



Present at the hearing for Brook Mine were attorneys Tom Sansonetti, Isaac Sutphin, and Jeff Pope of Holland & Hart. Present for the Department were attorneys Andrew Kuhlmann and James LaRock. Present for the Fishers was attorney Jay Gilbertz of Yonkee & Toner. Present for Big Horn were attorneys Lynne Boomgaarden and Clayton Gregersen of Crowley Fleck. Present for PRBRC was attorney Shannon Anderson.

Present and testifying for Brook Mine was Jeff Barron and Kenneth Woodring. Present and testifying Department employees were Bj Kristiansen, Matt Kunze, Dr. Muthu Kuchanur, Doug Emme, and Carol Bilbrough. Mary Brezik-Fisher testified for herself. Present and testifying for Big Horn were Jordan Sweeney and Joe Gerlach. Present and testifying for PRBRC were Mickel Wireman, Dr. Gennaro Marino, and landowners near the proposed mine: John Buyok, Brooke Collins, Anton Bocek, and Gillian Malone. The following exhibits were admitted into evidence: Brook exhibits 1, 2, 6a, 6b, and 10 through 13; Department exhibits 1 through 36; Fishers' exhibits 1 through 26; Big Horn exhibits 1 through 19; and PRBRC exhibits 1 through 95.

The Council, having heard and considered all the evidence and the whole record in this case and being fully advised, and pursuant to the Wyoming Administrative Procedure Act, Wyoming Statute § 16-3-110, finds and concludes as follows:

## **II. JURISDICTION**

1. This case arises from a dispute concerning objections filed against a permit application under Wyoming Statute § 35-11-406(k) of the Wyoming Environmental Quality Act ("Act"). In this case, the objectors to the permit application (the Fishers, Big Horn, and PRBRC) have advanced several arguments asserting that Brook Mine's surface coal mine permit application contains deficiencies. *See* Wyo. Stat. Ann. § 35-11-103(e)(xxiv) (defining "deficiency"). Brook Mine and the Department contend that the permit application contains no deficiencies.

2. Under Wyoming Statute § 35-11-406(k), the Council held a public hearing in this matter to resolve objections filed to Brook’s surface coal mine permit application after the Director found that an informal conference was not preferable. The Council must make a decision on the objections within 60 days after its hearing. Wyo. Stat. Ann. § 35-11-406(p).

3. This matter is properly before the Council and subject to the Council’s jurisdiction. The Council is required to resolve the objections. Wyo. Stat. Ann. § 35-11-406(k) and (p).

### III. FINDINGS OF FACT

#### A. Course of Proceedings

4. During the comment period for the Brook Mine permit application, the Fishers, Big Horn, and PRBRC sent objections to the Department. (Exs. PRBRC 1, BHC 3, and Fishers 26.) All three objectors requested an informal conference with the Director on their objections. (*See id.*) After the Director decided not to hold an informal conference, the Council set, and then later vacated, a contested case hearing under Docket 17-4801. *Order Vacating Contested Case H’rg and Setting Oral Argument* (Docket 17-4801). The Council ultimately dismissed that docketed matter. *Order of Dismissal* (Docket 17-4801).

5. Subsequently, the three objector parties filed petitions with the Council to hold a contested case to resolve their objections. *Objector Big Horn Coal Co.’s Petition* (Docket 17-4802); *Objector Fishers’ Petition* (Docket 17-4803); and *PRBRC’s Petition* (Docket 17-4804). The Council consolidated Dockets 17-4802, 17-4803, and 17-4804, and set a single hearing to resolve all three sets of objections. *Order of Consolidation and Schedule* (Docket 17-4802). Prior to the contested case hearing, the Council heard and denied Brook’s motions to dismiss the three petitions. *Council H’rg Tr.* (Mar. 22, 2017). Also, the Council granted the Department’s motion to dismiss the part of PRBRC’s petition appealing the Director’s decision not to hold an informal

conference. The Council granted that motion because the Council could not grant PRBRC the relief it requested under that claim. *Id.*

**B. Witnesses**

6. Each party presented witnesses at the contested case hearing.

7. **The Department's Witnesses.** The Department's first witness, Bjarne "Bj" Kristiansen, is the assistant district supervisor for District III of the Department's Land Quality Division ("Division"). (Tr. at 38-39.) He is a licensed professional geologist in Wyoming and is the Department's coordinator for the permit application. (Tr. at 40 and 48.) He testified generally about the application's content, geology, subsidence, and alluvial valley floor ("AVF") issues.

8. The Department's second witness, Matt Kunze, is a natural resource program principal at the Division. (Tr. at 392) He is primarily responsible for preparing cumulative hydrologic impact assessments ("CHIAs"), but also assists with technical reviews of surface water aspects of permit applications. (Tr. at 393.) He reviewed sections of this permit application. (*Id.*) He generally testified to surface water quantity and quality issues. (Tr. at 393-451.)

9. The Department's third witness, Dr. Muthu Kuchanur, is a geology supervisor for the Division's support services. (Tr. at 458-59.) He has a Ph.D. in environmental engineering, is a professional engineer licensed in Wyoming, and specializes in groundwater modeling. (Tr. at 458-60.) He reviewed the Brook Mine groundwater model and groundwater related parts of Appendix D6. (Tr. at 460-461.) He generally testified to groundwater issues and the groundwater model.

10. The Department's fourth witness, Doug Emme, is the blasting program principal at the Division. (Tr. at 577-78.) He trains and certifies blasters in the State of Wyoming, investigates blasting complaints, and inspects mine sites for compliance with blasting rules and regulations. (Tr. at 578-80.) He generally testified to issues related to blasting and Brook's reclamation bond.

11. **Brook Mine's Witnesses.** Jeff Barron was Brook Mine's first witness. (Tr. at 645-646.) He is an engineer for Western Water Consultants and is licensed in Wyoming and Montana. (Tr. at 646 and 649.) He prepared the Brook Mine permit application. (Tr. at 650.) He generally testified to the application's contents and his experience with permitting.

12. Brook Mine's second witness, Kenneth Woodring, is the senior operating adviser for the Brook Mine. (Tr. at 809.) He helped prepare the permit application. (Tr. at 815-816.) He generally testified about highwall mining and the development of the permit application.

13. **Big Horn's Witnesses.** Jordan Sweeney was Big Horn's first witness. (Tr. at 834.) He is the regulatory affairs manager for Lighthouse Resources (Big Horn's parent company) and the general manager of the Big Horn Mine (Tr. at 835-36.) He generally testified to Big Horn's concerns and requested permit conditions.

14. Big Horn's second witness, Paul Joseph Gerlach, testified as an expert witness in hydrology and hydrogeology related to coal mine permitting. (Tr. at 902 and 907; Ex. BHC 9.) He is president of Aqua Terra Consulting and is a licensed professional geologist in Wyoming. (Tr. at 902 and 906; Ex. BHC 8.) He helped prepare Big Horn's objection letter. (Tr. at 910.) He generally testified about hydrologic issues related to the permit application.

15. **PRBRC's Witnesses.** The first three witnesses PRBRC called are landowners near the proposed mine: John Buyok, Brooke Collins, and Anton Bocek. (Tr. at 1010, 1068, and 1088.) PRBRC's fourth witness was Gillian Malone, who recreates in the area. (Tr. at 1115.) The witnesses expressed concerns about the proposed mine's potential impacts with regard to water, subsidence, blasting, traffic, and recreation.

16. PRBRC's fifth witness, Dr. Gennaro Marino, is president and chief engineer of Marino Engineering Associates and was called as an expert in geotechnical engineering. (Tr. at

1191-92 and 1198.) He is a licensed professional engineer in Wyoming and multiple other states. (Tr. at 1193.) He wrote a report for PRBRC. (Tr. at 1199-1200; Exs. PRBRC 1, 12, 13, and 14.)

17. PRBRC's sixth witness, Dr. Carol Bilbrough, is program manager for the Division's support services and was superficially involved in the permit application. (Tr. at 1298-1300.)

18. PRBRC's seventh witness, Sue Spencer, is a professional geologist licensed in Wyoming. (Tr. at 1314 and 1323.) She testified that Mr. Wireman's expert report and testimony met the standards of a Wyoming professional geologist. (Tr. at 1323.)

19. PRBRC's eighth and final witness, Mickel Wireman, is a groundwater analyst specializing in legacy mining hydrology. (Tr. at 1327, 1329-32.) He is not a licensed professional geologist in Wyoming. (Tr. at 1323, 1461.) He testified about the coal seams' hydrology and the data and analyses he would have collected and performed had he characterized the site.

20. **Fishers' Witness.** Mary Brezik-Fisher lives near the proposed mine. (Tr. at 1133-34.) She stated similar concerns to PRBRC's landowner witnesses.

### **C. Description of Brook Mine Permit and Process**

21. **Description of Proposed Mine.** The Brook Mine would be located about eight miles north of the City of Sheridan, Wyoming. (Tr. at 49.) Most of the mine would lie north of the Tongue River and Interstate 90, with the southeastern portion of the permit area sitting adjacent to the Tongue River. (*E.g.*, Ex. DEQ 12-139; Tr. at 49.) The Brook Mine permit area would cover around 4,550 acres. (Ex. DEQ 1-051; Tr. at 50.) The proposed mine would annually produce about 2 million tons of coal. (Tr. at 276-77.) The mine has a predicted life of 12 to 13 years. (Tr. at 51.)

