

Shannon Anderson (Wyo. Bar # 6-4402)  
 Powder River Basin Resource Council  
 934 N. Main St., Sheridan, WY 82801  
 (307) 672-5809  
[sanderson@powderriverbasin.org](mailto:sanderson@powderriverbasin.org)

**BEFORE THE ENVIRONMENTAL QUALITY COUNCIL  
 STATE OF WYOMING**

**IN RE BROOK MINE APPLICATION** )  
 ) **DOCKET 17-4802**  
**TFN 6 2-025** )

**POWDER RIVER BASIN RESOURCE COUNCIL’S PROPOSED FINDINGS OF FACT  
 AND CONCLUSIONS OF LAW**

Pursuant to the June 13, 2017 Order from the Environmental Quality Council (“EQC” or “Council”), the Powder River Basin Resource Council (“Resource Council” or “PRBRC”) hereby submits its Proposed Findings of Fact and Conclusions of Law in the above-captioned proceedings.

**I. General Findings**

1. According to the Wyoming Environmental Quality Act (“WEQA” or “Act”), “No mining operation may be commenced or conducted on land for which there is not in effect a valid mining permit to which the operator possesses the rights.” W.S. § 35-11-405(a).

2. Requirements for coal mine permit applications as well as grounds for approval and denial are governed by Section 406 of the Wyoming Environmental Quality Act, along with the Land Quality Division’s (“LQD”) Coal Rules and Regulations (hereafter “Coal Rules”).

3. Specifically, as discussed below, certain findings related to the application’s compliance with the WEQA and DEQ regulations must be made before the EQC can reach a decision on the permit application. *Id.* at §§ 406(n)(i)-(vii).

4. DEQ regulations require information in a permit application to be “current” . . . “accurate and complete.” Coal Rules, Ch. 2 § 1; *see also* W.S. § 35-11-406(n)(i) (requiring a permit applicant to prove that the application is “accurate and complete.”).

5. In response to the required public notice, the Resource Council timely filed objections to Brook Mining Company, LLC’s (“Brook” or “applicant” or “company”) coal mine permit application on January 27, 2017. Ex. POW 1. The Resource Council also timely requested a hearing before the EQC, initiating this contested case hearing.

6. Members of the Resource Council also timely filed objections to Brook’s coal mine permit application. John and Vanessa Buyok, Gillian Malone, Sadie Clarendon, Jane Buyok, Anton Bocek, Joan Tellez, Wendy Condrat, Brooke Collins, and William Bensel filed objections. Ex. POW 2-10. Their objections and concerns demonstrate that the Resource Council, through representation of its members, is an “interested person” within the meaning of Section 406(k) and a “person with an interest which is or may be adversely affected” within the meaning of Ch.1 § 17(b) of DEQ’s Rules of Practice and Procedure.

7. A contested case hearing was held in this matter on May 22-26 and June 7-8, 2017.

8. After the contested case hearing, the EQC must “issue findings of fact and a decision on the application.” W.S. § 35-11-406(p). This “decision on the application” is consistent with the authority granted to the EQC under the WEQA that the agency may “Order that any permit, license, certification or variance be granted, denied, suspended, revoked or modified.” *Id.* at § 112(c)(ii).

9. In making this decision, the EQC’s review of DEQ’s permitting decisions and of the permit application is *de novo*. Under *de novo* review, the EQC must look afresh or “from the

new” at the permit application and cannot afford deference to DEQ in issuing any findings of fact or in making the decision on the permit application.<sup>1</sup>

10. As discussed below, the permit application is deficient because it contains “omission[s] or lack of sufficient information serious enough to preclude correction or compliance by stipulation in the approved permit to be issued by the director.” *Id.* at § 103(e)(xxiv). If a deficiency exists, by definition it *cannot* be remedied by a permit condition.

11. Also, as discussed below, the applicant has not met its burden of proof to demonstrate compliance with key parts of the law, including the findings of Section 406(n) and bonding.

12. Since the application contains deficiencies, and it is not in compliance with the law, the EQC must order the Director to deny the permit. *Id.* at §§ 406(h), 406(n), 406(p).

## **II. The Permit Applicant Has Not Met Its Burden of Proof**

13. Under Section 406(n), “The applicant for a surface coal mining permit has the burden of establishing that his application is in compliance with [the WEQA] and all applicable state laws.” The Wyoming Supreme Court has held that this burden extends to any hearing before the EQC on a coal mine permit. *Grams v. Env't'l Quality Council*, 730 P.2d 784, 789 (Wyo. 1986).

