joint proprietors - - - - - - - - - - - - - ~~now the proprietor~~ of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All that piece of Land, delineated and coloured red on the map in the margin being part of Crown Portion One hundred and - - - - - - twenty-five at Brunswick Parish of Jika Jika County of Bourke - - - - - - - - - -

Dated the Fifteenth *day of* January *One thousand nine hundred and* twenty-four.

W. H. Paterson
Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO.

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.



T04802-318-1-7

The Measurements are in feet and inches

Vol. 4022. Fol. 804269 Transfer. 1146631 Application

Nature of Instrument.	Time of its Production for Registration.	To whom given.	Number or Symbol thereon.

CAVEAT No 804541 LODGED 13th September 1929 [illegible]

CAVEAT No 804541 LAPSED 17th September 1931 [illegible]

Richard John Davies of Albion Street West Brunswick Driver is now the proprietor of the within described estate by transfer registered on 17th September 1931 and numbered 1488813.

30.9.31 Assistant Registrar of Titles

No. A622211

Richard John Davies died on 29th July 1957. Letters of Administration with the Will annexed of his estate have been granted to Richard William Davies of 8 Symons Street West Preston Airline Pilot. Dated 14th October 1958.

Assistant Registrar of Titles

Thelma Mary Hosking of 30 Albion Street West Brunswick Married Woman is now the proprietor of the within described estate by transfer registered on 14th October 1958 and numbered A622212.

17.12.58 Assistant Registrar of Titles

NORMAN JOSEPH HEYMANSON of 195 Albion Street West Brunswick Manufacturer is now the proprietor by Transfer A766644 Registered 30th June 1959.

30-7-59.

BARDEN CLOTHING PROPRIETARY LIMITED of 33 Tinning Street Brunswick is now the proprietor Registered 7th December 1965

No.C377533

MORTGAGE to THE COMMERCIAL BANK OF AUSTRALIA LIMITED Registered 14th December 1965

No.C382993

PROPRIETOR
H.D. LEE (AUSTRALIA) PTY. LTD. OF HUME HWY. WODONGA
REGISTERED 18/12/87
N200202C

PROPRIETOR
SUPER ACTION PTY. LTD. OF 17 MICHAEL ST. BRUNSWICK
REGISTERED 8/8/89
P360527M

MORTGAGE
COMMONWEALTH BANK OF AUSTRALIA
REGISTERED 8/8/89
P360528J

Does not now affect - 7 MAR 1995 T586212N

MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
Registered 24 SEP 1999
No. R5[illegible]933F

Does not now affect - 7 MAR 1995 T586212N

CAVEAT

CAVEATOR: COMMONWEALTH BANK OF AUSTRALIA
CAPACITY: CHARGEE
DATE OF CLAIM DOCUMENT: 20/9/91
LODGED BY: 21Q COMMONWEALTH BANK OF AUSTRALIA OF 2-26 ELIZABETH ST. MELBOURNE 3000
NOTICE TO: AS ABOVE
NO: R616368F
DATE: 30/10/91

CAVEAT WILL LAPSE ON REGISTRATION OF T586212N
Endorsed: 31 OCT 1996

31 OCT 1996

Amended (caveat lapsed) No. U452.12L

PROPRIETORS
TENANTS IN COMMON IN EQUAL SHARES
EKREM UNALAN OF 6 REDESDALE ST. COOLAROO 3048
MAHMUT GUNDOGDU OF 1/14 MITTA MITTA WY. MEADOW HEIGHTS 3047 & NUSRET GOC BURHAN GOC & CAVIT GOC ALL OF 219 ALBION ST. BRUNSWICK 3056
T586212N 7/3/95

MORTGAGE
WESTPAC BANKING CORPORATION
T586213K 7/3/95

RECORDED 21 NOV 1996

PROPRIETOR
ZAMOZIP AUSTRALIA PTY. LTD.
28 MELBY AV. EAST ST.KILDA 3183
U516333P 21/11/96

ENDORSEMENTS CONTINUE ON ANNEXED SHEET MARKED COMMENCING WITH W666089X

This is the Sheet marked A *referred to in the Certificate of Title entered in the Register Book Vol.* 4802 *Fol.* 318

Assistant Registrar of Titles

OFFICE OF TITLES P.M.C. VICTORIA

PROPRIETOR

KL PORTFOLIO PTY LTD
234 BALACLAVA RD
CAULFIELD 3162

W666089X 17/03/00

OFFICE OF TITLES P.M.C. VICTORIA

MORTGAGE

COMMONWEALTH BANK OF AUSTRALIA

X116621P 25/10/00

OFFICE OF TITLES B.J. VICTORIA

T04802-318-2-5

Historical Search

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 30/11/2020 01:44 PM

Volume 11429 Folio 999
Folio Creation: Created as a computer folio
Parent title Volume 04751 Folio 084

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
30/11/2015	30/11/2015	AM363252T	Y

CAVEAT
CAVEAT AM363252T 30/11/2015
Caveator
MICHAEL O'KEEFFE
Grounds of Claim
AGREEMENT WITH THE FOLLOWING PARTIES AND DATE.
Parties
THE REGISTERED PROPRIETOR(S)
Date
23/11/2015
Estate or Interest
FREEHOLD ESTATE
Prohibition
ABSOLUTELY
Lodged by
KLIGER PARTNERS
Notices to
KLIGER PARTNERS of 2/280 QUEEN STREET MELBOURNE VIC 3000

29/02/2016	29/02/2016	AM596195C (O)	Y

WITHDRAWAL OF CAVEAT
CAVEAT AM363252T REMOVED

29/02/2016 29/02/2016 AM596197X (O) Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
UGG AUSTRALIA PTY LTD
TO:
FLASK WALK HOLDINGS PTY LTD 609592038

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
FLASK WALK HOLDINGS PTY LTD of 47 STREETON CRESCENT IVANHOE EAST VIC 3079
AM596197X 29/02/2016

29/02/2016 29/02/2016 AM596198V (O) Y

MORTGAGE OF LAND
MORTGAGE AM596198V 29/02/2016
WESTPAC BANKING CORPORATION

15/03/2018 15/03/2018 AQ823545F (E) N

CAVEAT
CAVEAT AQ823545F 15/03/2018
Caveator
NIGHTINGALE ACQUISITION PTY LTD
Grounds of Claim
PURCHASERS' CONTRACT WITH THE FOLLOWING PARTIES AND DATE.
Parties
THE REGISTERED PROPRIETOR(S)
Date
08/03/2018
Estate or Interest
FREEHOLD ESTATE
Prohibition
ABSOLUTELY
Lodged by
MADGWICKS
Notices to
JACLYN TANG of LEVEL 6 140 WILLIAM STREET MELBOURNE VIC 3000

09/11/2018 09/11/2018 AR640463S (E) N

WITHDRAWAL OF CAVEAT
CAVEAT AQ823545F REMOVED

09/11/2018 09/11/2018 AR640464Q (E) N

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AM596198V

09/11/2018 09/11/2018 AR640465N (E) N

TRANSFER OF LAND BY ENDORSEMENT
FROM:
FLASK WALK HOLDINGS PTY LTD 609592038
TO:
NIGHTINGALE ALBION LAND HOLDING PTY LTD 628477976
RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
NIGHTINGALE ALBION LAND HOLDING PTY LTD of LEVEL 3 423 BOURKE STREET MELBOURNE VIC 3000

AR640465N 09/11/2018

CANCELLED

09/11/2018 09/11/2018 AR640466L (E) N

MORTGAGE OF LAND
MORTGAGE AR640466L 09/11/2018
NATIONAL AUSTRALIA BANK LTD

19/11/2019 20/11/2019 AS724195R (E) N

AGREEMENT SECTION 173 PLANNING AND ENVIRONMENT ACT 1987
AGREEMENT Section 173 Planning and Environment Act 1987
AS724195R 19/11/2019

STATEMENT END

VOTS Snapshot

VOLUME 11429 FOLIO 999
124046349162E
Produced 26/06/2013 11:57 am

LAND DESCRIPTION

Lot 1 on Title Plan 694780G (formerly known as part of Portion 125 AT BRUNSWICK
Parish of Jika Jika).
PARENT TITLE Volume 04751 Folio 084
Created by instrument AK423659W 25/06/2013

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
UGG AUSTRALIA PTY LTD of 215 ALBION STREET BRUNSWICK VIC 3056
U469657C 22/10/1996

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP694780G FOR FURTHER DETAILS AND BOUNDARIES

APPENDIX D: RHSV TRANSCRIPT

ROYAL HISTORICAL SOCIETY OF VICTORIA INC.

239 A'Beckett Street, Melbourne 3000

Date: 1 December 2020

Attention: Caroline Coop

Company: Environmental Earth Sciences

Email: ccoop@eesigroup.com

From: Rosemary Cameron (Executive Officer)

NOTE: Email address: sitesearch@historyvictoria.org.au

SITE SEARCH: 215-219 Albion Street BRUNSWICK 3056

This site is made up of three long rectangular sites located on the north side of Albion Street, between Ilhan Lane and Sydney Road to the east, and the Upfield bike path and railway line to the west. Albion Street runs from Merri Creek in the east to Moonie Ponds Creek and Pascoe Vale Road in the west, and up to the 1950s was divided by Sydney Road into Albion Street east and Albion Street west, where the site is located.

According to images from Google maps, currently the sites are occupied by three double storey brick and concrete factory/warehouse/office buildings, with small car parks at the front on Albion Street.

The area that is now Brunswick was grazing land between the 1850s and 1880s. With the coming of the railway in 1884 and the tramway along Sydney Road, subdivision of the large landholdings occurred.

Private residences were built in Albion Street west after the railway went through in 1884, but the site under investigation was not built on until 1912; "3 vacant houses" are recorded in the Sands & McDougall directory of that year, with house numbers 30, 32 & 34. In the late 1950s, the house numbers changed to 215, 217 & 219.

ROYAL HISTORICAL SOCIETY OF VICTORIA INC.
239 A'Beckett Street, Melbourne 3000

The buildings currently occupying the site were built in 1971. A children's clothes manufacturer is recorded at #215, a motor accessory retailer at 215a, apartments at #217, a clothing manufacturer at #219.

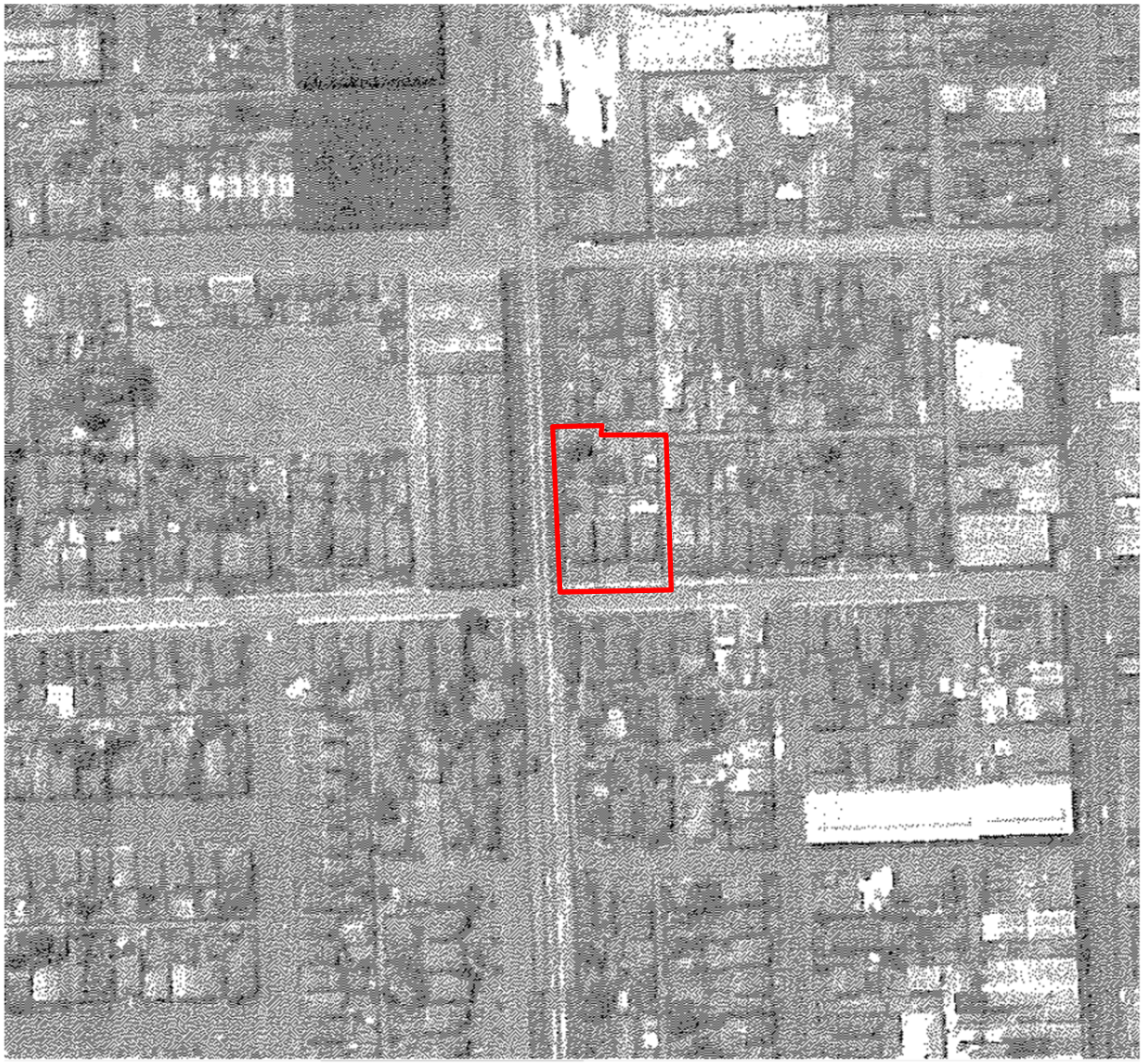
In 1974, the year of the final publication of the Sands & McDougall directories, the situation remains unchanged, except now the apartment building at #217 is listed as Yakka clothing manufacturer.

We regret we have no further information regarding this site.