22. **Description of Permit Application.** The permit application consists of 12 volumes. (Exs. DEQ 1 through 12; Tr. at 61.) Volumes I, IA, and II contain appendices A, B, C,

and E, and deal with adjudication, legal aspects of the permit area, landowner interrelationships, and related maps. (Exs. DEQ 1 through 3; Tr. at 62.) Volumes III through X contain appendices D1 through D11, which discuss baseline information on land use, history, archaeological resources, climatology, topography, geology, overburden, hydrology, soil resources, vegetation inventory, wildlife, wetlands, and AVFs. (Exs. DEQ 4 through 11; Tr. at 62-64.)

23. **Mine Plan.** The permit application also contains a mine plan. (Ex. DEQ 12; Tr. at 64.) Among other things, the mine plan includes maps identifying the affected areas and features of the mine. (Ex. DEQ 12-129 to -147.) It also describes the mining sequence and mining methods used at the proposed mine. (Tr. at 121; Ex. DEQ 12-028.) Mr. Kristiansen testified that, generally, mining will proceed moving westward from the east side of the proposed permit area. (Tr. at 121-22; Ex. DEQ 12-129 and -134.) The first area to be mined is called the TR-1 trench and it is located in the southeast corner of the proposed permit area. (Tr. at 121; Ex. DEQ 12-129.)

24. The proposed mine would predominantly use a method known as “highwall mining,” which is similar to auger mining and regulated as such. (Ex. DEQ 12-035; Tr. at 50 and 117-19.) Mr. Kristiansen and Mr. Barron testified that highwall mining begins by digging a box cut down to the coal seam. (Tr. at 50-51 and 654.) A remotely-operated highwall miner unit then mines tunnels up to 2,000 feet into “panels” of the exposed coal seam perpendicular to the trench. (Tr. at 50-51, 118-19, 125-26, and 654-55.) Walls (or “webs” or “pillars”) of coal are left unmined between the tunnels to provide support and prevent subsidence, with wider “barrier pillars” periodically placed to offer extra safety between sets of tunnels. (Tr. at 50-51, 120, 656, and 819.) The mine plan estimates that this method will recover 40% to 65% of the coal. (Ex. DEQ 12-035.)

25. **Reclamation Plan.** The permit application also contains a reclamation plan, which the Department uses to enforce reclamation of the permit area to achieve the post-mine land use.

(Tr. at 175-76; Ex. DEQ 13.) The Brook Mine's post-mine land uses will mostly be agricultural, primarily grazing. (Tr. at 176; Ex. DEQ 13-014.) The reclamation plan discusses post-mining grading, revegetation, and facility disposal. (Ex. DEQ 13-016 to -018, -023 to -041, -074, and -075.) The plan states the reclamation schedule and sequence. (Ex. DEQ 13-075, -076, and -114.)

26. Rather than disturbing the TR-1 area in years 1 and 2 and waiting to reclaim it until between years 12 and 16, Big Horn requested that Brook be required to reclaim the area immediately after mining and not use the pit as a water source. (Ex. BHC 3-008 and -009; Tr. at 859.) Mr. Kristiansen stated that reclaiming the pit immediately would pinch off a major water source for dust suppression, and that the pit would be reclaimed eventually. (Tr. at 192-93.)

27. **Permit Application Process.** Mr. Kristiansen testified that Brook filed the permit application in October of 2014, and the Division found that the application was complete on November 3, 2014. (Tr. at 52.) The Division then began their technical review and comment process. (*Id.*) The application had six rounds of comments and responses before the Division determined the application was suitable for publication. (Tr. at 45 and 58; Ex. DEQ 34.)

28. Mr. Kristiansen worked with other Department employees and agencies with expertise in different subjects to review the permit application. (Tr. at 53-54.) Alan Edwards, the Department's deputy director, acted as the Division's Administrator for the application. (Tr. at 55.)

29. In December of 2016, the Division determined that the application was suitable for publication and notice of the public comment period was published. (Tr. at 52-53.) The objectors filed timely objections before January 27, 2017. (Exs. BHC 3, Fishers 26, and PRBRC 1.)

#### **D. Overlapping Permits**

30. In the TR-1 area, Brook Mine's proposed permit boundary will overlap with Big Horn's existing permit boundary. (Ex. DEQ 13-075.) Mr. Kristiansen testified that overlapping



permits are not uncommon and that the Department regulates each mine in the overlap area so that the party responsible for the reclamation liability provides a bond for that liability. (Tr. at 154-55 and 189.) He testified that Brook will have to bond for everything they do in that area. (Tr. at 188-89; Ex. DEQ 13-075.) The reclamation plan states that each party must separately and fully bond the areas disturbed by their mining activities and the final party to disturb an area will have final responsibility to reclaim that disturbance. (Ex. DEQ 13-075.) The mine plan includes a statement, “Agreements between the permittees are located in the Adjudication File.” (Ex. DEQ 12-088.)

31. In its objection letter, Big Horn notes that it has not consented to overlapping permit boundaries. (Ex. BHC 3-002.) Mr. Sweeney testified that the application does not actually contain any agreement between Big Horn and Brook addressing operations and reclamation in the overlap area. (Tr. at 865-66 and 868-69; Ex. BHC 7.) Big Horn requested a permit condition to amend the application to specify Big Horn’s and Brook’s respective responsibilities on the lands in both of their permits. (Ex. BHC 5-003.) Big Horn also requested a change to the Mine Plan to reflect that a joint-use agreement does not exist between Big Horn and Brook. (*Id.*)

**E. Surface Water Issues**

32. **Surface Water Baseline Information.** The permit application contains several sections detailing baseline surface water quantity and quality data. Appendix D6 includes a narrative describing the hydrological baseline. (Ex. DEQ 6-011 to -022.) The permit application notes that two monitoring stations each on Slater Creek and Hidden Water Creek were used to collect baseline data. (Ex. DEQ 6-017 to -019.) It also includes several tables, exhibits, and addenda containing data and analysis of the baseline hydrology. (Exs. DEQ 6-038 to -057, -086 to -089, -092 to -094, and -165 to -236.)

33. The objectors generally allege that this baseline data is not adequate. In particular, PRBRC alleged in its objection letter that monitoring stations should have been operated longer and that Appendix D6 should include more hydraulic conductivity data. (Ex. PRBRC 1, at 8.)

34. Mr. Kunze testified about the permit application's baseline hydrology. Mr. Kunze testified that Brook collected baseline data according to Guideline 8, the Division's guideline on baseline surface water monitoring. (Tr. at 394-45, Ex. DEQ 22.) Beyond what Guideline 8 recommends, Brook submitted additional data from a USGS peak flow gauge on Slater Creek and data collected by the Big Horn mine on Hidden Water Creek. (Tr. at 396, Ex. DEQ 6-039.)

35. **Surface Water Monitoring Stations.** The permit application commits to two monitoring stations each on Slater Creek and Hidden Water Creek. (Ex. DEQ 12-062 (citing Ex. DEQ 6-017 to -019).) In addition, the application commits to using two USGS gaging sites on the Tongue River: one at Monarch, and one near the Wyoming-Montana state line. (Ex. DEQ 12-112.)

36. PRBRC requested in their objection letter that water quality sampling stations be established on the Tongue River near the upstream and downstream boundaries of the permit area. (Ex. PRBRC 1, at 8.) Ms. Brezik-Fisher also objected to the way the Tongue River would be monitored. (Tr. at 1162-63); (Ex. Fisher 26, at 3.)

37. At the hearing, Mr. Kunze testified that he did not consider additional monitoring stations on the Tongue River to be required by the Act or the Division's coal rules and regulations ("*Coal Rules*"). (Tr. at 411.) However, he recommended that, rather than use the USGS gaging sites on the Tongue River as proposed, the mine use new monitoring stations. (Tr. at 411-12.) Two monitoring stations would be installed on the Tongue River near the upstream and downstream edges of the permit boundary and one station would go on Goose Creek. (Tr. at 411-12.)

38. **Hydrologic Control Measures.** The permit application commits to several hydrologic control measures to prevent impacts to surface water quality and quantity in Mine Plan section MP.5. The mine plan details the use, design, and location of sedimentation impoundments (or “sediment ponds”), flood control reservoirs, and diversions. (Ex. DEQ 12-039 to -052; DEQ 12-163 to -082.) The mine plan also discusses the use of alternative sediment control measures (“ASCMs”). (Ex. DEQ 12-149 to -162.) Finally, the mine plan describes a 100-foot buffer around Slater Creek that is designed to protect it from impacts from mining. (Ex. DEQ 12-139.)

39. Several objectors alleged in general their concerns about impacts to surface water quantity and quality. In particular, Mr. Gerlach wrote in his expert report that Mine Plan section MP.5 does not provide an alternative plan to control surface water flows if groundwater inflow exceeds the design capacities of the hydrologic control measures. (Ex. BHC 9-005.)

40. Mr. Kunze testified that a licensed professional engineer must design and supervise the construction of sediment ponds, flood control reservoirs, and diversions. (Tr. 401-03.) He testified that sediment ponds must be designed in accordance with Guideline 13, the Division’s guideline on sediment pond design. (Tr. at 401.) He testified that ASCMs must be designed in accordance with Guideline 15, the Division’s guideline on ASCM design. (Tr. at 405-07.)

