Operations
23656 Great River Road
Garnavillo, IA 52049
(563) 964-2860
(563) 964-2616 fax

PATTISON
SAND COMPANY

Accounting
23656 Great River Rd
Garnavillo, IA 52049

March 2026

Chad Stobbe
Iowa Department of Natural Resources
Wallace State Office Building
502 E 9th St. Des Moines, IA 50319-0034
Chad.Stobbe@dnr.towa.gov

RE: BUD IDNR-22-SDP-09-06

Dear Mr. Stobbe,
Pattison Sand Company is submitting our Annual Report for IDNR-22-SDP-09-06

Please find the attached the attached Analytical Testing Report for metals TCLP, SPLP, VOC, SVOC Lab results and Risk Calculations Analysis based on metals exceedance threshold, Solid By-Product Management Plan and Site Map/s.

Solid By-Product: "Clay" from the processing sand.

Solid By-Product Testing: Solid By-Product Analytical testing includes; Total Metals, [SPLP] Synthetic Precipitation Leach Procedure (EPA Test Method 1312), [TCLP] Toxicity Characteristic Leaching Procedure (EPA Test Method 1311), [VOC] Volatile Organic Compounds & [SVOC] Semi-Volatile Organic Compounds. Cumulative Risk Calculation are completed based on metals exceedance thresholds.
Storage Locations: Pattison Sand Storage 1 (Hoefer)
Inventory: will use our in-house TOPO maps to calculate the inventory at the storage sites. This will also assist us in calculating the useful life of the storage site. The life expectancy for this site is based on our current production rates from 2025 is estimated to be approximately approx. 19.2 years. I have attached our TOPO along with a cut/fill example to illustrate how the site is filling. We were able to gather this info from our flyovers with our drone and using a software called propeller.

Pattison Sand Storage 1 (Hoefer): In 2025 approximately 64,000 tons of clay was pumped to the Pattison Sand Storage 1 location.

Per the Site Reclamation Plan when the Pattison Sand Storage 1 site; Pattison Sand Company intends for this site to serve as a wet land for a wild life refuge for local and migrating waterfowl along providing an area for the native wild life as a source of water, food for foraging and cover. The ponds support large numbers of migrating birds along with local water fowl and wild life throughout the year. We feel this will be a very good benefit to the area because it provides a non-hunting area and the fact this area will increase the wet lands in the surrounding area that will help to support the local wild life along with any transitory/migrating wild life and water fowl.

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Valley Storage:
Valley Storage was removed from the BUD permit when it was renewed in 2022 due this being a sand storage area sellable product.

NPDES (National Pollutant Discharge Elimination System) Permit: #2200102
Pattison Sand Company operates under NPDES #2200102 in accordance with the Iowa Department of Natural Resources (INDR). Monthly Discharge Reports (DMR) are filed with IDNR. EPA #IA0080624.

Best Management Practices: The site is inspected at minimum once per month along with scheduled PM's for process equipment and repairs as needed. Production will be stopped in the event of a catastrophic failure has occurred in the process equipment.

Sincerely,
Kyle Pattison Manager/Operator

Signature: _____ Date: 2/20/26

Carl Orr Environmental Compliance Manager

Signature: _____ Date: 2/20/26

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Fax (563) 425-4090

March 2026

Iowa Department of Natural Resources
Chad Stobbe, Environmental Specialist Senior
Land Quality Bureau
502 East Ninth Street
Des Moines, Iowa 50319-0034
Chad.Stobbe@dnr.towa.gov

Subject: **DNR ID #22-BUD-09-06**
Pattison Sand Company
Beneficial Use of Solid By-Products
Site Reclamation Plan (SPR) "Proposed Final Grades and Slopes"

RE: Site Reclamation Plan for Pattison Sand Storage #1. Pattison Sand Company 23656 Great River Road Garnavillo, IA 52049

Dear Mr. Stobbe:

As required in Special Condition #3) of the Beneficial Use Determination Permit below is Pattison Sands Site Reclamation Plan for the Pattison Sand Storage 1 site regarding the proposed final grades and slopes for the site.

Fill Progression/Schedule
The TOPO drawing will illustrate the current elevations and contours. It is anticipated with the current demand for our products the life expectancy of the site is 19.2 years. This may change based on sales adjusted consolidation rates of the clay and if any products will be developed from the current fill material.
Special Note: Based on our current sales, clay consolidation rate adjustments and in-house elevations from our drone flights our life expectancy hasn't significantly changed from our previous year's calculations. We purchased software for our drone that we can conduct flights to get elevations. Using the software we feel this is our best and most accurate way to determine the fill progression of the site. We will use this going forward to determine the fill progression.

Proposed Final Grades and Slopes
Once the Pattison Sand Storage #1 has reached its capacity in approximately 19.2 years. the finish elevation for the site is projected to be 1040' with slopes at 2:1 to final interior elevation projected to be 1038' along with the fill boundaries of the site illustrated on the TOPO drawing. The slopes will be

February 19, 2026

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covered with approximately 5 ft. to 1 ft. of fill from the surrounding area that support the seed selected for the area/region. This will provide a source of food and cover for

the native habitat. The seed mix below has been used around the Pattison Sand mine site and has been proven to grow well in this area.


NELSON GRASS PASTURE M..
LOT: 19022-19-06
TEST DATE: JUN, 2019
CONTENTS:
KENTAUR TETRAPLOID PERENNI... RYEGRASS 29.6%
RICHMOND TIMOTHY 19.8%
SMOOTH BROMEGRASS 19.1
FESTIVAL TALL FESCUE 19.03%
MEADOW FESCUE 09.57%
ECHELON ORCHARDGRASS 08.7%
VARIETIES NOT STATED
OTHER CROP 10% WEED SEED 05% INERT 3.20%
NET WT 50 LBS (22.68 KGS)
NOXIOUS WEED: NONE FOUND
AMS# 2352

Benefits:

We intend for this site to serve as a wet land for a wild life refuge for local and migrating waterfowl along providing an area for the native wild life as a source of water, food for foraging and cover. (Non hunted) We have a number of ponds on our site that support large numbers of migrating birds along with local water fowl and wild life throughout the year. We feel this will be a very good benefit to the area because of the diminishing wet lands and the fact this area will increase the wet lands in the surrounding area and help to support the local wild life along with any transitory/migrating wild life and water fowl too.

Another benefits:

The material (clay by-product) that is being stored at this site Pattison Sand Company has been used to develop a product called Stabilized Road Rock. SRR is added to road rock to enhance and extend the useful life of gravel roads. This product has been tested over the past 6 years and has been proven to be effective in reducing road maintenance and extending the road surface life. If this material is removed from the site, it will not impact the site but will increase the interior wetland area.

Conclusion:

Currently this site not only serves as a storage site but is home to quite a number of local water fowl species along with serving as a water source for the local wildlife as there are numerous trails leading to the site. Not only does this area benefit local and migrating wild life it serves as a storage area for material (clay) that Pattison Sand is looking to develop.

If there are any questions or comments regarding this report, please feel free to contact me (Carl Orr) Environmental Compliance Manager (Cell 608-778-5636) or Kyle Pattison Owner/Operator (Cell 563-

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880-1013) for Pattison Sand Company, at the phone numbers above or via email at corr@pattisonsand.com or kpattison@pattisonsand.com

Respectfully,

Carl Orr

Carl Orr 2-20-26

Environmental Compliance Manager Pattison Sand Company

Kyle Pattison

Kyle Pattison

Owner/Operator

February 19, 2026

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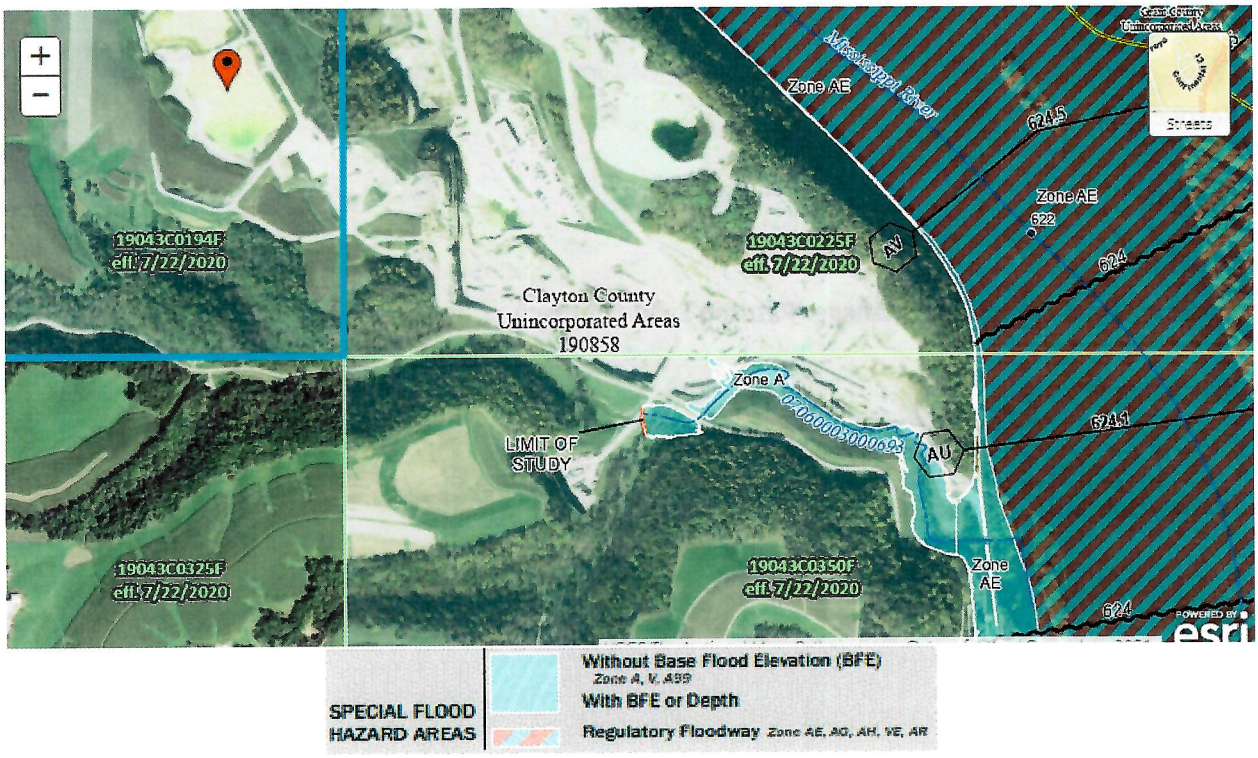
Flood Plan Map:

Map below illustrates the flood plain using the FEMA flood plain mapping tool. There is no impact to the flood plain area depicted on the map.

Pattison Sand Storage 1 location



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Pattison Sand Storage 1 overview using IGS well locations

The "red" dots indicate wells in the surrounding area. "Yellow line = Pattison Sand property

See Well# and owner below:
#63843 Pattison Sand Company →distance from Pattison Sand Storage 1 Site ~2130ft
#83715 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~2130ft
#73638 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~2130ft
#66867 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~2130ft
#80483 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~3225ft
#89522 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~4395ft
#90726 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~4395ft
#90727 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~4395ft
#90728 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~4395ft
#90729 Pattison Sand Company → distance from Pattison Sand Storage 1 Site ~4395ft
#32587 Laura Reimer → distance from Pattison Sand Storage 1 Site →1825ft
#75389 Dean Johnson → distance from Pattison Sand Storage 1 Site →~7550ft
#63702 Galen Allen → distance from Pattison Sand Storage 1 Site → ~7550ft
#73851 Donald Willie → distance from Pattison Sand Storage 1 Site → ~7550ft
#96424 Alex Pech → distance from Pattison Sand Storage 1 Site → ~7550ft

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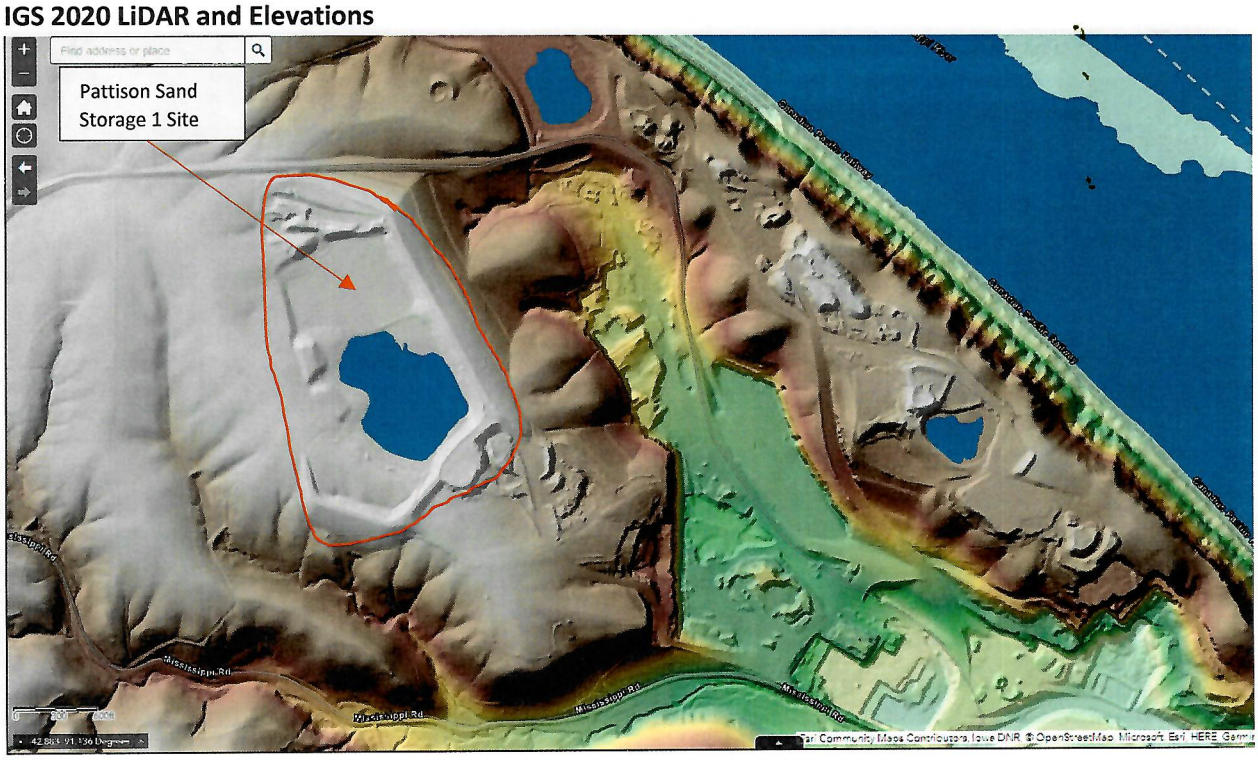
IGS 2020 LiDAR and Elevations



IGS Historical USGS 34k Topography

February 19, 2026

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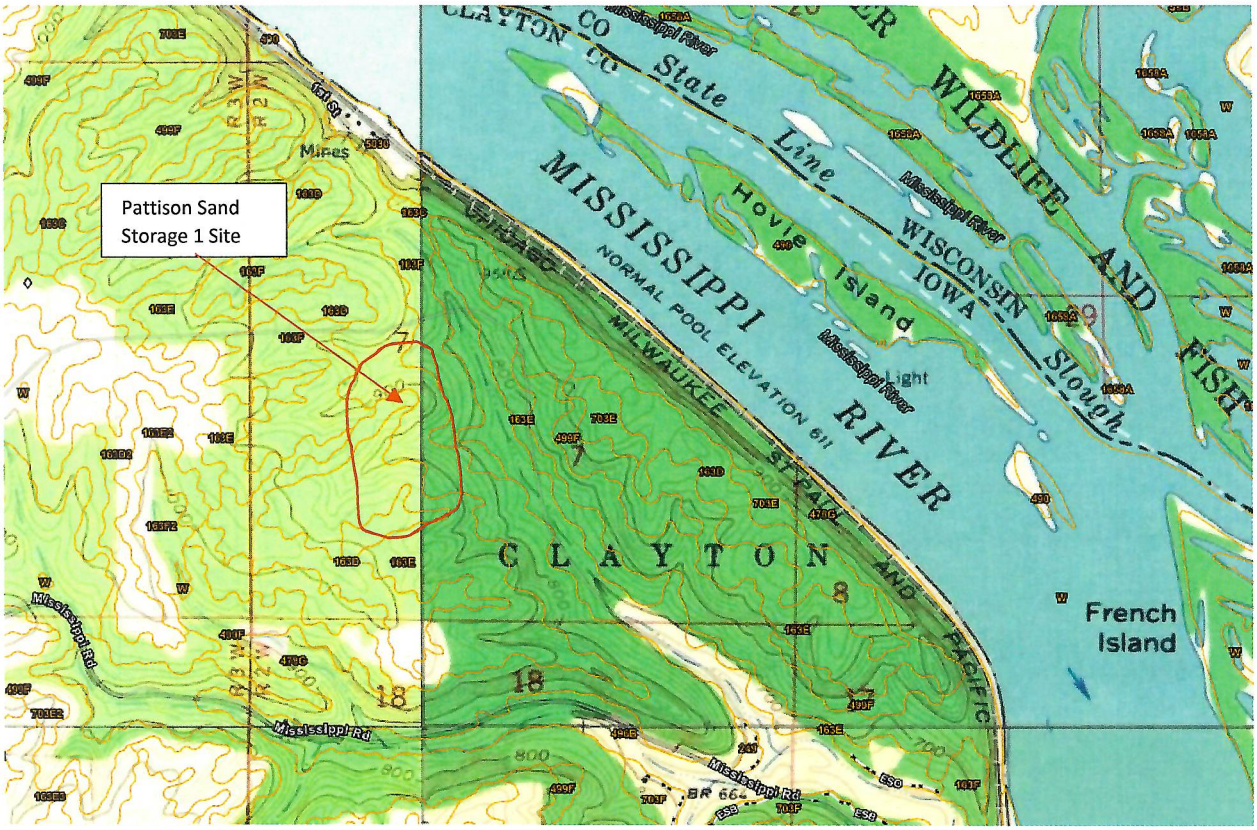

February 19, 2026

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IA2132

Project Description

Beneficial Use

For:

Carl Orr

Pattison Sand Company, LLC

22656 Great River Road

Garnavillo, IA 52049

Tiffannie Clymer

Customer Relationship Specialist

Monday, February 17, 2025

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

MICROBAC®

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IA2132

Pattison Sand Company, LLC

Carl Orr
22656 Great River Road
Garnavillo, IA 52049

Project Name: Beneficial Use

Project / PO Number: N/A
Received: 01/31/2025
Reported: 02/17/2025

Case Narrative

CASE NARRATIVE

The samples received on 01/31/25 10:20 for Work Order 1IA2132 were contained in client supplied containers.

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Pattison Sand Storage #1	1IA2132-01	Bulk-Solid	GRAB		01/17/25 11:30	01/31/25 10:20

Analytical Testing Parameters

Client Sample ID:	Pattison Sand Storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	Orr, Carl
Lab Sample ID:	1IA2132-01	**Collection Date:**	01/17/2025 11:30

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: [Calc]									
Chromium, trivalent	**9.79**	6.37	21.2	mg/kg dry	1		02/07/25 1436	02/11/25 0145	AKK

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 7196A									
Chromium, hexavalent	<19.6	5.9	19.6	mg/kg dry	1		02/03/25 1510	02/10/25 0946	AKK
Method: SM 2540 G-2011									
% Solids	**25.6**	0.10	0.10	%	1		02/06/25 0820	02/10/25 1013	LAW

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: Calculation									
Chromium, trivalent	**9.79**	5.89	19.6	mg/kg dry	1		02/07/25 1436	02/11/25 0145	AKK
Method: EPA 3050B/EPA 6010B									
Barium, total	**8.90**	0.09	0.56	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Boron, total	**3.2**	3.2	5.6	mg/kg	1	**J**	02/07/25 1436	02/11/25 0145	JAR
Cadmium, total	<0.1	0.1	0.6	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Chromium, total	**9.8**	0.5	1.7	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Copper, total	**5.2**	0.5	1.7	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Lead, total	**15.3**	1.17	2.79	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Lithium, total	**0.8**	0.4	3	mg/kg	1	**J**	02/07/25 1436	02/11/25 0145	JAR
Manganese, total	**39.5**	0.3	0.6	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Molybdenum, total	**1.4**	0.2	0.6	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Nickel, total	**1.7**	0.4	2.8	mg/kg	1	**J**	02/07/25 1436	02/11/25 0145	JAR
Selenium, total	**5.7**	0.9	1.7	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Silver, total	<0.1	0.1	0.6	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Vanadium, total	**5.64**	0.204	2.79	mg/kg	1		02/07/25 1436	02/11/25 0145	JAR
Zinc, total	**12.8**	1.2	1.7	mg/kg	1		02/07/25 1436	02/11/25 2310	JAR
Method: EPA 3050B/EPA 6020A									
Antimony, total	<0.18	0.18	0.56	mg/kg	10		02/07/25 1436	02/15/25 0444	KKJ
Arsenic, total	**6.43**	0.20	0.56	mg/kg	10		02/07/25 1436	02/15/25 0444	KKJ
Beryllium, total	**0.02**	0.01	0.6	mg/kg	10	**J**	02/07/25 1436	02/15/25 0444	KKJ
Cobalt, total	**0.61**	0.16	0.56	mg/kg	10		02/07/25 1436	02/15/25 0444	KKJ
Thallium, total	**0.3**	0.1	0.3	mg/kg	10		02/07/25 1436	02/15/25 0444	KKJ
Method: EPA 7471A									
Mercury, total	<0.02	0.02	0.05	mg/kg	1		01/31/25 1527	02/04/25 1106	JAR
Method: EPA 9056A									

Client Sample ID:	Pattison Sand Storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	Orr, Carl
Lab Sample ID:	1IA2132-01	**Collection Date:**	01/17/2025 11:30

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Fluoride	**13.9**	0.2	10.0	mg/kg	1		02/06/25 0000	02/07/25 0320	MID

Determination of TCLP Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 3010A/EPA 6010B									
Arsenic (TCLP)	<0.030	0.012	0.030	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Barium (TCLP)	**0.129**	0.002	0.010	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Cadmium (TCLP)	<0.005	0.003	0.005	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Chromium (TCLP)	<0.010	0.005	0.010	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Lead (TCLP)	<0.020	0.013	0.020	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Selenium (TCLP)	**0.141**	0.032	0.050	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Silver (TCLP)	<0.010	0.004	0.010	mg/L	1		02/07/25 1448	02/11/25 0031	JAR
Method: EPA 7470A									
Mercury (TCLP)	<0.0100	0.00248	0.0100	mg/L	1		02/13/25 0800	02/13/25 1729	JAR

TCLP Extraction	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 1311/EPA 1311									
TCLP pH, Initial	**4.9**			pH	1	**H1**	02/03/25 0811	02/04/25 1229	KKJ
TCLP pH, Final	**5.5**			pH	1	**H1**	02/03/25 0811	02/04/25 1229	KKJ

Determination of SPLP Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 3005A/EPA 6020A									
Antimony (SPLP)	<0.0009	0.0009	0.0100	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Arsenic (SPLP)	**0.0054**	0.0032	0.0200	mg/L	10	**J**	02/11/25 0904	02/15/25 0318	KKJ
Barium (SPLP)	<0.0059	0.0059	0.0200	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Beryllium (SPLP)	<0.0005	0.0005	0.0200	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Cadmium (SPLP)	<0.0009	0.0009	0.0100	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Chromium (SPLP)	<0.0085	0.0085	0.0500	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Copper (SPLP)	**0.0094**	0.0043	0.0200	mg/L	10	**J**	02/11/25 0904	02/15/25 0318	KKJ
Lead (SPLP)	<0.0023	0.0023	0.0200	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Selenium (SPLP)	<0.0021	0.0021	0.0200	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Thallium (SPLP)	<0.0013	0.0013	0.0200	mg/L	10		02/11/25 0904	02/15/25 0318	KKJ
Method: EPA 7470A									
Mercury (SPLP)	<0.00050	0.00015	0.00050	mg/L	1		02/13/25 0809	02/13/25 1804	JAR
Method: EPA 9056A									
Fluoride (SPLP)	**0.4**	0.01	0.1	mg/L	1		02/06/25 0000	02/07/25 0451	MID

SPLP Extraction	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 1312/EPA 1312									
SPLP pH, Initial	**5.0**			pH	1		02/03/25 0813	02/06/25 1136	KKJ

CERTIFICATE OF ANALYSIS

1IA2132

Client Sample ID:	Pattison Sand Storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	Orr, Carl
Lab Sample ID:	1IA2132-01	**Collection Date:**	01/17/2025 11:30

SPLP Extraction	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SPLP pH, Final	**9.4**			pH	1		02/03/25 0813	02/06/25 1136	KKJ

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 7471A	1IA1533	1IA1533-BLK1	
		1IA1533-BS1	
		1IA2132-01	Pattison Sand Storage #1
		1IA1533-MS1	1IA1294-02
		1IA1533-MSD1	1IA1294-02
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 1311	1IB0006	1IB0006-BLK1	
		1IA2132-01	Pattison Sand Storage #1
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 1312	1IB0008	1IA2132-01	Pattison Sand Storage #1
		1IB0008-BLK1	
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 7196A	1IB0064	1IB0064-MSD1	1IA2132-01
		1IB0064-MS2	1IA2132-01
		1IB0064-MS1	1IA2132-01
		1IB0064-BS1	
		1IB0064-BLK1	
		1IB0064-MRL1	
		1IA2132-01	Pattison Sand Storage #1
		1IB0064-PS1	1IA2132-01
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
SM 2540 G-2011	1IB0251	1IA2132-01	Pattison Sand Storage #1
		1IB0251-DUP1	1IA2132-01
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 6010B	1IB0331	1IB0331-BLK1	
		1IB0331-BS1	
		1IB0331-MS1	1IA1957-01
		1IB0331-MSD1	1IA1957-01
		1IB0331-PS1	1IA1957-01
		1IA2132-01	Pattison Sand Storage #1
		1IA2132-01RE1	Pattison Sand Storage #1
EPA 6020A		1IB0331-BLK2	
		1IB0331-BS2	
		1IB0331-MS2	1IA1957-01
		1IB0331-MSD2	1IA1957-01
		1IB0331-PS2	1IA1957-01

EPA 6020A	1IB0331	1IA2132-01	Pattison Sand Storage #1

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IB0335	1IB0335-BLK1	
		1IB0335-BLK2	
		1IB0335-BLK3	
		1IB0335-BLK4	
		1IB0335-BS1	
		1IB0335-MS1	1IA1957-01
		1IB0335-MSD1	1IA1957-01
		1IB0335-PS1	1IA1957-01
		1IA2132-01	Pattison Sand Storage #1

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IB0347	1IB0347-BLK1	
		1IA2132-01	Pattison Sand Storage #1
		1IB0347-MS1	1IA2132-01
		1IB0347-MSD1	1IA2132-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IB0349	1IB0349-BLK1	
		1IA2132-01	Pattison Sand Storage #1
		1IB0349-MS1	1IA2132-01
		1IB0349-MSD1	1IA2132-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1IB0441	1IB0441-BLK1	
		1IB0441-BLK2	
		1IB0441-BS1	
		1IB0441-MS1	1IA1957-01
		1IB0441-MSD1	1IA1957-01
		1IB0441-PS1	1IA1957-01
		1IA2132-01	Pattison Sand Storage #1
		1IB0441-MSD1	1IA1957-01
		1IB0441-MS1	1IA1957-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1IB0574	1IB0574-BLK1	
		1IB0574-BLK2	
		1IB0574-BLK3	
		1IB0574-BLK4	
		1IB0574-BS1	
		1IB0574-MS1	1IA1957-01
		1IB0574-MSD1	1IA1957-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1IB0574	1IA2132-01	Pattison Sand Storage #1
EPA 7470A	1IB0580	1IB0580-BLK1	
		1IB0580-BLK2	
		1IB0580-BS1	
		1IB0580-MS1	1IA1957-01
		1IB0580-MSD1	1IA1957-01
		1IA2132-01	Pattison Sand Storage #1

