

IOWA DEPARTMENT OF NATURAL RESOURCES

BENEFICIAL USE DETERMINATION APPLICATION FORM



Send completed applications with attached information to:

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

For questions concerning this application please contact the Department at (515) 725-8350.

SECTION 1. CONTACT INFORMATION [IAC 567-108.5] Provide the name, address and telephone number for the following

Address of the site where the project will be located

Site Owner Name: Phone Number:
Site Address: County:
City: State: Zip Code:
1/4 of 1/4 of 1/4 Section Township N Range East West
(you may attach a legal description from your county assessor)

Beneficial Use Determination Applicant

Name: Phone Number:
Site Address:
City: State: Zip Code:

Individual responsible for operation of the project

Name: Phone Number:
Site Address:
City: State: Zip Code:

Professional engineer (P.E.) licensed in the state of Iowa and retained for the design of the facility, if any

Name: License #:
Site Address: Phone Number:
City: State: Zip Code:

Agency to be served by the project, if any

Name of Agency:
Responsible Official: Phone Number:
Site Address:
City: State: Zip Code:

SECTION 2. FACILITY OPERATIONAL INFORMATION

A description of the solid by-product under review and its proposed use:

The chemical and physical characteristics of the solid by-product:

A demonstration that there is a known or reasonably probable market for the intended use of the solid by-product:

A demonstration that the proposed use of the solid by-product will not adversely affect human health and environment:

SECTION 3. PERMIT APPLICATION CHECKLIST

Checking the appropriate boxes below certifies that the documents submitted in conjunction with this application form are complete and in compliance with the applicable chapters of the Iowa Administrative Code. If an application is found by the department to be incomplete, it may be denied and returned to the applicant.

Required Documents

- Solid By-product Management Plan [IAC 567 Chapter 108.5(6)]
- Site Map
- Solid By-product Analytical Results [IAC 567 Chapter 108.5]

SECTION 4. APPLICANT CERTIFICATION

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.

I further certify that the construction and operation of the above described project will be in accordance with the plans, specifications, reports and related communications accepted by the Iowa Department of Natural Resources and on file in its office; and in accordance with conditions imposed in the determination issued by the Iowa Department of Natural Resources.

Signature: Evan Welch Date: _____

Printed Name: _____ Title: _____

Collection Location mcmullen sludge	Collector and Phone blubaugh bill 515/283-8787	Client Reference lime sludge	Accession # 2002810
DES MOINES,	Collected 2022-01-10 07:15	Received 2022-01-10 15:01	Project
Report To JEFF MITCHELL DES MOINES WATER WORKS 2201 GEORGE FLAGG PKWY DES MOINES, IA 50321-1190	Sample Description sludge		Sample Type Solid
	Sample Source		Sample Note(s) 1

RESULTS OF ANALYSIS - FINAL REPORT

TEST	RESULT (mg/kg [recd wt])	QUANT LIMIT	MCL	ANALYSIS NOTE(S)
Anions, EPA 300.0 Fluoride	3.4	1.9		4
TEST	RESULT (mg/L)	QUANT LIMIT	REGULATORY LEVEL	ANALYSIS NOTE(S)
Mercury, EPA 7470A (TCLP) Mercury	<0.02	0.02	0.2	
TEST	RESULT (mg/kg [dry wt])	QUANT LIMIT	ANALYSIS NOTE(S)	
Mercury, EPA 7471B Mercury	<1.0	1		
Metals, EPA 6020				
Antimony	<5.0	5		
Arsenic	3.6	1		
Barium	150	5		
Beryllium	<2.0	2		
Cadmium	<2.0	2		
Chromium	7.3	2		
Cobalt	<5.0	5		
Copper	7.2	5		
Lead	<10	10		
Manganese	260	2		
Molybdenum	<5.0	5		
Nickel	6.6	5		
Selenium	1	1		
Silver	<1.0	1		
Thallium	<0.5	0.5		
Vanadium	7.9	5		
Zinc	15	2		
Metals, EPA 6010 D				
Boron	48	5.0		
Lithium	1.5	1.0		

Collection Location mcmullen sludge	Collector blubaugh bill	Client Reference lime sludge	Accession # 2002810
--	----------------------------	---------------------------------	------------------------

