



Public Service Commission

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April 7, 2010

Mr. Randy Crooke
Environmental Manager
Falkirk Mining Company
P.O. Box 1087
Underwood, ND 58576-1087

Dear Mr. Crooke:

The Reclamation Division has conducted a technical review of the Revision No. 19 application to Surface Coal Mining Permit NAFK-9503. The following items must be satisfactorily addressed before further action can be taken on this revision:

Section 1.1 – Introductory Information

1. Please complete the paragraph narrative on page 3 of the Schedule of Violations under Section 1.1.6 for the Falkirk Mine that describes the nature of NOV-0803. (BEB)
2. Since the Indian Head Mine operated by the Bellaire Corporation closed in 2004 and the mine is no longer listed in Section 1.3.2, please delete the listing for that mine in Section 1.1.6 of the permit. (SAS)

Section 1.2 – Legal Information

3. Please include a copy of the latest Certificate of Liability ACORD form in Section 1.2.5 so that when the endorsement to the policy is received and entered in the permit, the policy numbers will agree. (SAS)
4. The Endorsement (#013) attached to the February 2009 Certificate of Liability Insurance in Section 1.2.5 has the wrong policy number (RGE 5000177 vs. RGE5000177). Please review and correct. (SAS)

Section 1.3 – Business Entity/Compliance Information

5. Item #12 on page 2 of Section 1.3.6 indicates that the Holznagel farmstead has been purchased by Falkirk and the buildings have been removed. The Pit Layout and Facilities Map, Section 3.1.5, still shows the farmstead and a 500-foot setback. Please review and correct as appropriate. (SAS)

6. The Schafer farmstead that is located in the NE¼ of Section 6, T145N, R83W (item #19) is listed in Section 1.3.6, although the farmstead appears to be well outside of the permit boundary based on the legal description provided. Please review and revise if necessary or describe the rationale for including the farmstead in this permit section. (SAS)

Section 1.5 – Identification of Interests

7. Please review and, if necessary, update the listing of the Permit Area Surface and Coal Interests in Section 1.5.1. The Reclamation Division has been notified by Mr. Paul Azure that coal ownership interests for Tracts 63 and 73 are incorrectly listed or excluded in the newspaper notification. Any updates to this section must also be made to the Surface and Coal Ownership Map in Section 1.5.3. (BEB & SAS)

Section 2.2 – Description of Ground Water Hydrology

8. The second-to-last paragraph of Section 2.2.1 states that “*the surface water sources near the study area are some ephemeral streams.*” Please expand that sentence to include intermittent streams which have been identified by Falkirk and/or Falkirk Consultants within the permit (Section 36) and also near the permit area to the west (2008/2009 AVF Report). (BEB)
9. Please update the narrative at the bottom of page 1 of Section 2.2.1 in which it is stated that thirty seven (49) water supply wells have been identified in the study area. Please update the sentence to correct the typographical error and/or revise the sentence to provide current water supply well information within the study area. (BEB)
10. The narrative describing Quality of Ground Water in Section 2.2.3 describes dominant water types of the monitored hydrostratigraphic units in the Riverdale Field and information for the narrative is derived from, and provides reference to trilinear diagrams for the various monitored units, although the trilinear diagrams are not provided in the permit. We ask that you place or reinstate the referenced trilinear diagrams somewhere in Section 2.2. (BEB)
11. Narrative on the top of page 2 of Section 2.2.4 indicates that the stratigraphy and the potentiometric levels of each aquifer are illustrated in the Geologic Cross Sections Map of Section 2.2.9 and a link is provided, although potentiometric levels of the aquifers are not illustrated on the cross sectional map. Please review and edit the narrative or add the potentiometric information to the map, whichever Falkirk desires. (BEB)
12. Please recalculate the total number of monitoring wells listed at the bottom of the Ground Water Monitoring Schedule of Section 2.2.6. A total of five new wells (RP-310-1, 2 and RP-311-1, 2, 3) have been added to the Ground Water Monitoring Plan since the last revision to this section and the total of all wells presented in the Monitoring Schedule Summary should be 116, as opposed to 111 that is currently indicated at the bottom of the schedule. (BEB)
13. In an effort to coordinate and validate previously submitted ground water data with the Ground Water Monitoring Plan, we feel that this revision application provides Falkirk with an excellent opportunity to formally include the 344, 345, 346, 347, 348, 349, and 350-series of ground water monitoring wells in the Monitoring Schedule of Section 2.2.6 of the Ground Water Monitoring Plan for the Riverdale Field. Water level and quality information concerning the 344, 345, 346, and 347 series of monitoring wells has been submitted by Falkirk and received by the Reclamation Division since the 4th quarter of 2005, and water

level and quality information concerning the 348, 349, and 350 series of monitoring wells has been submitted by Falkirk and received by the Reclamation Division since the 1st quarter of 2008. However, none of these wells or information concerning these wells has been formally incorporated into the Ground Monitoring Plan. Please consider including these 7 nests of ground water monitoring wells in the Riverdale Ground Water Monitoring Plan with this revision application. (BEB)

