

FINAL CONSTRUCTION COMPLETION REPORT FOR THE GARDNER EMERGENCY 2011

Richland County, Montana

March 6, 2014

Prepared by:

Montana Department of Environmental Quality
Abandoned Mine Lands Program
P. O. Box 200901
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For
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Gardner Emergency 2011

1. Introduction

The Montana Department of Environmental Quality's (DEQ) Abandoned Mine Program conducted subsidence abatement activities at the Gardner and Daniels properties at Fairview, Richland County in the fall of 2011. Subsidence abatement was in response to citizen complaints about continued subsidence in an area where the abandoned mine program has worked repeatedly since 1984. Previous emergency projects have included the Gardner-Sullivan Emergency 1988; Gardner Emergency 2009, and the now this Gardner 2011 Emergency projects. Abandoned mine program has also performed maintenance activity on this site as mines subsidence continued shortly after the projects were completed. The subsidence features addressed by the Gardner Emergency 2011 developed from the collapse of underground workings located adjacent to residences. This project also addressed the replacement of a domestic water supply as the well casing on the Daniels property was collapsed by mine subsidence that occurred at and near the well casing.

Gardner Residence Subsidence 2011

13386 County Road 354T, Fairview, MT



DEQ Gardner Daniels.
Map June 2011

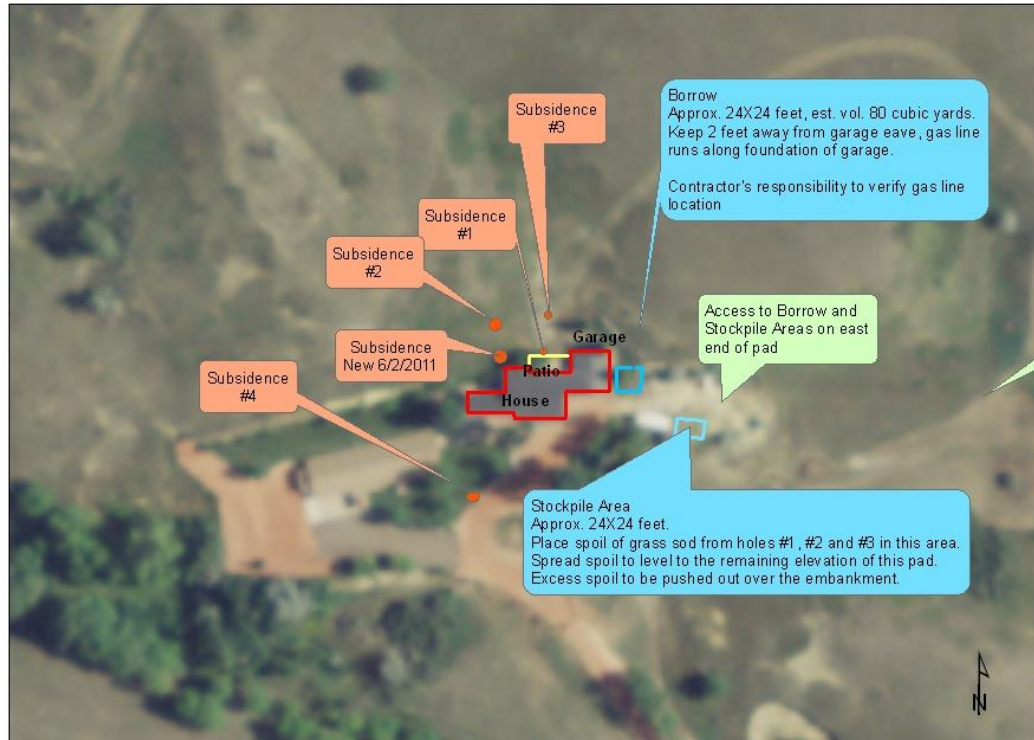
Orange = Subsidence Blue Color = Borrow/Stockpile Green = Access

No Scale

Location Map

Gardner Residence Subsidence 2011

13386 County Road 354T, Fairview, MT



DEQ Gardner Res.
Map May 2011

Orange = Subsidence Blue Color = Borrow/Stockpile Green = Access

No Scale

Identification of subsidence and borrow areas

2. Location

The Gardner residence is located one mile southwest of Fairview in Township 24 North, Range 60 East, Section 18, SE1/4, NW1/4, and NE1/4 in Richland County, Montana. The residence is located off of Montana Hwy 200 to Richland County Road 345T with a physical address of 13386 County Road 354T.