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Conventional Chemistry Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0064 - Wet Chem Preparation - EPA 7196A										
Blank (1IB0064-BLK1)			Prepared: 02/03/25 15:10 Analyzed: 02/10/25 09:46							
Chromium, hexavalent	<5.0	5.0	mg/kg wet							
LCS (1IB0064-BS1)			Prepared: 02/03/25 15:10 Analyzed: 02/10/25 09:46							
Chromium, hexavalent	7.7	5.0	mg/kg wet	9.26		83.1	80-120			
Matrix Spike (1IB0064-MS1)	**Source: 1IA2132-01**		Prepared: 02/03/25 15:10 Analyzed: 02/10/25 09:46							
Chromium, hexavalent	20.1	19.6	mg/kg dry	18.5	ND	109	75-125			
Matrix Spike (1IB0064-MS2)	**Source: 1IA2132-01**		Prepared: 02/03/25 15:10 Analyzed: 02/10/25 09:46							
Chromium, hexavalent	21300	4890	mg/kg dry	48900	ND	43.5	75-125			M2
Matrix Spike Dup (1IB0064-MSD1)	**Source: 1IA2132-01**		Prepared: 02/03/25 15:10 Analyzed: 02/10/25 09:46							
Chromium, hexavalent	23.3	19.6	mg/kg dry	17.8	ND	131	75-125	14.7	30	M1
Post Spike (1IB0064-PS1)	**Source: 1IA2132-01**		Prepared: 02/03/25 15:10 Analyzed: 02/10/25 09:46							
Chromium, hexavalent	0.1		mg/L	0.100	0.009	97.4	85-115			
Batch 1IB0251 - Wet Chem Preparation - SM 2540 G-2011										
Duplicate (1IB0251-DUP1)	**Source: 1IA2132-01**		Prepared: 02/06/25 08:20 Analyzed: 02/10/25 10:13							
% Solids	25.7	0.10	%		25.6			0.518	11	

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IA1533 - EPA 7471A Hg Solid - EPA 7471A											
Blank (1IA1533-BLK1)				Prepared: 01/31/25 15:27 Analyzed: 02/04/25 10:45							
Mercury, total	<0.02	0.02	0.05	mg/kg							
LCS (1IA1533-BS1)				Prepared: 01/31/25 15:27 Analyzed: 02/04/25 10:47							
Mercury, total	0.19	0.02	0.05	mg/kg	0.200		92.7	80-120			

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IA1533 - EPA 7471A Hg Solid - EPA 7471A											
Matrix Spike (1IA1533-MS1)		**Source: 1IA1294-02**		Prepared: 01/31/25 15:27 Analyzed: 02/04/25 12:08							
Mercury, total	0.30	0.02	0.05	mg/kg	0.245	ND	122	80-120			M1
Matrix Spike Dup (1IA1533-MSD1)		**Source: 1IA1294-02**		Prepared: 01/31/25 15:27 Analyzed: 02/04/25 12:10							
Mercury, total	0.30	0.02	0.05	mg/kg	0.234	ND	128	80-120	0.276	20	M1
Batch 1IB0331 - EPA 3050B Digestion - EPA 6010B											
Blank (1IB0331-BLK1)				Prepared: 02/07/25 14:36 Analyzed: 02/11/25 00:53							
Barium, total	<0.15	0.15	1.00	mg/kg							
Boron, total	<5.7	5.7	10.0	mg/kg							
Cadmium, total	0.2	0.2	1.0	mg/kg							J
Chromium, total	<0.9	0.9	3.0	mg/kg							
Copper, total	<0.9	0.9	3.0	mg/kg							
Lead, total	<2.10	2.10	5.00	mg/kg							
Lithium, total	<0.8	0.8	5	mg/kg							
Manganese, total	<0.5	0.5	1.0	mg/kg							
Molybdenum, total	<0.3	0.3	1.0	mg/kg							
Nickel, total	<0.7	0.7	5.0	mg/kg							
Selenium, total	<1.7	1.7	3.0	mg/kg							
Silver, total	<0.2	0.2	1.0	mg/kg							
Vanadium, total	<0.365	0.365	5.00	mg/kg							
Zinc, total	<2.1	2.1	3.0	mg/kg							
Blank (1IB0331-BLK2)				Prepared: 02/07/25 14:36 Analyzed: 02/15/25 03:55							
Antimony, total	<0.33	0.33	1.00	mg/kg							
Arsenic, total	<0.36	0.36	1.00	mg/kg							
Beryllium, total	<0.02	0.02	1.0	mg/kg							
Cobalt, total	<1.00		1.00	mg/kg							
Thallium, total	<0.2	0.2	0.5	mg/kg							
LCS (1IB0331-BS1)				Prepared: 02/07/25 14:36 Analyzed: 02/11/25 00:58							
Barium, total	57.1	0.15	1.00	mg/kg	60.0		95.1	80-120			
Boron, total	57.6	5.7	10.0	mg/kg	60.0		96.0	80-120			
Cadmium, total	56.5	0.2	1.0	mg/kg	60.0		94.1	80-120			
Chromium, total	57.7	0.9	3.0	mg/kg	60.0		96.2	80-120			
Copper, total	58.5	0.9	3.0	mg/kg	60.0		97.5	80-120			
Lead, total	53.6	2.10	5.00	mg/kg	60.0		89.4	80-120			
Lithium, total	64.1	0.8	5	mg/kg	60.0		107	80-120			
Manganese, total	61.6	0.5	1.0	mg/kg	60.0		103	80-120			
Molybdenum, total	55.7	0.3	1.0	mg/kg	60.0		92.8	80-120			
Nickel, total	55.9	0.7	5.0	mg/kg	60.0		93.2	80-120			
Selenium, total	49.6	1.7	3.0	mg/kg	60.0		82.6	80-120			
Silver, total	57.9	0.2	1.0	mg/kg	60.0		96.5	80-120			
Vanadium, total	61.5	0.365	5.00	mg/kg	60.0		103	80-120			
Zinc, total	50.3	2.1	3.0	mg/kg	60.0		83.9	80-120			
LCS (1IB0331-BS2)				Prepared: 02/07/25 14:36 Analyzed: 02/15/25 04:01							

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0331 - EPA 3050B Digestion - EPA 6020A											
LCS (1IB0331-BS2)				Prepared: 02/07/25 14:36 Analyzed: 02/15/25 04:01							
Antimony, total	56.7	1.64	5.00	mg/kg	60.0		94.4	80-120			
Arsenic, total	58.8	1.80	5.00	mg/kg	60.0		98.0	80-120			
Beryllium, total	56.1	0.1	5.0	mg/kg	60.0		93.4	80-120			
Cobalt, total	61.7		5.00	mg/kg	60.0		103	80-120			
Thallium, total	57.1	1.1	2.5	mg/kg	60.0		95.2	80-120			
Matrix Spike (1IB0331-MS1)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/11/25 01:14							
Barium, total	1030	0.15	1.00	mg/kg	57.3	1030	NR	75-125			M6
Boron, total	208	5.7	10.0	mg/kg	57.3	153	96.3	75-125			
Cadmium, total	54.2	0.2	1.0	mg/kg	57.3	0.9	93.0	75-125			
Chromium, total	70.3	0.9	3.0	mg/kg	57.3	22.8	83.0	75-125			
Copper, total	139	0.9	3.0	mg/kg	57.3	91.9	81.5	75-125			
Lead, total	54.3	2.10	5.00	mg/kg	57.3	10.7	76.1	75-125			
Lithium, total	70.2	0.8	5	mg/kg	57.3	12.5	101	75-125			
Manganese, total	328	0.5	1.0	mg/kg	57.3	277	89.0	75-125			
Molybdenum, total	51.3	0.3	1.0	mg/kg	57.3	5.9	79.2	75-125			
Nickel, total	54.8	0.7	5.0	mg/kg	57.3	9.79	78.6	75-125			
Selenium, total	44.5	1.7	3.0	mg/kg	57.3	2.7	73.0	75-125			M2
Silver, total	50.3	0.2	1.0	mg/kg	57.3	ND	87.9	75-125			
Vanadium, total	71.4	0.365	5.00	mg/kg	57.3	18.1	93.2	75-125			
Zinc, total	226	2.1	3.0	mg/kg	57.3	197	51.1	75-125			M6
Matrix Spike (1IB0331-MS2)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/15/25 04:25							
Antimony, total	87.6	1.64	5.00	mg/kg	57.3	32.7	95.9	75-125			
Arsenic, total	56.9	1.80	5.00	mg/kg	57.3	4.28	91.9	75-125			
Beryllium, total	50.4	0.1	5.0	mg/kg	57.3	0.3	87.6	75-125			
Cobalt, total	62.9		5.00	mg/kg	57.3	6.51	98.5	75-125			
Thallium, total	52.7	1.1	2.5	mg/kg	57.3	ND	92.0	75-125			
Matrix Spike Dup (1IB0331-MSD1)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/11/25 01:24							
Barium, total	1150	0.15	1.00	mg/kg	58.6	1030	197	75-125	11.0	20	M6
Boron, total	219	5.7	10.0	mg/kg	58.6	153	113	75-125	5.11	20	
Cadmium, total	59.7	0.2	1.0	mg/kg	58.6	0.9	100	75-125	9.74	20	
Chromium, total	76.4	0.9	3.0	mg/kg	58.6	22.8	91.5	75-125	8.25	20	
Copper, total	154	0.9	3.0	mg/kg	58.6	91.9	106	75-125	10.6	20	
Lead, total	59.5	2.10	5.00	mg/kg	58.6	10.7	83.3	75-125	9.16	20	
Lithium, total	76.7	0.8	5	mg/kg	58.6	12.5	109	75-125	8.78	20	
Manganese, total	356	0.5	1.0	mg/kg	58.6	277	135	75-125	8.20	20	M6
Molybdenum, total	56.4	0.3	1.0	mg/kg	58.6	5.9	86.2	75-125	9.63	20	
Nickel, total	59.8	0.7	5.0	mg/kg	58.6	9.79	85.3	75-125	8.67	20	
Selenium, total	51.9	1.7	3.0	mg/kg	58.6	2.7	83.9	75-125	15.3	20	
Silver, total	55.3	0.2	1.0	mg/kg	58.6	ND	94.3	75-125	9.39	20	
Vanadium, total	77.8	0.365	5.00	mg/kg	58.6	18.1	102	75-125	8.56	20	
Zinc, total	248	2.1	3.0	mg/kg	58.6	197	87.5	75-125	9.30	20	
Matrix Spike Dup (1IB0331-MSD2)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/15/25 04:31							
Antimony, total	88.2	1.64	5.00	mg/kg	58.6	32.7	94.6	75-125	0.610	20	

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0331 - EPA 3050B Digestion - EPA 6020A											
Matrix Spike Dup (1IB0331-MSD2)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/15/25 04:31							
Arsenic, total	56.9	1.80	5.00	mg/kg	58.6	4.28	89.8	75-125	0.0321	20	
Beryllium, total	50.8	0.1	5.0	mg/kg	58.6	0.3	86.2	75-125	0.638	20	
Cobalt, total	63.0		5.00	mg/kg	58.6	6.51	96.4	75-125	0.172	20	
Thallium, total	53.4	1.1	2.5	mg/kg	58.6	ND	91.2	75-125	1.36	20	
Post Spike (1IB0331-PS1)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/11/25 01:35							
Barium, total	15.6			mg/L	4.00	10.7	123	80-120			M6
Boron, total	5.89			mg/L	4.00	1.58	108	80-120			
Cadmium, total	4.0			mg/L	4.00	0.009	101	80-120			
Chromium, total	4.1			mg/L	4.00	0.2	95.9	80-120			
Copper, total	4.77			mg/L	4.00	0.952	95.5	80-120			
Lead, total	3.70			mg/L	4.00	0.11	89.8	80-120			
Lithium, total	4.31			mg/L	4.00	0.129	105	80-120			
Manganese, total	7.07			mg/L	4.00	2.87	105	80-120			
Molybdenum, total	3.8			mg/L	4.00	0.06	93.3	80-120			
Nickel, total	3.66			mg/L	4.00	0.101	89.0	80-120			
Selenium, total	3.7			mg/L	4.00	0.03	92.9	80-120			
Silver, total	4.18			mg/L	4.00	-0.0375	105	80-120			
Vanadium, total	4.42			mg/L	4.00	0.187	106	80-120			
Zinc, total	5.81			mg/L	4.00	2.04	94.2	80-120			
Post Spike (1IB0331-PS2)		**Source: 1IA1957-01**		Prepared: 02/07/25 14:36 Analyzed: 02/15/25 04:38							
Antimony, total	0.50			mg/L	0.200	0.34	82.1	80-120			
Arsenic, total	0.24			mg/L	0.200	0.04	96.4	80-120			
Beryllium, total	0.2			mg/L	0.200	0.003	87.6	80-120			
Cobalt, total	0.28			mg/L	0.200	0.07	106	80-120			
Thallium, total	0.2			mg/L	0.200	0.002	89.5	80-120			
Batch 1IB0349 - General Prep HPLC/IC - EPA 9056A											
Blank (1IB0349-BLK1)				Prepared: 02/06/25 00:00 Analyzed: 02/07/25 03:02							
Fluoride	<0.2	0.2	10.0	mg/kg							
Matrix Spike (1IB0349-MS1)		**Source: 1IA2132-01**		Prepared: 02/06/25 00:00 Analyzed: 02/07/25 03:38							
Fluoride	146.7	0.2	10.0	mg/kg	129	13.88	103	77-121			
Matrix Spike Dup (1IB0349-MSD1)		**Source: 1IA2132-01**		Prepared: 02/06/25 00:00 Analyzed: 02/07/25 03:56							
Fluoride	145.3	0.2	10.0	mg/kg	129	13.88	102	77-121	0.958	10	

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0335 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IB0335-BLK1)			Prepared: 02/07/25 14:48 Analyzed: 02/10/25 23:14							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0335 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IB0335-BLK1)			Prepared: 02/07/25 14:48 Analyzed: 02/10/25 23:14							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IB0335-BLK2)			Prepared: 02/07/25 14:48 Analyzed: 02/10/25 23:21							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IB0335-BLK3)			Prepared: 02/07/25 14:48 Analyzed: 02/10/25 23:31							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IB0335-BLK4)			Prepared: 02/07/25 14:48 Analyzed: 02/10/25 23:36							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	0.0941	0.010	mg/L							B
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
LCS (1IB0335-BS1)			Prepared: 02/07/25 14:48 Analyzed: 02/10/25 23:46							
Arsenic (TCLP)	0.179	0.030	mg/L	0.200		89.4	80-120			
Barium (TCLP)	0.197	0.010	mg/L	0.200		98.7	80-120			
Cadmium (TCLP)	0.184	0.005	mg/L	0.200		91.8	80-120			
Chromium (TCLP)	0.186	0.010	mg/L	0.200		93.0	80-120			
Lead (TCLP)	0.184	0.020	mg/L	0.200		91.8	80-120			
Selenium (TCLP)	0.171	0.050	mg/L	0.200		85.6	80-120			
Silver (TCLP)	0.188	0.010	mg/L	0.200		94.1	80-120			
Matrix Spike (1IB0335-MS1)	**Source: 1IA1957-01**		Prepared: 02/07/25 14:48 Analyzed: 02/11/25 00:01							
Arsenic (TCLP)	0.136	0.030	mg/L	0.200	ND	68.0	70-130			M2
Barium (TCLP)	7.99	0.010	mg/L	0.200	7.57	213	70-130			M6
Cadmium (TCLP)	0.189	0.005	mg/L	0.200	ND	94.6	70-130			
Chromium (TCLP)	0.180	0.010	mg/L	0.200	ND	90.0	70-130			

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0335 - EPA 3010A TCLP ICP - EPA 6010B										
Matrix Spike (1IB0335-MS1)		**Source: 1IA1957-01**	Prepared: 02/07/25 14:48 Analyzed: 02/11/25 00:01							
Lead (TCLP)	0.178	0.020	mg/L	0.200	0.016	80.8	70-130			
Selenium (TCLP)	0.134	0.050	mg/L	0.200	ND	66.8	70-130			M2
Silver (TCLP)	0.199	0.010	mg/L	0.200	ND	99.3	70-130			
Matrix Spike Dup (1IB0335-MSD1)		**Source: 1IA1957-01**	Prepared: 02/07/25 14:48 Analyzed: 02/11/25 00:11							
Arsenic (TCLP)	0.142	0.030	mg/L	0.200	ND	71.1	70-130	4.53	20	
Barium (TCLP)	7.77	0.010	mg/L	0.200	7.57	98.5	70-130	2.90	20	
Cadmium (TCLP)	0.189	0.005	mg/L	0.200	ND	94.5	70-130	0.123	20	
Chromium (TCLP)	0.179	0.010	mg/L	0.200	ND	89.7	70-130	0.304	20	
Lead (TCLP)	0.175	0.020	mg/L	0.200	0.016	79.4	70-130	1.56	20	
Selenium (TCLP)	0.119	0.050	mg/L	0.200	ND	59.7	70-130	11.2	20	M2
Silver (TCLP)	0.198	0.010	mg/L	0.200	ND	99.2	70-130	0.0157	20	
Post Spike (1IB0335-PS1)		**Source: 1IA1957-01**	Prepared: 02/07/25 14:48 Analyzed: 02/11/25 00:20							
Arsenic (TCLP)	0.735		mg/L	0.800	-0.0334	91.9	75-125			
Barium (TCLP)	8.74		mg/L	0.800	7.57	147	75-125			M6
Cadmium (TCLP)	0.801		mg/L	0.800	0.002	99.9	75-125			
Chromium (TCLP)	0.744		mg/L	0.800	-0.00341	93.0	75-125			
Lead (TCLP)	0.750		mg/L	0.800	0.016	91.7	75-125			
Selenium (TCLP)	0.760		mg/L	0.800	-0.0420	95.0	75-125			
Silver (TCLP)	0.848		mg/L	0.800	-0.00272	106	75-125			
Batch 1IB0574 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IB0574-BLK1)			Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:06							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IB0574-BLK2)			Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:09							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IB0574-BLK3)			Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:11							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IB0574-BLK4)			Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:13							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
LCS (1IB0574-BS1)			Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:16							
Mercury (TCLP)	0.00246	0.00050	mg/L	0.00250		98.3	79-116			
Matrix Spike (1IB0574-MS1)		**Source: 1IA1957-01**	Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:20							
Mercury (TCLP)	0.0521	0.0100	mg/L	0.0500	ND	104	56-137			
Matrix Spike Dup (1IB0574-MSD1)		**Source: 1IA1957-01**	Prepared: 02/13/25 08:00 Analyzed: 02/13/25 17:27							
Mercury (TCLP)	0.0518	0.0100	mg/L	0.0500	ND	104	56-137	0.574	13	

TCLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0006 - EPA 1311 - EPA 1311										
Blank (1IB0006-BLK1)			Prepared: 02/03/25 08:11 Analyzed: 02/04/25 12:29							

TCLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0006 - EPA 1311 - EPA 1311										
Blank (1IB0006-BLK1)			Prepared: 02/03/25 08:11 Analyzed: 02/04/25 12:29							
TCLP pH, Initial	4.9		pH							
TCLP pH, Final	4.8		pH							

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0347 - General Prep HPLC/IC - EPA 9056A										
Blank (1IB0347-BLK1)			Prepared: 02/06/25 00:00 Analyzed: 02/07/25 04:32							
Fluoride (SPLP)	<0.1	0.1	mg/L							
Matrix Spike (1IB0347-MS1)	**Source: 1IA2132-01**		Prepared: 02/06/25 00:00 Analyzed: 02/07/25 05:09							
Fluoride (SPLP)	1.68	0.1	mg/L	1.30	0.41	98.1	77-121			
Matrix Spike Dup (1IB0347-MSD1)	**Source: 1IA2132-01**		Prepared: 02/06/25 00:00 Analyzed: 02/07/25 05:27							
Fluoride (SPLP)	1.69	0.1	mg/L	1.30	0.41	98.8	77-121	0.533	10	
Batch 1IB0441 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1IB0441-BLK1)			Prepared: 02/11/25 09:04 Analyzed: 02/15/25 02:22							
Antimony (SPLP)	<0.0009	0.0009	0.0100 mg/L							
Arsenic (SPLP)	<0.0032	0.0032	0.0200 mg/L							
Barium (SPLP)	<0.0059	0.0059	0.0200 mg/L							
Beryllium (SPLP)	<0.0005	0.0005	0.0200 mg/L							
Cadmium (SPLP)	<0.0009	0.0009	0.0100 mg/L							
Chromium (SPLP)	<0.0085	0.0085	0.0500 mg/L							
Copper (SPLP)	0.0056	0.0043	0.0200 mg/L							J
Lead (SPLP)	<0.0023	0.0023	0.0200 mg/L							
Selenium (SPLP)	<0.0021	0.0021	0.0200 mg/L							
Thallium (SPLP)	<0.0013	0.0013	0.0200 mg/L							
Blank (1IB0441-BLK2)			Prepared: 02/11/25 09:04 Analyzed: 02/15/25 02:29							
Antimony (SPLP)	<0.0009	0.0009	0.0100 mg/L							
Arsenic (SPLP)	<0.0032	0.0032	0.0200 mg/L							
Barium (SPLP)	<0.0059	0.0059	0.0200 mg/L							
Beryllium (SPLP)	<0.0005	0.0005	0.0200 mg/L							
Cadmium (SPLP)	<0.0009	0.0009	0.0100 mg/L							
Chromium (SPLP)	<0.0085	0.0085	0.0500 mg/L							
Copper (SPLP)	0.0059	0.0043	0.0200 mg/L							J
Lead (SPLP)	<0.0023	0.0023	0.0200 mg/L							
Selenium (SPLP)	<0.0021	0.0021	0.0200 mg/L							
Thallium (SPLP)	<0.0013	0.0013	0.0200 mg/L							
LCS (1IB0441-BS1)			Prepared: 02/11/25 09:04 Analyzed: 02/15/25 02:35							
Antimony (SPLP)	0.0928	0.0009	0.0100 mg/L	0.100		92.8	80-120			
Arsenic (SPLP)	0.0955	0.0032	0.0200 mg/L	0.100		95.5	80-120			
Barium (SPLP)	0.105	0.0059	0.0200 mg/L	0.100		105	80-120			
Beryllium (SPLP)	0.0943	0.0005	0.0200 mg/L	0.100		94.3	80-120			

Determination of SPLP Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0441 - EPA 3005A Total Recoverable Metals - EPA 6020A											
LCS (1IB0441-BS1)					Prepared: 02/11/25 09:04 Analyzed: 02/15/25 02:35						
Cadmium (SPLP)	0.0986	0.0009	0.0100	mg/L	0.100		98.6	80-120			
Chromium (SPLP)	0.0972	0.0085	0.0500	mg/L	0.100		97.2	80-120			
Copper (SPLP)	0.106	0.0043	0.0200	mg/L	0.100		106	80-120			
Lead (SPLP)	0.0951	0.0023	0.0200	mg/L	0.100		95.1	80-120			
Selenium (SPLP)	0.0924	0.0021	0.0200	mg/L	0.100		92.4	80-120			
Thallium (SPLP)	0.0942	0.0013	0.0200	mg/L	0.100		94.2	80-120			
Matrix Spike (1IB0441-MS1)		**Source: 1IA1957-01**			Prepared: 02/11/25 09:04 Analyzed: 02/15/25 02:47						
Antimony (SPLP)	0.106	0.0009	0.0100	mg/L	0.100	0.0102	95.5	75-125			
Arsenic (SPLP)	0.103	0.0032	0.0200	mg/L	0.100	ND	103	75-125			
Barium (SPLP)	7.38	0.0059	0.0200	mg/L	0.100	6.81	573	75-125			M6
Beryllium (SPLP)	0.0887	0.0005	0.0200	mg/L	0.100	ND	88.7	75-125			
Cadmium (SPLP)	0.0961	0.0009	0.0100	mg/L	0.100	ND	96.1	75-125			
Chromium (SPLP)	0.0963	0.0085	0.0500	mg/L	0.100	ND	96.3	75-125			
Copper (SPLP)	0.0991	0.0043	0.0200	mg/L	0.100	0.0079	91.3	70-130			
Lead (SPLP)	0.0916	0.0023	0.0200	mg/L	0.100	0.0035	88.1	70-130			
Selenium (SPLP)	0.0940	0.0021	0.0200	mg/L	0.100	ND	94.0	70-130			
Thallium (SPLP)	0.0899	0.0013	0.0200	mg/L	0.100	ND	89.9	75-125			
Matrix Spike Dup (1IB0441-MSD1)		**Source: 1IA1957-01**			Prepared: 02/11/25 09:04 Analyzed: 02/15/25 02:53						
Antimony (SPLP)	0.100	0.0009	0.0100	mg/L	0.100	0.0102	90.0	75-125	5.35	20	
Arsenic (SPLP)	0.0971	0.0032	0.0200	mg/L	0.100	ND	97.1	75-125	5.70	20	
Barium (SPLP)	7.29	0.0059	0.0200	mg/L	0.100	6.81	481	75-125	1.25	20	M6
Beryllium (SPLP)	0.0845	0.0005	0.0200	mg/L	0.100	ND	84.5	75-125	4.84	20	
Cadmium (SPLP)	0.0903	0.0009	0.0100	mg/L	0.100	ND	90.3	75-125	6.22	20	
Chromium (SPLP)	0.0912	0.0085	0.0500	mg/L	0.100	ND	91.2	75-125	5.49	20	
Copper (SPLP)	0.0947	0.0043	0.0200	mg/L	0.100	0.0079	86.8	70-130	4.63	20	
Lead (SPLP)	0.0881	0.0023	0.0200	mg/L	0.100	0.0035	84.6	70-130	3.94	20	
Selenium (SPLP)	0.0876	0.0021	0.0200	mg/L	0.100	ND	87.6	70-130	7.06	20	
Thallium (SPLP)	0.0862	0.0013	0.0200	mg/L	0.100	ND	86.2	75-125	4.14	20	
Post Spike (1IB0441-PS1)		**Source: 1IA1957-01**			Prepared: 02/11/25 09:04 Analyzed: 02/15/25 03:11						
Antimony (SPLP)	0.192			mg/L	0.200	0.0100	90.9	75-125			
Arsenic (SPLP)	0.195			mg/L	0.200	0.0006	97.3	80-120			
Barium (SPLP)	6.89			mg/L	0.200	6.67	108	80-120			
Beryllium (SPLP)	0.169			mg/L	0.200	-0.0004	84.5	80-120			
Cadmium (SPLP)	0.182			mg/L	0.200	-0.000007	91.1	80-120			
Chromium (SPLP)	0.181			mg/L	0.200	0.0007	90.3	80-120			
Copper (SPLP)	0.187			mg/L	0.200	0.0077	89.6	75-125			
Lead (SPLP)	0.172			mg/L	0.200	0.0034	84.2	75-125			
Selenium (SPLP)	0.179			mg/L	0.200	-0.0013	89.5	75-125			
Thallium (SPLP)	0.170			mg/L	0.200	0.0001	85.1	80-120			
Batch 1IB0580 - EPA 7470A Hg Water - EPA 7470A											
Blank (1IB0580-BLK1)					Prepared: 02/13/25 08:09 Analyzed: 02/13/25 17:45						

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0580 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IB0580-BLK1)				Prepared: 02/13/25 08:09 Analyzed: 02/13/25 17:45						
Mercury (SPLP)	<0.00050	0.00050	mg/L							
Blank (1IB0580-BLK2)				Prepared: 02/13/25 08:09 Analyzed: 02/13/25 17:48						
Mercury (SPLP)	<0.00050	0.00050	mg/L							
LCS (1IB0580-BS1)				Prepared: 02/13/25 08:09 Analyzed: 02/13/25 17:54						
Mercury (SPLP)	0.00242	0.00050	mg/L	0.00250		96.7	79-116			
Matrix Spike (1IB0580-MS1)		**Source: 1IA1957-01**		Prepared: 02/13/25 08:09 Analyzed: 02/13/25 17:59						
Mercury (SPLP)	0.00227	0.00050	mg/L	0.00250	ND	90.7	56-137			
Matrix Spike Dup (1IB0580-MSD1)		**Source: 1IA1957-01**		Prepared: 02/13/25 08:09 Analyzed: 02/13/25 18:01						
Mercury (SPLP)	0.00243	0.00050	mg/L	0.00250	ND	97.3	56-137	7.06	13	

SPLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IB0008 - EPA 1312 - EPA 1312										
Blank (1IB0008-BLK1)				Prepared: 02/03/25 08:18 Analyzed: 02/06/25 11:36						
SPLP pH, Initial	5.0		pH							
SPLP pH, Final	9.1		pH							

Definitions

B:	The target analyte was detected in the blank at or above the method acceptance criteria.
H1:	Sample was received past holding time.
J:	Estimated value. The analyte concentration is less than the reporting/quantitation limit.
M1:	Matrix spike recovery is above acceptance limits.
M2:	Matrix spike recovery is below acceptance limits.
M6:	Matrix spike recovery is outside of acceptance limits. The analyte concentration is greater than 4X the spiking level.
MDL:	Minimum Detection Limit
RL:	Reporting Limit
RPD:	Relative Percent Difference

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 14.4°C

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	No		

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Tiffannie Clymer
Customer Relationship Specialist
02/17/25 16:31

CHAIN

Keystone LABORATORIES, INC.
600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

1 I A 2 1 3 2

Pattison Sand Company, LLC
PM: Heather Tisdale

205 E Van Buren St
Centerville, IA. 52544
Phone: 641-437-7023

PRINT OR TYPE INFO BELOW:	REPORT TO:	BILL TO:
SAMPLER: Carl Orr	NAME:	NAME:
SITE NAME: Pattison Sand Co LLC	CO. NAME:	CO. NAME:
ADDRESS 23656 Great River Rd	ADDRESS:	ADDRESS:
CITY/ST/ZIP Gaynaville, IA 52049	CITY/ST/ZIP:	CITY/ST/ZIP:
PHONE: 563-964-2560	PHONE:	PHONE:
	Email:	Email:

CLIENT SAMPLE #	DATE	TIME		# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: TCLP EPA 1311	SPLP EPA 1312	Total Metals	EPA 6010, 7060 7061, 7471, 7841	VOC	SVOC	LAB USE ONLY: Sample Condition	Sample #
Pattison Sand Storage #1	1-17-25	11:30	Pattison Sand Storage #1	1		G	✓	✓	✓					

LAB USE ONLY
Wk Order #: IIA2132
Short Hold:
Rush:
Temp. oC 14.4 no ice

Relinquished by: (Signature)	Date: [redacted] 1-17-25	Received by: (Signature)	Date:	Remarks:
Carl Orr	Time: [redacted] 11:30		Time:	
Relinquished by: (Signature)	Date:	Received for Lab by: (Signature)	Date: 1/31/25	
	Time:	Amy Hochstetler	Time: 10:20	

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.030	mg/L	☐	Benzene	0.5 mg/L	0	mg/L
☒	Barium	100.0 mg/L	0.129	mg/L	☐	Carbon tetrachloride	0.5 mg/L	0	mg/L
☒	Cadmium	1.0 mg/L	<0.005	mg/L	☐	Chlorobenzene	100.0 mg/L	0	mg/L
☒	Chromium	5.0 mg/L	<0.010	mg/L	☐	Chloroform	6.0 mg/L	0	mg/L
☒	Lead	5.0 mg/L	<0.020	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	0	mg/L
☒	Mercury	0.2 mg/L	<0.010 0	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	0	mg/L
☒	Selenium	1.0 mg/L	0.141	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	0	mg/L
☒	Silver	5.0 mg/L	<0.010	mg/L	☐	Tetrachloroethylene	0.7 mg/L	0	mg/L
					☐	Trichloroethylene	0.5 mg/L	0	mg/L
					☐	Vinyl chloride	0.2 mg/L	0	mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L	0	mg/L	☐	o-Cresol	200.0 mg/L	0	mg/L
☐	Endrin	0.02 mg/L	0	mg/L	☐	m-Cresol	200.0 mg/L	0	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	0	mg/L	☐	p-Cresol	200.0 mg/L	0	mg/L
☐	Lindane	0.4 mg/L	0	mg/L	☐	Cresol	200.0 mg/L	0	mg/L
☐	Methoxychlor	10.0 mg/L	0	mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	0	mg/L
☐	Toxaphene	0.5 mg/L	0	mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	0	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	0	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	0	mg/L
					☐	Hexachloroethane	3.0 mg/L	0	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	0	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	0	mg/L
☐	2,4-D	10.0 mg/L	0	mg/L	☐	Pyridine	5.0 mg/L	0	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L	0	mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	0	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	0	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 2-24-25

Printed Name: Carl Orr **Title:** Environmental Compliance Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 22 -BUD- 09 - 06

DNR Certified Lab: KEYSTONE LABS

Lab Report Date: 1/17/2025

By-Product Generator: Pattison Company

City: CLAYTON State: IA Zip: 52049

By-Product Name: Pattison Sand Storage 1

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.0009 mg/L	31 mg/kg	<0.18	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0054 mg/L	17 mg/kg	6.43	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.0059 mg/L	15,000 mg/kg	8.90	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0005 mg/L	110 mg/kg	0.02	mg/kg
☒	Boron				16,000 mg/kg	3.2	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.0009 mg/L	70 mg/kg	<0.1	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.0085 mg/L	**(Total)	9.8	mg/kg
					(Hexavalent - VI) 210 mg/kg	<19.6	mg/kg
					(Trivalent - III) 97,000 mg/kg	9.79	mg/kg
☒	Cobalt				23 mg/kg	0.61	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.0094 mg/L	15,000 mg/kg	5.2	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.4 mg/L	4,700 mg/kg	13.9	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0023 mg/L	400 mg/kg	15.3	mg/kg
☒	Lithium				160 mg/kg	0.8	mg/kg
☒	Manganese				10,000 mg/kg	39.5	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.00050 mg/L	23 mg/kg	<0.02	mg/kg
☒	Molybdenum				390 mg/kg	1.4	mg/kg
☒	Nickel				1,500 mg/kg	1.7	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.0021 mg/L	390 mg/kg	5.7	mg/kg
☒	Silver				370 mg/kg	<0.1	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.0013 mg/L	0.78 mg/kg	0.3	mg/kg
☒	Vanadium				350 mg/kg	5.64	mg/kg
☒	Zinc				23,000 mg/kg	12.8	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1ID2039

Project Description

Beneficial Use

For:

Carl Orr

Pattison Sand Company, LLC

22656 Great River Road

Garnavillo, IA 52049

Heather Tisdale

Customer Relationship Specialist

Monday, June 23, 2025

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

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Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1ID2039

Revised Report: Amended in response to client complaint

Pattison Sand Company, LLC

Carl Orr
22656 Great River Road
Garnavillo, IA 52049

Project Name: Beneficial Use

Project / PO Number: N/A
Received: 04/23/2025
Reported: 06/23/2025

Case Narrative

CASE NARRATIVE

The samples received on 04/23/25 10:30 for Work Order 1ID2039 were contained in client supplied containers.

Amended Report June 23, 2025: The tl-t-6010 originally reported for sample 1ID2039-01 did not meet the client's specified limits due to an analytical error. The corrected result is included in this report.

Tammy McDermott
Quality Assurance Specialist

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Storage #1	1ID2039-01	Bulk-Solid	GRAB		04/23/25 00:00	04/23/25 10:30

Analytical Testing Parameters

Client Sample ID: Storage #1
Sample Matrix: Bulk-Solid
Lab Sample ID: 1ID2039-01
Collected By: Orr, Carl
Collection Date: 04/23/2025

Determination of Total Metals		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: [Calc]									
Chromium, trivalent	**8.32**		2.37	8.00	mg/kg		05/02/25 1017	05/07/25 1447	JAR

Determination of Total Metals		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: Calculation									
Chromium, trivalent	**8.32**		0.862	3.00	mg/kg		05/02/25 1017	05/07/25 1447	JAR
Method: EPA 3050B/EPA 6010B									
Antimony, total		<5.0	1.6	5.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Arsenic, total	**7.4**		1.3	5.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Barium, total	**4.54**		0.43	1.00	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Beryllium, total		<1.0	0.2	1.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Boron, total		<5.7	5.7	10.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Cadmium, total		<0.5	0.5	1.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Chromium, total	**8.3**		0.9	3.0	mg/kg	**M1**	05/02/25 0719	05/03/25 0717	JAR
Cobalt, total		<1.0	0.4	1.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Copper, total	**4.2**		0.9	3.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Lead, total	**14.0**		2.10	5.00	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Lithium, total		<0.8	0.8	5	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Manganese, total	**9.0**		0.5	1.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Molybdenum, total	**1.4**		0.7	1.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Nickel, total	**2.8**		0.7	5.0	mg/kg	**J**	05/02/25 0719	05/03/25 0717	JAR
Selenium, total	**4.3**		1.7	3.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Silver, total	**0.3**		0.2	1.0	mg/kg	**J**	05/02/25 0719	05/03/25 0717	JAR
Thallium, total	**0.9**		0.1	0.6	mg/kg		06/13/25 1523	06/17/25 1618	RVV
Vanadium, total	**3.94**		0.365	5.00	mg/kg	**J**	05/02/25 0719	05/03/25 0717	JAR
Zinc, total	**7.6**		2.1	3.0	mg/kg		05/02/25 0719	05/03/25 0717	JAR
Method: EPA 7196A									
Chromium, hexavalent		<1.5	1.5	5.0	mg/kg		05/02/25 1017	05/07/25 1447	KKJ
Method: EPA 7471A									
Mercury, total		<0.02	0.02	0.05	mg/kg		05/02/25 1106	05/02/25 1602	RVV
Method: EPA 9056A									
Fluoride	**5.5**		0.2	10.0	mg/kg	**J**		05/13/25 0026	MID

Determination of TCLP Metals		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3010A/EPA 6010B									
Antimony (TCLP)		<0.050	0.005	0.050	mg/L		05/02/25 1717	05/06/25 0723	JAR
Arsenic (TCLP)	**0.038**		0.024	0.030	mg/L		05/02/25 1717	05/06/25 0723	JAR
Barium (TCLP)	**0.067**		0.002	0.010	mg/L		05/02/25 1717	05/06/25 0723	JAR
Cadmium (TCLP)		<0.005	0.003	0.005	mg/L		05/02/25 1717	05/06/25 0723	JAR
Chromium (TCLP)		<0.010	0.005	0.010	mg/L		05/02/25 1717	05/06/25 0723	JAR
Lead (TCLP)		<0.020	0.013	0.020	mg/L		05/02/25 1717	05/06/25 0723	JAR
Selenium (TCLP)	**0.203**		0.032	0.050	mg/L		05/02/25 1717	05/06/25 0723	JAR
Silver (TCLP)		<0.010	0.004	0.010	mg/L		05/02/25 1717	05/06/25 0723	JAR
Method: EPA 7470A									

CERTIFICATE OF ANALYSIS

1ID2039

Client Sample ID:	Storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	Orr, Carl
Lab Sample ID:	1ID2039-01	**Collection Date:**	04/23/2025

Determination of TCLP Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Mercury (TCLP)	<0.00050	0.00012	0.00050	mg/L		05/08/25 0909	05/09/25 1347	JAR

Determination of TCLP Volatile Organic Compounds	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 1311/EPA 5030B/EPA 8260D								
Vinyl Chloride (TCLP)	<0.020	0.001	0.020	mg/L		05/05/25 0000	05/05/25 1702	RAF
1,1-Dichloroethylene (TCLP)	<0.070	0.001	0.070	mg/L		05/05/25 0000	05/05/25 1702	RAF
2-Butanone (MEK) (TCLP)	<20.0	0.563	20.0	mg/L		05/05/25 0000	05/05/25 1702	RAF
Chloroform (TCLP)	<0.600	0.001	0.600	mg/L		05/05/25 0000	05/05/25 1702	RAF
Carbon Tetrachloride (TCLP)	<0.050	0.001	0.050	mg/L		05/05/25 0000	05/05/25 1702	RAF
Benzene (TCLP)	<0.050	0.001	0.050	mg/L		05/05/25 0000	05/05/25 1702	RAF
1,2-Dichloroethane (TCLP)	<0.050	0.001	0.050	mg/L		05/05/25 0000	05/05/25 1702	RAF
Trichloroethylene (TCLP)	<0.050	0.001	0.050	mg/L		05/05/25 0000	05/05/25 1702	RAF
Tetrachloroethylene (TCLP)	<0.070	0.001	0.070	mg/L		05/05/25 0000	05/05/25 1702	RAF
Chlorobenzene (TCLP)	<10.0	0.001	10.0	mg/L		05/05/25 0000	05/05/25 1702	RAF
Surrogate: Dibromofluoromethane	102	Limit: 57-134		% Rec		05/05/25 0000	05/05/25 1702	RAF
Surrogate: 1,2-Dichloroethane-d4	106	Limit: 53-140		% Rec		05/05/25 0000	05/05/25 1702	RAF
Surrogate: Toluene-d8	95.5	Limit: 86-114		% Rec		05/05/25 0000	05/05/25 1702	RAF
Surrogate: 4-Bromofluorobenzene	97.4	Limit: 78-121		% Rec		05/05/25 0000	05/05/25 1702	RAF

Determination of TCLP Semi-Volatile Organic Compounds	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3520C/EPA 8270C								
Pyridine (TCLP)	<0.500	0.004	0.500	mg/L		05/06/25 1257	05/13/25 0948	EPP
1,4-Dichlorobenzene (TCLP)	<0.750	0.004	0.750	mg/L		05/06/25 1257	05/13/25 0948	EPP
o-Cresol (TCLP)	<20.0	0.003	20.0	mg/L		05/06/25 1257	05/13/25 0948	EPP
m+p-Cresol (TCLP)	<20.0	0.003	20.0	mg/L		05/06/25 1257	05/13/25 0948	EPP
Total Cresols (TCLP)	<20.0	0.003	20.0	mg/L		05/06/25 1257	05/13/25 0948	EPP
Hexachloroethane (TCLP)	<0.300	0.005	0.300	mg/L		05/06/25 1257	05/13/25 0948	EPP
Nitrobenzene (TCLP)	<0.200	0.003	0.200	mg/L		05/06/25 1257	05/13/25 0948	EPP
Hexachlorobutadiene (TCLP)	<0.050	0.004	0.050	mg/L		05/06/25 1257	05/13/25 0948	EPP
2,4,6-Trichlorophenol (TCLP)	<0.200	0.003	0.200	mg/L		05/06/25 1257	05/13/25 0948	EPP
2,4,5-Trichlorophenol (TCLP)	<40.0	0.003	40.0	mg/L		05/06/25 1257	05/13/25 0948	EPP
2,4-Dinitrotoluene (TCLP)	<0.013	0.005	0.013	mg/L		05/06/25 1257	05/13/25 0948	EPP
Hexachlorobenzene (TCLP)	<0.013	0.004	0.013	mg/L		05/06/25 1257	05/13/25 0948	EPP
Pentachlorophenol (TCLP)	<10.0	0.004	10.0	mg/L		05/06/25 1257	05/13/25 0948	EPP
Surrogate: 2-Fluorophenol	138	Limit: 10-159		% Rec		05/06/25 1257	05/13/25 0948	EPP
Surrogate: Phenol-d6	162	Limit: 10-162		% Rec		05/06/25 1257	05/13/25 0948	EPP
Surrogate: Nitrobenzene-d5	138	Limit: 12-147		% Rec		05/06/25 1257	05/13/25 0948	EPP
Surrogate: 2-Fluorobiphenyl	139	Limit: 19-142		% Rec		05/06/25 1257	05/13/25 0948	EPP
Surrogate: 2,4,6-Tribromophenol	197	Limit: 15-166		% Rec	S1	05/06/25 1257	05/13/25 0948	EPP
Surrogate: Terphenyl-dl4	194	Limit: 28-160		% Rec	S1	05/06/25 1257	05/13/25 0948	EPP

TCLP Extraction	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst

CERTIFICATE OF ANALYSIS

1ID2039

Client Sample ID:	Storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	Orr, Carl
Lab Sample ID:	1ID2039-01	**Collection Date:**	04/23/2025

TCLP Extraction	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 1311/EPA 1311								
TCLP pH, Initial	**4.9**			pH		05/01/25 1036	05/05/25 1318	BMS
TCLP pH, Final	**5.4**			pH		05/01/25 1036	05/05/25 1318	BMS

Determination of SPLP Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3010A/EPA 6010B								
Thallium (SPLP)	**0.04**	0.01	0.02	mg/L	**M2**	06/02/25 1703	06/04/25 0648	JAR
Antimony (SPLP)	<0.050	0.016	0.050	mg/L		06/02/25 1703	06/04/25 0648	JAR
Arsenic (SPLP)	<0.050	0.012	0.050	mg/L		06/02/25 1703	06/04/25 0648	JAR
Barium (SPLP)	**0.064**	0.002	0.010	mg/L		06/02/25 1703	06/04/25 0648	JAR
Beryllium (SPLP)	<0.010	0.001	0.010	mg/L		06/02/25 1703	06/04/25 0648	JAR
Cadmium (SPLP)	<0.005	0.003	0.005	mg/L		06/02/25 1703	06/04/25 0648	JAR
Chromium (SPLP)	<0.050	0.005	0.050	mg/L		06/02/25 1703	06/04/25 0648	JAR
Copper (SPLP)	**0.023**	0.005	0.005	mg/L		06/02/25 1703	06/04/25 0648	JAR
Lead (SPLP)	<0.020	0.013	0.020	mg/L		06/02/25 1703	06/04/25 0648	JAR
Selenium (SPLP)	**0.192**	0.032	0.050	mg/L		06/02/25 1703	06/04/25 0648	JAR
Method: EPA 7470A								
Mercury (SPLP)	<0.00050	0.00015	0.00050	mg/L		05/08/25 1534	05/09/25 1451	JAR
Method: EPA 9056A								
Fluoride (SPLP)	**0.2**	0.01	0.1	mg/L		05/12/25 0000	05/13/25 0120	MID

SPLP Extraction	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 1312/EPA 1312								
SPLP pH, Initial	**5.0**			pH		05/08/25 0914	05/09/25 1451	RVV
SPLP pH, Final	**7.9**			pH		05/08/25 0914	05/09/25 1451	RVV

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 1311	1IE0022	1ID2039-01	Storage #1
		1IE0022-BLK1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IE0056	1IE0056-BLK1	
		1IE0056-BLK1	
		1IE0056-BS1	
		1IE0056-BS1	
		1ID2039-01	Storage #1
		1ID2039-01	Storage #1
		1ID2039-01	Storage #1
		1ID2039-01	Storage #1
		1IE0056-MS1	1ID2039-01
		1IE0056-MS1	1ID2039-01
		1IE0056-MSD1	1ID2039-01
		1IE0056-MSD1	1ID2039-01
		1IE0056-PS1	1ID2039-01
		1IE0056-PS1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7196A	1IE0082	1IE0082-MS1	1ID2039-01
		1ID2039-01	Storage #1
		1IE0082-PS1	1ID2039-01
		1IE0082-MS2	1ID2039-01
		1IE0082-BS4	
		1IE0082-BS3	
		1IE0082-BS2	
		1IE0082-BLK1	
		1IE0082-BS1	
		1IE0082-MSD1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7471A	1IE0088	1IE0088-BLK1	
		1IE0088-BS1	
		1ID2039-01	Storage #1
		1IE0088-MS1	1ID2039-01
		1IE0088-MSD1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IE0119	1IE0119-BLK1	
		1IE0119-BLK2	

EPA 6010B	1IE0119	1IE0119-BLK3	
		1IE0119-BLK4	
		1IE0119-BS1	
		1ID2039-01	Storage #1
		1IE0119-MS1	1ID2039-01
		1IE0119-MSD1	1ID2039-01
		1IE0119-PS1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260D	1IE0234	1ID2039-01	Storage #1
		1IE0234-BLK1	
		1IE0234-BS1	
		1IE0234-MS1	1ID1817-01
		1IE0234-MSD1	1ID1817-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 8270C	1IE0270	1IE0270-BLK1	
		1ID2039-01	Storage #1
		1IE0270-BS1	
		1IE0270-MS1	1ID2039-01
		1IE0270-MSD1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1IE0423	1IE0423-BLK1	
		1IE0423-BLK2	
		1IE0423-BLK3	
		1IE0423-BLK4	
		1IE0423-BS1	
		1ID2039-01	Storage #1
		1IE0423-MS1	1ID2039-01
		1IE0423-MSD1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 1312	1IE0425	1ID2039-01	Storage #1
		1IE0425-BLK1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1IE0473	1IE0473-BLK1	
		1IE0473-BLK2	
		1IE0473-BS1	
		1ID2039-01	Storage #1
		1IE0473-MS1	1ID2039-01
		1IE0473-MSD1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID

EPA 9056A	1IE0681	1IE0681-BLK1	
		1ID2039-01	Storage #1
		1IE0681-MS1	1ID2039-01
		1IE0681-MSD1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IE0685	1IE0685-BLK1	
		1IE0685-MS1	9IE0034-01
		1IE0685-MSD1	9IE0034-01
		1ID2039-01	Storage #1

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IF0083	1IF0083-BLK1	
		1IF0083-BLK1	
		1IF0083-BLK2	
		1IF0083-BLK2	
		1IF0083-BS1	
		1IF0083-BS1	
		1ID2039-01	Storage #1
		1ID2039-01	Storage #1
		1IF0083-MS1	1ID2039-01
		1IF0083-MS1	1ID2039-01
		1IF0083-MSD1	1ID2039-01
		1IF0083-PS1	1ID2039-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IF0791	1IF0791-BLK1	
		1IF0791-BS1	
		1IF0791-MS1	1IF1086-01
		1IF0791-MSD1	1IF1086-01
		1IF0791-PS1	1IF1086-01
		1ID2039-01RE1	Storage #1

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Total Metals	Result		RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0056 - EPA 3050B Digestion - EPA 6010B											
Blank (1IE0056-BLK1)				Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:05							
Antimony, total	<5.0		5.0	mg/kg							
Arsenic, total	<5.0		5.0	mg/kg							B
Barium, total	<0.43	0.43	1.00	mg/kg							
Beryllium, total	<1.0		1.0	mg/kg							
Boron, total	<5.7	5.7	10.0	mg/kg							
Cadmium, total	<0.5	0.5	1.0	mg/kg							

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0056 - EPA 3050B Digestion - EPA 6010B											
Blank (1IE0056-BLK1)				Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:05							
Chromium, total	<0.9	0.9	3.0	mg/kg							
Cobalt, total	<1.0		1.0	mg/kg							
Copper, total	<0.9	0.9	3.0	mg/kg							
Lead, total	<2.10	2.10	5.00	mg/kg							
Lithium, total	<0.8	0.8	5	mg/kg							
Manganese, total	<0.5	0.5	1.0	mg/kg							
Molybdenum, total	<0.7	0.7	1.0	mg/kg							
Nickel, total	<0.7	0.7	5.0	mg/kg							
Selenium, total	2.8	1.7	3.0	mg/kg							B, J
Silver, total	<0.2	0.2	1.0	mg/kg							
Thallium, total	<5.0		5.0	mg/kg							
Vanadium, total	<0.365	0.365	5.00	mg/kg							
Zinc, total	<2.1	2.1	3.0	mg/kg							
LCS (1IE0056-BS1)				Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:11							
Antimony, total	55.9		5.0	mg/kg	60.0		93.1	80-120			
Arsenic, total	62.7		5.0	mg/kg	60.0		104	80-120			
Barium, total	63.8	0.43	1.00	mg/kg	60.0		106	80-120			
Beryllium, total	64.4		1.0	mg/kg	60.0		107	80-120			
Boron, total	60.2	5.7	10.0	mg/kg	60.0		100	80-120			
Cadmium, total	60.6	0.5	1.0	mg/kg	60.0		101	80-120			
Chromium, total	63.4	0.9	3.0	mg/kg	60.0		106	80-120			
Cobalt, total	62.4		1.0	mg/kg	60.0		104	80-120			
Copper, total	61.7	0.9	3.0	mg/kg	60.0		103	80-120			
Lead, total	62.7	2.10	5.00	mg/kg	60.0		104	80-120			
Lithium, total	63.8	0.8	5	mg/kg	60.0		106	80-120			
Manganese, total	64.1	0.5	1.0	mg/kg	60.0		107	80-120			
Molybdenum, total	61.4	0.7	1.0	mg/kg	60.0		102	80-120			
Nickel, total	61.2	0.7	5.0	mg/kg	60.0		102	80-120			
Selenium, total	62.5	1.7	3.0	mg/kg	60.0		104	80-120			
Silver, total	57.6	0.2	1.0	mg/kg	60.0		96.0	80-120			
Thallium, total	59.7		5.0	mg/kg	60.0		99.5	80-120			
Vanadium, total	64.9	0.365	5.00	mg/kg	60.0		108	80-120			
Zinc, total	60.9	2.1	3.0	mg/kg	60.0		102	80-120			
Matrix Spike (1IE0056-MS1)		**Source: 1ID2039-01**		Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:22							
Antimony, total	40.4		5.0	mg/kg	56.0	ND	72.1	75-125			M2
Arsenic, total	61.3		5.0	mg/kg	56.0	7.4	96.2	75-125			
Barium, total	65.0	0.43	1.00	mg/kg	56.0	4.54	108	75-125			
Beryllium, total	61.7		1.0	mg/kg	56.0	ND	110	75-125			
Boron, total	65.9	5.7	10.0	mg/kg	56.0	ND	118	75-125			
Cadmium, total	57.5	0.5	1.0	mg/kg	56.0	ND	103	75-125			
Chromium, total	80.3	0.9	3.0	mg/kg	56.0	8.3	129	75-125			M1
Cobalt, total	58.9		1.0	mg/kg	56.0	0.842	104	75-125			
Copper, total	62.7	0.9	3.0	mg/kg	56.0	4.21	104	75-125			

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0056 - EPA 3050B Digestion - EPA 6010B											
Matrix Spike (1IE0056-MS1)	**Source: 1ID2039-01**			Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:22							
Lead, total	73.1	2.10	5.00	mg/kg	56.0	14.0	106	75-125			
Lithium, total	63.3	0.8	5	mg/kg	56.0	ND	113	75-125			
Manganese, total	69.8	0.5	1.0	mg/kg	56.0	8.99	109	75-125			
Molybdenum, total	58.2	0.7	1.0	mg/kg	56.0	1.4	101	75-125			
Nickel, total	59.8	0.7	5.0	mg/kg	56.0	2.84	102	75-125			
Selenium, total	62.7	1.7	3.0	mg/kg	56.0	4.3	104	75-125			
Silver, total	54.9	0.2	1.0	mg/kg	56.0	0.291	97.5	75-125			
Thallium, total	58.9		5.0	mg/kg	56.0	4.7	96.7	75-125			
Vanadium, total	72.9	0.365	5.00	mg/kg	56.0	3.94	123	75-125			
Zinc, total	65.4	2.1	3.0	mg/kg	56.0	7.58	103	75-125			
Matrix Spike Dup (1IE0056-MSD1)	**Source: 1ID2039-01**			Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:29							
Antimony, total	43.4		5.0	mg/kg	57.4	ND	75.5	75-125	7.21	20	
Arsenic, total	64.6		5.0	mg/kg	57.4	7.4	99.6	75-125	5.27	20	
Barium, total	66.5	0.43	1.00	mg/kg	57.4	4.54	108	75-125	2.27	20	
Beryllium, total	64.4		1.0	mg/kg	57.4	ND	112	75-125	4.26	20	
Boron, total	67.7	5.7	10.0	mg/kg	57.4	ND	118	75-125	2.78	20	
Cadmium, total	60.2	0.5	1.0	mg/kg	57.4	ND	105	75-125	4.58	20	
Chromium, total	81.9	0.9	3.0	mg/kg	57.4	8.3	128	75-125	2.01	20	M1
Cobalt, total	61.1		1.0	mg/kg	57.4	0.842	105	75-125	3.55	20	
Copper, total	65.9	0.9	3.0	mg/kg	57.4	4.21	107	75-125	5.03	20	
Lead, total	85.6	2.10	5.00	mg/kg	57.4	14.0	125	75-125	15.7	20	
Lithium, total	67.5	0.8	5	mg/kg	57.4	ND	118	75-125	6.44	20	
Manganese, total	71.5	0.5	1.0	mg/kg	57.4	8.99	109	75-125	2.36	20	
Molybdenum, total	60.9	0.7	1.0	mg/kg	57.4	1.4	104	75-125	4.50	20	
Nickel, total	61.0	0.7	5.0	mg/kg	57.4	2.84	101	75-125	2.08	20	
Selenium, total	63.0	1.7	3.0	mg/kg	57.4	4.3	102	75-125	0.564	20	
Silver, total	57.5	0.2	1.0	mg/kg	57.4	0.291	99.6	75-125	4.69	20	
Thallium, total	60.7		5.0	mg/kg	57.4	4.7	97.5	75-125	3.09	20	
Vanadium, total	74.8	0.365	5.00	mg/kg	57.4	3.94	123	75-125	2.62	20	
Zinc, total	68.3	2.1	3.0	mg/kg	57.4	7.58	106	75-125	4.28	20	
Post Spike (1IE0056-PS1)	**Source: 1ID2039-01**			Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:35							
Antimony, total	3.81			mg/L	4.00	-0.0104	95.3	80-120			
Arsenic, total	3.9			mg/L	4.00	0.08	96.8	80-120			
Barium, total	4.25			mg/L	4.00	0.05	105	80-120			
Beryllium, total	4.33			mg/L	4.00	0.000416	108	80-120			
Boron, total	4.15			mg/L	4.00	0.0325	103	80-120			
Cadmium, total	3.9			mg/L	4.00	-0.001	98.2	80-120			
Chromium, total	4.3			mg/L	4.00	0.08	105	80-120			
Cobalt, total	3.91			mg/L	4.00	0.00852	97.4	80-120			
Copper, total	4.31			mg/L	4.00	0.0426	107	80-120			
Lead, total	4.33			mg/L	4.00	0.14	105	80-120			
Lithium, total	4.22			mg/L	4.00	0.00690	105	80-120			
Manganese, total	4.11			mg/L	4.00	0.0910	100	80-120			

