STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Coyote Creek Mining Company, L.L.C. **Case No. RC-13-850**
Permit NACC-1302
Application

April 14, 2015

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

APPEARANCES

Commissioners Julie Fedorchak, Randy Christmann and Brian P. Kalk.

Derrick Braaten, Attorney-at-Law, 109 North Fourth Street, Suite 100, Bismarck, North Dakota 58501, on behalf of the Casey Voigt.

Brian R. Bjella, Attorney-at-Law, 100 West Broadway, Suite 250, Bismarck, North Dakota 58501, on behalf of Coyote Creek Mining Company, L.L.C.

Illona Jeffcoat-Sacco, General Counsel, Public Service Commission, State Capitol, Bismarck, North Dakota 58505, on behalf of the Public Service Commission.

Janet Seaworth, Administrative Law Judge, Office of Administrative Hearings, 1701 North Ninth Street, Bismarck, North Dakota 58501-1882, as Procedural Hearing Officer on December 19, 2014.

Wade Mann, Administrative Law Judge, Office of Administrative Hearings, 1701 North Ninth Street, Bismarck, North Dakota 58501-1882, as Procedural Hearing Officer on December 23, 2014 and January 2, 2015.

PRELIMINARY STATEMENT

On November 1, 2013, Coyote Creek Mining Company, L.L.C. (CCMC) applied for Surface Coal Mining Permit No. NACC-1302 for a new mine approximately ten miles southwest of Beulah, North Dakota. CCMC is a subsidiary of The North American Coal Corporation (NACCO) which is also the parent company of The Coteau Properties Company (Coteau) and The Falkirk Mining Company (Falkirk) that have been operating surface coal mines in North Dakota since the late 1970's. CCMC's permit application covers 8,091.511 acres of land located in all or portions Sections 6 and 7, T142N, R88W; Sections 1, 2, 3, 11, and 12, T142N, R89W; Sections 19, 30, and 31, T143N, R88W; and Sections 23, 24, 25, 26, 27, 34, 35, and 36, T143N, R89W, all in Mercer County.

On October 22, 2014, the Public Service Commission conditionally approved Permit No. NACC-1302. The Commission's conditional approval of the permit was subject to the right of any person with an interest who is or may be adversely affected to request a formal hearing on the decision.

On November 24, 2014, the Commission received a request for a Formal Hearing in the matter from Mr. Casey Voigt, a landowner in the permit area. In his written request, Mr. Voigt expressed concerns with the size of the permit area, the reclamation practices that would be used on land to be mined, and his loss in agricultural production due to the mining activities.

On November 25, 2014, the Commission issued a Notice of Formal Hearing scheduling the hearing for December 19, 2014. The hearing notice was served on the parties and it was also published in the Beulah Beacon, Hazen Star and Bismarck Tribune on December 4 and 11, 2014.

The hearing began on December 19, 2014 as scheduled and was continued on December 23, 2014 and January 2, 2015. The proceeding was further continued to allow the attorneys for Mr. Voigt and CCMC to submit written closing arguments and recommended orders following receipt of the hearing transcript.

Findings of Fact

1. The Commission issued Surface Coal Mining Permit No. NACC-1302 to allow CCMC to conduct surface coal mining and reclamation operations at the Coyote Creek Mine, a new mine that will supply lignite coal to the Coyote Power Station beginning in May 2016. Mr. Casey Voigt and his wife, Julie, either own or lease much of the land in the eastern half of the 8,092-acre permit area and these permitted lands encompass much of the Voigt family's ranching operation. The Voigt land includes native grassland that is used for livestock grazing, cropland primarily used for hay production, and an occupied farmstead where the family resides.

2. Mr. Voigt testified that he wants his land restored to the pre-mine conditions after mining and reclamation. He expressed concerns about native grass establishment on reclaimed lands, the nutrient value of the forage produced on reclaimed lands, the loss of future agricultural production, loss of mature trees, methods and equipment that will be used for spoil handling and land re-contouring after mining, compaction and limited rooting depth in soils that are replaced on reclaimed lands, road closures and mine signage. Mr. Voigt also discussed some issues about the coal lease he negotiated and entered into with CCMC.

3. Mr. Voigt further testified that he is familiar with coal mining operations and reclamation practices since he had worked at the nearby Beulah Mine for 12 years and he has also been haying reclaimed land at that mine.

4. Upon questioning, Mr. Voigt testified he wasn't trying to stop the progress of mining but he was "just trying to change the process and the way it's done".