14. The burden of proof rests on the permit applicant alone. *Id.* at 406(n). The EQC cannot rely on DEQ’s testimony or evidence production designed to assist the permit applicant in meeting its burden of proof. *See, e.g.* Tr. at 1539 (Mr. Pope: “Brook has a burden of proof in this hearing. And in particular one of the things that Brook has to demonstrate is that everything in the statutes and regulations is included within the permit application.”). This is an important requirement because DEQ must remain in a neutral position as the permit has not yet been issued.

---

<sup>1</sup> This standard of review is especially applicable here where the scope of the EQC’s decision is to make the decision on the permit application, a decision DEQ has not made.

15. Through these proceedings, the permit applicant did not meet its burden of proof to demonstrate compliance with the law, including the findings of Section 406(n),<sup>2</sup> and to prove that no part of the permit application is deficient.<sup>3</sup>

16. The permit applicant presented only one witness who presented testimony about the application, Mr. Barron. Mr. Barron does not have personal experience in highwall mining, and has never helped to prepare a permit application for a highwall mine before. Tr. at 729 (Testimony of Mr. Barron).

17. Mr. Barron admitted that one needs to have a “certain level of expertise” to understand scientific principles, standards of best industry practice, and to interpret regulatory requirements. *Id.* at 733-34. However, Mr. Barron did not have expertise or professional knowledge to present testimony related to subsidence risk or hydrology. Mr. Barron is not a geologist or a hydrogeologist. *Id.* at 728, 1520-21. Nor is he an engineer with expertise in subsidence risk or control. *Id.* at 737; 757-58. Mr. Barron did not prepare the subsidence control plan and was not qualified to present testimony regarding its findings. *Id.* at 734.

18. Therefore, Brook did not present any testimony to meet its burden of proof to rebut the expert testimony, expert reports, and other evidence identifying deficiencies in the permit application presented by the Resource Council, Big Horn Coal, and the Fishers.

### **III. The Permit Application Does Not Include or Support the Findings of Section 406(n)**

19. The critical findings of Section 406(n) have not yet been made, and as DEQ has admitted, they must be made before a decision on the permit application can be made. *See, e.g.* Tr. at 7-8 (Opening statement of DEQ).

---

<sup>2</sup> As discussed in the Resource Council’s recent brief on the subject, Section 406(p) dictates that once there is a hearing, the EQC makes the “decision on the application,” not the DEQ. There is no later opportunity for the DEQ to review the permit’s compliance with Section 406(n).

<sup>3</sup> *See also* Tr. at 1504-05 (Testimony of Dr. Kuchanur regarding technical adequacy).

20. Additionally, as discussed below, testimony and evidence presented at the hearing demonstrate that the findings cannot be made at this time because of deficiencies in the permit application.

21. The lack of findings, and the inability for the DEQ or EQC to make the findings after the hearing, necessitates denial of the permit application. W.S. § 35-11-406(n).

**A. A Finding that the “Application is Accurate and Complete” Cannot Be Made**

22. As presented below, the application is neither accurate nor complete for a variety of important issues, including subsidence control, water quality and quantity data and assessment, facilities, coal production estimates, roads, blasting, and bonding.

23. Since a finding that “[t]he application is accurate and complete” cannot be made, the Council must order that the permit application should be denied. *Id.* at § 406(n)(i).

**B. The 406(n)(v) Findings Related to Alluvial Valley Floors Cannot be Made**

24. Alluvial valley floors (“AVFs”) are defined by the WEQA as “the unconsolidated stream laid deposits holding streams where water availability is sufficient for subirrigation or flood irrigation agricultural activities . . .” *Id.* at § 103(e)(xvii).

25. Protection of these AVFs, both on the mining site and in adjacent offsite areas, is a main requirement of SMCRA to preserve the ecological integrity and “essential hydrologic functions” of important agricultural areas as coal mining moved into the “arid and semiarid regions of the country.” *See* 30 U.S.C. § 1265(b)(10)(F); W.S. § 35-11-415(b)(x).

26. These federal requirements are reflected in Section 406(n)(v) and the findings required for a decision on a coal mine permit to ensure that a permit will protect the functions of AVFs.

27. These findings and affirmative obligations to prevent harm to alluvial valley floors are particularly ubiquitous here, where the alluvial aquifers are an important source of water for local agriculture. *See* Tr. at 532 (Testimony of Dr. Kuchanur affirming the importance of the alluvial aquifers in the permit area and adjacent lands).

