



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

Beneficial Use ID#: 04 -BUD- 02 - 22
DNR Certified Lab: Keystone/Microbac Laboratories
Lab Report Date: 5/05/2025 - 07/03/2025
By-Product Generator: Jeff Scott Metal
City: Centerville State: IA Zip: 52544
By-Product Name: Spent foundry sand

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) 201-8272.

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	<.0010 mg/L	31 mg/kg	<5.0	mg/kg
☐	Arsenic	0.010 mg/L	0.10 mg/L	<.002 mg/L	17 mg/kg	<.030	mg/kg
☐	Barium	2.0 mg/L	20.0 mg/L	.0016 mg/L	15,000 mg/kg	<1.00	mg/kg
☐	Beryllium	0.004 mg/L	0.04 mg/L	<.0005 mg/L	110 mg/kg	<1.0	mg/kg
☐	Boron				16,000 mg/kg	<10.0	mg/kg
☐	Cadmium	0.005 mg/L	0.05 mg/L	<.0002 mg/L	70 mg/kg	<.0010	mg/kg
☐	Chromium	0.1 mg/L	1.0 mg/L	.0024 mg/L	** (Total)	<3.0	mg/kg
					(Hexavalent - VI) 210 mg/kg	<5.0	mg/kg
					(Trivalent - III) 97,000 mg/kg	<3.00	mg/kg
☐	Cobalt				23 mg/kg	<.0010	mg/kg
☐	Copper	1.3 mg/L	13.0 mg/L	.0070 mg/L	15,000 mg/kg	24.3	mg/kg
☐	Fluoride	4.0 mg/L	40.0 mg/L	<.1 mg/L	4,700 mg/kg	<10.0	mg/kg
☐	Lead	0.015 mg/L	0.15 mg/L	<.0010 mg/L	400 mg/kg	<5.00	mg/kg
☐	Lithium				160 mg/kg	<5	mg/kg
☐	Manganese				10,000 mg/kg	1.7	mg/kg
☐	Mercury	0.002 mg/L	0.02 mg/L	<.0005 mg/L	23 mg/kg	<0.05	mg/kg
☐	Molybdenum				390 mg/kg	<1.0	mg/kg
☐	Nickel				1,500 mg/kg	<5.0	mg/kg
☐	Selenium	0.05 mg/L	0.5 mg/L	<.0020 mg/L	390 mg/kg	<3.0	mg/kg
☐	Silver				370 mg/kg	<1.0	mg/kg
☐	Thallium	0.002 mg/L	0.02 mg/L	<.0005 mg/L	0.78 mg/kg	<0.5	mg/kg
☐	Vanadium				350 mg/kg	<5.00	mg/kg
☐	Zinc				23,000 mg/kg	8.6	mg/kg

*Required contaminant

**If Total Chromium $\geq$ 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	<.030 mg/L	☐	Benzene	0.5 mg/L	mg/L
☐	Barium	100.0 mg/L	.012 mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☐	Cadmium	1.0 mg/L	<.005 mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☐	Chromium	5.0 mg/L	<.010 mg/L	☐	Chloroform	6.0 mg/L	mg/L
☐	Lead	5.0 mg/L	<.020 mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☐	Mercury	0.2 mg/L	<.0005 mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☐	Selenium	1.0 mg/L	<.050 mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☐	Silver	5.0 mg/L	<.010 mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
				☐	Trichloroethylene	0.5 mg/L	mg/L
				☐	Vinyl chloride	0.2 mg/L	mg/L
Pesticides				Semi-Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result	*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L	mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L	mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L	mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L	mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L	mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
				☐	Hexachlorobenzene	0.13 mg/L	mg/L
				☐	Hexachlorobutadiene	0.5 mg/L	mg/L
				☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides				☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result	☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L	mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L	mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
				☐	2,4,6-Trichlorophenol	2.0 mg/L	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: Amy Stephens

Date: 5/5/2025

Printed Name: Amy Stephens

Title: Offic./HR manager



Microbac Laboratories, Inc., Centerville

CERTIFICATE OF ANALYSIS

4IE0150

Jeff Scott Metals

Project Name: Waste Sampling

Amy Stephens
201 East Madison
Centerville, IA 52544

Project / PO Number: N/A
Received: 05/05/2025
Reported: 07/03/2025

Analytical Testing Parameters

Client Sample ID: 541 N 13th Centerville
Sample Matrix: Bulk-Solid
Lab Sample ID: 4IE0150-01

Collected By: Stephens, Amy
Collection Date: 05/05/2025 10:45

Analyses Performed by: Microbac Laboratories, Inc., Newton

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
SM 2540 G-2011							
% Solids	99.4	0.10	%		05/16/25 1507	05/16/25 1650	SAA
Determination of Total Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Calculation							
Chromium, trivalent	<3.00	3.00	mg/kg		05/14/25 0805	05/16/25 1301	JAR
EPA 6010B							
Antimony, total	<5.0	5.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Arsenic, total	<1.00	1.00	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Beryllium, total	<1.0	1.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Boron, total	<10.0	10.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Cadmium, total	<1.0	1.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Chromium, total	<3.0	3.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Cobalt, total	<1.0	1.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Copper, total	24.3	3.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Lead, total	<5.00	5.00	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Lithium, total	<5	5	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Manganese, total	1.7	1.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Molybdenum, total	<1.0	1.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Nickel, total	<5.0	5.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Selenium, total	<3.0	3.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Silver, total	<1.0	1.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Thallium, total	<0.5	0.5	mg/kg		07/01/25 1612	07/03/25 0352	JAR
Vanadium, total	<5.00	5.00	mg/kg		05/12/25 1609	05/14/25 1323	JAR
Zinc, total	8.6	3.0	mg/kg		05/12/25 1609	05/14/25 1323	JAR
EPA 7196A							
Chromium, hexavalent	<5.0	5.0	mg/kg		05/14/25 0805	05/16/25 1301	KKJ
EPA 7471A							
Mercury, total	<0.05	0.05	mg/kg		05/09/25 1716	05/12/25 1543	RVV
EPA 9056A							
Fluoride	<10.0	10.0	mg/kg		05/21/25 0000	05/22/25 0350	MID
Determination of TCLP Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 6010B							
Arsenic (TCLP)	<0.030	0.030	mg/L		05/14/25 1627	05/16/25 0928	JAR

