COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

June 17, 2019

Kirk Daehling
Natural Soda LLC
3200 CR 31
Rifle, CO 81650

RE: Nacholite Project, Permit No. M-1983-194, Technical Revision (TR-43) Approval

Dear Mr. Daehling:

On June 17, 2019 the Division of Reclamation, Mining and Safety (Division) approved the Technical Revision request (TR-43) submitted on May 16, 2019, addressing the following:

Addition of 6 wells on 3 pads (15H-IR-E, 16H-IR-E, 17H-IR-E, 15H-1V, 16H-1V and 17H-1V)

The terms of the TR-43 approved by the Division are hereby incorporated into Permit No. M-1983-194. All other conditions and requirements of the permit remain in full force and effect.

Division calculations estimate the cost to reclaim the above referenced site to be *$7,521,565.00*. This is an increase of ***$91,812.00*** over the *$7,429,753.00* currently held by the Division. Please review the enclosed figures as soon as possible and contact our office if any calculation errors are noted. The revision will not be final until the bond is approved by the Division.

Please make arrangements with Barbara Coria at the Division of Reclamation, Mining and Safety Denver Office, phone no. 303.866.3567, ext. 8148 for submittal of the financial warranty. Any questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Barbara Coria.

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@ state.co.us

Sincerely,

Amy Yeldell

Amy Yeldell
Environmental Protection Specialist

Enclosures:

TR-43 Reclamation Cost Estimate-Changes to Bond
TR-43 Reclamation Cost Estimate
TR-43 Adequacy Responses from Daub and Associates, Inc.

Ec:

Travis Marshall, Senior EPS, Grand Junction DRMS
Paul Daggett, White River Field Office, BLM
Gerry Deschaine, Natural Soda EH&S Manager
Gerald Daub, Consultant

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, CO 80203

June 3, 2019

Kirk Daehling
Natural Soda LLC
3200 CR 31
Rifle, CO 81650

RE: Nacholite Project, Permit No. M-1983-194, TR-43 Reclamation Cost Estimate-Changes to Bond

Dear Mr. Daehling:

This reclamation cost update was in response to the technical revision request (TR-43) which was submitted on May 16, 2019 and a site inspection conducted on May 14, 2019. The Division is mandated to recalculate the reclamation cost estimate to ensure that the Financial Warranty adequately, reflects the actual current cost of fulfilling the requirements of the approved reclamation plan.

Below is a table summarizing input values that have been updated with technical revision (TR-43) as compared to previous technical revision (TR-42). This table does not account for price changes resulting from inflation or other RS Means cost changes. Bond calculations are based on a combination of field observations and worst case scenario based on the approved reclamation permit.

Task	Form Used	Change	Justification
02a	Borehole	+	Added 6 wells: 15H-1V, 15H-IR-E, 16H-IR-E, 17H-IR-E, 16H-1V and 17H-1V Removed 3 wells: 8H-I, 8H-R, and 13H-I 61 wells @10 hrs to P&A each
05a	Dozer	+	Updated per D&A Repose 49 ac of pads requiring reclamation (Disturbed and Interim Reclamation) 49 ac of well pads to be graded assume 2 ft. avg. cut/fill (158,107 CY)
05b	Dozer	+	49 ac of pads @ 6" depth (39,527 CY)

05c	Reveg	+	Reveg 49 ac, updated seeding cost
06a	Ripper	-	Updated per D&A Repose 6 ac of roads (disturbed and Interim Reclamation)
06b	Dozer	-	6 ac of roads @ 6" (4,840 CY)
06c	Reveg	-	Reveg 6 ac, updated seeding cost

Please feel free to contact me with any further questions. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@ state.co.us

Sincerely,

Amy Yeldell

Amy Yeldell
Environmental Protection Specialist

COST SUMMARY WORK

Task description: **TR-43 update**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-ACY
User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Demo of Plant, pipelines, powerlines and parking lot	DEMOLISH	1	160.00	$5,106,446
02a	Borehole P&A	BOREHOLE	1	610.00	$565,317
03a	Regrade Process Ponds	DOZER	2	133.65	$55,729
03b	Decompact Process Pond	RIPPER	2	6.85	$3,086
03c	Topsoil Process Pond	DOZER	2	14.06	$5,863
03d	Reveg Process Pond	REVEGE	1	28.50	$35,938
04a	Regrade Plant Area	DOZER	2	23.69	$9,879
04b	Decompact Plant Area	RIPPER	2	7.02	$3,163
04c	Topsoil Plant Area	DOZER	2	6.07	$2,530
04d	Reveg Plant Area	REVEGE	1	12.30	$15,510
05a	Regrade Well Pads	DOZER	2	176.58	$73,630
05b	Topsoil Well Pads	DOZER	2	36.26	$15,120
05c	Reveg Well Pads	REVEGE	1	73.50	$92,683
06a	Decompact Roads	RIPPER	2	4.82	$2,175
06b	Topsoil roads	DOZER	2	4.44	$1,851
06c	Reveg Roads	REVEGE	1	9.00	$11,349
12a	Initial Mobilization	MOBILIZE	1	8.00	$14,224
12b	Secondary Mobilization	MOBILIZE	1	8.00	$2,742
		SUBTOTALS:		**1322.74**	**$6,017,235**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$121,548
Performance bond:	1.05	Total =	$63,181
Job superintendent:	661.37	Total =	$48,313
Profit:	10.00	Total =	$601,724
		TOTAL O & P =	$834,766
		CONTRACT AMOUNT (direct + O & P) =	$6,852,001