Native Grassland Seed Mixtures and Diversity Standards

5. Subsection 17 of N.D.C.C. Section 38-14.1-24 covering revegetation success performance standards for native grassland requires that "a diverse, effective, and permanent vegetative cover must be established of the same seasonal variety native to the area to be affected and capable of self-regeneration, plant succession, and at least equal in extent of cover and productivity to the natural vegetation of the area." The Commission has adopted Standards for Evaluation of Revegetation Success, Exhibit CV-14, which provides more details and recommended methods for proving reclamation success on all agricultural lands and other land uses.

6. Mr. Voigt testified about his concerns with the native grasses that will be established on his reclaimed lands and that after mining, he wants his land restored to its pre-mine conditions.

7. Mr. Mark Anderson, a plant ecologist and conservationist formerly with USDA's Natural Resources Conservation Service and who now works for a consulting firm, testified about native grassland reclamation practices on behalf of Mr. Voigt. Mr. Anderson expressed concerns with the amount of tame grass species that are allowed on reclaimed native grasslands under the Commission's revegetation success standards, since he believes tame grass species will have lower production compared to native species. Mr. Anderson testified that he is also concerned that up to 35% of the species on reclaimed land could be non-native species and still meet the Commission's native grassland revegetation standards.

8. Mr. Anderson testified that Mr. Voigt's native grasslands are high quality and that Kentucky bluegrass, an invasive tame species, represents only 3% of the total production according to the pre-mine vegetation sampling that was conducted by CCMC and data that is included in the permit application.

9. Mr. Anderson testified that diversity on reclaimed native grassland is important for healthy and productive rangeland. He testified that in addition to grasses, forb species are also important on native grasslands and that some of these species add nitrogen to the soil. He also had concerns about noxious weeds on reclaimed lands and the quality of forage on reclaimed land. Mr. Anderson testified that Mr. Voigt wants his native grassland restored to the conditions that are present before mining and that Mr. Voigt does not want 60% Kentucky bluegrass after mining. Mr. Anderson also testified he does not believe CCMC will meet the performance standards of subsection 17 of North Dakota Century Code Section 38-14.1-24. Upon cross examination, Mr. Anderson also agreed that some of Mr. Voigt's native grassland in its current pre-mine condition would not meet the Commission's diversity requirement.

10. Mr. Anderson recommended that CCMC be required to restore 95% of the native species that are present on Mr. Voigt's pre-mine native grassland.

11. The native grassland seed mixture in Section 4.2.2 of Permit NACC-1302 shows that nine species of native warm and cool season grasses will be planted on reclaimed native grassland at the Coyote Creek Mine. This seed mixture also shows that a small percentage of forb species will be included in the mix and that weeds will be sprayed with herbicides as needed. No introduced species are included in the seed mix. In addition, plans for replacing and planting trees and shrubs are included in Sections 4.1 and 4.2.3 of the permit.

12. Ms. Sarah Flath, a range scientist and Senior Environmental Specialist for CCMC, testified that only native species will be seeded on reclaimed native grassland at the Coyote Creek Mine and that the seed mix was developed in consultation with the Natural Resources Conservation Service (NRCS) publications, data from the local NRCS office, and conversations with representatives with the United States Department of Agriculture Plant Material Center in Bismarck.

13. Ms. Flath stated CCMC will take measures to minimize the establishment of introduced grass species on the reclaimed native grassland. This includes delaying the seeding of native grassland a year after the soil has been respread so that introduced grass species that may have germinated from the seed present in the existing topsoil can be sprayed and eliminated. In addition, Ms. Flath testified that reclaimed native grassland will be closely monitored for introduced grasses and, if introduced grasses are observed after the first year or two, they can be controlled through herbicide application.

14. Ms. Flath also testified about baseline vegetation data that was collected for Permit NACC-1302 and CCMC plans to establish undisturbed reference areas that are representative of undisturbed native grassland in the permit area. Reference areas will be used to climatically adjust revegetation success standards that will be used to prove reclamation success at the time of final bond release. However, the plans in Permit NACC-1302 for selecting reference areas do not indicate that Mr. Voigt would be consulted when selecting the undisturbed areas that will be used to represent his native grasslands.

15. Requirements for diversity and seasonality in the Commission's Standards for Evaluation of Revegetation success, Exhibit CV-14, begin near the middle of page II-D-10. These provisions require:

> . . . that at least five native grass species are present on the reclaimed tract and that native plant species comprise at least 65% of the total composition by cover or weight. The relative composition of all warm season species must be at least 15%. Four native grass species must each contribute at least 3% relative live basal cover or at least 5% relative

composition by weight during the years sampling data is used for final bond release purposes.

