



Environmental Solutions

201 Five Islands Road, Unanderra NSW 2526

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CLASSIFICATION REPORT

Revision 4

Prepared By	Signature	Position	Date
K. Mau		General Manager	10/6/2021
Approved By	Signature	Position	Date
J. Perera		Division Head – Environmental Solutions	15/06/2021

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1. Company Details

Company Name:	DGL Group
Site address:	201 Five Islands Road, Unanderra NSW 2526
Australian Company Number (ACN):	002 802 646
Australian Business Number (ABN):	71 002 802 646

2. Waste Information

Location of the site where waste generated:	Wastewater Treatment Plant, Building B, 201 Five Islands Road, Unanderra NSW 2526
Processes and activities that produce the waste:	Material is generated from the neutralisation of waste acid produced as a by-product of on-site lead-acid battery recycling activities.
History of the material:	Lead-acid battery recycling has occurred since 2005 and the acid has always been treated on-site.
Potential contaminating activities that may have occurred where the waste was generated:	It is common to detect traces of lead, cadmium, arsenic and nickel in the battery acid from lead-acid recycling activities. This may sometimes carry over to the filter cake in the moisture.
Description of the waste:	Solid, off-white to brown in colour filter cake, not soluble in water, no odour, non-flammable and not combustible. See Figure 1 for photo of gypsum filtercake.
Quantity of waste:	Up to 5000 tonnes per year



Figure 1 - Photo of gypsum filter cake

3. Waste Sampling

Number of samples collected and analysed:	3 samples collected per day
Sampling method:	See appendix 1 for DGL Safe Work Procedures on sampling filtercake
Contaminants tested:	H ₂ O, pH, Totals [As, Cd, Cr(VI), Pb, Ni, Se, PFOA, PFOS+PFHxS], TCLP [As, Cd, Cr(VI), Pb, Ni, Se, PFOA, PFOS+PFHxS]
Laboratory documentation:	See appendix 3 for chain-of-custody report, certificate of analysis, quality control report and QA/QC compliance assessment

4. Analysis Results

Summarised results between 1st of April to 31st of April 2021, total samples = 127. Tabulated results in Appendix 4.

4.1. Total Concentrations (SCC)

All in mg/kg unless specified	H ₂ O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
Sample Mean	56.9	9.1	5.0	17.9	0.629	575.9	46.0	5.3	0.0002	0.193
Sample Stand Deviation	2.8	0.8	0.0	15.3	0.615	400.8	16.0	0.6	0.0001	0.725
95% UCL	57.3	9.2	N/A	20.2	0.720	634.9	48.4	5.4	0.0002	0.299

4.2. Toxicity Characteristic Leaching Procedure (TCLP)

All in mg/kg unless specified	H ₂ O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
Sample Mean	56.9	9.1	0.1	0.298	0.013	0.247	0.461	0.050	0.000010	0.0010
Sample Stand Deviation	2.8	0.8	0.0	0.447	0.012	0.411	0.490	0.004	0.000000	0.0023
95% UCL	57.3	9.2	N/A	0.364	0.014	0.308	0.533	0.051	N/A	0.0014

5. Summary Brief of Findings

During the period between 1st of April to 31st of April 2021, 127 samples of gypsum filter cake were taken and analysed at an external NATA accredited laboratory. Of the 127 samples, 111 samples were under the threshold to be classified in NSW as General Solid Waste (GSW). Of the 16 samples that did not meet the threshold for GSW, all were under the threshold for Restricted Solid Waste (RSW). 6 of the 16 showed elevated levels of lead in the SCC between 1500 to 2020 mg/kg. 10 of the 16 showed elevated levels of cadmium in the TCLP between 1.04 to 2.54 mg/kg. 4 of 16 showed elevated levels of nickel in the TCLP between 2.0 to 3.2 mg/kg. All filtercake bags from these batches with elevated results were put aside and marked to go to an appropriate landfill as RSW.

6. Classification Statement

The gypsum filter cake will pass as General Solid Waste 87.4% of the time. There are occasional spikes in the total concentration of lead and leachable cadmium and nickel but 95% upper confidence analysis shows these spikes are

insignificant and when considered are under the thresholds for GSW. All bags of materials that do not pass as GSW are put aside and marked so they can be sent to an appropriate RSW land fill.

7. Appendix 1 – SWP UWT-318 Filter Cake Sampling

HS505 Safe Work Procedure (SWP)

DGL management must consult *HS808 Writing Safe Work Procedures Guideline* when developing a SWP.

Author: Heath Pylyp		Title: Operations Manager	
DGL Site: Unanderra NSW		Department: Wastewater Treatment NSW (WTU)	
Document Number: SWP No. ¹ UWT-318	Version: V.1	Issue Date: 28/04/2021	Next Review Date: 28/02/2023

1. Safe Work Procedure Title and Description of Activity**Title:** Filter Cake Sampling**Description of Activity:**

Method for Sampling of Filter Cake for Analysis

2. List of Identified Hazards and Implemented Risk Controls During Risk Management**HS Risk Management Form Number:** HS504_318**Hazards:**

Uneven/Slippery Surfaces; Workstation Setup; Reaching/Overstretching; Mobile Plant; Contamination; Hazardous Waste; Contained Spills

Controls:

Designated Areas; PPE; House Keeping; LF Trained Operators; Labelling

3. List of Resources Required**PPE:**

- | | | |
|---|---|---|
| ☐ Protective Helmets | ☐ Protective Clothing | ☒ Protective Gloves |
| ☒ Safety Glasses | ☐ Face Shield | ☐ Splash Goggles |
| ☒ Protective Footwear | ☐ Hearing Protection | ☐ P1 Mask |
| ☐ Half-Face Respirator | ☐ Full-Face Respirator | ☐ Supplier-Air Respirator |

Other (specify):

Click or tap here to enter text.

Chemicals:

Hazardous Waste Filter Cake

Tools/Equipment:

Sample Bag; Permanent Marker

4. List Step by Step Instructions for Undertaking the Task

- 1.1 Run Batch through Filter Press
- 1.2 Complete first run through Filter Press
- 1.3 Once second run has been complete, Filter Cake can be sampled from either the Filter Press Plate or from the Filter Cake Bulk bag

¹ Use the initials for the respective department followed by a 3 digit number. For e.g. SWP No. **BBU###** is for Battery Recycling NSW.

- 1.4 Sample of approx. 1 Kilogram is to be taken and placed in Sample Bag immediately.
 1.5 Sample bag is to be sealed and Labelled with the Date and Shift
 1.6 Sample is taken to onsite laboratory and placed at the designated spot
 Note: 1 x sample is to be taken on the second run of every batch.

5. List Emergency Shutdown Procedures

N/A

6. List Emergency Procedures for Dealing with Fires, Chemical Spills or Exposure to Hazardous Chemicals**Fires:**

N/A

Chemical Spills:

N/A

Exposure to Hazardous Chemicals:

N/A

7. List Clean-up, Housekeeping and Waste Disposal Requirements**Clean-up/Housekeeping:**

In the event of a spill, filter cake can be shovelled into bulk bag or hosed to sump.

Waste Disposal:

Filter Cake is sampled and tested in house.

Bulk Bags are marked depending on analysis for TCLP and SCC

Results determine classification for Hazardous Waste; ie, General Solid, Restricted Solid

8. List Reference Documents (eg. legislation, codes of practice, standards, manufacturers manuals etc.) Used in the Developing this SWP

EPA Classification of Solid Waste; WHS Act 2011

9. List Competencies Required (eg. qualifications, certificates, licencing, training)

Training; SWP; LF Forklift Ticket

10. List Name and Competency of Assessor**Name of Assessor:** Click or tap here to enter text.**Competencies:** Click or tap here to enter text.**11. Management Approval and Review**

	Heath Pylyp	28/04/2021
Signature of Operations Manager	Print Name	Date
Responsibility for SWP Review: Heath Pylyp		

8. Appendix 2 – HS504 SWP UWT-318 Filter Cake Sampling HS Risk Management Form



HS504 Health and Safety Risk Management Form

- (1.) Refer to HS416 Health and Safety Risk Management Procedure for instructions on how to complete a risk review of the selected process or activity.
(2.) Management must consult with workers and seek their input as part of the risk review process.