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0056 - EPA 3050B Digestion - EPA 6010B											
Post Spike (1IE0056-PS1)		**Source: 1ID2039-01**		Prepared: 05/02/25 07:19 Analyzed: 05/03/25 07:35							
Molybdenum, total	4.1			mg/L	4.00	0.01	101	80-120			
Nickel, total	4.05			mg/L	4.00	0.0288	101	80-120			
Selenium, total	4.4			mg/L	4.00	0.04	108	80-120			
Silver, total	3.96			mg/L	4.00	0.00294	98.9	80-120			
Thallium, total	4.0			mg/L	4.00	0.05	99.8	80-120			
Vanadium, total	4.36			mg/L	4.00	0.0399	108	80-120			
Zinc, total	4.32			mg/L	4.00	0.0766	106	80-120			
Batch 1IE0082 - Wet Chem Preparation - EPA 7196A											
Blank (1IE0082-BLK1)				Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	<1.5	1.5	5.0	mg/kg							
LCS (1IE0082-BS1)				Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	11.4	1.5	5.0	mg/kg	10.4		109	80-120			
LCS (1IE0082-BS2)				Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	8.29	1.5	5.0	mg/kg	9.62		86.2	80-120			
LCS (1IE0082-BS3)				Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	10.0	1.5	5.0	mg/kg	10.2		98.1	80-120			
LCS (1IE0082-BS4)				Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	9.68	1.5	5.0	mg/kg	10.0		96.8	80-120			
Matrix Spike (1IE0082-MS1)		**Source: 1ID2039-01**		Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	3.73	1.5	5.0	mg/kg	5.00	ND	74.6	75-125			M2, J
Matrix Spike (1IE0082-MS2)		**Source: 1ID2039-01**		Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	5090	151	500	mg/kg	5110	ND	99.5	75-125			
Matrix Spike Dup (1IE0082-MSD1)		**Source: 1ID2039-01**		Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	4.15	1.5	5.0	mg/kg	5.10	ND	81.2	75-125	10.5	30	J
Post Spike (1IE0082-PS1)		**Source: 1ID2039-01**		Prepared: 05/02/25 10:18 Analyzed: 05/07/25 14:47							
Chromium, hexavalent	0.0519			mg/L	0.100	0.00366	48.2	85-115			S
Batch 1IE0088 - EPA 7471A Hg Solid - EPA 7471A											
Blank (1IE0088-BLK1)				Prepared: 05/02/25 11:06 Analyzed: 05/02/25 15:58							
Mercury, total	<0.02	0.02	0.05	mg/kg							
LCS (1IE0088-BS1)				Prepared: 05/02/25 11:06 Analyzed: 05/02/25 16:00							
Mercury, total	0.18	0.02	0.05	mg/kg	0.200		91.9	80-120			
Matrix Spike (1IE0088-MS1)		**Source: 1ID2039-01**		Prepared: 05/02/25 11:06 Analyzed: 05/02/25 16:05							
Mercury, total	0.22	0.02	0.05	mg/kg	0.187	ND	116	80-120			
Matrix Spike Dup (1IE0088-MSD1)		**Source: 1ID2039-01**		Prepared: 05/02/25 11:06 Analyzed: 05/02/25 16:07							
Mercury, total	0.21	0.02	0.05	mg/kg	0.195	ND	110	80-120	1.51	20	
Batch 1IE0685 - General Prep HPLC/IC - EPA 9056A											

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0685 - General Prep HPLC/IC - EPA 9056A											
Blank (1IE0685-BLK1)				Prepared & Analyzed: 05/12/25 21:42							
Fluoride	<0.2	0.2	10.0	mg/kg							
Matrix Spike (1IE0685-MS1)		Source: 9IE0034-01		Prepared & Analyzed: 05/12/25 22:18							
Fluoride	126.6	0.2	10.0	mg/kg	116	9.82	100	77-121			
Matrix Spike Dup (1IE0685-MSD1)		Source: 9IE0034-01		Prepared & Analyzed: 05/12/25 22:37							
Fluoride	126.5	0.2	10.0	mg/kg	116	9.82	100	77-121	0.0792	10	
Batch 1IF0791 - EPA 3050B Digestion - EPA 6010B											
Blank (1IF0791-BLK1)				Prepared: 06/13/25 15:23 Analyzed: 06/17/25 16:18							
Thallium, total	<5.0		5.0	mg/kg							
LCS (1IF0791-BS1)				Prepared: 06/13/25 15:23 Analyzed: 06/17/25 16:18							
Thallium, total	55.2		5.0	mg/kg	58.8		94.0	80-120			
Matrix Spike (1IF0791-MS1)		Source: 1IF1086-01		Prepared: 06/13/25 15:23 Analyzed: 06/17/25 16:18							
Thallium, total	42.0		5.0	mg/kg	59.9	4.3	63.0	75-125			M2
Matrix Spike Dup (1IF0791-MSD1)		Source: 1IF1086-01		Prepared: 06/13/25 15:23 Analyzed: 06/17/25 16:18							
Thallium, total	38.0		5.0	mg/kg	53.9	4.3	62.6	75-125	10.0	20	M2
Post Spike (1IF0791-PS1)		Source: 1IF1086-01		Prepared: 06/13/25 15:23 Analyzed: 06/17/25 16:18							
Thallium, total	3.7			mg/L	4.00	0.04	90.4	80-120			

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0119 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IE0119-BLK1)			Prepared: 05/02/25 17:17 Analyzed: 05/06/25 06:33							
Antimony (TCLP)	<0.050	0.050	mg/L							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IE0119-BLK2)			Prepared: 05/02/25 17:17 Analyzed: 05/06/25 06:39							
Antimony (TCLP)	<0.050	0.050	mg/L							
Arsenic (TCLP)	<0.030	0.030	mg/L							B
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IE0119-BLK3)			Prepared: 05/02/25 17:17 Analyzed: 05/06/25 06:48							

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0119 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IE0119-BLK3)				Prepared: 05/02/25 17:17 Analyzed: 05/06/25 06:48						
Antimony (TCLP)	<0.050	0.050	mg/L							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IE0119-BLK4)				Prepared: 05/02/25 17:17 Analyzed: 05/06/25 07:06						
Antimony (TCLP)	<0.050	0.050	mg/L							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
LCS (1IE0119-BS1)				Prepared: 05/02/25 17:17 Analyzed: 05/06/25 07:17						
Antimony (TCLP)	0.205	0.050	mg/L	0.200		102	80-120			
Arsenic (TCLP)	0.220	0.030	mg/L	0.200		110	80-120			
Barium (TCLP)	0.200	0.010	mg/L	0.200		100	80-120			
Cadmium (TCLP)	0.203	0.005	mg/L	0.200		102	80-120			
Chromium (TCLP)	0.198	0.010	mg/L	0.200		99.0	80-120			
Lead (TCLP)	0.208	0.020	mg/L	0.200		104	80-120			
Selenium (TCLP)	0.188	0.050	mg/L	0.200		94.2	80-120			
Silver (TCLP)	0.197	0.010	mg/L	0.200		98.5	80-120			
Matrix Spike (1IE0119-MS1)		**Source: 1ID2039-01**		Prepared: 05/02/25 17:17 Analyzed: 05/06/25 07:33						
Antimony (TCLP)	0.183	0.050	mg/L	0.200	ND	91.6	70-130			
Arsenic (TCLP)	0.228	0.030	mg/L	0.200	0.0378	95.3	70-130			
Barium (TCLP)	0.279	0.010	mg/L	0.200	0.0666	106	70-130			
Cadmium (TCLP)	0.210	0.005	mg/L	0.200	ND	105	70-130			
Chromium (TCLP)	0.202	0.010	mg/L	0.200	ND	101	70-130			
Lead (TCLP)	0.206	0.020	mg/L	0.200	0.018	94.4	70-130			
Selenium (TCLP)	0.399	0.050	mg/L	0.200	0.203	98.1	70-130			
Silver (TCLP)	0.188	0.010	mg/L	0.200	ND	93.9	70-130			
Matrix Spike Dup (1IE0119-MSD1)		**Source: 1ID2039-01**		Prepared: 05/02/25 17:17 Analyzed: 05/06/25 07:42						
Antimony (TCLP)	0.184	0.050	mg/L	0.200	ND	92.1	70-130	0.532	20	
Arsenic (TCLP)	0.232	0.030	mg/L	0.200	0.0378	97.0	70-130	1.54	20	
Barium (TCLP)	0.271	0.010	mg/L	0.200	0.0666	102	70-130	2.89	20	
Cadmium (TCLP)	0.204	0.005	mg/L	0.200	ND	102	70-130	3.32	20	
Chromium (TCLP)	0.195	0.010	mg/L	0.200	ND	97.5	70-130	3.30	20	
Lead (TCLP)	0.200	0.020	mg/L	0.200	0.018	91.4	70-130	2.91	20	

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0119 - EPA 3010A TCLP ICP - EPA 6010B										
Matrix Spike Dup (1IE0119-MSD1)	**Source: 1ID2039-01**			Prepared: 05/02/25 17:17 Analyzed: 05/06/25 07:42						
Selenium (TCLP)	0.360	0.050	mg/L	0.200	0.203	78.7	70-130	10.2	20	
Silver (TCLP)	0.181	0.010	mg/L	0.200	ND	90.4	70-130	3.79	20	
Post Spike (1IE0119-PS1)	**Source: 1ID2039-01**			Prepared: 05/02/25 17:17 Analyzed: 05/06/25 07:52						
Antimony (TCLP)	0.771		mg/L	0.800	-0.018	96.4	75-125			
Arsenic (TCLP)	0.869		mg/L	0.800	0.0378	104	75-125			
Barium (TCLP)	0.909		mg/L	0.800	0.0666	105	75-125			
Cadmium (TCLP)	0.811		mg/L	0.800	-0.0006	101	75-125			
Chromium (TCLP)	0.794		mg/L	0.800	0.00302	98.9	75-125			
Lead (TCLP)	0.798		mg/L	0.800	0.018	97.6	75-125			
Selenium (TCLP)	1.15		mg/L	0.800	0.203	118	75-125			
Silver (TCLP)	0.757		mg/L	0.800	-0.0170	94.7	75-125			
Batch 1IE0423 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IE0423-BLK1)				Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:35						
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IE0423-BLK2)				Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:37						
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IE0423-BLK3)				Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:40						
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IE0423-BLK4)				Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:42						
Mercury (TCLP)	<0.00050	0.00050	mg/L							
LCS (1IE0423-BS1)				Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:44						
Mercury (TCLP)	0.00257	0.00050	mg/L	0.00250		103	79-116			
Matrix Spike (1IE0423-MS1)	**Source: 1ID2039-01**			Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:49						
Mercury (TCLP)	0.00271	0.00050	mg/L	0.00250	ND	108	56-137			
Matrix Spike Dup (1IE0423-MSD1)	**Source: 1ID2039-01**			Prepared: 05/08/25 09:09 Analyzed: 05/09/25 13:56						
Mercury (TCLP)	0.00282	0.00050	mg/L	0.00250	ND	113	56-137	4.22	13	

Determination of TCLP Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0234 - EPA 5030B (TCLP) - EPA 8260D										
Blank (1IE0234-BLK1)				Prepared: 05/05/25 00:00 Analyzed: 05/06/25 10:24						
Vinyl Chloride (TCLP)	<0.020	0.020	mg/L							
1,1-Dichloroethylene (TCLP)	<0.070	0.070	mg/L							
2-Butanone (MEK) (TCLP)	<20.0	20.0	mg/L							
Chloroform (TCLP)	<0.600	0.600	mg/L							
Carbon Tetrachloride (TCLP)	<0.050	0.050	mg/L							
Benzene (TCLP)	<0.050	0.050	mg/L							
1,2-Dichloroethane (TCLP)	<0.050	0.050	mg/L							

Determination of TCLP Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0234 - EPA 5030B (TCLP) - EPA 8260D										
Blank (1IE0234-BLK1)				Prepared: 05/05/25 00:00 Analyzed: 05/06/25 10:24						
Trichloroethylene (TCLP)	<0.050	0.050	mg/L							
Tetrachloroethylene (TCLP)	<0.070	0.070	mg/L							
Chlorobenzene (TCLP)	<10.0	10.0	mg/L							
Surrogate: Dibromofluoromethane	*0.0620*		mg/L	*0.0502*		*123*	*57-134*			
Surrogate: 1,2-Dichloroethane-d4	*0.0694*		mg/L	*0.0501*		*139*	*53-140*			
Surrogate: Toluene-d8	*0.0486*		mg/L	*0.0504*		*96.4*	*86-114*			
Surrogate: 4-Bromofluorobenzene	*0.0435*		mg/L	*0.0501*		*86.7*	*78-121*			
LCS (1IE0234-BS1)				Prepared: 05/05/25 00:00 Analyzed: 05/06/25 10:46						
Vinyl Chloride (TCLP)	0.0354	0.020	mg/L	0.0302		117	55-148			
1,1-Dichloroethylene (TCLP)	<0.070	0.070	mg/L	0.0501		113	45-161			
2-Butanone (MEK) (TCLP)	<20.0	20.0	mg/L	0.100		140	47-168			
Chloroform (TCLP)	<0.600	0.600	mg/L	0.0501		111	53-136			
Carbon Tetrachloride (TCLP)	0.0595	0.050	mg/L	0.0501		119	51-141			
Benzene (TCLP)	0.0558	0.050	mg/L	0.0504		111	67-131			
1,2-Dichloroethane (TCLP)	0.0588	0.050	mg/L	0.0501		117	66-124			
Trichloroethylene (TCLP)	0.0522	0.050	mg/L	0.0501		104	67-130			
Tetrachloroethylene (TCLP)	<0.070	0.070	mg/L	0.0501		111	66-134			
Chlorobenzene (TCLP)	<10.0	10.0	mg/L	0.0501		113	67-125			
Surrogate: Dibromofluoromethane	*0.0538*		mg/L	*0.0502*		*107*	*57-134*			
Surrogate: 1,2-Dichloroethane-d4	*0.0581*		mg/L	*0.0501*		*116*	*53-140*			
Surrogate: Toluene-d8	*0.0516*		mg/L	*0.0504*		*102*	*86-114*			
Surrogate: 4-Bromofluorobenzene	*0.0491*		mg/L	*0.0501*		*97.8*	*78-121*			
Matrix Spike (1IE0234-MS1)	**Source: 1ID1817-01**			Prepared: 05/05/25 00:00 Analyzed: 05/06/25 12:25						
Vinyl Chloride (TCLP)	0.3043	0.020	mg/L	0.302	ND	101	38-151			
1,1-Dichloroethylene (TCLP)	0.4976	0.070	mg/L	0.501	ND	99.3	32-167			
2-Butanone (MEK) (TCLP)	<20.0	20.0	mg/L	1.00	ND	71.5	46-161			
Chloroform (TCLP)	<0.600	0.600	mg/L	0.501	0.0013	89.1	38-150			
Carbon Tetrachloride (TCLP)	0.4954	0.050	mg/L	0.501	ND	98.9	35-152			
Benzene (TCLP)	0.5049	0.050	mg/L	0.504	ND	100	42-153			
1,2-Dichloroethane (TCLP)	0.4478	0.050	mg/L	0.501	ND	89.4	44-148			
Trichloroethylene (TCLP)	0.4859	0.050	mg/L	0.501	ND	97.0	31-170			
Tetrachloroethylene (TCLP)	0.5732	0.070	mg/L	0.501	ND	114	41-154			
Chlorobenzene (TCLP)	<10.0	10.0	mg/L	0.501	ND	106	50-142			
Surrogate: Dibromofluoromethane	*0.449*		mg/L	*0.502*		*89.4*	*57-134*			
Surrogate: 1,2-Dichloroethane-d4	*0.433*		mg/L	*0.501*		*86.5*	*53-140*			
Surrogate: Toluene-d8	*0.504*		mg/L	*0.504*		*100*	*86-114*			
Surrogate: 4-Bromofluorobenzene	*0.476*		mg/L	*0.501*		*95.0*	*78-121*			
Matrix Spike Dup (1IE0234-MSD1)	**Source: 1ID1817-01**			Prepared: 05/05/25 00:00 Analyzed: 05/06/25 12:47						
Vinyl Chloride (TCLP)	0.2960	0.020	mg/L	0.302	ND	97.9	38-151	2.77	15	
1,1-Dichloroethylene (TCLP)	0.4724	0.070	mg/L	0.501	ND	94.2	32-167	5.20	16	
2-Butanone (MEK) (TCLP)	<20.0	20.0	mg/L	1.00	ND	91.1	46-161	24.1	20	R1

Determination of TCLP Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0234 - EPA 5030B (TCLP) - EPA 8260D										
Matrix Spike Dup (1IE0234-MSD1)	**Source: 1ID1817-01**		Prepared: 05/05/25 00:00 Analyzed: 05/06/25 12:47							
Chloroform (TCLP)	<0.600	0.600	mg/L	0.501	0.0013	95.2	38-150	6.61	10	
Carbon Tetrachloride (TCLP)	0.4861	0.050	mg/L	0.501	ND	97.0	35-152	1.90	13	
Benzene (TCLP)	0.5071	0.050	mg/L	0.504	ND	101	42-153	0.435	13	
1,2-Dichloroethane (TCLP)	0.4941	0.050	mg/L	0.501	ND	98.7	44-148	9.83	12	
Trichloroethylene (TCLP)	0.4726	0.050	mg/L	0.501	ND	94.3	31-170	2.78	11	
Tetrachloroethylene (TCLP)	0.5404	0.070	mg/L	0.501	ND	108	41-154	5.89	28	
Chlorobenzene (TCLP)	<10.0	10.0	mg/L	0.501	ND	110	50-142	3.16	11	
Surrogate: Dibromofluoromethane	*0.461*		mg/L	*0.502*		*91.8*	*57-134*			
Surrogate: 1,2-Dichloroethane-d4	*0.476*		mg/L	*0.501*		*95.0*	*53-140*			
Surrogate: Toluene-d8	*0.511*		mg/L	*0.504*		*101*	*86-114*			
Surrogate: 4-Bromofluorobenzene	*0.484*		mg/L	*0.501*		*96.6*	*78-121*			

Determination of TCLP Semi-Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0270 - 3520C BNA Cont Liq - EPA 8270C										
Blank (1IE0270-BLK1)			Prepared: 05/06/25 12:57 Analyzed: 05/13/25 09:24							
Pyridine (TCLP)	<0.500	0.500	mg/L							
1,4-Dichlorobenzene (TCLP)	<0.750	0.750	mg/L							
o-Cresol (TCLP)	<20.0	20.0	mg/L							
m+p-Cresol (TCLP)	<20.0	20.0	mg/L							
Total Cresols (TCLP)	<20.0	20.0	mg/L							
Hexachloroethane (TCLP)	<0.300	0.300	mg/L							
Nitrobenzene (TCLP)	<0.200	0.200	mg/L							
Hexachlorobutadiene (TCLP)	<0.050	0.050	mg/L							
2,4,6-Trichlorophenol (TCLP)	<0.200	0.200	mg/L							
2,4,5-Trichlorophenol (TCLP)	<40.0	40.0	mg/L							
2,4-Dinitrotoluene (TCLP)	<0.013	0.013	mg/L							
Hexachlorobenzene (TCLP)	<0.013	0.013	mg/L							
Pentachlorophenol (TCLP)	<10.0	10.0	mg/L							
Surrogate: 2-Fluorophenol	*1.41*		mg/L	*1.03*		*136*	*10-159*			
Surrogate: Phenol-d6	*1.48*		mg/L	*0.979*		*151*	*10-162*			
Surrogate: Nitrobenzene-d5	*1.43*		mg/L	*1.03*		*139*	*12-147*			
Surrogate: 2-Fluorobiphenyl	*1.34*		mg/L	*0.976*		*137*	*19-142*			
Surrogate: 2,4,6-Tribromophenol	*1.97*		mg/L	*1.00*		*197*	*15-166*			*S1*
Surrogate: Terphenyl-dl4	*1.41*		mg/L	*1.03*		*137*	*28-160*			
LCS (1IE0270-BS1)			Prepared: 05/06/25 12:57 Analyzed: 05/13/25 11:01							
Pyridine (TCLP)	<0.500	0.500	mg/L	0.993		38.5	50-150			Q3
1,4-Dichlorobenzene (TCLP)	<0.750	0.750	mg/L	1.00		65.8	37-110			
o-Cresol (TCLP)	<20.0	20.0	mg/L	0.997		84.4	10-156			
m+p-Cresol (TCLP)	<20.0	20.0	mg/L	2.02		90.2	29-120			

Determination of TCLP Semi-Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0270 - 3520C BNA Cont Liq - EPA 8270C										
LCS (1IE0270-BS1)			Prepared: 05/06/25 12:57 Analyzed: 05/13/25 11:01							
Total Cresols (TCLP)	<20.0	20.0	mg/L	3.02		88.2	26-123			
Hexachloroethane (TCLP)	0.6155	0.300	mg/L	1.02		60.6	32-110			
Nitrobenzene (TCLP)	0.8595	0.200	mg/L	1.01		85.4	29-110			
Hexachlorobutadiene (TCLP)	0.5820	0.050	mg/L	0.992		58.6	41-113			
2,4,6-Trichlorophenol (TCLP)	0.7330	0.200	mg/L	0.993		73.8	60-110			
2,4,5-Trichlorophenol (TCLP)	<40.0	40.0	mg/L	1.00		86.2	47-110			
2,4-Dinitrotoluene (TCLP)	0.6195	0.013	mg/L	1.00		62.0	55-115			
Hexachlorobenzene (TCLP)	0.9145	0.013	mg/L	1.00		91.1	63-110			
Pentachlorophenol (TCLP)	<10.0	10.0	mg/L	1.00		74.7	33-116			
Surrogate: 2-Fluorophenol	*1.42*		mg/L	*1.03*		*137*	*10-159*			
Surrogate: Phenol-d6	*1.52*		mg/L	*0.979*		*155*	*10-162*			
Surrogate: Nitrobenzene-d5	*1.47*		mg/L	*1.03*		*143*	*20-121*			*S1*
Surrogate: 2-Fluorobiphenyl	*1.42*		mg/L	*0.976*		*145*	*37-116*			*S1*
Surrogate: 2,4,6-Tribromophenol	*1.89*		mg/L	*1.00*		*189*	*15-166*			*S1*
Surrogate: Terphenyl-dl4	*1.74*		mg/L	*1.03*		*169*	*38-140*			*S1*
Matrix Spike (1IE0270-MS1)		**Source: 1ID2039-01**	Prepared: 05/06/25 12:57 Analyzed: 05/13/25 11:26							
Pyridine (TCLP)	<0.500	0.500	mg/L	0.993	ND	33.6	10-194			
1,4-Dichlorobenzene (TCLP)	<0.750	0.750	mg/L	1.00	ND	67.3	10-130			
o-Cresol (TCLP)	<20.0	20.0	mg/L	0.997	ND	90.1	10-158			
m+p-Cresol (TCLP)	<20.0	20.0	mg/L	2.02	ND	95.2	10-155			
Total Cresols (TCLP)	<20.0	20.0	mg/L	3.02	ND	93.5	10-155			
Hexachloroethane (TCLP)	0.6505	0.300	mg/L	1.02	ND	64.0	10-110			
Nitrobenzene (TCLP)	0.8790	0.200	mg/L	1.01	ND	87.4	10-192			
Hexachlorobutadiene (TCLP)	0.6130	0.050	mg/L	0.992	ND	61.8	11-110			
2,4,6-Trichlorophenol (TCLP)	0.7500	0.200	mg/L	0.993	ND	75.5	19-141			
2,4,5-Trichlorophenol (TCLP)	<40.0	40.0	mg/L	1.00	ND	88.6	10-149			
2,4-Dinitrotoluene (TCLP)	0.6935	0.013	mg/L	1.00	ND	69.4	13-134			
Hexachlorobenzene (TCLP)	0.9395	0.013	mg/L	1.00	ND	93.6	10-148			
Pentachlorophenol (TCLP)	<10.0	10.0	mg/L	1.00	ND	77.4	10-152			
Surrogate: 2-Fluorophenol	*1.43*		mg/L	*1.03*		*138*	*10-159*			
Surrogate: Phenol-d6	*1.58*		mg/L	*0.979*		*161*	*10-162*			
Surrogate: Nitrobenzene-d5	*1.51*		mg/L	*1.03*		*147*	*10-138*			*S1*
Surrogate: 2-Fluorobiphenyl	*1.44*		mg/L	*0.976*		*147*	*22-134*			*S1*
Surrogate: 2,4,6-Tribromophenol	*1.90*		mg/L	*1.00*		*190*	*15-166*			*S1*
Surrogate: Terphenyl-dl4	*1.74*		mg/L	*1.03*		*169*	*10-168*			*S1*
Matrix Spike Dup (1IE0270-MSD1)		**Source: 1ID2039-01**	Prepared: 05/06/25 12:57 Analyzed: 05/13/25 11:51							
Pyridine (TCLP)	<0.500	0.500	mg/L	0.993	ND	41.2	10-194	20.2	30	
1,4-Dichlorobenzene (TCLP)	<0.750	0.750	mg/L	1.00	ND	69.4	10-130	2.99	30	
o-Cresol (TCLP)	<20.0	20.0	mg/L	0.997	ND	94.4	10-158	4.73	30	
m+p-Cresol (TCLP)	<20.0	20.0	mg/L	2.02	ND	102	10-155	6.87	30	
Total Cresols (TCLP)	<20.0	20.0	mg/L	3.02	ND	99.5	10-155	6.19	30	

