



# Public Service Commission

## State of North Dakota

DKM

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### INSPECTION REPORT

DATE OF INSPECTION: September 3, 2014

TYPE OF INSPECTION: Partial

PERMITTEE - MINE: BNI Coal Ltd. - Center Mine

PERMITS INSPECTED: BNCR-8106, BNCR-8202, BNCR-8602, BNCR-9401, BNCR-9702, BNCR-1101

PERSONS ACCOMPANYING INSPECTORS: Stephanie Paavola, BNI Coal

INSPECTION CONDITIONS: The inspection was conducted between 9:05 a.m. and 3:30 p.m. CDT. Skies were mostly clear. The temperature was near 72° F. Access was limited in places due to wet muddy conditions.

### SIGNS & MARKERS

Permit boundary markers were not yet in place along that portion of Permit BNCR-1101 that was inspected, specifically the boundary between Sections 5 & 6 and 6 & 7 of T141N, R83W. Section 6 is not in the permit while the adjacent lands in Sections 5 and 7 are in BNCR-1101. BNI representatives indicated that permit boundary marker signs had been received but had simply not yet been put in place. BNI was reminded that permit boundary signs and markers need to be installed as required by NDAC 69-05.2-13-04.

Permit identification signs with the information required by NDAC 69-05.2-13-04(3) must be placed along the north boundary of the SW1/4 of Section 23 adjacent the county road located south of Center and in the northwest corner of Section 21 near the approach off of the state highway to inform the public that these areas are within a permit area. The fence along the north side of the NW1/4 of Section 21 has been removed or is in disrepair so one could drive into the pit from this location. Permit boundary markers were observed at both of these locations.

SPGM stockpile signs were not observed on or near the new SPGM stockpiles located in Permit BNCR-1101. BNI was reminded that SPGM stockpile signs, as required by NDAC 69-05.2-13-04(7), should be installed at access points to the pile while the pile is being constructed. SPGM stockpile signs for piles SH3T05 and SH3T06 are not readily legible. These signs need to be repaired or replaced so that they are legible.

OVERBURDEN/COAL REMOVAL

Coal was being hauled from Slope 1 in Section 21 of BNCR-9702. Active operations in BNCR-9702 were not inspected.

SUITABLE PLANT GROWTH MATERIAL REMOVAL/RESPREAD

Scrapers were removing SPGM along the west side of Section 5 of BNCR-1101 and the soil was being hauled to a stockpile located in the SW1/4 of Section 5. The scrapers were traveling on the closed county road located between the SW1/4 of Sections 5 and SE1/4 of 6 of T141N, R83W. The south end of this road is on the section line common to these two sections which means that the west side of the road is off permit since the permit boundary is on the section line in this area. The northern portion of this road veers to the east so a portion of the road along the north end of Section 5 appears to be in the permit. This issue was discussed with BNI and they subsequently told the scraper operators to quit using the road. A blade was grading the road during this inspection.

A new topsoil pile was observed along the north side of the NE1/4 of Section 7 of BNCR-1101 that appeared to be very close to the permit boundary. An inspection of the site revealed that a few feet of this pile was located north of the permit boundary in Section 6 of T141N, R83W (off-permit). Wooden stakes, that appeared to have been recently put in place, were noticed on the permit boundary and they indicated that a small portion of this pile was in Section 6. A backhoe was in the process of pulling this topsoil pile to the south to keep it in the Permit BNCR-1101. Photographs of this pile in relation to the wooden stakes identifying the permit boundary were taken and are on file with the Reclamation Division. BNI representatives were notified what was observed regarding this pile and they were informed that a Notice of Violation (NOV) will be written for operating outside of the approved permit area and for not installing permit boundary markers at this location. NOV 1402 was subsequently issued to BNI Coal on September 10. Figure 1 shows the pile in relation to the permit boundary. Areas to the left of the stake in the photo are off-permit.

Figure 1: Topsoil pile off permit



Topsoil was noticed as having been pushed up a slope adjacent and north of the stockponds in the SW1/4 of Section 8 and an excavator and two end dump trucks were in the area presumably to haul the temporarily piled topsoil to a more permanent topsoil pile. A dozer was leveling an access trail to this pile and it appeared that some topsoil may have been used to fill a rough area immediately north of this pile on an area where SPGM had been stripped. BNI was reminded to conduct operations to ensure topsoil is not lost or contaminated. A haul road is in the process of being constructed southward from Permit BNCR-9401 to this area in the SW1/4 of Section 8 of BNCR-1101.

A scraper access trail was noted in the NE1/4 of Section 7 of Permit BNCR-1101 where it appeared scrapers had been traveling over an area prior to removing all available topsoil. No topsoil stripping edge could be seen in this area and BNI was reminded that topsoil needs to be stripped from these access trails prior to use to ensure topsoil is not lost or contaminated. Figure 2 shows the trail where topsoil was not salvaged.