DGL Site:	Date:	Next Review Date:	Document Number:	Description of Process or Activity Being Assessed:	Description of Location:
Unanderra NSW	08/03/2021	08/03/2022	HS504_318	Sampling of Filter Cake	Water Treatment Filter Presses

Assessment Team:						
Heath Pylyp	Peter Pylyp					

Step 1: Identify the hazards associated with the process or activity being assessed.							
General Work Environment	Ergonomic/Manual Handling	Plant & Equipment	Work Design & Management	Health & Security	Substances	Ambient Conditions	Environmental
Uneven/slippy surface	Workstation setup	Mobile plant		Contamination	Hazardous waste		Contained spills
	Reaching/overstretching						
List other hazards not considered above:							

Step 2: Record the identified hazards in column A of Worksheet 1 - Quantifying Risk.
Step 3: For each identified hazard, determine who is impacted (column B) and possible consequences (column C).
Step 4: List existing control measures to address risk (column D).
Step 5: Assign a consequence score (C) and likelihood score (L) using the Risk Rating Matrix (refer Appendix A of HS416 Risk Management Procedure).
Step 6: Rate the risk (R) using the Risk Rating Matrix.
Step 7: Worksheet will determine if risk is adequately controlled. Cell will report a "Yes" value and turn green confirming that no additional controls are required. If cell reports a "No" value and turns red, you must propose additional controls (column E) on Worksheet 2 - Additional Controls.
Step 8: Once additional controls have been proposed, rerate risk by repeating steps 5 to 6.
Step 9: Assign a person (column F) to implement the control and a target date (column G) for completion.

HS504 HS Risk Management Form
Version: 2.0 | Site: All Sites

Worksheet 1: Quantifying Risk								
#	(A) Identified Hazard	(B) Who is Impacted?	(C) Possible Consequences	(D) Existing Controls	C	L	R	Risk Adequately Controlled?
1	Uneven/slippery surface	LTP Workers	Minor Injury	Designated Area; House Keeping	1	A	Low	Yes
2	Workstation setup	LTP Workers	Minor Injury	Designated Area; House Keeping	1	A	Low	Yes
3	Reaching/overstretching	LTP Workers	Minor Injury	Designated Area	1	A	Low	Yes
4	Mobile plant	LTP Workers	Minor Injury	Designated Area; LF Trained Operators	2	B	Low	Yes
5	Contamination	LTP Workers; Lab Technician	Operational results error	Labelling; SWP	1	A	Low	Yes
6	Hazardous waste	LTP Workers; Lab Technician	Contained Spills	PPE	1	A	Low	Yes
7	Contained spills	LTP Workers	Contained Spills	Designated Area; House Keeping	1	A	Low	Yes
8								No
9								No
10								No
11								No
12								No
13								No
14								No
15								No
16								No
17								No
18								No
19								No
20								No

Worksheet 2: Additional Controls

Item Ref.	(E) Additional Controls Required	C*	L*	R*	(F) Responsible Person	(G) Implementation Date

Step 10: List legislation, Australian Standards, Codes of Practice, manufacturers guidance etc. used to determine control measures necessary.

Review (to be completed by the HSE Compliance Manager)

Scheduled review date:		
Are all control measures satisfactorily implemented?		Comments:
Are controls eliminating or minimising the risk?		Comments:
Are there any new issues with the control measures?		Comments:

 Signature of HSE Compliance Manager Print Name Date

 Signature of Operations Manager Print Name Date

9. Appendix 3 – Sample Laboratory Reports

9.1. Lab Chain of Custody Report



ALS Environmental
277-289 Woodpark Rd
Smithfield 2164
NSW
16th March 2021

Environmental Division
Sydney
Work Order Reference
ES2109400



Telephone - 61-2-8794 8556

Quotation : SY / 273 /20 V2

Sample: 1. Gypsum Filtercake Waste Batch/1 16/03/21
2. Gypsum Filtercake Waste Batch/2 16/03/21
3. Gypsum Filtercake Waste Batch/3 16/03/21
4. Gypsum Filtercake Waste Batch/4 16/03/21
5. Gypsum Filtercake Waste Batch/5 16/03/21

Dear Sir/Madam

Could your laboratory please analyse the submitted samples as per attached sheet :

The order number is 3171

As with the agreed quotation, could I please have the analysis report provided with the following :

1. **Total concentration reported on (as received basis).**
2. **PFAS short suite – report only (PFAS, PFOA and PFHxS)**

Any queries can be directed to me on (02) 42472100

Thanking you,

Tom Mandic

Process Chemist

Lot 3, Five Islands Rd, Unanderra NSW 2526
PO Box 42, Unanderra NSW 2526 Australia
E-mail : Tom.Mandic@dglgroup.com
Keith.Mau@dglgroup.com
Heath.Pylyp@dglgroup.com

rec: TMD: *[Signature]* 17/3/21
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DGL Environmental

DGL Immobilised Gypsum

Analysis

TCLP		Total Concentration (as received)	
Element		Element	
H2O	%		
Arsenic (As)	mg/L	Arsenic (As)	mg/Kg
Cadmium (Cd)	mg/L	Cadmium (Cd)	mg/Kg
Lead (Pb)	mg/L	Lead (Pb)	mg/Kg
Nickel (Ni)	mg/L	Nickel (Ni)	mg/Kg
Selenium (Se)	mg/L	Selenium (Se)	mg/Kg
Hexavalent Chromium (VI)	mg/L	Hexavalent Chromium (VI)	mg/Kg
PFAS – Short Suite		PFAS - Short Suite	
PFOS		PFOS	
PFOA		PFOA	
PFHxS		PFHxS	

htt

9.2. Lab Certificate of Analysis



CERTIFICATE OF ANALYSIS

Work Order	: ES2109400	Page	: 1 of 5
Amendment	: 1		
Client	: DGL ENVIRONMENTAL PTY LIMITED	Laboratory	: Environmental Division Sydney
Contact	: TOM MANDIC	Contact	: Customer Services ES
Address	: PO BOX 42, UNANDERRA NSW, AUSTRALIA 2526	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 4271 1822	Telephone	: +61-2-8784 8555
Project	: Gypsum Filtercake Waste Batch/1-5 16/03/21	Date Samples Received	: 17-Mar-2021 11:00
Order number	: 3171	Date Analysis Commenced	: 19-Mar-2021
C-O-C number	: ----	Issue Date	: 26-Mar-2021 09:43
Sampler	: ----		
Site	: ----		
Quote number	: SY/273/20		
No. of samples received	: 5		
No. of samples analysed	: 5		



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER

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Work Order : ES2109400 Amendment 1
Client : DGL ENVIRONMENTAL PTY LIMITED
Project : Gypsum Filtercake Waste Batch/1-5 16/03/21



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: LOR raised for Hexavalent Chromium by Alkaline Digestion on samples 1, 2 & 3 due to sample matrix.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- EN33: Where leachable PFAS analysis is requested, centrifugation rather than pressure filtration is used as the default approach for removal of particulates, in line with AS 4439.3.
- EP231X-INJ: The direct injection LCMSMS method may be used where the sample matrix is not suitable for Solid Phase Extraction (e.g. significant particulate load) or where only a single sample container is received.