28. The permit application does not support a finding that “the proposed operation would . . . [n]ot interrupt, discontinue, or preclude farming on alluvial valley floors that are irrigated or naturally subirrigated . . .” or a finding that the proposed operation will “[n]ot materially damage the quantity or quality of water in surface or underground water systems that supply these alluvial valley floors” as required by Section 406(n)(v)(A)-(B). *See also* Coal Rules, Ch. 12 § 1(a)(i).

29. This finding cannot be made because DEQ has not finished mapping alluvial valley floors in adjacent lands. *See* Tr. at 262 (Testimony of Mr. Kristiansen admitting DEQ did not assess or designate alluvial valley floors in all adjacent lands); Ex. POW 36-37 (describing incomplete surveying and DEQ commitments to do more surveying *after* the permit was deemed suitable for publication and went to public notice).

30. Nor did the permit application contain the important data and analysis required by DEQ rules. Coal Rules Ch. 3 § 2 (prescribing requirements for data and analysis related to AVFs in the permit area and in adjacent lands).

31. The permit application is deficient because it does not include delineation of, or assessment of impacts to, an alluvial valley floor designated by DEQ after the permit application was deemed “technically complete.” Tr. at 112 (Testimony of Mr. Kristiansen: “So at the time the technical completeness was completed for AVFs, I had not yet accomplished the AVF material and there was nothing for them to put in the application. Once it was declared complete,

then we don't revisit that again.”). However, in spite of the lack of designation at the time of permit review, DEQ later determined that the AVF would not be affected and therefore did not have to be designated in the permit application. *Id.* at 113.

32. The same goes for a much larger “potential” AVF along the Tongue River. Ex. DEQ 16; Tr. at 115, 263 (testimony from Mr. Kristiansen that because DEQ determined that the potential AVF won't be affected by mining, it doesn't need to be designated at this time).

33. But herein lies the catch 22 of the permit application: DEQ could not factually determine that the AVF would not be affected *unless* it was properly delineated and assessed *prior* to review of the permit application. *See, e.g.* Tr. at 1375-76 (Testimony of Mr. Wireman: “if you don't know where they are, how can you design a mine plan to protect them?”).

34. Even assuming DEQ could determine whether AVFs will be affected *without* delineating them prior to making that assessment, DEQ's determination of whether AVFs will be “affected” by mining is much too simplistic and is based wholly on whether mining will directly occur in the AVF. Ex. DEQ 16; Ex. DEQ 12 at 90; *See also* Tr. at 156-57 (Testimony of Mr. Kristiansen arguing that because there is a 100 foot buffer between surface or underground mining and the creek that the AVF will not be affected); *Id.* at 386.<sup>4</sup> Mr. Wireman's expert opinion is that you can damage the AVF without direct disturbance, damage that is not considered by Brook or DEQ. *Id.* at 1377-78.

35. DEQ underestimates a possible hydrologic connection between the coal seams and the AVFs because the agency assumed that the Tongue River is the sole source of recharge to the AVFs. Tr. at 339 (Testimony of Mr. Kristiansen). This is not the case. *Id.* at 1380 (Testimony of

---

<sup>4</sup> Later Mr. Kristiansen said he made this determination also based on the fact that there would be no “discharge of any kind,” tr. at 266, however, as was discussed at the hearing, the company will be applying for a WYPDES permit that will allow discharge of some pollution into waterways. Tr. at 398 (Testimony of Mr. Kunze).

Mr. Wireman that groundwater supports the Slater Creek AVF); *id.* at 1387-92, 1396 (testimony that the AVF along the Tongue River is recharged by the river and by groundwater and that there is a hydrologic connection between the AVFs and the coal seams); Ex. POW 17 at 6 (groundwater from the coal seams “is a source of recharge to Slater Creek alluvium.”); *id.* at 9 (discussing potential impacts to the Tongue River AVFs).

36. Additionally, DEQ even admits that at some point in the future mining could affect the “potential” AVF. Tr. at 266 (Testimony of Mr. Kristiansen saying mapping of the potential AVFs would be done in the future as the mine progresses toward them). DEQ and Brook testimony also admitted that there is a hydrologic connection between the coal seams Brook plans to mine and the AVFs. *Id.* at 295-96, 303 (Testimony of Mr. Kristiansen); *Id.* at 564-65 (Testimony of Dr. Kuchanur); *see also* Ex. DEQ 12 at 231 (identifying a connection between the Carney coal seam and the Tongue River alluvium); Tr. at 788-89 (Testimony of Mr. Barron).

37. This hydrologic connection is of particular importance in the TR-1 area, as the company plans to pump or dewater the area for a source of water for the mine, throughout the life of the mine. The permit application does not consider any impacts associated with this dewatering to the alluvial system along the Tongue River. Tr. at 300.