16. Another provision in the Commission's revegetation success standards beginning near the bottom of page II-D-10 of Exhibit CV-14 allows the counting of Kentucky bluegrass to meet the native species composition requirement, but only up to its percent composition that is present on the approved reference area(s) located on undisturbed lands. Therefore, if Kentucky bluegrass represents only 3% of the production on Mr. Voigt's pre-mine native grassland, the reclaimed native grassland will not be allowed to have up to 60% Kentucky bluegrass as implied by Mr. Anderson's testimony. If the reference areas have 3% Kentucky bluegrass based on live basal cover at the time of final bond release, then only 3% Kentucky bluegrass on reclaimed native grassland can count towards meeting the total native species composition requirement. After reading the provision on page II-D-10 of the success standards about allowing Kentucky bluegrass on reclaimed native grassland, Mr. Anderson testified that "Mr. Voigt is fine with that."

17. While Subsection 17 of N.D.C.C. 38-14.1-24 requires mine operators to establish a diverse, effective and permanent cover on reclaimed native grassland, it does not require that the vegetation be "restored" to the exact conditions that were present before mining. However, it is reasonable for the Commission to request that CCMC consult with Mr. Voigt when selecting the undisturbed reference areas that will be used for proving reclamation success on his reclaimed native grasslands and for the management practices that will be used on those reference areas.

Productivity of Reclaimed Lands

18. Mr. Voigt testified he's heard concerns about the productivity of reclaimed lands from others, especially regarding cropland at Coteau's mine. He also stated he had concerns about the nutrient levels in grasses grown on reclaimed lands.

19. Mr. Anderson also expressed concerns about the productivity of reclaimed lands, especially on reclaimed native grasslands.

20. Subsection 17 of N.D.C.C. 38-14.1-24, requires mining companies to: "Restore lands affected by the surface coal mining operation which have been designated for postmining agricultural purposes to the level of productivity equal to or greater, under equivalent management practices, than nonmined agricultural lands of similar soil types in the surrounding area." Mining companies are required to demonstrate that the agricultural productivity of reclaimed lands is equal to or greater than the pre-mine level at the time of final bond release. Also, final bond release cannot be granted by the Commission until a minimum ten-year revegetation responsibility period after the date of initial seeding on the reclaimed lands has expired as required by Subsection 18 of N.D.C.C. 38-14.1-24.

21. Mr. Donn Steffen, Engineering and Environmental Manager for CCMC, testified about the productivity of reclaimed cropland, native grassland and hayland/tame pastureland at NACCO's former Indian Head Mine, a few miles north of the proposed Coyote Creek Mine. He testified that all of the mined lands that were permitted at the Indian Head Mine have received final bond release and that the required productivity standards were exceeded. Exhibit CC-2 contains summary data showing that the required productivity standards for this mine were exceeded when final bond releases were requested.

22. Ms. Flath testified about the yields from reclaimed cropland, rangeland (native grassland) and hayland yields that have received final bond release at Coteau's mine north of Beulah. Exhibit CC-3 contains summary data showing that the required productivity standards were exceeded for these final bond release tracts.

23. Ms. Flath also testified about an unscientific livestock weight gain study on reclaimed land at the Coteau mine compared to nearby undisturbed lands. Data from this study shows the average daily weight gain on reclaimed lands was slightly higher than that for the undisturbed grasslands. Exhibit CC-5 contains a summary of this data.

24. Mr. Jim Deutsch, director of the Reclamation Division, testified about the permit review process and the written findings that are part of the permit approval document. He stated that staff found that reclamation can be accomplished using the methods proposed by CCMC.

25. Mr. Voigt also stated that he believes the minimal amount of final bond release at coal mines, which he thought is about 2,000 acres, shows problems with reclaimed lands.

26. Mr. Deutsch also testified regarding the amount of reclaimed lands that have received final bond release in North Dakota. He stated that 20,800 acres of land have been released that were permitted after the federal reclamation act (SMCRA) was enacted. Exhibit PSC-7 shows that the final bond release acreage includes 4,046 acres of reclaimed cropland, 4,737 acres of reclaimed native grassland, and 1,684 acres of reclaimed hayland. Other lands that have received final bond release include undisturbed lands that had been permitted and mined lands that were reclaimed for industrial purposes, recreation, wildlife, woodlands and other land uses.

Spoil Grading and Soils Replaced on Reclaimed Lands

27. Mr. Voigt testified that he wants subsoil depths on reclaimed land that are consistent with the premine conditions, that overburden or spoil be put back in shallow lifts, that excess compaction should be avoided when handling the overburden, and soil experts should provide input in the reclamation process.

28. Mr. Anderson also testified he has concerns about soil compaction on reclaimed land.

29. Dr. Steven Merrill, a retired soil scientist who worked at the USDA Agricultural Research Service in Mandan, ND, testified about reclamation research in which he was involved in the 1970's and 1980's at the Indian Head and Glenharold Mines. He said the study results were used by the Commission to establish soil replacement standards in the reclamation rules. Dr. Merrill testified that he also participated in a follow-up study on the same research plots in the early 2000's and found that soil was functioning much better at that time compared to the late 1970's and 1980's and the overall soil health had improved over time at these two sites.