Research by Alison Cameron

Tel: (03) 9326 9288 Fax: (03) 9326 9477
Email: sitesearch@historyvictoria.org.au ABN 36 520 675 471 Reg. No: A2529
Find out more about us on our website: www.historyvictoria.org.au

APPENDIX E: AERIAL IMAGERY

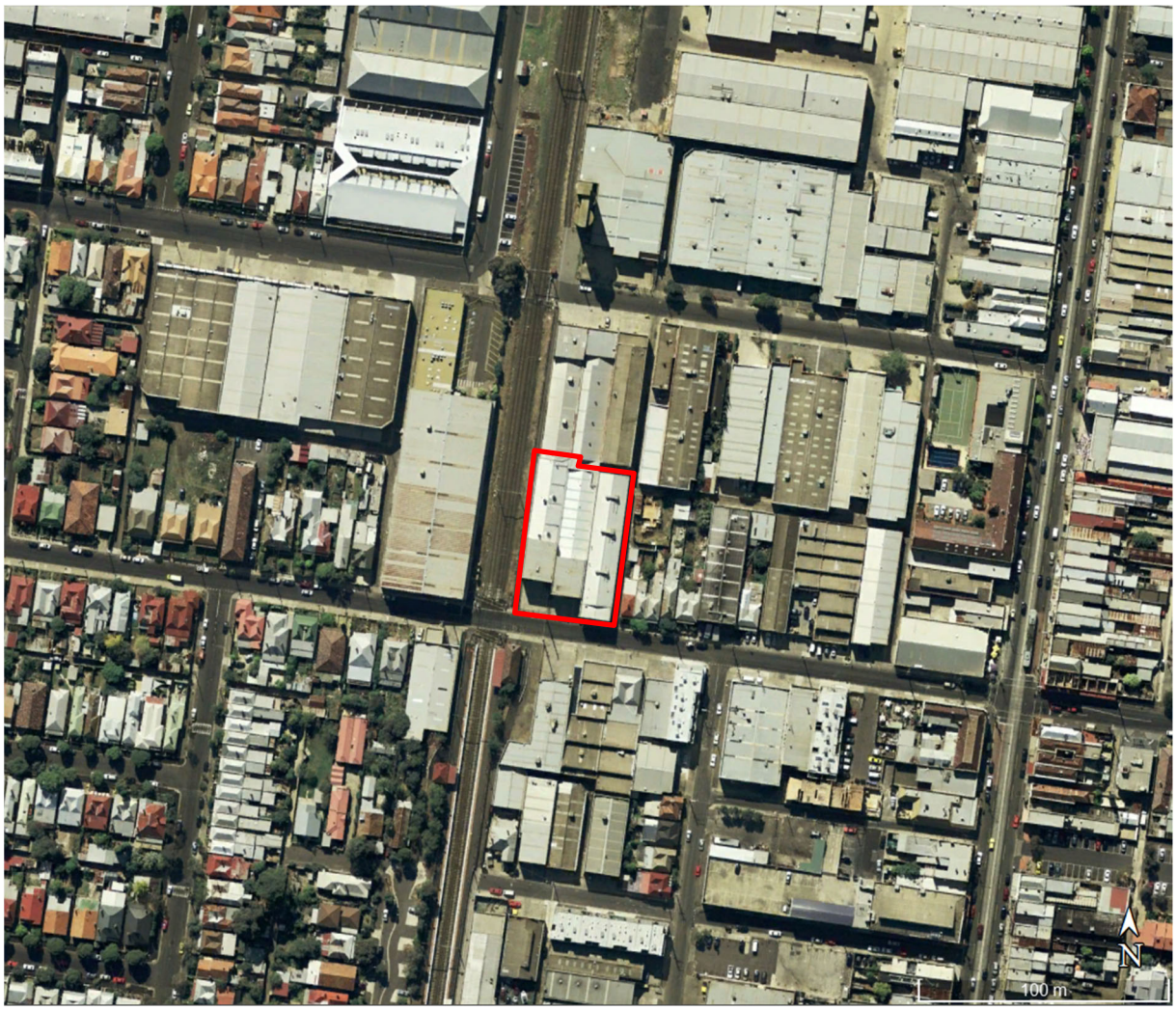


1951

1968

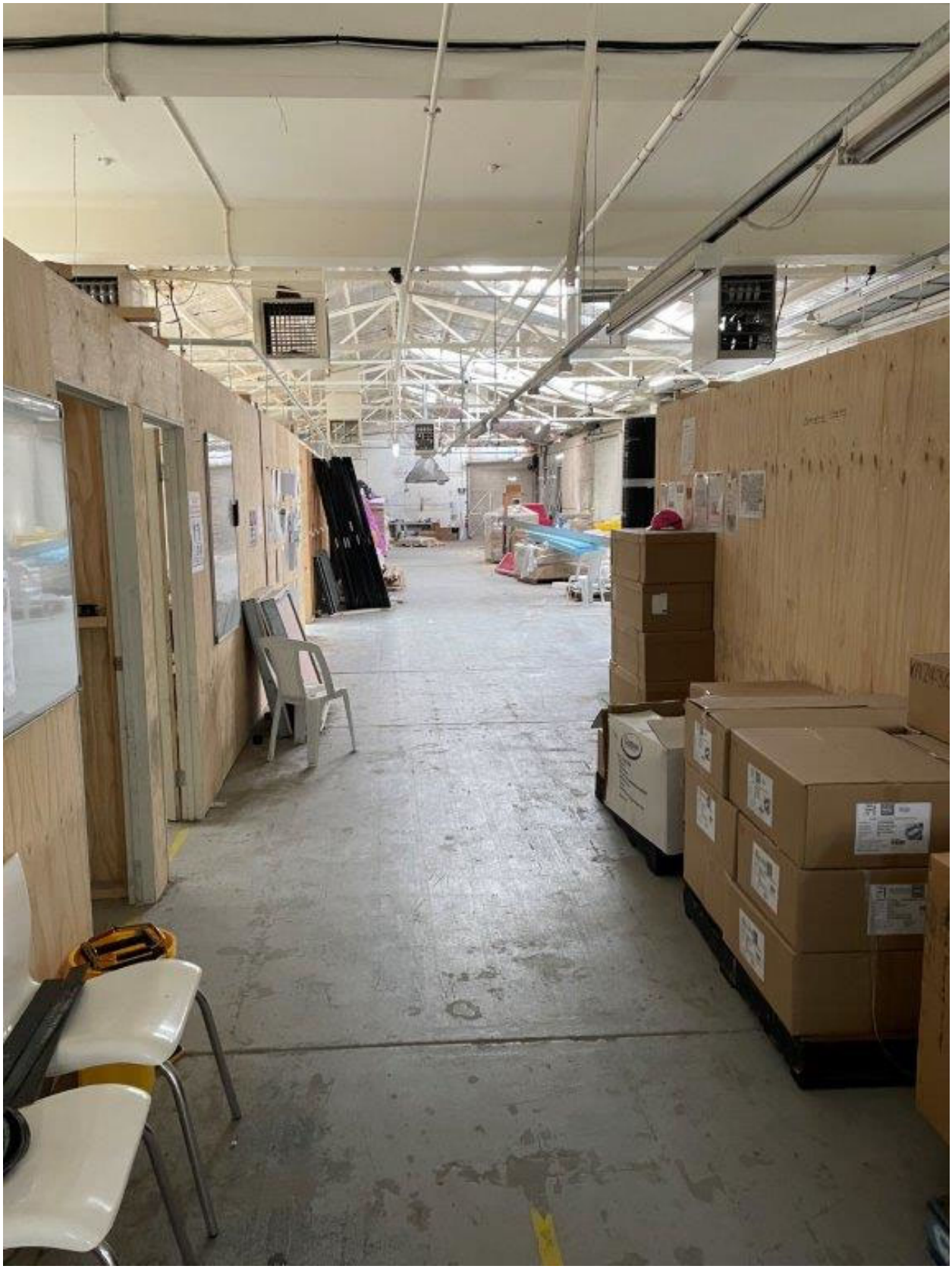
1989

2001

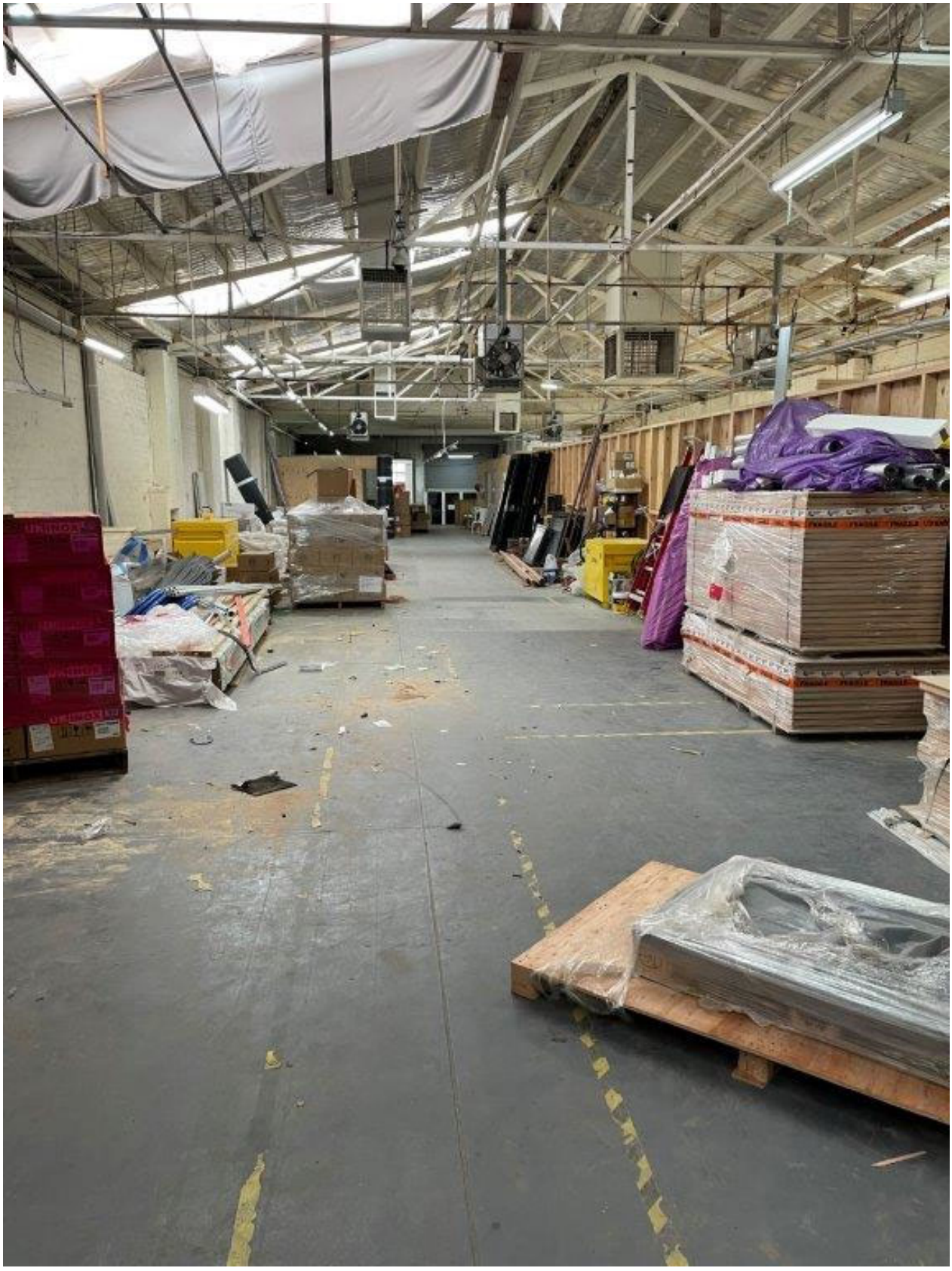


2009

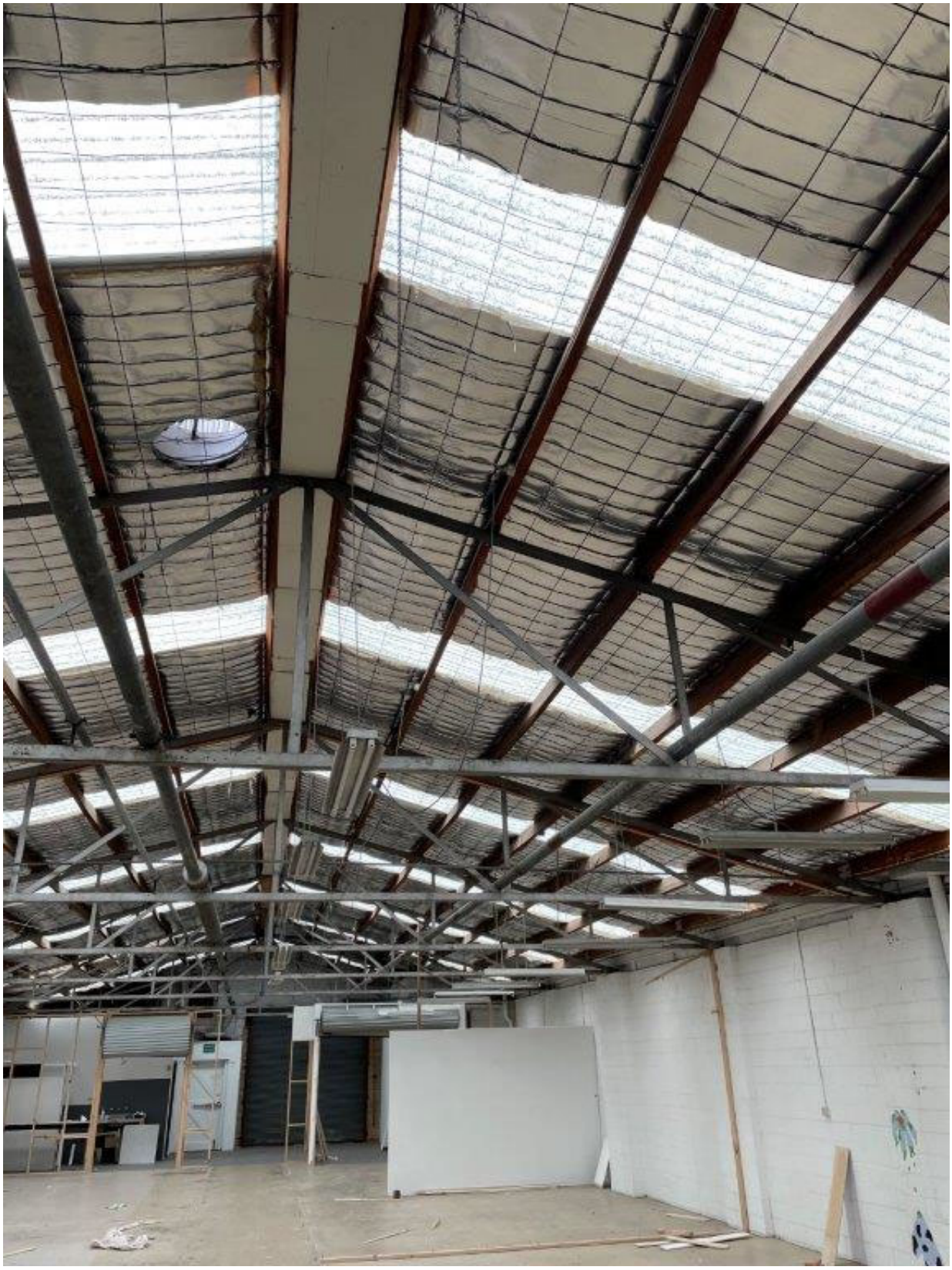
APPENDIX F: SITE PHOTOGRAPHS



Inside 219 Albion St, facing north



Inside 219 Albion St, facing south



Inside 217 Albion St, facing north

Inside 217 Albion St, facing south

Inside 215 Albion St, facing south

Inside 215 Albion St, facing south

Exterior of 215 Albion St, facing north

APPENDIX G: GEOLOGICAL BORELOGS

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH01**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
Washed SAND													No odour throughout
Grey/brown CLAY + SAND with angular gravel throughout + ballast		0.2		XX			D/M	0	0.1				BH01_0.2
				XX			D/M	0	0.1				BH01_0.4
		0.4											End of hole at 0.4 m bgl, refusal on ballast or basalt boulder
		0.6											
		0.8											
		1.0											
		1.2											
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH02**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
Grey CLAY + SAND with a white ceramic fragment				XX									No odour throughout
		0.2					D/M	0	0.4				BH02_0.2
Grey/ brown mottled CLAY, firm with minor calcareous bands throughout - soil structure broken/folded													Soil appears to be reworked basaltic clay
		0.4		XX			D/M	0	0.4				BH02_0.5
		0.6											End of hole at 0.55 m bgl, refusal. Depth of refusal above street level outside and not considered to be natural basalt
		0.8											
		1.0											
		1.2											
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH03**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													No odour throughout
Brown/grey CLAY with minor gravel		0.2		XX			D/M	0	0.2	8			BH03_0.2 - DUP_01 + SPLIT_01
Brick - layed level with surface		0.4											
NATURAL Dark grey, firm CLAY		0.6		XX			D/M	0	0.3	7			BH03_0.5
		0.8											BH03_0.7
		1.0		XX			D/M	0	0.2	7			BH03_1.0
		1.2											End of hole at 1.0 m bgl, target in natural
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH04**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
Brown SAND + CLAY with minor gravel													No odour throughout
				XX									
		0.2					D/M	0	0.4	7			BH04_0.2
NATURAL Dark grey/brown, firm CLAYwith minor orange mottling													
		0.4		XX									
							D/M	0	0.3	7			BH04_0.4
		0.6											
		0.8											
				XX									
		1.0					D/M	0	0.4	7			BH04_1.0
													End of hole at 1.0 m bgl, target in natural
		1.2											
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH05**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
Grey angular basaltic gravel				XX			M	0	0.3	7			No odour throughout BH05_0.2
Grey/brown, soft CLAY		0.2											
Light grey SAND + CLAY				XX			M	0	0.3	7			BH05_0.4
NATURAL Dark grey/brown, firm CLAY		0.4											
		0.6											
		0.8											
				XX			D/M	0	0.3	7			BH05_1.0
		1.0											
		1.2											End of hole at 1.0 m bgl, target in natural
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH06**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
FILL/NATURAL Dark grey firm CLAY with calcareous bands throughout and minor mottles		0.2		XX			D/M	0	0.3	6			No odour throughout BH06_0.2
		0.4		XX			D/M	0	0.3	6			BH06_0.5
		0.6											
		0.8											
Light brown CLAYEY SAND medium grain, firm				XX			D/M	0	0.3	7			BH06_1.0
		1.0											
		1.2											Appears natural, however, presence of sand suggests fill material
		1.4		XX			D/M	0	0.3	7			BH06_1.5
		1.6											End of hole at 1.5 m bgl, too firm to continue

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH07**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
NATURAL Dark grey firm CLAY				XX			D/M	0	0.4	7			No odour throughout BH07_0.2
		0.2											
Friable, brown CLAY with small fragments of highly weathered basalt		0.4		XX			D/M	0	0.2	7			Firm with scraping on auger BH07_0.5
		0.6											End of hole at 0.5 m bgl, refusal on rock
		0.8											
		1.0											
		1.2											
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 215 - 219 Albion St Brunswick		**Borehole Log: BH08**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 220096		
GROUNDWATER Not encountered	**DATUM** -	**PROJECT:** Nightingale Albion	**Proj. Manager** PC
DRILL METHOD CC/HA	**DATE DRILLED** 10/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
FILL Concrete													
CLAY with ballast, concrete and sand throughout				XX			D/M	0	0.4	7			No odour throughout BH08_0.2
		0.2											
		0.4		XX			D/M	0	0.4	7			BH08_0.5
		0.6											End of hole at 0.5m bgl, refusal on concrete peice, unable to break or shift
		0.8											
		1.0											
		1.2											
		1.4											
		1.6											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

APPENDIX H: VAPOUR SAMPLING FIELD SHEETS

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

Soil Vapour Sampling Log Sheet

Client: Nightingale
Site Name: Brunswick
Job Number: 220096

Sampling Method: Summa
Site Address: 119 Albion St, Brunswick
Weather: Fine.

Location ID: GTB01
Depth of Implant: GW Bore -9.6m.

Sampler: P.C.
Date: 9/11/21

Field Readings (pre-purging)			
Gas	Time Unit	Readings	Comments
PID	3:18 ppm	0.4	BG = 0.0 ppm.
~~LEL~~ CH_4	3:24 %	0.0	BG = 0
O_2	3:24 %	16.1	20.9 = BG
H_2S	3:24 ppm	0	0
CO_2	3:24 %	2.5	BG = 0.1

Purge flowrate: 550ml/m
Purge Time: ~~20 min~~ 25.m
Purge Volume: 13.75L

Field Readings (post-purging)			
Gas	Time Unit	Readings	Comments
PID	3:50 ppm	0.1	
~~LEL~~ CH_4	3:50 %	0.0	
O_2	3:50 %	16.2	
H_2S	3:50 ppm	0	
CO_2	3:50 %	1.7	

Soil Vapour Sampling								
Canister vacuum check (with vac gauge)	Train Serial Number	Canister Serial Number	Canister Volume	Flow (L/min)	Canister vacuum (pre-sampling)	Start Time	End Time	Canister vacuum (post-sampling)
GTB01 -2.8 kg	DS5071	816	1400ml	60ml/min	-30 kg	4:00 pm	4:48 pm	-2 kg
DUP01 -2.8 kg	"	1024	1400ml	" "	-30 kg	4:00 pm.	4:48pm	-2 kg

Field Readings (post-sample)			
Gas	Time Unit	Readings	Comments
PID	~~10~~:57 ppm	0.3	
~~LEL~~ CH_4	4:53 %	0	
O_2	4:53 %	16.7	
H_2S	4:53 ppm	0	
CO_2	4:53 %	1.7	

Leak Test Method: Isopropyl alcohol
Sampler Signature:

APPENDIX I: LABORATORY DOCUMENTATION

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2122552**	Page	: 1 of 22
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Melbourne
Contact	: PATRICK CARROLL	Contact	: Hannah White
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 220096	Date Samples Received	: 11-Nov-2021 13:20
Order number	: ----	Date Analysis Commenced	: 12-Nov-2021
C-O-C number	: ----	Issue Date	: 23-Nov-2021 12:51
Sampler	: PATRICK CARROLL		
Site	: Brunswick		
Quote number	: EN/010/21		
No. of samples received	: 24		
No. of samples analysed	: 17		

ilac-MRA NATA
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*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Vincent Emerton-Bell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

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 Contact 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.

- EG048G: EM2122362 sample #2 poor matrix spike recovery for Hexavalent Chromium due to matrix effects. Confirmed by re-analysis.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- 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.
- 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.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH01_0.2	BH01_0.4	BH02_0.2	BH03_0.2	BH03_0.7
			Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit	EM2122552-001	EM2122552-002	EM2122552-003	EM2122552-005	EM2122552-007
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	----	----	6.1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.6	7.1	19.1	10.8	20.5
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	----	43
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	----	2.47
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	----	10.6
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	----	7.9
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	----	0.4
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	----	1.6
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	----	20.5
EG005(ED093)T: Total Metals by ICP-AES								
Iron	7439-89-6	0.005	%	----	----	----	----	3.74
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	16	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	17	25	59	39	----
Copper	7440-50-8	5	mg/kg	27	34	23	58	----
Lead	7439-92-1	5	mg/kg	7	15	119	120	----
Nickel	7440-02-0	2	mg/kg	81	89	28	42	----
Zinc	7440-66-6	5	mg/kg	48	60	114	172	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	----	----	----	----	1.2
Total Organic Carbon	----	0.5	%	----	----	----	----	0.7
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01_0.2	BH01_0.4	BH02_0.2	BH03_0.2	BH03_0.7
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-001	EM2122552-002	EM2122552-003	EM2122552-005	EM2122552-007
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	----	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	----	----	<0.5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	----	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	----	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	----	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	----	----	<5	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	----	----	<0.5	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	----	----	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	----	----	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	----	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	----	----	<5	----
Chloromethane	74-87-3	5	mg/kg		<5	----	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg		<5	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg		<5	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg		<5	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	----	----	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	----	----	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	----	----	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	----	----	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	----	----	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	----	----	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01_0.2	BH01_0.4	BH02_0.2	BH03_0.2	BH03_0.7
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-001	EM2122552-002	EM2122552-003	EM2122552-005	EM2122552-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	----	----	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	----	----	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	----	----	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	----	----	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	----	----	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	----	----	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	----	----	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	----	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	----	----	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	----	----	<0.5	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	**1.8**	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	**2.6**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH01_0.2	BH01_0.4	BH02_0.2	BH03_0.2	BH03_0.7
			Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit	EM2122552-001	EM2122552-002	EM2122552-003	EM2122552-005	EM2122552-007
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	**2.4**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	**1.2**	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	**0.8**	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	**1.2**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	**0.6**	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	**1.1**	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<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	**0.6**	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	**12.3**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	**1.4**	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**1.7**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**2.0**	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<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	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01_0.2	BH01_0.4	BH02_0.2	BH03_0.2	BH03_0.7