<u>TEST</u>	<u>RESULT (mg/L)</u>	<u>QUANT LIMIT</u>	<u>REGULATORY LEVEL</u>	<u>ANALYSIS NOTE(S)</u>
<i>Metals, EPA 6020 (TCLP)</i>				
Arsenic	<0.5	0.5	5	
Barium	<10	10	100	
Cadmium	<0.1	0.1	1	
Chromium	<0.5	0.5	5	
Lead	<0.5	0.5	5	
Selenium	<0.1	0.1	1	
Silver	<0.5	0.5	5	

<u>TEST</u>	<u>RESULT (mg/L)</u>	<u>QUANT LIMIT</u>	<u>ANALYSIS NOTE(S)</u>
<i>Metals, EPA 6020 (SPLP)</i>			
Antimony	<0.006	0.006	
Arsenic	<0.01	0.01	
Barium	<2.0	2	
Beryllium	<0.004	0.004	
Cadmium	<0.005	0.005	
Chromium	<0.1	0.1	
Copper	<1.0	1	
Lead	<0.015	0.015	
Selenium	<0.05	0.05	
Thallium	<0.002	0.002	

<u>TEST</u>	<u>RESULT</u>	<u>ANALYSIS NOTE(S)</u>
<i>Leaching for TCLP, EPA 1311</i>		
Leachate pH	7	

PENDING/CANCELLED ANALYSES

<u>TEST</u>	<u>STATUS</u>	<u>ANALYSIS NOTE(S)</u>
Mercury, EPA 7470A (SPLP)	Cancelled	2, 3

SAMPLE AND ANALYSIS NOTES

1. Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.
2. Not analyzed.
3. Sample and extract exceeded holding time.
4. The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

ANALYSIS INFORMATION

<u>TEST</u>	<u>ANALYZED</u>	<u>SITE</u>	<u>RELEASED</u>	<u>ANALYSIS PREP</u>
1. Anions, EPA 300.0	2022-01-14 23:21 MGB	3201	2022-01-18 15:01 JAE	
2. Mercury, EPA 7470A (TCLP)	2022-01-27 10:22 SGB	3201	2022-01-27 13:42 MRC	
3. Mercury, EPA 7471B	2022-01-27 10:22 SGB	3201	2022-01-27 13:42 MRC	
4. Metals, EPA 6020	2022-01-26 12:26 SGB	3201	2022-01-27 14:34 MRC	
5. Metals, EPA 6010 D	2022-01-26 09:45 MRC	3201	2022-01-26 16:07 BRW	
6. Metals, EPA 6020 (TCLP)	2022-02-02 11:42 SGB	3201	2022-02-03 10:55 MRC	
7. Synthetic Precipitation Leaching Procedure, EPA 1312	2022-01-24 15:00 KMJ	3201	2022-01-27 08:36 JAE	
8. Metals, EPA 6020 (SPLP)	2022-02-02 11:42 SGB	3201	2022-02-03 10:59 MRC	



Collection Location mcmullen sludge	Collector blubaugh bill	Client Reference lime sludge	Accession # 2002810
---	-----------------------------------	--	-------------------------------

TEST	ANALYZED	SITE	RELEASED	ANALYSIS PREP
9. Leaching for TCLP, EPA 1311	2022-01-24 15:00 KMJ	3201	2022-01-27 08:36 JAE	
10. Mercury, EPA 7470A (SPLP)		3201	2022-03-15 10:11 BRW	

DESCRIPTION OF UNITS

mg/kg [recd wt] = Milligrams per Kilogram as Received
 mg/L = Milligrams per Liter
 mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight

SITE(S) PERFORMING TESTING

3201 STATE HYGIENIC LABORATORY ANKENY, IOWA LABORATORIES COMPLEX, 2220 S ANKENY BLVD, ANKENY, IA 50023; Phone 515/725-1600; Fax 515/725-1642; Michael D. Schueller, M.S., Associate Director; Wade K. Aldous, Ph.D. (D)ABMM, Associate Director; IOWA ENVIRONMENTAL LAB ID #397

The result(s) of this report relate only to the items analyzed. Where the laboratory has not been responsible for the sampling stage the results apply only to the sample as received. This report shall not be reproduced except in full without the written approval of the laboratory. If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500.

