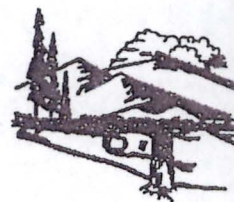




Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.



Matthew H. Mead, Governor

Todd Parfitt, Director

June 1, 2018

Mr. Larry Reimann
Manager, Compliance & Licensing
Cameco Resources
Smith Ranch-Highland
P.O. Box 1210
Glenrock, WY 82637

**RE: 2018 Annual Inspection Report, Cameco Resources (Power Resources Inc. dba),
North Butte ISR Project, PT0632**

Dear Mr. Reimann:

The Wyoming Department of Environmental Quality, Land Quality Division (LQD) conducted an annual inspection of the North Butte ISR Project on May 3, 2018. The inspection was performed with the assistance of Cameco personnel. No compliance issues were identified during the inspection.

If you find incorrect or misleading statements in the report, please respond in writing. A copy of this report will be placed in the permanent inspection file for the North Butte ISR Project as will any written comments you may have.

Please contact me at (307) 675-5619 if you have any questions.

Sincerely,

Luke McMahan, P.G.
Project Geologist
WDEQ-LQD District 3

\lm

Attachment: 2018 Annual Inspection Report

cc: Mr. Doug Mandeville, U.S. NRC, MS T-8F5, 11545 Rockville Pike, Rockville, MD 20852
(w/attachment)



LMC
6/1/18

IN SITU MINE INSPECTION REPORT

Wyoming Department of Environmental Quality, Land Quality Division

2100 West 5th Street Sheridan, WY 82801

Phone: (307) 673-9337 FAX: (307) 672-2213



Permit Number:	PT0632	Permittee:	CAMECO RESOURCES (POWER RESOURCES INC DBA)
Inspection Date:	5/3/2018	Inspector(s):	Luke McMahan
Report Date:	6/1/2018	Participant(s):	Cameco Resources: Larry Reimann, Erik Heide, Tyler Spence, Devin Collins
Last Inspection:	10/5/2017	Current Bond:	\$27,738,300
Inspection Reason(s):	Annual	Field Conditions:	Partly cloudy, calm, dry, ~65° F
		Approval Date:	1/30/1991

Status:	Active	Approved Acreage:	1015.27
County:	Campbell	Mineral:	Uranium

Opening Comments

The Annual Inspection for the North Butte ISR Project, PT0632, was conducted by LQD Project Geologist Mr. Luke McMahan on May 3, 2018. Prior to the inspection, the inspector contacted the landowner of the T-Chair Ranch, Ms. Patricia Clark, to confirm that access was granted for entering T-Chair property via Christensen Road. Ms. Clark granted verbal access for the scheduled inspection date.

In March of 2018, Cameco submitted to LQD a letter providing notification that injection of lixiviant had been terminated on February 13, 2018. As a result, monthly lixiviant sampling had been discontinued. Due to discontinued lixiviant injection, the wellfields are being pumped for hydrologic control only. The water pumped from the wellfields is passed through ion-exchange (IX) columns and the waste is directed to the Class 1 deep disposal well. Although the Mine is gearing up for restoration operations, the pumping of the wellfields was not considered part of the sweep process at the time of the inspection. In preparation for restoration operations, the Mine has purchased an Reverse Osmosis unit. The Reverse Osmosis unit had not been installed at the time of the inspection.

In April of 2018, Cameco submitted to LQD a letter which provided notification of cessation of production for North Butte mine. This notification also indicated that the Mine will maintain bleed in Mine Unit 1 and Mine Unit 2. A bleed will not be required for Mine Unit 3 as the wellfield has not been brought on-line.

Records Review - the following records were viewed as part of this inspection:

Spill Records & Reporting - No reportable spills occurred during the reporting period.

Well Completion Records - Notice of Completion of Construction (NOCC) records for Mine Unit 1, Mine Unit 2, and Mine Unit 3 have been submitted to LQD. Currently, for Mine Unit 3-North, one NOCC has been submitted to LQD for the wells constructed in association with Header House 3-1. An NOCC for Header House 3-2 has not been submitted to LQD because all the the wells that will be associated with HH3-2 have not been completed. An NOCC for Header House 3-2 will be submitted when all associated wells have been completed.

Monitoring Well Data / Excursion Records & Reporting - A general overview of the electronic data associated with monitoring well sampling, scheduling, excursion monitoring and excursion data was viewed. No issues with these records were identified. All hard copy data is kept at the Smith Ranch Highland facility.

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MIT Records & Reporting - Viewed records from January through April 2018 (hard copy MIT records). No issued identified.