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 Client : DGL ENVIRONMENTAL PTY LIMITED
 Project : Gypsum Filtercake Waste Batch/1-5 16/03/21



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Gypsum Filtercake Waste Batch/1	Gypsum Filtercake Waste Batch/2	Gypsum Filtercake Waste Batch/3	Gypsum Filtercake Waste Batch/4	Gypsum Filtercake Waste Batch/5
Sampling date / time					16-Mar-2021 00:00	16-Mar-2021 00:00	16-Mar-2021 00:00	16-Mar-2021 00:00	16-Mar-2021 00:00
Compound	CAS Number	LOR	Unit		ES2109400-001	ES2109400-002	ES2109400-003	ES2109400-004	ES2109400-005
				Result	Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		55.5	52.2	56.2	58.5	60.6
EG005(ED093): Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		7	9	11	12	13
Lead	7439-92-1	5	mg/kg		1030	1620	372	258	285
Nickel	7440-02-0	2	mg/kg		30	37	42	44	47
Selenium	7782-49-2	5	mg/kg		5	<5	6	5	6
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EN33: TCLP Leach - Inorganics/PFAS (Plastic Vessel)									
Initial pH	----	0.1	pH Unit		8.7	9.4	8.6	9.0	8.4
After HCl pH	----	0.1	pH Unit		6.1	6.2	6.0	6.3	6.3
Extraction Fluid Number	----	1	-		2	2	2	2	2
Final pH	----	0.1	pH Unit		8.0	9.0	5.7	8.4	6.3
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		0.0015	0.0051	0.0020	0.0003	0.0006
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		0.0015	0.0051	0.0020	0.0003	0.0006
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		90.0	91.0	81.0	94.5	81.0
13C8-PFOA	----	0.0002	%		92.5	94.5	93.0	94.5	91.5

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Analytical Results

Sub-Matrix: TCLP LEACHATE
 (Matrix: WATER)

Sample ID

				Gypsum Filtercake Waste Batch/1	Gypsum Filtercake Waste Batch/2	Gypsum Filtercake Waste Batch/3	Gypsum Filtercake Waste Batch/4	Gypsum Filtercake Waste Batch/5
Sampling date / time				16-Mar-2021 00:00	16-Mar-2021 00:00	16-Mar-2021 00:00	16-Mar-2021 00:00	16-Mar-2021 00:00
Compound	CAS Number	LOR	Unit	ES2109400-001	ES2109400-002	ES2109400-003	ES2109400-004	ES2109400-005
				Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES								
Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.22	<0.05	0.34
Lead	7439-92-1	0.1	mg/L	<0.1	0.2	0.1	<0.1	<0.1
Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.6	<0.1	0.6
Selenium	7782-49-2	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EG050G: Hexavalent Chromium by Discrete Analyser								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.03	0.10	0.04	0.02	0.02
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.03	0.10	0.04	0.02	0.02
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	82.3	82.6	79.2	86.7	81.8
13C8-PFOA	----	0.02	%	90.6	92.2	87.6	90.6	93.8

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Client : DGL ENVIRONMENTAL PTY LIMITED
Project : Gypsum Filtercake Waste Batch/1-5 16/03/21



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

9.3. Lab Quality Control Report



QUALITY CONTROL REPORT

Work Order : **ES2109400**

Page : 1 of 5

Amendment : **1**

Client : **DGL ENVIRONMENTAL PTY LIMITED**

Laboratory : Environmental Division Sydney

Contact : TOM MANDIC

Contact : Customer Services ES

Address : PO BOX 42,
UNANDERRA NSW, AUSTRALIA 2526

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : 02 4271 1822

Telephone : +61-2-8784 8555

Project : Gypsum Filtercake Waste Batch/1-5 16/03/21

Date Samples Received : 17-Mar-2021

Order number : 3171

Date Analysis Commenced : 19-Mar-2021

C-O-C number : ---

Issue Date : 26-Mar-2021

Sampler : ---

Site : ---

Quote number : SY/273/20

No. of samples received : 5

No. of samples analysed : 5



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
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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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

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**

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: 3578585)									
ES2109983-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	5	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	210	188	10.9	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	102	99	3.13	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	480	440	8.90	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	12	12	0.00	No Limit
ES2108828-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	18	24.4	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	6	5	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3578587)									
ES2109400-002	Gypsum Filtercake Waste Batch/2	EA055: Moisture Content	----	0.1	%	52.2	52.2	0.00	0% - 20%
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 3573011)									
ES2108996-004	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES2109400-005	Gypsum Filtercake Waste Batch/5	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 3573604)									
ES2109331-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0419	0.0365	13.8	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.890	0.876	1.57	0% - 20%
ES2109418-021	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 3573604)									
ES2109331-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0047	0.0040	16.2	No Limit

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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 (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 3573604) - continued									
ES2109418-021	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	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 (%)
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 3576974)									
ES2109264-003	Anonymous	EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Selenium	7782-49-2	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
ES2109400-005	Gypsum Filtercake Waste Batch/5	EG005C: Cadmium	7440-43-9	0.05	mg/L	0.34	0.34	0.00	No Limit
		EG005C: Selenium	7782-49-2	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	0.6	0.6	0.00	No Limit
EG050G: Hexavalent Chromium by Discrete Analyser (QC Lot: 3580150)									
ES2109400-001	Gypsum Filtercake Waste Batch/1	EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 3579664)									
ES2109400-001	Gypsum Filtercake Waste Batch/1	EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.03	0.03	0.00	No Limit
		EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES2109400-003	Gypsum Filtercake Waste Batch/3	EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.03	0.00	No Limit
		EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 3579664)									
ES2109400-001	Gypsum Filtercake Waste Batch/1	EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES2109400-003	Gypsum Filtercake Waste Batch/3	EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 3579664)									
ES2109400-001	Gypsum Filtercake Waste Batch/1	EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.03	0.03	0.00	No Limit
ES2109400-003	Gypsum Filtercake Waste Batch/3	EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.03	28.6	No Limit

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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**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3578585)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	100	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	120	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.1 mg/kg	99.2	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	101	80.0	120
EG005T: Selenium	7782-49-2	5	mg/kg	<5	4 mg/kg	100	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 3573011)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	106	68.0	114
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3573604)								
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3573604)								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	118	69.0	133

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 3576974)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.1 mg/L	109	80.0	124
EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	0.1 mg/L	103	80.0	118
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	105	80.0	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	99.1	83.0	115
EG005C: Selenium	7782-49-2	0.05	mg/L	<0.05	0.1 mg/L	107	77.0	125
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 3580150)								
EG050G-C: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	102	83.0	117
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3579664)								
EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	109	68.0	131
EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	80.6	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3579664)								
EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	121	71.0	133
EP231P: PFAS Sums (QCLot: 3579664)								
EP231X-INJ: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----

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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**

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: 3578585)							
ES2108828-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	72.6	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	101	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 3573011)							
ES2108996-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	86.4	70.0	130
ES2108996-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	82.4	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3573604)							
ES2109331-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	# Not Determined	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	# Not Determined	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3573604)							
ES2109331-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	96.0	69.0	133

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 3576974)							
ES2109264-004	Anonymous	EG005C: Arsenic	7440-38-2	1 mg/L	106	70.0	130
		EG005C: Cadmium	7440-43-9	0.25 mg/L	98.6	70.0	130
		EG005C: Lead	7439-92-1	1 mg/L	98.2	70.0	130
		EG005C: Nickel	7440-02-0	1 mg/L	96.0	70.0	130
EG050G: Hexavalent Chromium by Discrete Analyser (QCLot: 3580150)							
ES2109400-001	Gypsum Filtercake Waste Batch/1	EG050G-C: Hexavalent Chromium	18540-29-9	0.05 mg/L	103	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 3579664)							
ES2109400-001	Gypsum Filtercake Waste Batch/1	EP231X-INJ: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	110	68.0	131
		EP231X-INJ: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	107	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 3579664)							
ES2109400-001	Gypsum Filtercake Waste Batch/1	EP231X-INJ: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	128	71.0	133

9.4. Lab QA/QC Compliance Assessment to Assist with Quality Review



QA/QC Compliance Assessment to assist with Quality Review

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Amendment	: 1		
Client	: DGL ENVIRONMENTAL PTY LIMITED	Laboratory	: Environmental Division Sydney
Contact	: TOM MANDIC	Telephone	: +61-2-8784 8555
Project	: Gypsum Filtercake Waste Batch/1-5 16/03/21	Date Samples Received	: 17-Mar-2021
Site	: ----	Issue Date	: 26-Mar-2021
Sampler	: ----	No. of samples received	: 5
Order number	: 3171	No. of samples analysed	: 5

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.