Figure 2: NE1/4 of Section 7



### SURFACE WATER MANAGEMENT

Silt fences and sumps were noted in place along the haul road being constructed in BNCR-1101. The silt fence along the haul road in the major drainage in the NW1/4NE1/4 of Section 5, BNCR-9401, needs to be cleaned out and the associated silt fence is in need of repair. There is a considerable amount of sediment deposition in the undisturbed drainage way below this silt fence. This issue was discussed with BNI and it was recommended that a larger sump be constructed at this location. It is not clear why the side slopes of the haul road have not yet been seeded as establishing vegetative cover on the side slopes and ditches of this road is the most basic “best management practice” to control erosion. Figure 3 shows the sump and drainage below this haul road.

Figure 3: Sump and silt fence in Section 5 of BNCR-9401



The pre-mine stockponds in the SW1/4 of Section 8 of BNCR-1101 will be functioning as sumps and the drainage way below these features is stripped. Silt fences were noticed in place above the culverts that allow runoff to pass from Section 5 of BNCR-1101 off-permit to Section 6. SPGM was being stripped from the adjacent area in Section 5 and the silt fences appeared to be functioning as intended. In a few instances, “small islands” of in-situ SPGM remains intact with a silt fence in place. BNI is reminded that the SPGM from these small islands must also be salvaged. Figure 4 shows one of these BMP’s.

Figure 4: Soil that needs to be stripped from BMP site



The drainage way below Diversion 2-2 in Section 2 of BNCR-8602 needs to be stabilized. A gully has formed in a portion of this drainage and a headcut that has developed into a spring seep is also present. Rock and fabric has been placed in this drainage in the past and additional repair work is needed to stabilize the site.

Likewise, additional rock is needed in the drainage way in Section 7 of Permit BNCR-9702 where runoff is diverted around the reclaimed wetland in Section 5 via a diversion channel in Section 6. This natural drainage way has eroded significantly since the diversion in Section 6 has been installed. A head cut feature that is holding water about 4 feet deep exists in this drainage and a gully has formed in a portion of the channel. Runoff was flowing through this drainage way at the time of the inspection and it was evident that large volumes of water had flowed through this drainage with the recent heavy rainfall events. Figure 5 shows this drainage way.

Figure 5: Drainage in Section 7 where runoff is diverted



A considerable amount of soil erosion from heavy and intense rains has occurred on reclaimed lands that were not established with vegetation in Permit BNCR-9702. Wet conditions early in the growing season obviously delayed planting and subsequent rains further delayed seedings. Sheet and rill erosion is evident on reclaimed native grassland seedings in Section 21 that were seeded this summer. The oats nurse crop has established and a few native grass seedlings were evident but some seed may have been lost due to erosion. Rill and sheet erosion was also observed above the reclaimed wetland in Section 5 of BNCR-9702. Topsoil deposition has occurred in the wetland basin. Ms. Paavola indicated that BNI is considering removing this material this winter under frozen conditions.

Sediment pond 2-1 was holding water at spill elevation and the PPE stake was not visible.

#### REVEGETATION

The purpose of this inspection was to look at reclaimed native grasslands and tame pasture lands in Permits BNCR-8106, BNCR-8602 and BNCR-9702. The reclaimed native grassland in Section 2 of BNCR-8602 and the tame pastureland in Section 23 of BNCR-8106 were grazed this year. Utilization in Section 2 was moderate to full while utilization was light in Section 23. No cattle were seen in either

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tract. The older reclaimed tame pastureland native grassland tracts located in the SW1/4 of Sections 35, SE1/4 of Section 3, N1/2 of Section 34 and in Section 28 were managed as hayland this year. The reclaimed native grassland in Section 21 of BNCR-9702 was left idle this year. The vegetative ground cover on all of the older reclaimed areas is providing excellent protection from erosion.

The orphan spoils that were redisturbed in Section 2 of BNCR-8602 are evident in the field as these areas do not blend well with the adjacent hayland. The permit indicates that about 9 inches of subsoil was to be respread on these areas and no topsoil will be respread as no SPGM was salvaged from these areas. These sites are well vegetated with a combination of native and introduced species, such as smooth bromegrass, big bluestem, switchgrass, sideoats grama, intermediate wheatgrass and alfalfa, but yields were too low to warrant haying all portions of these areas this year.

The tame pasture land in the SW1/4 of Section 35 is dominated with smooth bromegrass, intermediate wheatgrass, alfalfa and Kentucky bluegrass but a strip was evidently seeded to native species and they are prevalent on the site. Big bluestem made considerable regrowth since the site was cut for hay and other native warm season species present included switchgrass and sideoats grama. The tame pastureland in Section 23 initiated in 2003 is established with intermediate wheatgrass, smooth bromegrass and alfalfa. Smooth bromegrass is more prevalent on the older reclaimed areas located in the southeast corner of the tract. The areas seeded in 1996 and 1997 were not inspected.