41. Mr. Kunze testified that ASCMs will not be the sole method of hydrologic control within half a mile of Class II streams as designated by the Water Quality Division. (Tr. at 405-07.) The Water Quality Division has designated Tongue River and Goose Creek as Class II streams. (Tr. at 405-07.) Mr. Kunze testified that sediment ponds will be inspected quarterly and after significant storm events, defined as 1.5 inches of precipitation. (Tr. at 402-03.) He testified that ASCMs will be inspected monthly and during regular quarterly inspections. (Tr. at 407.)

42. **Replacing Affected Surface Water Supplies.** The permit application declares that existing uses of the Tongue River and Goose Creek are not expected to be impaired. (Ex. DEQ 12-055 to -059.) Several objectors were concerned that the mine could damage surface water rights.

43. Mr. Kunze testified that the highwall mining method will only directly disturb 0.2 percent of the Goose Creek and Tongue River watershed. (Tr. at 397.) The mine will employ hydrologic control measures to protect flows during the life of the mine. (Tr. at 401 to 403.) Mr. Kunze testified that he modeled post-mining flows and that they would be almost identical to pre-mining flows. (Tr. at 410.) In the event that the mine impairs a water right, Brook must replace the water with a source of similar quality and quantity. (Tr. at 409.)

**F. Groundwater Issues**

44. **Groundwater Baseline Information.** The permit application contains a description of the geology in the permit area, including the presence or absence of groundwater in the different strata. (Ex. DEQ 5-016 to -020.) The application also contains information on the hydrology in the permit area, including water levels, groundwater movement, recharge and discharge areas, and information about baseline water monitoring. (Ex. DEQ 6-023 to -031.) Mr. Kristiansen stated that Brook consulted with the Department to select the baseline groundwater monitoring sites before they were drilled. (Tr. at 97; Ex. DEQ 6-024 and -025.) The application includes a description that the overburden in the permit area is dry. (Ex. DEQ 6-023 and -024.) Mr. Kristiansen testified that about 70 to 80 percent of the permit area is dry. (Tr. at 337.)

45. Big Horn argued that the application lacks sufficient baseline groundwater information because it does not include information specifically from the TR-1 area. (Tr. at 211-12 and 939-40.) Mr. Kristiansen agreed that Brook had not drilled for groundwater samples near the TR-1 trench. (Tr. at 210.) Mr. Gerlach testified that the application could not have sufficient

baseline without information about the TR-1 area, which contains backfill from a reclaimed Big Horn pit. (Tr. at 939-40; Ex. BHC 14.) He stated that Brook should have used data from Big Horn's 2002 groundwater restoration document ("GRD") to characterize the groundwater in the TR-1 area. (Tr. at 927-29 and 940-41; Ex. BHC 15.) He also speculated that the application's groundwater model would have been improved if it included GRD information. (Tr. at 954.)

46. Dr. Kuchanur testified that he reviewed the GRD when reviewing Brook's model, but determined that the GRD and the model were made for two different purposes and the data in the GRD were not reliable inputs for the model. (Tr. at 1464-66 and 1475-80.) However, he used the GRD to cross-check the model's results and it supported them. (Tr. at 1466 and 1472-75.)

47. **Groundwater Drawdowns.** The permit application identifies and maps the groundwater rights near the mine. (Ex. DEQ 1-372 to -412; Ex. DEQ 3-012 and -014; Tr. at 78-80.) It also includes a model to predict drawdowns to nearby wells. (Ex. DEQ 12-183 and -251.)

48. The objectors raised concerns that the drawdowns would harm their wells. (*E.g.*, Tr. at 1039 and 1104.) Also, Mr. Gerlach speculated that mining in the TR-1 trench would draw water from the Tongue River into the trench and the coal seams being mined. (Tr. at 947-52.)

49. Dr. Kuchanur testified that the drawdowns predicted in the groundwater model were small. (Tr. at 485 and 488-89; Ex. DEQ 12-187 and -251.) He testified that the groundwater model conservatively estimated that the peak pit inflow that will occur at the Brook Mine would be in year 7 and would only be 0.22 cubic feet per second ("cfs"). (Tr. at 487 and 1470; Ex. DEQ 12-254.) He stated that 0.22 cfs was small even when compared with the Tongue River's lowest flow rate in the last 10 years of 100 cfs. (Tr. at 488-89.) He also stated that the GRD concluded that backfill in the TR-1 area took 23 years to recharge, which was only 0.06 cfs per year and is in line with the drawdown estimates in Brook's model. (Tr. at 1469-71; Ex. BHC 15-009.)

50. **Replacing Affected Groundwater Supplies.** Dr. Kuchanur testified about the commitment to replace “any adjudicated water right” that is disturbed or affected by the mining operations. (Tr. at 500; Ex. DEQ 12-062.) He stated that the Department agrees with objectors that the language should change to cover all valid rights, and not just adjudicated rights. (Tr. at 500.)

**G. Alluvial Valley Floors (“AVF”)**

51. The objectors raised concerns that the Department had not evaluated all potential AVF locations near the permit area. (PRBRC’s Prehearing Memo. at 9.) The objectors also argued that the potential AVFs that the Department had not designated would be affected by mining. (*Id.*) Mr. Wireman speculated that in the western part of the permit area, the coals “probably subcrop” in the alluvium of Slater Creek and the Tongue River, and hydrologically connect the coals and the river. (Tr. at 1388.) He expressed concerns that dewatering the coal would affect Slater Creek, Hidden Water Creek, and the Tongue River alluvium and potential AVF. (Tr. at 1362-65, 1374-76, 1380-81.) He expressed concern that mining could irreversibly change hydrologic flows underground. (Tr. at 1370-72.)

52. Mr. Kristiansen testified that AVFs are drainages that have the ability to be farmed. (Tr. at 105.) He testified about AVF determinations in four areas in or near the permit area. (Tr. at 108-16; Ex. DEQ 11-031.) First, the Division declared part of the Tongue River Valley on the east side of the Brook Mine permit area to be an AVF as part of Big Horn Mine’s operations. (Tr. at 109; Ex. DEQ 11-010.) Brook will disturb this AVF with an overburden pile and sediment pond, but it will also monitor, maintain, and restore the AVF. (Exs. DEQ 12-090, -092 to -094, and -139, and 13-073 and -074.) Mr. Barron stated that AVFs that are not significant to farming can be disturbed but must be reclaimed. (Tr. at 680-81.) The reclamation plan commits to maintaining the AVFs’ essential hydrologic functions and restoring flows to AVFs. (Ex. DEQ 13-073 and -074.)

53. Second, the Department determined that an area along Hidden Water Creek in the permit area is not an AVF. (Tr. at 113-14; Ex. DEQ 11-021.)

54. Third, an area along Slater Creek within the permit area was determined to be an AVF. (Tr. at 110-12; Ex. DEQ 15.) However, Mr. Kristiansen testified that the Slater Creek AVF is not going to be affected by mining operations and, therefore, was not required to be designated in the application. (Tr. at 112-13.) The Slater Creek AVF will not be affected because the surface activities are located away from the AVF and highwall mine panels will terminate underground at least 100 feet from the AVF part of Slater Creek. (Tr. at 156-57; Exs. DEQ 12-131, and 15-005.)

55. Fourth, Mr. Kristiansen stated that an area lying south of the permit area along the Tongue River is potentially an AVF, but is not going to be affected by mining and does not have to be designated in the application. (Tr. at 109 and 114-16; Ex. DEQ 16-002.) The determination that this area would not be affected by mining was based on the information in the permit application, the lack of discharge, and the lack of affected area outside of the permit boundary. (Tr. at 266; *see* Exs. DEQ 12-091 to -092, 13-073, and 16-002.) Dr. Kuchanur testified that, based on groundwater modeling, he does not believe there is a hydrologic connection between the Carney coal seam and the surface water of the Tongue River. (Tr. at 554-55.) Mr. Kristiansen stated that the Department would evaluate and designate additional AVFs if there were indications that the potential AVF lands would be affected by mining operation. (Tr. at 266.)

#### **H. Subsidence**

56. The application identifies the location of existing or abandoned mines and includes baseline information on geology. (Ex. DEQ 3-011 and DEQ 5; Tr. at 77-78.) The mine plan also includes a subsidence control plan. (Tr. at 666; Ex. DEQ 12-319 to 333.)

57. The objectors criticized the amount of baseline information in the application and the detail in the subsidence control plan. Mr. Sweeney testified that overburden sampling was not conducted in the TR-1 area and that it should be required. (Tr. at 861-62.) Dr. Marino testified that, in his opinion, the application needs more information to analyze the likelihood of future subsidence. (Tr. at 1200.) Regarding the subsidence control plan, Dr. Marino opined that the plan does not demonstrate that it would control the subsidence. (Tr. at 1228.) He also testified that he has never seen the Mine Safety and Health Administration (“MSHA”) referenced in a permit application as the entity that approves a mine for surface subsidence. (Tr. at 1203.)