14. Please add the NAFK-9503 permit boundary to both Section 2.2.21 and Section 2.2.22 maps. Historically, none of the maps in Section 2.2 have shown the NAFK-9503 permit boundary. Given the nature of the information presented on the maps, the Reclamation Division has agreed to this arrangement in the past. We now realize, however, that the permit boundary would be useful on the Current and Reclamation Monitoring Well Location Maps to easily identify which wells are located within the permit boundary. (WTG)
15. Please insert the location of active reclamation monitoring wells RP-310-1, 2, and RP-311-1, 2, 3 into the Reclamation Monitoring Wells Location Map of Section 2.2.22. (BEB)
16. The Current Monitoring Well Location Map of Section 2.2.21 and the Well Completion Reports of Section 2.2.18 both corroborate the location of reclamation monitoring wells RP-310-1 and RP-310-2 as being located within the W $\frac{1}{2}$ of Section 24, although the Location of Monitoring Wells table of Section 2.2.20a indicates the wells are located in the W $\frac{1}{2}$ of Section 25. Please review and update as necessary. (BEB)
17. It appears a total of five monitoring wells are missing from the Monitoring Well Information List of Section 2.2.16. Please include the information for active reclamation monitoring wells RP-311-3, RP-335-1, 2, and RP-336-1, 2 into the list. (BEB)
18. Please extend the Current Monitoring Wells Location Map of Section 2.2.21 one mile further north so that the location of active monitoring well 338-1 that is located in the SW $\frac{1}{4}$ of Section 20, T146N, R83W is able to be viewed on the map. (BEB)
19. The Location of Monitoring Wells table of Section 2.2.20a labels active monitoring wells 314-1, 2, 3, and 4 as being located in T145N, R83W, Section 5, although the Current Monitoring Wells Location Map of Section 2.2.21 depicts their location as being in T144N, R83W. Please review and update as necessary. (BEB)
20. Please compare locations for active monitoring well 333-1 on the Current Monitoring Wells Location Map of Section 2.2.21 and the Location of Monitoring Wells table of Section 2.2.20a for accuracy in describing the part-section location description and revise if necessary. (BEB)
21. The Location of Monitoring Wells table of Section 2.2.20a depicts the location of active monitoring wells 337-1, 2, 3 as being located in Section 5, T146N, R83W, although the Current Monitoring Wells Location Map of Section 2.2.21 depicts the location as being in Section 5, T145N, R83W. Please review and update as necessary. (BEB)
22. The location of the 339-series of monitoring wells is depicted in the Location of Monitoring Wells table of Section 2.2.20a as being located in Section 12 DAA but the Monitoring Well Location Map depicts the location as being in Section 12 ADD. Please review and revise as necessary. (BEB)

23. Based on our review, it appears that changes made to the 339-series of monitoring wells for Revision 19 may not have been required and that original information provided in the permit was correct. Review of the lithologic descriptions and screened intervals in the Well Completion Reports of Section 2.2.18 indicates that monitoring well 339-1 is screened in the Coal Lake Coulee bed, 339-2 is screened in the Tavis Creek bed, and 339-3 is screened in the C Sand. To further substantiate screened interval interpretation, please review the Baseline Potentiometric Data tables for the years 2003 and 2008 of Section 2.2.24 and compare water level data with screened interval information. Please review and update as necessary. (BEB)
24. In reviewing submitted water level and water quality data over the past several years, we agree with the screened interval changes made to the permit concerning reclamation monitoring wells RP-335-1, RP-335-2, RP-336-1 and RP-336-2, although issues still remain with these wells. Review of the Well Completion Report information that is provided in Section 2.2.18 of the permit indicates that the total depth of drilling, lithologic descriptions and well screen information provided in the well completion reports provides conflicting information with the changes made to these wells. According to the submitted well completion information, RP-335-1 is screened in the C Sand, RP-335-2 is screened in the base of spoils, RP-336-1 is screened in the C Sand, and RP-336-2 is screened in the base of spoils. Please review the completion reports for these monitoring wells and revise as necessary. Please check on the probability of these monitoring wells and the monitoring wells described in deficiency No. 24 above of having been mislabeled in the field at the time of well installation/construction. (BEB)