Determination of TCLP Semi-Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0270 - 3520C BNA Cont Liq - EPA 8270C										
Matrix Spike Dup (1IE0270-MSD1)	**Source: 1ID2039-01**		Prepared: 05/06/25 12:57 Analyzed: 05/13/25 11:51							
Hexachloroethane (TCLP)	0.6750	0.300	mg/L	1.02	ND	66.4	10-110	3.70	30	
Nitrobenzene (TCLP)	0.9170	0.200	mg/L	1.01	ND	91.2	10-192	4.23	30	
Hexachlorobutadiene (TCLP)	0.6560	0.050	mg/L	0.992	ND	66.1	11-110	6.78	30	
2,4,6-Trichlorophenol (TCLP)	0.7900	0.200	mg/L	0.993	ND	79.6	19-141	5.19	30	
2,4,5-Trichlorophenol (TCLP)	<40.0	40.0	mg/L	1.00	ND	94.0	10-149	5.91	30	
2,4-Dinitrotoluene (TCLP)	0.7095	0.013	mg/L	1.00	ND	71.0	13-134	2.28	30	
Hexachlorobenzene (TCLP)	1.028	0.013	mg/L	1.00	ND	102	10-148	9.04	30	
Pentachlorophenol (TCLP)	<10.0	10.0	mg/L	1.00	ND	82.2	10-152	6.08	30	
Surrogate: 2-Fluorophenol	*1.50*		mg/L	*1.03*		*146*	*10-159*			
Surrogate: Phenol-d6	*1.65*		mg/L	*0.979*		*168*	*10-162*			*S1*
Surrogate: Nitrobenzene-d5	*1.47*		mg/L	*1.03*		*143*	*10-138*			*S1*
Surrogate: 2-Fluorobiphenyl	*1.41*		mg/L	*0.976*		*145*	*22-134*			*S1*
Surrogate: 2,4,6-Tribromophenol	*1.92*		mg/L	*1.00*		*192*	*15-166*			*S1*
Surrogate: Terphenyl-dl4	*2.00*		mg/L	*1.03*		*195*	*10-168*			*S1*

TCLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0022 - EPA 1311 - EPA 1311										
Blank (1IE0022-BLK1)			Prepared: 05/01/25 10:36 Analyzed: 05/05/25 13:18							
TCLP pH, Initial	4.9		pH							
TCLP pH, Final	4.8		pH							

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0473 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IE0473-BLK1)			Prepared: 05/08/25 15:34 Analyzed: 05/09/25 14:39							
Mercury (SPLP)	<0.00050	0.00050	mg/L							
Blank (1IE0473-BLK2)			Prepared: 05/08/25 15:34 Analyzed: 05/09/25 14:42							
Mercury (SPLP)	<0.00050	0.00050	mg/L							
LCS (1IE0473-BS1)			Prepared: 05/08/25 15:34 Analyzed: 05/09/25 14:44							
Mercury (SPLP)	0.00239	0.00050	mg/L	0.00250		95.6	79-116			
Matrix Spike (1IE0473-MS1)	**Source: 1ID2039-01**		Prepared: 05/08/25 15:34 Analyzed: 05/09/25 14:53							
Mercury (SPLP)	0.00223	0.00050	mg/L	0.00250	ND	89.3	56-137			
Matrix Spike Dup (1IE0473-MSD1)	**Source: 1ID2039-01**		Prepared: 05/08/25 15:34 Analyzed: 05/09/25 14:55							
Mercury (SPLP)	0.00223	0.00050	mg/L	0.00250	ND	89.0	56-137	0.251	13	
Batch 1IE0681 - General Prep HPLC/IC - EPA 9056A										
Blank (1IE0681-BLK1)			Prepared: 05/12/25 00:00 Analyzed: 05/13/25 01:02							

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0681 - General Prep HPLC/IC - EPA 9056A										
Blank (1IE0681-BLK1)				Prepared: 05/12/25 00:00 Analyzed: 05/13/25 01:02						
Fluoride (SPLP)	<0.1	0.1	mg/L							
Matrix Spike (1IE0681-MS1)	**Source: 1ID2039-01**			Prepared: 05/12/25 00:00 Analyzed: 05/13/25 01:38						
Fluoride (SPLP)	1.31	0.1	mg/L	1.16	0.16	98.8	77-121			
Matrix Spike Dup (1IE0681-MSD1)	**Source: 1ID2039-01**			Prepared: 05/12/25 00:00 Analyzed: 05/13/25 01:56						
Fluoride (SPLP)	1.32	0.1	mg/L	1.16	0.16	99.4	77-121	0.457	10	
Batch 1IF0083 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IF0083-BLK1)				Prepared: 06/02/25 17:03 Analyzed: 06/04/25 06:31						
Thallium (SPLP)	<0.02	0.02	mg/L							
Antimony (SPLP)	<0.050	0.050	mg/L							
Arsenic (SPLP)	<0.050	0.050	mg/L							
Barium (SPLP)	<0.010	0.010	mg/L							
Beryllium (SPLP)	<0.010	0.010	mg/L							
Cadmium (SPLP)	<0.005	0.005	mg/L							
Chromium (SPLP)	<0.050	0.050	mg/L							
Copper (SPLP)	<0.005	0.005	mg/L							
Lead (SPLP)	<0.020	0.020	mg/L							
Selenium (SPLP)	<0.050	0.050	mg/L							
Blank (1IF0083-BLK2)				Prepared: 06/02/25 17:03 Analyzed: 06/04/25 06:37						
Thallium (SPLP)	<0.02	0.02	mg/L							
Antimony (SPLP)	<0.050	0.050	mg/L							
Arsenic (SPLP)	<0.050	0.050	mg/L							
Barium (SPLP)	<0.010	0.010	mg/L							
Beryllium (SPLP)	<0.010	0.010	mg/L							
Cadmium (SPLP)	<0.005	0.005	mg/L							
Chromium (SPLP)	<0.050	0.050	mg/L							
Copper (SPLP)	<0.005	0.005	mg/L							
Lead (SPLP)	<0.020	0.020	mg/L							
Selenium (SPLP)	<0.050	0.050	mg/L							
LCS (1IF0083-BS1)				Prepared: 06/02/25 17:03 Analyzed: 06/04/25 06:42						
Thallium (SPLP)	0.17	0.02	mg/L	0.200		87.1	84-129			
Antimony (SPLP)	0.204	0.050	mg/L	0.200		102	80-120			
Arsenic (SPLP)	0.201	0.050	mg/L	0.200		100	80-120			
Barium (SPLP)	0.200	0.010	mg/L	0.200		100	80-120			
Beryllium (SPLP)	0.198	0.010	mg/L	0.200		99.1	80-120			
Cadmium (SPLP)	0.195	0.005	mg/L	0.200		97.7	80-120			
Chromium (SPLP)	0.199	0.050	mg/L	0.200		99.3	80-120			
Copper (SPLP)	0.201	0.005	mg/L	0.200		101	80-120			
Lead (SPLP)	0.199	0.020	mg/L	0.200		99.5	80-120			
Selenium (SPLP)	0.188	0.050	mg/L	0.200		93.9	80-120			
Matrix Spike (1IF0083-MS1)	**Source: 1ID2039-01**			Prepared: 06/02/25 17:03 Analyzed: 06/04/25 06:58						

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IF0083 - EPA 3010A TCLP ICP - EPA 6010B										
Matrix Spike (1IF0083-MS1)	**Source: 1ID2039-01**		Prepared: 06/02/25 17:03 Analyzed: 06/04/25 06:58							
Thallium (SPLP)	0.19	0.02	mg/L	0.200	0.04	74.5	74-113			
Antimony (SPLP)	0.200	0.050	mg/L	0.200	ND	100	70-130			
Arsenic (SPLP)	0.194	0.050	mg/L	0.200	0.0458	74.2	70-130			
Barium (SPLP)	0.274	0.010	mg/L	0.200	0.0637	105	70-130			
Beryllium (SPLP)	0.207	0.010	mg/L	0.200	ND	103	70-130			
Cadmium (SPLP)	0.200	0.005	mg/L	0.200	ND	100	70-130			
Chromium (SPLP)	0.200	0.050	mg/L	0.200	ND	100	70-130			
Copper (SPLP)	0.232	0.005	mg/L	0.200	0.0225	105	70-130			
Lead (SPLP)	0.194	0.020	mg/L	0.200	ND	96.8	70-130			
Selenium (SPLP)	0.337	0.050	mg/L	0.200	0.192	72.9	70-130			
Matrix Spike Dup (1IF0083-MSD1)	**Source: 1ID2039-01**		Prepared: 06/02/25 17:03 Analyzed: 06/04/25 07:20							
Thallium (SPLP)	0.19	0.02	mg/L	0.200	0.04	73.3	74-113	1.27	12	M2
Antimony (SPLP)	0.198	0.050	mg/L	0.200	ND	99.2	70-130	0.950	20	
Arsenic (SPLP)	0.218	0.050	mg/L	0.200	0.0458	86.3	70-130	11.7	20	
Barium (SPLP)	0.273	0.010	mg/L	0.200	0.0637	104	70-130	0.511	20	
Beryllium (SPLP)	0.205	0.010	mg/L	0.200	ND	102	70-130	1.12	20	
Cadmium (SPLP)	0.199	0.005	mg/L	0.200	ND	99.3	70-130	0.901	20	
Chromium (SPLP)	0.198	0.050	mg/L	0.200	ND	99.2	70-130	0.957	20	
Copper (SPLP)	0.230	0.005	mg/L	0.200	0.0225	104	70-130	0.871	20	
Lead (SPLP)	0.197	0.020	mg/L	0.200	ND	98.6	70-130	1.82	20	
Selenium (SPLP)	0.361	0.050	mg/L	0.200	0.192	84.9	70-130	6.88	20	
Post Spike (1IF0083-PS1)	**Source: 1ID2039-01**		Prepared: 06/02/25 17:03 Analyzed: 06/04/25 07:29							
Antimony (SPLP)	0.805		mg/L	0.800	-0.006	101	75-125			
Arsenic (SPLP)	0.910		mg/L	0.800	0.0458	108	75-125			
Barium (SPLP)	0.911		mg/L	0.800	0.0637	106	75-125			
Beryllium (SPLP)	0.839		mg/L	0.800	0.000251	105	75-125			
Cadmium (SPLP)	0.790		mg/L	0.800	-0.000009	98.8	75-125			
Chromium (SPLP)	0.807		mg/L	0.800	0.00228	101	75-125			
Copper (SPLP)	0.846		mg/L	0.800	0.0225	103	75-125			
Lead (SPLP)	0.799		mg/L	0.800	0.0129	98.3	75-125			
Selenium (SPLP)	1.18		mg/L	0.800	0.192	124	75-125			

SPLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IE0425 - EPA 1312 - EPA 1312										
Blank (1IE0425-BLK1)			Prepared: 05/08/25 09:14 Analyzed: 05/09/25 14:51							
SPLP pH, Initial	5.0		pH							
SPLP pH, Final	6.6		pH							

Definitions

B:	The target analyte was detected in the blank at or above the method acceptance criteria.
J:	Estimated value. The analyte concentration is less than the reporting/quantitation limit.
M1:	Matrix spike recovery is above acceptance limits.
M2:	Matrix spike recovery is below acceptance limits.
MDL:	Minimum Detection Limit
Q3:	LCS recovery is below acceptance limits. The reported value is estimated.
R1:	Duplicate RPD is outside acceptance criteria.
RL:	Reporting Limit
RPD:	Relative Percent Difference
S:	Spike recovery outside of acceptance limits.
S1:	Surrogate recovery is above acceptance limits.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 18.3°C

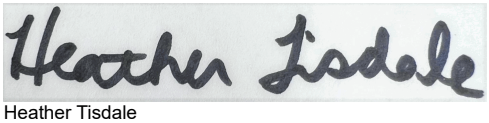
Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	No		

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:



Heather Tisdale
Customer Relationship Specialist
heather.tisdale@microbac.com
06/23/25 15:25

CHA

Keystone LABORATORIES, INC.
600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

1 I D 2 0 3 9

Pattison Sand Company, LLC
PM: Heather Tisdale

KS. 66105
21-7856

205 E Van Buren St
Centerville, IA. 52544
Phone: 641-437-7023

PRINT OR TYPE INFO BELOW:	REPORT TO:	BILL TO:
SAMPLER: Carl Orr	NAME:	NAME:
SITE NAME: Pattison Sand Co LLC	CO. NAME:	CO. NAME:
ADDRESS: 23656 Great River Rd	ADDRESS:	ADDRESS:
CITY/ST/ZIP: Gaynaville, IA 52049	CITY/ST/ZIP:	CITY/ST/ZIP:
PHONE: 563-964-2860	PHONE:	PHONE:
	Email:	Email:

CLIENT SAMPLE #	DATE	TIME		# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: TCLP EPA 1311	SPLP EPA 1312	Total Metals	EPA 6010, 7060 7061, 7471, 7841	VOC	SVOC
Pattison Sand Storage #1			Pattison Sand Storage #1	1		G	✓	✓	✓		✓	✓

LAB USE ONLY

Wk Order #:	1ID2039	
Short Hold:		
Rush:		
Temp.	oC	18.3 no ice

Sample Condition	Sample #

Relinquished by: (Signature)	Date: [redacted] 4/15/25	Received by: (Signature)	Date:	Remarks:
Carl Orr	Time: [redacted] 16:10		Time:	
Relinquished by: (Signature)	Date:	Received for Lab by: (Signature)	Date: 4-23-25	
	Time:	Amy Hochstetler	Time: 10:30	

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 22 -BUD- 09 - 06

DNR Certified Lab: KEYSTONE LABS

Lab Report Date: 4/23/25

By-Product Generator: Pattison Sand Storage #1

City: CLAYTON State: IA Zip: 52049

By-Product Name: Pattison Sand Storage 1

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.050 mg/L	31 mg/kg	<5.0	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.050 mg/L	17 mg/kg	7.4	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.064 mg/L	15,000 mg/kg	4.54	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.010 mg/L	110 mg/kg	<1.0	mg/kg
☐	Boron				16,000 mg/kg	<5.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.005 mg/L	70 mg/kg	<0.5	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.050 mg/L	**(Total)	8.3	mg/kg
					(Hexavalent - VI) 210 mg/kg	<1.5	mg/kg
					(Trivalent - III) 97,000 mg/kg	8.32	mg/kg
☐	Cobalt				23 mg/kg	<1.0	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.023 mg/L	15,000 mg/kg	4.2	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.2 mg/L	4,700 mg/kg	5.5	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.020 mg/L	400 mg/kg	14.0	mg/kg
☐	Lithium				160 mg/kg	<0.8	mg/kg
☐	Manganese				10,000 mg/kg	9.0	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.00050 mg/L	23 mg/kg	<0.02	mg/kg
☐	Molybdenum				390 mg/kg	1.4	mg/kg
☐	Nickel				1,500 mg/kg	2.8	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.192 mg/L	390 mg/kg	4.3	mg/kg
☐	Silver				370 mg/kg	0.3	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.04 mg/L	0.78 mg/kg	0.9	mg/kg
☐	Vanadium				350 mg/kg	3.94	mg/kg
☐	Zinc				23,000 mg/kg	7.6	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals				
*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	0.038	mg/L
☒	Barium	100.0 mg/L	0.067	mg/L
☒	Cadmium	1.0 mg/L	<0.005	mg/L
☒	Chromium	5.0 mg/L	<0.010	mg/L
☒	Lead	5.0 mg/L	<0.020	mg/L
☒	Mercury	0.2 mg/L	<0.00050	mg/L
☒	Selenium	1.0 mg/L	0.203	mg/L
☒	Silver	5.0 mg/L	<0.010	mg/L

Pesticides				
*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L	0	mg/L
☐	Endrin	0.02 mg/L	0	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	0	mg/L
☐	Lindane	0.4 mg/L	0	mg/L
☐	Methoxychlor	10.0 mg/L	0	mg/L
☐	Toxaphene	0.5 mg/L	0	mg/L

Herbicides				
*	Contaminant	Regulatory Limit	Test Result	
☐	2,4-D	10.0 mg/L	0	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L	0	mg/L

Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result	
☒	Benzene	0.5 mg/L	<0.050	mg/L
☒	Carbon tetrachloride	0.5 mg/L	<0.050	mg/L
☒	Chlorobenzene	100.0 mg/L	<10.0	mg/L
☒	Chloroform	6.0 mg/L	<0.600	mg/L
☒	1,2-Dichloroethane	0.5 mg/L	<0.050	mg/L
☒	1,1-Dichloroethylene	0.7 mg/L	<0.070	mg/L
☒	Methyl ethyl ketone	200.0 mg/L	<20.0	mg/L
☒	Tetrachloroethylene	0.7 mg/L	<0.070	mg/L
☒	Trichloroethylene	0.5 mg/L	<0.050	mg/L
☒	Vinyl chloride	0.2 mg/L	<0.020	mg/L

Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result	
☒	o-Cresol	200.0 mg/L	<20.0	mg/L
☒	m-Cresol	200.0 mg/L	<20.0	mg/L
☒	p-Cresol	200.0 mg/L	<20.0	mg/L
☒	Cresol	200.0 mg/L	<20.0	mg/L
☒	1,4-Dichlorobenzene	7.5 mg/L	<0.750	mg/L
☒	2,4-Dinitrotoluene	0.13 mg/L	<0.013	mg/L
☒	Hexachlorobenzene	0.13 mg/L	<0.013	mg/L
☒	Hexachlorobutadiene	0.5 mg/L	<0.050	mg/L
☒	Hexachloroethane	3.0 mg/L	<0.300	mg/L
☒	Nitrobenzene	2.0 mg/L	<0.200	mg/L
☒	Pentachlorophenol	100.0 mg/L	<10.0	mg/L
☒	Pyridine	5.0 mg/L	<0.500	mg/L
☒	2,4,5-Trichlorophenol	400.0 mg/L	<40.0	mg/L
☒	2,4,6-Trichlorophenol	2.0 mg/L	<0.200	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 6-26-25

Printed Name: Carl Orr **Title:** Environmental/Safety Manager

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IG0824

Project Description

Beneficial Use

For:

Carl Orr

Pattison Sand Company, LLC

22656 Great River Road

Garnavillo, IA 52049

Heather Tisdale

Customer Relationship Specialist

Tuesday, August 19, 2025

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

MICROBAC®

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IG0824

Pattison Sand Company, LLC

Carl Orr
22656 Great River Road
Garnavillo, IA 52049

Project Name: Beneficial Use

Project / PO Number: N/A
Received: 07/03/2025
Reported: 08/19/2025

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Pattison Sand Storage #1	1IG0824-01	Bulk-Solid	GRAB		07/01/25 10:00	07/03/25 10:39

Analytical Testing Parameters

Client Sample ID: Pattison Sand Storage #1
Sample Matrix: Bulk-Solid
Lab Sample ID: 1IG0824-01
Collected By: Orr, Carl
Collection Date: 07/01/2025 10:00

Determination of Total Metals		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: [Calc]									
Chromium, trivalent	**6.08**		2.37	8.00	mg/kg wet		07/21/25 1131	07/22/25 1445	KKJ

Determination of Conventional Chemistry Parameters		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 7196A									
Chromium, hexavalent		<5.0	1.5	5.0	mg/kg wet		07/21/25 1131	07/22/25 1445	KKJ

Determination of Total Metals		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3050B/EPA 6010B									
Barium, total	**2.94**		0.43	1.00	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Boron, total		<5.7	5.7	10.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Cadmium, total		<0.5	0.5	1.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Chromium, total	**6.1**		0.9	3.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Copper, total	**2.4**		0.9	3.0	mg/kg	**J**	07/14/25 1448	07/17/25 0333	JAR
Lead, total	**12.7**		2.10	5.00	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Lithium, total		<0.8	0.8	5	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Manganese, total	**3.1**		0.5	1.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Molybdenum, total	**0.8**		0.7	1.0	mg/kg	**J**	07/14/25 1448	07/17/25 0333	JAR
Nickel, total		<0.7	0.7	5.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Selenium, total		<1.7	1.7	3.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Silver, total		<0.2	0.2	1.0	mg/kg		07/14/25 1448	07/17/25 0333	JAR
Vanadium, total	**3.60**		0.365	5.00	mg/kg	**J**	07/14/25 1448	07/17/25 0333	JAR
Zinc, total	**9.0**		8.3	12.0	mg/kg	**J**	07/14/25 1448	07/17/25 0955	JAR
Method: EPA 3050B/EPA 6020A									
Antimony, total		<0.33	0.33	1.00	mg/kg		07/14/25 1448	07/21/25 1537	RVV
Arsenic, total	**4.96**		0.36	1.00	mg/kg		07/14/25 1448	07/21/25 1537	RVV
Beryllium, total		<0.02	0.02	1.0	mg/kg		07/14/25 1448	07/21/25 1537	RVV
Cobalt, total		<1.00	0.29	1.00	mg/kg		07/14/25 1448	07/21/25 1537	RVV
Thallium, total	**0.2**		0.2	0.5	mg/kg	**J**	07/14/25 1448	07/21/25 1537	RVV
Method: EPA 7471B									
Mercury, total	**0.02**		0.02	0.05	mg/kg	**J**	07/09/25 1551	07/10/25 1412	JAR
Method: EPA 9056A									
Fluoride		<0.2	0.2	10.0	mg/kg		07/23/25 0000	07/23/25 2034	MID

Determination of TCLP Metals		Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3010A/EPA 6010B									
Arsenic (TCLP)		<0.030	0.012	0.030	mg/L		07/14/25 1503	07/17/25 0248	JAR
Barium (TCLP)	**0.037**		0.002	0.010	mg/L		07/14/25 1503	07/17/25 0248	JAR
Cadmium (TCLP)		<0.005	0.003	0.005	mg/L		07/14/25 1503	07/17/25 0248	JAR
Chromium (TCLP)		<0.010	0.005	0.010	mg/L		07/14/25 1503	07/17/25 0248	JAR
Lead (TCLP)		<0.020	0.013	0.020	mg/L		07/14/25 1503	07/17/25 0248	JAR
Selenium (TCLP)	**0.119**		0.032	0.050	mg/L		07/14/25 1503	07/17/25 0248	JAR
Silver (TCLP)		<0.010	0.004	0.010	mg/L		07/14/25 1503	07/17/25 0248	JAR

CERTIFICATE OF ANALYSIS

1IG0824

Client Sample ID:	Pattison Sand Storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	Orr, Carl
Lab Sample ID:	1IG0824-01	**Collection Date:**	07/01/2025 10:00

Determination of TCLP Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 7470A								
Mercury (TCLP)	<0.00050	0.00012	0.00050	mg/L		07/11/25 1644	07/15/25 1259	JAR

TCLP Extraction	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 1311/EPA 1311								
TCLP pH, Initial	**4.9**			pH		07/08/25 1428	07/11/25 0816	JAR
TCLP pH, Initial	**4.9**			pH		07/08/25 1428	07/11/25 0816	JAR
TCLP pH, Final	**5.1**			pH		07/08/25 1428	07/11/25 0816	JAR
TCLP pH, Final	**5.1**			pH		07/08/25 1428	07/11/25 0816	JAR

Determination of SPLP Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3005A/EPA 6020A								
Antimony (SPLP)	<0.0010	0.0005	0.0010	mg/L		07/10/25 1555	07/16/25 1705	RVV
Arsenic (SPLP)	**0.0037**	0.0005	0.0020	mg/L		07/10/25 1555	07/16/25 1705	RVV
Barium (SPLP)	**0.0038**	0.0002	0.0010	mg/L		07/10/25 1555	07/16/25 1705	RVV
Beryllium (SPLP)	<0.0005	0.0001	0.0005	mg/L		07/10/25 1555	07/16/25 1705	RVV
Cadmium (SPLP)	<0.0002	0.0001	0.0002	mg/L		07/10/25 1555	07/16/25 1705	RVV
Chromium (SPLP)	<0.0020	0.0005	0.0020	mg/L		07/10/25 1555	07/16/25 1705	RVV
Copper (SPLP)	<0.0050	0.0014	0.0050	mg/L		07/10/25 1555	07/16/25 1705	RVV
Lead (SPLP)	<0.0010	0.0002	0.0010	mg/L		07/10/25 1555	07/16/25 1705	RVV
Selenium (SPLP)	<0.0020	0.0009	0.0020	mg/L		07/10/25 1555	07/16/25 1705	RVV
Thallium (SPLP)	<0.0005	0.00004	0.0005	mg/L		07/10/25 1555	07/16/25 1705	RVV
Method: EPA 7470A								
Mercury (SPLP)	<0.00050	0.00015	0.00050	mg/L		07/11/25 1646	07/15/25 1308	JAR
Method: EPA 9056A								
Fluoride (SPLP)	**0.5**	0.01	0.1	mg/L		07/28/25 0000	07/28/25 2158	MID

SPLP Extraction	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 1312/EPA 1312								
SPLP pH, Initial	**5.0**			pH		07/08/25 0922	07/11/25 0818	JAR
SPLP pH, Final	**7.9**			pH		07/08/25 0922	07/11/25 0818	JAR

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 1312	1IG0332	1IG0824-01	Pattison Sand Storage #1
		1IG0332-BLK1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 1311	1IG0361	1IG0824-01	Pattison Sand Storage #1
		1IG0361-BLK1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 7471B	1IG0479	1IG0479-BLK1	
		1IG0479-BS1	
		1IG0824-01	Pattison Sand Storage #1
		1IG0479-MS1	1IG0824-01
		1IG0479-MSD1	1IG0824-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1IG0578	1IG0578-BLK1	
		1IG0578-BLK2	
		1IG0578-BS1	
		1IG0824-01	Pattison Sand Storage #1
		1IG0578-MS1	1IG0824-01
		1IG0578-MSD1	1IG0824-01
		1IG0578-PS1	1IG0824-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1IG0674	1IG0674-BLK1	
		1IG0674-BLK2	
		1IG0674-BLK3	
		1IG0674-BLK4	
		1IG0674-BS1	
		1IG0674-MS1	1IG0661-01
		1IG0674-MSD1	1IG0661-01
		1IG0824-01	Pattison Sand Storage #1

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1IG0677	1IG0677-BLK1	
		1IG0677-BLK2	
		1IG0677-BS1	
		1IG0824-01	Pattison Sand Storage #1
		1IG0677-MS1	1IG0824-01
		1IG0677-MSD1	1IG0824-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IG0746	1IG0746-BLK1	
		1IG0746-BS1	
		1IG0824-01	Pattison Sand Storage #1
		1IG0824-01	Pattison Sand Storage #1
		1IG0746-MS1	1IG0824-01
		1IG0746-MSD1	1IG0824-01
		1IG0746-PS1	1IG0824-01
		1IG0746-BLK1	
		1IG0824-01RE1	Pattison Sand Storage #1
EPA 6020A		1IG0746-BLK2	
		1IG0746-BS2	
		1IG0824-01	Pattison Sand Storage #1
		1IG0746-MS2	1IG0824-01
		1IG0746-MSD2	1IG0824-01
		1IG0746-PS2	1IG0824-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IG0748	1IG0748-BLK1	
		1IG0748-BLK2	
		1IG0748-BLK3	
		1IG0748-BLK4	
		1IG0748-BS1	
		1IG0748-MS1	1IG0661-01
		1IG0748-MSD1	1IG0661-01
		1IG0748-PS1	1IG0661-01
		1IG0824-01	Pattison Sand Storage #1

Method	Batch	Laboratory ID	Client / Source ID
EPA 7196A	1IG1141	1IG1141-MS1	1IG0824-01
		1IG0824-01	Pattison Sand Storage #1
		1IG1141-MS2	1IG0824-01
		1IG1141-BS1	
		1IG1141-BLK1	
		1IG1141-PS1	1IG0824-01
		1IG1141-MSD1	1IG0824-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IG1420	1IG1420-BLK1	
		1IG0824-01	Pattison Sand Storage #1
		1IG1420-MS1	9IG0186-02
		1IG1420-MSD1	9IG0186-02

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IG1653	1IG1653-BLK1	
		1IG0824-01	Pattison Sand Storage #1
		1IG1653-MS1	1IG0824-01
		1IG1653-MSD1	1IG0824-01