58. Mr. Kristiansen testified that the permit application accurately characterizes the geology in and around the permit area. (Tr. at 93.) He stated that the application describes the characteristics of the overburden and coal in the permit area, including geologic hazards. (Ex. DEQ 5-017 to -021; Tr. at 88-91.) He stated that the Department approved locations of drill holes for overburden sampling with a tighter configuration than normal. (Tr. at 91-92.) Although Brook was not able to access all of the planned drilling locations, such as the TR-1 area, the Department was satisfied by the holes Brook drilled for the purpose of collecting pre-application information. (Tr. at 92-93 and 186-88.) Mr. Barron and Mr. Woodring testified that Brook will conduct additional geologic sampling and testing of the roof, coal seams, and floor material in the locations of each highwall mine panel prior to mining. (Exs. DEQ 5-018 and 12-032; Tr. at 662 and 818.) That will include sampling near the TR-1 trench. (Tr. at 663-64.)

59. Mr. Kristiansen testified that the subsidence control plan analyzes the potential for subsidence within the mine area. (Tr. at 162; Ex. DEQ 12-322 to -326.) He described his training from the Office of Surface Mining Reclamation and Enforcement (“OSMRE”) on reviewing subsidence control plans. (Tr. at 163-65; Exs. DEQ 17 through 20.) He stated that based on



computer models and using formulas developed by OSMRE, the Brook Mine was determined to be a non-subsiding mine. (Tr. at 162 and 169.) He testified that historic underground mines in the area were considered in the plan's analysis and that Brook Mine's highwall panels would be at least 500 feet away from known underground workings. (Tr. at 169-71; Ex. DEQ 12-322 to -326.)

60. Mr. Kristiansen and Mr. Barron stated that the plan also includes how Brook would monitor and address subsidence, if it does occur. (Tr. at 171-72 and 676; Ex. DEQ 12-326 and -327.) Mr. Barron testified that the permit application commits to designing web and barrier pillars to comply with the mine's ground control plan approved by MSHA. (Tr. at 661-63; Exs. DEQ 5-018 and DEQ 12-322.) He stated that MSHA requires highwall miner ground control plans to meet certain subsidence-related standards, such as a 1.3 stability factor. (Tr. at 670-74; Ex. Brook 10d.)

#### **I. Blasting**

61. The permit application contains a blasting plan and schedule. (Ex. DEQ 12-073 to -082.) The blasting plan provides that the mine will comply with all federal and state laws regulating explosive storage, handling, preparation, and use. (Ex. DEQ 12-074.)

62. All of the objectors expressed concerns about blasting. Mr. Buyok and Ms. Collins expressed concerns that blasting could exacerbate historical subsidence. (Tr. at 1022, 1070.) Ms. Malone testified that she worried that blasting would require Brook Mine to shut down Interstate 90. (Tr. at 1118.) Ms. Brezik-Fisher, Mr. Bocek, and Ms. Collins, as well as Big Horn, expressed support for a condition requiring Brook Mine to use seismographs to monitor vibrations from blasting on request. (Tr. at 858-60, 1091-93, 1086-87, and 1165-66.)

63. Mr. Emme testified about the mine's blasting plan. He stated that the rules only allow airblast and ground vibrations that would not damage structures or wells. (Tr. at 581-82.) He testified that blasts may cause a house to shake but cannot damage it, and explained that day-to-

day events like high wind or slamming doors would cause stronger vibrations. (Tr. at 581-82, 584.) He explained that Wyoming regulations do not require a detailed blasting plan listing exact specifications of explosives, but rather that they allow a mine flexibility for each shot. (Tr. at 585.) He testified that Brook must publish notice of when blasting will occur, how access to the area will be restricted, and the operator's contact information. (Tr. at 585.)

64. Mr. Emme testified that he was not aware of a single incident where blasting was proven to impact a water well, though companies often settle such claims. (Tr. at 578, 607-08.) He testified based on his knowledge and experience as a blasting expert that the vibrations from blasting at the mine would likely not cause subsidence in historic mines. (Tr. at 602.) He testified that the Department has, in the past, used seismographic monitors to measure vibrations near structures to ensure that the vibrations do not exceed regulatory limits. (Tr. at 618.)

**J. Fire Control Plan**

65. The mine plan contains a fire control plan, which addresses fire prevention, control equipment, and control procedures. (Ex. DEQ 12-312 to -317.) Mr. Kristiansen testified that MSHA, not the Department, is the regulator that ensures that a fire is safely extinguished and prevented from returning. (Tr. at 159-61.) Mr. Barron testified that there are no known underground coal fires near the proposed operation, but that if one was encountered, extinguishing it would probably be possible. (Tr. at 691-93.) He stated that the fire control plan gives the operator latitude to use the best practices to deal with a fire. (Tr. at 694-95.)

66. The objectors questioned Mr. Barron's basis for concluding that there are no underground coal fires near the permit area. (Tr. at 722-23.) Mr. Barron acknowledged that he and his company had not independently surveyed whether mine fires were present. (Tr. at 716 and 722-

23.) Big Horn requested a permit condition requiring Brook to map underground coal fires within 500 feet adjacent to the highwall mining areas prior to mining. (Ex. BHC 5-002; Tr. at 859-60.)

**K. Traffic**

67. The application includes a description of the roads the mine will use to transport coal from the permit area. (Ex. DEQ 12-025 to -027, and -131.) The mine plan commits Brook to coordinate with the Wyoming Highway Department when constructing access roads joining with public roads. (Ex. DEQ 12-026.) Mr. Bocek testified that he uses a frontage road next to Interstate 90 and was concerned the Brook Mine would increase traffic. (Tr. at 1090-91.) Ms. Brezik-Fisher testified that she had heard an estimate of around 200 semi-trailer trips per day. (Tr. at 1166.)

68. Mr. Kristiansen testified that coal will be transported from Brook Mine by semi-trailers. (Tr. at 147.) He testified that the application does not contain any road use agreements between Brook and government entities, but such agreements are not required to be made or placed in the application. (Tr. at 151-52.) Mr. Barron agreed that there were no road use agreements in the application. (Tr. at 701-02.)

**L. Recreational Uses**

69. Ms. Malone testified about the Kleenburn Recreation Area and other recreation near the permit. (Tr. at 1115-16.) She stated that she was not aware of how Brook was protecting recreation and speculated that some recreation areas may close due to mining. (Tr. at 1118-19.)

70. The permit application includes an evaluation of the current and past land uses near the proposed permit area, including recreational use. (Ex. DEQ 4-010 and 4-013 to -015; Tr. at 271-72.) The Kleenburn Recreation Area is located south outside of the permit area. (Ex. DEQ 4-041.) The lands will be reclaimed so that conditions facilitate post-mine recreation replicating pre-mine recreation. (Ex. DEQ 13-015.) Hunting walk-in areas will be re-established post-mining. (*Id.*)

**O. Bonding**

71. **Reclamation Bond.** In their pre-hearing memorandum, PRBRC alleged that the Department had not yet calculated a reclamation bond amount. (*PRBRC's Pre-Hearing Memo.* at 9.) PRBRC alleged that this frustrated public review. (*PRBRC's Pre-Hearing Memo.* at 9.)

72. Mr. Emme testified that the Department must set a bond amount before mining can begin. (Tr. at 586-87, 610.) He testified that reclamation bonds must provide sufficient funding to reclaim a mine's present operations and for its projected disturbance for 12 months. (Tr. at 587.) In Brook's first operating year, the mine will disturb 30 acres; the mine offered a reclamation bond of \$371,000. (Tr. at 589-90.) Mr. Emme stated that this amount exceeds the amount that Guideline 12, the Division's guideline for reclamation bond calculation, would require. (Tr. at 590.)

73. **Surface Protection Bond.** The permit application contains a proposed calculation for a surface protection bond under Wyoming Statute § 35-11-416(a) for Big Horn's property within the permit area. (Ex. DEQ 1-066 to -101; Tr. at 66.) Brook's consultants prepared the calculation. (Tr. at 66.) The Department has not set the amount of a surface protection bond for Big Horn's property; it will do so after these proceedings, prior to permit issuance. (Tr. at 66-67.)

74. Mr. Sweeney testified that Big Horn has not waived its right to a surface protection bond by agreement with Brook. (Tr. at 873.) Big Horn asked for a condition requiring a surface protection bond be in place for its property prior to permit issuance. (Tr. at 871; Ex. BHC 5-003.)

**P. Cumulative Hydrologic Impact Assessment ("CHIA")**

75. Big Horn and PRBRC assert that the permit application has not been designed to ensure prevention of material damage to the hydrologic balance outside the permit area. (*Big Horn's Prehearing Memo.* at 2; *PRBRC's Pre-Hearing Memo.* at 8-9.) Mr. Kunze testified that the Department will make that finding after the Council has made a decision here. (Tr. at 413-414.)

76. PRBRC also complains that the CHIA for Brook Mine has not been completed yet. (*PRBRC's Pre-Hearing Memo.* at 8-9.) Mr. Kunze testified that the CHIA is not part of the permit application. (Tr. at 413 and 416.) He testified that the permit application must have a section detailing the probable hydrologic consequences of the mine, one of the data sources the Division uses to build CHIAs. (Tr. at 414-415; Ex. DEQ 12-055 to -059.) He testified that the probable hydrologic consequences section of the permit application contained no deficiencies. (Tr. at 415.)