Section 2.3 – Description of Geology

25. Information provided in the second-to-last paragraph on page 1 of the Geology Narrative of the Riverdale Field in Section 2.3.1 references the permit area as being the Underwood Field. Please correct this typographical error to properly indicate that the narrative information references the Riverdale Field. (BEB)
26. The opening paragraph in the Site Specific Geology Narrative of Section 2.3.2 states that the permit area (Riverdale Permit) is located 7 miles south-southeast of Underwood, North Dakota. Please revise the typographical error in the narrative to indicate the correct permit location to be southwest of Underwood. (BEB)

Section 2.6 – Surface Water Information

27. Please update the Watershed Map in Section 2.6.4 to include all watershed boundary lines extending beyond the permit boundary approximately 1000 feet. (MSK)
28. Please include acreage and an identification number for all sub-watersheds on the Pre-Mining PHC Map in Section 2.6.5a, specifically (but not limited to) the sub-watershed in the SW $\frac{1}{4}$ of Section 34. Also, please keep the identification numbers consistent with the Post-Mining PHC Map in Section 2.6.5b. (MSK)

Section 2.8 – Soil Resources

29. Please review Section 2.8.3 and revise if necessary, the potential SPGM respread thickness boundary in the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 28 for drill hole RD08009C. According to our review of the laboratory data for this drill hole, the SPGM respread depth should be 48

inches, rather than 36 inches as shown on the respread depth map (four of the 16 five-foot sample intervals have an SAR greater than 20). (WTG)

Section 3.1 – Operation Plan-General

30. Please correct the years in the table of Section 3.1.1 that are located near the bottom of page 1 from “20010 and 20011-2016” to “2010 and 2011-2016”. (SAS)
31. Please label the guard shack on the Pit Layout and Facilities Map. (MSK)
32. The C. Swanson farmstead in the SW¼ of Section 28 is depicted on the Pit Layout and Facilities Map, Section 3.1.5, as not being mined through; however, Section 3.5.2 denotes this area as being inside of the topographic disturbance boundary. Please clarify plans for this area and update the appropriate maps for accuracy and consistency. (MSK)

Section 3.3 – Operations – Blasting

33. Some of the distances have been removed in Section 9 and other sections on the Blasting Map in Section 3.3.2. Please reinstate the distances for those areas where the distances have been removed or provide an explanation or justification for removing them. (MSK)

Section 3.5 – Operations – Transportation Facilities

34. Please outline the farmstead in the SW¼ of Section 28 in blue denoting the pre-mine topographic contours, similar to what was done around the cemetery. (MSK)
35. The depiction of power transmission lines have been removed from the Transportation Facilities Map in Section 3.5.2. Please show the power lines on the map. (MSK)

Section 3.6 – Surface Water Management

36. Pond P-R36-02 has been constructed and should be denoted as such on all applicable maps, including the Pit Layout and Facilities Map in Section 3.1.5 and the Surface Water Management in Section 3.6.1a. Also, Pond P-R36-2 was listed as being constructed in 2008 in Section 3.6.1 (Pond and Diversion Construction and Reclamation Schedule). Please update this table with accurate dates for all constructed ponds. (MSK)

Section 4.1 – Post-Mining Land Use and Revegetation

37. Page 2 of Section 4.1.1 and page 77 of Section 4.1.4 indicate that Eileen Zander has requested that no changes be made to post-mining land use from her original preference statement, but we were unable to find the original statement in Section 4.1.4. Please review and address. (SAS)
38. Please revise the area shown as where prime farmland will not be respread in the SE¼ of Section 27 on the Post-Mining Land Use Map of Section 4.1.2. Prime farmland was respread in the E½ of the SE¼ of Section 27 with Grade Approval R27A in an area shown as where prime farmland would not be respread. The Reclamation Division approval letter dated October 6, 2009, requested that the map be updated with the next permit revision. (WTG)