Collection Location fleur sludge	Collector and Phone blubaugh bill 515/283-8787	Client Reference lime sludge	Accession # 2002811
DES MOINES,	Collected 2022-01-10 14:30	Received 2022-01-10 15:01	Project
Report To JEFF MITCHELL DES MOINES WATER WORKS 2201 GEORGE FLAGG PKWY DES MOINES, IA 50321-1190	Sample Description sludge		
	Sample Type Solid		
	Sample Source		
	Sample Note(s) 1		

RESULTS OF ANALYSIS - FINAL REPORT

TEST	RESULT (mg/kg [recd wt])	QUANT LIMIT	MCL	ANALYSIS NOTE(S)
Anions, EPA 300.0 Fluoride	<1.9	1.9		4
TEST	RESULT (mg/L)	QUANT LIMIT	REGULATORY LEVEL	ANALYSIS NOTE(S)
Mercury, EPA 7470A (TCLP) Mercury	<0.02	0.02	0.2	
TEST	RESULT (mg/kg [dry wt])	QUANT LIMIT	ANALYSIS NOTE(S)	
Mercury, EPA 7471B Mercury	<1.0	1		
Metals, EPA 6020 Antimony	<5.0	5		
Arsenic	1.4	1		
Barium	160	5		
Beryllium	<2.0	2		
Cadmium	<2.0	2		
Chromium	5.6	2		
Cobalt	<5.0	5		
Copper	5.9	5		
Lead	<10	10		
Manganese	220	2		
Molybdenum	<5.0	5		
Nickel	5.5	5		
Selenium	<1.0	1		
Silver	<1.0	1		
Thallium	<0.5	0.5		
Vanadium	<5.0	5		
Zinc	13	2		
Metals, EPA 6010 D Boron	37	5.0		
Lithium	1.9	1.0		

Collection Location fleur sludge	Collector blubaugh bill	Client Reference lime sludge	Accession # 2002811
-------------------------------------	----------------------------	---------------------------------	------------------------

<u>TEST</u>	<u>RESULT (mg/L)</u>	<u>QUANT LIMIT</u>	<u>REGULATORY LEVEL</u>	<u>ANALYSIS NOTE(S)</u>
<i>Metals, EPA 6020 (TCLP)</i>				
Arsenic	<0.5	0.5	5	
Barium	<10	10	100	
Cadmium	<0.1	0.1	1	
Chromium	<0.5	0.5	5	
Lead	<0.5	0.5	5	
Selenium	<0.1	0.1	1	
Silver	<0.5	0.5	5	

<u>TEST</u>	<u>RESULT (mg/L)</u>	<u>QUANT LIMIT</u>	<u>ANALYSIS NOTE(S)</u>
<i>Metals, EPA 6020 (SPLP)</i>			
Antimony	<0.006	0.006	
Arsenic	<0.01	0.01	
Barium	<2.0	2	
Beryllium	<0.004	0.004	
Cadmium	<0.005	0.005	
Chromium	<0.1	0.1	
Copper	<1.0	1	
Lead	<0.015	0.015	
Selenium	<0.05	0.05	
Thallium	<0.002	0.002	

<u>TEST</u>	<u>RESULT</u>	<u>ANALYSIS NOTE(S)</u>
<i>Leaching for TCLP, EPA 1311</i>		
Leachate pH	7	

PENDING/CANCELLED ANALYSES

<u>TEST</u>	<u>STATUS</u>	<u>ANALYSIS NOTE(S)</u>
Mercury, EPA 7470A (SPLP)	Cancelled	2, 3

SAMPLE AND ANALYSIS NOTES

1. Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.
2. Not analyzed.
3. Sample and extract exceeded holding time.
4. The MCL (maximum contaminant level) is only applicable to compliance monitoring samples under the Safe Drinking Water Act (SDWA).