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.00	Total =	$274,080
Reclamation management and/or administration:	3.13		$214,468
CONTINGENCY:	3.00	Total =	$180,517
		TOTAL INDIRECT COST =	$1,504,330
		TOTAL BOND AMOUNT (direct + indirect) =	**$7,521,565**

DEMOLITION WORK

Task description: **Demo of Plant, pipelines, powerlines and parking lot**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 01A State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-01a
User: ACY

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.50 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
NSI Plant	200'L x 175'W x 50'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	1,750,000.00	CF	$0.70	$1,221,500.00
Product Storage Dome	100'L x 100'W x 50'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	500,000.00	CF	$0.70	$349,000.00
Removal of NSI Plant Slab	200'L x 175'W x 8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	35,000.00	SF	$1.14	$39,830.00
Removal of Storage Dome Slab	100'L x 100'W x8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	10,000.00	SF	$1.14	$11,380.00
Scale Building	20'W x 100'L x 10'H	Plant (1S) demo./off-site disposal in approved landfill - Max. 30 mile haul	30,000.00	CF	$0.70	$21,000.00
Removal of Scale Building Slab	20'W x 100'L x 6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	2,000.00	SF	$0.85	$1,706.00
Tank Farm	30'W x 50'H	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	5.00	EA	$760.00	$3,800.00
Removal of Flagpole/Monument	70 SqFt	USER PROVIDED ITEM	70.00	Ft^2	$5.00	$350.00
TR-36 Processing Building 1	165' x 79' x 60'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	782,100.00	CF	$0.70	$545,905.80
TR-36 Processing Building 2	105' x 36' x 170'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	642,600.00	CF	$0.70	$448,534.80
TR-36 Dry handling, Screening and Storage	90' x 65' x 160'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	936,000.00	CF	$0.70	$653,328.00
TR-36 Warehouse and Packaging Building	400' x 150' x 22'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile	273,000.00	CF	$0.70	$190,554.00

		haul				
TR-36 Warehouse Building	400' x 150' x 22'	Plant (1C) demo./off-site disposal in approved landfill - Max. 30 mile haul	1,320,000.00	CF	$0.79	$1,038,840.00
TR-36 Removal of concrete foundations	101285 sq. ft,	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	101,285.00	SF	$0.85	$86,396.11
TR-36 Asphalt Parking Removal	133' x 182'	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	897.00	SY	$7.00	$6,279.00
Off Site removal of asphalt-Loading	12,103 CuFt	Loading and 2 mile haul, no salvage - Machine loading	448.00	CY	$17.20	$7,705.60
Off site removal of asphalt-Hauling	448 CY @ 19 mi a trip	Hauling only, per mile, 12-18 CY truck - 50 mph average speed	473.00	MI	$3.08	$1,456.84
Off site removal of asphalt-dump fee	448 CY	Dump fees - Building construction materials.	448.00	CY	$11.10	$4,972.80
Demolition of Screening and Magnet System	120' x 160' x 40'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	672,000.00	CF	$0.70	$469,056.00
Pipelines averaged to 10" diam	36, 050 LF	Pipe, steel, welded connections - 10 in. diameter pipe	36,050.00	LF	$6.33	$228,196.50
Overhead Powerline Removal-Pole	57 poles	Utility Poles, Wood 35' - 45' high (each pole)	57.00	EA	$258.00	$14,706.00
Overhead Powerline Removal-Cross Arms	57 Arms	Utility Pole Cross Arm	27.00	EA	$93.00	$2,511.00
Disposal of Power Poles	57 @ 45'	Disposal of utility pole and hardware surplus material	2,565.00	LF	$0.02	$51.30
Disposal of Cross Arms	57 @ 8 ft wide each	Disposal of utility pole cross arms and hardware surplus material	456.00	LF	$0.01	$4.56

Job Hours: **160.00** **Subtotal (unadjusted)**: **$5,347,064.31** **Total Cost (adjusted for location)**: **$5,106,446.42**

BOREHOLE SEALING WORK

Task description: **Borehole P&A**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 02A State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-03a
User: ACY

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
3M-TDR	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	$4.68	$8,779.68
89-1	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	$4.68	$7,614.36
89-2	Portland cement grout - 4 in. (labor, equip, materials)	4	1417	1,417.00	LF	$4.68	$6,631.56
89-3	Portland cement grout - 4 in. (labor, equip, materials)	4	347	347.00	LF	$4.68	$1,623.96
90-1	Portland cement grout - 8 in. (labor, equip, materials)	8.9	1417	1,417.00	LF	$5.95	$8,431.15
90-3	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	$4.68	$7,614.36
90-4	Portland cement grout - 4 in. (labor, equip, materials)	4	1417	1,417.00	LF	$4.68	$6,631.56
BG-1	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	$4.68	$7,614.36
BG-4	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	$4.68	$7,614.36
DS-2	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	$4.68	$8,779.68
DS-3	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	$4.68	$8,779.68
EX-2	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	$4.68	$8,779.68
IRI-1	Portland cement grout - 4 in. (labor, equip, materials)	4	347	347.00	LF	$4.68	$1,623.96
IRI-4	Portland cement grout - 4 in. (labor, equip, materials)	4	1417	1,417.00	LF	$4.68	$6,631.56

