




**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.

<b>MINE NAME:</b> Nahcolite Project	<b>MINE/PROSPECTING ID#:</b> M-1983-194	<b>MINERAL:</b> Carbonates	<b>COUNTY:</b> Rio Blanco
<b>INSPECTION TYPE:</b> Monitoring	<b>INSPECTOR(S):</b> Amy C. Yeldell	<b>INSP. DATE:</b> January 31, 2019	<b>INSP. TIME:</b> 10:00
<b>OPERATOR:</b> Natural Soda LLC	<b>OPERATOR REPRESENTATIVE:</b> Kirk Daehling	<b>TYPE OF OPERATION:</b> 112d-3 - Designated Mining Operation	
<b>REASON FOR INSPECTION:</b> Normal I&E Program	<b>BOND CALCULATION TYPE:</b> None	<b>BOND AMOUNT:</b> \$4,158,340.68	
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> None	<b>JOINT INSP. AGENCY:</b> None	
<b>WEATHER:</b> Clear	<b>INSPECTOR'S SIGNATURE:</b> 	<b>SIGNATURE DATE:</b> February 11, 2019	

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

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

## **OBSERVATIONS**

This inspection was conducted as part of the Colorado Division of Reclamation, Mining and Safety (Division) normal monitoring program. The Nacholite Project is a 112d-3 permitted site that includes a total of 12,248 permitted acres with a maximum disturbance of 260 acres. At this time approximately 100 acres have been affected. The site located approximately 25 miles southwest of Meeker, Colorado in Rio Blanco County. Kirk Daehling of Natural Soda LLC represented the operator and accompanied Amy Yeldell of the Division on the inspection.

Since the last inspection drilling has been completed on the 12 and 13 pad, see photo one. All equipment has been removed and interim reclamation has begun. The pad has been reduced down to its operational size and was seeded in fall of 2018. The pit with drill cutting still remains in place and is expected to be reclaimed this summer.

The old production pipelines have been removed as shown in photo one. Only a few of the pipes support remain in place. Given the season and snow cover vegetation was not observed during this inspection. Everything appeared to be frozen and no signs of erosion were observed. Pads were clean and free of unnecessary debris.

Future modifications to the production equipment was discussed. Staff was able to see where the proposed new boiler would go and how the housing structure will be modified to accommodate the new equipment, see photo two. The operator is currently working with engineering and their consultant to finalize plans. A technical revision is expected later this year with the intent of completing the project in 2019. The summer drilling program was also discussed. It is anticipated that several intercept wells will be completed as well as expansions and new well pad construction.

This inspection focused primarily on the plant/warehouse aspects of the operation. Mr. Daehling showed the various processes and types of equipment that are used to transform the sodium bicarbonate brine coming out of the wells into a powdered solid that is packaged and ready for market, see photo three. Within the processing plant there are two streams of dehydrating equipment. First the pregnant liquor goes through four crystallizer tanks which uses heat exchangers to cool down the brine. As the brine cools the sodium bicarbonate begins to drop out and the liquor becomes barren again. The barren liquor is then reheated using the same heat exchangers and is finished off by going through a boiler system before it's piped out into the well field. Meanwhile the concentrated sodium bicarbonate liquid undergoes the dewatering process. First the liquid is transformed into a slurry using a hydrocyclone. Next the centrifuge spins the slurry, wringing out more water until only approximately 4% moisture remains and the sodium bicarbonate becomes "wet cake". Then the wet cake screw transports the cake into the mixer where dry sodium bicarbonate is introduced. Finally the sodium bicarbonate with 3% moisture is introduced to the flash dryer. The flash dry blows super-heated air vertical. As the dry cake sodium bicarbonate is introduced into the hot air it dries and becomes lighter and is blown upward into the sorter. Finally the sodium bicarbonate is sorted based on crystal size and is ready for packaging and shipping. All processes are automated and monitored from the control room. As shown in photo four, staff also observed the automated bagging and packaging systems within the warehouse.

No problems or violations were noted during this inspection.

Responses to this inspection report should be directed to: 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

**Inspection Contact Address**

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Enclosure

## PHOTOGRAPHS