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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							
EP231A: Perfluoroalkyl Sulfonic Acids	ES2109331--003	Anonymous	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231A: Perfluoroalkyl Sulfonic Acids	ES2109331--003	Anonymous	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Frequency of Quality Control Samples

Matrix: SOIL					
Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Moisture Content	1	12	8.33	10.00	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	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055) Gypsum Filtercake Waste Batch/1, Gypsum Filtercake Waste Batch/3, Gypsum Filtercake Waste Batch/5	Gypsum Filtercake Waste Batch/2, Gypsum Filtercake Waste Batch/4,	16-Mar-2021	----	----	----	22-Mar-2021	30-Mar-2021	✔
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) Gypsum Filtercake Waste Batch/1, Gypsum Filtercake Waste Batch/3, Gypsum Filtercake Waste Batch/5	Gypsum Filtercake Waste Batch/2, Gypsum Filtercake Waste Batch/4,	16-Mar-2021	22-Mar-2021	12-Sep-2021	✔	23-Mar-2021	12-Sep-2021	✔
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G) Gypsum Filtercake Waste Batch/1, Gypsum Filtercake Waste Batch/3, Gypsum Filtercake Waste Batch/5	Gypsum Filtercake Waste Batch/2, Gypsum Filtercake Waste Batch/4,	16-Mar-2021	19-Mar-2021	13-Apr-2021	✔	19-Mar-2021	26-Mar-2021	✔

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Matrix: **SOIL**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach - Inorganics/PFAS (Plastic Vessel)								
Non-Volatile Leach: 28 day HT(e.g. Hg, CrVI) (EN33a-P)		16-Mar-2021	20-Mar-2021	13-Apr-2021	✓	----	----	----
Gypsum Filtercake Waste Batch/1,								
Gypsum Filtercake Waste Batch/3,								
Gypsum Filtercake Waste Batch/5								
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)		16-Mar-2021	19-Mar-2021	12-Sep-2021	✓	19-Mar-2021	28-Apr-2021	✓
Gypsum Filtercake Waste Batch/1,								
Gypsum Filtercake Waste Batch/3,								
Gypsum Filtercake Waste Batch/5								
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)		16-Mar-2021	19-Mar-2021	12-Sep-2021	✓	19-Mar-2021	28-Apr-2021	✓
Gypsum Filtercake Waste Batch/1,								
Gypsum Filtercake Waste Batch/3,								
Gypsum Filtercake Waste Batch/5								
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)		16-Mar-2021	19-Mar-2021	12-Sep-2021	✓	19-Mar-2021	28-Apr-2021	✓
Gypsum Filtercake Waste Batch/1,								
Gypsum Filtercake Waste Batch/3,								
Gypsum Filtercake Waste Batch/5								

Matrix: **WATER**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)								
Gypsum Filtercake Waste Batch/1, Gypsum Filtercake Waste Batch/3, Gypsum Filtercake Waste Batch/5	Gypsum Filtercake Waste Batch/2, Gypsum Filtercake Waste Batch/4,	20-Mar-2021	22-Mar-2021	16-Sep-2021	✓	22-Mar-2021	16-Sep-2021	✓
EG050G: Hexavalent Chromium by Discrete Analyser								
Clear Plastic Bottle - NaOH (EG050G-C)								
Gypsum Filtercake Waste Batch/1, Gypsum Filtercake Waste Batch/3, Gypsum Filtercake Waste Batch/5	Gypsum Filtercake Waste Batch/2, Gypsum Filtercake Waste Batch/4,	20-Mar-2021	----	----	----	23-Mar-2021	17-Apr-2021	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X-INJ)								
Gypsum Filtercake Waste Batch/1, Gypsum Filtercake Waste Batch/3, Gypsum Filtercake Waste Batch/5	Gypsum Filtercake Waste Batch/2, Gypsum Filtercake Waste Batch/4,	20-Mar-2021	23-Mar-2021	16-Sep-2021	✓	23-Mar-2021	16-Sep-2021	✓

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 Project : Gypsum Filtercake Waste Batch/1-5 16/03/21



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X.INJ)		20-Mar-2021	23-Mar-2021	16-Sep-2021	✔	23-Mar-2021	16-Sep-2021	✔
Gypsum Filtercake Waste Batch/1,								
Gypsum Filtercake Waste Batch/3,								
Gypsum Filtercake Waste Batch/5								
Gypsum Filtercake Waste Batch/2,								
Gypsum Filtercake Waste Batch/4,								
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X.INJ)		20-Mar-2021	23-Mar-2021	16-Sep-2021	✔	23-Mar-2021	16-Sep-2021	✔
Gypsum Filtercake Waste Batch/1,								
Gypsum Filtercake Waste Batch/3,								
Gypsum Filtercake Waste Batch/5								
Gypsum Filtercake Waste Batch/2,								
Gypsum Filtercake Waste Batch/4,								

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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	Method	Count		Rate (%)			Quality Control Specification
Analytical Methods		QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	12	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	1	12	8.33	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	18	11.11	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	12	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	12	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	12	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	8.33	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	Method	Count		Rate (%)			Quality Control Specification
Analytical Methods		QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	6	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	2	10	20.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	2	13	15.38	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard

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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
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).
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. 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).
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 dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3).
Hexavalent Chromium by Discrete Analyser - Leachable	EG050G-C	SOIL	In house: Referenced to APHA 3500 Cr-A & B. Hexavalent chromium is determined directly on leachate samples by Discrete Analyser as received by pH adjustment and colour development using dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	SOIL	In house: Direct injection analysis of fresh waters after dilution (1:1) with mobile phase solvent. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.
Preparation Methods	Method	Matrix	Method Descriptions
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3).

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Preparation Methods	Method	Matrix	Method Descriptions
TCLP for Non & Semivolatile Analytes - Plastic Leaching Vessel	EN33a-P	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
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).
Preparation for PFAS in water.	EP231-PR	SOIL	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to analysis.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

10. Appendix 4 - Tabulated Results

10.1. Tabulated Total Concentrations (SCC) results

All results are mg/kg unless specified, original reports available on request.

Sample Date	Sample Reference	NATA Report No.	H2O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
01/03/21	Batch/1	ES2107269	56.6	9.1	5	13	0.5	399	38	5	0.0002	0.0143
01/03/21	Batch/2	ES2107269	54.4	8.2	5	12	0.5	918	38	5	0.0002	0.0081
01/03/21	Batch/3	ES2107269	57.5	9.3	5	12	0.5	57	40	5	0.0002	0.0064
01/03/21	Batch/4	ES2107269	53.5	8.8	5	5	0.5	173	27	7	0.0002	0.0037
01/03/21	Batch/5	ES2107269	61.1	9.5	5	11	0.5	319	38	5	0.0002	0.0097
01/03/21	Batch/6	ES2107269	58.3	8.5	5	12	0.5	664	34	5	0.0002	0.0072
01/03/21	Batch/7	ES2107269	57.7	8.0	5	11	0.5	88	40	5	0.0002	0.0020
02/02/21	Batch/1	ES2107659	60.3	8.2	5	6	0.5	413	35	6	0.0002	0.0027
02/02/21	Batch/2	ES2107659	56.8	8.2	5	6	0.5	226	38	5	0.0002	0.0023
02/02/21	Batch/3	ES2107659	55.9	7.7	5	25	0.5	551	45	6	0.0002	0.0049
03/03/21	Batch/1	ES2107658	53.3	7.8	5	12	0.5	543	34	5	0.0002	0.0026
03/03/21	Batch/2	ES2107658	52.4	9.0	5	8	0.5	1890	28	5	0.0002	0.0018
03/03/21	Batch/3	ES2107658	57.1	8.4	5	6	0.5	719	26	5	0.0002	0.0055
03/03/21	Batch/4	ES2107658	59.1	7.8	5	36	0.5	579	49	6	0.0002	0.0038
03/03/21	Batch/5	ES2107658	57.3	7.5	5	29	0.5	603	44	6	0.0002	0.0045
04/03/21	Batch/1	ES2108016	53.7	8.1	5	13	0.5	601	35	5	0.0002	0.0044
04/03/21	Batch/2	ES2108016	52.5	7.6	5	13	0.5	861	48	5	0.0002	0.0040
04/03/21	Batch/3	ES2108016	62.5	9.3	5	21	0.5	375	52	6	0.0002	0.0064
04/03/21	Batch/4	ES2108016	61.2	8.3	5	17	0.5	413	46	6	0.0002	0.0027
05/03/21	Batch/1	ES2108015	53.8	5.6	5	28	0.5	1080	63	5	0.0002	0.0016
05/03/21	Batch/2	ES2108015	56.2	8.2	5	19	0.5	582	55	5	0.0002	0.0013
05/03/21	Batch/3	ES2108015	58.0	9.6	5	16	0.5	336	50	6	0.0002	0.0014
05/03/21	Batch/4	ES2108015	56.0	9.6	5	12	0.5	338	44	5	0.0002	0.0009