IRI-5	Portland cement grout - 4 in. (labor, equip, materials)	4.1	347	347.00	LF	$4.68	$1,623.96
IRI-6	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	$4.68	$7,614.36
IRI-7	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	$4.68	$8,779.68
IRI-8	Portland cement grout - 4 in. (labor, equip, materials)	4	347	347.00	LF	$4.68	$1,623.96
12H-I	Portland cement grout - 8 in. (labor, equip, materials)	7	2100	2,100.00	LF	$5.95	$12,495.00
12H-I Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
12H-R	Portland cement grout - 8 in. (labor, equip, materials)	7	2100	2,100.00	LF	$5.95	$12,495.00
12H-R Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
10H-I	Portland cement grout - 8 in. (labor, equip, materials)	7	1935	1,935.00	LF	$5.95	$11,513.25
10H-I Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
10H-R	Portland cement grout - 8 in. (labor, equip, materials)	7	1935	1,935.00	LF	$5.95	$11,513.25
10H-R Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
BG-5	Portland cement grout - 4 in. (labor, equip, materials)	4	1645	1,645.00	LF	$4.68	$7,698.60
DS-5 (BG-9)	Portland cement grout - 4 in. (labor, equip, materials)	4	1902	1,902.00	LF	$4.68	$8,901.36
BG-6	Portland cement grout - 4 in. (labor, equip, materials)	4	1639	1,639.00	LF	$4.68	$7,670.52
WSW-2	Portland cement grout - 8 in. (labor, equip, materials)	7	1460	1,460.00	LF	$5.95	$8,687.00
DVPW-1(A)	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1900	1,900.00	LF	$5.33	$10,127.00
DVPW-1(A) Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	$57.81	$57.81
DVPW-1(B)	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1900	1,900.00	LF	$5.33	$10,127.00
DVPW-1(B) Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	$57.81	$57.81
10H-IV	Portland cement grout - 8 in. (labor, equip, materials)	7	1950	1,950.00	LF	$5.95	$11,602.50
13H-RI-E (13H-R)	Portland cement grout - 8	7	2100	2,100.00	LF	$5.95	$12,495.00

	in. (labor, equip, materials)						
13H-RI-E Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
14H-I	Portland cement grout - 8 in. (labor, equip, materials)	7	2050	2,050.00	LF	$5.95	$12,197.50
14H-I Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
14H-RI-E (14H-R)	Portland cement grout - 8 in. (labor, equip, materials)	7	2110	2,110.00	LF	$5.95	$12,554.50
14H-RI-E Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	$79.19	$79.19
WSW-3	Portland cement grout - 8 in. (labor, equip, materials)	7	1420	1,420.00	LF	$5.95	$8,449.00
WSW-4	Portland cement grout - 8 in. (labor, equip, materials)	7	1431	1,431.00	LF	$5.95	$8,514.45
DS-8 (I, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1882	1,882.00	LF	$4.68	$8,807.76
AG-1 (J, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1487	1,487.00	LF	$4.68	$6,959.16
BG-7 (K, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1593	1,593.00	LF	$4.68	$7,455.24
DS-9 (M, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1917	1,917.00	LF	$4.68	$8,971.56
DS-7	Portland cement grout - 4 in. (labor, equip, materials)	4	1897	1,897.00	LF	$4.68	$8,877.96
O-GWM-A (O, Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	7	1294	1,294.00	LF	$5.95	$7,699.30
DS-6	Portland cement grout - 4 in. (labor, equip, materials)	4	1882	1,882.00	LF	$4.68	$8,807.76
IRI-9	Portland cement grout - 4 in. (labor, equip, materials)	4	1710	1,710.00	LF	$4.68	$8,002.80
IRI-11	Portland cement grout - 4 in. (labor, equip, materials)	4	1550	1,550.00	LF	$4.68	$7,254.00
15H-I	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1960	1,960.00	LF	$5.33	$10,446.80
15H-1 Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	$57.81	$57.81
15H-RI (15H-R)	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1960	1,960.00	LF	$5.33	$10,446.80
15H-RI Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	$57.81	$57.81
16H-I	Portland cement grout - 6	6.4	1960	1,960.00	LF	$5.33	$10,446.80

	in. (labor, equip, materials)						
16H-I Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	$57.81	$57.81
16H-R	Portland cement grout - 8 in. (labor, equip, materials)	8.9	1960	1,960.00	LF	$5.95	$11,662.00
16H-R Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	$79.19	$79.19
17H-I	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1960	1,960.00	LF	$5.33	$10,446.80
17H-I Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	$57.81	$57.81
17H-R (17R-I)	Portland cement grout - 10 in. (labor, equip, materials)	9	2000	2,000.00	LF	$6.80	$13,600.00
17H-R Bridge Plug	PVC plug - 10 in. diameter borehole	9	1	1.00	EA	$108.49	$108.49
12H-IR	Portland cement grout - 10 in. (labor, equip, materials)	9	2100	2,100.00	LF	$6.80	$14,280.00
12H-IRBridge Plug	PVC plug - 10 in. diameter borehole	9	1	1.00	EA	$108.49	$108.49
13H-IR	Portland cement grout - 10 in. (labor, equip, materials)	9	2100	2,100.00	LF	$6.80	$14,280.00
13H-IR Bridge Plug	PVC plug - 10 in. diameter borehole	9	1	1.00	EA	$108.49	$108.49
15H-SSMW	Portland cement grout - 4 in. (labor, equip, materials)	4	1760	1,760.00	LF	$4.68	$8,236.80
17H-SSMW	Portland cement grout - 4 in. (labor, equip, materials)	4	1720	1,720.00	LF	$4.68	$8,049.60
DS-10	Portland cement grout - 4 in. (labor, equip, materials)	4	1882	1,882.00	LF	$4.68	$8,807.76
14H-1V	Portland cement grout - 8 in. (labor, equip, materials)	8.9	2130	2,130.00	LF	$5.95	$12,673.50
14H-1V Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	$79.19	$79.19
15H-1V	Portland cement grout - 8 in. (labor, equip, materials)	8.9	1898	1,898.00	LF	$5.95	$11,293.10
16H-1V	Portland cement grout - 8 in. (labor, equip, materials)	8.9	1976	1,976.00	LF	$5.95	$11,757.20
17H-1V	Portland cement grout - 8 in. (labor, equip, materials)	8.9	2100	2,100.00	LF	$5.95	$12,495.00
15H-IR-E	Portland cement grout - 8 in. (labor, equip, materials)	8.9	2135	2,135.00	LF	$5.95	$12,703.25
15H-IR-E Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	$79.19	$79.19
16H-IR-E	Portland cement grout - 8	8.9	2131	2,131.00	LF	$5.95	$12,679.45