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Conventional Chemistry Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG1141 - Wet Chem Preparation - EPA 7196A										
Blank (1IG1141-BLK1)			Prepared: 07/21/25 11:31 Analyzed: 07/22/25 14:45							
Chromium, hexavalent	<5.0	5.0	mg/kg wet							
LCS (1IG1141-BS1)			Prepared: 07/21/25 11:31 Analyzed: 07/22/25 14:45							
Chromium, hexavalent	8.6	5.0	mg/kg wet	9.74		88.2	80-120			
Matrix Spike (1IG1141-MS1)	**Source: 1IG0824-01**		Prepared: 07/21/25 11:31 Analyzed: 07/22/25 14:45							
Chromium, hexavalent	5.9	5.0	mg/kg wet	4.96	ND	118	75-125			
Matrix Spike (1IG1141-MS2)	**Source: 1IG0824-01**		Prepared: 07/21/25 11:31 Analyzed: 07/22/25 14:45							
Chromium, hexavalent	3460	500	mg/kg wet	3350	ND	103	75-125			
Matrix Spike Dup (1IG1141-MSD1)	**Source: 1IG0824-01**		Prepared: 07/21/25 11:31 Analyzed: 07/22/25 14:45							
Chromium, hexavalent	5.3	5.0	mg/kg wet	4.96	ND	108	75-125	9.48	30	
Post Spike (1IG1141-PS1)	**Source: 1IG0824-01**		Prepared: 07/21/25 11:31 Analyzed: 07/22/25 14:45							
Chromium, hexavalent	0.1		mg/L	0.100	0.004	104	85-115			

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0479 - EPA 7471A Hg Solid - EPA 7471B											
Blank (1IG0479-BLK1)				Prepared: 07/09/25 15:51 Analyzed: 07/10/25 14:07							
Mercury, total	<0.02	0.02	0.05	mg/kg							
LCS (1IG0479-BS1)				Prepared: 07/09/25 15:51 Analyzed: 07/10/25 14:09							
Mercury, total	0.21	0.02	0.05	mg/kg	0.200		103	80-120			
Matrix Spike (1IG0479-MS1)	**Source: 1IG0824-01**			Prepared: 07/09/25 15:51 Analyzed: 07/10/25 14:14							
Mercury, total	0.23	0.02	0.05	mg/kg	0.191	0.02	112	80-120			
Matrix Spike Dup (1IG0479-MSD1)	**Source: 1IG0824-01**			Prepared: 07/09/25 15:51 Analyzed: 07/10/25 14:16							
Mercury, total	0.22	0.02	0.05	mg/kg	0.198	0.02	104	80-120	3.92	20	
Batch 1IG0746 - EPA 3050B Digestion - EPA 6010B											
Blank (1IG0746-BLK1)				Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:22							

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0746 - EPA 3050B Digestion - EPA 6010B											
Blank (1IG0746-BLK1)				Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:22							
Barium, total	<0.43	0.43	1.00	mg/kg							
Boron, total	<5.7	5.7	10.0	mg/kg							
Cadmium, total	<0.5	0.5	1.0	mg/kg							
Chromium, total	<0.9	0.9	3.0	mg/kg							
Copper, total	<0.9	0.9	3.0	mg/kg							
Lead, total	<2.10	2.10	5.00	mg/kg							
Lithium, total	<0.8	0.8	5	mg/kg							
Manganese, total	<0.5	0.5	1.0	mg/kg							
Molybdenum, total	<0.7	0.7	1.0	mg/kg							
Nickel, total	1.28	0.7	5.0	mg/kg							J
Selenium, total	<1.7	1.7	3.0	mg/kg							
Silver, total	<0.2	0.2	1.0	mg/kg							
Vanadium, total	<0.365	0.365	5.00	mg/kg							
Zinc, total	2.36	2.1	3.0	mg/kg							B, J
Blank (1IG0746-BLK2)				Prepared: 07/14/25 14:48 Analyzed: 07/21/25 15:32							
Antimony, total	<0.33	0.33	1.00	mg/kg							
Arsenic, total	<0.36	0.36	1.00	mg/kg							
Beryllium, total	<0.02	0.02	1.0	mg/kg							
Cobalt, total	<1.00		1.00	mg/kg							
Thallium, total	<0.2	0.2	0.5	mg/kg							
LCS (1IG0746-BS1)				Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:27							
Barium, total	60.8	0.43	1.00	mg/kg	60.0		101	80-120			
Boron, total	62.9	5.7	10.0	mg/kg	60.0		105	80-120			
Cadmium, total	58.8	0.5	1.0	mg/kg	60.0		97.9	80-120			
Chromium, total	60.7	0.9	3.0	mg/kg	60.0		101	80-120			
Copper, total	61.1	0.9	3.0	mg/kg	60.0		102	80-120			
Lead, total	61.4	2.10	5.00	mg/kg	60.0		102	80-120			
Lithium, total	62.9	0.8	5	mg/kg	60.0		105	80-120			
Manganese, total	63.0	0.5	1.0	mg/kg	60.0		105	80-120			
Molybdenum, total	62.1	0.7	1.0	mg/kg	60.0		104	80-120			
Nickel, total	61.3	0.7	5.0	mg/kg	60.0		102	80-120			
Selenium, total	53.3	1.7	3.0	mg/kg	60.0		88.9	80-120			
Silver, total	62.5	0.2	1.0	mg/kg	60.0		104	80-120			
Vanadium, total	65.1	0.365	5.00	mg/kg	60.0		109	80-120			
Zinc, total	62.3	2.1	3.0	mg/kg	60.0		104	80-120			
LCS (1IG0746-BS2)				Prepared: 07/14/25 14:48 Analyzed: 07/21/25 15:35							
Antimony, total	55.6	1.64	5.00	mg/kg	60.0		92.7	80-120			
Arsenic, total	57.7	1.80	5.00	mg/kg	60.0		96.2	80-120			
Beryllium, total	58.8	0.1	5.0	mg/kg	60.0		98.0	80-120			
Cobalt, total	57.6		5.00	mg/kg	60.0		95.9	80-120			
Thallium, total	56.6	1.1	2.5	mg/kg	60.0		94.3	80-120			
Matrix Spike (1IG0746-MS1)		**Source: 1IG0824-01**		Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:39							
Barium, total	62.8	0.43	1.00	mg/kg	59.4	2.94	101	75-125			

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0746 - EPA 3050B Digestion - EPA 6010B											
Matrix Spike (1IG0746-MS1)		**Source: 1IG0824-01**			Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:39						
Boron, total	64.8	5.7	10.0	mg/kg	59.4	ND	109	75-125			
Cadmium, total	59.8	0.5	1.0	mg/kg	59.4	ND	101	75-125			
Chromium, total	71.3	0.9	3.0	mg/kg	59.4	6.1	110	75-125			
Copper, total	63.6	0.9	3.0	mg/kg	59.4	2.42	103	75-125			
Lead, total	70.9	2.10	5.00	mg/kg	59.4	12.7	97.9	75-125			
Lithium, total	62.4	0.8	5	mg/kg	59.4	ND	105	75-125			
Manganese, total	67.4	0.5	1.0	mg/kg	59.4	3.08	108	75-125			
Molybdenum, total	60.7	0.7	1.0	mg/kg	59.4	0.8	101	75-125			
Nickel, total	60.3	0.7	5.0	mg/kg	59.4	ND	101	75-125			
Selenium, total	53.9	1.7	3.0	mg/kg	59.4	ND	90.8	75-125			
Silver, total	59.7	0.2	1.0	mg/kg	59.4	ND	100	75-125			
Vanadium, total	70.6	0.365	5.00	mg/kg	59.4	3.60	113	75-125			
Zinc, total	60.2	2.1	3.0	mg/kg	59.4	6.64	90.1	75-125			
Matrix Spike (1IG0746-MS2)		**Source: 1IG0824-01**			Prepared: 07/14/25 14:48 Analyzed: 07/21/25 15:40						
Antimony, total	53.6	1.64	5.00	mg/kg	59.4	ND	90.2	75-125			
Arsenic, total	63.5	1.80	5.00	mg/kg	59.4	4.96	98.5	75-125			
Beryllium, total	59.1	0.1	5.0	mg/kg	59.4	ND	99.4	75-125			
Cobalt, total	59.3		5.00	mg/kg	59.4	ND	99.8	75-125			
Thallium, total	58.3	1.1	2.5	mg/kg	59.4	ND	98.2	75-125			
Matrix Spike Dup (1IG0746-MSD1)		**Source: 1IG0824-01**			Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:45						
Barium, total	60.1	0.43	1.00	mg/kg	58.8	2.94	97.3	75-125	4.39	20	
Boron, total	63.4	5.7	10.0	mg/kg	58.8	ND	108	75-125	2.15	20	
Cadmium, total	57.7	0.5	1.0	mg/kg	58.8	ND	98.2	75-125	3.65	20	
Chromium, total	68.8	0.9	3.0	mg/kg	58.8	6.1	107	75-125	3.60	20	
Copper, total	58.6	0.9	3.0	mg/kg	58.8	2.42	95.5	75-125	8.20	20	
Lead, total	67.6	2.10	5.00	mg/kg	58.8	12.7	93.5	75-125	4.72	20	
Lithium, total	61.6	0.8	5	mg/kg	58.8	ND	105	75-125	1.31	20	
Manganese, total	64.8	0.5	1.0	mg/kg	58.8	3.08	105	75-125	3.95	20	
Molybdenum, total	58.5	0.7	1.0	mg/kg	58.8	0.8	98.1	75-125	3.73	20	
Nickel, total	61.5	0.7	5.0	mg/kg	58.8	ND	105	75-125	2.01	20	
Selenium, total	47.8	1.7	3.0	mg/kg	58.8	ND	81.3	75-125	12.2	20	
Silver, total	58.3	0.2	1.0	mg/kg	58.8	ND	99.2	75-125	2.35	20	
Vanadium, total	68.3	0.365	5.00	mg/kg	58.8	3.60	110	75-125	3.35	20	
Zinc, total	58.1	2.1	3.0	mg/kg	58.8	6.64	87.5	75-125	3.61	20	
Matrix Spike Dup (1IG0746-MSD2)		**Source: 1IG0824-01**			Prepared: 07/14/25 14:48 Analyzed: 07/21/25 15:42						
Antimony, total	52.0	1.64	5.00	mg/kg	58.8	ND	88.4	75-125	3.12	20	
Arsenic, total	61.9	1.80	5.00	mg/kg	58.8	4.96	96.8	75-125	2.66	20	
Beryllium, total	58.0	0.1	5.0	mg/kg	58.8	ND	98.7	75-125	1.84	20	
Cobalt, total	58.0		5.00	mg/kg	58.8	ND	98.7	75-125	2.25	20	
Thallium, total	57.8	1.1	2.5	mg/kg	58.8	ND	98.3	75-125	1.02	20	
Post Spike (1IG0746-PS1)		**Source: 1IG0824-01**			Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:53						
Barium, total	4.09			mg/L	4.00	0.03	101	80-120			
Boron, total	4.30			mg/L	4.00	0.0288	107	80-120			

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0746 - EPA 3050B Digestion - EPA 6010B											
Post Spike (1IG0746-PS1)		**Source: 1IG0824-01**		Prepared: 07/14/25 14:48 Analyzed: 07/17/25 03:53							
Cadmium, total	4.0			mg/L	4.00	0.0003	101	80-120			
Chromium, total	4.1			mg/L	4.00	0.06	101	80-120			
Copper, total	4.10			mg/L	4.00	0.0246	102	80-120			
Lead, total	4.25			mg/L	4.00	0.13	103	80-120			
Lithium, total	4.12			mg/L	4.00	0.00367	103	80-120			
Manganese, total	4.31			mg/L	4.00	0.0313	107	80-120			
Molybdenum, total	4.1			mg/L	4.00	0.008	103	80-120			
Nickel, total	4.14			mg/L	4.00	0.00468	103	80-120			
Selenium, total	3.6			mg/L	4.00	0.005	90.8	80-120			
Silver, total	4.23			mg/L	4.00	0.000619	106	80-120			
Vanadium, total	4.39			mg/L	4.00	0.0367	109	80-120			
Zinc, total	4.12			mg/L	4.00	0.0675	101	80-120			
Post Spike (1IG0746-PS2)		**Source: 1IG0824-01**		Prepared: 07/14/25 14:48 Analyzed: 07/21/25 15:45							
Antimony, total	0.19			mg/L	0.200	0.0008	93.2	80-120			
Arsenic, total	0.24			mg/L	0.200	0.05	92.3	80-120			
Beryllium, total	0.2			mg/L	0.200	0.00003	95.3	80-120			
Cobalt, total	0.19			mg/L	0.200	0.001	96.8	80-120			
Thallium, total	0.2			mg/L	0.200	0.002	94.9	80-120			
Batch 1IG1420 - General Prep HPLC/IC - EPA 9056A											
Blank (1IG1420-BLK1)				Prepared: 07/23/25 00:00 Analyzed: 07/23/25 20:16							
Fluoride	<0.2	0.2	10.0	mg/kg							
Matrix Spike (1IG1420-MS1)		**Source: 9IG0186-02**		Prepared: 07/23/25 00:00 Analyzed: 07/23/25 21:28							
Fluoride	153.8	0.2	10.0	mg/kg	128	10.10	112	77-121			
Matrix Spike Dup (1IG1420-MSD1)		**Source: 9IG0186-02**		Prepared: 07/23/25 00:00 Analyzed: 07/23/25 21:46							
Fluoride	160.2	0.2	10.0	mg/kg	128	10.10	117	77-121	4.10	10	

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0674 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IG0674-BLK1)			Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:22							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IG0674-BLK2)			Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:24							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IG0674-BLK3)			Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:31							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
Blank (1IG0674-BLK4)			Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:33							
Mercury (TCLP)	<0.00050	0.00050	mg/L							
LCS (1IG0674-BS1)			Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:36							
Mercury (TCLP)	0.00248	0.00050	mg/L	0.00250		99.3	79-116			

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0674 - EPA 7470A Hg Water - EPA 7470A										
Matrix Spike (1IG0674-MS1)	**Source: 1IG0661-01**		Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:40							
Mercury (TCLP)	0.00271	0.00050	mg/L	0.00250	ND	108	56-137			
Matrix Spike Dup (1IG0674-MSD1)	**Source: 1IG0661-01**		Prepared: 07/11/25 16:44 Analyzed: 07/15/25 12:42							
Mercury (TCLP)	0.00250	0.00050	mg/L	0.00250	ND	100	56-137	8.15	13	
Batch 1IG0748 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IG0748-BLK1)			Prepared: 07/14/25 15:03 Analyzed: 07/17/25 00:41							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IG0748-BLK2)			Prepared: 07/14/25 15:03 Analyzed: 07/17/25 00:46							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IG0748-BLK3)			Prepared: 07/14/25 15:03 Analyzed: 07/17/25 00:56							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	<0.010	0.010	mg/L							
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
Blank (1IG0748-BLK4)			Prepared: 07/14/25 15:03 Analyzed: 07/17/25 01:02							
Arsenic (TCLP)	<0.030	0.030	mg/L							
Barium (TCLP)	0.0107	0.010	mg/L							B
Cadmium (TCLP)	<0.005	0.005	mg/L							
Chromium (TCLP)	<0.010	0.010	mg/L							
Lead (TCLP)	<0.020	0.020	mg/L							
Selenium (TCLP)	<0.050	0.050	mg/L							
Silver (TCLP)	<0.010	0.010	mg/L							
LCS (1IG0748-BS1)			Prepared: 07/14/25 15:03 Analyzed: 07/17/25 01:11							
Arsenic (TCLP)	0.203	0.030	mg/L	0.200		102	80-120			
Barium (TCLP)	0.208	0.010	mg/L	0.200		104	80-120			
Cadmium (TCLP)	0.213	0.005	mg/L	0.200		106	80-120			

Determination of TCLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0748 - EPA 3010A TCLP ICP - EPA 6010B										
LCS (1IG0748-BS1)				Prepared: 07/14/25 15:03 Analyzed: 07/17/25 01:11						
Chromium (TCLP)	0.207	0.010	mg/L	0.200		103	80-120			
Lead (TCLP)	0.209	0.020	mg/L	0.200		104	80-120			
Selenium (TCLP)	0.200	0.050	mg/L	0.200		99.8	80-120			
Silver (TCLP)	0.206	0.010	mg/L	0.200		103	80-120			
Matrix Spike (1IG0748-MS1)		**Source: 1IG0661-01**		Prepared: 07/14/25 15:03 Analyzed: 07/17/25 01:40						
Arsenic (TCLP)	0.195	0.030	mg/L	0.200	ND	97.5	70-130			
Barium (TCLP)	0.319	0.010	mg/L	0.200	0.112	103	70-130			
Cadmium (TCLP)	0.167	0.005	mg/L	0.200	ND	83.5	70-130			
Chromium (TCLP)	0.212	0.010	mg/L	0.200	ND	106	70-130			
Lead (TCLP)	0.240	0.020	mg/L	0.200	0.021	109	70-130			
Selenium (TCLP)	0.165	0.050	mg/L	0.200	ND	82.3	70-130			
Silver (TCLP)	0.217	0.010	mg/L	0.200	ND	109	70-130			
Matrix Spike Dup (1IG0748-MSD1)		**Source: 1IG0661-01**		Prepared: 07/14/25 15:03 Analyzed: 07/17/25 01:49						
Arsenic (TCLP)	0.194	0.030	mg/L	0.200	ND	97.2	70-130	0.223	20	
Barium (TCLP)	0.318	0.010	mg/L	0.200	0.112	103	70-130	0.326	20	
Cadmium (TCLP)	0.157	0.005	mg/L	0.200	ND	78.5	70-130	6.16	20	
Chromium (TCLP)	0.190	0.010	mg/L	0.200	ND	95.2	70-130	10.8	20	
Lead (TCLP)	0.207	0.020	mg/L	0.200	0.021	93.2	70-130	14.6	20	
Selenium (TCLP)	0.166	0.050	mg/L	0.200	ND	83.0	70-130	0.837	20	
Silver (TCLP)	0.192	0.010	mg/L	0.200	ND	95.9	70-130	12.5	20	
Post Spike (1IG0748-PS1)		**Source: 1IG0661-01**		Prepared: 07/14/25 15:03 Analyzed: 07/17/25 01:59						
Arsenic (TCLP)	0.762		mg/L	0.800	-0.0143	95.3	75-125			
Barium (TCLP)	0.888		mg/L	0.800	0.112	97.1	75-125			
Cadmium (TCLP)	0.829		mg/L	0.800	-0.065	104	75-125			
Chromium (TCLP)	0.804		mg/L	0.800	-0.0119	101	75-125			
Lead (TCLP)	0.841		mg/L	0.800	0.021	102	75-125			
Selenium (TCLP)	0.822		mg/L	0.800	-0.0663	103	75-125			
Silver (TCLP)	0.785		mg/L	0.800	-0.00617	98.1	75-125			

TCLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0361 - EPA 1311 - EPA 1311										
Blank (1IG0361-BLK1)				Prepared: 07/08/25 14:28 Analyzed: 07/11/25 08:16						
TCLP pH, Initial	4.9		pH							
TCLP pH, Initial	4.9		pH							
TCLP pH, Final	4.9		pH							
TCLP pH, Final	4.9		pH							

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0578 - EPA 3005A Total Recoverable Metals - EPA 6020A										

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (1IG0578-BLK1)			Prepared: 07/10/25 15:55 Analyzed: 07/16/25 16:58							
Antimony (SPLP)	<0.0010	0.0010	mg/L							
Arsenic (SPLP)	<0.0020	0.0020	mg/L							
Barium (SPLP)	<0.0010	0.0010	mg/L							
Beryllium (SPLP)	<0.0005	0.0005	mg/L							
Cadmium (SPLP)	<0.0002	0.0002	mg/L							
Chromium (SPLP)	<0.0020	0.0020	mg/L							
Copper (SPLP)	<0.0050	0.0050	mg/L							
Lead (SPLP)	<0.0010	0.0010	mg/L							
Selenium (SPLP)	<0.0020	0.0020	mg/L							
Thallium (SPLP)	<0.0005	0.0005	mg/L							
Blank (1IG0578-BLK2)			Prepared: 07/10/25 15:55 Analyzed: 07/16/25 17:00							
Antimony (SPLP)	<0.0010	0.0010	mg/L							
Arsenic (SPLP)	<0.0020	0.0020	mg/L							
Barium (SPLP)	<0.0010	0.0010	mg/L							B
Beryllium (SPLP)	<0.0005	0.0005	mg/L							
Cadmium (SPLP)	<0.0002	0.0002	mg/L							
Chromium (SPLP)	<0.0020	0.0020	mg/L							B
Copper (SPLP)	<0.0050	0.0050	mg/L							
Lead (SPLP)	<0.0010	0.0010	mg/L							
Selenium (SPLP)	<0.0020	0.0020	mg/L							
Thallium (SPLP)	<0.0005	0.0005	mg/L							
LCS (1IG0578-BS1)			Prepared: 07/10/25 15:55 Analyzed: 07/16/25 17:03							
Antimony (SPLP)	0.101	0.0010	mg/L	0.100		101	80-120			
Arsenic (SPLP)	0.105	0.0020	mg/L	0.100		105	80-120			
Barium (SPLP)	0.116	0.0010	mg/L	0.100		116	80-120			
Beryllium (SPLP)	0.105	0.0005	mg/L	0.100		105	80-120			
Cadmium (SPLP)	0.104	0.0002	mg/L	0.100		104	80-120			
Chromium (SPLP)	0.113	0.0020	mg/L	0.100		113	80-120			
Copper (SPLP)	0.107	0.0050	mg/L	0.100		107	80-120			
Lead (SPLP)	0.110	0.0010	mg/L	0.100		110	80-120			
Selenium (SPLP)	0.105	0.0020	mg/L	0.100		105	80-120			
Thallium (SPLP)	0.107	0.0005	mg/L	0.100		107	80-120			
Matrix Spike (1IG0578-MS1)	**Source: 1IG0824-01**		Prepared: 07/10/25 15:55 Analyzed: 07/16/25 17:08							
Antimony (SPLP)	0.0985	0.0010	mg/L	0.100	0.0009	97.7	75-125			
Arsenic (SPLP)	0.108	0.0020	mg/L	0.100	0.0037	104	75-125			
Barium (SPLP)	0.122	0.0010	mg/L	0.100	0.0038	118	75-125			
Beryllium (SPLP)	0.108	0.0005	mg/L	0.100	ND	108	75-125			
Cadmium (SPLP)	0.104	0.0002	mg/L	0.100	ND	104	75-125			
Chromium (SPLP)	0.110	0.0020	mg/L	0.100	0.0018	108	75-125			
Copper (SPLP)	0.102	0.0050	mg/L	0.100	0.0034	98.4	70-130			
Lead (SPLP)	0.107	0.0010	mg/L	0.100	0.0003	106	70-130			
Selenium (SPLP)	0.103	0.0020	mg/L	0.100	ND	103	70-130			
Thallium (SPLP)	0.107	0.0005	mg/L	0.100	0.00009	107	75-125			

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0578 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Matrix Spike Dup (1IG0578-MSD1)		**Source: 1IG0824-01**		Prepared: 07/10/25 15:55 Analyzed: 07/16/25 17:10						
Antimony (SPLP)	0.0999	0.0010	mg/L	0.100	0.0009	99.0	75-125	1.38	20	
Arsenic (SPLP)	0.105	0.0020	mg/L	0.100	0.0037	101	75-125	2.67	20	
Barium (SPLP)	0.122	0.0010	mg/L	0.100	0.0038	118	75-125	0.277	20	
Beryllium (SPLP)	0.107	0.0005	mg/L	0.100	ND	107	75-125	1.48	20	
Cadmium (SPLP)	0.105	0.0002	mg/L	0.100	ND	105	75-125	1.70	20	
Chromium (SPLP)	0.107	0.0020	mg/L	0.100	0.0018	106	75-125	2.07	20	
Copper (SPLP)	0.101	0.0050	mg/L	0.100	0.0034	97.8	70-130	0.603	20	
Lead (SPLP)	0.102	0.0010	mg/L	0.100	0.0003	102	70-130	4.16	20	
Selenium (SPLP)	0.100	0.0020	mg/L	0.100	ND	100	70-130	2.79	20	
Thallium (SPLP)	0.108	0.0005	mg/L	0.100	0.00009	107	75-125	0.325	20	
Post Spike (1IG0578-PS1)		**Source: 1IG0824-01**		Prepared: 07/10/25 15:55 Analyzed: 07/16/25 17:12						
Antimony (SPLP)	0.0195		mg/L	0.0200	0.0009	93.0	75-125			
Arsenic (SPLP)	0.0232		mg/L	0.0200	0.0037	97.7	80-120			
Barium (SPLP)	0.0242		mg/L	0.0200	0.0038	102	80-120			
Beryllium (SPLP)	0.0203		mg/L	0.0200	0.00001	101	80-120			
Cadmium (SPLP)	0.0197		mg/L	0.0200	-0.00003	98.7	80-120			
Chromium (SPLP)	0.0211		mg/L	0.0200	0.0018	96.3	80-120			
Copper (SPLP)	0.0220		mg/L	0.0200	0.0034	93.3	75-125			
Lead (SPLP)	0.0198		mg/L	0.0200	0.0003	97.3	75-125			
Selenium (SPLP)	0.0198		mg/L	0.0200	0.0006	95.7	75-125			
Thallium (SPLP)	0.0191		mg/L	0.0200	0.00009	95.2	80-120			
Batch 1IG0677 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IG0677-BLK1)				Prepared: 07/11/25 16:46 Analyzed: 07/15/25 13:01						
Mercury (SPLP)	<0.00050	0.00050	mg/L							
Blank (1IG0677-BLK2)				Prepared: 07/11/25 16:46 Analyzed: 07/15/25 13:03						
Mercury (SPLP)	<0.00050	0.00050	mg/L							
LCS (1IG0677-BS1)				Prepared: 07/11/25 16:46 Analyzed: 07/15/25 13:05						
Mercury (SPLP)	0.00252	0.00050	mg/L	0.00250		101	79-116			
Matrix Spike (1IG0677-MS1)		**Source: 1IG0824-01**		Prepared: 07/11/25 16:46 Analyzed: 07/15/25 13:10						
Mercury (SPLP)	0.00286	0.00050	mg/L	0.00250	ND	114	56-137			
Matrix Spike Dup (1IG0677-MSD1)		**Source: 1IG0824-01**		Prepared: 07/11/25 16:46 Analyzed: 07/15/25 13:12						
Mercury (SPLP)	0.00252	0.00050	mg/L	0.00250	ND	101	56-137	12.4	13	
Batch 1IG1653 - General Prep HPLC/IC - EPA 9056A										
Blank (1IG1653-BLK1)				Prepared: 07/28/25 00:00 Analyzed: 07/28/25 21:45						
Fluoride (SPLP)	<0.1	0.1	mg/L							
Matrix Spike (1IG1653-MS1)		**Source: 1IG0824-01**		Prepared: 07/28/25 00:00 Analyzed: 07/28/25 22:11						
Fluoride (SPLP)	1.90	0.1	mg/L	1.33	0.48	107	77-121			
Matrix Spike Dup (1IG1653-MSD1)		**Source: 1IG0824-01**		Prepared: 07/28/25 00:00 Analyzed: 07/28/25 22:24						

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG1653 - General Prep HPLC/IC - EPA 9056A										
Matrix Spike Dup (1IG1653-MSD1)	**Source: 1IG0824-01**	Prepared: 07/28/25 00:00 Analyzed: 07/28/25 22:24								
Fluoride (SPLP)	1.86	0.1	mg/L	1.33	0.48	104	77-121	2.12	10	

SPLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IG0332 - EPA 1312 - EPA 1312										
Blank (1IG0332-BLK1)	Prepared: 07/08/25 09:22 Analyzed: 07/11/25 08:18									
SPLP pH, Initial	5.0		pH							
SPLP pH, Final	8.8		pH							

Definitions

B: The target analyte was detected in the blank at or above the method acceptance criteria.
J: Estimated value. The analyte concentration is less than the reporting/quantitation limit.
MDL: Minimum Detection Limit
RL: Reporting Limit
RPD: Relative Percent Difference

Cooler Receipt Log

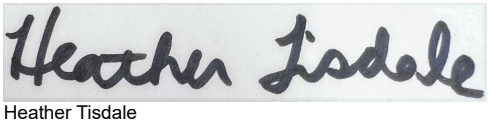
Cooler ID: Default Cooler Temp: 23.3°C

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	No
COC/Labels Agree	No	Preservation Confirmed	No
Received On Ice	No		

Report Comments

Reviewed and Approved By:



Heather Tisdale
Customer Relationship Specialist
heather.tisdale@microbac.com
08/19/25 09:22

CHAIN OF CUSTODY RECO

Keystone LABORATORIES, INC.

