Department of Environmental Quality

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

Matthew Mead, Governor

Todd Parfitt, Director

December 11, 2015

Mr. Brian Good
3796 Lane 32½
Greybull, WY 82426

RE: Permit 624, Annual Inspection

Dear Mr. Good:

On November 24, 2015 John Erickson (District Supervisor) and I met you, Danae and Lacee for the purpose of conducting inspections of Permits 533 and 624. You provided us with an overview as to what was occurring and the plans for the future at each site. At the present time, site activities consisted of gradual mining of the active pit east of Bear Creek, hauling stockpiled bentonite to MI, LLC's plant, consolidating stockpiled materials, and ripping / discing of stockpiled bentonite to facilitate field drying.

All issues discussed in the field I believe are addressed in either this Inspection Report or the one for Permit 533 (North Bear Creek). The attached map is based on the map provided with the 2015 Annual Report with the only addition being the bentonite stockpile at the very west end of the permit area. This Report contains a bond estimate based on information provided in the Annual Report and field observations. The Reclamation Performance bond for Permit 624 is estimated at $220,000.00 which is a $55,000.00 increase over the amount currently held by the State. Please review the contents of the enclosed reports carefully and if you have any questions about their contents or find something in error, please contact me.

Sincerely,

Brian R. Wood
District II Assistant Supervisor

w/ enclosure – 2015 Annual Inspection Report for Permit 624

cc WyDEQ/LQD Cheyenne Office – Permit 624 Inspection File
John Erickson > WyDEQ/LQD Lander Office Permit 624 Inspection File
Alan Edwards, WDEQ Deputy Director
Brian Wood, Chron File

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NOVEMBER 2015 INSPECTION REPORT

MINE:	Good Bentonite Company (GBC) – South Bear Creek, Permit 624
INSPECTION DATE:	November 24, 2015
REPORT DATE:	December 11, 2015
PARTICIPANTS:	John Erickson, WDEQ/LQD District 2 Supervisor Brian Wood, WDEQ/LQD District 2 Assistant Supervisor
PREPARED BY:	Brian Wood, WDEQ/LQD District 2 Assistant Supervisor

INTRODUCTION

The Annual Report (AR) for Permit 624 was received electronically on August 14, 2015. The Report was reviewed and a letter was sent on September 8, 2015 requesting some clarifications be provided. No response was provided. One of the comments concerned the respread of top and sub soil (Soil) material stockpiled at the site. During the inspection Mr. Good indicated that a portion of the stockpiled Soil would be hauled to the North Bear Creek Mine and used as additional cover on some of the areas previously reclaimed by Black Hills Bentonite where cover was thin and the revegetation had performed poorly. This may be possible dependent on a demonstration that an adequate volume of Soil exists to reclaim the existing liability at South Bear Creek. This issue aside, GBC has never accounted for this effort in bonding calculations presented for Permit 533 or 624. Therefore, for bonding purposes this proposed effort is not considered.

A portion of Permit 624 was disturbed prior to the passage of the Open Cut Land Reclamation Act (OCLRA) of 1969. Much of the "Pre-Law" area (areal extent shown on the attached map) was not directly re-affected by mining activity. In other words, it was used for ancillary purposes such as an equipment camp site or storage. As indicated in the approved Reclamation Plan, there is no revegetation liability associated with the Pre-Law area. As shown on the attached map, much of the Pre-Law area has been reclaimed; if the reclamation in these areas is successful and there is an area where a revegetation liability exists that is not successful, a land exchange is possible.

The AR Map was based on site mapping completed by ECS Engineers during the first part of August 2015. The number of changes since that time are minimal. Bentonite Pile BP-1 is not shown on the AR map but a volume is provided; it may be reasonably assumed as the pile identified as BP-1 on the attached map which was observed during the site inspection. Bentonite Piles BP-5, BP-6, and BP-8 have either been hauled to a GBC customer or have been consolidated into another pile. Topsoil pile TS-6 has been re-spread and no longer exists. The Camp Area has now been relocated to an area on the west side of Bear Creek adjacent to the crossing. The attached map is a reproduction of the 2015 AR Map, but adds the Bentonite Pile BP-1 and also shows the approved Disturbance Boundary and lands identified as "Pre-Law" from original permit maps. All disturbance is within the Permit Area Boundary with the exception of a corner of Subsoil Pile SS-2.

SITE INSPECTION

The bentonite market is soft at the moment. At the time of the inspection Mr. Good's field crew appeared to consist of three individuals. Assuming sales improve after the first of the year, staff will be added and reclamation operations will recommence in the pit series west of the access road that bisects the permit area. No issues were noted with runoff from bentonite stockpile areas and contaminating either stockpiled Soil or adjacent native areas.

Pits

There are currently two active pits, referred to as "East" and "West" in this report based on their location. The West Pit has been mined out. Assuming John and I understood Mr. Good correctly, this was the last pit related to mining west of the access road that bisects the Permit Area. **Photo 1** illustrates the West Pit. We did not perform a measurement in the field, but it is estimated that "west" pit endwall and the "north" pit highwall average 40 feet in height. The northwest corner of the pit is right at the edge of the permit area boundary and with this in mind highwall reduction as a means of reclamation is limited. No stability issues were noted with the walls.