#### IV. CONCLUSIONS OF LAW

##### *1. PRINCIPLES OF LAW*

###### **A. Principles of Statutory Interpretation**

77. Interpreting the meaning of a statute begins by looking at the plain and ordinary meaning of the words in the statute. *Bender v. Decaria*, 998 P.3d 953, 955 (Wyo. 2000). If the statute is unambiguous, then the plain meaning controls. *Id.* Every word in legislation is presumed to have a meaning, and a statute should be construed so that no part will be superfluous. *Basin Elec. Power Co-op. v. Bowen*, 979 P.2d 503, 509 (Wyo. 1999). “All statutes must be construed in pari materia and, in ascertaining the meaning of a given law, all statutes relating to the same subject or having the same general purpose must be considered and construed in harmony.” *BP America Prod. Co. v. Dept. of Revenue, State of Wyo.*, 2005 WY 60, ¶ 15, 112 P.3d 596, 604 (Wyo. 2005).

###### **B. Surface Coal Mine Permit Application Process**

78. An applicant seeking a surface coal mining permit must apply in writing to the Administrator. Wyo. Stat. Ann. § 35-11-406(a). The applicant has the burden of establishing that his application complies with the Act and all applicable state laws. Wyo. Stat. Ann. § 35-11-406(n).

79. After receiving an application, the Department determines if the application is “complete”, meaning that it “contains all the essential and necessary elements and is acceptable

for further review for substance and compliance” with the Act. Wyo. Stat. Ann. §§ 35-11-103(e)(xxii) and -406(e).

80. Next, the Division reviews the application’s substance to find whether it contains deficiencies. Wyo. Stat. Ann. §§ 35-11-103(e)(xxii) and -406(h). “‘Deficiency’ means an omission or lack of sufficient information serious enough to preclude correction or compliance by stipulation in the approved permit to be issued by the [D]irector[.]” Wyo. Stat. Ann. § 35-11-103(e)(xxiv). At the conclusion of this review, the Division may decide that the application is suitable for publication, deficient, or denied. *Id.* The phrase “suitable for publication” refers to the Division finding that an application complies with the requirements in the Act and the *Coal Rules* based upon the information known to the Division prior to public objections or comments. *Id.*

81. If the Division concludes that the application is deficient, the applicant may submit additional information to cure the deficiency. Wyo. Stat. Ann. § 35-11-406(h). There may be multiple rounds of Division review and applicant response until the Division either determines that the application is suitable for publication or denies the permit. *See id.*

82. Once an application is suitable for publication, the applicant publishes and mails notices of the application and the permit is subject to public comment. Wyo. Stat. Ann. § 35-11-406(j). Interested persons may comment on or object to the application in writing within 30 days after the notice’s last date of publication. Wyo. Stat. Ann. § 35-11-406(k). To resolve the objections, either the Director holds an informal conference or the Council holds a contested case hearing. *Id.*

83. If the Council holds a hearing, the Council “shall issue findings of fact and a decision on the application within sixty (60) days after the final hearing.” Wyo. Stat. Ann. § 35-11-406(p). After the Council issues its findings and decision resolving the objections, the

Administrator must review the application and the Council's decision and decide if he can make the seven required findings in Wyoming Statute § 35-11-406(n). The rules require the Administrator to also make three other findings at that time. *Coal Rules*, ch. 12, § 1(a)(iv) and (x). The Director may not approve the permit unless and until the Administrator makes the findings. Wyo. Stat. Ann. § 35-11-406(n) and (p).

84. No later than 15 days after he receives the Council's findings of fact and decision resolving the objections, the Director shall issue or deny the permit. Wyo. Stat. Ann. § 35-11-406(p). "In granting permits, the director may impose such conditions as may be necessary to accomplish the purpose of [the Act] which are not inconsistent with the existing rules, regulations and standards." Wyo. Stat. Ann. § 35-11-801(a). The rules also require the Director to place certain conditions on a surface coal mining permit. *Coal Rules*, ch. 12, § 1(a)(xviii)(A) through (E).

### C. General Permit Application Requirements

85. **Permit Application.** The Act and the *Coal Rules* contain substantive requirements that an application must satisfy in order to be issued. *See, e.g.*, Wyo. Stat. Ann. § 35-11-406(a) and (b); *Coal Rules*, chs. 2, 3, 7, 12, and 19. An application must include baseline information on the applicant, the proposed mining operation, and lands inside and around the proposed permit area. Wyo. Stat. Ann. § 35-11-406(a) and (b). The applicant must also provide plans for mining operations and reclamation. Wyo. Stat. Ann. § 35-11-406(b); *Coal Rules*, ch. 2, §§ 5 and 6.

86. **Mine Plan.** The applicant must provide a plan for the mining operations, also referred to as a "mine plan", to describe how the applicant will conduct mining. Wyo. Stat. Ann. § 35-11-406(b); *Coal Rules*, ch. 2, § 5(a)(i). The applicant must map the affected areas and the locations of pits, buildings, operations, roads, and other features of the proposed mine. Wyo. Stat.

Ann. § 35-11-406(b)(v) and (viii); *Coal Rules*, ch. 2 § 5(a)(xvi). The applicant is also required to describe the sequence and timing of mining. *Coal Rules*, ch. 2, §§ 4(a) and 5(a)(i)(B).

87. **Reclamation Plan.** A permit application must include a plan for reclamation that identifies the post-mine land use. Wyo. Stat. Ann. § 35-11-406(b)(i); *Coal Rules*, ch. 2, § 6(a). The reclamation plan must describe post-mining operations, like grading and revegetating disturbed areas. Wyo. Stat. Ann. § 35-11-406(b)(ii), (iii), (iv), and (vii); *Coal Rules*, ch. 2, § 6(b)(ii), (iii), and (viii). The plan must provide a schedule and provide for prompt reclamation as mining progresses. Wyo. Stat. Ann. §§ 35-11-406(b)(xix) and -415(b)(ix); *Coal Rules*, ch. 2, § 6(a).

**D. Overlapping Permits**

88. Under Chapter 2, Section 5(a)(xviii) of the *Coal Rules*, when mine facilities, including overstrip areas, are shared by two or more separately permitted mining operations,

“[e]ach permittee shall bond the mine facilities unless the permittees sharing it agree to another arrangement for assuming their respective responsibilities. If such agreement is reached, the application shall include a copy of the agreement between or among the parties setting forth the respective bonding responsibilities of each party for the mine facilities. The agreement shall demonstrate to the satisfaction of the Administrator that all responsibilities under the Act and regulations for the mine facilities will be met.”

**E. Surface Water Issues**

89. **Surface Water Baseline Information.** The Act requires that mine permit applications include a description of annual rainfall, current surface waters, water rights, water uses, and a map showing water bodies and wells. Wyo. Stat. Ann. § 35-11-406(a)(vii), and 406(a)(ix). In addition, the *Coal Rules* require that mine permit applications include baseline monitoring information, including information on seasonal flow rates and the acreage of drainage areas, as well as data sufficient to identify seasonal variability in water quality. *Coal Rules*, ch. 2 § 4(a)(xi)(C) and (D).



90. **Surface Water Monitoring Stations.** Mine permit applications must include a surface water monitoring plan, identifying the quantity and quality parameters to be monitored, sampling frequency, and monitoring locations. *Coal Rules*, ch. 2 § 5(a)(viii)(D)(I).

91. **Hydrologic Control Measures.** The Act requires that mine permit applications describe how surface water will be diverted around affected lands when necessary to protect water quality or quantity. Wyo. Stat. Ann. § 35-11-406(b)(xiv). In addition, the rules require that permit applications include maps of locations of surface water hydrologic control methods, including sediment ponds, diversions, stream channels, and erosion control methods. *Coal Rules*, ch. 2 § 5(a)(i)(D)(IV). The rules also require that the permit describe the typical design of ponds. *Id.*

92. **Replacing Affected Surface Water Supplies.** The Act provides that if a surface coal mine operation proximately causes contamination, diminution, or interruption of a surface owner's domestic, agricultural, industrial, or other legitimate use of an underground or surface source, the operator must replace the water source. Wyo. Stat. Ann. § 35-11-415(b)(xii).

**F. Groundwater Issues**

93. **Groundwater Baseline Information.** A permit application must contain baseline information about the groundwater in and near the permit area. It must include a detailed description of the geology within the permit area, including details about groundwater located there. *Coal Rules*, ch. 2, § 4(a)(vii). It also must contain a characterization of the geologic strata including the results of test borings to show, among other things, the location of groundwater. *Coal Rules*, ch. 2, § 4(a)(viii). An application also must contain information on potentially-affected waters, including estimates of depth and quantity of groundwater, the thickness of known aquifers, and the recharge, storage, and discharge characteristics of the groundwater. *Coal Rules*, ch. 2, §

4(a)(xii)(A), (B), and (D). The application must describe the groundwater and geology on affected lands in enough detail to assess probable hydrologic consequences. *Coal Rules*, ch. 2, § 4(a)(xiv).

94. **Groundwater Drawdowns.** A permit application also must identify the locations of wells and subsurface waters. Wyo. Stat. Ann. § 35-11-406(a)(vii) and (ix); *Coal Rules*, ch. 2 § 4(a)(xiii) and (xvi). The application also must include a “determination of the projected result of proposed surface coal mining and reclamation operations, both on and off the mine site, which may reasonably be expected to change the quantity or quality of the surface and groundwater; the surface and groundwater flow, timing and availability[.]” *Coal Rules*, ch. 19, § 2(a)(i).