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-001	EM2122552-002	EM2122552-003	EM2122552-005	EM2122552-007
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		77.0	----	----	78.2	----
Toluene-D8	2037-26-5	0.5	%		83.9	----	----	88.9	----
4-Bromofluorobenzene	460-00-4	0.5	%		90.7	----	----	90.6	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		86.8	92.0	93.3	93.8	----
2-Chlorophenol-D4	93951-73-6	0.5	%		92.3	102	97.0	96.2	----
2.4.6-Tribromophenol	118-79-6	0.5	%		71.1	80.1	73.2	89.7	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		84.2	90.6	83.7	90.4	----
Anthracene-d10	1719-06-8	0.5	%		89.3	96.9	91.8	90.6	----
4-Terphenyl-d14	1718-51-0	0.5	%		90.8	82.0	89.2	87.1	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		75.6	75.6	83.2	76.8	----
Toluene-D8	2037-26-5	0.2	%		81.8	80.0	87.9	86.7	----
4-Bromofluorobenzene	460-00-4	0.2	%		97.3	94.7	105	97.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH03_1.0	BH04_0.2	BH04_1.0	BH05_0.2	BH05_1.0
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-008	EM2122552-009	EM2122552-011	EM2122552-012	EM2122552-014
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		25.0	10.5	22.1	25.6	27.3
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	7	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		80	34	54	57	82
Copper	7440-50-8	5	mg/kg		11	41	10	36	13
Lead	7439-92-1	5	mg/kg		14	114	9	54	9
Nickel	7440-02-0	2	mg/kg		35	43	35	49	37
Zinc	7440-66-6	5	mg/kg		17	194	14	87	19
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	----	<0.5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	----	<5	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	----	<0.5	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	----	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	----	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH03_1.0	BH04_0.2	BH04_1.0	BH05_0.2	BH05_1.0
			Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit	EM2122552-008	EM2122552-009	EM2122552-011	EM2122552-012	EM2122552-014
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	<0.5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH03_1.0	BH04_0.2	BH04_1.0	BH05_0.2	BH05_1.0
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-008	EM2122552-009	EM2122552-011	EM2122552-012	EM2122552-014
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	----	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	----	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	----	----	<0.5	----
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		----	**1.7**	----	<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		----	**11.3**	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	**2.5**	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	**17.9**	----	**1.1**	----
Pyrene	129-00-0	0.5	mg/kg		----	**16.1**	----	**1.1**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	**7.8**	----	**0.6**	----
Chrysene	218-01-9	0.5	mg/kg		----	**5.9**	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	**9.0**	----	**0.7**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	**3.4**	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	**8.0**	----	**0.7**	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	**3.7**	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	**0.6**	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	**4.7**	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	**92.6**	----	**4.2**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	**11.1**	----	**0.8**	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**11.1**	----	**1.1**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**11.1**	----	**1.4**	----
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		----	**200**	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	**120**	----	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH03_1.0	BH04_0.2	BH04_1.0	BH05_0.2	BH05_1.0
			Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit	EM2122552-008	EM2122552-009	EM2122552-011	EM2122552-012	EM2122552-014
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	320	----	<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	----	280	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	280	----	<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	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	----	80.6	----
Toluene-D8	2037-26-5	0.5	%	----	----	----	90.8	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	----	93.5	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	106	----	96.5	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	105	----	104	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	78.0	----	81.2	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	109	----	95.5	----
Anthracene-d10	1719-06-8	0.5	%	----	104	----	97.7	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	83.8	----	94.8	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	72.6	----	79.1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH03_1.0	BH04_0.2	BH04_1.0	BH05_0.2	BH05_1.0
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-008	EM2122552-009	EM2122552-011	EM2122552-012	EM2122552-014
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		**----**	**77.5**	**----**	**88.6**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**----**	**92.9**	**----**	**100**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.2	BH06_1.5	BH07_0.2	BH08_0.2	BH08_0.5
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-015	EM2122552-018	EM2122552-019	EM2122552-021	EM2122552-022
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		23.4	19.5	26.1	29.1	19.2
EG005(ED093)T: Total Metals by ICP-AES									
Barium	7440-39-3	10	mg/kg		----	----	----	210	----
Beryllium	7440-41-7	1	mg/kg		----	----	----	<1	----
Boron	7440-42-8	50	mg/kg		----	----	----	<50	----
Cobalt	7440-48-4	2	mg/kg		----	----	----	26	----
Manganese	7439-96-5	5	mg/kg		----	----	----	959	----
Selenium	7782-49-2	5	mg/kg		----	----	----	<5	----
Vanadium	7440-62-2	5	mg/kg		----	----	----	54	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		80	57	74	66	40
Copper	7440-50-8	5	mg/kg		12	42	11	45	22
Lead	7439-92-1	5	mg/kg		10	<5	8	81	20
Nickel	7440-02-0	2	mg/kg		37	86	41	54	44
Zinc	7440-66-6	5	mg/kg		23	65	16	97	42
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	----	----	<0.5	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	----	----	<1	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.2	BH06_1.5	BH07_0.2	BH08_0.2	BH08_0.5
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-015	EM2122552-018	EM2122552-019	EM2122552-021	EM2122552-022
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	<0.2	----
Mirex	2385-85-5	0.05	mg/kg		----	----	----	<0.05	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.2	BH06_1.5	BH07_0.2	BH08_0.2	BH08_0.5
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-015	EM2122552-018	EM2122552-019	EM2122552-021	EM2122552-022
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	<0.05	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	----	----	<0.05	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<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
Chrysene	218-01-9	0.5	mg/kg		<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
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<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
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.2	BH06_1.5	BH07_0.2	BH08_0.2	BH08_0.5
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-015	EM2122552-018	EM2122552-019	EM2122552-021	EM2122552-022
					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
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<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
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<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**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<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
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	**93.6**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.2	BH06_1.5	BH07_0.2	BH08_0.2	BH08_0.5
				Sampling date / time	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00	10-Nov-2021 00:00
Compound	CAS Number	LOR	Unit		EM2122552-015	EM2122552-018	EM2122552-019	EM2122552-021	EM2122552-022
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	**94.0**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	**74.0**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**113**	----	**106**	**95.2**	**107**
2-Chlorophenol-D4	93951-73-6	0.5	%		**113**	----	**102**	**85.3**	**99.0**
2.4.6-Tribromophenol	118-79-6	0.5	%		**98.2**	----	**77.6**	**77.7**	**79.8**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**93.3**	----	**93.2**	**93.1**	**86.6**
Anthracene-d10	1719-06-8	0.5	%		**103**	----	**94.1**	**95.0**	**97.2**
4-Terphenyl-d14	1718-51-0	0.5	%		**88.3**	----	**91.1**	**92.7**	**94.7**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**84.4**	----	**67.8**	**72.9**	**68.1**
Toluene-D8	2037-26-5	0.2	%		**86.4**	----	**73.0**	**88.3**	**72.3**
4-Bromofluorobenzene	460-00-4	0.2	%		**102**	----	**84.6**	**98.4**	**88.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DUP_01	----	----	----	----
			Sampling date / time	10-Nov-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2122552-023	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**17.9**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**17**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**41**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**67**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**116**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**45**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**177**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	**1.0**	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**1.7**	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	**1.7**	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	**0.9**	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	**0.6**	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**0.9**	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**0.8**	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**7.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	**1.0**	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**1.3**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.6**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DUP_01	----	----	----	----
				Sampling date / time	10-Nov-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2122552-023	--------	--------	--------	--------	
				Result	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----	
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----	
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	----	
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	----	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----	
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	----	----	----	----	
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	----	----	----	----	
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	**96.3**	----	----	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	**101**	----	----	----	----	
2.4.6-Tribromophenol	118-79-6	0.5	%	**80.4**	----	----	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	**95.3**	----	----	----	----	
Anthracene-d10	1719-06-8	0.5	%	**96.3**	----	----	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	**94.5**	----	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**75.6**	----	----	----	----	
Toluene-D8	2037-26-5	0.2	%	**77.6**	----	----	----	----	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DUP_01	----	----	----	----
				Sampling date / time	10-Nov-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2122552-023	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**91.5**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RIN1	----	----	----	----
				Sampling date / time	10-Nov-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2122552-024	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**96.7**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**106**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**110**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	62	122
Toluene-D8	2037-26-5	64	120
4-Bromofluorobenzene	460-00-4	66	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Inter-Laboratory Testing