Current Mine Plan - The current Operations Plan was on-site in hard copy and available for reference.

Bond - Applicable bond records were reviewed by the inspector at the LQD District 3 office following the inspection. At that time of the inspection, North Butte Mine had a posted bond amount of \$27,738,300.

Compliance Assessment

Inspection Topic	In Compliance
General	N/A
• Deep Disposal Wells	Yes
The Class 1 Injection Well Facility (deep disposal well) was viewed during the inspection (Photos #8, #9 & #10). No staining or indication of spills in the area of the well house and the pump house was observed. Although Mine Unit 1, Mine Unit 2 and Mine Unit 3-North are receiving no injection, a bleed is maintained from Mine Units 1 & 2 for hydrologic control. Since injection has not been initiated in Mine Unit 3-North, a bleed is not necessary. The bleed from Mine Unit 1 and Mine Unit 2 is transferred through IX columns at the facility plant and the waste is directed to the deep disposal well.	
• Erosion Control	Yes
Viewed gabion structure and culvert associated with erosion control for a main access road drainage crossing (Photos #19 & #20). The culvert and gabion structure appeared to be stable and functioning as intended. Vegetation along the road and top portion of the structure was well established.	
• Facilities	Yes
The facilities area around the exterior of the office buildings and plant building was briefly viewed (Photo #2). The area was well maintained, no evidence of spills (soil staining) was observed, and the area was free of windblown trash. Carbon dioxide and oxygen storage tanks are located within the secured (chain link fence) plant and office area. With the injection of lixiviant being discontinued, the oxygen and carbon dioxide used to produce the mining lixiviant were no longer in use. Cameco indicated that the oxygen tank was not yet empty whereas the carbon dioxide tank was empty at the time of the inspection (Photo #4).	
• Ponds	Yes
The Surge Ponds were viewed in passing. The ponds were noted to be holding water (approximately 1/3 full) and the liners appeared to be intact (Photo #3). The ponds are inspected daily by Cameco.	
• Roads	Yes
Long term and short term roads were observed to be in good condition. Long term roads such as the primary access road had adequate road base and erosion control. Rock check dams were observed to be placed along the road to provide erosion control. Short term roads, such as those associated with wellfield development did not appear to be heavily impacted. Wellfield roads were observed to be well maintained. The culverts along the primary access road were functioning as intended and stable.	
• Signs	Yes
The permit identification sign was viewed at the east entrance. The sign was found to have the appropriate information (Photo #1).	
• Staging Areas	Yes
The staging area at the deep disposal well site and the laydown area located near the office buildings were viewed. The miscellaneous equipment and supplies stored in these areas were found to be orderly and the areas were well maintained (Photo #7). No windblown trash or evidence of spills was observed.	

Inspection Topic	In Compliance
<ul style="list-style-type: none"> • Surface Water Control 	Yes
Viewed surface water monitoring locations NBSU-3, NBSD-3, NBI6, and NBI2. All locations were dry at the time of the inspection (Photos #5 & #11).	
<ul style="list-style-type: none"> • Topsoil Stockpiles 	Yes
All topsoil stockpiles were viewed in passing. All stockpiles were found to be stable with effective erosion protection and posted with a topsoil identification sign (Photos #7 & #18).	
Well Field Development	N/A
<ul style="list-style-type: none"> • Infrastructure 	Yes
Mine Unit 3 North, Header House 3-1 (and associated wells) is plumbed-in for production, however injection has not been initiated for Header House 3-1. Although the majority of the wells for Header House 3-2 have been constructed and MIT'd, Header House 3-2 and the associated wells have not been plumbed-in for production and therefore this header house and the associated wells remain under construction (Photos #13, #14 & #15).	
<ul style="list-style-type: none"> • MITs 	Yes
Cameco has proposed a postponed MIT schedule for 100 Class III injection wells located in Mine Unit 3 North. These wells have been completed and passed initial MIT. However, no injection had been initiated in these wells. The wells proposed for the postponed MIT schedule have been viewed during past inspections and were also viewed in passing during this inspection. No issues or concerns with the construction of the wells was observed and all the wells viewed were found to be capped (Photo #14). In order to allow for an alternate MIT schedule, Cameco is planning to execute a Non-Significant Revision to PT0632 which will incorporate the alternate schedule into the mining permit.	
<ul style="list-style-type: none"> • Monitor Wells 	Yes
Baseline monitoring wells and ring wells have been constructed for the proposed Mine Unit 3 South wellfield. The Wellfield Data Package had not been completed for submittal to LQD as of the date of this inspection. The monitoring wells viewed in this area were found to be well maintained and capped (Photo #16). It was noted that the mine is using steel culvert around the well head of applicable wells completed in drainages to add well head protection (Photo #17).	
Well Fields	N/A
<ul style="list-style-type: none"> • Erosion Control 	Yes
<p>Erosion control in wellfield areas is largely provided by revegetation of interim reclamation, particularly in areas where surface disturbance from wellfield construction was along the side-slopes of drainages. An example of this is seen in the area of Mine Unit 1 Header House 1 (Photo #6).</p> <p>During the development of Mine Unit 3-North, Cameco implemented additional revegetation efforts on a prominent hilltop located in the northwest portion of the wellfield. The relatively steep slopes of the hilltop were draped with matting to promote growth of vegetation and in-turn stabilize the area that was disturbed due to well installation. This area, located north of Header House 3-2, was viewed during the inspection and found to be stabilized with vegetative growth which is providing erosion control (Photo #12).</p>	