95. **Replacing Affected Groundwater Supplies.** The Act requires surface coal operations to replace landowners’ water supplies that are affected by the mining operations. Wyo. Stat. Ann. § 35-11-415(b)(xii).

**G. Alluvial Valley Floors (“AVF”)**

96. The Act defines alluvial valley floors. Wyo. Stat. Ann. § 35-11-103(e)(xviii). A permit application must contain enough information to demonstrate the presence or absence of AVFs within the permit area and in adjacent areas where AVFs “may reasonably be expected to be affected” by mining. *Coal Rules*, ch. 3, § 2(b). Prior to an application being suitable for publication, the Administrator must determine the existence and extent of an AVF within the permit area or on adjacent areas where the mining operation may affect waters that supply an AVF. *Coal Rules*, ch. 12, § 1(a)(i). The Administrator determines that an AVF exists on affected lands if: “[u]nconsolidated streamlaid deposits holding streams are present” and “[t]here is sufficient water to support subirrigation or flood irrigation agricultural activities.” *Id.*

97. If the Administrator determines that an AVF exists inside the permit area on affected lands, the application must include measures to comply with performance standards for

mining AVFs, which include preserving and reestablishing the “geologic, hydrologic and biologic characteristics that support the essential hydrologic functions” of designated AVFs. *Coal Rules*, ch. 3, § 2(c)(ix), and ch. 5, § 3(a). An operator must monitor AVFs during mining and until bond release, and also shall restore the essential hydrologic functions of AVFs on affected lands and preserve those functions of AVFs not on affected lands.” *Coal Rules*, ch. 5, § 3(b)(ii) and (c).

#### **H. Subsidence**

98. The applicant must have a professional geologist describe the geology of the permit area and adjacent areas. *Coal Rules*, ch. 2, § 4(a)(vii) and (viii). The applicant must describe the overburden, topsoil, subsoil, mineral seams, or other deposits. Wyo. Stat. Ann. § 35-11-406(a)(vii); *Coal Rules*, ch. 2, § 4(a)(x).

99. Auger mining is a type of surface mining under the Act. Wyo. Stat. Ann. § 35-11-103(e)(xx)(A). It may be limited or prohibited to minimize unwarranted subsidence. *Coal Rules*, ch. 5, § 6(b). For auger mining, subsidence control shall be provided as required by Chapter 7, Section 2 of the *Coal Rules*, which governs underground mines. *Coal Rules*, ch. 5, § 6(d).

100. Regarding subsidence control, Chapter 7, Section 2 requires that “[u]nderground mining activities shall be planned and conducted so as to prevent subsidence from causing material damage to structures, the land surface, and groundwater resources.” *Coal Rules*, ch. 7, § 2(b)(iii).

Chapter 7, Section 2(c) of the *Coal Rules* also requires that:

The operator of an underground coal mining operation shall submit a plan of underground workings .... The plan shall include maps and descriptions of significant features of the underground mine, extraction ratios, measures taken to prevent or minimize subsidence and related damage, areas of full extraction and other information, as required by the Administrator.

**I. Blasting**

101. The Act provides that the Division must have rules regarding providing notice of blasting; maintaining a log; limiting blasting to protect people, property, underground mines, and water flows outside the permit area; ensuring that blasting operations be conducted by trained and competent persons; and providing a pre-blast survey to any resident or owner of a dwelling or structure within half a mile of the permit area. Wyo. Stat. Ann. § 35-11-415(b)(xi). The *Coal Rules* supplement the Act. *Coal Rules*, ch. 6.

102. The rules require that applications include a blasting plan for the area to be mined, including how the operator will comply with Chapter 6’s limitations on ground vibration and airblast. *Coal Rules*, ch. 2, § 5(a)(vii). The plan must also include information about the maximum amount of explosives detonated in any one blast; information about the nearest dwelling to any blasting area; a description of blasting monitoring, warning, and site access controls; a description of the procedure for recording and retaining a blast log; and a sample copy of public notices. *Id.*

**J. Fire Control Plan**

103. A mine plan must include a description of contingency plans developed to preclude sustained combustion of any materials constituting a fire hazard. *Coal Rules*, ch. 2, § 5(a)(iv).

Wyoming Statute § 35-11-406(b)(ix) requires an applicant to provide a plan for insuring that:

materials constituting a fire, health or safety hazard uncovered during or created by the mining process are promptly treated or disposed of during the mining process in a manner designed to prevent pollution of surface or subsurface water or threats to human or animal health and safety. Such method may include, but not be limited to covering, burying, impounding or otherwise containing or disposing of the . . . dangerous material[.]

104. An applicant must identify the extent of active or inactive mines. Wyo. Stat. Ann. § 35-11-406(a)(ix); *Coal Rules*, ch. 2, § 4(a)(ix)(C). However, the Act and the *Coal Rules* do not require an applicant to survey or map the locations of existing underground coal fires.

**K. Traffic**

105. An applicant must include maps of public highways and existing and proposed roads. Wyo. Stat. Ann. § 35-11-406(a)(ix) and (b)(v); *Coal Rules*, ch. 2, § 4(a)(xvi). The applicant must describe mineral transport and the major equipment used for all aspects of the operations. *Coal Rules*, ch. 2, § 5(a)(i)(A). The Act and the *Coal Rules* do not require an applicant to have or provide road use agreements with governmental entities for public roads, and do not authorize the Department to regulate traffic on public roads. *See Coal Rules*, ch. 12, § 1(a)(iv)(D).

**L. Recreational Uses**

106. An applicant must identify the past, current, and post-mine land uses of the permit and surrounding areas. Wyo. Stat. Ann. § 35-11-406(a)(vii) and (b)(i); *Coal Rules*, ch. 2, § 4(a)(i), (a)(ii), and (a)(xvii). An applicant also must describe procedures to avoid public nuisance or endangering public safety, human or animal life, property, wildlife and plant life in or adjacent to permit. Wyo. Stat. Ann. § 35-11-406(b)(xiii).

**N. Bonding**

107. **Reclamation Bond.** The Act requires operators to file a reclamation bond with the Administrator before commencing mining. Wyo. Stat. Ann. § 35-11-417(a) through (c). The bond must be enough to assure that the mine performs all legal requirements. Wyo. Stat. Ann. § 35-11-417(a). This primarily includes the cost of reclaiming the land. Wyo. Stat. Ann. § 35-11-417(c)(i).

108. **Surface Protection Bond.** The Act provides that a mineral owner must execute a surface protection bond prior to permit issuance to protect the interests of the surface owner, unless the surface owner waives this requirement by agreement. Wyo. Stat. Ann. § 35-11-416(a).

**O. Cumulative Hydrologic Impact Assessment (“CHIA”)**

109. The Act provides that the Director shall not approve a surface coal mining permit unless the applicant affirmatively demonstrates and the Administrator finds that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. Wyo. Stat. Ann. § 35-11-406(n)(iii). The Division has promulgated rules laying out the requirements for a CHIA, which is the analysis that permits the Administrator to make this finding. *Coal Rules*, ch. 19. The Council asked the parties for briefs discussing the applicability of Wyoming Statute § 35-11-406(n) to these proceedings. *Briefing Order* (June 13, 2017).

**2. APPLICATION OF PRINCIPLES OF LAW**

**A. Surface Coal Mine Permit Application Process**

110. **Permit Application Process.** Brook has completed all of the procedural steps required to this point. *See* Wyo. Stat. Ann. § 35-11-406(e) through (j); (*See* Tr. at 45, 52-55, and 58; Exs. BHC 3, Fishers 26, and PRBRC 1.) The Administrator is not yet required to make the findings under Wyoming Statute § 35-11-406(n) because how the Council resolves objections may affect the application and thus the required findings. Wyo. Stat. Ann. § 35-11-406(k), (n), and (p).

111. The Director shall issue or deny the permit within 15 days of receiving these findings of fact, conclusions of law, and decision. Wyo. Stat. Ann. § 35-11-406(p). The Director may issue the permit with conditions that are necessary to accomplish the purpose of the Act and which are not inconsistent with the existing rules and standards. Wyo. Stat. Ann. § 35-11-801(a).

**B. General Permit Application Requirements**

112. **Permit Application.** The application contains the required elements, including an adjudication file, baseline information, and mine and reclamation plans. *See* Wyo. Stat. Ann. § 35-11-406(a) and (b); *Coal Rules*, chs. 2, 3, 7, 12, and 19; (Exs. DEQ 1 through 12; Tr. at 61-64).

113. **Mine Plan.** The permit application's mine plan satisfies the applicable requirements in the Act and the *Coal Rules*. The mine plan includes the required maps of the mining operation. See Wyo. Stat. Ann. § 35-11-406(b)(v) and (viii); *Coal Rules*, ch. 2 § 5(a)(xvi); (Ex. DEQ 12-129 to -147.) It describes the mining sequence and the highwall mining method. See *Coal Rules*, ch. 2, §§ 4(a) and 5(a)(i); (Tr. at 121-22; Ex. DEQ 12-028, -035, -129, and -134.)