Photo 3 looks from the inside of the West Pit along the void between the spoil dump and a partially reclaimed bench to the north. The spoil dump will need to be reclaimed in some manner. Some options include grading in place to establish a suitable slope from the reclaimed / disturbed area to the north, placement in the West Pit, or some combination of the two.

Photo 2 shows the active East Pit. At the time of the inspection a crew of two were active in stripping overburden to expose the Flat Bed seam of the Frontier Formation. The material was being dumped in a mined out section of the pit to the west. Recently there has been a rise in the local water table as there is a small amount of water puddling on top of the seam as can be seen in the referenced photo. The East Pit series is all that remains in terms of approved mining.

Topsoil

In general Soil salvage operations have been good. Aside from the Pre-Law lands discussed in the Introduction, all of the disturbed lands were vegetated prior to mining. The dominant species in the area appears to have been Gardner Saltbush (see **Photo 5**). To date, it appears that provided materials are handled cautiously during mining, meaning burial of all bentonitic materials, a sufficient soil resource has been salvaged to date to facilitate reclamation success. **Photo 6** provides an example of Soil salvage efforts that are assumed to have been generally practiced during mining. The photo also shows that an adequate buffer zone has been established between native land and active mining in the East Pit series.

Two problem areas were noted during the inspection. The first is located around the perimeter of the West Pit. **Photo 4** shows the inadequate buffer zone between the end / high wall crest and the adjacent native ground. The second area noted is shown is **Photo 7** where it appeared some Soil was randomly bucked up into a corner near the creek crossing. This material should either be picked up and added to an existing Soil stockpile or picked up and used during GBC's next "live spread" operation. Topsoil / Subsoil signs were not observed on all piles; all Soil piles should be identified as required under NonCoal Rules and Regulations, Chapter 3, Section 2 (c)(i)(D).

Impoundments

There are two impoundments within the Permit Area Boundary, referred to as "North" and "South" in this Inspection Report. The South Impoundment was created by Ken Tanner, the prior permittee. As mentioned in prior correspondence as well as on-site during the inspection, the drainages to the north must be reconstructed such that this impoundment can continue to function as originally intended. The North impoundment was created approximately a year ago. It is intended to function primarily as a ground water fed impoundment; the primary water source being the Bear Creek alluvial aquifer. There is small drainage that comes down from the north that intersects the northeast corner of the impoundment. A discussion was held in the field regarding the disposition of this channel and I indicated that rock-lined inlet channel would need to be constructed given the channel slope that would be involved.

During the inspection, Mr. Good indicated that the water level in the North impoundment recently rose approximately 15 feet. Within the confines of the impoundment, there were two ramps that provide a circular drive access to the "water's edge", presumably to obtain water for dust suppression purposes. The base of the circular drive area appeared to be well saturated, making use of the water haul travel route as originally intended risky, if not impractical. This evidence supports that a rise in water level occurred. Further, several tension cracks were noted in the unconsolidated regraded backfill on the west side of the impoundment. These are shown in **Photo 9.** There could be the potential for future settling of the fill in this area as it consolidates through saturation. **Photo 10** is a close-up of one of the cracks easily appeared to be five deep, though not directly measured. This condition as well as the need for additional grading of the impoundment's perimeter, especially along the north and east sides suggests there is still a fair amount of earth movement required around the North impoundment.

I have contacted the State Engineer's Office and it does not appear that a water right has been secured for either impoundment. Securing a water right was addressed in my January 2015 letter. In particular with the North impoundment it would advised to secure a water right before pursuing any additional reclamation work in the areas that abut the impoundment.

Reclamation

To date, there has been approximately 36.2 acres that have been "reclaimed" within the permit area boundary. **Photo 8** shows some of the most recent reclamation completed in the pit series on the east side of Bear Creek. Based on the site inspection, not all of the areas indicated as reclaimed on the AR map have been seeded. Revegetation success to date on those areas that have been seeded has been poor. For bonding purposes rather than assume a retainage cost for areas that have been seeded, a seeding cost is applied to all disturbed areas whether or not they have been completely reclaimed minus those initially identified as "Pre-Law".

Regrade of the disturbed area is not complete as there is a need to re-establish the drainage network. This issue was discussed in the field. In addition, as mentioned in prior correspondence, the drainage network for the mine area east of the access road and west of Bear Creek needs to be re-established in order for the South impoundment to function as intended.

Bond Estimate: The table below contains a bond estimate which based on information presented in the AR as well as observations made during the inspection. The bond estimate assumes replacement of 18 inches of topsoil over all disturbed lands, excluding areas shown to be "Pre-Law" that have not been reclaimed to date. Aside from "Pre-Law" lands, all other lands were vegetated prior to disturbance. Permit 533 provides a good example of the revegetation problems with only spreading six inches of soil as is proposed in the AR. The required material to achieve the 18-inch replacement depth is shown to be available and should be utilized for that purpose.