600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

3012 Ansborough Ave
Waterloo, IA. 50701
Phone:319-235-4440

iren St
A. 52544
437-7023

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Pattison Sand Company, LLC
PM: Heather Tisdale

PRINT OR TYPE INFO BELOW:	REPORT TO:	BILL TO:
SAMPLER: Carl Orr	NAME:	NAME:
SITE NAME: Pattison Sand Co LLC	CO. NAME:	CO. NAME:
ADDRESS: 23656 Great River Rd	ADDRESS:	ADDRESS:
CITY/ST/ZIP: Gaynaville, IA 52049	CITY/ST/ZIP:	CITY/ST/ZIP:
PHONE: 563-964-2560	PHONE:	PHONE:
	Email:	Email:

CLIENT SAMPLE #	DATE	TIME		# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: TCLP EPA 1311	SPLP EPA 1312	Total Metals	EPA 6010, 7060, 7091, 7471, 1641	VOC	SVOC	LAB USE ONLY: Sample Condition	Sample #
Pattison Sand Storage #1			Pattison Sand Storage #1	1		G	✓	✓	✓					

LAB USE ONLY: Wk Order #: | Short Hold: | Rush: | Temp. oC 23.3 no ice

Relinquished by: (Signature)	Date: [redacted] 7-1-25	Received by: (Signature)	Date:	Remarks: 3qtr Sample 2025
Carl Orr	Time: [redacted] 10:00		Time:	
Relinquished by: (Signature)	Date:	Received for Lab by: (Signature)	Date: 07-3-25	
	Time:	Anne Koff	Time: 10:39	

CHAIN OF CUSTODY RECO

Keystone LABORATORIES, INC.

600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

3012 Ansborough Ave
Waterloo, IA. 50701
Phone:319-235-4440

...ren St.
...A. 52544
...437-7023

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Pattison Sand Company, LLC
PM: Heather Tisdale

PRINT OR TYPE INFO BELOW:	REPORT TO:	BILL TO:
SAMPLER: Carl Orr	NAME:	NAME:
SITE NAME: Pattison Sand Co LLC	CO. NAME:	CO. NAME:
ADDRESS: 23656 Great River Rd	ADDRESS:	ADDRESS:
CITY/ST/ZIP: Gaymaville, IA 52049	CITY/ST/ZIP:	CITY/ST/ZIP:
PHONE: 563-964-2960	PHONE:	PHONE:
	Email:	Email:

CLIENT SAMPLE #	DATE	TIME		# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: TCLP EPA 1311	SPLP EPA 1312	Total Metals	EPA 6010, 7060 7061, 7471, 7841	VOC	SVOC
Pattison Sand Storage #1			Pattison Sand Storage #1	1		G	✓	✓	✓			

LAB USE ONLY

Wk Order #:		
Short Hold:		
Rush:		
Temp.	oC	23.3 no ice

Sample Condition	Sample #

Relinquished by: (Signature) Carl Orr	Date: [redacted] 7-1-25	Received by: (Signature)	Date:
	Time: [redacted] 10:00		Time:
Relinquished by: (Signature)	Date:	Received for Lab by: (Signature) Anne KOFFI	Date: 07-3-25
	Time:		Time: 10:39

Remarks: 3qtr Sample 2025

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 22 -BUD- 09 - 06

DNR Certified Lab: Microbac (Keystone) Laboratory

Lab Report Date: 7/1/25

By-Product Generator: Pattison Sand Storage #1

City: CLAYTON State: IA Zip: 52049

By-Product Name: Pattison Sand Storage 1

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.0010 mg/L	31 mg/kg	<0.33	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0037 mg/L	17 mg/kg	4.96	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0038 mg/L	15,000 mg/kg	2.94	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0005 mg/L	110 mg/kg	<0.02	mg/kg
☒	Boron				16,000 mg/kg	<5.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.0002 mg/L	70 mg/kg	<0.5	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.0020 mg/L	**(Total)	6.10	mg/kg
					(Hexavalent - VI) 210 mg/kg	<5.0	mg/kg
					(Trivalent - III) 97,000 mg/kg	6.08	mg/kg
☒	Cobalt				23 mg/kg	<1.00	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.0050 mg/L	15,000 mg/kg	2.4	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.5 mg/L	4,700 mg/kg	<0.2	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0010 mg/L	400 mg/kg	12.7	mg/kg
☒	Lithium				160 mg/kg	<0.8	mg/kg
☒	Manganese				10,000 mg/kg	3.1	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.00050 mg/L	23 mg/kg	0.02	mg/kg
☒	Molybdenum				390 mg/kg	0.8	mg/kg
☒	Nickel				1,500 mg/kg	<0.7	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.0020 mg/L	390 mg/kg	<1.7	mg/kg
☒	Silver				370 mg/kg	<0.2	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.0005 mg/L	0.78 mg/kg	0.2	mg/kg
☒	Vanadium				350 mg/kg	3.60	mg/kg
☒	Zinc				23,000 mg/kg	9.0	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.030	mg/L	☒	Benzene	0.5 mg/L	0	mg/L
☒	Barium	100.0 mg/L	0.037	mg/L	☒	Carbon tetrachloride	0.5 mg/L	0	mg/L
☒	Cadmium	1.0 mg/L	<0.005	mg/L	☒	Chlorobenzene	100.0 mg/L	0	mg/L
☒	Chromium	5.0 mg/L	<0.010	mg/L	☒	Chloroform	6.0 mg/L	0	mg/L
☒	Lead	5.0 mg/L	<0.020	mg/L	☒	1,2-Dichloroethane	0.5 mg/L	0	mg/L
☒	Mercury	0.2 mg/L	<0.000 50	mg/L	☒	1,1-Dichloroethylene	0.7 mg/L	0	mg/L
☒	Selenium	1.0 mg/L	0.119	mg/L	☒	Methyl ethyl ketone	200.0 mg/L	0	mg/L
☒	Silver	5.0 mg/L	<0.010	mg/L	☒	Tetrachloroethylene	0.7 mg/L	0	mg/L
					☒	Trichloroethylene	0.5 mg/L	0	mg/L
					☒	Vinyl chloride	0.2 mg/L	0	mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L	0	mg/L	☒	o-Cresol	200.0 mg/L	0	mg/L
☐	Endrin	0.02 mg/L	0	mg/L	☒	m-Cresol	200.0 mg/L	0	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	0	mg/L	☒	p-Cresol	200.0 mg/L	0	mg/L
☐	Lindane	0.4 mg/L	0	mg/L	☒	Cresol	200.0 mg/L	0	mg/L
☐	Methoxychlor	10.0 mg/L	0	mg/L	☒	1,4-Dichlorobenzene	7.5 mg/L	0	mg/L
☐	Toxaphene	0.5 mg/L	0	mg/L	☒	2,4-Dinitrotoluene	0.13 mg/L	0	mg/L
					☒	Hexachlorobenzene	0.13 mg/L	0	mg/L
					☒	Hexachlorobutadiene	0.5 mg/L	0	mg/L
					☒	Hexachloroethane	3.0 mg/L	0	mg/L
Herbicides					☒	Nitrobenzene	2.0 mg/L	0	mg/L
*	Contaminant	Regulatory Limit	Test Result		☒	Pentachlorophenol	100.0 mg/L	0	mg/L
☐	2,4-D	10.0 mg/L	0	mg/L	☒	Pyridine	5.0 mg/L	0	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L	0	mg/L	☒	2,4,5-Trichlorophenol	400.0 mg/L	0	mg/L
					☒	2,4,6-Trichlorophenol	2.0 mg/L	0	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 9-1-25

Printed Name: Carl Orr **Title:** Environmental Compliance Manager

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IK1787

Project Description

Beneficial Use

For:

Carl Orr

Pattison Sand Company, LLC

22656 Great River Road

Garnavillo, IA 52049

Heather Tisdale

Customer Relationship Specialist

Friday, December 19, 2025

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

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Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IK1787

Pattison Sand Company, LLC

Carl Orr
22656 Great River Road
Garnavillo, IA 52049

Project Name: Beneficial Use

Project / PO Number: N/A
Received: 11/25/2025
Reported: 12/19/2025

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
storage #1	1IK1787-01	Bulk-Solid	GRAB		11/19/25 08:30	11/25/25 10:46

CERTIFICATE OF ANALYSIS

1IK1787

Analytical Testing Parameters

Client Sample ID: storage #1
Sample Matrix: Bulk-Solid
Lab Sample ID: 1IK1787-01
Collected By: orr, Car
Collection Date: 11/19/2025 8:30

Inorganics Total	Result	RL	Units	Note	Prepared	Analyzed	Analyst
SM 2540 G-2011							
% Solids	**1.47**	0.10	%		11/25/25 1312	11/25/25 1348	LAW

Metals TCLP by AA	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 7470A							
Mercury	<0.00050	0.00050	mg/L		12/02/25 1616	12/02/25 1616	JAR

Metals TCLP by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010B							
Arsenic	<0.030	0.030	mg/L		12/04/25 0712	12/04/25 2324	JAR
Barium	**0.075**	0.010	mg/L		12/04/25 0712	12/04/25 2324	JAR
Cadmium	<0.005	0.005	mg/L		12/04/25 0712	12/04/25 2324	JAR
Chromium	<0.010	0.010	mg/L		12/04/25 0712	12/04/25 2324	JAR
Lead	<0.020	0.020	mg/L		12/04/25 0712	12/04/25 2324	JAR
Selenium	**0.211**	0.050	mg/L		12/04/25 0712	12/04/25 2324	JAR
Silver	<0.010	0.010	mg/L		12/04/25 0712	12/04/25 2324	JAR

Metals SPLP by AA	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 7470A							
Mercury	<0.00050	0.00050	mg/L		12/02/25 1637	12/02/25 1637	JAR

Determination of Total Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6020A							
Cobalt	<10.0	10.0	mg/kg		12/01/25 1541	12/04/25 1905	RVV

TCLP Extraction	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 1311/EPA 1311							
pH Inital Leachate	**4.9**		pH		12/01/25 1410	12/02/25 1525	JAR
pH Inital Leachate	**4.9**		pH		12/01/25 1410	12/02/25 1525	JAR
pH Final Leachate	**5.3**		pH		12/01/25 1410	12/02/25 1525	JAR
pH Final Leachate	**5.3**		pH		12/01/25 1410	12/02/25 1525	JAR

Determination of SPLP Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A							
Antimony	**0.0010**	0.0010	mg/L		12/02/25 1613	12/03/25 1615	RVV
Arsenic	**0.0025**	0.0020	mg/L		12/02/25 1613	12/03/25 1615	RVV
Barium	**0.0038**	0.0010	mg/L		12/02/25 1613	12/03/25 1615	RVV
Beryllium	<0.0005	0.0005	mg/L		12/02/25 1613	12/03/25 1615	RVV
Cadmium	<0.0002	0.0002	mg/L		12/02/25 1613	12/03/25 1615	RVV
Chromium	**0.0100**	0.0010	mg/L		12/02/25 1613	12/03/25 1615	RVV
Copper	<0.0050	0.0050	mg/L		12/02/25 1613	12/03/25 1615	RVV
Lead	**0.0014**	0.0010	mg/L		12/02/25 1613	12/03/25 1615	RVV

CERTIFICATE OF ANALYSIS

1IK1787

Client Sample ID:	storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	orr, Car
Lab Sample ID:	1IK1787-01	**Collection Date:**	11/19/2025 8:30

Determination of SPLP Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Selenium	<0.0020	0.0020	mg/L		12/02/25 1613	12/03/25 1615	RVV
Thallium	<0.0005	0.0005	mg/L		12/02/25 1613	12/03/25 1615	RVV

SPLP Extraction	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 1312/EPA 1312							
pH Inital Leachate	**5.0**		pH		12/01/25 1410	12/02/25 1526	JAR
pH Final Leachate	**8.4**		pH		12/01/25 1410	12/02/25 1526	JAR

Anions SPLP by IC	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A							
Fluoride	**0.1**	0.1	mg/L		12/15/25 0000	12/15/25 2157	MID

Determination of Total Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
[Calc]								
Chromium, trivalent	**7.21**	2.37	8.00	mg/kg		12/01/25 1541	12/03/25 1208	CJF

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010B								
Lead	**14.0**	2.10	5.00	mg/kg		12/01/25 1541	12/02/25 2247	JAR

Determination of Total Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010B								
Barium	**6.37**	0.43	1.00	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Boron	<5.7	5.7	10.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Cadmium	<0.5	0.5	1.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Chromium	**7.2**	0.9	3.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Copper	**3.3**	0.9	3.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Lithium	<0.8	0.8	5	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Manganese	**19.5**	0.5	1.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Molybdenum	**2.0**	0.7	1.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Nickel	**1.5**	0.7	5.0	mg/kg	**J**	12/01/25 1541	12/02/25 2247	JAR
Selenium	**2.6**	1.7	3.0	mg/kg	**J**	12/01/25 1541	12/02/25 2247	JAR
Silver	<0.2	0.2	1.0	mg/kg		12/01/25 1541	12/02/25 2247	JAR
Vanadium	**4.70**	0.365	5.00	mg/kg	**J**	12/01/25 1541	12/02/25 2247	JAR
Zinc	**12.5**	2.1	3.0	mg/kg		12/01/25 1541	12/03/25 0913	JAR
EPA 3050B/EPA 6020A								
Antimony	<1.90	1.90	10.0	mg/kg		12/01/25 1541	12/04/25 1905	RVV
Arsenic	**7.70**	0.45	10.0	mg/kg	**J**	12/01/25 1541	12/04/25 1905	RVV
Beryllium	<0.08	0.08	10.0	mg/kg		12/01/25 1541	12/04/25 1905	RVV
Thallium	**0.4**	0.06	10.0	mg/kg	**J**	12/01/25 1541	12/04/25 1905	RVV
EPA 7196A								
Chromium, hexavalent	<1.5	1.5	5.0	mg/kg		12/01/25 1253	12/03/25 1208	CJF
EPA 7471A								
Mercury	<0.02	0.02	0.05	mg/kg	**M1**	12/03/25 0722	12/03/25 1500	JAR

CERTIFICATE OF ANALYSIS

1IK1787

Client Sample ID:	storage #1		
Sample Matrix:	Bulk-Solid	**Collected By:**	orr, Car
Lab Sample ID:	1IK1787-01	**Collection Date:**	11/19/2025 8:30

Determination of Total Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								
Fluoride	<0.2	0.2	10.0	mg/kg		12/17/25 0000	12/18/25 0212	MID

CERTIFICATE OF ANALYSIS

1IK1787

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
SM 2540 G-2011	1IK1329	1IK1329-DUP1	1IK1780-03
		1IK1787-01	storage #1
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 1311	1IK1380	1IK1787-01	storage #1
		1IK1380-BLK1	
		1IK1380-BLK1	
		1IK1787-01	storage #1
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 1312	1IK1381	1IK1787-01	storage #1
		1IK1381-BLK1	
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 7196A	1IL0043	1IL0043-BS1	
		1IL0043-BS2	
		1IL0043-BS3	
		1IL0043-BS4	
		1IL0043-MS1	1IK1787-01
		1IL0043-MS2	1IK1787-01
		1IL0043-MSD1	1IK1787-01
		1IL0043-MRL1	
		1IL0043-PS1	1IK1787-01
		1IK1787-01	storage #1
		1IL0043-BLK1	
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 7470A	1IL0057	1IL0057-BLK1	
		1IL0057-BLK2	
		1IL0057-BLK3	
		1IL0057-BLK4	
		1IL0057-BS1	
		1IL0057-MS1	1IK1459-01
		1IL0057-MSD1	1IK1459-01
		1IK1787-01	storage #1
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 7470A	1IL0058	1IL0058-BLK1	
		1IL0058-BLK2	
		1IL0058-BS1	
		1IK1787-01	storage #1
		1IL0058-MS1	1IK1787-01
		1IL0058-MSD1	1IK1787-01
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 6010B	1IL0069	1IL0069-BLK1	
		1IL0069-BS1	
		1IL0069-BS1	
		1IK1787-01	storage #1
		1IK1787-01	storage #1
		1IL0069-MS1	1IK1787-01
		1IL0069-MS1	1IK1787-01
		1IL0069-MSD1	1IK1787-01
		1IL0069-MSD1	1IK1787-01

CERTIFICATE OF ANALYSIS

1IK1787

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IL0069	1IL0069-PS1	1IK1787-01
		1IL0069-PS1	1IK1787-01
		1IL0069-BLK1	
		1IL0069-BLK1	
		1IK1787-01RE1	storage #1
EPA 6020A		1IL0069-BLK2	
		1IL0069-BS2	
		1IK1787-01	storage #1
		1IL0069-MS2	1IK1787-01
		1IL0069-MSD2	1IK1787-01
		1IL0069-PS2	1IK1787-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1IL0154	1IL0154-BLK1	
		1IL0154-BLK2	
		1IL0154-BS1	
		1IK1787-01	storage #1
		1IL0154-MS1	1IK1787-01
		1IL0154-MSD1	1IK1787-01
		1IL0154-PS1	1IK1787-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7471A	1IL0164	1IL0164-BLK1	
		1IL0164-BS1	
		1IK1787-01	storage #1
		1IL0164-MS1	1IK1787-01
		1IL0164-MSD1	1IK1787-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6010B	1IL0255	1IL0255-BLK1	
		1IL0255-BLK2	
		1IL0255-BLK3	
		1IL0255-BLK4	
		1IL0255-BS1	
		1IK1787-01	storage #1
		1IL0255-MS1	1IK1787-01
		1IL0255-MSD1	1IK1787-01
		1IL0255-PS1	1IK1787-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IL0911	1IL0911-BLK1	
		1IK1787-01	storage #1
		1IL0911-MS1	1IK1787-01
		1IL0911-MSD1	1IK1787-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IL1077	1IL1077-BLK1	
		1IK1787-01	storage #1
		1IL1077-MS1	1IK1787-01
		1IL1077-MSD1	1IK1787-01

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

CERTIFICATE OF ANALYSIS

1IK1787

Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IK1329 - Wet Chem Preparation - SM 2540 G-2011										
Duplicate (1IK1329-DUP1)	**Source: 1IK1780-03**		Prepared: 11/25/25 13:12 Analyzed: 11/25/25 13:48							
% Solids	0.89	0.10	%		0.98			9.94	11	

Metals Total by ICP	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0069 - EPA 3050B Digestion - EPA 6010B											
Blank (1IL0069-BLK1)				Prepared: 12/01/25 15:41 Analyzed: 12/03/25 09:07							
Lead	<2.10	2.10	5.00	mg/kg							
LCS (1IL0069-BS1)				Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:41							
Lead	60.6	2.10	5.00	mg/kg	60.0		101	80-120			
Matrix Spike (1IL0069-MS1)	**Source: 1IK1787-01**			Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:53							
Lead	70.5	2.10	5.00	mg/kg	59.8	14.0	94.5	75-125			
Matrix Spike Dup (1IL0069-MSD1)	**Source: 1IK1787-01**			Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:59							
Lead	73.5	2.10	5.00	mg/kg	59.4	14.0	100	75-125	4.17	20	
Post Spike (1IL0069-PS1)	**Source: 1IK1787-01**			Prepared: 12/01/25 15:41 Analyzed: 12/02/25 23:05							
Lead	4.19			mg/L	4.00	0.14	101	80-120			

Metals TCLP by AA	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0057 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IL0057-BLK1)			Prepared: 12/01/25 14:04 Analyzed: 12/02/25 15:42							
Mercury	<0.00050	0.00050	mg/L							
Blank (1IL0057-BLK2)			Prepared: 12/01/25 14:04 Analyzed: 12/02/25 15:44							
Mercury	<0.00050	0.00050	mg/L							
Blank (1IL0057-BLK3)			Prepared: 12/01/25 14:04 Analyzed: 12/02/25 15:46							
Mercury	<0.00050	0.00050	mg/L							
Blank (1IL0057-BLK4)			Prepared: 12/01/25 14:04 Analyzed: 12/02/25 15:49							
Mercury	<0.00050	0.00050	mg/L							
LCS (1IL0057-BS1)			Prepared: 12/01/25 14:04 Analyzed: 12/02/25 15:51							
Mercury	0.00244	0.00050	mg/L	0.00250		97.6	79-116			
Matrix Spike (1IL0057-MS1)	**Source: 1IK1459-01**		Prepared: 12/01/25 14:04 Analyzed: 12/02/25 16:00							
Mercury	0.00267	0.00050	mg/L	0.00250	ND	107	56-137			
Matrix Spike Dup (1IL0057-MSD1)	**Source: 1IK1459-01**		Prepared: 12/01/25 14:04 Analyzed: 12/02/25 16:02							
Mercury	0.00258	0.00050	mg/L	0.00250	ND	103	56-137	3.44	13	

Metals TCLP by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0255 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IL0255-BLK1)			Prepared: 12/04/25 07:12 Analyzed: 12/04/25 22:34							
Arsenic	<0.030	0.030	mg/L							B

CERTIFICATE OF ANALYSIS

1IK1787

Metals TCLP by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0255 - EPA 3010A TCLP ICP - EPA 6010B										
Blank (1IL0255-BLK1)			Prepared: 12/04/25 07:12 Analyzed: 12/04/25 22:34							
Barium	<0.010	0.010	mg/L							
Cadmium	<0.005	0.005	mg/L							
Chromium	<0.010	0.010	mg/L							
Lead	<0.020	0.020	mg/L							
Selenium	<0.050	0.050	mg/L							
Silver	<0.010	0.010	mg/L							
Blank (1IL0255-BLK2)			Prepared: 12/04/25 07:12 Analyzed: 12/04/25 22:42							
Arsenic	<0.030	0.030	mg/L							
Barium	<0.010	0.010	mg/L							
Cadmium	<0.005	0.005	mg/L							
Chromium	<0.010	0.010	mg/L							
Lead	<0.020	0.020	mg/L							
Selenium	<0.050	0.050	mg/L							
Silver	<0.010	0.010	mg/L							
Blank (1IL0255-BLK3)			Prepared: 12/04/25 07:12 Analyzed: 12/04/25 22:51							
Arsenic	<0.030	0.030	mg/L							
Barium	<0.010	0.010	mg/L							
Cadmium	<0.005	0.005	mg/L							
Chromium	<0.010	0.010	mg/L							
Lead	<0.020	0.020	mg/L							
Selenium	<0.050	0.050	mg/L							
Silver	<0.010	0.010	mg/L							
Blank (1IL0255-BLK4)			Prepared: 12/04/25 07:12 Analyzed: 12/04/25 22:57							
Arsenic	<0.030	0.030	mg/L							B
Barium	0.0187	0.010	mg/L							B
Cadmium	<0.005	0.005	mg/L							
Chromium	<0.010	0.010	mg/L							
Lead	<0.020	0.020	mg/L							
Selenium	<0.050	0.050	mg/L							
Silver	<0.010	0.010	mg/L							
LCS (1IL0255-BS1)			Prepared: 12/04/25 07:12 Analyzed: 12/04/25 23:18							
Arsenic	0.217	0.030	mg/L	0.200		108	80-120			
Barium	0.194	0.010	mg/L	0.200		96.9	80-120			
Cadmium	0.199	0.005	mg/L	0.200		99.5	80-120			
Chromium	0.193	0.010	mg/L	0.200		96.7	80-120			
Lead	0.200	0.020	mg/L	0.200		99.9	80-120			
Selenium	0.199	0.050	mg/L	0.200		99.3	80-120			
Silver	0.200	0.010	mg/L	0.200		100	80-120			
Matrix Spike (1IL0255-MS1)	**Source: 1IK1787-01**		Prepared: 12/04/25 07:12 Analyzed: 12/04/25 23:34							
Arsenic	0.209	0.030	mg/L	0.200	ND	105	70-130			
Barium	0.270	0.010	mg/L	0.200	0.0747	97.5	70-130			
Cadmium	0.195	0.005	mg/L	0.200	ND	97.3	70-130			

CERTIFICATE OF ANALYSIS

1IK1787

Metals TCLP by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0255 - EPA 3010A TCLP ICP - EPA 6010B										
Matrix Spike (1IL0255-MS1)	**Source: 1IK1787-01**		Prepared: 12/04/25 07:12 Analyzed: 12/04/25 23:34							
Chromium	0.187	0.010	mg/L	0.200	ND	93.6	70-130			
Lead	0.170	0.020	mg/L	0.200	ND	84.8	70-130			
Selenium	0.384	0.050	mg/L	0.200	0.211	86.9	70-130			
Silver	0.185	0.010	mg/L	0.200	ND	92.3	70-130			
Matrix Spike Dup (1IL0255-MSD1)	**Source: 1IK1787-01**		Prepared: 12/04/25 07:12 Analyzed: 12/04/25 23:45							
Arsenic	0.226	0.030	mg/L	0.200	ND	113	70-130	7.60	20	
Barium	0.270	0.010	mg/L	0.200	0.0747	97.8	70-130	0.248	20	
Cadmium	0.197	0.005	mg/L	0.200	ND	98.6	70-130	1.29	20	
Chromium	0.187	0.010	mg/L	0.200	ND	93.6	70-130	0.0736	20	
Lead	0.174	0.020	mg/L	0.200	ND	86.8	70-130	2.29	20	
Selenium	0.394	0.050	mg/L	0.200	0.211	91.5	70-130	2.37	20	
Silver	0.187	0.010	mg/L	0.200	ND	93.3	70-130	1.08	20	
Post Spike (1IL0255-PS1)	**Source: 1IK1787-01**		Prepared: 12/04/25 07:12 Analyzed: 12/04/25 23:55							
Arsenic	0.950		mg/L	0.800	0.00205	118	75-125			
Barium	0.900		mg/L	0.800	0.0747	103	75-125			
Cadmium	0.812		mg/L	0.800	0.0002	101	75-125			
Chromium	0.783		mg/L	0.800	0.00144	97.7	75-125			
Lead	0.755		mg/L	0.800	-0.005	94.3	75-125			
Selenium	1.10		mg/L	0.800	0.211	111	75-125			
Silver	0.794		mg/L	0.800	-0.0140	99.2	75-125			

Metals SPLP by AA	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0058 - EPA 7470A Hg Water - EPA 7470A										
Blank (1IL0058-BLK1)			Prepared: 12/01/25 14:08 Analyzed: 12/02/25 16:30							
Mercury	<0.00050	0.00050	mg/L							
Blank (1IL0058-BLK2)			Prepared: 12/01/25 14:08 Analyzed: 12/02/25 16:32							
Mercury	<0.00050	0.00050	mg/L							
LCS (1IL0058-BS1)			Prepared: 12/01/25 14:08 Analyzed: 12/02/25 16:34							
Mercury	0.00236	0.00050	mg/L	0.00250		94.4	79-116			
Matrix Spike (1IL0058-MS1)	**Source: 1IK1787-01**		Prepared: 12/01/25 14:08 Analyzed: 12/02/25 16:39							
Mercury	0.00250	0.00050	mg/L	0.00250	ND	100	56-137			
Matrix Spike Dup (1IL0058-MSD1)	**Source: 1IK1787-01**		Prepared: 12/01/25 14:08 Analyzed: 12/02/25 16:41							
Mercury	0.00253	0.00050	mg/L	0.00250	ND	101	56-137	0.979	13	

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0043 - Wet Chem Preparation - EPA 7196A											
Blank (1IL0043-BLK1)				Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08							
Chromium, hexavalent	<1.5	1.5	5.0	mg/kg							
LCS (1IL0043-BS1)				Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08							