https://dglogistics-my.sharepoint.com/personal/jeremy_perera_dglgroup_com/Documents/Folder C - FY 2021/3. OPERATIONS/03. NSW Operations/01.

Waste Disposal/01. Gypsum/01. Bingo/Gypsum Classification Report v4 APPROVED JP 15-06-21.docx

Sample Date	Sample Reference	NATA Report No.	H2O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
05/03/21	Batch/5	ES2108015	59.7	9.4	5	14	0.5	308	51	6	0.0002	0.0023
05/03/21	Batch/6	ES2108015	56.8	9.0	5	15	0.5	592	53	5	0.0002	0.0035
09/03/21	Batch/1	ES2108369	52.3	9.4	5	3	0.5	232	8	5	0.0002	0.0362
09/03/21	Batch/2	ES2108369	54.8	8.1	5	13	0.5	618	52	5	0.0002	0.0567
09/03/21	Batch/3	ES2108369	55.7	8.2	5	9	0.5	763	61	5	0.0002	0.2410
09/03/21	Batch/4	ES2108369	55.2	8.2	5	8	0.5	554	70	5	0.0002	0.2730
10/03/21	Batch/1	ES2108794	55.9	8.9	5	6	0.5	362	41	5	0.0002	0.0684
10/03/21	Batch/2	ES2108794	58.2	9.4	5	6	0.5	238	36	5	0.0002	0.0675
10/03/21	Batch/3	ES2108794	56.1	9.4	5	5	0.5	218	28	6	0.0002	0.0320
10/03/21	Batch/4	ES2108794	57.7	9.5	5	4	0.5	227	23	5	0.0002	0.0136
10/03/21	Batch/5	ES2108794	61.4	9.5	5	4	0.5	213	23	6	0.0002	0.0258
10/03/21	Batch/6	ES2108794	57.2	8.8	5	10	0.5	636	48	5	0.0002	0.1170
10/03/21	Batch/7	ES2108794	55.2	9.7	5	8	0.5	538	36	5	0.0002	0.0586
10/03/21	Batch/8	ES2108794	55.9	9.4	5	9	0.5	533	43	5	0.0002	0.0918
11/03/21	Batch/1	ES2108795	54.3	9.2	5	7	0.5	284	28	5	0.0002	0.0194
11/03/21	Batch/2	ES2108795	54.7	9.2	5	8	0.5	586	37	5	0.0002	0.0502
11/03/21	Batch/3	ES2108795	58.4	9.8	5	10	0.5	290	38	6	0.0002	0.0604
11/03/21	Batch/4	ES2108795	57.5	9.9	5	11	0.5	398	43	5	0.0002	0.0267
11/03/21	Batch/5	ES2108795	54.9	9.9	5	8	0.5	414	35	6	0.0002	0.0279
11/03/21	Batch/6	ES2108795	56.2	9.8	5	8	0.5	845	37	5	0.0002	0.0103
11/03/21	Batch/7	ES2108795	55.9	9.7	5	9	0.5	767	40	5	0.0002	0.0297
12/03/21	Batch/1	ES2109178	60.3	9.6	5	11	0.5	603	47	6	0.0002	0.0341
12/03/21	Batch/2	ES2109178	55.2	9.1	5	7	4.0	1100	37	6	0.0002	0.0105
12/03/21	Batch/3	ES2109178	58.0	8.7	5	9	4.0	325	33	5	0.0002	0.0082
12/03/21	Batch/4	ES2109178	59.1	7.9	5	12	0.5	367	47	5	0.0002	0.0204
12/03/21	Batch/5	ES2109178	58.0	8.1	5	11	0.5	497	40	6	0.0002	0.0098
12/03/21	Batch/6	ES2109178	58.0	8.4	5	13	0.5	584	47	6	0.0002	0.0125

12/03/21	Batch/7	ES2109178	59.0	7.8	5	15	0.5	697	52	6	0.0002	0.0152
Sample Date	Sample Reference	NATA Report No.	H2O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
15/03/21	Batch/1	ES2109201	58.6	8.1	5	13	0.5	146	49	5	0.0002	0.0116
15/03/21	Batch/2	ES2109201	60.1	9.1	5	13	0.5	139	53	6	0.0002	0.0122
15/03/21	Batch/3	ES2109201	61.4	9.0	5	3	0.5	82	39	5	0.0002	0.0051
15/03/21	Batch/4	ES2109201	59.1	8.7	5	4	0.5	73	37	5	0.0002	0.0074
15/03/21	Batch/5	ES2109201	53.6	9.2	5	9	4.0	842	36	5	0.0002	0.0031
15/03/21	Batch/6	ES2109201	63.3	9.4	5	3	4.0	108	35	5	0.0002	0.0065
16/03/21	Batch/1	ES2109400	55.5	8.7	5	7	0.5	1030	30	5	0.0002	0.0015
16/03/21	Batch/2	ES2109400	52.2	9.4	5	9	0.5	1620	37	5	0.0002	0.0051
16/03/21	Batch/3	ES2109400	56.2	8.6	5	11	0.5	372	42	6	0.0002	0.0020
16/03/21	Batch/4	ES2109400	58.5	9.0	5	12	0.5	258	44	5	0.0002	0.0003
16/03/21	Batch/5	ES2109400	60.6	8.4	5	13	0.5	285	47	6	0.0002	0.0006
17/03/21	Batch/1	ES2109880	56.0	8.8	5	4	0.5	506	20	5	0.0002	0.0002
17/03/21	Batch/2	ES2109880	55.8	8.3	5	6	0.5	820	29	6	0.0002	0.0002
17/03/21	Batch/3	ES2109880	58.2	8.5	5	3	0.5	491	28	5	0.0002	0.0002
17/03/21	Batch/4	ES2109880	57.0	9.4	5	2	0.5	146	30	5	0.0002	0.0002
17/03/21	Batch/5	ES2109880	57.0	10.3	5	6	0.5	93	32	7	0.0002	0.0030
17/03/21	Batch/6	ES2109880	54.8	9.3	5	6	0.5	120	25	6	0.0002	0.0026
18/03/21	Batch/1	ES2110497	58.3	8.4	5	11	0.5	894	44	5	0.0002	0.0025
18/03/21	Batch/2	ES2110497	55.6	9.6	5	11	0.5	589	47	5	0.0002	0.0023
18/03/21	Batch/3	ES2110497	56.5	10.3	5	9	0.5	526	34	5	0.0002	0.0154
18/03/21	Batch/4	ES2110497	53.7	9.9	5	10	0.5	526	38	5	0.0002	0.0132
18/03/21	Batch/5	ES2110497	60.4	10.8	5	10	0.5	483	35	5	0.0002	0.0069
19/03/21	Batch/1	ES2110344	53.4	9.8	5	6	0.5	883	21	5	0.0002	0.0094
19/03/21	Batch/2	ES2110344	51.7	10.4	5	9	0.5	1810	31	5	0.0002	0.0089
19/03/21	Batch/3	ES2110344	53.7	10.0	5	25	0.5	942	38	5	0.0002	0.0071
19/03/21	Batch/4	ES2110344	55.1	10.3	5	56	0.5	899	79	5	0.0002	0.0030