Actions Required

There are no unresolved Maintenance Items

Actions Completed Since Last Inspection

Inspection Topic	Inspection Date	Proposed Resolution Date	Resolution Date
Topsoil Stockpiles	6/2/2017	10/2/2017	10/5/2017
Spread temporary topsoil stockpiles in Mine Unit 3 North at their locations of origin or establish them as long-term stockpiles.			

Inspection Summary Comments

There are no outstanding LQD violations at the North Butte ISR Project. No violations were issued as a result of this inspection. No maintenance items were generated as a result of this inspection.

Inspection Recipient and Attachment Information

Recipient	Email	Address/Notes
Operator	No	CAMECO RESOURCES (POWER RESOURCES INC DBA)

Attachment Types: ☒ Photo Addendum ☐ Map(s) ☐ Table(s) ☐ Other

Attachment Notes

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Type	FileName	Size (MB)	# Pages
Cover Letter	PT0632_Annual_IR_cvr.ltr_06.01.18LM.pdf	0.06	1
Photos	PT632_Annual_IR_Photo Log_05.03.18_LM.pdf	4.12	11



Photo #1: View of signage along east entrance to mine permit area.



Photo #2: Plant Facilities overview looking south from main access road.

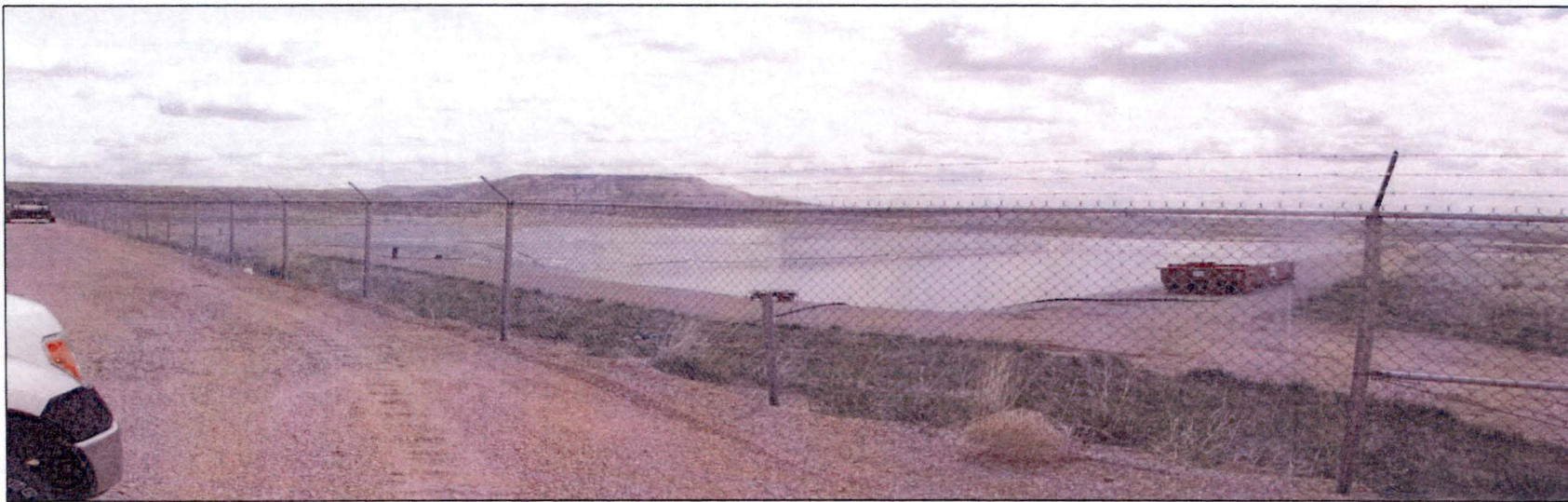


Photo #3: View of surge ponds adjacent to the plant facility.