30. Dr. Merrill recommended that a soil scientist evaluate the soils on reclaimed land after four years following reclamation to check a number of soil health factors including stability, compaction, pH, salinity, root penetration and various aspects of soil biota. He said the top one foot of soil should be looked at more closely and this includes checking the organic carbon, microbial biomass carbon, infiltration, soil aggregate stability, and soil respiration. Dr. Merrill also recommended growing deep rooted crops on reclaimed lands such as sunflowers and safflower that will go to a depth of about six feet and to also use deep tillage if necessary to alleviate compaction. He recommended carrying out additional soil tests if problems arise. Commission rules do not require the sampling and testing of soils that are replaced on reclaimed lands for these parameters.

31. Mr. Steffen testified that he believes compaction on reclaimed soils is an isolated problem and that it can be alleviated by scarifying or ripping with blades or dozers.

32. Mr. Voigt also expressed concern that reclamation standards generally require 12 inches of topsoil and 36 inches of subsoil, while native grasses currently have a 78-inch rooting depth.

33. Ms. Flath testified that pursuant to Commission rules (that are based on the reclamation research discussed by Dr. Merrill), between 24 and 48 inches of suitable plant growth material (topsoil plus subsoil) must be respread depending on the properties of the mine spoil. She further stated that studies prepared by CCMC show that pre-mine topsoil and subsoil thicknesses on Mr. Voigt's land only average a total of 32 inches in depth, and that in order to achieve the required 48-inch total respread thickness, additional soil material of equivalent quality will have to be salvaged from between five and ten feet below surface to supplement Mr. Voigt's subsoil.

34. Plans for saving, storing and replacing the available topsoil and subsoil from lands to be disturbed by the proposed mining activities are described in Section 3.1.1.1 of Permit NACC-1302. These plans do not include provisions to test for compaction after the soil materials are replaced, nor are there any plans for alleviating soil compaction other than working the surface after the topsoil is replaced. Soils that have excessive compaction may not produce as well as they should and areas of excessive

compaction on reclaimed land should be identified within a few years after soil respreading is completed.

35. It is reasonable to request a mining company to conduct testing to determine if soils replaced on reclaimed lands are compacted and, if excessive compaction is present, to require actions to alleviate the compaction.

County Road Closures

36. Mr. Voigt testified that he had concerns about county road closures but did not provide any specifics about his issues.

37. The closure of county roads in the vicinity of the Coyote Creek Mine is under the jurisdiction of the Mercer County Commission, not the Public Service Commission.

Mine Signage

38. Mr. Voigt testified that he had concerns about the signs CCMC had placed at entrances to the permit area. He was particularly concerned about the "No Trespassing" markings on the mine entrance signs that to Mr. Voigt implied he could not go onto his own land.

39. The placement of mine entrance signs is required by subsection 3 of N.D. Admin. Code Section 69-05.2-13-04, but this rule does not require a "No Trespassing" statement on the signs.

Coal Lease

41. Mr. Voigt testified that he executed a coal lease in December 2010 that gives CCMC the right to mine his land and that he was represented by an attorney during the lease negotiations. Mr. Voigt further expressed concerns regarding certain leasing practices of CCMC and certain terms and conditions of the lease.

42. Mr. Jim Melchior, President of CCMC, testified about the coal lease that was executed by Mr. Voigt in December 2010 and about provisions in the lease for compensating Mr. Voigt for his loss of agricultural production due to mining activities.

43. While copies of coal leases must be included in mining permits to show the right to mine, coal leasing terms, conditions and practices are not under the jurisdiction of the Public Service Commission.

Alluvial Valley Floors

44. Although Mr. Voigt did not express any concerns about alluvial valley floors (AVFs) in his November 24th request for formal hearing, much of the testimony at the

hearing was about two AVF studies that were conducted for areas along Coyote Creek, a stream located in the eastern portion of the area covered by Permit NACC-1302. The studies were conducted to determine if segments of this creek were considered an "alluvial valley floor" as defined by North Dakota's reclamation law and the federal reclamation act.

45. The federal reclamation law, Section 701(1) of Public Law 95-87, and Subsection 1 of N.D.C.C. Section 38-14.1-02 define 'alluvial valley floors' as follows:

> "Alluvial valley floors" means the unconsolidated stream-laid deposits holding streams where water availability is sufficient for subirrigation or flood irrigation agricultural activities but does not include upland areas which are generally overlain by a thin veneer of colluvial deposits composed chiefly of sediment from sheet erosion, deposits by unconcentrated runoff or slope wash, together with talus, other mass movement accumulation, and windblown deposits.