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

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

QUALITY CONTROL REPORT

Work Order	: **EM2122552**	Page	: 1 of 22
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Melbourne
Contact	: PATRICK CARROLL	Contact	: Hannah White
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 220096	Date Samples Received	: 11-Nov-2021
Order number	: ----	Date Analysis Commenced	: 12-Nov-2021
C-O-C number	: ----	Issue Date	: 23-Nov-2021
Sampler	: PATRICK CARROLL		
Site	: Brunswick		
Quote number	: EN/010/21		
No. of samples received	: 24		
No. of samples analysed	: 17		

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 Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Vincent Emerton-Bell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4016918)									
EM2122419-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	230	220	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	51	52	0.0	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	24	27	10.6	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	69	74	7.3	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	27	12.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	17	18.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	434	473	8.5	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	56	62	9.8	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	64	76	16.8	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	3.90 %	43400	10.7	0% - 20%
EM2122552-001	BH01_0.2	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	18	6.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	20	20	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	81	88	8.1	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	27	25	6.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4016918) - continued									
EM2122552-001	BH01_0.2	EG005T: Manganese	7439-96-5	5	mg/kg	360	327	9.4	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	14	7.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	48	51	4.9	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	34000	34100	0.3	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4016920)									
EM2122552-018	BH06_1.5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	230	240	5.9	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	57	65	12.6	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	30	31	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	86	74	14.4	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	42	34	19.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	767	768	0.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	66	73	10.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	65	58	10.1	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	58900	56400	4.4	0% - 20%
EM2122672-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	50	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	18	14.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	10	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	26	24	7.6	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	49	51	4.6	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	6	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	313	333	6.1	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	26	27	5.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	388	454	15.9	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	23400	28000	17.9	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4017521)									
EM2122426-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.4	7.3	0.0	0% - 20%
EM2122510-008	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.2	7.2	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4014164)									
EM2122510-001	Anonymous	EA055: Moisture Content	----	0.1	%	14.6	14.8	1.3	0% - 50%
EM2122510-011	Anonymous	EA055: Moisture Content	----	0.1	%	3.2	3.0	5.9	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4014165)									
EM2122552-012	BH05_0.2	EA055: Moisture Content	----	0.1	%	25.6	25.3	0.9	0% - 20%
EM2122561-003	Anonymous	EA055: Moisture Content	----	0.1	%	29.4	29.6	0.6	0% - 20%
ED007: Exchangeable Cations (QC Lot: 4017418)									
EM2122362-001	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.9	0.9	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.1	2.1	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.5	0.5	0.0	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	6.2	6.1	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4016919)									
EM2122552-001	BH01_0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2122552-018	BH06_1.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 4016935)									
EM2122362-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<2.0	<2.0	0.0	No Limit
EM2122549-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 4020430)									
EM2122552-021	BH08_0.2	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EP004: Organic Matter (QC Lot: 4014828)									
EM2122426-002	Anonymous	EP004: Organic Matter	----	0.5	%	7.6	7.5	0.0	0% - 50%
		EP004: Total Organic Carbon	----	0.5	%	4.4	4.4	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4016417)									
EM2122552-021	BH08_0.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4016418)									
EM2122552-021	BH08_0.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4016418) - continued									
EM2122552-021	BH08_0.2	EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4016418)									
EM2122552-021	BH08_0.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068C: Triazines (QC Lot: 4016418)									
EM2122552-021	BH08_0.2	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068D: Pyrethroids (QC Lot: 4016418)									
EM2122552-021	BH08_0.2	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 4013290) - continued									
EM2122323-001	Anonymous	EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 4013290) - continued									
EM2122323-001	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 4013290) - continued									
EM2122552-001	BH01_0.2	EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 4013290)									
EM2122323-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2122552-001	BH01_0.2	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074G: Trihalomethanes (QC Lot: 4013290) - continued									
EM2122552-001	BH01_0.2	EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 4016415)									
EM2122552-001	BH01_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EM2122552-021	BH08_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4016415)									
EM2122552-001	BH01_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4016415) - continued									
EM2122552-001	BH01_0.2	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2122552-021	BH08_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4013289)									
EM2122323-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2122552-001	BH01_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4013807)									
EM2122433-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2122552-015	BH06_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4016416)									
EM2122552-001	BH01_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EM2122552-021	BH08_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4013289)									
EM2122323-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2122552-001	BH01_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4013807)									
EM2122433-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2122552-015	BH06_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4016416)									
EM2122552-001	BH01_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EM2122552-021	BH08_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 4013289)									
EM2122323-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2122552-001	BH01_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 4013807)									
EM2122433-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2122552-015	BH06_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 4013807) - continued									
EM2122552-015	BH06_0.2	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4012588)									
EM2122566-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EM2122566-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4013647)									
EM2122496-006	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	200	120	48.3	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	920	920	0.0	0% - 50%
		EP071: C29 - C36 Fraction	----	50	µg/L	80	60	41.3	No Limit
EM2122496-010	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4012588)									
EM2122566-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EM2122566-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4013647)									
EM2122496-006	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	370	440	16.5	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	240	140	52.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EM2122496-010	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 4012588)									
EM2122566-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EM2122566-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4016918)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	96.6	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	92.5	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	95.9	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	57.7	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	108	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	92.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	96.6	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	111	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	93.0	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	94.4	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	101	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	99.3	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	76.5	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4016920)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	98.7	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	95.0	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	97.4	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	57.8	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	112	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	95.7	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	98.1	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	115	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	95.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	97.5	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	105	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	102	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	79.3	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4017521)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.3	101

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED007: Exchangeable Cations (QCLot: 4017418)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	24.13 meq/100g	93.3	80.0	130
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.96 meq/100g	95.2	72.2	130
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	1.01 meq/100g	105	77.4	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.86 meq/100g	111	89.2	130
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4016919)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	85.9	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4016935)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	73.6	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 4020430)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	98.6	70.0	130
EP004: Organic Matter (QCLot: 4014828)								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	96.6	70.0	130
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	99.1	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4016417)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	115	68.0	133
EP068A: Organochlorine Pesticides (OC) (QCLot: 4016418)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	103	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	86.4	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.4	55.5	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 4016418) - continued								
EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	71.1	126
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4016418)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.9	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	69.3	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.5	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	78.4	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	72.3	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	127	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.8	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	75.0	43.1	131
EP068C: Triazines (QCLot: 4016418)								
EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	72.5	126
EP068D: Pyrethroids (QCLot: 4016418)								
EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	67.9	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 4013290)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	84.9	70.8	115
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	83.8	68.6	116
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	77.1	59.8	113
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	82.4	63.4	112
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	80.3	61.5	114
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	82.5	63.1	112
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	82.1	63.6	113
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	80.6	60.8	114
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	72.7	54.9	113
EP074B: Oxygenated Compounds (QCLot: 4013290)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	93.1	51.4	128
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	61.8	61.2	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074B: Oxygenated Compounds (QCLot: 4013290) - continued								
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	96.0	63.2	137
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	66.9	65.0	130
EP074C: Sulfonated Compounds (QCLot: 4013290)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.0	48.5	132
EP074D: Fumigants (QCLot: 4013290)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	83.5	61.4	116
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	88.3	70.1	116
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	82.7	61.7	112
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	80.5	63.8	110
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	86.7	67.0	114
EP074E: Halogenated Aliphatic Compounds (QCLot: 4013290)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	111	26.0	137
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	108	49.4	140
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	101	46.0	138
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	95.5	39.1	127
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	93.6	59.2	128
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	93.1	60.1	124
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	90.0	55.2	122
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	62.9	47.0	125
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	89.5	63.6	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	96.6	64.5	120
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	96.0	67.5	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	85.5	57.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	87.5	60.3	120
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	80.2	57.7	113
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	92.0	68.9	117
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	94.4	65.5	119
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	80.5	68.4	115
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	93.5	69.8	118
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	90.7	70.6	118
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	83.0	65.6	117
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	79.0	62.8	106
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	79.7	58.9	117
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	66.2	57.8	110
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	101	72.3	127
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.0	69.0	123
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	76.9	59.0	100
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	75.6	60.8	111