The reclaimed native grassland located in the SW1/4 of Section 2 appears more natural with grazing management. Although there is a considerable amount of smooth brome present in portions of this tract, grazing utilization has made it appear less prominent than observed during previous inspections. The seeded native species, both warm and cool season, are present in good quantities. Kentucky bluegrass is prevalent and there are numerous native forb species present from direct respreading operations. Some Canada thistle and wormwood was observed in this tract. Respread areas within this tract are not well blended and old rills that have stabilized with vegetation are present on the long steep side slopes.

The reclaimed native grassland located in the SE1/4 of Section 3 of Permit BNCR-9702 was hayed this year. This tract contains a number of different revegetation initiation dates and there is variability within and between seeded years. Smooth bromegrass and Kentucky bluegrass are generally quite prevalent throughout all of the seedings on this tract and alfalfa is prevalent in areas. The seeded native species are generally present in respectable quantities but warm season species, particularly big bluestem, switchgrass and sideoats grama appear more prevalent in the center and west side of the 1997 seeding whereas green needlegrass and western wheatgrass appear more prevalent on some of the more recent seedings. Native forb species are present on portions of this tract where direct respreading of soil occurred but Canada thistle and field bindweed are the dominant forbs on the more recent reclamation. It is questionable if this tract will achieve the required diversity and seasonality revegetation success standards with continued management as hayland as this practice benefits Kentucky bluegrass. Western snowberry is growing on the site where it was directly respread. This direct respreading operation appears successful and other native grasses and forbs are present on the site, along with the ubiquitous introduced species.

The 2010 native grass seedings in Section 21 are successfully established. Warm season species, particularly switchgrass is more prevalent on the seeding located in the SE1/4 compared to the 2010 seeding located in the NE1/4, while cool season species are more prevalent on the seeding in the NE1/4.

Smooth brome and Canada thistle is abundant in portions of these sites and there is no evidence of any control efforts. The native forb component is represented by a few plants of many flowered aster and Missouri goldenrod. Introduced state listed noxious weeds are by far the dominant forb component.

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The reclaimed native grassland in the SE1/4 of Section 28 is well established with the seeded species. This area was seeded 2008 and 2009 and is being managed as hayland. Some alfalfa is invading the site along with other species such as Kentucky bluegrass but the desired seeded species are prevalent. Big and little bluestem have made regrowth since the tract was hayed. Few native forbs are present on this tract.

The northwestern portion of the native grassland in the N1/2 of Section 34 was inspected. The 2013 annual map shows that this tract was revegetated (initiated) from 1997 through the 2007. This tract of native grassland is located around a large reclaimed wetland complex and most of the tract is fairly level. This landscape makes it susceptible to invasive species, particularly smooth brome grass and Kentucky bluegrass. The seeded native species continue to be well represented on the more recent seedings while it appears smooth brome grass and Kentucky bluegrass are more prevalent on the older seedings, especially those that are topographically in a lower position on the landscape. Sideoats grama, big blue stem, switchgrass, western wheatgrass and green needlegrass were noted growing on the tract. Few desirable native forbs were noticed established on the tract. Alfalfa has invaded most of the native grass seedings and the tract is being managed as hayland. It does not appear that managing this tract as hayland is benefiting the native species over the invasive species.

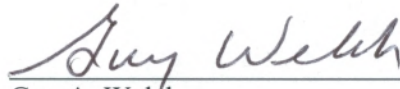
The shallow water zones around the reclaimed wetlands in Section 34 are supporting a dense stand of cattails and reed canary grass is prevalent in the wet meadow zone beyond the cattails. Open water is present in these wetland basins and the wetland complex was at spill elevation. The wetlands in Sections 28 and 33 are only a few years old but hydric vegetation is establishing. This includes cattails, bulrush, spikerush, willows and annual species such as barnyard grass. These wetlands are also holding water at a high elevation.

The reclaimed 5-row tree planting in Section 34 is becoming established and the trees and shrubs appear healthy. A few gaps are present in these rows where replanting is necessary. It appears that nearly all of the green ash and caragana trees that were planted survived, at least along the west end, the portion of the planting that was inspected. The buffalo berry establishment is variable as this species was absent in two rows at the west end of the planting but further east establishment success is much better and these plants were 4-6 feet tall and they looked very healthy where they have established. It appears that American plum was planted alternate with buffalo berry in a couple of rows towards the west end and this species was only a few feet tall and looked to have lower vigor compared to the other species that have established. Worms or disease may be the reason why this species is stunted or behind in establishment compared to the other species.

Numerous photographs were taken during this inspection and are on file with the Reclamation Division as is a GPS tracklog of the route traveled during this inspection.

WILDLIFE

Nine antelope were seen in Section 2 of BNCR-8602. Waterfowl were observed on the reclaimed wetlands.



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