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Microbac Laboratories, Inc., Centerville

CERTIFICATE OF ANALYSIS

4IE0150

Client Sample ID: 541 N 13th Centerville
Sample Matrix: Bulk-Solid
Lab Sample ID: 4IE0150-01

Collected By: Stephens Amy
Collection Date: 05/05/2025 10:45

Determination of TCLP Metals

	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Barium (TCLP)	0.012	0.010	mg/L		05/14/25 1627	05/16/25 0928	JAR
Cadmium (TCLP)	<0.005	0.005	mg/L		05/14/25 1627	05/16/25 0928	JAR
Chromium (TCLP)	<0.010	0.010	mg/L		05/14/25 1627	05/16/25 0928	JAR
Lead (TCLP)	<0.020	0.020	mg/L		05/14/25 1627	05/16/25 0928	JAR
Selenium (TCLP)	<0.050	0.050	mg/L		05/14/25 1627	05/16/25 0928	JAR
Silver (TCLP)	<0.010	0.010	mg/L		05/14/25 1627	05/16/25 0928	JAR
EPA 7470A							
Mercury (TCLP)	<0.00050	0.00050	mg/L		05/08/25 1533	05/09/25 1437	JAR

TCLP Extraction

	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 1311							
TCLP pH, Initial	4.9		pH		05/07/25 1455	05/09/25 1452	RVV
TCLP pH, Final	5.0		pH		05/07/25 1455	05/09/25 1452	RVV

Determination of SPLP Metals

	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 6020A							
Antimony (SPLP)	<0.0010	0.0010	mg/L		06/19/25 1311	06/20/25 2232	RVV
Arsenic (SPLP)	<0.0020	0.0020	mg/L		06/19/25 1311	06/20/25 2232	RVV
Barium (SPLP)	0.0016	0.0010	mg/L		06/19/25 1311	06/20/25 2232	RVV
Beryllium (SPLP)	<0.0005	0.0005	mg/L		06/19/25 1311	06/20/25 2232	RVV
Cadmium (SPLP)	<0.0002	0.0002	mg/L		06/19/25 1311	06/20/25 2232	RVV
Chromium (SPLP)	0.0024	0.0010	mg/L		06/19/25 1311	06/20/25 2232	RVV
Copper (SPLP)	0.0070	0.0050	mg/L		06/19/25 1311	06/20/25 2232	RVV
Lead (SPLP)	<0.0010	0.0010	mg/L		06/19/25 1311	06/20/25 2232	RVV
Selenium (SPLP)	<0.0020	0.0020	mg/L		06/19/25 1311	06/20/25 2232	RVV
Thallium (SPLP)	<0.0005	0.0005	mg/L		06/19/25 1311	06/20/25 2232	RVV
EPA 7470A							
Mercury (SPLP)	<0.00050	0.00050	mg/L		05/08/25 1534	05/09/25 1458	JAR
EPA 9056A							
Fluoride (SPLP)	<0.1	0.1	mg/L		05/12/25 0000	05/13/25 0214	MID

SPLP Extraction

	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 1312							
SPLP pH, Initial	5.0		pH		05/08/25 0914	05/09/25 1451	RVV
SPLP pH, Final	7.6		pH		05/08/25 0914	05/09/25 1451	RVV

Definitions

MDL: Minimum Detection Limit
RL: Reporting Limit



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CERTIFICATE OF ANALYSIS

4IE0150

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:

Darcie Bouchard

Laboratory Supervisor

darcie.bouchard@microbac.com

07/03/25 13:52

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

BILL TO:

NAME: Line Jorrell

COMPANY NAME: JOHN DEERE

CITY/ST/ZIP: Bainbridge GA

PHONE: 691-954-3322

Keystone Quote No:

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LAB USE ONLY

LABORATORY WORK ORDER NO.

SAMPLE TEMPERATURE

UPON RECEIPT OF

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SAMPLE CONDITION / COMMENTS:

LABORATORY
SAMPLE
NUMBER

CLIENT
FILE NUMBER

DATE
TIME

SAMPLE LOCATION

NO. OF CONTAINERS

MATRIX

GRAB / COMPOSITE

TCLP
SPLP

ANALYSES REQUIRED

Relinquished by: (Signature)

Date 4/17/20

Received by: (Signature)

Date _____

Turn-Around:

Time	21
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1

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□ Standard

Push

Contact Lab Prior to Submission

Relinquished by: (Signature)

Date _____

Received for Lab by: (Signature)

Date _____

Remarks:

Jef Scot Metal Industries
PM: Heather Murphy

PMI: Heather Murphy

4 I E 0 1 5 0

Original - Lab Copy

allow - Sampler Copy