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

1313 Sherman Street, Room 215
Denver, CO 80203

December 15, 2014

Gerald Daub
Daub & Associates, Inc.
1985 ½ South Broadway
Grand Junction, CO 81507

Re: Natural Soda Holdings, Inc., NSHI Oil Shale RD&D, Notice of Intent (NOI) No. P-2014-014, 2nd Notice of Deficiencies. (REVISED)

Dear Mr. Daub,
The Division of Reclamation, Mining and Safety (DRMS) has reviewed the NSHI Oil Shale RD&D Lease Notice of Intent to Conduct Prospecting Operations (NOI), No. P-2014-014, submitted August 1, 2014. The NOI has a few clarifications that need to be addressed in order for the notice to be considered adequate to begin operations.

1. Initial review of the NOI submittal revealed that a hydrologic sampling and analysis plan was not included with the original submittal. Please submit a hydrologic sampling and analysis plan that complies with the requirements of Rules 3.1.6 and 3.1.7. Also, please commit to quarterly reporting intervals.
    - Response Adequate

2. Please provide 5 consecutive quarters of ground water quality data in order to establish baseline ambient ground water quality conditions.
    - 5 quarters a baseline data was provided. Upon review of the data it was noted that the Total Dissolved Solids (TDS) in the A-Groove well 90-4 are abnormally high for the A-Groove aquifer. Through further review of historical data from 90-4 the high TDS levels appear to have occurred historically. Please provide an explanation as to why the TDS levels found in 90-4 are much higher than the levels found in other A-Groove aquifers in the region.

3. Please provide all figures necessary to perform the proposed reclamation for the project. The figures shall include specific volumes of overburden and topsoil to be replaced in cubic yards. Also specify which type of equipment will be used for each specific task. The NOI will not issued until a financial warranty in an approvable from is held by the DRMS.
    - Please review the enclosed Reclamation Cost Estimate. The NOI cannot be issued until an approvable reclamation bond and performance warranty is held by the Division.

4. Please specify what type of cement will be used to construct each proposed well.
    - Response Adequate

5. Due to the proposed heating and subsequent cooling of the well(s) and formation what type of well integrity monitoring will occur during and after the heating?
    - Response Adequate

6. Please specify the anticipated time frame from start of well construction to well completion. What methods will be employed to ensure aquifer isolation during drilling and well completion?
    - Response Adequate

7. Please provide a copy of the site specific SPCC plan.

    - Response Adequate

If you need additional information, please contact me at the Division of Reclamation, Mining and Safety, Grand Junction Field Office, 101 S. 3rd St., Suite 301, Grand Junction, Colorado 81501, telephone no. (970) 241-2042.

Sincerely,

Travis Marshall
Environmental Protection Specialist

Enclosure(s) - Reclamation Cost Estimate

cc: Paul Daggett
BLM - White River Field Office
220 East Market Street
Meeker, CO 81641

Bob Warneke
Natural Soda Holdings, Inc.
3200 RBC Road 31
Rifle, CO 81650

COST SUMMARY WORK

Task description:

Site: **NSHI Oil Shale RD&D Project**

Permit Action: Reclamation Cost Estimate

Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 001
Date: 12/9/2014
User: THM

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: P014-001

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	OSR-1 P&A	BOREHOLE	1	8.00	$97,773.75
02a	Re-grade Well Pad	DOZER	1	34.31	$7,168.00
03a	Replace Topsoil on Well Pad	DOZER	1	5.58	$1,165.00
04a	Replace Topsoil on Sodium and Water Pipeline	DOZER	1	1.56	$327.00
05a	Revegetate 4.6 acres of Disturbance	REVEGE	1	16.00	$10,119.00
06a	Mobilization	MOBILIZE	1	7.50	$4,424.00
			SUBTOTALS:	**72.95**	**$120,977**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	$2,443.74
Performance bond:	1.05%	Total =	$1,270.26
Job superintendent:	36.48 hrs	Total =	$2,741.46
Profit:	10.00%	Total =	$12,097.70
		TOTAL O & P =	$18,553.16
		CONTRACT AMOUNT (direct + O & P) =	$139,530.16

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 =	$5,930.03
Reclamation management and/or administration:	5.00%		$6,976.51
CONTINGENCY:	3.00	Total =	$3,629.31
		TOTAL INDIRECT COST =	$35,589.01
		TOTAL BOND AMOUNT (direct + indirect) =	**$156,566.01**

BOREHOLE SEALING WORK

Task description: **OSR-1 P&A**

Site: **NSHI Oil Shale RD&D Project**

Permit Action: Reclamation Cost Estimate

Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 01A
Date: 12/8/2014
User: THM

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: P014-01a

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
OSR-1	USER PROVIDED ITEM	17.4	2897	2,897.00	LF	$33.75	$97,773.75

Job Hours: **8.00**

Total Cost: **$97,774.00**

BULLDOZER WORK

Task description: **Re-grade Well Pad**

Site: **NSHI Oil Shale RD&D Project** Permit Action: Reclamation Cost Estimate Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 02A State: Colorado Abbreviation: None
Date: 12/9/2014 County: Rio Blanco Filename: P014-02a
User: THM

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:	$62.67	NA
Operating Cost/Hour:	$108.22	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.01	NA

Total unit Cost/Hour: $208.90
Total Fleet Cost/Hour: **$208.90**

MATERIAL QUANTITIES

Initial Volume: 6,726
Swell factor: 1.000
Loose volume: **6,726** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,720 feet

Material weight: 4,050 lbs/LCY

Weight description: Sand and clay - Compacted

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:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.568	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2299