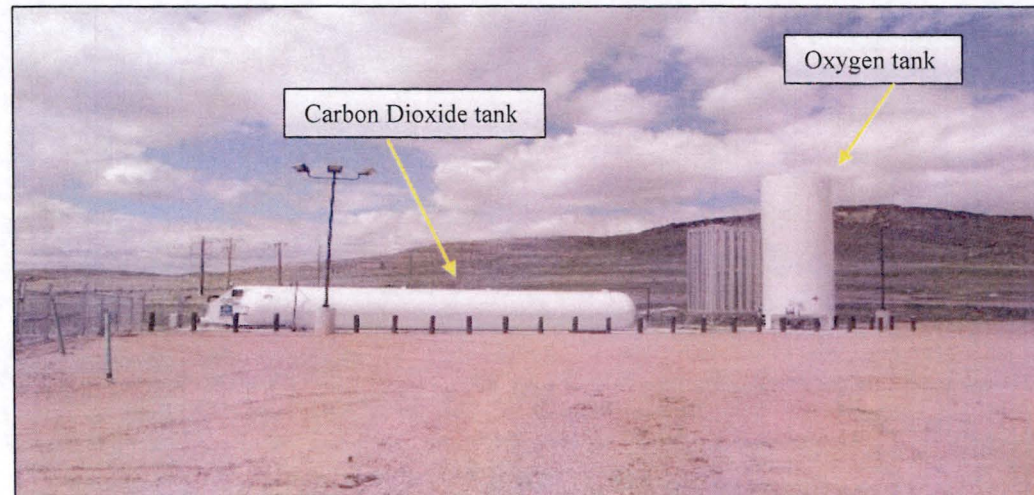


Photo #4: View of carbon dioxide and oxygen tanks located adjacent to the plant and office area.



Photo #5: View of Mine Unit 1 and Mine Unit 2 looking south/southeast from NBSU3 upstream surface water sampling location.

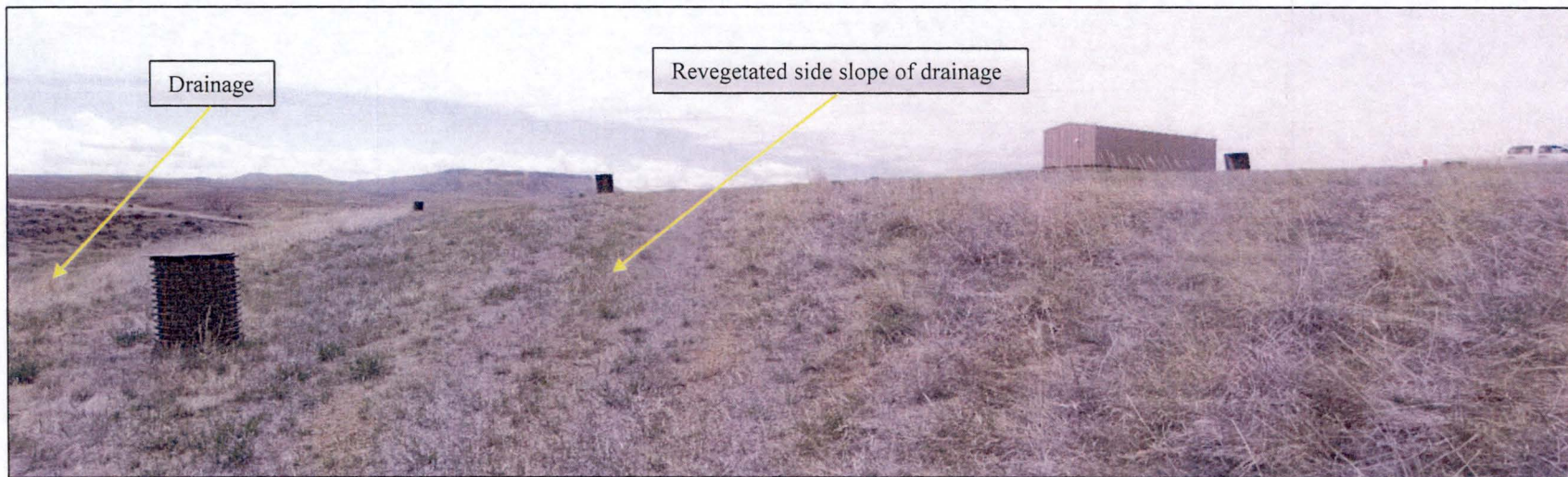


Photo #6: View of Mine Unit 1, Header House 1-1 area, vegetative growth from interim seeding of wellfield construction.