CERTIFICATE OF ANALYSIS

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Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0043 - Wet Chem Preparation - EPA 7196A											
LCS (1IL0043-BS1)					Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	8.17	1.5	5.0	mg/kg	9.26		88.2	80-120			
LCS (1IL0043-BS2)					Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	7.88	1.5	5.0	mg/kg	9.66		81.6	80-120			
LCS (1IL0043-BS3)					Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	20.6	1.5	5.0	mg/kg	8.98		229	80-120			Q2
LCS (1IL0043-BS4)					Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	9.22	1.5	5.0	mg/kg	9.86		93.5	80-120			
Matrix Spike (1IL0043-MS1)		**Source: 1IK1787-01**			Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	3.71	1.5	5.0	mg/kg	4.65	ND	79.9	75-125			J
Matrix Spike (1IL0043-MS2)		**Source: 1IK1787-01**			Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	3640	151	500	mg/kg	4260	ND	85.4	75-125			
Matrix Spike Dup (1IL0043-MSD1)		**Source: 1IK1787-01**			Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	3.66	1.5	5.0	mg/kg	4.58	ND	79.9	75-125	1.33	30	J
Post Spike (1IL0043-PS1)		**Source: 1IK1787-01**			Prepared: 12/01/25 12:53 Analyzed: 12/03/25 12:08						
Chromium, hexavalent	0.114			mg/L	0.100	-0.00401	114	85-115			
Batch 1IL0069 - EPA 3050B Digestion - EPA 6010B											
Blank (1IL0069-BLK1)					Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:34						
Barium	<0.43	0.43	1.00	mg/kg							
Boron	<5.7	5.7	10.0	mg/kg							
Cadmium	<0.5	0.5	1.0	mg/kg							
Chromium	<0.9	0.9	3.0	mg/kg							
Copper	<0.9	0.9	3.0	mg/kg							
Lithium	<0.8	0.8	5	mg/kg							
Manganese	<0.5	0.5	1.0	mg/kg							
Molybdenum	<0.7	0.7	1.0	mg/kg							
Nickel	<0.7	0.7	5.0	mg/kg							
Selenium	<1.7	1.7	3.0	mg/kg							
Silver	<0.2	0.2	1.0	mg/kg							
Vanadium	<0.365	0.365	5.00	mg/kg							
Zinc	<2.1	2.1	3.0	mg/kg							B
Blank (1IL0069-BLK2)					Prepared: 12/01/25 15:41 Analyzed: 12/04/25 18:55						
Antimony	<1.90	1.90	10.0	mg/kg							
Arsenic	<0.45	0.45	10.0	mg/kg							
Beryllium	<0.08	0.08	10.0	mg/kg							
Cobalt	<10.0		10.0	mg/kg							
Thallium	<0.06	0.06	10.0	mg/kg							
LCS (1IL0069-BS1)					Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:41						
Barium	61.2	0.43	1.00	mg/kg	60.0		102	80-120			
Boron	60.5	5.7	10.0	mg/kg	60.0		101	80-120			
Cadmium	59.0	0.5	1.0	mg/kg	60.0		98.3	80-120			

CERTIFICATE OF ANALYSIS

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Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0069 - EPA 3050B Digestion - EPA 6010B											
LCS (1IL0069-BS1)				Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:41							
Chromium	61.2	0.9	3.0	mg/kg	60.0		102	80-120			
Copper	62.4	0.9	3.0	mg/kg	60.0		104	80-120			
Lithium	59.5	0.8	5	mg/kg	60.0		99.2	80-120			
Manganese	62.5	0.5	1.0	mg/kg	60.0		104	80-120			
Molybdenum	59.4	0.7	1.0	mg/kg	60.0		99.0	80-120			
Nickel	60.3	0.7	5.0	mg/kg	60.0		100	80-120			
Selenium	54.1	1.7	3.0	mg/kg	60.0		90.1	80-120			
Silver	58.8	0.2	1.0	mg/kg	60.0		98.0	80-120			
Vanadium	64.1	0.365	5.00	mg/kg	60.0		107	80-120			
Zinc	57.9	2.1	3.0	mg/kg	60.0		96.5	80-120			
LCS (1IL0069-BS2)				Prepared: 12/01/25 15:41 Analyzed: 12/04/25 19:02							
Antimony	68.1	9.49	50.0	mg/kg	60.0		113	80-120			
Arsenic	66.4	2.27	50.0	mg/kg	60.0		111	80-120			
Beryllium	65.6	0.4	50.0	mg/kg	60.0		109	80-120			
Cobalt	65.8		50.0	mg/kg	60.0		110	80-120			
Thallium	64.0	0.3	50.0	mg/kg	60.0		107	80-120			
Matrix Spike (1IL0069-MS1)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:53							
Barium	66.5	0.43	1.00	mg/kg	59.8	6.37	101	75-125			
Boron	65.7	5.7	10.0	mg/kg	59.8	ND	110	75-125			
Cadmium	57.5	0.5	1.0	mg/kg	59.8	ND	96.1	75-125			
Chromium	77.3	0.9	3.0	mg/kg	59.8	7.2	117	75-125			
Copper	64.3	0.9	3.0	mg/kg	59.8	3.33	102	75-125			
Lithium	59.6	0.8	5	mg/kg	59.8	ND	99.7	75-125			
Manganese	75.0	0.5	1.0	mg/kg	59.8	19.5	92.8	75-125			
Molybdenum	59.5	0.7	1.0	mg/kg	59.8	2.0	96.1	75-125			
Nickel	57.7	0.7	5.0	mg/kg	59.8	1.50	94.0	75-125			
Selenium	59.5	1.7	3.0	mg/kg	59.8	2.6	95.3	75-125			
Silver	57.7	0.2	1.0	mg/kg	59.8	ND	96.4	75-125			
Vanadium	74.6	0.365	5.00	mg/kg	59.8	4.70	117	75-125			
Zinc	65.9	2.1	3.0	mg/kg	59.8	13.4	87.7	75-125			
Matrix Spike (1IL0069-MS2)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/04/25 19:07							
Antimony	54.9	9.49	50.0	mg/kg	59.8	ND	91.7	75-125			
Arsenic	69.3	2.27	50.0	mg/kg	59.8	7.70	103	75-125			
Beryllium	61.9	0.4	50.0	mg/kg	59.8	ND	104	75-125			
Cobalt	61.2		50.0	mg/kg	59.8	0.39	102	75-125			
Thallium	61.0	0.3	50.0	mg/kg	59.8	0.4	101	75-125			
Matrix Spike Dup (1IL0069-MSD1)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:59							
Barium	66.7	0.43	1.00	mg/kg	59.4	6.37	102	75-125	0.323	20	
Boron	65.8	5.7	10.0	mg/kg	59.4	ND	111	75-125	0.265	20	
Cadmium	58.2	0.5	1.0	mg/kg	59.4	ND	98.1	75-125	1.31	20	
Chromium	77.7	0.9	3.0	mg/kg	59.4	7.2	119	75-125	0.421	20	
Copper	64.6	0.9	3.0	mg/kg	59.4	3.33	103	75-125	0.400	20	
Lithium	59.7	0.8	5	mg/kg	59.4	ND	101	75-125	0.117	20	

CERTIFICATE OF ANALYSIS

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Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0069 - EPA 3050B Digestion - EPA 6010B											
Matrix Spike Dup (1IL0069-MSD1)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/02/25 22:59							
Manganese	75.6	0.5	1.0	mg/kg	59.4	19.5	94.4	75-125	0.719	20	
Molybdenum	60.5	0.7	1.0	mg/kg	59.4	2.0	98.5	75-125	1.68	20	
Nickel	58.2	0.7	5.0	mg/kg	59.4	1.50	95.5	75-125	0.864	20	
Selenium	61.6	1.7	3.0	mg/kg	59.4	2.6	99.5	75-125	3.43	20	
Silver	57.5	0.2	1.0	mg/kg	59.4	ND	96.8	75-125	0.400	20	
Vanadium	74.9	0.365	5.00	mg/kg	59.4	4.70	118	75-125	0.419	20	
Zinc	67.8	2.1	3.0	mg/kg	59.4	13.4	91.6	75-125	2.83	20	
Matrix Spike Dup (1IL0069-MSD2)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/04/25 19:10							
Antimony	50.9	9.49	50.0	mg/kg	59.4	ND	85.7	75-125	7.57	20	
Arsenic	65.3	2.27	50.0	mg/kg	59.4	7.70	96.9	75-125	5.99	20	
Beryllium	58.7	0.4	50.0	mg/kg	59.4	ND	98.8	75-125	5.37	20	
Cobalt	58.0		50.0	mg/kg	59.4	0.39	97.1	75-125	5.36	20	
Thallium	57.5	0.3	50.0	mg/kg	59.4	0.4	96.3	75-125	5.91	20	
Post Spike (1IL0069-PS1)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/02/25 23:05							
Barium	4.24			mg/L	4.00	0.06	104	80-120			
Boron	4.20			mg/L	4.00	0.0336	104	80-120			
Cadmium	3.9			mg/L	4.00	0.0004	97.9	80-120			
Chromium	4.2			mg/L	4.00	0.07	104	80-120			
Copper	4.35			mg/L	4.00	0.0335	108	80-120			
Lithium	3.90			mg/L	4.00	0.00571	97.4	80-120			
Manganese	4.13			mg/L	4.00	0.196	98.3	80-120			
Molybdenum	4.1			mg/L	4.00	0.02	101	80-120			
Nickel	4.04			mg/L	4.00	0.0150	101	80-120			
Selenium	4.0			mg/L	4.00	0.03	100	80-120			
Silver	4.08			mg/L	4.00	0.00119	102	80-120			
Vanadium	4.43			mg/L	4.00	0.0472	110	80-120			
Zinc	4.10			mg/L	4.00	0.135	99.2	80-120			
Post Spike (1IL0069-PS2)		**Source: 1IK1787-01**		Prepared: 12/01/25 15:41 Analyzed: 12/04/25 19:13							
Antimony	0.20			mg/L	0.200	0.002	99.9	80-120			
Arsenic	0.25			mg/L	0.200	0.08	88.0	80-120			
Beryllium	0.2			mg/L	0.200	0.0003	91.9	80-120			
Cobalt	0.18			mg/L	0.200	0.004	87.3	80-120			
Thallium	0.2			mg/L	0.200	0.004	92.1	80-120			
Batch 1IL0164 - EPA 7471A Hg Solid - EPA 7471A											
Blank (1IL0164-BLK1)				Prepared: 12/03/25 07:22 Analyzed: 12/03/25 14:53							
Mercury	<0.02	0.02	0.05	mg/kg							
LCS (1IL0164-BS1)				Prepared: 12/03/25 07:22 Analyzed: 12/03/25 14:56							
Mercury	0.21	0.02	0.05	mg/kg	0.200		105	80-120			
Matrix Spike (1IL0164-MS1)		**Source: 1IK1787-01**		Prepared: 12/03/25 07:22 Analyzed: 12/03/25 15:03							
Mercury	0.24	0.02	0.05	mg/kg	0.198	ND	124	80-120			M1
Matrix Spike Dup (1IL0164-MSD1)		**Source: 1IK1787-01**		Prepared: 12/03/25 07:22 Analyzed: 12/03/25 15:05							

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Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0164 - EPA 7471A Hg Solid - EPA 7471A											
Matrix Spike Dup (1IL0164-MSD1)		**Source: 1IK1787-01**		Prepared: 12/03/25 07:22 Analyzed: 12/03/25 15:05							
Mercury	0.23	0.02	0.05	mg/kg	0.198	ND	114	80-120	8.44	20	
Batch 1IL1077 - General Prep HPLC/IC - EPA 9056A											
Blank (1IL1077-BLK1)				Prepared: 12/17/25 00:00 Analyzed: 12/18/25 01:59							
Fluoride	<0.2	0.2	10.0	mg/kg							
Matrix Spike (1IL1077-MS1)		**Source: 1IK1787-01**		Prepared: 12/17/25 00:00 Analyzed: 12/18/25 02:25							
Fluoride	144.7	0.2	10.0	mg/kg	121	ND	119	77-121			
Matrix Spike Dup (1IL1077-MSD1)		**Source: 1IK1787-01**		Prepared: 12/17/25 00:00 Analyzed: 12/18/25 02:38							
Fluoride	143.9	0.2	10.0	mg/kg	121	ND	119	77-121	0.555	10	

TCLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IK1380 - EPA 1311 - EPA 1311										
Blank (1IK1380-BLK1)			Prepared: 12/01/25 14:10 Analyzed: 12/02/25 15:25							
pH Inital Leachate	4.9		pH							
pH Inital Leachate	4.9		pH							
pH Final Leachate	4.9		pH							
pH Final Leachate	4.9		pH							

Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0154 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1IL0154-BLK1)			Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:07							
Antimony	<0.0010	0.0010	mg/L							B
Arsenic	<0.0020	0.0020	mg/L							
Barium	<0.0010	0.0010	mg/L							
Beryllium	<0.0005	0.0005	mg/L							
Cadmium	<0.0002	0.0002	mg/L							
Chromium	<0.0010	0.0010	mg/L							B
Copper	<0.0050	0.0050	mg/L							
Lead	<0.0010	0.0010	mg/L							
Selenium	<0.0020	0.0020	mg/L							
Thallium	<0.0005	0.0005	mg/L							
Blank (1IL0154-BLK2)			Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:10							
Antimony	0.0013	0.0010	mg/L							B
Arsenic	0.0021	0.0020	mg/L							B
Barium	0.0135	0.0010	mg/L							B
Beryllium	<0.0005	0.0005	mg/L							
Cadmium	<0.0002	0.0002	mg/L							
Chromium	0.0021	0.0010	mg/L							B
Copper	0.0059	0.0050	mg/L							B

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Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0154 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1IL0154-BLK2)			Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:10							
Lead	<0.0010	0.0010	mg/L							
Selenium	<0.0020	0.0020	mg/L							
Thallium	<0.0005	0.0005	mg/L							
LCS (1IL0154-BS1)			Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:13							
Antimony	0.103	0.0040	mg/L	0.100		103	80-120			
Arsenic	0.0956	0.0080	mg/L	0.100		95.6	80-120			
Barium	0.102	0.0040	mg/L	0.100		102	80-120			
Beryllium	0.0951	0.0020	mg/L	0.100		95.1	80-120			
Cadmium	0.0941	0.0008	mg/L	0.100		94.1	80-120			
Chromium	0.0940	0.0040	mg/L	0.100		94.0	80-120			
Copper	0.0941	0.0200	mg/L	0.100		94.1	80-120			
Lead	0.0936	0.0040	mg/L	0.100		93.6	80-120			
Selenium	0.0940	0.0080	mg/L	0.100		94.0	80-120			
Thallium	0.0949	0.0020	mg/L	0.100		94.9	80-120			
Matrix Spike (1IL0154-MS1)		**Source: 1IK1787-01**	Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:18							
Antimony	0.103	0.0040	mg/L	0.100	ND	103	75-125			
Arsenic	0.0972	0.0080	mg/L	0.100	0.0025	94.8	75-125			
Barium	0.105	0.0040	mg/L	0.100	0.0038	102	75-125			
Beryllium	0.0972	0.0020	mg/L	0.100	ND	97.2	75-125			
Cadmium	0.0946	0.0008	mg/L	0.100	ND	94.6	75-125			
Chromium	0.102	0.0040	mg/L	0.100	0.0100	91.8	75-125			
Copper	0.0950	0.0200	mg/L	0.100	ND	95.0	70-130			
Lead	0.0947	0.0040	mg/L	0.100	0.0014	93.2	70-130			
Selenium	0.0929	0.0080	mg/L	0.100	ND	92.9	70-130			
Thallium	0.0946	0.0020	mg/L	0.100	ND	94.6	75-125			
Matrix Spike Dup (1IL0154-MSD1)		**Source: 1IK1787-01**	Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:20							
Antimony	0.0982	0.0040	mg/L	0.100	ND	98.2	75-125	4.94	20	
Arsenic	0.0956	0.0080	mg/L	0.100	0.0025	93.1	75-125	1.71	20	
Barium	0.100	0.0040	mg/L	0.100	0.0038	96.3	75-125	5.13	20	
Beryllium	0.0944	0.0020	mg/L	0.100	ND	94.4	75-125	2.89	20	
Cadmium	0.0901	0.0008	mg/L	0.100	ND	90.1	75-125	4.84	20	
Chromium	0.0990	0.0040	mg/L	0.100	0.0100	89.1	75-125	2.73	20	
Copper	0.0924	0.0200	mg/L	0.100	ND	92.4	70-130	2.83	20	
Lead	0.0915	0.0040	mg/L	0.100	0.0014	90.0	70-130	3.43	20	
Selenium	0.0927	0.0080	mg/L	0.100	ND	92.7	70-130	0.155	20	
Thallium	0.0914	0.0020	mg/L	0.100	ND	91.4	75-125	3.42	20	
Post Spike (1IL0154-PS1)		**Source: 1IK1787-01**	Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:23							
Antimony	0.0218		mg/L	0.0200	0.0010	104	75-125			
Arsenic	0.0219		mg/L	0.0200	0.0025	96.9	80-120			
Barium	0.0230		mg/L	0.0200	0.0038	96.4	80-120			
Beryllium	0.0200		mg/L	0.0200	0.00004	99.7	80-120			
Cadmium	0.0191		mg/L	0.0200	-0.00002	95.4	80-120			

CERTIFICATE OF ANALYSIS

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Determination of SPLP Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0154 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Post Spike (1IL0154-PS1)		**Source: 1IK1787-01**	Prepared: 12/02/25 16:13 Analyzed: 12/03/25 16:23							
Chromium	0.0291		mg/L	0.0200	0.0100	95.7	80-120			
Copper	0.0206		mg/L	0.0200	0.0030	87.8	75-125			
Lead	0.0205		mg/L	0.0200	0.0014	95.2	75-125			
Selenium	0.0192		mg/L	0.0200	-0.0002	96.2	75-125			
Thallium	0.0192		mg/L	0.0200	0.00004	95.8	80-120			

SPLP Extraction	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IK1381 - EPA 1312 - EPA 1312										
Blank (1IK1381-BLK1)			Prepared: 12/01/25 14:10 Analyzed: 12/02/25 15:26							
pH Inital Leachate	5.0		pH							
pH Final Leachate	9.5		pH							

Anions SPLP by IC	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IL0911 - General Prep HPLC/IC - EPA 9056A										
Blank (1IL0911-BLK1)			Prepared: 12/15/25 00:00 Analyzed: 12/15/25 21:43							
Fluoride	<0.1	0.1	mg/L							
Matrix Spike (1IL0911-MS1)		**Source: 1IK1787-01**	Prepared: 12/15/25 00:00 Analyzed: 12/15/25 22:10							
Fluoride	1.31	0.1	mg/L	1.21	0.13	97.6	77-121			
Matrix Spike Dup (1IL0911-MSD1)		**Source: 1IK1787-01**	Prepared: 12/15/25 00:00 Analyzed: 12/15/25 22:23							
Fluoride	1.33	0.1	mg/L	1.21	0.13	99.0	77-121	1.29	10	

Definitions

B:	The target analyte was detected in the blank at or above the method acceptance criteria.
J:	Estimated value. The analyte concentration is less than the reporting/quantitation limit.
M1:	Matrix spike recovery is above acceptance limits.
MDL:	Minimum Detection Limit
Q2:	LCS recovery is above acceptance limits.
RL:	Reporting Limit
RPD:	Relative Percent Difference

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 16.3°C

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	No		

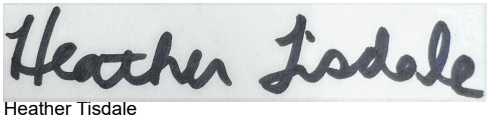
CERTIFICATE OF ANALYSIS

1IK1787

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:



Heather Tisdale
Customer Relationship Specialist
heather.tisdale@microbac.com
12/19/25 08:01

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.
600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

66105
7856

205 E Van Buren St
Centerville, IA. 52544
Phone: 641-437-7023

1IK1787
Pattison Sand Company, LLC
PM: Heather Tisdale

PRINT OR TYPE INFO BELOW:	REPORT TO:	
SAMPLER: Carl Orr	NAME:	NAME:
SITE NAME: Pattison Sand Co LLC	CO. NAME:	CO. NAME:
ADDRESS: 23656 Great River Rd	ADDRESS:	ADDRESS:
CITY/ST/ZIP: Garnavillo, IA 52049	CITY/ST/ZIP:	CITY/ST/ZIP:
PHONE: 563-964-2960	PHONE:	PHONE:
	Email:	Email:

CLIENT SAMPLE #	DATE	TIME		# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: TCLP EPA 1311	SPLP EPA 1312	Total Metals EPA 6010, 7060 7061, 7471, 7841	VOC	SVOC
Pattison Sand Storage #1			Pattison Sand Storage #1	1		G	✓	✓	✓		

LAB USE ONLY

Wk Order #:	1IK1787	
Short Hold:		
Rush:		
Temp.	oC	16.3

Sample Condition	Sample #
	01

Relinquished by: (Signature)	Date: [redacted] 11/19/25	Received by: (Signature)	Date:	Remarks:
Carl Orr	Time: [redacted] 08:30		Time:	
Relinquished by: (Signature)	Date:	Received for Lab by: (Signature)	Date: 11/25/25	
	Time:	Jayme	Time: 10:46	

Iowa Department of Natural Resources

Beneficial Use Determination:
Solid By-Product Management Plan
Analytical Testing Report

Beneficial Use ID#: 22 -BUD- 09 - 06

DNR Certified Lab: KEYSTONE LABS

Lab Report Date: 12/19/25

By-Product Generator: Pattison Sand Storage #1

City: CLAYTON State: IA Zip: 52049

By-Product Name: Pattison Sand Storage #1

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0010 mg/L	31 mg/kg	<1.90	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0025 mg/L	17 mg/kg	7.70	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0038 mg/L	15,000 mg/kg	6.37	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0005 mg/L	110 mg/kg	<0.08	mg/kg
☒	Boron				16,000 mg/kg	<5.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.0002 mg/L	70 mg/kg	<0.5	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.010 mg/L	**(Total)	7.2	mg/kg
					(Hexavalent - VI) 210 mg/kg	<1.5	mg/kg
					(Trivalent - III) 97,000 mg/kg	7.21	mg/kg
☒	Cobalt				23 mg/kg	<10.0	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.0050 mg/L	15,000 mg/kg	3.3	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.1 mg/L	4,700 mg/kg	<0.2	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0014 mg/L	400 mg/kg	14.0	mg/kg
☒	Lithium				160 mg/kg	<0.8	mg/kg
☒	Manganese				10,000 mg/kg	19.5	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<.00050 mg/L	23 mg/kg	<0.02	mg/kg
☒	Molybdenum				390 mg/kg	2.0	mg/kg
☒	Nickel				1,500 mg/kg	1.5	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.0020 mg/L	390 mg/kg	2.6	mg/kg
☒	Silver				370 mg/kg	<0.2	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.0005 mg/L	0.78 mg/kg	0.4	mg/kg
☒	Vanadium				350 mg/kg	4.70	mg/kg
☒	Zinc				23,000 mg/kg	12.5	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.030	mg/L	☐	Benzene	0.5 mg/L	0	mg/L
☒	Barium	100.0 mg/L	0.075	mg/L	☐	Carbon tetrachloride	0.5 mg/L	0	mg/L
☒	Cadmium	1.0 mg/L	<0.005	mg/L	☐	Chlorobenzene	100.0 mg/L	0	mg/L
☒	Chromium	5.0 mg/L	<0.010	mg/L	☐	Chloroform	6.0 mg/L	0	mg/L
☒	Lead	5.0 mg/L	<0.020	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	0	mg/L
☒	Mercury	0.2 mg/L	<0.000 50	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	0	mg/L
☒	Selenium	1.0 mg/L	0.211	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	0	mg/L
☒	Silver	5.0 mg/L	<0.010	mg/L	☐	Tetrachloroethylene	0.7 mg/L	0	mg/L
					☐	Trichloroethylene	0.5 mg/L	0	mg/L
					☐	Vinyl chloride	0.2 mg/L	0	mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L	0	mg/L	☐	o-Cresol	200.0 mg/L	0	mg/L
☐	Endrin	0.02 mg/L	0	mg/L	☐	m-Cresol	200.0 mg/L	0	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	0	mg/L	☐	p-Cresol	200.0 mg/L	0	mg/L
☐	Lindane	0.4 mg/L	0	mg/L	☐	Cresol	200.0 mg/L	0	mg/L
☐	Methoxychlor	10.0 mg/L	0	mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	0	mg/L
☐	Toxaphene	0.5 mg/L	0	mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	0	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	0	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	0	mg/L
					☐	Hexachloroethane	3.0 mg/L	0	mg/L
					☐	Nitrobenzene	2.0 mg/L	0	mg/L
					☐	Pentachlorophenol	100.0 mg/L	0	mg/L
					☐	Pyridine	5.0 mg/L	0	mg/L
					☐	2,4,5-Trichlorophenol	400.0 mg/L	0	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	0	mg/L

Herbicides				
*	Contaminant	Regulatory Limit	Test Result	
☐	2,4-D	10.0 mg/L	0	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L	0	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

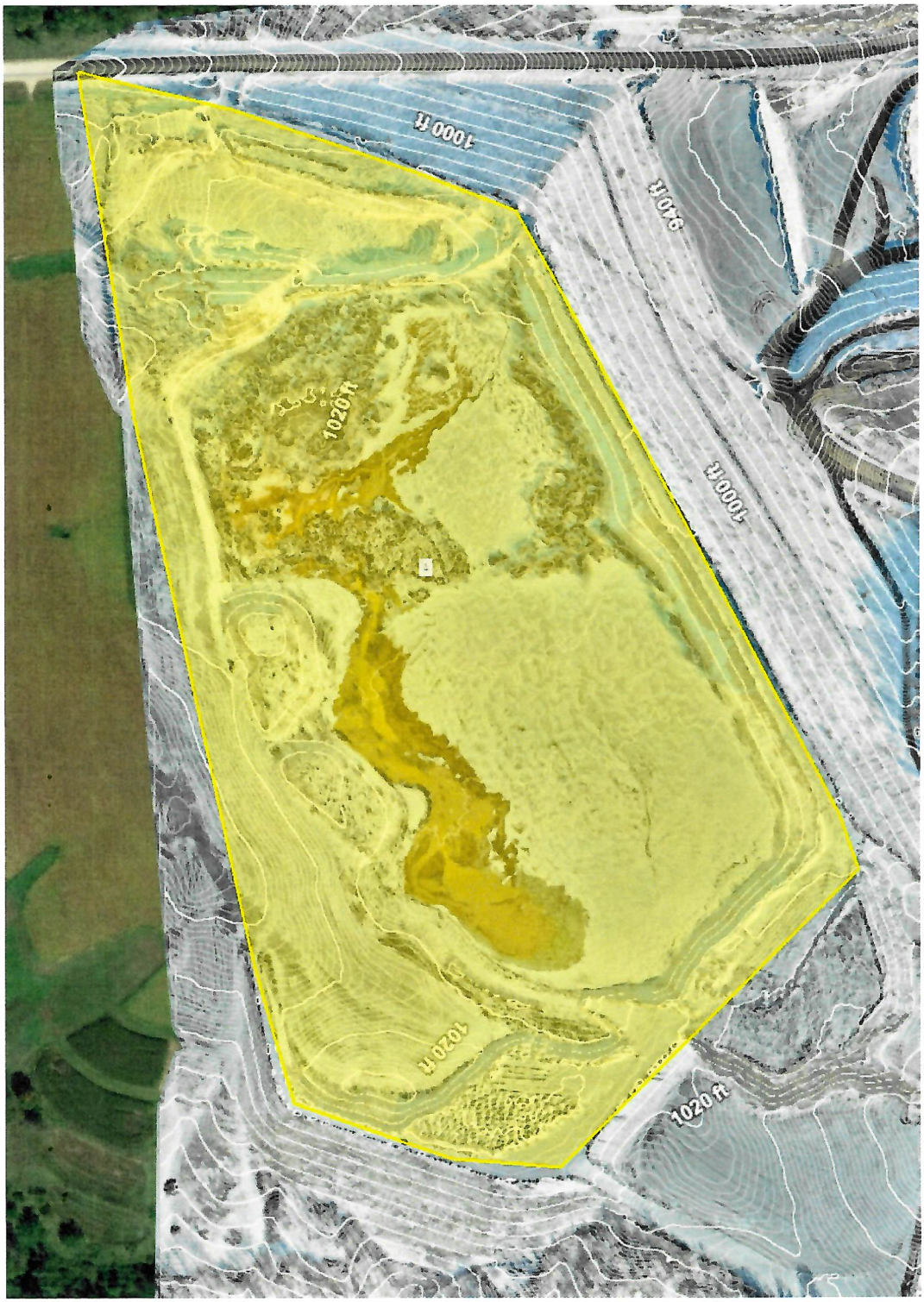
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 12-29-25

Printed Name: Carl Orr **Title:** Safety/Environmental Manager

COMPANY

Surveyed Feb 5, 2026



propeller