19/03/21	Batch/5	ES2110344	57.8	8.5	5	59	0.5	609	84	5	0.0002	0.0006
19/03/21	Batch/6	ES2110344	55.5	10.2	5	55	0.5	696	74	5	0.0002	0.0034
Sample Date	Sample Reference	NATA Report No.	H2O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
22/03/21	Batch/1	ES2110345	51.9	9.0	5	61	0.8	959	103	5	0.0002	0.0017
22/03/21	Batch/2	ES2110345	56.8	9.9	5	29	0.8	370	64	5	0.0002	0.0122
22/03/21	Batch/3	ES2110345	61.9	10.2	5	12	0.8	157	44	6	0.0002	0.0430
22/03/21	Batch/4	ES2110345	60.5	10.0	5	10	0.8	157	41	5	0.0002	0.0648
22/03/21	Batch/5	ES2110345	58.1	10.0	5	12	0.8	131	40	6	0.0010	4.6800
22/03/21	Batch/6	ES2110345	57.1	10.0	5	14	0.8	133	43	5	0.0010	4.0000
22/03/21	Batch/7	ES2110345	60.7	10.0	5	24	0.8	476	53	5	0.0010	4.5400
22/03/21	Batch/8	ES2110345	62.2	10.0	5	13	0.8	110	43	5	0.0010	3.1600
23/03/21	Batch/1	ES2110786	55.4	9.8	5	35	0.5	806	65	5	0.0002	0.5800
23/03/21	Batch/2	ES2110786	62.7	10.3	5	26	0.5	672	50	5	0.0002	0.3580
24/03/21	Batch/1	ES2110785	58.4	9.5	5	18	0.5	774	37	5	0.0002	0.3960
24/03/21	Batch/2	ES2110785	49.5	10.7	5	29	0.5	1380	48	5	0.0002	0.1100
24/03/21	Batch/3	ES2110785	50.8	10.0	5	22	0.5	1310	44	6	0.0002	0.1110
24/03/21	Batch/4	ES2110785	54.2	10.0	5	28	0.5	1570	50	5	0.0002	0.0840
24/03/21	Batch/5	ES2110785	55.9	9.3	5	32	0.5	577	73	6	0.0003	0.0992
24/03/21	Batch/6	ES2110785	58.5	9.6	5	32	0.5	591	74	5	0.0002	0.6180
25/03/21	Batch/1	ES2111036	54.1	8.8	5	61	0.5	1450	60	5	0.0002	0.0801
25/03/21	Batch/2	ES2111036	56.0	9.5	5	29	0.5	515	47	5	0.0002	0.0788
25/03/21	Batch/3	ES2111036	58.7	8.7	5	12	0.5	356	55	6	0.0002	0.1020
25/03/21	Batch/4	ES2111036	55.7	8.8	5	10	0.5	1140	71	5	0.0002	0.2040
25/03/21	Batch/5	ES2111036	56.2	9.5	5	12	0.5	372	63	6	0.0002	0.0128
25/03/21	Batch/6	ES2111036	56.4	8.9	5	14	0.5	460	52	5	0.0002	0.0252
25/03/21	Batch/7	ES2111036	57.9	8.3	5	24	0.5	470	63	5	0.0002	0.0120
25/03/21	Batch/8	ES2111036	57.8	9.5	5	13	0.5	1310	74	5	0.0002	0.0132
26/03/21	Batch/1	ES2111518	55.1	9.1	5	41	0.5	1020	64	5	0.0002	0.3780

26/03/21	Batch/2	ES2111518	52.0	9.1	5	52	0.5	1500	77	5	0.0002	0.3020
26/03/21	Batch/3	ES2111518	53.6	9.2	5	68	0.5	592	79	5	0.0002	0.1250
26/03/21	Batch/4	ES2111518	54.6	9.3	5	72	0.5	611	81	6	0.0002	0.1270
Sample Date	Sample Reference	NATA Report No.	H2O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
26/03/21	Batch/5	ES2111518	59.0	8.2	5	36	0.5	310	67	7	0.0002	0.6100
26/03/21	Batch/6	ES2111518	58.7	8.5	5	50	0.5	433	65	6	0.0002	0.1640
29/03/21	Batch/1	ES2111519	59.8	10.9	5	52	0.5	279	52	5	0.0002	0.0996
29/03/21	Batch/2	ES2111519	58.6	8.7	5	56	0.5	122	59	5	0.0002	0.0248
29/03/21	Batch/3	ES2111519	60.9	8.4	5	47	0.5	175	57	6	0.0002	0.1410
29/03/21	Batch/4	ES2111519	55.2	11.0	5	8	0.5	167	31	5	0.0002	0.2580
29/03/21	Batch/5	ES2111519	62.7	11.0	5	16	0.5	446	40	6	0.0002	0.4520
29/03/21	Batch/6	ES2111519	58.8	9.8	5	3	0.5	126	31	8	0.0002	0.0658
29/03/21	Batch/7	ES2111519	59.9	9.6	5	10	0.5	600	33	6	0.0002	0.1930
29/03/21	Batch/8	ES2111519	60.3	8.5	5	4	0.5	160	28	6	0.0002	0.1530
30/03/21	Batch/1	ES2111732	59.9	9.3	5	19	0.5	491	34	5	0.0002	0.0781
30/03/21	Batch/2	ES2111732	56.8	8.4	5	16	0.5	510	28	5	0.0002	0.0124
30/03/21	Batch/3	ES2111732	56.2	8.4	5	17	0.5	525	29	5	0.0002	0.0097
30/03/21	Batch/4	ES2111732	54.8	9.3	5	20	0.5	958	30	5	0.0002	0.0170
30/03/21	Batch/5	ES2111732	49.0	10.0	5	26	0.5	2020	38	5	0.0002	0.0034
31/03/21	Batch/1	ES2112284	55.3	8.4	5	24	0.5	639	67	5	0.0002	0.013
31/03/21	Batch/2	ES2112284	56.8	8.6	5	24	0.5	1180	72	5	0.0002	0.0084
31/03/21	Batch/3	ES2112284	53.9	8.8	5	20	0.5	533	72	5	0.0002	0.0112
31/03/21	Batch/4	ES2112284	59.6	8.0	5	21	0.5	290	62	5	0.0002	0.0585
31/03/21	Batch/5	ES2112284	57.5	8.3	5	24	0.5	704	72	6	0.0002	0.129