ANALYSIS INFORMATION

<u>TEST</u>	<u>ANALYZED</u>	<u>SITE</u>	<u>RELEASED</u>	<u>ANALYSIS PREP</u>
1. Anions, EPA 300.0	2022-01-15 02:52 MGB	3201	2022-01-18 15:01 JAE	
2. Mercury, EPA 7470A (TCLP)	2022-01-27 10:22 SGB	3201	2022-01-27 13:42 MRC	
3. Mercury, EPA 7471B	2022-01-27 10:22 SGB	3201	2022-01-27 13:42 MRC	
4. Metals, EPA 6020	2022-01-26 12:26 SGB	3201	2022-01-27 14:34 MRC	
5. Metals, EPA 6010 D	2022-01-26 09:45 MRC	3201	2022-01-26 16:07 BRW	
6. Metals, EPA 6020 (TCLP)	2022-02-02 11:42 SGB	3201	2022-02-03 10:55 MRC	
7. Synthetic Precipitation Leaching Procedure, EPA 1312	2022-01-24 15:00 KMJ	3201	2022-01-27 08:36 JAE	
8. Metals, EPA 6020 (SPLP)	2022-02-02 11:42 SGB	3201	2022-02-03 10:59 MRC	



Collection Location fleur sludge	Collector blubaugh bill	Client Reference lime sludge	Accession # 2002811
--	-----------------------------------	--	-------------------------------

TEST	ANALYZED	SITE	RELEASED	ANALYSIS PREP
9. Leaching for TCLP, EPA 1311	2022-01-24 15:00 KMJ	3201	2022-01-27 08:36 JAE	
10. Mercury, EPA 7470A (SPLP)		3201	2022-03-15 10:12 BRW	

DESCRIPTION OF UNITS

mg/kg [recd wt] = Milligrams per Kilogram as Received
 mg/L = Milligrams per Liter
 mg/kg [dry wt] = Milligrams per Kilogram by Dry Weight

SITE(S) PERFORMING TESTING

3201 STATE HYGIENIC LABORATORY ANKENY, IOWA LABORATORIES COMPLEX, 2220 S ANKENY BLVD, ANKENY, IA 50023; Phone 515/725-1600; Fax 515/725-1642; Michael D. Schueller, M.S., Associate Director; Wade K. Aldous, Ph.D. (D)ABMM, Associate Director; IOWA ENVIRONMENTAL LAB ID #397

The result(s) of this report relate only to the items analyzed. Where the laboratory has not been responsible for the sampling stage the results apply only to the sample as received. This report shall not be reproduced except in full without the written approval of the laboratory. If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500.



Des Moines Water Works Lime Residual Contingency Plan

Des Moines :
Water Works
Water You Can Trust for Life

Beneficial Reuse Determination # _____

Date _____

Des Moines Water Works Lime Residual Contingency Plan

Introduction

Iowa Department of Natural Resources (IDNR) requires Des Moines Water Works (DMWW) to develop a contingency plan as part of the Beneficial Use Determination (BUD) process. This is a detailed plan addressing how DMWW will react and how the Lime Residuals will be handled if a chemical exceedance should occur.

Lime Residual Sampling and Analysis

In accordance with the BUD process, the lime residuals will be sampled on a quarterly basis. These samples will be analyzed utilizing the following methods: Synthetic Precipitation Leaching Procedure (SPLP), Toxicity Characteristics Leaching Procedure (TCLP) for metals, and RCRA Total Metals.

The DMWW Laboratory will oversee the sampling of this material. The testing frequency will be added to the monitoring calendar the Lab maintains to ensure samples are collected at the required frequencies.

Representative samples will be sent to the State Hygienic Lab for analysis and analyzed using these methods

- SPLP – EPA Method 1312/6020, 7470A: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Fluoride, Lead, Mercury, Selenium, and Thallium
- TCLP – EPA 1311/6020, 7470A: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Thallium
- RCRA Total Metals – EPA 6010, 6020, 300.0, and 7471B: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc

Once analyses are completed and reports have been released, SHL will send them to DMWW Lab. The lab will archive the results and send a copy to Water Production Department (WP). WP will release the reports to the Responsible Official to be entered into DNR form 542-0652.

Storage

Lime Residuals are stored at the McMullen Treatment Plant in the designated Lime Storage Area north and east of the Lagoons. Fleur Dr produces lime to be hauled/stored daily while

McMullen puts the residuals into a lagoon until its full (Approx. 3 yrs.). Then the lagoons are dug out and material is windrowed for further drying.