Photo #7: View of staging area around Class 1 Injection Well site; grout machines, and Topsoil Stockpile NBSP5 in background.

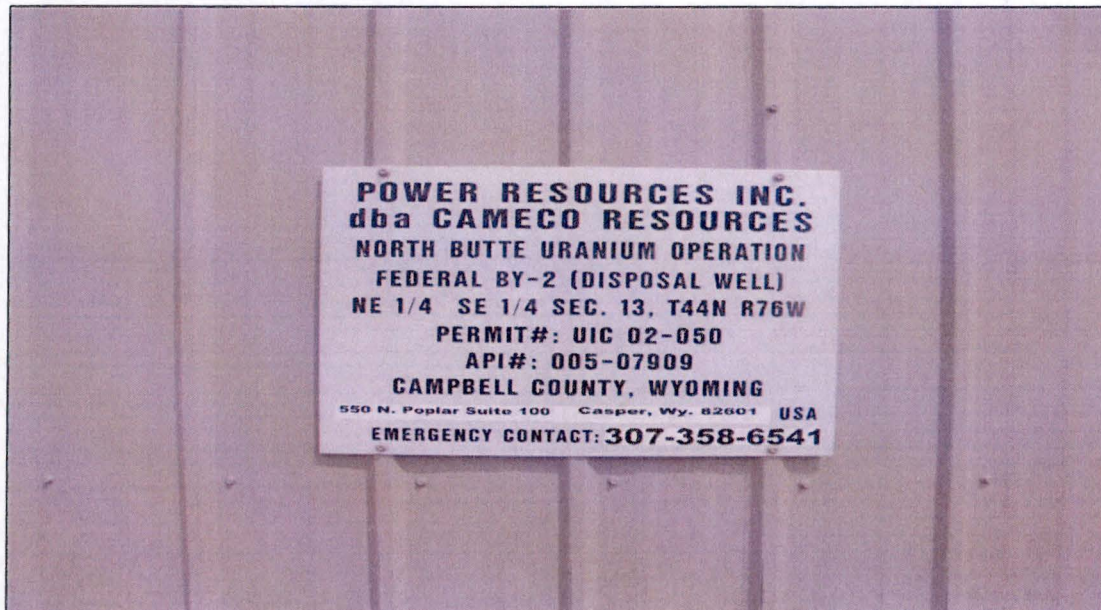


Photo #8: View of Class 1 Injection Well Permit sign.



Photo #9: View of Class 1 Injection Well.



Photo #10: View of Class 1 Injection Well facility pump building (left) and well building; area around facility is used for staging.