46. The federal regulations, 30 CFR 701.5, and Subsection 3 of N.D. Admin. Code Section 69-05.2-01-02 define 'agricultural activities' as:

> "Agricultural activities" means, with respect to alluvial valley floors, the use of any tract of land for the production of animal or vegetable life, where the use is enhanced or facilitated by subirrigation or flood irrigation associated with alluvial valley floors. These uses include the pasturing, grazing, or watering of livestock, and the cropping, cultivation, or harvesting of plants whose production is aided by the availability of water from subirrigation or flood irrigation. Those uses do not include agricultural practices which do not benefit from the availability of water from subirrigation or flood irrigation.

47. Subsection 2 of N.D. Admin. Code Section 69-05.2-08-13 requires the use of available data and, if necessary, an appropriate combination of studies adapted to the site-specific conditions to determine whether or not an AVF is present. An area must be identified as an AVF if:

1) Unconsolidated streamlaid deposits holding streams are present, and

2) There is sufficient water to support agricultural activities as shown by;
   (a) the existence of flood irrigation in the area or its historical use,
   (b) the capability to be flood-irrigated, based on streamflow water yield, soils, water quality, and topography; or
   (c) subirrigation of the lands from the ground water system of the valley floor.

48. Areas identified as AVFs are given additional protections under the reclamation law and rules, including protecting the essential hydrologic functions of the AVF. Also, in many instances, mining operations cannot interrupt farming activities on an AVF.

49. The federal Office of Surface Mining (OSM) also prepared draft AVF Identification and Study Guidelines in 1983, Exhibit CV-15, to assist regulatory authorities and mining companies in the identification of AVFs. Page II-1 of this document states that: "The ultimate goal of alluvial valley floor identification investigations is to identify stream valleys which have agricultural importance and where that importance is derived from the water available in those valleys. Stream valleys which do not have any agricultural importance or whose importance is not related to the greater water availability of the valleys are not alluvial valley floors." (*emphasis in original*)

50. In 1985, OSM issued a document with draft reconnaissance maps to assist in identifying AVFs in west-central North Dakota, Exhibit CV-2. A map in this document identified some areas along Coyote Creek as "potential" AVFs, including some of Mr. Voigt's hayfields.

51. A pre-application AVF study was prepared by the Dakota Westmoreland Corporation (DWC) in 2009 prior to DWC's submittal of a revision application to add additional areas to a mining permit for its Beulah Mine. A portion of that mine is located just northeast of the Coyote Creek Mine. DWC's AVF study report is Exhibit CV-3. A second AVF study was conducted by CCMC in 2013 for an additional segment of Coyote Creek and other downstream areas including a segment of the Knife River. The CCMC study report is Exhibit CV-5.

Unconsolidated Streamlaid Deposits for an AVF

52. Permit NACC-1302 identifies Coyote Creek as a perennial stream for the portion that is within and adjacent to the permit area. It contains unconsolidated streamlaid deposits, otherwise referred to as alluvium. Coyote Creek meets the geomorphic criteria for being considered an AVF.

Sufficient Water for Flood Irrigation for an AVF

53. The DWC and CCMC AVF studies found that no artificial flood irrigation was present in the areas studied along Coyote Creek. Discussion that begins near the bottom of Page 25 of DWC's 2009 AVF study report, Exhibit CV-3, states that the NRCS office in Mercer County was contacted about irrigation in Mercer County and the local office personnel reported they were not aware of any surface irrigation systems on Coyote Creek or other such stream valleys to the south of the Knife River. Section 2.2.1 of the permit states that, except for snowmelt and extreme precipitation events, flow and surface water availability in the channel is very limited. The DWC study also

indicates that natural flooding is rare along Coyote Creek and is only likely to occur during more extreme runoff events.

Flood Irrigation Potential for an AVF

54. Page 26 of DWC's 2009 AVF study report, Exhibit CV-5, discusses the potential for flood irrigation along Coyote Creek. The report states that placing a dam on the creek or pumping water to a storage facility would be needed to provide enough water for irrigating cropland. However, neither option was likely due to the lack of areas for storing the water, and the expense. As previously noted, artificial flood irrigation by diverting stream flows is not a common practice in Mercer County and surface water flows in Coyote Creek are very low most of the time. The potential for flood irrigation along Coyote Creek is very low. Also, the water quality in Coyote Creek is marginally suitable for limited or restricted irrigation based on salinity (electrical conductivity) information provided on Page 27 in the DWC 2009 AVF Report, Exhibit CV#3, and the related information provided on Pages 14 and 15 of the CCMC 2013 AVF Report, Exhibit CV#5.