3. Mine History for Eligibility Purposes

The Gardner Mine was started by Leonard Gardner who obtained a coal entry patent (#5433313) on August 22, 1916. The Gardner Mine operated from 1916 until the 1930's. The operation was reported to cover approximately 40 acres. The mine was a one-person operation, which was mined by hand and facilitated by mine cars hauled by a horse, and later a modified car engine. The majority of the mining was conducted by Leonard's son, Delbert. The coal seam

was within the Fort Union Formation and was approximately 30' underground and about 6' thick. Room and pillar mining methods were employed. The Gardner Mine was operated seasonally and the coal was used locally. No mining activity has occurred at the site since the 1930's. During the original site investigation in 1984 five collapsed adits were identified nearby the Gardner and Sullivan residences. Slack piles are located at the collapse area of Adit 1 and Adit 2. Jerry Gardner, the current property owner, indicated that a tibble was located at Adit 2 and an old car engine on a frame remaining in the area was used to haul mine cars from the workings.



Vegetated Slack Pile near Gardner Residence

4. Cultural Resources

The Gardner Mine was originally inventoried in 1986 by GCM Services, Inc. of Butte, Montana. The cultural resources site number is 24RL127. GCM concluded that the overall condition of the site is very poor. The site is lacking in physical integrity and has no potential to add further information to the local history. No eligible cultural resources were recommended for preservation.

5. History of Past Work by the DEQ AML Program

1984

The Sullivan Emergency occurred in the spring of 1984. Five subsidence features developed near the adjacent Sullivan and Gardner residences. The DEQ AML Program contracted with LC Hanson of Helena, Montana to complete the work activities. The work consisted of drilling numerous test boreholes, investigating discovered mine voids with a TV camera and smoke tracing, conducting a geophysical resistivity survey, and injecting grout barrier walls. The work was completed from April to June 1984 at a cost of \$68,000. Most work focused on the adjoining neighbor's property, Mr. Bill Sullivan. Several borings were drilled inside the Sullivan residence to inject grout directly underneath the house to stabilize it.

1985 to 1986

Gardner Emergency #1 occurred in 1986. The DEQ AML Section contracted with LC Hanson of Helena, Montana. The work was completed to complement the work done at Sullivan residence in 1984. The 1984 investigation at the Sullivan residence indicated that several mine workings were located directly underneath the Gardner residence. A drilling and grouting program resulted in the drilling of approximately 26 test holes with about 700 cubic yards of grout injected into 6 of the test holes. The project cost was approximately \$71,000.

1997

An additional subsidence occurred in 1997 at the Gardner residence in front of the garage. The subsidence feature was over-excavated and backfilled by Baxter Construction under a DEQ AML Call-When-Needed Contract. The cost of the project was not found in the historic files.

1999

Three more subsidence features that developed around the Gardner and Sullivan residences were reclaimed in May 1999. The DEQ AML Program contracted with Spectrum Engineering of Billings, Montana to oversee the work activities. Spectrum subcontracted Donnes Construction to excavate and backfill one subsidence feature at Gardner residence and two at Sullivan residence at a cost of approximately \$15,000.

2009

Jerry Gardner contacted Jeffrey Fleishman in the Casper, Wyoming Office of Surface Mining on March 24, 2009. Bill Botsford and Steve Opp of the Abandoned Mine Program drove out to Fairview on March 25, 2009 and conducted a site visit to the residence on March 26, 2009. Two subsidence features were identified behind the Gardner residence. Subsidence features were backfilled and mine voids under the Gardner residence were grouted with pressurized grout after a horizontal drilling investigation. W. L. Neu Construction Inc. of Fairview, Montana completed the backfill work. Grouting under the Gardner residence was contracted to Agri

Industries Inc. of Williston, North Dakota who completed the horizontal drilling and pressure grouting. Cost of subsidence backfill was \$1405.00 including landscaping. Drilling and grouted totaled \$51,407.00.