	in. (labor, equip, materials)						
16H-IR-E Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	$79.19	$79.19
17H-IR-E	Portland cement grout - 8 in. (labor, equip, materials)	8.9	2138	2,138.00	LF	$5.95	$12,721.10
17H-IR-E Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	$79.19	$79.19

Job Hours: **610.00** **Total Cost**: **$565,317.00**

BULLDOZER WORK

Task description: **Regrade Process Ponds**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:	03A	State:	Colorado	Abbreviation:	None
Date:	5/30/2019	County:	Rio Blanco	Filename:	M194-03a
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume:	66,147
Swell factor:	1.115
Loose volume:	**73,754** LCY

Source of estimated volume: TR-42
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 175 feet
Unadjusted hourly production: 562.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

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:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 275.93 LCY/hr
Adjusted fleet production: **551.86** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.756/LCY

Total job time: **133.65** Hours
Total job cost: **$55,729**

BULLDOZER RIPPING WORK

Task description: **Decompact Process Pond**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 03B State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-03b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper Ownership Cost/Hour:	$8.93	NA
Ripper Operating Cost/Hour:	$7.78	100
Operator Cost/Hour:	$41.52	NA
Total Unit Cost/Hour:	$225.20	

Total Fleet Cost/Hour: **$450.40**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 8.00 acres Rip Depth (ft): 2.00 Volume: 25,813 BCY or CCY

Source of estimated quantity: TR-42

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.703	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr

Site Altitude:	6,600	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: **1.17** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **6.85** Hours

Unit cost: $385.719 Per acre Total job cost: **$3,086**

BULLDOZER WORK

Task description: **Topsoil Process Pond**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:	03C	State:	Colorado	Abbreviation:	None
Date:	5/30/2019	County:	Rio Blanco	Filename:	M194-03c
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume:	15,327
Swell factor:	1.000
Loose volume:	**15,327** LCY

Source of estimated volume: 19 ac @ 6" depth
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 634.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 545.05 LCY/hr
Adjusted fleet production: **1090.1** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.383/LCY

Total job time: **14.06** Hours
Total job cost: **$5,863**

REVEGETATION WORK

Task description: **Reveg Process Pond**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 03D State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-03d
User: ACY

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
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$299.89**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	$9.99
Russian Wildrye - Bozoisky	1.50	6.03	$9.72
Hard Fescue - Discovery	1.00	12.97	$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	$1.45
Tall Wheatgrass - Jose	1.80	3.26	$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	$25.24

Sweetvetch, Utah or Northern	0.10	0.05	$7.68
Western Wheatgrass - Barton	1.50	3.79	$11.66
Yarrow, Western	0.20	12.16	$8.56
Totals Seed Mix	18.00	86.97	**$106.71**

Application

Description	**Cost /Acre**
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**
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	$2.81	$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$288.00	$576.00
Total Mulch Materials Cost/Acre				**$581.61**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$68.78
Power mulcher (MEANS 32 91 13.16 0350)	$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	$73.22
Total Mulch Application Cost/Acre	**$234.78**

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: 19 Cost /Acre: $1,454.99
Estimated Failure Rate: 30% Cost /Acre*: $1,454.99
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$27,644.81**
Reseeding Job Cost: **$8,293.44**
Total Job Cost: **$35,938**
Job Hours: **28.50**

BULLDOZER WORK

Task description: **Regrade Plant Area**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:	04A	State:	Colorado	Abbreviation:	None
Date:	5/30/2019	County:	Rio Blanco	Filename:	M194-04a
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume:	13,229
Swell factor:	1.115
Loose volume:	**14,750** LCY

Source of estimated volume: TR-42 8.2 ac @ 12"
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 634.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

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:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 311.31 LCY/hr
Adjusted fleet production: **622.62** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.670/LCY

Total job time: **23.69** Hours
Total job cost: **$9,879**

BULLDOZER RIPPING WORK

Task description: **Decompact Plant Area**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 04B State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-04b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper Ownership Cost/Hour:	$8.93	NA
Ripper Operating Cost/Hour:	$7.78	100
Operator Cost/Hour:	$41.52	NA
Total Unit Cost/Hour:	$225.20	

Total Fleet Cost/Hour: **$450.40**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 8.20 acres Rip Depth (ft): 2.00 Volume: 26,459 BCY or CCY