39. Please revise Post-Mining Land Use Map, Section 4.1.2, to show a perennial vegetation buffer zone around created Wetland W-NE26-01 and adjust the buffer zone around Wetland W-NW26-02 so that it encompasses the wetland basin. (GAW)
40. During the October 17, 2008, inspection, it was noted that the area to be reclaimed to native grassland in the SE¼ of Section 26 had been mistakenly seeded with the pre-cropland seed mixture and few native species were observed. Mr. Eckroth mentioned at that time that perhaps the native grassland that was to be reclaimed in Section 26 should be reclaimed elsewhere in the permit, given the topography of this area. The Reclamation Division believes that the area that is to be reclaimed to hayland in the NE¼ of Section 33 is more suited to native grassland than the area in the SE¼ of Section 26 (some of which has been respread to meet prime farmland requirements). Please consider swapping the post-mine land uses of these two areas. We realize that the surface owner of the NE¼ of Section 33 requested that his native grassland in the NE¼ of Section 33 be converted to cropland, but portions of the slopes along the drainage are too steep to accommodate this land use change. (GAW)
41. It appears that pre-mine wetland acreage that was located on Falkirk owned land in the N½ of the NW¼ of Section 28 is being reclaimed on privately owned land in the S½ of the NW¼ of Section 28. Please revise so that wetlands on Falkirk-owned lands are not replaced on privately owned property or provide a landowner preference statement from the private landowner agreeing to the wetland on his property. NDCC 38-14.1-24(2) (GAW)
42. On the Post-Mining Land Use Map in Section 4.1.2 the section line road corridor between Sections 22 and 27 is much wider than other nearby section line road corridors. Please explain or update as necessary. (MSK)
43. The yellow wetland buffer borders in the Post-Mining Land Use Map of Section 4.1.2 are extremely difficult to see. Please consider using a different color for those borders. (MSK)
44. A polygon denoting the location where prime topsoil will not be spread in Section 14 of the Post-Mining Land Use Map is partially located outside of the terrain modification boundary, and we have also noted that some reclaimed wetland areas are depicted on the same map as areas suitable for prime farmland prime soils respread. Please explain or correct. Also, Falkirk may wish to update the Post-Mine Land Use Map to depict the actual areas where prime farmland has been respread and projected reclaimed prime farmland landscape areas for areas not yet reclaimed. (MSK)

Section 4.2 – Reclamation – General

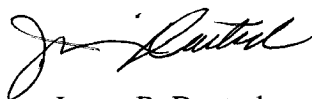
45. Narrative on page 7 of Section 4.2.1 now indicates that a swell factor of 10% rather than 8% will be used in the grading assumptions. Please describe or explain the laboratory testing, field observations or other basis for the proposed change being made to the swell factor determination. (SAS)
46. Please revise the Grading Sequence Map, Section 4.2.3, and the Reclamation Schedule, Section 4.2.2, narrative to limit variance areas to current permitted lands and retain past (historical) variance information on areas that have already been affected (narrative and map) even if the variance is no longer needed. It is not clear where variance areas A, B and C were located and variance areas G, F and portions of I and H were in effect but are being removed

from the map and the language discussing these variance areas is being removed or changed in the permit. Also, the new language discussing the location of Variance Area H is referencing Sections 22, 23 and 24 but Area H is not located within any of these sections. The legend on the Grading Sequence Map, Section 4.2.3, is confusing in that it is not clear what the difference is between blue hatched areas labeled "variance from NDAC Section 69-05.2-21-01(2) and the yellow outlined and hatched area labeled "180 day variance area" as both refer to the 180-day rough grading requirement. We assume the blue cross-hatched area refers to 3-year seeding requirement NDCC 38-14.1-24. (GAW)

47. The Post-Mining Contour Map in Section 4.2.6b shows that there are grade changes within the C. Swanson Farmstead in Section 28 even though this area will not be mined through. Please explain or update if necessary. (MSK)
48. The 2nd full paragraph on page 6 of Section 4.2.1 is being deleted, but it should be reinstated unless Falkirk provides a reasonable explanation for deleting the narrative. (MSK)
49. A review of the Post-Mine Topography Map indicates that areas within Section 21, the S½ of Section 22, and the SW¼ of Section 27 appear to be very flat which may not drain and be more susceptible to differential settling. The planned post-mine gradient of these areas is less than 1% slope. Please revise the plan to increase the post-mining gradient in these areas. (MSK)
50. The overall slope in the SW¼ of Section 33 appears quite a bit higher as proposed on the Post-Mining Topographic Map compared to the pre-mine topography. Also, there are areas within several hundred feet of each other that are both higher and lower in elevation than the pre-mine topography. Additional grading is needed in this area to reduce slopes. (JRD)

Also, we will be scheduling the informal conference on the application that has been requested by Mr. Paul Azure once the public comment period ends on April 19th. If you have any questions, please contact this office.

Sincerely,



James R. Deutsch
Director
Reclamation Division