Gardner Emergency 2011

Montana Abandoned Mine Program was notified of continued subsidence problems at the site in May 2011. Subsidence was investigated by Bill Botsford from Abandoned Mine Program. Plan was developed to backfill subsidence and a contract was let to Seader Excavating for backfill and revegetation and landscaping work. Work was completed in July 2011 and invoice submitted to DEQ in November 2011. Cost of backfill was \$4,320.00. Abandoned mine program is currently seeking quotes to replace the Daniels water supply and an additional \$7000 is budgeted for that work.



Subsidence holes 1 2 and 3





Subsidence hole 3



Subsidence hole 4



Daniels Well Collapsed into subsidence features



Additional Subsidence on Daniels property



Completed subsidence backfill



Completed Subsidence backfill adjacent to Gardner Residence.

APPENDIX

Invoice/Requisition: Seader Excavating

Environmental Compliance: Categorical Exclusion

Subsidence Priority Form and Cost Support

Water Supply Replacement 403B Form and Cost Support

**ENVIRONMENTAL
COMPLIANCE**

ABANDONED MINE LANDS CATEGORICAL EXCLUSION

State: MONTANA PA # MT004223 SEA
Project Name: Gardner Emergency 2011.

Project Description: Subsidence Backfill in subsidence prone area. Backfill subsidence at Daniels and Gardner residential properties, Fairview, Richland County, Montana. Residential water supply replacement due to loss of well casing in subsidence feature at Daniels property.

T24N R60E Section 18. Fairview, Richland County Montana
6 subsidence features located at latitude 47.846 longitude -104.066.

Yes responses require submission of an environmental assessment.

I. GENERAL EXCEPTIONS

Does the project type specifically require an EA in 516 DM 6, Chapter 13, as specified in Item I of the attached instructions? No Yes

II. DEPARTMENT OF INTERIOR EXCEPTIONS
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Will the project have any of the following:

A significant adverse effect on public health or safety? No Yes
An adverse effect on any of the following unique geographic characteristics?
If yes, check the ones that apply. No Yes

- | | |
|---|---|
| <input type="checkbox"/> Parks (State, Local, or National) | <input type="checkbox"/> Wild or Scenic Rivers |
| <input type="checkbox"/> Recreation or Refuge Lands | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Wilderness Areas | <input type="checkbox"/> Floodplains |
| <input type="checkbox"/> Ecologically Significant or Critical Areas | <input type="checkbox"/> Sole or Principal Drinking Water |
| <input type="checkbox"/> Prime Farmlands | <input type="checkbox"/> Aquifers |

Highly controversial environmental effects? No Yes

Highly uncertain and potentially significant environmental effects or unique or unknown environmental risks? No Yes

A precedent for future action or a decision in principle about future actions with potentially significant environmental effects? No Yes

Directly related to other actions with individually insignificant but cumulatively significant environmental effects? No Yes

Adverse effects on properties listed or eligible for listing on the National Register of Historic Places? No Yes

Adverse effects on species listed or proposed to be listed on the List of Endangered or Threatened Species, or have adverse effects on designated Critical Habitat for these species? No Yes

ENVIRONMENTAL COMPLIANCE

PA#MT004223 SEA

Require compliance with Executive Order 11988 (Floodplain Management), Executive Order 11990 (Wetlands Protection) or The Fish and Wildlife Coordination Act?

No [X] Yes []

Threaten to violate a Federal, State, Tribal or local law or requirement imposed for the protection of the environment?

No [X] Yes []

III. RESOURCE IMPACT EXCEPTIONS

Are there any unresolved issues, or adverse effects requiring specialized mitigation, for any of the following resources? If yes, check the ones that apply.