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 4013290) - continued								
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	80.9	54.1	132
EP074F: Halogenated Aromatic Compounds (QCLot: 4013290)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	89.8	72.5	115
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	84.6	69.2	112
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	81.6	65.9	114
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	83.2	65.4	113
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	90.5	64.1	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	93.5	66.3	119
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	88.5	71.4	112
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	81.7	55.6	124
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	84.7	59.3	123
EP074G: Trihalomethanes (QCLot: 4013290)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	92.4	67.5	119
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	90.5	57.8	117
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	84.5	60.3	108
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	78.1	55.7	108
EP075(SIM)A: Phenolic Compounds (QCLot: 4016415)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	106	81.2	121
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	105	83.2	120
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	105	81.6	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	81.8	79.7	129
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	80.0	49.8	129
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	97.2	81.5	127
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	90.9	74.2	125
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	93.8	79.8	121
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	85.2	71.5	121
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	92.9	67.8	119
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	81.3	64.5	126
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	75.8	9.68	118
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4016415)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	93.1	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	99.2	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	92.2	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	89.3	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	90.6	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	92.8	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	95.7	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	98.2	79.9	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4016415) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	104	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	107	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	79.4	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	87.0	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	79.5	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	77.2	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	75.7	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	85.9	65.8	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4013289)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	92.9	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4013807)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	98.2	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4016416)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	650 mg/kg	102	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	103	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1380 mg/kg	102	82.4	121
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4013289)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	90.0	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4013807)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	94.8	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4016416)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	920 mg/kg	117	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3700 mg/kg	101	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	97.1	73.3	137
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 4013289)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	90.0	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	93.5	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	95.4	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	98.7	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	100	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	86.5	61.8	123
EP080: BTEXN (QCLot: 4013807)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	95.0	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	97.3	65.8	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 4013807) - continued								
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	96.3	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	103	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	103	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	110	61.8	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4012588)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	124	66.2	134
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4013647)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4670 µg/L	88.7	44.2	140
EP071: C15 - C28 Fraction	----	100	µg/L	<100	15800 µg/L	91.4	46.9	127
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8180 µg/L	87.9	47.4	128
EP071: C10 - C36 Fraction (sum)	----	----	µg/L	----	28650 µg/L	89.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4012588)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	122	66.2	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4013647)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6100 µg/L	87.6	43.0	127
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	21200 µg/L	89.9	48.6	129
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1620 µg/L	84.6	42.2	133
EP071: >C10 - C40 Fraction (sum)	----	----	µg/L	----	28920 µg/L	89.2	70.0	130
EP080: BTEXN (QCLot: 4012588)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	116	68.8	127
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	121	72.9	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	123	71.7	130
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	131	72.3	136
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	133	75.9	134
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	102	68.3	131

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4016918)							
EM2122552-002	BH01_0.4	EG005T: Arsenic	7440-38-2	50 mg/kg	99.1	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	91.8	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	100	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	106	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	86.4	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	95.4	80.0	120
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4016920)							
EM2122714-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.5	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	91.8	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	103	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	95.2	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	87.0	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	83.7	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4016919)							
EM2122552-002	BH01_0.4	EG035T: Mercury	7439-97-6	0.5 mg/kg	102	76.0	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 4016935)							
EM2122362-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	100 mg/kg	# 7.6	58.0	114
EM2122362-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	100 mg/kg	# 4.4	58.0	114
EP004: Organic Matter (QCLot: 4014828)							
EM2122531-002	Anonymous	EP004: Organic Matter	----	6.93716 %	82.0	70.0	120
		EP004: Total Organic Carbon	----	4.02355 %	82.0	70.0	120
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4016417)							
EM2122688-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	96.5	63.2	144
EP068A: Organochlorine Pesticides (OC) (QCLot: 4016418)							
EM2122707-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	74.7	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.4	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	77.1	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	76.2	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	84.4	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	94.0	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4016418)							
EM2122707-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	75.0	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	73.2	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	73.8	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	82.8	55.1	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4016418) - continued							
EM2122707-001	Anonymous	EP068: Prothiofos	34643-46-4	0.5 mg/kg	89.6	43.8	128
EP074E: Halogenated Aliphatic Compounds (QCLot: 4013290)							
EM2122323-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	2 mg/kg	65.2	29.0	141
		EP074: Trichloroethene	79-01-6	2 mg/kg	70.5	50.0	126
EP074F: Halogenated Aromatic Compounds (QCLot: 4013290)							
EM2122323-005	Anonymous	EP074: Chlorobenzene	108-90-7	2 mg/kg	78.3	65.0	133
EP075(SIM)A: Phenolic Compounds (QCLot: 4016415)							
EM2122552-003	BH02_0.2	EP075(SIM): Phenol	108-95-2	3 mg/kg	98.8	77.1	119
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	97.4	78.9	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	80.4	43.8	136
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	83.4	61.5	120
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	50.5	15.3	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4016415)							
EM2122552-003	BH02_0.2	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	89.2	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	88.4	65.5	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4013289)							
EM2122323-005	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	74.0	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4013807)							
EM2122433-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	83.8	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4016416)							
EM2122552-002	BH01_0.4	EP071: C10 - C14 Fraction	----	650 mg/kg	96.8	71.2	125
		EP071: C15 - C28 Fraction	----	2920 mg/kg	98.5	75.6	122
		EP071: C29 - C36 Fraction	----	1380 mg/kg	96.5	78.0	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4013289)							
EM2122323-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	71.0	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4013807)							
EM2122433-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	80.7	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4016416)							
EM2122552-002	BH01_0.4	EP071: >C10 - C16 Fraction	----	920 mg/kg	111	72.2	128
		EP071: >C16 - C34 Fraction	----	3700 mg/kg	95.9	76.5	119
		EP071: >C34 - C40 Fraction	----	270 mg/kg	90.8	66.8	138
EP080: BTEXN (QCLot: 4013289)							
EM2122323-005	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	76.8	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	85.9	57.1	131
EP080: BTEXN (QCLot: 4013807)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 4013807) - continued							
EM2122433-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	76.4	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	86.6	57.1	131

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4012588)							
EM2122562-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	107	33.9	126
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4013647)							
EM2122496-006	Anonymous	EP071: C10 - C14 Fraction	----	4670 µg/L	93.4	41.2	149
		EP071: C15 - C28 Fraction	----	15800 µg/L	93.3	41.8	131
		EP071: C29 - C36 Fraction	----	8180 µg/L	89.6	43.5	130
		EP071: C10 - C36 Fraction (sum)	----	28650 µg/L	92.1	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4012588)							
EM2122562-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	101	34.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4013647)							
EM2122496-006	Anonymous	EP071: >C10 - C16 Fraction	----	6100 µg/L	88.7	38.4	133
		EP071: >C16 - C34 Fraction	----	21200 µg/L	91.8	43.1	132
		EP071: >C34 - C40 Fraction	----	1620 µg/L	85.4	38.4	135
		EP071: >C10 - C40 Fraction (sum)	----	28920 µg/L	91.0	70.0	130
EP080: BTEXN (QCLot: 4012588)							
EM2122562-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	119	56.3	133
		EP080: Toluene	108-88-3	20 µg/L	122	60.4	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2122552**	Page	: 1 of 11
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Melbourne
Contact	: PATRICK CARROLL	Telephone	: +61-3-8549 9600
Project	: 220096	Date Samples Received	: 11-Nov-2021
Site	: Brunswick	Issue Date	: 23-Nov-2021
Sampler	: PATRICK CARROLL	No. of samples received	: 24
Order number	: ----	No. of samples analysed	: 17

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM2122362--002	Anonymous	**Hexavalent Chromium**	18540-29-9	7.6 %	58.0-114%	**Recovery less than lower data quality objective**
EG048: Hexavalent Chromium (Alkaline Digest)	EM2122362--002	Anonymous	**Hexavalent Chromium**	18540-29-9	4.4 %	58.0-114%	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
WAD Cyanide by Segmented Flow Analyser	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
BH03_0.7	**10-Nov-2021**	**17-Nov-2021**	17-Nov-2021	✓	**17-Nov-2021**	17-Nov-2021	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH03_0.7, BH03_1.0, BH04_0.2, BH04_1.0, BH05_0.2, BH05_1.0, BH06_0.2, BH06_1.5, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**----**	----	----	**15-Nov-2021**	24-Nov-2021	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
BH03_0.7	**10-Nov-2021**	**----**	----	----	**23-Nov-2021**	09-May-2022	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA152: Soil Particle Density							
Snap Lock Bag (EA152)							
BH03_0.7	**10-Nov-2021**	**----**	----	----	**23-Nov-2021**	09-May-2022	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
BH03_0.7	**10-Nov-2021**	**16-Nov-2021**	08-Dec-2021	✓	**17-Nov-2021**	08-Dec-2021	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
BH03_0.7	**10-Nov-2021**	**17-Nov-2021**	08-Dec-2021	✓	**17-Nov-2021**	08-Dec-2021	✓
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
BH03_0.7	**10-Nov-2021**	**17-Nov-2021**	08-Dec-2021	✓	**17-Nov-2021**	08-Dec-2021	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH03_0.7, BH03_1.0, BH04_0.2, BH04_1.0, BH05_0.2, BH05_1.0, BH06_0.2, BH06_1.5, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**17-Nov-2021**	09-May-2022	✓	**17-Nov-2021**	09-May-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH03_1.0, BH04_0.2, BH04_1.0, BH05_0.2, BH05_1.0, BH06_0.2, BH06_1.5, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**17-Nov-2021**	08-Dec-2021	✓	**17-Nov-2021**	08-Dec-2021	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	08-Dec-2021	✓	**17-Nov-2021**	24-Nov-2021	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**18-Nov-2021**	01-Dec-2021	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004)							
BH03_0.7	**10-Nov-2021**	**15-Nov-2021**	08-Dec-2021	✓	**15-Nov-2021**	08-Dec-2021	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP068C: Triazines							
Soil Glass Jar - Unpreserved (EP068)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP068D: Pyrethroids							
Soil Glass Jar - Unpreserved (EP068)							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
BH01_0.2, BH03_0.2, BH05_0.2	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**15-Nov-2021**	17-Nov-2021	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH08_0.2	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH04_0.2, BH05_0.2, BH06_0.2, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH04_0.2, BH05_0.2, BH06_0.2, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**15-Nov-2021**	24-Nov-2021	✓	**15-Nov-2021**	24-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP071)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH04_0.2, BH05_0.2, BH06_0.2, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH04_0.2, BH05_0.2, BH06_0.2, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**15-Nov-2021**	24-Nov-2021	✓	**15-Nov-2021**	24-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP071)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH04_0.2, BH05_0.2, BH06_0.2, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**17-Nov-2021**	24-Nov-2021	✓	**17-Nov-2021**	27-Dec-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH01_0.2, BH01_0.4, BH02_0.2, BH03_0.2, BH04_0.2, BH05_0.2, BH06_0.2, BH07_0.2, BH08_0.2, BH08_0.5, DUP_01	**10-Nov-2021**	**15-Nov-2021**	24-Nov-2021	✓	**15-Nov-2021**	24-Nov-2021	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
RIN1	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**16-Nov-2021**	25-Dec-2021	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RIN1	**10-Nov-2021**	**12-Nov-2021**	24-Nov-2021	✓	**13-Nov-2021**	24-Nov-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
RIN1	**10-Nov-2021**	**15-Nov-2021**	17-Nov-2021	✓	**16-Nov-2021**	25-Dec-2021	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RIN1	**10-Nov-2021**	**12-Nov-2021**	24-Nov-2021	✓	**13-Nov-2021**	24-Nov-2021	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
RIN1	**10-Nov-2021**	**12-Nov-2021**	24-Nov-2021	✓	**13-Nov-2021**	24-Nov-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	31	**12.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN C&O / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4 ¿pyridine carboxylic and 1,3 - dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
1:5 solid / water leach following drying at 40°C	EN34-AD	SOIL	10 g of 40°C dried soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

Environmental Division
Melbourne
Work Order Reference
EM2122552

Telephone : + 61-3-8549 9600

CHAIN OF CUSTODY - ANALYSIS REQUEST FORM

Job No: 220096 | Laboratory: ALS.

Project Manager: PC. | Sampler: P.C. | Site Location: Brunswick. | Sheet: 1 of 2

	No. of samples	Sample ID/ Depth	Anticipated Result (PID)/EC reading	Date sampled	Time sampled	Sample Matrix: Soil	Water	Sediment	Analysis Required: S-26	VOC EP074 A-H	NEPM P-21	P-22	8-metals	Sample-specific instructions/ notes
1		BH01 – 0.2		10/11		X			X	X				
2		– 0.4							X					
3		BH02 – 0.2							X					
4		– 0.5												
5		BH03 – 0.2							X	X				
6		– 0.5												
7		– 0.7										X		
8		– 1.0											X	
9		BH04 – 0.2							X					
10		– 0.4												
11		– 1.0											X	
12		BH05 – 0.2							X	X				
13		– 0.4												
14		– 1.0											X	
15		BH06 – 0.2							X					
16		– 0.5												
17		– 1.0												
18		– 1.5.											X	
19		BH07 – 0.2							X					
20		– 0.5												
		TOTAL												

Turn Around *(circle)*: **NORMAL / 3 DAYS / 48 HRS / 24 HRS** *(confirm with lab in advance if quick turn-around is required)*

Comments/ Instructions:

Lab Quotation No. *(if applicable)*:

Send report to *(email address)*: pcarroll@eesigroup.com.

Cc: report to *(email address)*: pmulvey@ " "

Cc: invoice to *(email address)*: accounts@eesigroup.com

	Name	Signature	Date	Time
Sent off Site/Office by:	P. Carroll	[signature]	11/11/21	9:00
Receiving Lab:				
Receiving Lab:				

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED
Phone: (03) 9687 1666
Fax: (03) 9687 1844
Address: Level 1 98 Maribyrnong St, Footscray 3011
Email: eesVIC@eesigroup.com

Kaitlyn
Received: 11/11 13.20 Carrier:
C/note:
Temp: 10 °C Seal: ✓
Ice / Icebricks / NA

CHAIN OF CUSTODY - ANALYSIS REQUEST FORM

Job No: 220096 Laboratory: ALS.

Project Manager: P.C. Sampler: P.C. Site Location: Brunswick. Sheet: 2 of 2

	No. of samples	Sample ID/ Depth	Anticipated Result (PID)/EC reading	Date sampled	Time sampled	Sample Matrix: Soil	Water	Sediment	Analysis Required: 5-26	P21/1	TRH BTEXN C6-C40	Sample-specific instructions/ notes
21	2	BH08_0.2		10/11		X			X	X		
22		_0.5				X			X			
23		DUP_01				X			X			
24		RIN1					X				X	
		TOTAL										

Turn Around *(circle)*: **NORMAL / 3 DAYS / 48 HRS / 24 HRS** *(confirm with lab in advance if quick turn-around is required)*

Lab Quotation No. *(if applicable)*:

Comments/ Instructions:

Send report to *(email address)*:

Cc: report to *(email address)*:

Cc: invoice to *(email address)*: accounts@eesigroup.com

	Name	Signature	Date	Time
Sent off Site/Office by:	P. Carroll		11/1/21	9:00
Receiving Lab:				
Receiving Lab:				

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED
Phone: (03) 9687 1666
Fax: (03) 9687 1844
Address: Level 1 98 Maribyrnong St, Footscray 3011
Email: eesVIC@eesigroup.com

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EN2110052**	Page	: 1 of 4
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Newcastle
Contact	: PATRICK CARROLL	Contact	: Hannah White
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: 220096	Date Samples Received	: 12-Nov-2021 09:10
Order number	: 220096	Date Analysis Commenced	: 15-Nov-2021
C-O-C number	: ----	Issue Date	: 16-Nov-2021 16:58
Sampler	: P.C.		
Site	: ----		
Quote number	: EN/010/21		
No. of samples received	: 2		
No. of samples analysed	: 2		

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*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, 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 Contact 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.

