




MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Bennett Sand & Gravel Pit #2	MINE/PROSPECTING ID#: M-2001-038	MINERAL: Sand, Borrow	COUNTY: Adams
INSPECTION TYPE: Monitoring	INSPECTOR(S): Jared L. Ebert	INSP. DATE: September 5, 2018	INSP. TIME: 12:30
OPERATOR: Albert Frei & Sons Inc.	OPERATOR REPRESENTATIVE: Ben Frei	TYPE OF OPERATION: 112c - Construction Regular Operation	
REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$70,000.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: September 14, 2018	

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>C</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>NA</u>
(PW) PROCESSING WASTE/TAILING---- <u>NA</u>	(SF) PROCESSING FACILITIES----- <u>NA</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>Y</u>	(RV) REVEGETATION---- <u>NA</u>
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>NA</u>	(RS) RECL PLAN/COMP-- <u>NA</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>NA</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>NA</u>
(AT) ACID OR TOXIC MATERIALS----- <u>NA</u>	(OD) OFF-SITE DAMAGE----- <u>Y</u>	

Y = Inspected and found in compliance / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited, C = See Comment in report

OBSERVATIONS

This was a monitoring inspection of the Bennett Sand and Gravel Pit #2, Division of Reclamation, Mining and Safety (DRMS or Division) permit number M-2001-038, operated by Albert Frei and Sons, Inc. (AFS). I, Jared Ebert with DRMS conducted the inspection. Mr. Ben Frei with AFS accompanied me during the inspection.

This is a 47.75 acre 112c mining operation. The post mine land use approved for the site is rangeland.

Backfilling and Grading:

With the approval of Technical Revision No. 1 (TR01), the Operator was allowed to import inert material into the site. AFS is importing inert material and backfilling it in the pit near the northwest corner. Larger pieces of concrete rubble, asphalt fragments and other inert fill materials were observed.

The site consists of a large pit excavation. The pit is about 40 feet deep on the west end and 20 feet deep on the east end. The western pit slopes are graded to about a 2.5H:1V angle. The southern and eastern pit slopes are near vertical.

Financial Warranty:

The Division currently holds a financial warranty in the amount of \$70,000.00 in the form of a letter of credit. The Division has estimated the reclamation liability at the site to be \$110,860.00 which is \$40,860.00 more than the bond currently held. The Division's reclamation cost estimate is enclosed with this report for AFS' review. The Division requests that any questions or concerns regarding the estimated liability level be forwarded to the Division by **September 28, 2018**. The Division may issue a surety increase revision after September 28th, 2018. In accordance with Rule 4.2.1(2), AFS will have sixty (60) days from the date of the notice of the surety increase to provide the additional financial warranty.

Hydrologic Balance:

The pit was dry at the time of the inspection. The affected area appears to drain into the pit excavation.

Gen. Compliance With Mine Plan:

Mining at the site is nearing the southern boundary. Mr. Frei mentioned they plan on filing an amendment application in the near future to expand the mining area into lands they have recently purchased.

Topsoil:

AFS and stripped a large amount of growth medium from the site and stockpiled it along the eastern permit boundary. Some weedy vegetation has begun to establish on the pile, however AFS will need to seed the pile with a temporary seed mixture to establish desired vegetation to stabilize the pile from wind and water erosion.

PHOTOGRAPHS



Figure 1. Backfilled area on the north end of the site.



Figure 2. From the northwest corner of the pit looking south.



Figure 3. From the southwest corner of the pit looking north.



Figure 4. From the southwest corner of the pit looking northeast.



Figure 5. From the south end of the eastern topsoil stockpile looking north.



Figure 6. Northwest corner of the inert fill area.

Inspection Contact Address

Ben Frei
Albert Frei & Sons Inc.
P O Box 700
Henderson, CO 80640

Enclosure: *1.) September 14, 2018, CIRCES Reclamation Cost Estimate for the Bennett Sand and Gravel Pit #2*

CC: None

COST SUMMARY WORK

Task description: Cost Summary

Site: Bennett Sand & Gravel Pit #2

Permit Action: September 2018

Permit/Job#: M2001038

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/14/2018

County: Adams

Filename: M038-000

User: JLE

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade all Slopes to 3H:1V	DOZER	1	7.91	\$2,109.00
002	Spread Topsoil	SCRAPER1	1	31.59	\$46,583.00
003	Revegetation Bennett sand and Gravel Pit No. 2	REVEGE	1	15.00	\$32,336.00
004	Mobilization/Demobilization	MOBILIZE	1	2.75	\$6,462.00
<u>SUBTOTALS:</u>				57.25	\$87,490

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 28.63
Profit: 10.00

Total = \$1,767.30

Total = \$918.65

Total = \$2,091.06

Total = \$8,749.00

TOTAL O & P = \$13,526.01

CONTRACT AMOUNT (direct + O & P) = \$101,016.01

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 4.25

Total = \$4,293.18

Reclamation management and/or administration: 5.00

\$5,050.80

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$23,369.99

TOTAL BOND AMOUNT (direct + indirect) = \$110,859.99

Proposed Required Surety : \$110,860.00

BULLDOZER WORK

Task description: Grade all Slopes to 3H:1V

Site: Bennett Sand & Gravel Pit #2

Permit Action: September 2018

Permit/Job#: M2001038

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 9/13/2018

County: Adams

Filename: NA

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$12.36	NA
Ripper op. Cost/Hour:	\$7.88	100
Operator Cost/Hour:	\$40.23	NA
Total unit Cost/Hour:	\$266.63	
Total Fleet Cost/Hour:	\$266.63	