Subirrigation

55. Mr. Charles Norris, a geologist/hydrologist with Geohydro, Inc. of Denver, CO, testified about the AVF determinations associated with Permit NACC-1302. Mr. Norris testified about his past consulting work that involved water issues related to surface mining and, more specifically, his work on AVF issues at three western mines including the proposed South Heart Mine in North Dakota. Mr. Norris said he believes the AVF section of the permit is deficient since enough data was not provided for the AVF determinations. He testified that the draft AVF reconnaissance study by the federal Office of Surface Mining (OSM) shows some areas along Coyote Creek as being subirrigated and likely an AVF. Mr. Norris said that if subirrigation occurs and hay production is enhanced in that area, such an area would be considered an AVF.

56. Mr. Norris testified that pre-application AVF studies and data requirements vary from state to state and from mine to mine depending on the site specific conditions. However, he believed that more data should have been collected for the Coyote Creek AVF determination, such as data from installing ground water monitoring wells to obtain measurements for water level profiles and daily water level changes to determine if subirrigation occurs along the creek.

57. Mr. Norris disagreed with the AVF determinations made by Commission staff that areas along Coyote Creek through Mr. Voigt's property are not an AVF. He especially disagreed about staff's finding that subirrigation does not occur along Coyote Creek.

58. Mr. Norris testified he never visited the site but, he believes subirrigation occurs along Coyote Creek and enhances the production of alfalfa on Mr. Voigt's hay field located on the Coyote Creek alluvium.

59. Mr. Voigt also testified about his hay yields in lowland fields along Coyote Creek and others in upland areas. Exhibit CV-7 contains those yield numbers for the past several years. He also testified that the water level in his wells near Coyote Creek are 15 feet and 17 feet from the surface, but he had been told that alfalfa roots will go down to 20 feet.

60. Dr. David Bickel, consultant and former hydrologist/geologist with the Reclamation Division, testified about AVF evaluation reports that he has prepared as a consultant, including one for CCMC. Dr. Bickel also testified about his experience in reviewing requests for AVF determinations, his use of the OSM AVF guidance documents, and writing related permit findings while employed at the Public Service Commission. Since retiring from the Commission, Dr. Bickel said he has prepared five AVF evaluation reports that have been reviewed and approved by the Reclamation Division.

61. Dr. Bickel said AVF evaluation reports are prepared well before mining since additional data may need to be obtained for making an AVF determination. He testified that adequate data was available to make the AVF determinations in the two reports that involved areas along Coyote Creek.

62. Dr. Bickel testified that he had reviewed the 2009 AVF evaluation report by Dakota Westmoreland Corporation for its nearby Beulah Mine and that study area included two of Mr. Voigt's hayfields in Section 31 along Coyote Creek. He agreed with the Reclamation Division's determination that no AVF's were present in the study area. Dr. Bickel testified he found no evidence of significant subirrigation during his investigation based on the vegetation and soil properties in the areas and on data from groundwater wells.

63. Dr. Bickel testified that he also prepared an AVF evaluation report for CCMC covering the portion of Coyote Creek that is downstream of Mr. Voigt's land and part of the Knife River. As the result of his study he also determined that no AVFs were present and the Reclamation Division agreed with his determination.

64. Dr. Bickel testified that any subirrigation along Coyote Creek was limited to very small areas adjacent to the stream bed and that these areas were only a few feet wide. He also said he had reviewed alfalfa production in Mr. Voigt's hayfields. While the water table was 8 to 10 feet below the surface in late summer and that some of the deep rooted plants such as alfalfa would reach it, Dr. Bickel testified that no subirrigation of significance was noted.

65. Dr. Bickel further testified that soils along Coyote Creek are classified as a "Straw" soil type and that soil type is not considered a subirrigated soil by the Natural Resources Conservation Service. He also said he believed that having groundwater monitoring well data with daily water level fluctuations was not necessary for the Coyote

Creek AVF determinations because sufficient data was otherwise available to make the AVF determinations.

66. Mr. Dean Moos, assistant director of the Reclamation Division and a registered professional soil classifier in North Dakota, testified that he participated in the 2009 AVF field review of areas along Coyote Creek and he visually examined the soil profiles at several locations to verify that the soil types along Coyote Creek were correctly mapped as "Straw". He said that Straw soils are a floodplain soil developed in stream-laid deposits and they are highly productive, high in organic matter, and make good cropland. He also said that the Straw soil is designated as a 'prime farmland' soil by the NRCS. Mr. Moos further testified that the depth to groundwater for a Straw soil is greater than 80 inches according to the NRCS, indicating the soil is not subirrigated.