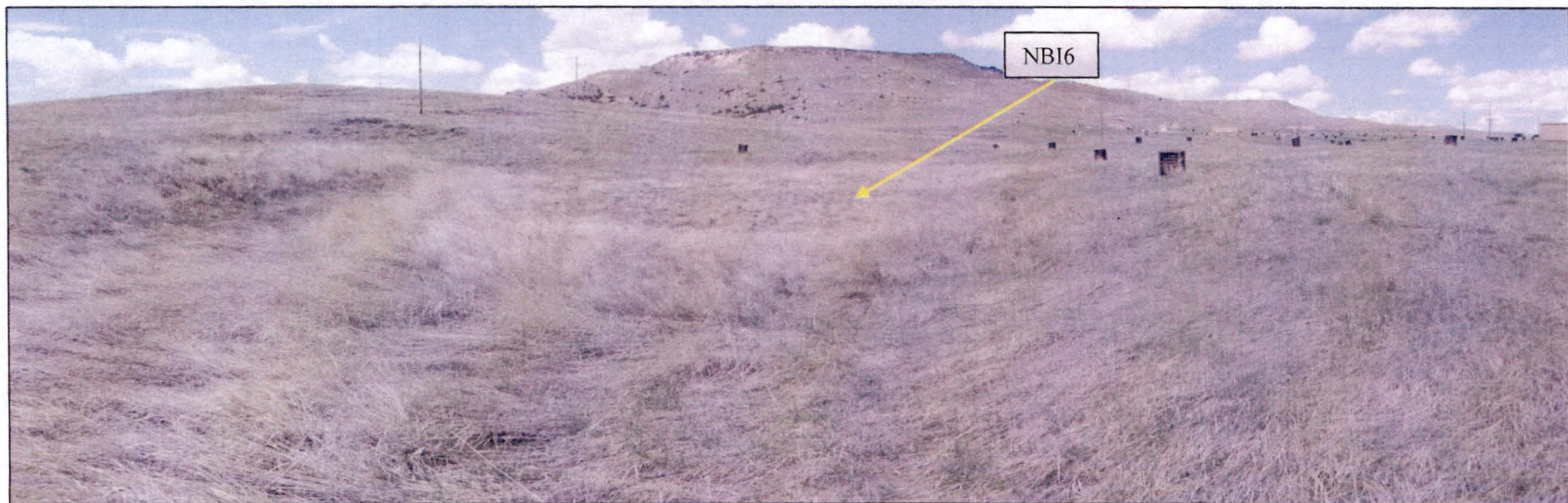


Photo #11 View of impoundment surface water sampling location NBI6, dry.

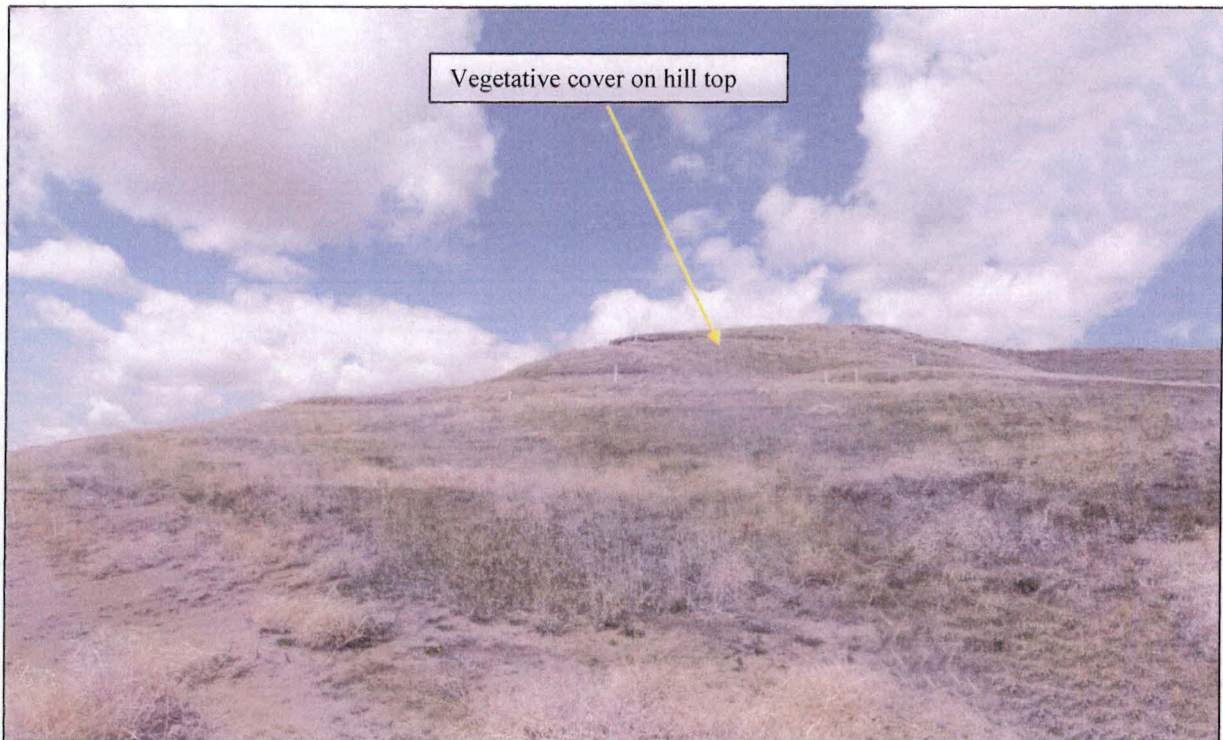


Photo #12: View of Mine Unit 3-North hill top; wells and vegetation.

