

Project Summary

2017 Beulah Highway 200 Emergency Project

Contract AM-779-17



**North Dakota Public Service Commission
Abandoned Mine Lands Division
600 East Boulevard Avenue, Department 408
Bismarck, ND 58505-0480
June 2017**

**North Dakota Public Service Commission
2017 Beulah Highway 200 Emergency Project Summary**

Project Type:	Surface backfilling of dangerous sinkholes caused by subsidence of underground mines near a State Highway.
Primary Location:	Along North Dakota Highway 200 north of Beulah in Sections 7 and 18, T144N, R87W, Mercer County
Project Dates:	April 26-28, 2017
Contractor:	Earthworm Excavating of Tolna, ND
Project Cost:	\$4945

The Public Service Commission administers the Abandoned Mine Lands (AML) Program on behalf of the State of North Dakota. The AML program is charged with eliminating existing and potential public hazards resulting from abandoned surface and underground coal mines. It is funded by a production fee on lignite coal mined in the state.

The 2017 Beulah Highway 200 Emergency Project was conducted to fill dangerous sinkholes caused by collapse of underground coal mines. Some of these sinkholes were located on the right-of way of ND State Highway 200 near Beulah, ND. Standard requirements for sinkhole filling under this contract were as follows:

1. Remove and stockpile topsoil or suitable plant growth material from around/within sinkhole.
2. Excavate the sinkhole (as directed) with a backhoe or excavator.
3. Backfill the sinkhole with approved fill material, compaction with loader or excavator required between lifts.
4. Grade area to blend with adjacent topography and re-establish drainage.
5. Respread topsoil over disturbed areas and finish-grade.
6. Seed (broadcast spreader allowed) disturbed areas with required mixture.
7. Drag the seeded areas with a spike-tooth harrow or equivalent.

The required seed mixture for native grassland areas consisted of the following species and rates.

<u>Species</u>	<u>Rate/Acre – Lbs. (PLS)</u>
Thickspike Wheatgrass	4
Streambank Wheatgrass	4
Western Wheatgrass	4
Slender Wheatgrass	2
Green Needle Grass	2
Sideoats Grama	2
Switchgrass	4

This AML Project reduced the likelihood of death or injuries to property owners and the public, and minimized the probability of property damage by filling several deep and dangerous sinkholes. However, there are many more sinkholes that need to be filled and new sinkholes are reported each year. Sinkhole filling projects such as these have been conducted annually in North Dakota and will likely continue into the future.

Report Contents

- Summary Data
- Map
- Emergency Investigation Report
- Captioned Photos

Cover Photo: *The cover photo shows the initial investigation of a sinkhole reported by the North Dakota Department of Transportation. This sinkhole was in the ditch of ND Highway 200 near Beulah, ND. It was about 15 feet long, 12 feet wide and 8 feet deep. This sinkhole was reported March 27 and investigated March 28, 2017.*

● Sinkholes

7

200

T144N
R87W

18



Sinkholes near Hwy 200

North of Beulah, ND
Mercer County
ND PSC AML Division
March 29, 2017



0 200 400 Feet

AML EMERGENCY INVESTIGATION

Type of Problem: Subsidence/Sinkhole
Reported by: Aaron Auer, NDDOT
Address: 1700 3rd Ave W, Ste 101, Dickinson, ND 58601-3009
Telephone: 701-227-6526
Person Notified of the Complaint: Bill Dodd, NDPSC
Address of Complaint: Approximately 1.3 miles east of the intersection of North Dakota Highways 49 and 200
City: Beulah
County: Mercer
State: North Dakota

SITE INVESTIGATION

Date: March 28, 2017
Time: 10:15 to 11:15 CDT
Name of State Investigators: Bill Dodd, Matt Fischer, and Jordan Burns, AML Division
OSM Representative Present: None
Others Present: Kevin Kaley, NDDOT Beulah Section Supervisor (701-870-2073)

Name of others contacted (Local, State, Federal, Insurance Agencies, Utilities, etc.):
John Sieving, OSM, was contacted on March 27, 2017.

LOCATION OF SITES

Directions of locations (Describe Route):

Approximately 1.3 miles East of the intersection of North Dakota Highways 49 and 200 in the S½SW¼ of Section 7, T144N, R87W, Mercer County

USGS Quadrangle Name: Beulah
Coordinates: 47.29930, -101.75668

MINE INFORMATION

Mined by: Knife River Coal Mine
Duration of Mining: 1921-1953 (approximate)
Type of Mining: Underground
Seam Names: Unknown **Thickness of Seam:** 8-14 feet

CONTINUING RECLAMATION RESPONSIBILITY

Permitted Operation: NO Permit Number(s): N/A
Bond Status: Returned, Forfeited, Available: N/A
Amount: N/A Date: N/A

PRESENT OWNER(S)

Surface Owner's Name: North Dakota Game and Fish
Address: 100 N. Bismarck Expressway
City: Bismarck
State: North Dakota
Zip Code: 58501
Telephone: 701-328-6300

Were the Property Owners Involved in the Mining: No
If yes, explain:

Date Property Acquired by Owner: Unknown
If Potential Subsidence, Do Owners Have Insurance: No

If yes,
Agency:
Agent:
Address:

Phone Number:
Mineral Owner's Name: Unknown

AFFECTED PARTIES

These sinkholes are on and near the right-of-way of Highway 200. They could affect traffic on the highway and any off-road vehicles using the right of way.