67. Dr. Bickel also testified that the main reason AVF requirements are included in the federal reclamation act is to protect agriculture production along streams in the more arid regions of the United States where the production of hay and other crops along streams is essential to livestock production and other agricultural activities. While the AVF requirements apply to western North Dakota since this part of the State is west of the 100th meridian west longitude, he said that a classic area is along the Powder River (located further west in Montana and Wyoming). Dr. Bickel further testified that "regional climate in west central North Dakota enables areas, other than stream floodplains, to produce hay crops, including alfalfa, and thus regional livestock production is not dependent on stream valleys for hay production and other feed as is often the case in arid areas further to the west."

68. Ms. Flath testified that the expected alfalfa production on Casey Voigt's hayland in the mining permit area based on the pre-mine soil map units and the NRCS expected yields would be 75% higher on the lowland fields compared to the upland fields. She further testified that Exhibit CV-7, with yield values for Voigt lowland and upland hayfields, shows that the lowland hayfields averaged only 47% higher compared to the upland hayfields. In addition, during the relatively dry year of 2012, she said the production on the lowland fields was considerably less than the other five years. Ms. Flath testified if the lowland fields had received supplemental moisture from subirrigation separate from precipitation, the production should not have dropped off nearly as much as it did. She also noted that the yields of the first alfalfa cuttings in 2013 and 2014 from the uplands fields exceeded that of the lowland fields.

69. Mr. Bruce Beechie, geologist/hydrologist with the Reclamation Division, testified about the AVF review process used by Commission staff and the finding that no AVF exists along Coyote Creek. He said staff's field review that was conducted in 2009 for the Dakota Westmoreland permit revision focused on Mr. Voigt's field in Section 19 and the northern part of Section 30 along Coyote Creek since it was the most predominant tract of cropland along the creek.

70. Mr. Beechie testified that he is familiar with and uses OSM's AVF guidance documents and AVF reconnaissance maps of west-central North Dakota. He said that infrared photos were used by OSM to identify areas that are "potential" AVF's in the reconnaissance maps for west central North Dakota and that the OSM maps were used when he reviewed the AVF study reports that covered areas along Coyote Creek.

71. Mr. Beechie testified about the ground water level information along Coyote Creek that was available from the Oliver/Mercer Geologic and Water Resources Report (published by the North Dakota State Water Commission) and the water levels in wells near Mr. Voigt's home. The reported depths to the water table varied from 15 to 20 feet below surface.

72. OSM's AVF Study Guidelines, Exhibit CV-15, contains Table B-4 on page B-19 that lists a water extraction depth for alfalfa of five feet (or 60 inches). Elsewhere in that guideline, statements are included that some alfalfa roots can go much deeper than five feet. However, page C-11 of that guideline includes a statement that "subirrigation may provide enough water to maintain alfalfa but not enough to enhance its production." None of the evidence presented at the hearing indicates that subirrigation significantly enhances hay production on Mr. Voigt's fields along Coyote Creek. The overall higher hay production from those fields compared to his upland hayfields is due to the inherent high productivity of the Straw soils, which the NRCS classified as not subirrigated.

73. Mr. Beechie further testified that he is very comfortable with the negative AVF determinations that have been made for areas along Coyote Creek and that a positive AVF determination would have been indefensible.

OSM Infrared Photo Used to Identify 'Potential' AVFs

74. Late-filed Exhibit CV-18 is a copy of the infrared photo taken on September 8, 1978 that OSM used to identify potential AVF's along Coyote Creek that includes Mr. Voigt's hayfields. OSM's AVF Study Guidelines, Exhibit CV-15, states on page C-40 that red hues on infrared photos can indicate vegetation which may be subirrigated, but it is possible that the plant water could have been from another source. While some reddish colors are evident immediately adjacent to Coyote Creek and in a few nearby areas, there is very little reddish colors in the larger fields along Coyote Creek currently being hayed by Mr. Voigt. However, reddish colors are also present in non-irrigated upland fields on the photo about one mile southeast of Mr. Voigt's farmstead. Since the reddish color is also found on upland areas, there is no certainty that reddish color in a few areas along Coyote Creek represents water that was supplied to plants by subirrigation. The reddish colors in the uplands areas about a mile away from Coyote Creek were likely due to moisture in plants that followed a late summer rain event. The moisture in plants along Coyote Creek may have also been the result of a late summer rain, not subirrigation as Mr. Norris asserted in his affidavit regarding late filed Exhibit CV-18.

75. Mr. Norris also presented a schematic drawing, Exhibit CV-6, showing the saturated boundary, or water table, becoming closer to the ground surface as you move away from a creek or stream. He testified this would mean more water could be available for subirrigation as you move back from the creek channel. Upon cross examination, Mr. Norris testified that data had not been collected to show that Exhibit CV-6 actually represents the conditions along Coyote Creek.