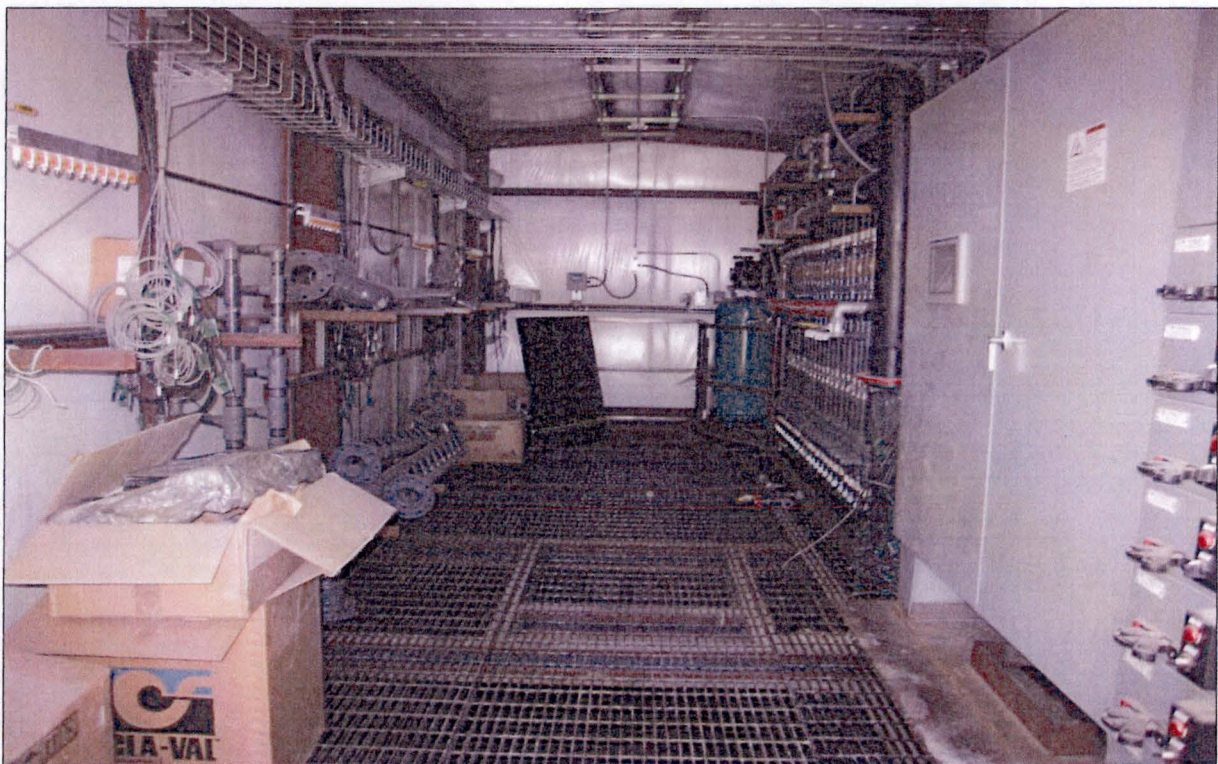


Photo #13: View of Mine Unit 3-North Header House 3-2; non-operational, under construction.



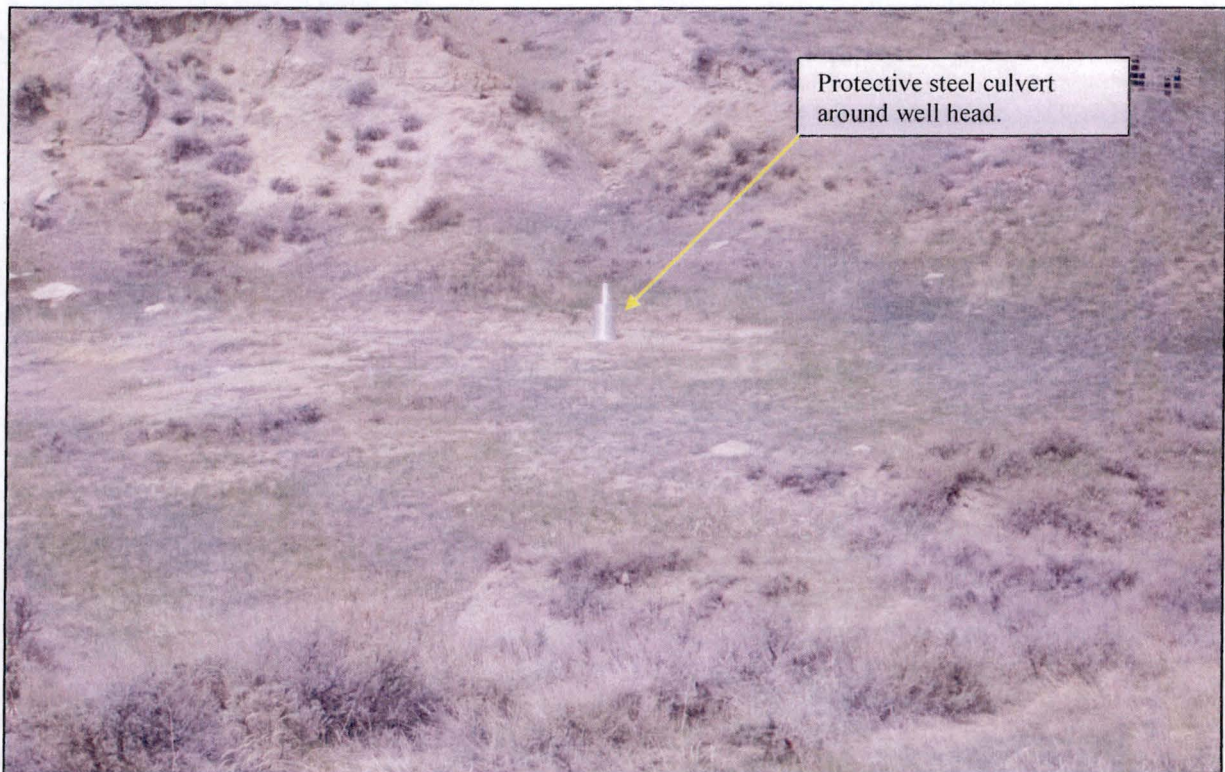
Photo #14: View of MU3N well head NB3I-73 as completed, not yet plumbed to HH3-2.