Source of estimated quantity: TR-42

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.703	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr

Site Altitude:	6,600	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: **1.17** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **7.02** Hours

Unit cost: $385.719 Per acre Total job cost: **$3,163**

BULLDOZER WORK

Task description: **Topsoil Plant Area**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:	04C	State:	Colorado	Abbreviation:	None
Date:	5/30/2019	County:	Rio Blanco	Filename:	M194-04c
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume:	6,615
Swell factor:	1.000
Loose volume:	**6,615** LCY

Source of estimated volume: 8.2 ac @ 6" depth
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 634.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 545.05 LCY/hr
Adjusted fleet production: **1090.1** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.383/LCY

Total job time: **6.07** Hours
Total job cost: **$2,530**

REVEGETATION WORK

Task description: **Reveg Plant Area**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 04D State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-04d
User: ACY

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
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$299.89**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	$9.99
Russian Wildrye - Bozoisky	1.50	6.03	$9.72
Hard Fescue - Discovery	1.00	12.97	$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	$1.45
Tall Wheatgrass - Jose	1.80	3.26	$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	$25.24

Sweetvetch, Utah or Northern	0.10	0.05	$7.68
Western Wheatgrass - Barton	1.50	3.79	$11.66
Yarrow, Western	0.20	12.16	$8.56
Totals Seed Mix	18.00	86.97	**$106.71**

Application

Description	**Cost /Acre**
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**
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	$2.81	$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$288.00	$576.00
Total Mulch Materials Cost/Acre				**$581.61**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$68.78
Power mulcher (MEANS 32 91 13.16 0350)	$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	$73.22
Total Mulch Application Cost/Acre	**$234.78**

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: 8.2 Cost /Acre: $1,454.99
Estimated Failure Rate: 30% Cost /Acre*: $1,454.99
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$11,930.92**
Reseeding Job Cost: **$3,579.28**
Total Job Cost: **$15,510**
Job Hours: **12.30**

BULLDOZER WORK

Task description: **Regrade Well Pads**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None
Date: 6/3/2019 County: Rio Blanco Filename: M194-05a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume: 158,107
Swell factor: 1.115
Loose volume: **176,289** LCY

Source of estimated volume: 49 ac of pads grade 24" depth
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 75 feet
Unadjusted hourly production: 1,017.1 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

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:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 499.19 LCY/hr
Adjusted fleet production: **998.38** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.418/LCY

Total job time: **176.58** Hours
Total job cost: **$73,630**

BULLDOZER WORK

Task description: **Topsoil Well Pads**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 05B State: Colorado Abbreviation: None
Date: 6/3/2019 County: Rio Blanco Filename: M194-05b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume: 39,527
Swell factor: 1.000
Loose volume: **39,527** LCY

Source of estimated volume: 49 ac @ 6" depth
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 634.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 545.05 LCY/hr
Adjusted fleet production: **1090.1** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.383/LCY

Total job time: **36.26** Hours
Total job cost: **$15,120**

REVEGETATION WORK

Task description: **Reveg Well Pads**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 05C State: Colorado Abbreviation: None
Date: 6/3/2019 County: Rio Blanco Filename: M194-05c
User: ACY

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
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$299.89**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	$9.99
Russian Wildrye - Bozoisky	1.50	6.03	$9.72
Hard Fescue - Discovery	1.00	12.97	$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	$1.45
Tall Wheatgrass - Jose	1.80	3.26	$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	$25.24

Sweetvetch, Utah or Northern	0.10	0.05	$7.68
Western Wheatgrass - Barton	1.50	3.79	$11.66
Yarrow, Western	0.20	12.16	$8.56
Totals Seed Mix	18.00	86.97	**$106.71**

Application

Description	**Cost /Acre**
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**
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	$2.81	$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$288.00	$576.00
Total Mulch Materials Cost/Acre				**$581.61**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$68.78
Power mulcher (MEANS 32 91 13.16 0350)	$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	$73.22
Total Mulch Application Cost/Acre	**$234.78**

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: 49 Cost /Acre: $1,454.99
Estimated Failure Rate: 30% Cost /Acre*: $1,454.99
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$71,294.51**
Reseeding Job Cost: **$21,388.35**
Total Job Cost: **$92,683**
Job Hours: **73.50**

BULLDOZER RIPPING WORK

Task description: **Decompact Roads**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 06A State: Colorado Abbreviation: None
Date: 6/3/2019 County: Rio Blanco Filename: M194-06a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper Ownership Cost/Hour:	$8.93	NA
Ripper Operating Cost/Hour:	$7.78	100
Operator Cost/Hour:	$41.52	NA
Total Unit Cost/Hour:	$225.20	

Total Fleet Cost/Hour: **$450.40**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 6.00 acres Rip Depth (ft): 2.00 Volume: 19,360 BCY or CCY

Source of estimated quantity: TR-43

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	150.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.748	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.748 Acres/hr

Site Altitude:	6,600	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: **1.24** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **4.83** Hours

Unit cost: $362.534 Per acre Total job cost: **$2,175**

BULLDOZER WORK

Task description: **Topsoil roads**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:	06B	State:	Colorado	Abbreviation:	None
Date:	6/3/2019	County:	Rio Blanco	Filename:	M194-06b
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume:	4,840
Swell factor:	1.000
Loose volume:	**4,840** LCY

Source of estimated volume: 6 ac @ 6" depth
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 634.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 545.05 LCY/hr
Adjusted fleet production: **1090.1** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.383/LCY