Regulatory Exceedance

If the analysis for SPLP or TCLP would determine there was a chemical exceedance material would be put on hold and no more would leave the premise for a BUD location. If the RCRA has a chemical level exceeding the limits the results will be entered in the Cumulative Risk Calculator. This calculator is found on the IDNR Land Quality Contaminated Sites webpage <https://programs.iowadnr.gov/riskcalc/> to determine if there is an increased risk associated with the result.

Initial Response

Upon receiving test results that show an exceedance DMWW will begin response actions identified in this Contingency Plan. Response actions and resampling will only pertain to the Treatment Plant that submitted the offending Lime Residuals.

Any material in transit to a BUD site at the onset of initial response will be redirected. No other loads will be sent to the BUD site until exceedance has been corrected. When the appropriate alternative method of disposal has been determined Lime residuals may be shipped to the alternative site.

DNR will receive notice of the exceedance within 10 business days of DMWW receiving the results that trigger the Exceedance.

Resampling

Upon first knowledge of the exceedance DMWW will contact the lab and confirm the analysis is being repeated to confirm the exceedance. The lab will collect a new representative sample and request an expedited analysis of the chemical(s) that triggered the exceedance.

Alternative Disposal Sites

Agreements have been made to dispose of the Out of Spec Lime Residuals at alternative sites. If an exceedance occurs DMWW staff will take into consideration the type of exceedance, Type of Lime Residuals, storage ability, and other associated costs to determine the most appropriate alternative disposal option.

Quarry

1) Peru Quarry Inc. – 2587 265th St Peru, IA 50222

Ag Lime Usage

Synagro has the ability and customers to be able to land apply this material

Return to Compliance

Upon receipt of results of subsequent testing that demonstrate compliance with the associated constituent, notifications will be sent to IDNR. The notification will include the applicable certified laboratory report and associated DNR Form 541-0652. This notification will also include a narrative description of the circumstances surrounding the exceedance. This will include a conclusion of why the exceedance occurred, Corrective action to minimize the possibility of the same from happening in the future, and how the material was handled in the interim. Upon review of this information, IDNR will notify DMWW and the Responsible Official of a return to regulatory compliance and the beneficial reuse of the Lime Residuals may resume.

Sample Plan

Des Moines Water Works Lime Residual Monitoring Plan

Lime Residuals are a by-product of the softening process at both Fleur Drive and McMullen Treatment Plants. The handling and storage of these residuals does vary but the products are similar. Fleur Dr has a process that settles the solids for a time then pumps the slurry into presses and removes around 50% of the water. This produces a firm cake that will be dropped into trailers and moved for storage/delivery. At the McMullen plant the sludge is pumped from the plant into a lagoon. While in the lagoon the material will be dewatered about 40%. Once the lagoon is full and the sludge is dewatered it will be dug out and put into windrows where it will dry further.

At these dewatered stages the lime will be relocated to allocation for beneficial reuse. Some of these options require DNR approval so they must go through the Beneficial Reuse Determination (BUD). To be utilized for BUD uses the residuals need to be analyzed to ensure they will not be a hazardous to the environment. Sampling will be conducted on a quarterly basis.

The Beneficial Use Determinations program was developed for instances in which a solid by-product is a resource and not a solid waste. Solid by-products determined by the department not to be a solid waste through a beneficial use determination may not be subject to all sanitary disposal project (SDP) permitting requirements. Furthermore, the purpose of this program is to encourage the utilization of solid by-products as resources when such utilization improves, or at a minimum does not adversely affect, human health and the environment.

The samples will be analyzed for:

- SPLP – EPA Method 1312/6020, 7470A: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Fluoride, Lead, Mercury, Selenium, and Thallium
- TCLP – EPA 1311/6020, 7470A: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Thallium
- RCRA Total Metals – EPA 6010, 6020, 300.0, and 7471B: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc

Our sampling effort will involve collection of representative samples of the Lime Residuals from Fleur Dr and McMullen Treatment Plants.

Our objective is to sample different areas of stored Lime Residuals to ensure a representative sample.

Lime Residual Sample Procedure

1000ml glass containers (#17) supplied by State Hygienic Lab will be used for collections.