Photo #15: View of NB3I-73; initial MIT passed 1-26-16.

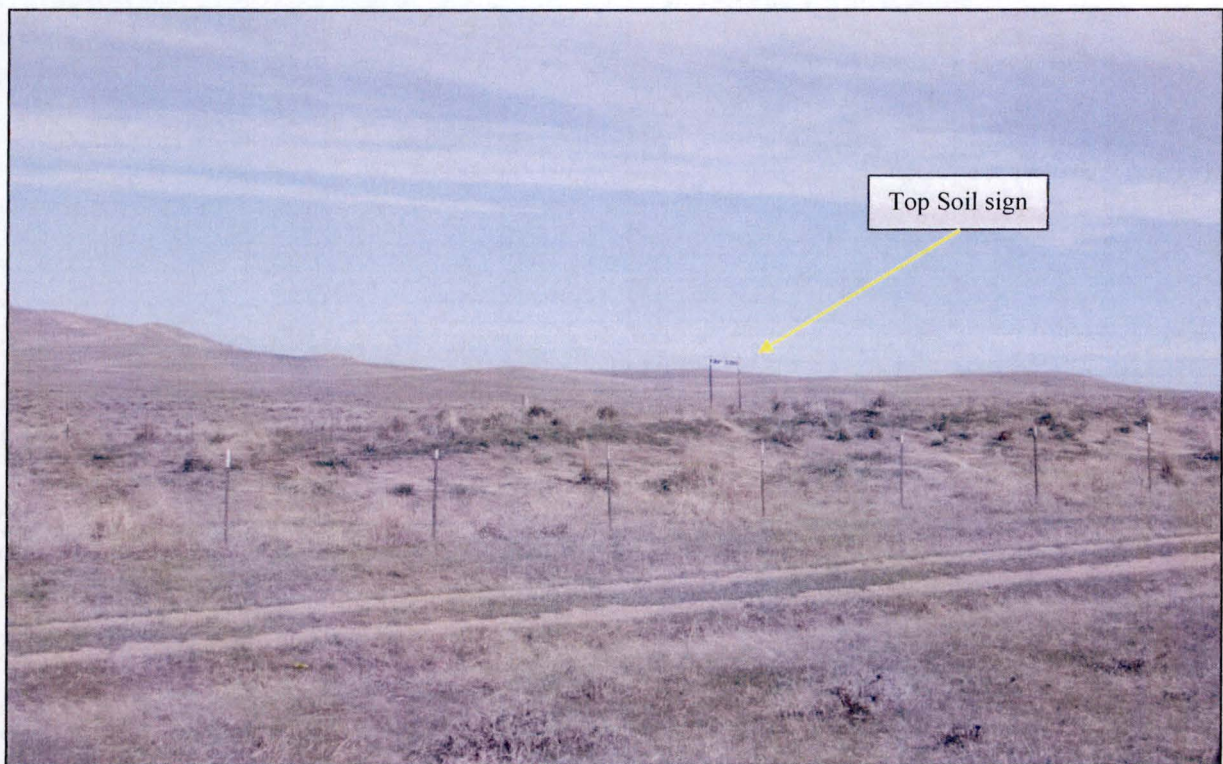


Photo #16: View of proposed Mine Unit 3-South ring well and baseline monitoring wells.



Protective steel culvert
around well head.

Photo #17: View of protected monitoring well (proposed Mine Unit 3-South).



Top Soil sign

Photo #18: View of Topsoil Stockpile NBSP8.



Photo #19: View of revegetation of area above gabion structure.



Photo #20 View of gabion structure extending into drainage.