Total job time: **4.44** Hours
Total job cost: **$1,851**

REVEGETATION WORK

Task description: **Reveg Roads**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 06C State: Colorado Abbreviation: None
Date: 6/3/2019 County: Rio Blanco Filename: M194-06c
User: ACY

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
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$299.89**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	$9.99
Russian Wildrye - Bozoisky	1.50	6.03	$9.72
Hard Fescue - Discovery	1.00	12.97	$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	$1.45
Tall Wheatgrass - Jose	1.80	3.26	$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	$25.24

Sweetvetch, Utah or Northern	0.10	0.05	$7.68
Western Wheatgrass - Barton	1.50	3.79	$11.66
Yarrow, Western	0.20	12.16	$8.56
Totals Seed Mix	18.00	86.97	**$106.71**

Application

Description	**Cost /Acre**
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**
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	$2.81	$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$288.00	$576.00
Total Mulch Materials Cost/Acre				**$581.61**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$68.78
Power mulcher (MEANS 32 91 13.16 0350)	$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	$73.22
Total Mulch Application Cost/Acre	**$234.78**

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: 6 Cost /Acre: $1,454.99
Estimated Failure Rate: 30% Cost /Acre*: $1,454.99
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$8,729.94**
Reseeding Job Cost: **$2,618.98**
Total Job Cost: **$11,349**
Job Hours: **9.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Initial Mobilization**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 12A State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-12a
User: ACY

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 D8T - 8SU	53.08	$102.55	$125.45	2	$456.00	$250.90	$500.00
Drill/Broadcast Seeder with Tractor	25.00	$15.54	$88.67	1	$104.21	$88.67	$250.00
Power Mulcher (Bowie LD-90)	6.00	$8.33	$88.67	1	$97.00	$88.67	$250.00
Grove RT650E, 105', 45.4 MT	28.74	$49.93	$117.55	1	$167.48	$117.55	$250.00
Broderson IC-200-2F, 45', 13.6MT	8.68	$15.37	$88.67	1	$104.04	$88.67	$250.00
Cat 345D L 12'-10" Stick	54.31	$66.64	$125.45	1	$192.09	$125.45	$250.00
CAT 973D	29.07	$63.94	$117.55	1	$181.49	$117.55	$250.00
Subtotals:					**$1,302.31**	**$877.46**	**$2,000.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	$67.83	1	$67.83	$67.83
Generic 12-18 cy, 6x4	$97.40	3	$292.20	$292.20

Subtotals:	**$360.03**	**$360.03**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	RIFLE	
Total one-way travel distance:	60.00	miles
Average Travel Speed:	40.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$13,143.93
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$1,080.09

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.50	1.50
Return Time (Hours):	1.50	1.50
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	4.00	3.00

JOB TIME AND COST

Total job time:	**8.00**	Hours
Total job cost:	**$14,224**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Secondary Mobilization**

Site: **Nahcolite Project** Permit Action: TR-43 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 12B State: Colorado Abbreviation: None
Date: 5/30/2019 County: Rio Blanco Filename: M194-12b
User: ACY

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
Drill/Broadcast Seeder with Tractor	25.00	$15.54	$88.67	1	$104.21	$88.67	$250.00
Power Mulcher (Bowie LD-90)	6.00	$8.33	$88.67	1	$97.00	$88.67	$250.00
Subtotals:					**$201.21**	**$177.34**	**$500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	$67.83	1	$67.83	$67.83
Subtotals:			**$67.83**	**$67.83**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	RIFLE	
Total one-way travel distance:	60.00	miles
Average Travel Speed:	40.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$2,538.07	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$203.49	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.50	1.50
Return Time (Hours):	1.50	1.50
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	4.00	3.00