114. **Reclamation Plan.** The reclamation plan complies with the Act and the *Coal Rules* by identifying post-mine land uses, describing post-mining activities including grading, revegetation, and disposal of facilities, and including a reclamation schedule. See Wyo. Stat. Ann. §§ 35-11-406(b)(i), (ii), (iii), (iv), (vii), and (xix), and -415(b)(ix); *Coal Rules*, ch. 2, § 6(a), 6(b)(ii), 6(b)(iii), and 6(b)(viii); (Tr. at 176; Ex. DEQ 13-014, -016 to -018, -023 to -041, -074 to -076, and -114.) Although Big Horn has requested the TR-1 trench to be immediately reclaimed, the Council denies Big Horn's request because the trench is needed as a water source for mining activities, and even if it is used as a sump, it will still be reclaimed. (Tr. at 192-93.)

### C. Overlapping Permits

115. The Act and the *Coal Rules* do not forbid mining permit areas from overlapping and they do not require permittees with overlapping permits to have agreements for reclamation responsibilities in the overlapping area. See *Coal Rules*, ch. 2, § 5(a)(xviii). However, if such an agreement exists, it must be provided to the Department. *Id.* The terms of the reclamation plan already require Brook to fully bond any disturbance it plans in the area where it and Big Horn's permit areas overlap. (Ex. DEQ 13-075.) Brook will be responsible for bonding and reclaiming its own disturbance, as will Big Horn. Therefore, the permit condition requested by Big Horn on the assignment of responsibility is unnecessary. However, the Council agrees that Brook should

correct the mine plan to state that the permit does not include an agreement between the companies. (See Tr. at 865-66 and 868-69; Ex. BHC 7; Ex. DEQ 12-088.)

**D. Surface Water Issues**

116. **Surface Water Baseline Information.** The permit application's baseline data collection complies with the requirements of the Act and the *Coal Rules*. The application includes a description of the permit area's annual rainfall. (Ex. DEQ 4-084 to -085, and -109.) It includes a description of current surface waters and water uses. (Ex. DEQ 6-011 to -017, and -092 to -094.) It includes a description of surface water rights. (Exs. DEQ 2-012 and DEQ 6-047 to -053.) It includes a map showing current water bodies and wells. (Ex. DEQ 2-012, -014, and -015.) This data satisfies the requirements of the Act. Wyo. Stat. Ann. § 35-11-406(a)(vii) and (ix). With respect to the *Coal Rules*, the permit application includes information on seasonal flow rates of surface waters. (Ex. DEQ 6-054 to -057.) It includes information on the acreage of drainage areas. (Ex. DEQ 6-011, -038, and -092.) It includes water quality information sufficient to identify seasonal variability. (Ex. DEQ 6-021 to -022, -087, and -203 to 235.) This data satisfies the requirements of the regulations. *Coal Rules*, ch. 2 § 4(a)(xi)(C) and (D). The objectors generally allege that the existing baseline data is not adequate, but additional baseline data is not required.

117. **Surface Water Monitoring Stations.** The permit application's surface water monitoring locations comply with the *Coal Rules*. The application includes a monitoring plan that identifies quantity and quality parameters, sampling frequency, and monitoring locations, as required by rule. *Coal Rules*, ch. 2 § 5(a)(viii)(D)(I); (DEQ 12-062 to -064, -112, and -144.)

118. Mr. Kunze suggested using three surface water monitoring stations in lieu of the USGS gaging sites on the Tongue River and Goose Creek in order to determine whether changes to the Tongue River were due to the mine's operations or due to Goose Creek's relatively lower



quality, although he stressed that they are not required by law. (Tr. at 411-12.) The Council agrees that additional monitoring stations are not required under the Act or the *Coal Rules*. (See Tr. at 411-12.) However, because the Department has suggested this condition, the Council will condition its decision in this matter on Brook submitting a revision to the permit within 150 days amending the location of its surface water monitoring stations.

119. **Hydrologic Control Measures.** The permit application adequately describes the hydrologic control methods that the mine will use to protect water quality and quantity. The permit application describes how Hidden Water Creek will be diverted around trench cuts. (Ex. DEQ 12-043 to -044.) This description satisfies the requirement that mine permit applications describe how surface water will be diverted around affected land. Wyo. Stat. Ann. § 35-11-406(b)(xiv). The permit application includes maps showing the location of hydrologic control methods that Brook proposes to use. (Ex. DEQ 12-139 to -143.) It also includes descriptions of the typical design of hydrologic control measures. (Ex. DEQ 12-149 to -181.) These maps and descriptions satisfy the Division's regulation requiring that a permit application describe the locations and typical design of hydrologic control methods. *Coal Rules*, ch. 2 § 5(a)(i)(D)(IV). These robust hydrologic control methods adequately address the objections regarding surface water quality.

120. **Replacing Affected Surface Water Supplies.** The Council finds that the mine is unlikely to affect surface water supplies, in light of Mr. Kunze's testimony. (Tr. at 397, 410.) If the mine proximately causes the contamination, diminution, or interruption of an underground or surface source of water for a surface owner, the Act requires the mine to replace the source. Wyo. Stat. Ann. § 35-11-415(b)(xii). No permit condition is necessary to ensure that the mine replaces contaminated or interrupted water sources, because the Act requires that the mine do so. *Id.*

#### **E. Groundwater Issues**

121. **Groundwater Baseline Information.** The permit application contains the required baseline information about groundwater. *Coal Rules*, ch. 2, § 4(a)(vii), (viii), (xii), and (xiv). (Exs. DEQ 5-016 to -020, and 6-023 to -031.) Although Big Horn’s GRD may have provided additional data points for the model, the law does not require that the application include the GRD, nor is the GRD reliable enough for modeling the proposed Brook Mine. (Tr. at 1464-66 and 1475-80.)

122. **Groundwater Drawdowns.** The permit application properly identifies nearby wells and groundwater. *See* Wyo. Stat. Ann. § 35-11-406(a)(vii) and (ix); *Coal Rules*, ch. 2 § 4(a)(xiii) and (xvi); (Ex. DEQ 1-372 to -412; Ex. DEQ 3-012 and -014; Tr. at 78-80.) It also includes a groundwater model and determines the projected result of mining and reclamation on groundwater both in and outside of the permit area. *See* *Coal Rules*, ch. 19, § 2(a)(i); (Ex. DEQ 12-183 and -251.) The model predicts that the proposed mine will have only small impacts on groundwater wells. (Tr. at 485 and 488-489; Ex. DEQ 12-187 and -251.) Based on Dr. Kuchanur’s testimony, the Council finds that the drawdowns to the Tongue River due to inflow into the TR-1 area will be minimal. (Tr. at 487-89 and 1469-71; Ex. DEQ 12-254; Ex. BHC 15-009.)

123. **Replacing Affected Groundwater Supplies.** The Council agrees that the Brook’s duty to replace groundwater supplies should expand to protect all valid water rights, not just adjudicated rights. *See* Wyo. Stat. Ann. § 35-11-415(b)(xii); (Ex. DEQ 12-062.)

**F. Alluvial Valley Floors**

124. Contrary to the objections, the applicant and the Department have met the AVF application requirements by evaluating and declaring all AVFs within the permit area or on adjacent areas that would be affected by mining. *See* *Coal Rules*, ch. 3, § 2(b), and ch. 12, § 1(a)(i); (See Tr. at 109-16, 156-57, 266, and 554-55; Exs. DEQ 11, 12, 13, 15, and 16.)

125. Inside the permit area, the application identifies the designated AVF along the Tongue River in the eastern corner of the area. (Tr. at 109; Ex. DEQ 11-010.) The application provides for protecting, monitoring, and restoring that AVF, as required. *Coal Rules*, ch. 3, § 2(c)(ix), and ch. 5, § 3(a); (See Exs. DEQ 12-092 to -094, and 13-073 and -074.) It also includes the finding that the Hidden Water Creek area is not an AVF. (Tr. at 113-14; Ex. DEQ 11-021.)

126. The Department also evaluated and then designated an area of Slater Creek within the permit area as an AVF. (Tr. at 110-12; Ex. DEQ 15.) The separation between surface mining activities and the Slater Creek AVF means that it will not be affected by mining. (Tr. at 112-13 and 156-57; Exs. DEQ 12-090 to -092, 13-073, and 15-005.)

127. Outside of the permit area, the Department determined that the Tongue River Valley south of the permit area would not be affected by mining and does not yet have to be designated as AVF. (Tr. at 109 and 114-16; Ex. DEQ 16-002.) Despite Mr. Wireman's suspicions, the Department demonstrated through groundwater modeling and analysis of the application that those lands would not be affected by mining. (Tr. at 266 and 554-55; Exs. DEQ 12-090 to -092, 13-073, and 16-002.) Because those lands are outside the permit area and will not be affected, the potential Tongue River AVF lands did not need to be categorized prior to the permit's approval. See *Coal Rules*, ch. 3, § 2(b), and ch. 12, § 1(a)(i). The Department may evaluate those lands for AVF in the future if mining operations change and will potentially affect the area. (Tr. at 266.)

**G. Subsidence**

128. Although baseline overburden sampling was not conducted in the TR-1 area, Brook's sampling was done on a tighter configuration than normal, and the application commits Brook to conduct and submit additional sampling for each mine panel prior to mining it, including the TR-1 panels. (Tr. at 91-93 and 186-88; Ex. DEQ 12-032.) Overall, the application contains

sufficient baseline data to characterize the overburden in the permit area. *See* Wyo. Stat. Ann. § 35-11-406(a)(vii); *Coal Rules*, ch. 2, § 4(a); (*See* Ex. DEQ 5-017 to -021.)