10.2. Tabulated Toxicity Characteristic Leaching Procedure (TCLP) results

All results are mg/kg unless specified

Sample Date	Sample Reference	NATA Report No.	H ₂ O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
01/03/21	Batch/1	ES2107269	56.6	9.1	0.1	0.42	0.05	0.1	0.5	0.05	0.00001	0.00002
01/03/21	Batch/2	ES2107269	54.4	8.2	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00006
01/03/21	Batch/3	ES2107269	57.5	9.3	0.1	0.17	0.01	0.1	0.1	0.05	0.00001	0.00004
01/03/21	Batch/4	ES2107269	53.5	8.8	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00006
01/03/21	Batch/5	ES2107269	61.1	9.5	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00003
01/03/21	Batch/6	ES2107269	58.3	8.5	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00003
01/03/21	Batch/7	ES2107269	57.7	8.0	0.1	0.32	0.01	0.1	0.3	0.05	0.00001	0.00001
02/02/21	Batch/1	ES2107659	60.3	8.2	0.1	0.11	0.01	0.1	0.2	0.05	0.00001	0.00002
02/02/21	Batch/2	ES2107659	56.8	8.2	0.1	0.2	0.01	0.1	0.9	0.05	0.00001	0.00004
02/02/21	Batch/3	ES2107659	55.9	7.7	0.1	0.91	0.01	0.8	0.7	0.05	0.00001	0.00001
03/03/21	Batch/1	ES2107658	53.3	7.8	0.1	0.09	0.01	0.1	0.1	0.1	0.00001	0.00001
03/03/21	Batch/2	ES2107658	52.4	9.0	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00004
03/03/21	Batch/3	ES2107658	57.1	8.4	0.1	0.19	0.01	0.1	0.4	0.05	0.00001	0.00003
03/03/21	Batch/4	ES2107658	59.1	7.8	0.1	1.13	0.01	0.5	0.6	0.05	0.00001	0.00001
03/03/21	Batch/5	ES2107658	57.3	7.5	0.1	1.04	0.01	0.3	0.5	0.05	0.00001	0.00001
04/03/21	Batch/1	ES2108016	53.7	8.1	0.1	0.23	0.01	0.1	0.2	0.05	0.00001	0.00002
04/03/21	Batch/2	ES2108016	52.5	7.6	0.1	0.46	0.01	3	1.1	0.05	0.00001	0.00001
04/03/21	Batch/3	ES2108016	62.5	9.3	0.1	0.49	0.01	0.1	0.4	0.05	0.00001	0.00004
04/03/21	Batch/4	ES2108016	61.2	8.3	0.1	0.11	0.01	0.1	0.1	0.05	0.00001	0.00001
05/03/21	Batch/1	ES2108015	53.8	5.6	0.1	0.08	0.01	0.2	0.1	0.05	0.00001	0.00002
05/03/21	Batch/2	ES2108015	56.2	8.2	0.1	0.48	0.01	0.6	0.7	0.05	0.00001	0.00002
05/03/21	Batch/3	ES2108015	58.0	9.6	0.1	0.22	0.01	0.1	0.1	0.05	0.00001	0.00001
05/03/21	Batch/4	ES2108015	56.0	9.6	0.1	0.12	0.01	0.1	0.3	0.05	0.00001	0.00001
05/03/21	Batch/5	ES2108015	59.7	9.4	0.1	0.32	0.01	0.1	0.4	0.05	0.00001	0.00001
05/03/21	Batch/6	ES2108015	56.8	9.0	0.1	0.42	0.01	0.3	0.6	0.05	0.00001	0.00001

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09/03/21	Batch/1	ES2108369	52.3	9.4	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00038
Sample Date	Sample Reference	NATA Report No.	H ₂ O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
09/03/21	Batch/2	ES2108369	54.8	8.1	0.1	0.36	0.01	0.4	0.6	0.05	0.00001	0.00011
09/03/21	Batch/3	ES2108369	55.7	8.2	0.1	0.3	0.01	0.2	0.9	0.05	0.00001	0.00226
09/03/21	Batch/4	ES2108369	55.2	8.2	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00362
10/03/21	Batch/1	ES2108794	55.9	8.9	0.1	0.2	0.05	0.1	0.9	0.05	0.00001	0.00103
10/03/21	Batch/2	ES2108794	58.2	9.4	0.1	0.18	0.01	0.1	0.6	0.05	0.00001	0.00011
10/03/21	Batch/3	ES2108794	56.1	9.4	0.1	0.19	0.01	0.1	0.6	0.05	0.00001	0.00006
10/03/21	Batch/4	ES2108794	57.7	9.5	0.1	0.15	0.01	0.1	0.4	0.05	0.00001	0.00003
10/03/21	Batch/5	ES2108794	61.4	9.5	0.1	0.11	0.01	0.1	0.4	0.05	0.00001	0.00003
10/03/21	Batch/6	ES2108794	57.2	8.8	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00095
10/03/21	Batch/7	ES2108794	55.2	9.7	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00082
10/03/21	Batch/8	ES2108794	55.9	9.4	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00122
11/03/21	Batch/1	ES2108795	54.3	9.2	0.1	0.21	0.01	0.2	0.4	0.05	0.00001	0.00007
11/03/21	Batch/2	ES2108795	54.7	9.2	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00075
11/03/21	Batch/3	ES2108795	58.4	9.8	0.1	0.36	0.01	0.1	0.6	0.05	0.00001	0.00042
11/03/21	Batch/4	ES2108795	57.5	9.9	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00043
11/03/21	Batch/5	ES2108795	54.9	9.9	0.1	0.07	0.01	0.1	0.6	0.05	0.00001	0.00023
11/03/21	Batch/6	ES2108795	56.2	9.8	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00016
11/03/21	Batch/7	ES2108795	55.9	9.7	0.1	0.09	0.01	0.2	0.6	0.05	0.00001	0.00026
12/03/21	Batch/1	ES2109178	60.3	9.6	0.1	0.08	0.01	0.2	0.5	0.05	0.00001	0.00049
12/03/21	Batch/2	ES2109178	55.2	9.1	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00026
12/03/21	Batch/3	ES2109178	58.0	8.7	0.1	0.14	0.01	0.2	0.5	0.05	0.00001	0.00007
12/03/21	Batch/4	ES2109178	59.1	7.9	0.1	0.26	0.01	0.1	0.6	0.05	0.00001	0.00033
12/03/21	Batch/5	ES2109178	58.0	8.1	0.1	0.18	0.01	0.8	0.7	0.05	0.00001	0.00008
12/03/21	Batch/6	ES2109178	58.0	8.4	0.1	0.09	0.01	0.1	0.3	0.05	0.00001	0.00019
12/03/21	Batch/7	ES2109178	59.0	7.8	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00027
15/03/21	Batch/1	ES2109201	58.6	8.1	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.0003

15/03/21	Batch/2	ES2109201	60.1	9.1	0.1	0.06	0.01	0.1	0.7	0.05	0.00001	0.00017
15/03/21	Batch/3	ES2109201	61.4	9.0	0.1	0.05	0.01	0.1	0.3	0.05	0.00001	0.00016
Sample Date	Sample Reference	NATA Report No.	H ₂ O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
15/03/21	Batch/4	ES2109201	59.1	8.7	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00035
15/03/21	Batch/5	ES2109201	53.6	9.2	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00014
15/03/21	Batch/6	ES2109201	63.3	9.4	0.1	0.05	0.01	0.1	0.2	0.05	0.00001	0.00026
16/03/21	Batch/1	ES2109400	55.5	8.7	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00003
16/03/21	Batch/2	ES2109400	52.2	9.4	0.1	0.05	0.01	0.2	0.1	0.05	0.00001	0.0001
16/03/21	Batch/3	ES2109400	56.2	8.6	0.1	0.22	0.01	0.1	0.6	0.05	0.00001	0.00004
16/03/21	Batch/4	ES2109400	58.5	9.0	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00002
16/03/21	Batch/5	ES2109400	60.6	8.4	0.1	0.34	0.01	0.1	0.6	0.05	0.00001	0.00002
17/03/21	Batch/1	ES2109880	56.0	8.8	0.1	0.14	0.05	0.3	0.5	0.05	0.00001	0.00001
17/03/21	Batch/2	ES2109880	55.8	8.3	0.1	0.19	0.01	0.6	0.5	0.05	0.00001	0.00001
17/03/21	Batch/3	ES2109880	58.2	8.5	0.1	0.12	0.01	0.4	0.9	0.05	0.00001	0.00001
17/03/21	Batch/4	ES2109880	57.0	9.4	0.1	0.05	0.01	0.6	0.6	0.05	0.00001	0.00009
17/03/21	Batch/5	ES2109880	57.0	10.3	0.1	0.19	0.01	0.3	0.3	0.05	0.00001	0.00016
17/03/21	Batch/6	ES2109880	54.8	9.3	0.1	0.08	0.01	0.1	0.6	0.05	0.00001	0.00008
18/03/21	Batch/1	ES2110497	58.3	8.4	0.1	0.43	0.01	0.6	1.1	0.05	0.00001	0.00009
18/03/21	Batch/2	ES2110497	55.6	9.6	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00008
18/03/21	Batch/3	ES2110497	56.5	10.3	0.1	0.1	0.01	0.2	0.6	0.05	0.00001	0.00036
18/03/21	Batch/4	ES2110497	53.7	9.9	0.1	0.17	0.01	0.1	0.6	0.05	0.00001	0.0005
18/03/21	Batch/5	ES2110497	60.4	10.8	0.1	0.18	0.01	0.1	0.8	0.05	0.00001	0.00039
19/03/21	Batch/1	ES2110344	53.4	9.8	0.1	0.08	0.05	2.4	0.6	0.05	0.00001	0.00009
19/03/21	Batch/2	ES2110344	51.7	10.4	0.1	0.1	0.01	0.5	0.3	0.05	0.00001	0.00027
19/03/21	Batch/3	ES2110344	53.7	10.0	0.1	0.76	0.01	1.2	0.8	0.05	0.00001	0.00015
19/03/21	Batch/4	ES2110344	55.1	10.3	0.1	0.35	0.05	0.2	0.3	0.05	0.00001	0.00008
19/03/21	Batch/5	ES2110344	57.8	8.5	0.1	2.01	0.05	0.5	3.2	0.05	0.00001	0.00002
19/03/21	Batch/6	ES2110344	55.5	10.2	0.1	1.82	0.01	1.8	2	0.05	0.00001	0.00005