For Fleur Dr Treatment Plant

1. In the dewatering building find a press that is full
2. When the press dumps obtain a small section of the cake.
3. Place Lime Residuals in a clean plastic bag
4. Repeat this process for the remaining presses
5. Mix residuals in the bag
6. Fill #1 Glass container from the mixed sample in the bag.
7. Discard remaining sample
8. Fill out paperwork and deliver sample to SHL

For McMullen Treatment Plant

9. Determine number of samples to obtain. (Count number of piles and use Square Root Plus
10. Using a clean shovel dig approx. 12-18" into side of pile and obtain a sample.
11. Place Lime Residuals in a clean plastic bag

12. Repeat this process for the remaining piles
13. Mix residuals in the bag
14. Fill #1 Glass container from the mixed sample in the bag.
15. Discard remaining sample
16. Fill out paperwork and deliver sample to SHL

Personnel Authorized to Collect Samples

Ed Clark, Laboratory Technician

Bill Blubaugh, Sample Technician

Jeff Mitchell, Laboratory Supervisor

Solid By-Product Management Plan

Beneficial Use of Water Treatment Lime

Des Moines Water Works

04/28/2022

Solid By-Product Source

Synagro is proposing to use the water treatment by-product lime from the Des Moines Water Works L.D. McMullen and Fleur Drive Treatment plants for this beneficial use project.

The L.D. McMullen Water Treatment Plant at Maffitt Reservoir treats up to 25 million gallons of water per day from shallow wells located along the Raccoon River. The water drawn from the shallow wells is naturally filtered by the coarse sand and gravel formation along the river. The water is then lime softened to remove hardness and microorganisms from the water. Lime softening uses the addition of lime, or CaO and Soda Ash Na_2CO_3 to the water along with a coagulant such as Alum or Ferric Chloride. These cause the hardness in the water to become insoluble and to precipitate out of the water. The ratio of lime addition to hardness removed is approximately 2 to 1. The hardness removed is mostly calcium that precipitates as calcium carbonate CaCO_3 or limestone. The precipitated water treatment lime is then pumped to lagoons. The lagoons allow the water to drain away and the water treatment lime to thicken into a solid material of approximately 45 percent solids. Periodically the lagoons are excavated, and the water treatment lime is removed for beneficial use.

The Fleur Drive Treatment Plant treats up to 75 million gallons of water per day from either the Raccoon River, Des Moines River or an infiltration gallery adjacent to the Raccoon River. Since the water is removed directly from the river the first stage is pretreatment to remove organic matter. The water is then lime softened as at the L.D. McMullen Plant. The precipitated water treatment lime is dewatered using pressure filtration. The resulting water treatment lime in solid form can then be used for beneficial use.

By-Product Testing

The Des Moines Water Treatment lime at both plants has been tested annually for several years. The lime has been tested using the Toxicity Characteristic Leaching Procedure (TCLP – EPA Method 1311), Synthetic Precipitation Leaching Procedure (SPLP – EPA method 1312), and Resource Conservation and Recovery Act (RCRA) Total Metals (EPA Methods 6010, 6020, 7470, 7471) for the elements of concern. The lime is tested for the elements of concern listed in the Beneficial Use Determination Solid By-Product Management Plan Analytical testing Report (DNR Form 542-0652). This testing will be increased to quarterly to ensure that the chemical and physical composition of the water treatment lime does not change.

Storage Procedures

The water treatment lime is mostly stored on-site at the Dew Moines Water Works L.D. McMullen water treatment facility. The lime from Fleur Drive WTP is stored at the L.D. McMullen plant when field conditions do not allow direct delivery. The lime from L.D. McMullen lagoons is piled to allow additional drying after removal from the lagoons.

Lime used for beneficial use is generally not stored in large quantities and is used for its beneficial use shortly after delivery to the site. Beneficial use sites vary in size using from 20 to 2000 tons of lime. The largest stockpiles for up to 2,000 tons would be roughly 60 feet by 100 feet stacked to a 10 foot height.

Run-on and run-off controls will be integrated with the project that is beneficially using the lime. Many of the projects are using lime for enhancing a livestock feeding yard. Livestock feeding yards have protections in place to prevent storm water run-on and run-off of rain and manure from the yard. The water treatment lime is being beneficially used to improve the feedlot and its ability to protect the environment.