- EP101: Results reported in mg/m³ are calculated from PPMV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an Absolute Pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere taken at the time of measurement.
- CAN-001: Results for Pressure - Gauge as Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Sample ID	GTB01 C816_S071	DUP01 C1024_S071	----	----	----
				Sampling date / time	09-Nov-2021 00:00	09-Nov-2021 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EN2110052-001	EN2110052-002	--------	--------	--------
					Result	Result	----	----	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)									
Vinyl chloride	75-01-4	0.0051	mg/m³		<0.0051	<0.0051	----	----	----
Chloroethane	75-00-3	0.130	mg/m³		<0.130	<0.130	----	----	----
1.1-Dichloroethene	75-35-4	0.200	mg/m³		<0.200	<0.200	----	----	----
1.1-Dichloroethane	75-34-3	0.200	mg/m³		<0.200	<0.200	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³		<0.0200	<0.0200	----	----	----
1.2-Dichloroethane	107-06-2	0.200	mg/m³		<0.200	<0.200	----	----	----
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³		<0.270	<0.270	----	----	----
Trichloroethene	79-01-6	0.0054	mg/m³		**0.0188**	**0.0188**	----	----	----
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³		<0.270	<0.270	----	----	----
Tetrachloroethene	127-18-4	0.340	mg/m³		<0.340	<0.340	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³		<0.200	<0.200	----	----	----
Isopropyl Alcohol	67-63-0	0.120	mg/m³		<0.120	<0.120	----	----	----
EP101: VOCs by USEPA Method TO15r									
Vinyl chloride	75-01-4	0.0020	ppmv		<0.0020	<0.0020	----	----	----
Chloroethane	75-00-3	0.0500	ppmv		<0.0500	<0.0500	----	----	----
1.1-Dichloroethene	75-35-4	0.0500	ppmv		<0.0500	<0.0500	----	----	----
1.1-Dichloroethane	75-34-3	0.0500	ppmv		<0.0500	<0.0500	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		<0.0050	<0.0050	----	----	----
1.2-Dichloroethane	107-06-2	0.0500	ppmv		<0.0500	<0.0500	----	----	----
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		<0.0500	<0.0500	----	----	----
Trichloroethene	79-01-6	0.0010	ppmv		**0.0035**	**0.0035**	----	----	----
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		<0.0500	<0.0500	----	----	----
Tetrachloroethene	127-18-4	0.0500	ppmv		<0.0500	<0.0500	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		<0.0500	<0.0500	----	----	----
Isopropyl Alcohol	67-63-0	0.0500	ppmv		<0.0500	<0.0500	----	----	----
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		**95.2**	**95.4**	----	----	----
Pressure - Laboratory Atmosphere	----	0.1	kPaa		**100**	**100**	----	----	----
Temperature as Received	----	0.1	°C		**21.0**	**21.0**	----	----	----
Vacuum - As received	----	0.03	Inches Hg		**1.54**	**1.48**	----	----	----
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		**103**	**102**	----	----	----

Surrogate Control Limits

Sub-Matrix: **AIR**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	460-00-4	60	140

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EN2110052**	Page	: 1 of 4
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Newcastle
Contact	: PATRICK CARROLL	Telephone	: +61 2 4014 2500
Project	: 220096	Date Samples Received	: 12-Nov-2021
Site	: ----	Issue Date	: 16-Nov-2021
Sampler	: P.C.	No. of samples received	: 2
Order number	: 220096	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP101: VOCs by USEPA Method TO15r							
Gas Canister - ALS Stainless Steel Silonite (EP101-15X)							
GTB01 - C816_S071, DUP01 - C1024_S071	**09-Nov-2021**	**----**	----	----	**15-Nov-2021**	09-Dec-2021	✓
Sampling Quality Assurance							
Gas Canister - ALS Stainless Steel Silonite (CAN-001)							
GTB01 - C816_S071, DUP01 - C1024_S071	**09-Nov-2021**	**----**	----	----	**15-Nov-2021**	09-Nov-2022	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EN2110052**	Page	: 1 of 3
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Newcastle
Contact	: PATRICK CARROLL	Contact	: Hannah White
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: 220096	Date Samples Received	: 12-Nov-2021
Order number	: 220096	Date Analysis Commenced	: 15-Nov-2021
C-O-C number	: ----	Issue Date	: 16-Nov-2021
Sampler	: P.C.		
Site	: ----		
Quote number	: EN/010/21		
No. of samples received	: 2		
No. of samples analysed	: 2		

ilac-MRA NATA
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 Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report ; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

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*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 4015031)									
EN2110021-001	Anonymous	EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.0020 ppmv	<2.0	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.0050 ppmv	<5.0	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0010 ppmv	<1.0	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit

Method Blank (MB), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 4015031)											
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	107	108	81.4	121	20	----
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	110	110	82.9	122	20	----
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	96.8	98.1	81.8	123	20	----
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	105	106	82.6	124	20	----
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	95.7	96.6	81.9	120	20	----
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	95.2	94.7	80.3	114	20	----
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	101	101	77.6	128	20	----
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	98.7	99.1	80.0	120	20	----
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	104	104	78.5	130	20	----
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	91.4	91.2	70.3	130	20	----
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	95.2	95.7	78.0	120	20	----
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	101	108	70.0	126	20	----

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

AIR CANISTER CHAIN OF CUSTODY

If sourced from an ALS Laboratory: please tick →

Client Supplied Canister(s)? Y / N

Batch as EN

CLIENT: Environmental Earth Sciences.

OFFICE: 98 Maribyrnong St, Footscray

PROJECT: Brunswick. PROJECT NO: 220096

CANISTER REQUEST NO: — PURCHASE ORDER NO.: " "

PROJECT MANAGER: P.C.

CONTACT PH: 0400907487.

SAMPLER: P.C.

SAMPLER MOBILE: 0400907487

COC Emailed to ALS? (YES / NO) — YES circled

EDD FORMAT (or default): + ESDAT

Email Reports to (will default to PM if no other addresses are listed): pcarroll@eesigroup.com.

Email Invoice to (will default to PM if no other addresses are listed): accounts@eesigroup.com.

COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS:

TOLL: MYTJ757029

TURNAROUND REQUIREMENTS: ☒ Standard TAT (List due date):
(Standard TAT may be extended for multiple sequential analysis suites) ☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: EN/010/20

COUNTRY OF ORIGIN: AUSTRALIA.

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 7

LABORATORY USE ONLY (Circle)
Custody Seal Intact? Rec Lab Y N NE Y N N/A
Valves closed on Receipt? Rec Lab Y N NE Y N N/A
Canister/Sampler Complete and Not Damaged Yes No
Other comment: Temperature: C

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
D.C.	JN (ALS) 11/11		
RECEIVED BY:	RECEIVED BY: 12.11.21 9:10	RECEIVED BY:	RECEIVED BY:

GAS SAMPLE CONTAINER INFORMATION

LAB ID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)	Canister Gauge Pressures (PSI): Pre-Sampling	Post Sampling	LORs: Ambient Air	Soil Gas (NEPM)	Other / Indoor	Units: ppbv, µg/m³	ppmv, mg/m³	EP101 D	150 propyl alcohol					Additional Information
	816	DS5071	GTB01	9/11/21	GAS	-30	-2		X				X	X					
	1024	" "	DUP01	"	"	-30	-2.		X				X	X					

Refer to Canister Verification Reports and COAs for pressures measured by the Lab

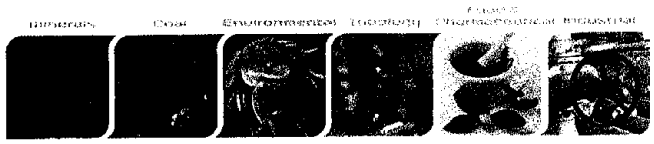
Suite Codes must be listed to attract suite price

Comments on LORs required, potential hazards, likely contaminant levels, or samples requiring specific QC analysis etc. (LOR defaults to routine method LOR after dilution)

Environmental Division
Newcastle
Work Order Reference
EN2110052

Telephone: + 61 2 4014 2500

Job Specific Instructions:



GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

Inquiries: Client Services - Newcastle **Phone: +61 (02) 4014 2500** E-mail: alsenviro.newcastle@alsglobal.com

Dispatch to:		**ALS Use ONLY**	
Client / Office:	EES	**Request Received By:**	HW 3/11
Contact:	Patrick Carroll	**Deliver By:**	Asap
Telephone:	0400 907 487	**Dispatched By:**	asap
ALS Quotation:	EN/010/20	**Workorder:**	
Delivery Address:	L1, 98 Maribyrnong St	**Agreed Rent Free Period:**	14 days
	Footscray VIC 3011		

SPECIAL INSTRUCTIONS: .....

Equipment Request

CANISTERS

Qty	Canister Type	Size	Gauge	Valve	Cap	Rental*	No Returned	Analysts Initials & Date: Leak Checked	Certified OK
2	Minican™	1.4L	No	QT	Yes	$120 ea			

4.11.21

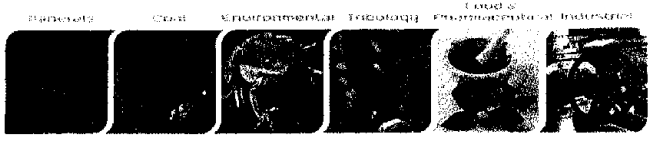
CONNECTORS AND FLOW CONTROL DEVICES

Qty	Equipment Type	Duration (hrs)	Flow (ml/min)	Gauge	Calibrated	Certified	Sealed / Actuated	Connection (QT / Compression / Swagelok)	No Returned	Rental*
	Soil Gas Sampling Train			No	Yes	Yes	Yes / Yes	Q		Incl Above
1	Duplicate Soil Gas Sampler		60ml	Yes	Yes	Yes	Yes / Yes	Q		Incl Above
1	Female QT Connectors	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Male QT Connector	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q		$250 ea. Replacement
1	Sampling Kit Case – Soil Gas	-	-	-	-	-	Yes	NA		$200 Replacement
	Tripod	-	-	-	-	-	-	NA		$80 ea.
	¼" Swagelok connectors and ferrules (spares)	-	-	-	-	-	-			$5 ea. Replacement

☐ **Other (specify)**

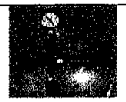
** Refer to Acceptance of Terms*

ALS use only					
Gauge Pressures on included COC (Y / N)	Recorded by:			Leak Check OK (Y / N)	By:
Canister Sampling Guide Included (Y / N)	Packed by:			Dispatch Time / Date	4-11-21 – 2pm
Number of Boxes:	1	Consignment Note Number:	112 830 250		
Courier / Dispatcher:	TNT	Consignment Dispatched by:			



GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Replacement Value	Serial Nos
	2	1.4 L Silonite Mini-Can with QT Valve	1024 866	
	1	Soil Gas Duplicate Sampling Train with QT Connections – 60ml/min	071	
	1	Vacuum Gauge with female QT Connection – 31" Hg	6.000	
	1	Female QT to ¼" tube connector		
	1	Male QT to ¼" tube connector		

ENFMCDR1.1 11-05-11

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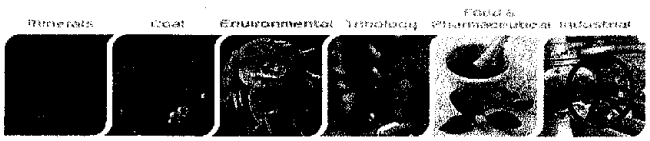
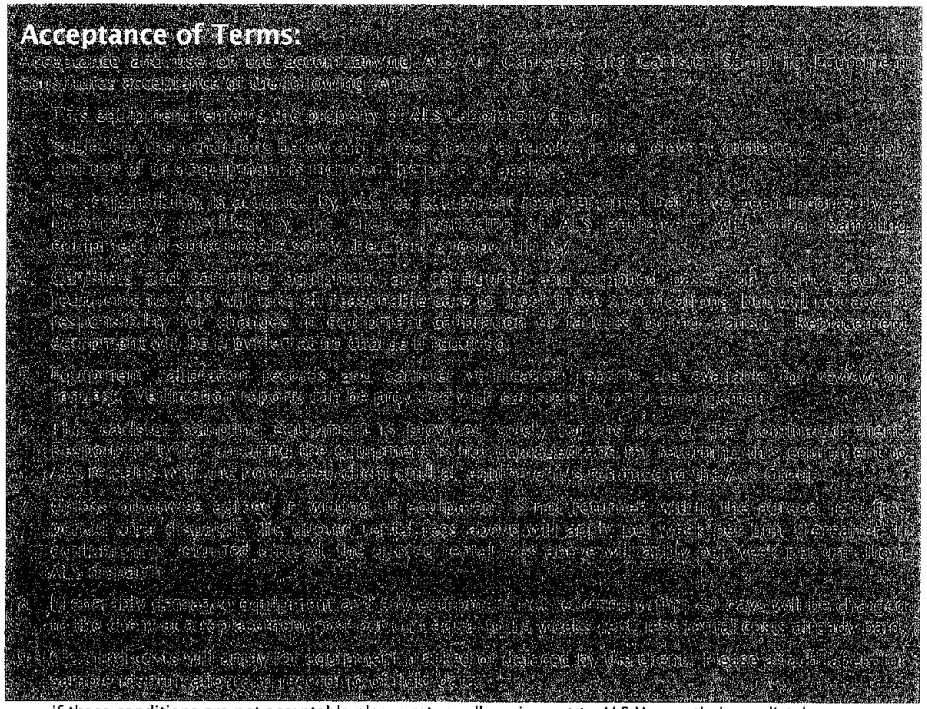
www.alsglobal.com



GAS CANISTER SAMPLING EQUIPMENT DISPATCH RECORD

Acceptance of Terms:



If these conditions are not acceptable please return all equipment to ALS Newcastle immediately.