No [X] Yes []

- Topography
- Land Use (includes prime farmland)
- Soils
- Vegetation (includes wetlands)
- Hydrology
- socioeconomics
- Fish and Wildlife
- Historic and Cultural
- Recreation
- Air Quality
- Noise
- Other (includes

IV. ATTACH CONSULTATION LETTERS AND A LOCATION MAP

V. RESPONSIBLE OFFICIAL CERTIFICATION

Signature: _____ Date: 2/28/2014

Name and Title: John Koerth, AML Program Manager

VI. OSM DETERMINATION

- This project conforms with the exclusion criteria in 516 DM 6, Chapter 13, and is excluded from further NEPA compliance.
- This project does not conform with the exclusion criteria in 516 DM 6, Chapter 13, and requires an environmental assessment.

Signature: _____ Date: _____

Jeff Fleischman- CFO Director

Name and Title: _____

PA NO.:MT004223	DATE:2/28/14	PROBLEM TYPE: S	PRIORITY: 1
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Problem Type Features - if this form is being used to evaluate and record multiple occurrences of Subsidence within the PA, include sufficient information under Part II to identify and differentiate.

Gardner Emergency 2011: Six subsidence features adjacent to Gardner and Daniels residential properties. Fairview, Richland County, Montana. Subsidence feature at Daniels property caused the collapse of the a domestic water well. See priority documentation for water supply replacement.

I.	HEALTH and SAFETY INFORMATION	Yes	No
1.	Is there a possible subsidence area directly beneath or immediately adjacent to inhabited structures, roadways, or public facilities?	X	
2.	Has it caused or is it anticipated that it could shortly cause loss of life, serious injury, or excessive economic loss?	X	
3.	Is there possible subsidence adjacent to or near structures, roadways, or public facilities?	X	
4.	Has actual subsidence in the area caused injury or appreciable economic loss?		X
5.	Have the above problems occurred within the past 5 years?	X	

Positive answers to Questions 1 and 2 indicate the problem can qualify to meet Priority 1 criteria with adequate justification included in the narrative description.

Positive answers to Questions 3, 4, and 5 indicate the problem can qualify to meet Priority 2 criteria with adequate justification included in the narrative description.

PA NO.: MT004223	DATE:2/28/14	PROBLEM TYPE: S	PRIORITY:1
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II. RECLAMATION PROBLEM DESCRIPTION (Evidence of Extreme Danger and Health and Safety Problems for Subsidence).

6. Narrative evidence of Priority 1 (Extreme Danger) Subsidence problems:

Continued subsidence adjacent to occupied structures in subsidence prone area that has been addressed on multiple occasions by Montana AML program and by OSM through Emergency Program. Six subsidence features developed on the neighboring Gardner and Daniels residential properties. Five of these features developed on the Gardner property in close proximity to subsidence features that were filled and grouted in 2009. Features were responded to as "expedited response" due to the close locations adjacent to occupied dwellings. Subsidence feature on Daniels property caused the collapse of a domestic well that supplied residence at that location.

7. Narrative evidence of Priority 2 (Health and Safety) Subsidence problems:

III. RECLAMATION COST DESCRIPTION: Show the approach used to estimate cost and provide references or sources of information used (i.e. e-AMLIS Cost Guidelines, previous reclamation projects, engineer's estimate, etc.).

Actual cost: Lump sum \$4320 for backfill of 6 subsidence features. Approximately 79 cubic yards of fill placed and compacted.

PA NO.: MT004223	DATE: 2/28/14	PROBLEM TYPE: WS	PRIORITY: B
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Sharon Daniels well. Gardner Emergency site, Richland County, Montana.