JOB TIME AND COST

Total job time:	**8.00**	Hours
Total job cost:	**$2,742**	

Natural Soda, LLC
Well Pad & Road Acreage

	WELL PADS												ROADS								
	DISTURBED			UNDERGOING INTERIM RECLAMATION			UNDERGOING FINAL RECLAMATION			SUCCESSFULLY RECLAIMED (meets ROD goals)			DISTURBED			UNDERGOING INTERIM RECLAMATION			UNDERGOING FINAL RECLAMATION		
	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres
6	8H/3A-4H (2013)	88,287	2.027	2M-TDR, 3M-TDR	5,554	0.128	A (May 2016, Good Response)	24,345	0.559	1A-4HI (2013)	29,896	0.686	RD A	23,690	0.544	RD D	1,044	0.024	RD A rdp	928	0.021
7	5H	98,187	2.254	89-1	14,961	0.343	C (Aug 2015, Good Response)	28,725	0.659	1A-5HR (13,14,15)	68,443	1.571	RD B	45,832	1.052	RD G	8,168	0.188	RD E rdp	10,649	0.244
8	7H	76,787	1.763	90-1	38,490	0.884	D (Aug 2015, Good Response)	27,853	0.639	3A-5V (13,14,15)	64,843	1.489	RD C	18,711	0.430	RD H	6,168	0.142	RD G rdp	1,050	0.024
9	7H-1V (see 15H-1V)	0	0.000	90-2	18,509	0.425	E (May 2016, Good Response)	25,379	0.583	4-3H(V) (2013)	39,927	0.917	RD E	778	0.018	RD I	1,528	0.035	RD H-C rdp	10,103	0.232
10	10H-13H	290,596	6.671	90-5H	8,791	0.202	G (May 2016, Good Response)	26,321	0.604	4-2V & 93-3V (13,14,15)	131,882	3.028	RD F	900	0.021	RD I rdp (DS-8)	1,476	0.034	RD H rdp	11,542	0.265
11	14H	98,457	2.260	94-1M	56,433	1.296	H (Aug 2015, Good Response)	28,880	0.663	91-1V (2013,14,15)	8,746	0.201	RD K	1,808	0.042	RD J	578	0.013	RD N-C rdp	10,196	0.234
12	88-1V	19,714	0.453	BG-4	20,343	0.467	N (Aug 2015, Good Response)	29,639	0.680	4A-5M, 4A-6V (13,14,15 chk w/ BLM)	26,122	0.600	RD 14H	421	0.010	RD M rdp (DS-9)	7,799	0.179	RD P rdp	4,607	0.106
13	15H-17H	207,133	4.755	BG-5 (see RR 2015 rept)	38,668	0.888	P (May 2016, Good Response)	24,581	0.564	91-2H (2017)	88,994	2.043	RD 15-17	13,252	0.304	RD M-K rdp (DS-9/BG-7)	8,651	0.199	RD Q rdp	30,284	0.695
14	12H-13H-IR (1-3A, 2B-3C)	74,053	1.700	BG-6 (see RR 2015 rept)	25,439	0.584	Q (May 2016, Good Response)	24,786	0.569	4A-1V (2018, 11yrs of rec)	57,885	1.329	RD 15H-SSMW	1,464	0.034	RD O rdp	11,436	0.263	RD U-T rdp	27,602	0.634
15	DS-10 2019	52,708	1.210	DS-2	6,659	0.153	R (May 2016, Good Response)	26,013	0.597			0.000	16/17H-1V	3,600	0.083	RD DS-6 rdp	453	0.010			0.000
16	14H-1V 2019	77,972	1.790	DS-3	6,524	0.150	T (May 2016, Good Response)	31,010	0.712			0.000	DS-10	1,300	0.030	WSW-3 pipeline	21,521	0.494			0.000
17	15-17H-IR-E	126,324	2.900	DS-5 (see RR 2015 rept)	29,973	0.688	U (May 2016, Good Response)	25,075	0.576			0.000			0.000	WSW-4 pipeline	53,675	1.232			0.000
18	15H-1V (subsumes 7H-1V)	113,256	2.600	DS-6 (Aug 2015, Good Response)	25,160	0.578	MW-1, PW-1, PW-2 (RR to ck 07 or 08 2016)	24,278	0.557			0.000			0.000	RD WSW-3 rdp	2,405	0.055			0.000
19	16-17H-1V (162,900 - 28,600 of existing 1A-4HI pad)	243,946	5.600	DS-7, 2A-2V (Aug 2015, Fair Response)	38,045	0.873	IRI-3 (P&A 2015, RR to ck 07 or 08 2016)	6,872	0.158			0.000			0.000	RD WSW-4 rdp	344	0.008			0.000
20			0.000	I (DS-8) (Aug 2015, Good Response)	26,732	0.614	BG-8 (DS-4) P&A 2017, 2018 1st grow yr	45,021	1.034			0.000			0.000	RD 17H-SSMW	4,354	0.100			0.000
21			0.000	K (BG-7) (Aug 2015, Good Response)	27,870	0.640	5H-1V (2012 & 2014)	35,862	0.823			0.000			0.000			0.000			0.000
22			0.000	M (DS-9) (Aug 2015, Good Response)	29,224	0.671	93-2M (2011 & 2013)	12,505	0.287			0.000			0.000			0.000			0.000
23			0.000	WSW-2	30,389	0.698			0.000			0.000			0.000			0.000			0.000
24			0.000	WSW-3 (May 2016, Good Response)	32,647	0.749			0.000			0.000			0.000			0.000			0.000
25			0.000	WSW-4 (Aug 2015, Good Response)	32,789	0.753			0.000			0.000			0.000			0.000			0.000
26			0.000	WSW-5 (O-GMW-A) (Aug 2015, Good Response)	28,854	0.662			0.000			0.000			0.000			0.000			0.000
27			0.000	15H-SSMW	24,594	0.565			0.000			0.000			0.000			0.000			0.000
28			0.000	17H-SSMW Pad	12,791	0.294			0.000			0.000			0.000			0.000			0.000
29			0.000			0.000			0.000			0.000			0.000			0.000			0.000
30			0.000			0.000			0.000			0.000			0.000			0.000			0.000
31	TOTAL	1,567,420	36	TOTAL	579,439	13	TOTAL	447,145	10	TOTAL	516,738	12	TOTAL	111,756	3	TOTAL	129,600	3	TOTAL	106,961	2

32		
33	TOTAL Pad & Road ACREAGE	79
34	Pad & Road DISTURBED	39
35	Pad & Rd UNDERGOING INTERIM RECLAMATION	16
36	Pad & Rd UNDERGOING FINAL RECLAMATION	13
37	SUCCESSFULLY RECLAIMED	12
38	Pad & Road Check sum (ac)	79

Cell: B6
Comment: R. G. Dean:
8H-I&R P&A 2019

Cell: L6
Comment: R. G. Dean:
5/29/19 xfered 38547 sqft to 16/17H-1V.

Cell: L8
Comment: R. G. Dean:
Reduced for 16/17H-1V access rd.