CANISTER SUPPLY AND LOGISTICS

Additional canisters and samplers can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, canisters should be returned direct to Newcastle Laboratory.

ALS Environmental, Newcastle
5/585 Maitland Road
Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the cylinder is pressurised or contains hazardous materials.

CHAIN OF CUSTODY - ANALYSIS REQUEST FORM

Job No: 220096

Laboratory: Eurofins.

Project Manager: P.C

Sampler: P.C

Site Location: Brunswick.

Sheet: 1 of 1

No. of samples	Sample ID/ Depth	Anticipated Result (PID)/EC reading	Date sampled	Time sampled	Sample Matrix: Soil	Sample Matrix: Water	Sample Matrix: Sediment	Analysis Required: TRH/BTEXN	Analysis Required: METALS	Analysis Required: PAHS										Sample-specific instructions/ notes
	SPLIT_01		10/11		X			X	X	X										
TOTAL																				ICE 15.6 FC1 16.7 Comm

Turn Around (circle): [✓ NORMAL / 3 DAYS] / 48 HRS / 24 HRS (confirm with lab in advance if quick turn-around is required)

Comments/ Instructions:

	Name	Signature	Date	Time
Sent off Site/Office by:	P. Carroll	[illegible]	11/11/21	9:00
Receiving Lab:	CHATH Co E	[illegible]	11/11/21	5:14pm.
Receiving Lab:				

Lab Quotation No. (if applicable):

Send report to (email address): pcarroll@eesigroup.com.

Cc: report to (email address): pmulvey@eesigroup.com

Cc: invoice to (email address): accounts@eesigroup.com

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

Phone: (03) 9687 1666
Fax: (03) 9687 1844
Address: Level 1 98 Maribyrnong St, Footscray 3011

Email: eesVIC@eesigroup.com

840273

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	Environmental Earth Sciences VIC
Contact name:	Patrick Carroll
Project name:	BRUNSWICK
Project ID:	220096
Turnaround time:	5 Day
Date/Time received	Nov 11, 2021 5:14 PM
Eurofins reference	840273

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Callum McEwan on phone : or by email: CallumMcEwan@eurofins.com

Results will be delivered electronically via email to Patrick Carroll - pcarroll@environmentalearthsciences.com.

Note: A copy of these results will also be delivered to the general Environmental Earth Sciences VIC email address.

Global Leader - Results you can trust

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Environmental Earth Sciences VIC
Address: Level 1, 98 Maribyrnong Street
Footscray
VIC 3011

Project Name: BRUNSWICK
Project ID: 220096

Order No.:
Report #: 840273
Phone: 03 9687 1666
Fax: 03 9867 1844

Received: Nov 11, 2021 5:14 PM
Due: Nov 19, 2021
Priority: 5 Day
Contact Name: Patrick Carroll

Eurofins Analytical Services Manager : Callum McEwan

Sample Detail						Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217										
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SPLIT_01	Nov 10, 2021		Soil	M21-No27503	X	X	X	X	X
Test Counts						1	1	1	1	1

Environmental Earth Sciences VIC
Level 1, 98 Maribyrnong Street
Footscray
VIC 3011

Attention: **Patrick Carroll**

Report **840273-S**
Project name BRUNSWICK
Project ID 220096
Received Date Nov 11, 2021

Client Sample ID			**SPLIT_01**
Sample Matrix			**Soil**
Eurofins Sample No.			**M21-No27503**
Date Sampled			**Nov 10, 2021**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	141
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.3
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.2
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	1.1
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			SPLIT_01
Sample Matrix			**Soil**
Eurofins Sample No.			**M21-No27503**
Date Sampled			**Nov 10, 2021**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	1.3
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	1.3
Total PAH*	0.5	mg/kg	4.9
2-Fluorobiphenyl (surr.)	1	%	103
p-Terphenyl-d14 (surr.)	1	%	110
Heavy Metals			
Arsenic	2	mg/kg	
Cadmium	0.4	mg/kg	
Chromium	5	mg/kg	
Copper	5	mg/kg	
Lead	5	mg/kg	
Mercury	0.1	mg/kg	
Nickel	5	mg/kg	
Zinc	5	mg/kg	
% Moisture	1	%	27

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 13, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 13, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 13, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX and Naphthalene			
BTEX	Melbourne	Nov 13, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 13, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Nov 13, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Nov 12, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Environmental Earth Sciences VIC
Address: Level 1, 98 Maribyrnong Street
Footscray
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Report #: 840273
Phone: 03 9687 1666
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Received: Nov 11, 2021 5:14 PM
Due: Nov 18, 2021
Priority: 5 Day
Contact Name: Patrick Carroll

Eurofins Analytical Services Manager : Callum McEwan

Sample Detail						Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217										
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External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SPLIT_01	Nov 10, 2021		Soil	M21-No27503	X	X	X	X	X
Test Counts						1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Vivian Wang	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)

Glenn Jackson
General Manager

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

APPENDIX J: QUALITY ASSURANCE AND QUALITY CONTROL

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

TABLE OF CONTENTS

Tables

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

The aim of quality control and quality assurance (QA/QC) is to provide data that is:

- Representative of what is sampled;
- Precise;
- Accurate; and
- Reproducible.

As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this document is to evaluate and identify the data quality objectives (DQOs) and the data quality indicators (DQIs), which are used to assess whether the DQOs have been met.

All surface water, groundwater and soil sampling procedures to be followed are described in full in our Soil, gas and groundwater sampling manual (Environmental Earth Sciences Pty Ltd 2011). This document should be referred to for field procedures for sampling and conveyance. Copies are available for inspection if required.

The guideline documents used in the evaluation of the data set for this investigation are:

- National Environment Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Amendment Measure;
- Standards Australia (2005). Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds (AS 4482.1); and
- Standards Australia (1999). Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances (AS4482.2).

Data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. These are referred to as the PARCC parameters. The PARCC (and additional QA) parameters are discussed within this report.

The following items form part of the QA/QC appendix:

- Repeatability;
- Precision;
- Accuracy;
- Representativeness;
- Completeness;
- Comparability;
- Sensitivity;
- Holding times;
- Blanks; and
- Procedures for anomalous samples and confirmation checking.

1.2 Background

Quality Assurance (QA) is “a set of activities intended to establish confidence that quality requirements will be met” (AS/NZS ISO 9000:2005).

This encompasses all actions, procedures, checks and decisions undertaken to ensure the accuracy and reliability of analysis results. It includes routine procedures which ensure proper sample control, data transfer, instrument calibration, the decisions required to select and properly train staff, select equipment and analytical methods, and the day to day judgements resulting from regular scrutiny and maintenance of the laboratory system.

Quality Control (QC) is “a set of activities intended to ensure that quality requirements are actually being met” (AS/NZS ISO 9000:2005). In other words, the operational techniques and activities used to fulfil the requirements for quality.

These are the components of QA which serve to monitor and measure the effectiveness of other QA procedures by comparison with previously decided objectives. They include measurement of the quality of reagents, cleanliness of apparatus, accuracy and precision of methods and instrumentation, and reliability of all of these factors as implemented in a given laboratory from day to day.

A complete discussion of either of these terms or the steps for implementing them is beyond the scope of this document. It is widely recognised, however, that adoption of sound laboratory QA and QC procedures is essential and readers are referred to documentation available from the National Association of Testing Authorities (NATA), if further information is required.

2 DATA QUALITY OBJECTIVES

Development of data quality objectives (DQOs) for each project is a requirement of the NEPC (2013). This is based on a DQO process formulated by the USEPA for contaminated land assessment and remediation and provides sound guidance for a consistent approach in understanding site assessment and remediation.

The DQOs are defined in a series of seven steps. Table 1 outlines the seven steps and refers to the sections of the report which address these quality objectives.

Table 1: Data quality objectives

Step	Description	Comment	Location in main report
1	State the problem	The problem is that the site has an environmental audit overlay and that the assessment is to inform whether or not an environmental audit is required at the site.	Section 1
2	Identify the decision	To resolve the problem stated above the following decisions require consideration: • Has a reasonable amount of soil sampling been undertaken to assess the potential risks and establish base line conditions? • Have all potential exposure pathways been appropriately assessed? • Are the conclusions and recommendations derived as a result assessment work completed defendable?	Section 7
3	Identify the inputs for the decision	The study inputs include the current conceptual site model, previous site investigation reports, site observations and soil sampling at the site.	Sections 4, 5, 6 and 7
4	Define the boundaries for the study	The site is defined as Lot-1-TP567753, Lot-1-TP694780 and Lot-1-TP712069 Site location and boundaries are presented on Figure 1	Section 4, Figures 1, 2 and 3
5	Develop a decision rule	Soil results are to be compared to high density residential land use criteria (land use setting B) All analytical data will be compared and evaluated against appropriate published criteria. The NEPC (2013) will be used as the primary guidance document in decision making on action levels. Dependent upon the sampling and analysis design, statistical parameters such as arithmetic mean, standard deviation and 95% upper confidence limits (95% UCLs) may be applied to designated soil populations for particular analytes. In the event that action levels are exceeded, a management plan, remedial action plan, and/or qualitative risk assessment (with modelling of potential groundwater impacts on the local receiving environment) will be required. These procedures constitute the alternative action plan.	Section 9

Step	Description	Comment	Location in main report
6	Specify tolerable limits on decision error	Acceptable limits for field data analysis (relative percent differences for primary and duplicate results) are between 50 and 150 percent (depending on the origin of the sample and volatility of the chemicals present). Acceptable limits for laboratory duplicate analysis may be affected by the heterogeneity of soil and will be set based on site specific information such as background concentrations. These are summarised in Table 2 as the measurement data quality indicators (MDQIs), which will be used to establish whether the DQOs have been met. Most of the procedures in the Standards Australia AS 4482.1 (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds* and NEPC (2013) have risk probabilities associated with allowable error margins incorporated into them. It is therefore proposed that no further "tolerable limits" be investigated at this stage of the project.	QA/QC Appendix
7	Optimise the design for obtaining data	The sample design will be undertaken with reference to AS4482.1. Environmental Earth Sciences VIC believes that the sampling design is optimal considering temporal limitations and access constraints. The density of the sampling pattern and the quality of the data set (incorporating all data) are suitable for assessing the site for its proposed future use.	Section 7

Based on the DQOs the following measurement data quality indicators (MDQIs) are provided in Table 2 below.

Table 2: Measurement data quality indicators (MDQIS)

Parameter	Procedure	Minimum Frequency	Criteria	
			(5 to 10x LOR[4])	>10x LOR
Precision	Field Duplicates	1 in 20 - metals	<80 RPD	<50 RPD
		1 in 20 - semi-volatiles	<100 RPD	<80 RPD
		1 in 20 - volatiles	<150 RPD	<130 RPD
	Lab Replicate*	1 in 20	<50 RPD	<30 RPD
Accuracy*	Reference Material	1 in 10	60% to 140%R	80% to 120%R
	Matrix spikes			
	Surrogate spikes			
Representativeness*	Reagent Blanks	1 per batch	No detection	
	Holding Times*	Every sample	-	
Blanks**	Trip Blank	1 per batch	No detection	
	Rinsate Blanks			
Sensitivity	Limit of Reporting	Every sample	LOR < ½ site criteria	

Notes:

1. RPD – relative percentage difference;
2. %R – percent recovery;
3. LOR – limit of reporting;
4. no limit at <5x LOR;
5. * the MDQI is usually specified in the standard method. If not, use the default values set out in this table; and
6. ** only necessary when measuring dissolved metals and volatile organic compounds in water samples.

It should be noted that Standards Australia (AS4482.1) specify that typical MDQIs for precision should be ≤50% RPD, however also acknowledge that low concentrations and organic compounds in particular can be acceptably outside this range. The standard suggests that ≤50% RPD be used as a 'trigger' and values above this level of repeatability need to be noted and explained.

Our adopted MDQIs for precision acknowledge the intrinsic heterogeneity of metal and semi volatile chemical concentrations in disturbed soil that may potentially cause large variations in results between laboratory subsamples (although all efforts are made to homogenise non volatile duplicate samples). Similarly, large variations in volatile chemical concentrations between duplicates may be unavoidable even when using best practice sampling methodology, especially as we seek to minimise the disturbance to the sample while splitting it which means a high degree of inherent heterogeneity is expected.

As such, our adopted RPD criteria are considered to be a suitable measure for the reproducibility of results within a naturally heterogeneous media such as soil. A ≤50% RPD trigger value will be used, with any exceedance discussed and assessed for acceptability.

3 QUALITY CONTROL AND QUALITY ASSURANCE

3.1 Measurement data quality objectives

Step 7 of the DQO process (Section 2.0) is a focus on the quality of the information by measurement, that is, measurement data quality objectives (MDQOs). The aim of a quality control and quality assurance (QA/QC) is to deliver data that is representative of what is sampled, precise, accurate and reproducible. As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this section is to provide the MDQOs and the measurement data quality indicators (MDQIs), which will be used to establish whether the DQOs have been met.

All groundwater and soil sampling procedures need to be undertaken according to a standard procedure, for example those procedures set out in:

- Standards Australia (2005). Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, (AS 4482.1). Homebush, NSW; and

- Standards Australia (1999). Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances, (AS 4482.2). Homebush, NSW.

3.2 Field QA/QC

3.2.1 Details of sampling team

Fieldwork was conducted over two days (9 and 11 November 2021) by Environmental Earth Sciences personnel.

3.2.2 Sampling controls

Decontamination procedures carried out between sampling events included the following.

All sampling equipment that was re-used which came into contact with soil samples, were thoroughly washed with deionised water, then rinsed with clean water and dried before the collection of each sample.

Any items accidentally contaminated were similarly washed before re-use.

Soil samples were collected from soil profiles removed from a hand auger. New nitrile gloves were used at each sampling location. To prevent cross contamination, the exterior of each soil sample was cut away (effectively skinning the soil sample) using a clean spatula. During this process the field scientist would also determine the colour and texture of the soil sample.