22/03/21	Batch/1	ES2110345	51.9	9.0	0.1	0.66	0.01	0.1	0.4	0.05	0.00001	0.00002
22/03/21	Batch/2	ES2110345	56.8	9.9	0.1	0.31	0.01	0.1	0.2	0.05	0.00001	0.00006
22/03/21	Batch/3	ES2110345	61.9	10.2	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00011
Sample Date	Sample Reference	NATA Report No.	H₂O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
22/03/21	Batch/4	ES2110345	60.5	10.0	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.0002
22/03/21	Batch/5	ES2110345	58.1	10.0	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00139
22/03/21	Batch/6	ES2110345	57.1	10.0	0.1	0.15	0.01	0.1	0.3	0.05	0.00001	0.00135
22/03/21	Batch/7	ES2110345	60.7	10.0	0.1	0.06	0.01	0.1	0.1	0.05	0.00001	0.00108
22/03/21	Batch/8	ES2110345	62.2	10.0	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00136
23/03/21	Batch/1	ES2110786	55.4	9.8	0.1	0.1	0.01	0.1	0.1	0.05	0.00001	0.00355
23/03/21	Batch/2	ES2110786	62.7	10.3	0.1	0.51	0.01	0.1	0.3	0.05	0.00001	0.00331
24/03/21	Batch/1	ES2110785	58.4	9.5	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00568
24/03/21	Batch/2	ES2110785	49.5	10.7	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00224
24/03/21	Batch/3	ES2110785	50.8	10.0	0.1	0.05	0.01	0.2	0.1	0.05	0.00001	0.00169
24/03/21	Batch/4	ES2110785	54.2	10.0	0.1	0.05	0.01	0.3	0.1	0.05	0.00001	0.00074
24/03/21	Batch/5	ES2110785	55.9	9.3	0.1	0.09	0.01	0.1	0.1	0.05	0.00001	0.00089
24/03/21	Batch/6	ES2110785	58.5	9.6	0.1	0.68	0.01	0.1	0.5	0.05	0.00001	0.0032
25/03/21	Batch/1	ES2111036	54.1	8.8	0.1	0.08	0.01	0.1	0.1	0.05	0.00001	0.00068
25/03/21	Batch/2	ES2111036	56.0	9.5	0.1	0.09	0.01	0.1	0.1	0.05	0.00001	0.00045
25/03/21	Batch/3	ES2111036	58.7	8.7	0.1	0.81	0.01	0.1	0.7	0.05	0.00001	0.00025
25/03/21	Batch/4	ES2111036	55.7	8.8	0.1	0.06	0.01	0.1	0.1	0.05	0.00001	0.00206
25/03/21	Batch/5	ES2111036	56.2	9.5	0.1	0.06	0.01	0.2	0.8	0.05	0.00001	0.00002
25/03/21	Batch/6	ES2111036	56.4	8.9	0.1	0.07	0.01	0.1	0.6	0.05	0.00001	0.00011
25/03/21	Batch/7	ES2111036	57.9	8.3	0.1	0.17	0.01	0.1	0.3	0.05	0.00001	0.00001
25/03/21	Batch/8	ES2111036	57.8	9.5	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00008
26/03/21	Batch/1	ES2111518	55.1	9.1	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.0042
26/03/21	Batch/2	ES2111518	52.0	9.1	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00386
26/03/21	Batch/3	ES2111518	53.6	9.2	0.1	1.59	0.01	1.4	2.1	0.05	0.00001	0.00143

26/03/21	Batch/4	ES2111518	54.6	9.3	0.1	1.64	0.01	1.3	2.1	0.05	0.00001	0.00169
26/03/21	Batch/5	ES2111518	59.0	8.2	0.1	0.89	0.01	0.1	1	0.05	0.00001	0.0115
26/03/21	Batch/6	ES2111518	58.7	8.5	0.1	1.3	0.01	0.3	1.3	0.05	0.00001	0.00465
29/03/21	Batch/1	ES2111519	59.8	10.9	0.1	2.54	0.01	0.2	1.9	0.05	0.00001	0.00191
Sample Date	Sample Reference	NATA Report No.	H ₂ O (%)	pH	As	Cd	Cr(VI)	Pb	Ni	Se	PFOA	PFOS + PFHxS
29/03/21	Batch/2	ES2111519	58.6	8.7	0.1	1.85	0.01	0.1	1	0.05	0.00001	0.00069
29/03/21	Batch/3	ES2111519	60.9	8.4	0.1	1.1	0.01	0.1	1.4	0.05	0.00001	0.00388
29/03/21	Batch/4	ES2111519	55.2	11.0	0.1	0.09	0.01	0.1	0.2	0.05	0.00001	0.0099
29/03/21	Batch/5	ES2111519	62.7	11.0	0.1	0.07	0.01	0.1	0.1	0.05	0.00001	0.0176
29/03/21	Batch/6	ES2111519	58.8	9.8	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00366
29/03/21	Batch/7	ES2111519	59.9	9.6	0.1	0.2	0.01	0.1	0.2	0.05	0.00001	0.00472
29/03/21	Batch/8	ES2111519	60.3	8.5	0.1	0.09	0.01	0.1	0.5	0.05	0.00001	0.0044
30/03/21	Batch/1	ES2111732	59.9	9.3	0.1	0.24	0.1	0.1	0.5	0.05	0.00001	0.00214
30/03/21	Batch/2	ES2111732	56.8	8.4	0.1	0.28	0.01	0.3	0.6	0.05	0.00001	0.00014
30/03/21	Batch/3	ES2111732	56.2	8.4	0.1	0.27	0.01	0.3	0.6	0.05	0.00001	0.00015
30/03/21	Batch/4	ES2111732	54.8	9.3	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00032
30/03/21	Batch/5	ES2111732	49.0	10.0	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00014
31/03/21	Batch/1	ES2112284	55.3	8.4	0.1	0.57	0.01	0.1	0.8	0.05	0.00001	0.00018
31/03/21	Batch/2	ES2112284	56.8	8.6	0.1	0.62	0.01	0.2	0.8	0.05	0.00001	0.00013
31/03/21	Batch/3	ES2112284	53.9	8.8	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00008
31/03/21	Batch/4	ES2112284	59.6	8.0	0.1	0.76	0.01	0.2	1.3	0.05	0.00001	0.00034
31/03/21	Batch/5	ES2112284	57.5	8.3	0.1	0.05	0.01	0.1	0.1	0.05	0.00001	0.00147