Adjusted unit production: 196.01 LCY/hr
Adjusted fleet production: **196.01** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $1.066/LCY

Total job time: **34.31** Hours
Total job cost: **$7,168**

BULLDOZER WORK

Task description: **Replace Topsoil on Well Pad**

Site: **NSHI Oil Shale RD&D Project** Permit Action: Reclamation Cost Estimate Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 12/9/2014 County: Rio Blanco Filename: P014-03a
User: THM

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:	$62.67	NA
Operating Cost/Hour:	$108.22	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.01	NA

Total unit Cost/Hour: $208.90
Total Fleet Cost/Hour: **$208.90**

MATERIAL QUANTITIES

Initial Volume: 2,768
Swell factor: 1.000
Loose volume: **2,768** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,720 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

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:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5820

Adjusted unit production: 496.21 LCY/hr
Adjusted fleet production: **496.21** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.421/LCY

Total job time: **5.58** Hours
Total job cost: **$1,165**

BULLDOZER WORK

Task description: **Replace Topsoil on Sodium and Water Pipeline**

Site: **NSHI Oil Shale RD&D Project** Permit Action: Reclamation Cost Estimate Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None
Date: 12/9/2014 County: Rio Blanco Filename: P014-04a
User: THM

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:	$62.67	NA
Operating Cost/Hour:	$108.22	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.01	NA

Total unit Cost/Hour: $208.90
Total Fleet Cost/Hour: **$208.90**

MATERIAL QUANTITIES

Initial Volume: 776
Swell factor: 1.000
Loose volume: **776** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,720 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

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:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5820

Adjusted unit production: 496.21 LCY/hr
Adjusted fleet production: **496.21** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.421/LCY

Total job time: **1.56** Hours
Total job cost: **$327**

REVEGETATION WORK

Task description: **Revegetate 4.6 acres of Disturbance**

Site: **NSHI Oil Shale RD&D Project**

Permit Action: Reclamation Cost Estimate

Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 05A
Date: 12/9/2014
User: THM

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: P014-05a

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)	$98.01
Weed control spraying (MEANS 31 31 16.13 3100)	$145.20
Total Tilling Cost/Acre	**$243.21**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	3.00	9.71	$26.13
Bitterbrush, Antelope	1.00	0.31	$20.26
Bottlebrush Squirreltail	2.00	8.82	$49.72
Thickspike Wheatgrass - Critana	3.00	10.61	$15.51
Needle and Thread	2.50	6.60	$117.48
Western Wheatgrass - Rosanna	4.00	10.10	$14.04
Flax, Lewis Blue	1.00	6.63	$16.52
Saltbush, Four Wing	1.50	2.07	$16.10
Globemallow, Scarlet (or copper)	0.50	5.66	$70.24

Winter Fat	0.50	1.27	$16.35
Totals Seed Mix	19.00	61.78	**$362.33**

Application

Description	Cost /Acre
Drill seeding (MEANS 32 92 19.13 0020)	$404.00
Total Seed Application Cost/Acre	**$404.00**

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$265.00	$530.00
Total Mulch Materials Cost/Acre				**$530.00**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$65.89
Power mulcher (MEANS 32 91 13.16 0250)	$86.68
Total Mulch Application Cost/Acre	**$152.57**

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: 4.6
Estimated Failure Rate: 30%
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Cost /Acre: $1,692.11
Cost /Acre*: $1,692.11

Initial Job Cost: **$7,783.71**
Reseeding Job Cost: **$2,335.11**
Total Job Cost: **$10,119**
Job Hours: **16.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization**

Site: **NSHI Oil Shale RD&D Project**

Permit Action: Reclamation Cost Estimate

Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 06A
Date: 12/9/2014
User: THM

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: P014-06a

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	47.71	$62.67	$117.55	1	$180.22	$117.55	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$39.59	$88.67	1	$128.26	$88.67	$250.00
Power Mulcher (Reinco M90)	6.00	$7.03	$88.67	1	$95.70	$88.67	$250.00
Subtotals:					**$404.18**	**$294.89**	**$750.00**

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.	$15.30	2	$30.60	$30.60
Lube Truck, 4x2, 170 HP	$39.72	1	$39.72	$39.72
Subtotals:			**$70.32**	**$70.32**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	RIFLE	
Total one-way travel distance:	55.00	miles
Average Travel Speed:	40.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$4,230.80	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$193.38	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.38	1.38
Return Time (Hours):	1.38	1.38
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	3.75	2.75

JOB TIME AND COST

Total job time:	**7.50**	Hours
Total job cost:	**$4,424**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization**

Site: **NSHI Oil Shale RD&D Project**

Permit Action: Reclamation Cost Estimate

Permit/Job#: P2014014

PROJECT IDENTIFICATION

Task #: 06A
Date: 12/9/2014
User: THM

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: P014-06a

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	47.71	$62.67	$117.55	1	$180.22	$117.55	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$39.59	$88.67	1	$128.26	$88.67	$250.00
Power Mulcher (Reinco M90)	6.00	$7.03	$88.67	1	$95.70	$88.67	$250.00
Subtotals:					**$404.18**	**$294.89**	**$750.00**

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.	$15.30	2	$30.60	$30.60
Lube Truck, 4x2, 170 HP	$39.72	1	$39.72	$39.72
Subtotals:			**$70.32**	**$70.32**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	RIFLE	
Total one-way travel distance:	55.00	miles
Average Travel Speed:	40.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$4,230.80	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$193.38	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.38	1.38
Return Time (Hours):	1.38	1.38
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	3.75	2.75

JOB TIME AND COST

Total job time:	**7.50**	Hours
Total job cost:	**$4,424**	