Cell: B10
Comment: R. G. Dean:
coalesced with the 15-17-IR-E pad

Cell: C15
Comment: R. G. Dean:
D&A field checked as-built 5/31/19 reduced from 66211 to 52708

Cell: C16
Comment: R. G. Dean:
D&A field checked as-built 5/31/19 reduced from 108900 to 77972

Cell: B17
Comment: R. G. Dean:
coalesced with the 10-13 pad

Cell: C19
Comment: R. G. Dean:
changed from 215,336 to DRG:5.6ac (243,946 sqft)

Natural Soda LLC DRMS May 2019 - Well P&A Inventory and Data

Permit # M1983-194					
Borehole Description	**Sealing/Item Method**	**Diameter (inch)**	**Length (feet)**	**Bridge Plug at Indicated Depth (feet)**	**Comments**
3M-TDR	Portland cement grout	4.0	1876		
89-1	Portland cement grout	4.0	1627		
89-2	Portland cement grout	4.0	1417		
89-3	Portland cement grout	4.0	347		
90-1	Portland cement grout	8.9	1417		
90-3	Portland cement grout	4.0	1627		
90-4	Portland cement grout	4.0	1417		
BG-1	Portland cement grout	4.0	1627		
BG-4	Portland cement grout	4.0	1627		
DS-2	Portland cement grout	4.0	1876		
DS-3	Portland cement grout	4.0	1876		
EX-2	Portland cement grout	4.0	1876		
IRI-1	Portland cement grout	4.0	347		
IRI-4	Portland cement grout	4.0	1417		
IRI-5	Portland cement grout	4.1	347		
IRI-6	Portland cement grout	4.0	1627		
IRI-7	Portland cement grout	4.0	1876		
IRI-8	Portland cement grout	4.0	347		
12H-I	Portland cement grout	7.0	2100	2100	
12H-R	Portland cement grout	7.0	2100	2010	
10H-I	Portland cement grout	7.0	1935	1935	
10H-R	Portland cement grout	7.0	1935	1935	
BG-5	Portland cement grout	4.0	1645		
DS-5	Portland cement grout	4.0	1902		DRMS should change name to BG-9 (DS-5)
BG-6	Portland cement grout	4.0	1639		
WSW-2	Portland cement grout	7.0	1460		
DVPW-1(A)	Portland cement grout	6.4	1900	1900	
DVPW-1(B)	Portland cement grout	6.4	1900	1900	
10H-IV	Portland cement grout	7.0	1950		
~~13H-I~~	Portland cement grout	~~8.0~~	~~2335~~		P&A process is ongoing, to be completed by 5/24/19
13H-R	Portland cement grout	7.0	2100	2100	DRMS should change name to 13H-RI-E
~~8H-I~~	Portland cement grout	~~7.0~~	~~2110~~		P&A process is ongoing, to be completed by 5/24/19
~~8H-R~~	Portland cement grout	~~7.0~~	~~2110~~		P&A process is ongoing, to be completed by 5/24/19
14H-I	Portland cement grout	7.0	2050	2050	
14H-R	Portland cement grout	7.0	2110	2110	DRMS should change name to 14H-RI-E
WSW-3	Portland cement grout	7.0	1420		
WSW-4	Portland cement grout	7.0	1431		
I (Phase 1)	Portland cement grout	4.0	1882		DRMS should change name to DS-8
J (Phase 1)	Portland cement grout	4.0	1487		DRMS should change name to AG-1
K(Phase 1)	Portland cement grout	4.0	1593		DRMS should change name to BG-7
M (Phase 1)	Portland cement grout	4.0	1917		DRMS should change name to DS-9
DS-7	Portland cement grout	4.0	1897		
O (Phase 2)	Portland cement grout	7.0	1294		DRMS should change name to O-GMW-A
DS-6	Portland cement grout	4.0	1882		
IRI-9	Portland cement grout	4.0	1710		
IRI-11	Portland cement grout	4.0	1550		
15H-I	Portland cement grout	6.4	1960	1960	
15H-R	Portland cement grout	6.4	1960	1960	DRMS should change name to 15H-RI
16H-I	Portland cement grout	6.4	1960	1960	
16H-R	Portland cement grout	8.9	1960	1960	
17H-I	Portland cement grout	6.4	1960	1960	
17H-R	Portland cement grout	9.0	2000	2000	DRMS should change name from 17R-I to 17H-R
~~401H-I~~	Portland cement grout	~~6.4~~	~~2094~~		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
~~401H-R~~	Portland cement grout	~~8.8~~	~~2094~~		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
~~402H-I~~	Portland cement grout	~~6.4~~	~~2097~~		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
~~402H-R~~	Portland cement grout	~~8.8~~	~~2097~~		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
~~403H-I~~	Portland cement grout	~~6.4~~	~~2095~~		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
~~403H-R~~	Portland cement grout	~~8.8~~	~~2095~~		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
12H-IR	Portland cement grout	9.0	2100	2010	
13H-IR	Portland cement grout	9.0	2100	2010	
15H-SSMW	Portland cement grout	4.0	1760		
17H-SSMW	Portland cement grout	4.0	1720		
DS-10	Portland cement grout	4.0	1882		
14H-1V	Portland cement grout	8.9	2130	2130	
15H-1V	Portland cement grout	8.9	1898		
16H-1V	Portland cement grout	8.9	1976		
17H-1V	Portland cement grout	8.9	2100		
15H-IR-E	Portland cement grout	8.9		2135	
16H-IR-E	Portland cement grout	8.9		2131	
17H-IR-E	Portland cement grout	8.9		2138	