MATERIAL QUANTITIES

Initial Volume: 7,896
Swell factor: 1.124
Loose volume: **8,872 LCY**

Source of estimated volume: West and South - 1800ft, South and East 1500
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -15 %
Average site altitude: 5,300 feet

Material weight: 2,900 lbs/LCY

Weight description: Sand and gravel - Dry

Job Condition Correction Factor

Source

Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5314

Adjusted unit
production: 1,121.52 LCY/hr

Adjusted fleet
production: **1121.52** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.238/LCY

Total job time: **7.91** Hours

Total job cost: **\$2,109**

SCRAPER TEAM WORK

Task description: Spread Topsoil

Site: Bennett Sand & Gravel Pit #2

Permit Action: September 2018

Permit/Job#: M2001038

PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 9/13/2018

County: Adams

Filename: NA

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 657G w/push-pull
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	50	NA	25	25
Ownership cost/hour:	\$196.76	\$110.70	\$110.70	NA	\$30.73	\$25.30
Operating cost/hour:	\$204.76	\$47.73	\$47.73	NA	\$7.65	\$9.15
%Utilization-ripper:	NA	0	0	NA	NA	NA
Ripper own. cost/hour:	NA	\$12.36	\$12.36	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$46.06	\$40.23	\$40.23	NA	\$45.64	\$39.10
Unit Subtotals:	\$447.57	\$211.03	\$211.03	NA	\$84.03	\$73.55
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work:	\$1,106.17	Support:	\$211.03	Maint:	\$157.58

Total work team cost/hour: \$1,474.78

MATERIAL QUANTITIES

Initial volume: 48,400

CCY

Swell factor: 1.000

Loose volume: 48,400

LCY

Source of estimated volume: Division of Reclamation, Mining & Safety

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>32.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>44.00</u>	LCY
Rated Payload:	<u>104,000 pounds</u>	Average Volume:	<u>38.00</u>	LCY
Payload Capacity:	<u>65.00 LCY</u>	Adjusted Capacity:	<u>38.00</u>	LCY

Cycle Time:

Scraper Loading Time: 1.10 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 5300 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Travel Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	3.00	3.00	2883	0.43

Haul Time: 0.43 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	3.00	3.00	2958	0.34

Return Time: 0.34 minutes

Total Scraper team cycle time: 2.47 minutes
Adjusted for job conditions: 1,532.31 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,532.31 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: 1,532.31 LCY/Hour

Unadjusted unit production/hour: 1,846.15 LCY/Hour
Optimal Number of Scrapers per push
dozer: _____

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 31.59 Hours

Unit cost: \$0.962 /LCY Total job cost: \$46,583

REVEGETATION WORK

Task description: Revegetation Bennett sand and Gravel Pit No. 2

Site: Bennett Sand & Gravel Pit #2

Permit Action: September 2018

Permit/Job#: M2001038

PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 9/13/2018

County: Adams

Filename: M038-003

User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	0.50	4.47	\$4.91
Indiangrass - Holt	0.83	2.53	\$14.62
Little Bluestem - Pastura	0.35	2.09	\$6.03
Sand Bluestem - Woodward	2.40	6.23	\$62.66
Prairie Sandreed - Goshen	0.88	5.52	\$9.44
Totals Seed Mix	4.96	20.83	\$97.66

Application

Description	Cost /Acre
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Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	30	Cost /Acre:	\$1,011.95
Estimated Failure Rate:	20%	Cost /Acre*:	\$329.66
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$30,358.50
Reseeding Job Cost:	\$1,977.96
Total Job Cost:	\$32,336
Job Hours:	15.00

EQUIPMENT MOBILIZATION/DEMobilIZATION

Task description: Mobilization/Demobilization

Site: Bennett Sand & Gravel Pit #2

Permit Action: September 2018

Permit/Job#: M2001038

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 9/14/2018

County: Adams

Filename: M038-004

User: JLE

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day

Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,
400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT
TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D9T - 9SU	66.13	\$123.06	\$125.45	2	\$497.02	\$250.90	\$250.00
Cat 657G w/push-pull	80.25	\$196.76	\$125.45	2	\$644.42	\$250.90	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	1	\$119.40	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	2	\$208.42	\$177.34	\$500.00

Subtotals: **\$1,469.26** **\$767.81** **\$1,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	\$101.00	1	\$101.00	\$101.00
Fuel Tanker, 6x4, 210 HP	\$77.51	1	\$77.51	\$77.51
Lube Truck, 6x4, 250 HP	\$81.42	1	\$81.42	\$81.42
Light Duty Pickup, 4x4, 3/4 T.	\$40.58	1	\$40.58	\$40.58

Subtotals: **\$300.51** **\$300.51**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>BENNETT</u>	
Total one-way travel distance:	<u>6.00</u>	miles
Average Travel Speed:	<u>55.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$6,396.77</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$65.57</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.11	0.11
Return Time (Hours):	0.11	0.11
Loading Time (Hours):	0.58	NA
Unloading Time (Hours):	0.58	NA
Subtotals:	1.38	0.22

JOB TIME AND COST

Total job time:	<u>2.76</u>	Hours
Total job cost:	<u>\$6,462</u>	