Most of the projects will be used on areas that are less than one acre in size and will not require construction stormwater NPDES permit. In the case that the site is expected to disturb greater than one acre then the project will be covered under the Iowa General Permit 2, Storm Water Discharge Associated with Construction Activities.

The water treatment lime is often described as inert material because of its very low water solubility. Uncontrolled dispersion of the water treatment lime would not be possible.

Maximum storage time at the beneficial use sites will be no greater than 6 months.

Peru Rd Peru Rd

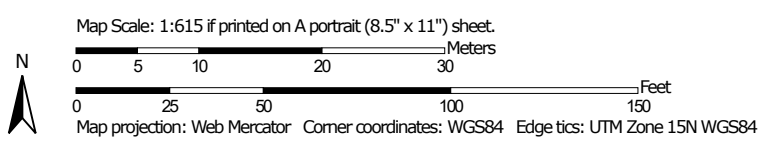


B






























Depth to Water Table—Madison County, Iowa
(Kivell)



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)	 Not rated or not available
 Area of Interest (AOI)	
Soils	Water Features
Soil Rating Polygons	 Streams and Canals
 0 - 25	Transportation
 25 - 50	 Rails
 50 - 100	 Interstate Highways
 100 - 150	 US Routes
 150 - 200	 Major Roads
 > 200	 Local Roads
 Not rated or not available	Background
	 Aerial Photography
Soil Rating Lines	
 0 - 25	
 25 - 50	
 50 - 100	
 100 - 150	
 150 - 200	
 > 200	
 Not rated or not available	
Soil Rating Points	
 0 - 25	
 25 - 50	
 50 - 100	
 100 - 150	
 150 - 200	
 > 200	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madison County, Iowa
Survey Area Data: Version 25, Sep 14, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 7, 2021—May 26, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
69C	Clearfield silty clay loam, dissected till plain, 5 to 9 percent slopes	0	0.4	22.0%
368	Macksburg silty clay loam, 0 to 2 percent slopes	30	0.2	11.4%
368B	Macksburg silty clay loam, 2 to 5 percent slopes	30	0.6	34.3%
370C2	Sharpsburg silty clay loam, 5 to 9 percent slopes, eroded	122	0.5	28.9%
822D2	Lamoni clay loam, 9 to 14 percent slopes, eroded	30	0.1	3.3%
Totals for Area of Interest			1.9	100.0%

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

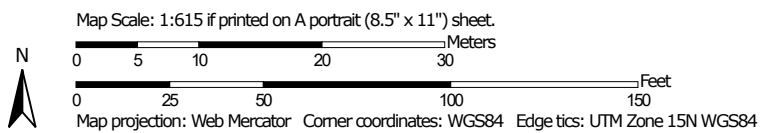
Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December


Flooding Frequency Class—Madison County, Iowa
(Kivell)



Flooding Frequency Class—Madison County, Iowa
 ((Kivell))


MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils


Soil Rating Polygons





-  None
-  Very Rare
-  Rare
-  Occasional
-  Common
-  Frequent
-  Very Frequent
-  Not rated or not available

Soil Rating Lines


-  None
-  Very Rare
-  Rare
-  Occasional
-  Common
-  Frequent
-  Very Frequent
-  Not rated or not available

Soil Rating Points






-  None
-  Very Rare
-  Rare
-  Occasional

-  Common
-  Frequent
-  Very Frequent
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madison County, Iowa
 Survey Area Data: Version 25, Sep 14, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 7, 2021—May 26, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Flooding Frequency Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
69C	Clearfield silty clay loam, dissected till plain, 5 to 9 percent slopes	None	0.4	22.0%
368	Macksburg silty clay loam, 0 to 2 percent slopes	None	0.2	11.4%
368B	Macksburg silty clay loam, 2 to 5 percent slopes	None	0.6	34.3%
370C2	Sharpsburg silty clay loam, 5 to 9 percent slopes, eroded	None	0.5	28.9%
822D2	Lamoni clay loam, 9 to 14 percent slopes, eroded	None	0.1	3.3%
Totals for Area of Interest			1.9	100.0%

Description

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.

"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.

"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.

"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.

"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.

"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December