Sample notation details

The borehole log details for each sample collected (including time, location, initials of sampler, duplicate locations, duplicate type and field screening details) are presented in the borelog appendix. The chemical analyses performed on each sample are presented on the chain of custody documentation which also identified for each sample – the sampler, nature of the sample, collection date, analyses to be performed, sample preservation method**.**

Primary and intra (blind) duplicate samples for this project was completed by ALS and inter (split) duplicate analysis was completed by Eurofins.

3.2.3 Intra (blind) and Inter (split) duplicate sampling

The intra (blind) and inter (split) duplicate samples (intra- and inter-) were collected at a rate of greater than one duplicate per twenty samples analysed (5%).

For this project 1 intra (blind) and 1 inter (split) duplicate samples were collected for analysis (soil). One intralaboratory duplicate was collected for vapour sampling. The summary of the relative percentage differences (RPDs) of the collected inter and intra duplicate samples in presented in Attachment 2 (rear of document).

Soil duplicate results

Calculated RPDs between the primary sample and their corresponding duplicate and triplicate samples were generally within the acceptable limits (MQDIS) except for those detailed below in Table 3.

Table 3: Soil inter and intra laboratory duplicate RPD exceedances

Primary	Duplicate	Analyte	RPD
BH03_0.2	SPLIT_01	Chromium	**78**
BH03_0.2	SPLIT_01	PAHs (Sum of total)	**86**

- Elevated RPDs for Chromium are potentially linked to soil heterogeneity as the samples were collected in fill material;
- Elevated RPDs exist between BH03_0.2 and SPLIT_01 for multiple PAH species, however, the reported concentrations in the primary are <5 x the LOR and the resultant high RPDs are considered acceptable as per the MDQIs;
- Elevated RPDs for PAH sums are potentially linked to soil heterogeneity as the samples were collected in fill material; or due to the presence of multiple detections nearing the LOR in the primary sample which were not recorded in the secondary sample, causing a large difference when summed (non detects are not summed).

In summary the results of the duplicate analysis indicate that reported results from each lab are comparable and that the data can be considered reliable.

Vapour duplicate results

Calculated RPDs between the primary sample and the corresponding duplicate sample were within the acceptable limits (MQDIS) except for those detailed below in Table 3.

Blanks, spikes and rinsate samples

One rinsate blanks was collected during soil sampling and no contaminant concentration was reported.

3.2.4 Field instrument calibration

The following field instruments were calibrated for the soil and groundwater sampling program:

- PID;
- GA5000 landfill gas meter.

Field equipment used for the screening of soils (PID) was appropriate for the required works and was used in the appropriate manner. The instruments were calibrated in accordance with the manufacturer specifications and Environmental Earth Sciences VIC field procedure and QA/QC documentation. Calibration records are provided in Attachment 1.

3.3 Laboratory QA/QC

Laboratory analysis of primary and intra (blind) duplicate samples for this project were completed by ALS and inter (split) duplicate analysis was completed by Eurofins/MGT. Both laboratories are accredited by NATA for the methods used, details of this accreditation can be viewed at http://www.nata.asn.au/, while details of the samples sent to each laboratory and the analysis requested are contained in the chain of custody documentation held in the Laboratory Documentation Appendix. The analytical methods are noted on the laboratory transcripts.

3.3.1 Holding times

The collection date of samples, laboratory extraction date and allowable holding times are presented in the laboratory quality reports. All analysis was completed within the allowable holding times for contaminants of concern

3.3.2 Limits of reporting

Acceptable limits of reporting (LOR) were provided by the analytical laboratory to allow the results to be compared against the soil investigation levels. .

3.3.3 Internal laboratory QA/QC

ALS complete laboratory control samples, laboratory blanks, sample duplicates, surrogate spikes and matrix spikes as part of their internal quality procedures. The laboratory quality reports include details of surrogates and spikes used, percent recoveries of surrogates and spikes used, the instrument detection limits, the method detection limits, the practical quantification limits and the reference samples results.

The internal laboratory quality results were within the acceptance criteria set by the laboratory, except for those listed below:

- The matrix spike recovery was less than the stated objective Hexavalent Chromium in laboratory sample EM2122362—002. Matrix interference is one likely cause for the reported QC result.
- The recommended QC frequency was not met for WAD cyanide. As no cyanide was identified that is not considered to affect the overall quality of the data.

The overall assessment of the data quality is as follows:

- Analysis holding time breaches were present, however, data quality is not considered to have been compromised;
- Elevated RPDs between primary and secondary examples exist, however, are considered acceptable as per the stated data quality objectives (MDQIS);
- Field observations and measurements were generally comparable to laboratory data;
- Internal laboratory quality data is considered acceptable;

- The use of field instruments was acceptable;
- Decontamination procedures are considered acceptable; and
- The dataset as a whole is considered reliable.

Based on information presented in Sections 3.1, 3.2 and 3.3 of this appendix it can be confidently stated that the MDQO's for this project have been met and the data set is considered to be reliable.

4 QA/QC APPENDIX REFERENCES

Australian/New Zealand Standard (AS/NZS) (2008), *Quality management systems - Requirements (AS/NZS ISO 9001:2008)*, Standards Australia/Standards New Zealand, Sydney/Wellington.

Environmental Earth Sciences Pty Ltd (2011), *Soil, gas and groundwater sampling manual*, 7th Edition (Unpublished).

Huang, JH and Matzner, E (2004) *Degradation of organotin compounds in organic and mineral forest soils.* Journal of Soil Science and Plant Nutrition, Volume 167

International Organisation for Standardisation (2005), *Quality management systems – Fundamentals and vocabulary* (ISO 9000:2005).

National Environment Protection Council (NEPC) (2013), *National Environment Protection (Assessment of Site Contamination) Amendment Measure*, Adelaide, SA.

Rayment, GE and Lyon, DJ (2011), *Soil chemical methods – Australasia*, CSIRO Publishing.

Rayment, GE and Higginson, FR (1992), *Australian laboratory handbook of soil and water chemical methods*, Inkarta Press, Melbourne.

Standards Australia (2005), *Guide to the investigation and sampling of sites with potentially contaminated soil*, Part 1: Non-volatile and semi-volatile compounds (AS 4482.1).

Standards Australia (1999), *Guide to the investigation and sampling of sites with potentially contaminated soil*, Part 2: Volatile substances (AS4482.2).

US EPA (2005) *Sample Holding Time Re-evaluation*, EPA/600/R-05/124 October 2005

US EPA (2007) *Method 8082a Polychlorinated Biphenyls (PCBs) by Gas Chromatography*

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

ATTACHMENT 1: CALIBRATION RECORDS

EQUIPMENT QUALITY REPORT

GA5000

Equipment Code: MLG-7420 **Serial Number: G505914**

The equipment has been issued as follows:

☑ Equipment is clean ☑ Pump and battery voltage check ☑ Clear Data

Calibration Results				Calibration Gas (Expiry Date)
Parameter	Standard	Result	Error Range	
CH4	Methane by Volume 60%	60 %	± 2%	71 – Batch 3971-1-3 Exp. 28/5/25
CO2	Carbon Dioxide by volume 40%	40 %	± 2%	71 – Batch 3971-1-3 Exp. 28/5/25
H2S	Hydrogen Sulphide 25 ppm	25 ppm	± 2 ppm	65 – WO249788 Exp. 28/04/22
O2	Oxygen 18%	18.0 %	± 0.2%	65 – WO249788 Exp. 28/04/22
CO	Carbon Monoxide 50 ppm	50 ppm	± 2ppm	73 – W0279607-1 Exp. 17/12/25

Date: 08/11/2021

Calibrated by: Ryan Yun

Please check that the following items are received, and all items are returned. Please clean equipment before retuning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

Photo Ref.	Checklist Item (See photo at the back of this form)	HT Id No.	Sent?	Returned?	Comments
1	Blue tubing with an inlet barb fitting	N/A	✓		
2	Clear tubing with an inlet Brass Ex-cap Female Fitting (filter attached)	N/A	✓		
3	Spare water trap filter(s) Qty 1	N/A	✓		
4	Yellow tubing with an inlet barb fitting	N/A	✓		
5	Clear tubing	N/A	✓		
6	Charger 240/110V to 12V 500mA	N/A	✓		
7	GA5000 with a carry bag	MLG-7420	✓		
8	Hard case	N/A	✓		
9	Instruction Manual	N/A	✓		
10	Well cap fitting	N/A	✓		
-	Test & Tag	N/A			

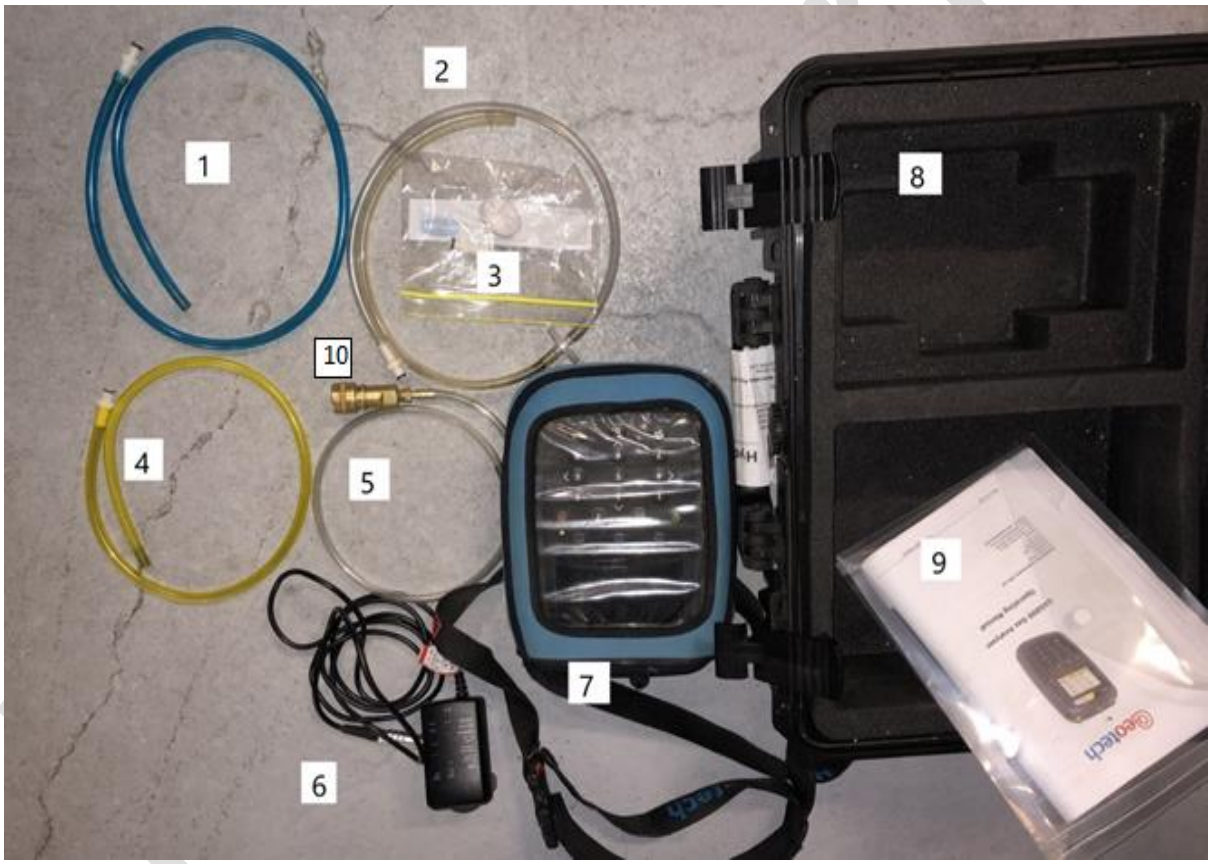
☑ Equipment voltage ☑ Pre-delivery Calibration Test Complete

Date: 08/11/2021

Checked by: Ryan Yun

HT JOB NO: 18667 CLIENTS REF: P/O No: 220096

RETURN DATE: / /	TIME:	CONDITION ON RETURN:



Equipment Calibration Record – Minirae 3000

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This equipment calibration record is to be stored in your job folder

Equipment Type:	Rae Systems Minirae 3000 PID	
Equipment Number:	EES Yellow PID.	
Date Calibrated:	9/11 / 11/11	
Calibrated By:	P.C / P.C.	(name)
Job Number:	220096	

Details of Calibration:

Fresh Air Calibration:	0	ppm
* 100 ppm Isobutylene Calibration:	101.3 / 100.9	ppm
Isobutylene Cylinder Expiration Date:	18/05/25	
Isobutylene Cylinder Lot Number :	103 DS 100150A.	
Battery Reading:	Full / Full	V
Filter Checked (Condition):	✓ / ✓	

* Record the concentration of the calibration standard

APPENDIX K: EIL CALCULATION

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

Hamon et al. 2004 - Background metals concentrations derived from iron content

Predicted background metal concentrations

Sample	Fe (%)	a values						c values						log [M]						ABC [M]					
		As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn
BH03_0.7	3.74	0.574	0.75	0.612	0.702	1.039	0.589	1.064	1.916	1.235	1.381	0.558	1.529	1.393	2.346	1.586	1.783	1.153	1.866	24.70747130562	221.643	38.512	60.695	14.230	73.523
																			Mean	24.71	221.64	38.51	60.70	14.23	73.52

Sample	Fe (%)	a values						c values						log [M]						[M]					
		As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn
BH03_0.7	3.74	0.574	0.75	0.612	0.702	1.039	0.589	0.507	1.242	0.808	0.834	0.118	1.024	0.836	1.672	1.159	1.236	0.713	1.361	6.85	46.95	14.41	17.22	5.17	22.98
																			Mean	6.85	46.95	14.41	17.22	5.17	22.98

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
43
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
222
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
high

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	310	430
Urban residential and open public spaces	480	870
Commercial and industrial	650	1300

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20.5
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.1
Enter organic carbon content (%OC) (values from 0 to 50%)
0.7
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
39
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
high

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	75	85
Urban residential and open public spaces	110	180
Commercial and industrial	150	250

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20.5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
61
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
high

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	70	110
Urban residential and open public spaces	140	330
Commercial and industrial	230	520

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20.5
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.1
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
74
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
high

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	120	170
Urban residential and open public spaces	240	510
Commercial and industrial	340	750