I.	WATER SUPPLY ADVERSE EFFECT INFORMATION	Yes	No
	PART A. SUPPLY IMPACTS		
1.	Are specific water supplies adversely affected by coal mining in terms of water quantity?	x	
2.	Are specific water supplies adversely affected by coal mining in terms of water quality?		
	PART B. COAL MINING RELATEDNESS		
3.	Are the coal mining related adverse effects on the subject water supplies <u>entirely due</u> to coal mining which occurred during one or both of the following periods of mining: a. Coal mining that occurred prior to August 3, 1977. b. Coal mining that occurred between August 4, 1977 and prior to the date that OSM approved your State's or Tribe's primacy regulatory program (also referred to as interim program period).	x	
4.	Are the coal mining related adverse effects on the subject water supplies <u>entirely due</u> to mining that occurred between August 4, 1977 and November 5, 1990, and the surety of the subject mining operation became insolvent during that period leaving inadequate funds to address the adverse effects to water supplies?		x
5.	Are the coal mining related adverse effects on the subject water supplies <u>predominately due</u> to coal mining conducted during one of the periods specified in questions 3 and 4 above? (If yes, explain further below)		

A positive answer to question 1 and/or question 2 along with a positive answer to question 3, 4, or 5 qualifies the problem as an adverse effect to water supplies under Section 403(b) of SMCRA.

PA NO.:MT004223	DATE: 2/28/14	PROBLEM TYPE: WS	PRIORITY: B
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II. Reclamation Problem Description: Explain the scope of the problem and identify the water supplies that will be replaced. Include discussions of water quality and/or quantity impacts. Finally, if answered “Yes” to Question 5 above, include a discussion of how the determination was made.

Water well at Sharon Daniels property was collapsed due to a subsidence event that occurred directly around the well casing. Well casing collapsed during mine subsidence event causing the loss of water supply. Mining at the site occurred entirely in the period prior to August 4, 1977. Mine collapse problems at the Garner Emergency site have been addressed by Montana AML on multiple occasions during the period 1986 – 2011. Previous subsidence has occurred around and under occupied dwellings. The loss of the Daniels well was due to a subsidence event that occurred at the location of the well. See photo included with priority documentation.

III. Reclamation Cost Description: Show the estimated cost and approach that will be used to protect, repair, replace, construct, or enhance facilities to replace water supplies adversely affected by coal mining practices. Identify any work that will be performed related to water distribution facilities and/or treatment plants. In addition, please provide references or sources of information used to estimate the costs (i.e. previous reclamation projects, engineer’s estimate, etc.).

Well drilling is estimated to cost \$7000 including drilled casing, pump, electrical supply, pitless adaptor and supply line from the new well to the residence.

STATE OF MONTANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
REQUISITION/ORDER FORM

VENDOR:	BILL TO/SHIP TO:	Document No: REM 411462	
	DEPARTMENT OF ENVIRONMENTAL QUALITY	Date Started: 12/14/11	
SEADER EXCAVATING	APO #REM P0022	ORG UNIT	AMOUNT
ATTN: BRUCE SEADER	PO BOX 200901	474063	\$4,320.00
PO BOX 343	1520 EAST 6TH AVENUE		
FAIRVIEW, MT 59221	HELENA, MT 59620-0901		
Phone No. (701) 844-5702	PH# 406-841-5000		
Fax No.: NONE	Prepared By: Mary Talley		
Tax ID No.	Deliver To:		
Special Instructions: .			
		TOTAL	M- \$4,320.00

JUSTIFICATION: Repair Subsidence at Gardner/Daniels

!!INVOICE DATE: 4/14/2011 !!INVOICE NUMBER: 054198

QTY	UNIT	DESCRIPTION OF GOODS OR SERVICES	UNIT PRICE	TOTAL COST
1	EA	Excavate & repair subsidence in the Gardner/Daniels Coal Shafts	\$4,320.00	\$4,320.00
				\$0.00
		This invoice was not mailed until Nov 28, 2011 and was received		\$0.00
		in Remediation Division on Nov. 30, 2011.		\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
		FY 2011 B Accrual		\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
			Total Cost	\$4,320.00

Route to:	Name & Signature Requestor and/or Authorized Signatory:	Date Approved:
Requestor	Bill Botsford	
Section Supervisor	John Koerth	
Bureau Chief	n/a	
Division Administrator	n/a	
Rem Financial Program	Sherry Blair	