76. The OSM infrared photo that includes Coyote Creek, late-filed Exhibit CV-18, does not depict any red colors on alluvium some distance away from Coyote Creek as would have been by hypothesized by Mr. Norris's schematic drawing of an Alluvial Flood Plain, Exhibit CV-6. That drawing indicated the water table would be much closer to the ground surface as you move away from a stream towards the upland, meaning there is a higher potential for subirrigation in those areas. If subirrigation was occurring along Coyote Creek as hypothesized by Exhibit CV-6, reddish colors should have been present in parts of the alluvium hayfields furthest from the creek, but this is not the case.

Proposed Mining Disturbances along Coyote Creek

77. Ms. Flath testified that none of Mr. Voigt's hayfields on alluvium along Coyote Creek will be disturbed by Coyote Creek's proposed mining activities.

78. Mr. Beechie testified that the valley floor of Coyote Creek is not going to be mined as proposed by CCMC and that the closest coal seam to be mined is at an elevation that averages 75 feet higher than the Coyote Creek valley floor. He said the only mine activities that will go across the valley floor are two mine roads.

79. No evidence was presented that the mining activities just west of Coyote Creek as proposed by CCMC will significantly impact the prevailing hydrologic balance along that creek.

Other Public Testimony

80. People attending the hearing provided public testimony. This testimony covered general topics about mining and reclamation including comments that reclaimed lands do not produce as they did before mining and reclaimed lands are not being bond released. Concerns were raised about settling features on reclaimed land and the amount of rock and compaction on reclaimed lands. Some testified that mining companies need to replace water supplies adversely affected by mining, including natural springs. One person discussed his positive experience with having a livestock water supply replaced that had been affected by mining activities. Others discussed concerns raised about royalty provisions in coal leases that were executed more than 40 years ago and insufficient compensation under the leases for loss of agricultural production when mining occurs decades later. Another concern pertained to the amount of land owned by some mining companies. Most of the public testimony

addressed mining and reclamation topics in general and did not directly pertain to Permit NACC-1302 issued to CCMC.

81. Subsection 9 of N.D.C.C. Section 38-14.1-24 requires mine operators to replace any water supply that is adversely affected by mining. Replacement of any water supply adversely affected by mining is considered part of reclamation and must be done at no cost to the surface owner.

82. There are no provisions in the state's reclamation law or other laws that give the Commission any authority over royalty payments or any other payments required or permitted by coal and surface leases.

From the foregoing Findings of Fact, the Commission now makes its:

CONCLUSIONS OF LAW

1. The Commission has jurisdiction over CCMC's planned mining and reclamation operations in North Dakota, including Permit No. NACC-1302.

2. CCMC's application for Surface Coal Mining Permit NACC-1302 meets all permit application standards under North Dakota Century Code Chapter 38-14.1 and North Dakota Administrative Code Article 69-05.2.

3. There is no basis for the Commission to rescind or revoke Permit NACC-1302.

4. It is reasonable to require Coyote Creek Mining Company to revise Permit NACC-1302 to describe the detailed methods that will be used to minimize compaction of topsoil and subsoil that is replaced on reclaimed lands and to provide a testing plan to determine if there is any excess compaction in the replaced topsoil and subsoil and describe measures that will be used to alleviate excessive compaction if detected.

5. It is reasonable to require Coyote Creek Mining Company to revise Permit NACC-1302 to state that Casey Voigt will be consulted when they select and establish management practices for undisturbed reference areas that will be used to demonstrate reclamation success on Mr. Voigt's reclaimed native grasslands.

6. The alluvium along Coyote Creek is not an alluvial valley floor as defined by subsection 1 of N.D.C.C. Section 38-14.1-02.

7. The Commission does not have any jurisdiction over coal or surface leasing terms, conditions or practices.

8. The Commission has no jurisdiction over the closure of county roads.

From the foregoing Findings of Fact and Conclusions of Law, the Commission now makes its:

ORDER

The Commission orders:

1. The Commission's October 22, 2014 conditional approval of Permit No. NACC-1302 is AFFIRMED;

2. Coyote Creek Mining Company shall submit a revision application to Permit NACC-1302 by July 1, 2015, to add plans for:

   a. Describing detailed methods that will be used to minimize compaction on the replaced subsoil and topsoil;

   b. Conducting testing to determine if there is any excess compaction in the topsoil and subsoil that are replaced on reclaimed lands and describe measures that will be used to alleviate excessive compaction if detected; and

   c. Consulting with Casey Voigt when selecting and establishing management practices for the reference areas on undisturbed native grasslands that will be used when demonstrating reclamation success on reclaimed native grasslands that Mr. Voigt owns.

PUBLIC SERVICE COMMISSION

Randy Christmann
Commissioner

Julie Fedorchak
Chairman

Brian P. Kalk
Commissioner