




**COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY**  
**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> Carnation Mine	<b>MINE/PROSPECTING ID#:</b> M-1977-416	<b>MINERAL:</b> Uranium & vanadium	<b>COUNTY:</b> San Miguel
<b>INSPECTION TYPE:</b> Monitoring	<b>INSPECTOR(S):</b> Bob Oswald	<b>INSP. DATE:</b> July 16, 2014	<b>INSP. TIME:</b> 14:30
<b>OPERATOR:</b> Energy Fuels Resources (USA) Inc.	<b>OPERATOR REPRESENTATIVE:</b> David Turk	<b>TYPE OF OPERATION:</b> 110d - Designated Limited Impact	

<b>REASON FOR INSPECTION:</b> Normal I&E Program	<b>BOND CALCULATION TYPE:</b> None	<b>BOND AMOUNT:</b> \$33,409.00
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> U.S. BLM	<b>JOINT INSP. AGENCY:</b> U.S. BLM
<b>WEATHER:</b> Cloudy	<b>INSPECTOR'S SIGNATURE:</b> 	<b>SIGNATURE DATE:</b> August 5, 2014

**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>NA</u>	(FN) FINANCIAL WARRANTY-----	<u>Y</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>NA</u>
(MP) GENL MINE PLAN COMPLIANCE-	<u>NA</u>	(FW) FISH & WILDLIFE-----	<u>NA</u>	(RV) REVEGETATION----	<u>NA</u>
(SM) SIGNS AND MARKERS-----	<u>Y</u>	(SP) STORM WATER MGT PLAN----	<u>NA</u>	(SB) COMPLETE INSP----	<u>NA</u>
(ES) OVERBURDEN/DEV. WASTE-----	<u>NA</u>	(SC) EROSION/SEDIMENTATION---	<u>Y</u>	(RS) RECL PLAN/COMP--	<u>NA</u>
(AT) ACID OR TOXIC MATERIALS-----	<u>NA</u>	(OD) OFF-SITE DAMAGE-----	<u>NA</u>	(ST) STIPULATIONS-----	<u>NA</u>

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

## **OBSERVATIONS**

This was a routine inspection conducted by the Division as part of its monitoring of 110 DMO permits. The operator's representative named on page one was present throughout the inspection. The site was not active on the day of the inspection. The required permit ID sign was observed posted at the entrance gate to the permitted area. Permit boundary markers were observed at several boundary corners. All mining disturbances were within the permit boundary.

An intense precipitation event occurred the night before the inspection, which resulted in the partial or complete failure of most of the stormwater control structures on the site. The structures were designed by the operator's engineers during the formulation of the Environmental Protection Plan (EPP) several years ago, to provide sufficient capacity for the design storm. They were installed and maintained regularly as required. However, the intensity and/or total amount of precipitation in this event was beyond the design capacity of most of the structures. Only a few of the structures were intact (and full) at the time of the inspection.

The range of stormwater controls observed during this inspection includes upland diversion ditch, dikes and sediment cells below the toe of the dump, sediment pond and ditches along the road. This report will describe only the particularly notable individual items observed. What was apparent about the storm-related damage was that all the structures appeared to have functioned properly up to a point of maximum capacity and strength, usually evident by visible high-water marks of organic debris (indicating impoundment) and one or several locations of vertical down-cutting through each impoundment. In some cases, failure of one impoundment caused a slug of water and sediment to overwhelm one or more lower structures, resulting in a series of breaches.

The county road crossing the site is steep and bisects the waste dumps. Road ditches were deeply eroded. The sediment catchment pond next to the road was full but had not breached. The operator should review the plan's structures and ensure there is still sufficient diversion or catchment capacity (such as waterbarring, armoring, riprapping, and berms). Likewise, the outslope of the upper dumps adjoining the road are steep and could perhaps be pulled back, armored, or otherwise made less erodible.

The upland diversion ditch did not ultimately catch and convey all runoff from the slope above the pad. Up to a foot (depth) of sediment was deposited at the portal. Concentrated runoff across the dump and down the dump face resulted in an overload to the sediment cells on the flatter area to the north. This is where the uppermost dike failed, which triggered a series of cascading failures to lower cells from the accumulating runoff volume. It should be noted that immediately below the lowest failed control berm, the runoff velocity decreased and the sediment was deposited onsite. The dikes for these cells should be resurveyed to ensure they are aligned properly and built-up sufficiently.

The approved stormwater control structures have been inspected previously and found to be installed according to the approved criteria, and in a maintained condition. The damaged condition of the structures and resultant release of sediment, as observed during this inspection, are not being noted as a problem, since size and intensity of this storm event is considered to be beyond the design specifications in the EPP. The operator is, however, urged to perform the following measures as soon as possible:

1. repair all damaged stormwater control structures, at least to the specifications in the approved EPP;

2. upgrade the strength (cross-sectional thickness) of the dikes wherever possible, but do not raise only the height of the dikes;
3. consider designing and installing armored outlets (spillways) for at least the critical impoundments;
4. remove the sediment and debris from the impoundments, to re-establish the design capacity;
5. consider using the salvaged sediments as growth media, and either stockpile them for later use or spread them on graded surfaces and seed them;
6. reseed disturbed areas so that they become better protected against erosion; and
7. monitor for new areas of weeds since seeds may have been deposited with the sediments.

For all changes that may be considered at the site, please contact this office to see if a revision is needed.

The bond was recently calculated and is considered sufficient. There were no contaminants or inadequately contained hydrocarbons observed. The operator is controlling noxious weeds, although Halogeton remains prevalent on the site. No problems are noted in this report.

For questions related to this report, please contact this inspector at the Division's Durango Field Office: telephone 970-247-5193, or 303-866-3567 ext 8175.

All written correspondence should be sent directly to the Division's Denver Office:  
Division of Reclamation, Mining & Safety  
1313 Sherman Street, Room 215  
Denver, CO 80203

**Inspection Contact Address**

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EC: James Blair, BLM, Tres Rios Field Office, Dolores

Photographs from the inspection are on the following page.



**PHOTOGRAPHS**