2015 Bond Estimate for Permit 624			
	Unit	Unit Cost	Total
West Pit Backfill (1)	48,000	$1.00	$48,000.0(
West Pit Spoil, Assume half the width of the arm (30') x est. pile height 15' x 600'	5,000	$0.28	$1,420.0(
East Pit backfill (2)	25,000	$0.40	$9,900.0(
North Pond, reduction of vertical pit walls to 3(h):1(v) (4)	16,800	$0.22	$3,696.0(
Ashy Material Disposal [cu-yds, 12.9 ac @ 0.5' deep] (3)	10,400	$1.13	$11,752.0(
Site Grading [acres, all acreage not designated as reclaimed] (5) 97.3	54	$71.62	$3,867.4!
Soil Respread [cu-yds, 37.4 * 1.5'] (6) 17.4 + .5	90,508	$0.84	$75,574.1!
Scarification of all areas not seed (7)	40.12	$62.80	$2,519.5-
Seed [ac,($81.80 seed +10% tax and delivery + $90 application)]	67.36	$180.00	$12,124.8(
Total			$168,854.0(
Contingency Fee (30%)			$50,656.2(
Total			$219,510.1!
Rounded Bond			220,000.0(
Existing Bond			165,000.0(
Shortfall			55,000.0(

(1) The Northwest corner of the pit appears to abut land not owned by GBC > limited opportunities for highwall reduction. Cost estimate assumes hauling backfill material using 637 scrapers from approximately 1,000 feet away. Volume calculated assuming a 40' west wall and a 25' east wall w/ a pit floor area of 0.92 acres.

(2) Assume the pit void encompasses 1.4 acres, required backfill equals 18,000 cubic-yards per acre. Topsoil to be windrowed off reclaimed area to west. Use a D10T, average push distance is 200', assume 5% downhill grade.

(3) Material to be used to buttress the failing portion of the North Pond failing west slope. Guideline 12A - assume 1,500 haul with Articulated Trucks and placement with D9T within North Pond to buttress slope.

(4) North Pond, Assume 750' of vertical wall along the south, east and north wall with an average height of 40' reduced to a 3(h):1(v) slope. Reduce using a D9T.

(5) A site grading cost was applied to the entire disturbed area understanding that not all lands are in need of grading. However the drainage system west of the access road as well as to the South Pond to insure functionality must be re-established. Thus, it is assumed that a cost for light grading of the entire disturbance will balance with a more intensive effort in localized areas.

(6) Available topsoil and subsoil to cover disturbance, pit, and bentonite stockpile areas with 18" of suitable growth medium (top and sub soil), not within the PreLaw envelope.

(7) Unit scarification cost Guideline 12A

Comparison of DEQ Bond Calculations To Good Mining Bond Calculations
2/1/2016

Good Mining	Unit	Estimated Quantity	Unit Cost	Total		DEQ Unit	Estimated Quantity	Unit Cost	Total		Difference	
Pit Backfill	CY	104,000	$ 0.72	$ 74,880.00		CY	48,000	$ 1.00	$ 48,000.00	West Pit		
						CY	5,000	$ 0.284	$ 1,420.00	West Pit Spoil		
					$ 74,880.00	CY	25,000	$ 0.396	$ 9,900.00	$ 59,320.00 Total Backfill	$ (15,560.00)	DEQ broke this up apparently to save distance
Pick up and dispose of .5' ashy material	CY	9,680	$ 0.89	$ 8,615.20		CY	10,400	$ 1.13	$ 11,752.00		$ 3,136.80	DEQ used higher unit price
Site Grading	Acre	27.3	$ 71.62	$ 1,955.23		Acre	54.0	$ 71.62	$ 3,867.48		$ 1,912.25	DEQ wants some drainages restored so they used a higher acreage
Soil Respread	CY	14,036	$ 0.89	$ 12,492.04		CY	90,508	$ 0.835	$ 75,574.18		$ 63,082.14	DEQ Placed 1.5', Good Placed 0.5'
Scarification of all areas not seeded	Acre	65.1	$ 62.80	$ 4,088.28		Acre	40.1	$ 62.80	$ 2,519.54		$ (1,568.74)	Good included Pre-Law areas here
Seed	Acre	65.1	$ 200.00	$ 13,020.00		Acre	67.4	$ 180.00	$ 12,124.80		$ (895.20)	Good is using a higher grade seed mix here, Acreage difference?
Retainage	Acre	8.9	$ 350.00	$ 3,115.00		Acre	-	$ -	$ -		$ (3,115.00)	
North Pond Reduction of Vertical Pit Walls	CY	-	$ -	$ -		CY	16,800	$ 0.22	$ 3,696.00		$ 3,696.00	DEQ wants Further work here
											$ 50,633.75	Total Difference
Total				$ 118,166					$ 168,854		$ 50,688	
Contingency Fee (30%)				$ 35,450					$ 50,656			
Total Estimate				$ 153,615	$ 154,000 rounded				$ 219,510	$ 220,000 rounded		
Existing Bond Held				$ 165,000					$ 165,000			
Total				$ (11,000.00)	Excess				$ 55,000.00	Shortfall		