129. As a highwall mine, the Book Mine is subject to the requirements for auger mining related to subsidence. *Coal Rules*, ch. 5, § 6(d), and ch. 7, § 2(b)(iii) and 2(c). Although Dr. Marino testified that the subsidence control plan needs more analysis, the plan includes sufficient modeling and information to demonstrate that mining is planned so as to prevent subsidence from causing material damage to structures, the land surface, and groundwater resources. *See Coal Rules*, ch. 7, § 2(b)(iii); (*See* Ex. DEQ 5-018; Ex. DEQ 12-319 to -333.) The application also contains maps and descriptions of the mine workings, significant features of the mine, extraction ratios, and measures to be taken to prevent or minimize subsidence and related damage. *See Coal Rules*, ch. 7, § 2(c); (*See* Tr. at 162 and 171-172; Ex. DEQ 12-035, -129, -131, -134, and -322 to -327.) Although the *Coal Rules*' requirements for a subsidence control plan are general, MSHA sets specific standards for its ground control plans and Brook will have to comply with those. *See Coal Rules*, ch. 7, § 2(b)(iii) and 2(c); (Ex. Brook 10d.) The additional information or analysis requested by the objectors is not necessary for the mine permit application.

#### **H. Blasting**

130. The permit application contains the information required by the *Coal Rules*. The permit application generally describes the blasting practices, explosives to be used, and blasting operations. *Coal Rules*, ch. 2, § 5(a)(vii)(A); (Ex. DEQ 12-073 to -075.) The permit application explains that the maximum shot in any eight-millisecond period would be limited depending on the distance to the nearest structure. *Coal Rules*, ch. 2, § 5(a)(vii)(A)(I); (Ex. DEQ 12-080.) The application contains a list of structures within half a mile of the permit boundary. *Coal Rules*, ch. 2, § 5(a)(vii)(A)(II); (Ex. DEQ 03-008.) It contains a description of monitoring, warning, and site

access control equipment and procedures. *Coal Rules*, ch. 2, § 5(a)(vii)(C); (Ex. DEQ 12-077, -080, and -081.) It contains a description of the procedures and plans for recording blasting logs. *Coal Rules*, ch. 2, § 5(a)(vii)(D); (Ex. DEQ 12-080.) And it contains a sample public notice for blasting operations. *Coal Rules*, ch. 2, § 5(a)(vii)(E); (Ex. DEQ 12-338.)

131. Several of the objectors expressed concerns that the blasting could exacerbate subsidence at historic mines. Mr. Emme testified that based on his knowledge and experience as a blasting expert, the vibrations from blasting at the mine would not cause subsidence in historic mines. (Tr. at 602.) He stated that for landowners, normal, day-to-day events like high wind would cause more vibrations in structures than the mine's blasting. (Tr. at 584.) The Council credits Mr. Emme's expert opinion and finds that the mine will not likely exacerbate historical subsidence.

132. Several objectors requested a condition that Brook use seismographic monitors to monitor vibrations from blasting near structures on request. Emme testified that DEQ, rather than mine operators, has historically placed seismographic monitors near structures to ensure that the vibrations reaching those structures did not exceed regulations. (Tr. at 618.) The Council finds that a permit condition requiring Brook to use seismographic monitors near structures is not necessary.

#### **I. Fire Control Plan**

133. The fire control plan in the permit application contains a sufficient description of the contingency plans to extinguish flammable substances. *See Coal Rules*, ch. 2, § 5(a)(iv); (*See* Ex. DEQ 12-312 to -317.) The application's fire control plan contains sufficient procedures to ensure that materials constituting a fire hazard are addressed to prevent pollution or threats to human or animal health and safety. *See* Wyo. Stat. Ann. § 35-11-406(b)(ix). Brook Mine is not required to identify the locations of coal fires in or near the proposed permit area.

#### **J. Traffic**

134. The landowners' objections to traffic from the Brook Mine do not demonstrate an application deficiency. Brook has provided the required information about the roads it will use and the method of coal transportation. *See* Wyo. Stat. Ann. § 35-11-406(a)(ix) and (b)(v); *Coal Rules*, ch. 2, §§ 4(a)(xvi), 5(a)(i)(A), and 5(a)(xvi); (*See* Ex. DEQ 12-025 to -027 and -131; Tr. at 147.) Public road use agreements are not required for an application and the Department does not have authority to regulate traffic on public roads. *See Coal Rules*, ch. 12, § 1(a)(iv)(D).

**K. Recreational Uses**

135. The permit application adequately addresses Ms. Malone's objections on recreation. The application includes baseline information about recreational uses and commits to restoring pre-mining recreational opportunities and conditions as part of reclamation, including hunting walk-in areas. (*See* Ex. DEQ 4-010, 4-013 to -015, and 13-015.) The Kleenburn Recreation Area is outside the permit area and will remain accessible to the public. (Ex. DEQ 4-041.)

**M. Bonding**

136. **Reclamation Bond.** A reclamation bond is not required at this stage of the permitting process. *See* Wyo. Stat. Ann. §§ 35-11-406(h) through (k) and (p), and -417. The Administrator must set a reclamation bond amount, and Brook must file a bond for that amount, before mining may commence. Wyo. Stat. Ann. § 35-11-417. The operator's proposed bond amount exceeds what the Department would have required under its bonding guideline. (Tr. at 589-90.) No permit condition is necessary to ensure that Brook post a reclamation bond, because the Act prohibits mining without such a bond. Wyo. Stat. Ann. § 35-11-417.

137. **Surface Protection Bond.** A surface protection bond is not required to be in place at this stage in the permitting process. *See* Wyo. Stat. Ann. § 35-11-416(a). In the event that Brook and Big Horn do not come to an agreement waiving this bond, the Administrator will set the bond

amount. Wyo. Stat. Ann. § 35-11-416(a). No permit condition requiring Brook to post this bond is necessary because such a bond is required by the Act. *Id.*; (Tr. at 871.)

**N. Cumulative Hydrologic Impact Assessment (“CHIA”)**

138. The Council finds that the Administrator shall make findings under Wyoming Statute § 35-11-406(n) after the Council’s decision here. The statute commits this decision to the Administrator. Wyo. Stat. Ann. § 35-11-406(n); *DEQ’s Br. on Role of Wyo. Stat. § 35-11-406(n) in this Proceeding* at 4. The Council cannot step into the Administrator’s role when the Act plainly commits this authority to him. *See Bender v. Decaria*, 998 P.2d 955, 956-57 (Wyo. 2000). The Department will finalize the CHIA after this hearing. *Coal Rules*, ch. 19. If the facts do not support the required findings, the Director cannot issue the permit. Wyo. Stat. Ann. § 35-11-406(n).

**VI. DECISION**

**IT IS HEREBY DECIDED** that the permit should contain the following condition:

Within 45 days of permit issuance, Brook shall submit a non-significant permit revision to the Department that includes the changes specified below. Brook shall respond within 30 days of receipt to any Department review comments on the proposed revisions.

1. Surface water quantity and quality data collection in the Tongue River and Goose Creek drainages in the Brook Mine permit will be enhanced by establishing additional surface water monitoring stations in these drainages. Brook shall install sample sites in three locations:

a. Upstream of the most western tributary of the Tongue River that may be affected by mining. This site will represent surface water conditions as water enters the vicinity of the Brook Mine permit acreage;

b. Downstream of the confluence with Goose Creek where impacts from the mine on Tongue River may be accurately determined;

c. Upstream on Goose Creek near the confluence of Goose Creek and Tongue River and adjacent to the Brook Mine permit boundary.

These sampling locations shall not be established without prior approval from the Division. Monitoring will occur on a quarterly basis for water quality and instantaneous streamflow measurements shall be taken at the time of water quality sampling.

2. Brook shall amend the last paragraph in MP.5.8 Mine Pit Dewatering Plan to state:

“If any water rights are determined to be affected by the mining operations of the Brook Mine, that water source will be replaced with a source of similar quantity and quality, as required by Wyoming Statute §35-11-415(b)(xii), until such time that the original water right's functionality is restored.”

3. Brook shall replace the final sentence in Section MP.6.3.2 Plan to Mitigate the Impacts on Groundwater with the following:


“The Brook Mine shall coordinate with WDEQ/LQD the investigation of all complaints of their mining activities causing a loss of quantity and/or quality of a water right. If any water rights are determined to be affected by the mining operations of the Brook Mine, that water source will be replaced with a source of similar quantity and quality as required by Wyoming Statute §35-11-415(b)(xii), until such time that the original water right's functionality is restored.”

4. Brook shall correct Section MP.22 Dual Permitted Areas to accurately reflect the agreements located in the Adjudication File.

**IT IS FURTHER DECIDED** that, notwithstanding all objections, the permit application is not deficient; and

**IT IS FURTHER DECIDED** that, unless otherwise addressed in this Decision, all objections to the permit application are resolved in the favor of the applicant.

Dated this 24th day of July, 2017.



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**CERTIFICATE OF SERVICE**

I hereby certify that on the 24th day of July, 2017, a copy of the foregoing document was filed electronically with the Wyoming Environmental Quality Council's online docket system and copies were served electronically via that system and by email on the following:

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