SITE INFORMATION

Date the problem began or was first noticed: March 27, 2017
Is there any active mining or related activities in or around the area: No
Name of Operators: N/A

Nature of problem: Void, Shafts, Slope, Entries, etc.
Source of problem: Underground Mine

POTENTIALLY AFFECTING:

Persons: Estimated Number: 10+

Housing: None

Building: None

Estimated acres affected: The area of known sinkholes is very large; however the area affected by these sinkholes is less than one acre.

PROBLEM DESCRIPTION:

Describe the problem (Detail: size shape; is problem spreading, expanding, first noticed, etc.)

Bill Dodd received an email from Aaron Auer, North Dakota DOT (701-227-6526), on Monday, March 27, 2017 regarding a sinkhole that has opened in the right of way of State Highway 200. He invited Bill and the AML Division to come and investigate the sinkhole and surrounding area.

Kevin Kaley (701-870-2073), the NDDOT Beulah Section Supervisor, met Bill Dodd, Matt Fischer, and Jordan Burns at the site on March 28. NDDOT had already deployed fencing and barricades to protect the public. The hole was 15 feet long, 12 feet wide, and eight feet deep. It was on the north ditch about 50 feet from the roadway surface of Highway 200. There were two other sinkholes within 75 feet of the initial sinkhole. The second sinkhole was also in the ditch and the third was outside the right of way on North Dakota Game & Fish property. This third sinkhole had two buried West River Telephone fiber optic cables exposed and running across it. These sinkholes are very hazardous and should be filled as soon as possible.

OTHER INFORMATION

Describe any other information available and its location (i.e., maps, inspections, reports, etc.)

Mine maps and other information for the Knife River Mine are available at the AML Division Office.

ELIGIBILITY

Declaration of eligibility from State: ND Public Service Commission

Name:

Address: Dean Moos, AML Director

City: Bismarck

State: North Dakota

Zip Code: 58505-0480

Telephone: (701) 328-4099

Request: Oral___ Date_____ Written X Date December 26, 2016

Eligible: Yes X (an eligible site must be mine related, abandoned with inadequate reclamation prior to August 3, 1977, and no continuing reclamation responsibility.)

ADDED VALUE

It is doubtful that the reclamation of this site will add significant value to the property. However, remedial action to eliminate the hazard will help protect the public utilizing the highway and right of way. It is likely that mine subsidence will continue and additional sinkhole filling may be required at or near this location in the future.

PROPOSED REMEDIAL ACTION

1. Immediate actions:

- NDDOT has barricaded and taped the area off and will monitor the hole.

2. Actions to repair the sinkholes:

- Excavate the sinkhole with an excavator or backhoe.
- Fill the excavated sinkholes with fill dirt and compact to the best extent possible.
- Seed all disturbed areas.

ESTIMATED COSTS \$4000

Investigator: William E. Dodd
Address: 600 E. Blvd. Ave, Dept 408
City: Bismarck
State: North Dakota
Zip Code: 58505-0480
Telephone: (701) 328-4101

Signature William E. Dodd 3-30-17

Project Title: 2017 Beulah Highway 200 Emergency
Number:

2017 Beulah Highway 200 Emergency



On March 27, 2017, Aaron Auer, NDDOT, reported a dangerous sinkhole on the north ditch of Highway 200 near Beulah. On March 28, Jordan Burns, Matt Fischer and Bill Dodd (PSC) met with Kevin Kaley, NDDOT Beulah Section Supervisor, at the site. The sinkhole was 15 feet long, 12 feet wide and 8 feet deep. NDDOT had already deployed barricades to protect the public.



This shows another sinkhole about 75 feet from the first one. Although it was off the highway right-of-way, it had two buried West River Telecommunications fiber optic cables exposed and running across it.

2017 Beulah Highway 200 Emergency



This photo shows the sinkholes on the ditch of Highway 200 on April 28 after they were filled and topsoil was respread.



This photo shows the sinkhole with the fiber optic cables after it was filled and topsoil was being replaced. Five dangerous sinkholes were filled in this emergency project and the contract cost was \$4945.