38. Therefore, as DEQ itself admitted, given the lack of designation of AVFs, and the lack of impacts analysis to these AVFs, DEQ is unable to make the Section 406(n) finding that mining will not materially damage the quantity or the quality of the water in the AVFs (both designated and “potential”). Tr. at 303 (Testimony of Mr. Kristiansen).

39. Since DEQ (or alternatively, the EQC) is unable to make the Section 406(n) findings that AVFs will be protected as required by the law, the permit must be denied.



**C. A Finding that the Mine Has Been Designed to Prevent Material Damage to the Hydrologic Balance Cannot Be Made**

40. 357 groundwater wells are present within three miles of the permit area. Tr. at 1344 (Testimony of Mr. Wireman).

41. Groundwater flow will be intercepted during mining, up to 99 gallons per minute at the anticipated peak rate. Tr. at 487 (Testimony of Dr. Kuchanur).

42. It is estimated that groundwater levels will not recover to within 10 feet of pre-mining levels for at least 10 years for the Carney Seam and 20 years for the Masters Seam, creating long-term impacts to regional water supply. *Id.* at 486.

43. However, as Mr. Wireman concludes, “[g]roundwater flow in the coal seams is poorly characterized. This constrains the ability to estimate dewatering rates and volumes and to assess probable cumulative hydrologic impacts.” Ex. POW 17 at 6.

44. Even given the limited data collection and modeling assumptions, the permit application acknowledges drawdown impacts to wells outside the permit boundary. Ex. DEQ 12 at 251. However, as explained during testimony, neither Brook nor DEQ did any analysis for the permit application to assess whether drawdown will create material impacts to quantity or quality of those water wells, *or* if those impacts occur, whether replacement water is available. Tr. at 549 (Testimony of Dr. Kuchanur); *Id.* at 1016-17, 1037-39 (Testimony of Mr. Buyok); *Id.* at 1094 (Testimony of Mr. Bocek); *Id.* at 1060-62 (Testimony of Ms Brezik-Fisher).

45. As Mr. Wireman’s expert testimony demonstrated, “That is simply not discussed or addressed in terms of what happens to the water in these wells if you dewater the coal, because they just haven’t dealt with it.” *Id.* at 1344; *see also id.* at 1382-85 (concluding that “there was no way to really assess the potential impact of these domestic wells due to declines in water

levels . . . there just was not enough information and data there” and “we don’t know enough here in this hydrologic system to make any judgments about risk or about impacts.”).

46. Furthermore, as demonstrated below, the permit application does not contain a baseline water quality or quantity assessment for surface and groundwater required by the WEQA and associated regulations. As Ms. Boomgaarden set forth in Big Horn Coal’s opening statement, “Without knowing and understanding the site-specific hydrologic conditions, it simply is impossible for Brook to adequately consider the impacts of its proposed highwall mining operations as the law requires.” Tr. at 19; *see also id.* at 1351 (Testimony of Mr. Wireman that if the baseline data does not exist, you “can’t assess risk” and “can’t assess changes to the hydrologic system”); *id.* at 1352 (“If you want an honest, thorough, rigorous assessment of what’s going on, and if the decisions that need to be made are based on that, then you need an adequate amount of data.”); *id.* at 1439, 1443.

47. These factual findings support a conclusion that the permit application does not contain “a plan to minimize the disturbances to the prevailing hydrologic balance at the minesite and in associated offsite areas and to the quality and quantity of water in surface and ground water systems both during and after mining operations and during reclamation” as required by the WEQA and corresponding DEQ regulations. W.S. §§ 35-11-406(b)(xvii), 406(n)(iii); Tr. at 945 (Testimony of Mr. Gerlach); *id.* at 1372-73 (Testimony of Mr. Wireman: “I don’t think there’s enough data and enough assessment to make any decision along those lines” regarding material damage to the hydrologic system; recommending the permit should be denied); Ex. POW 17 at 3.

48. Nor does the permit application contain the required “plan to ensure the protection of the quantity and quality of, and rights to, surface water and groundwater both within and

adjacent to the permit area” or “[a]n evaluation of the impact of the proposed mining activities that may result in contamination, diminution, or interruption of the quality and quantity of groundwater or surface water within the proposed mine permit area or adjacent areas that are used for domestic, agricultural, industrial, or other legitimate purposes.”. Coal Rules Ch. 2.

49. Nor does the permit application contain a probable hydrologic consequences determination “sufficient to make the determination of W.S. § 35-11-406(n)(iii).” *Id.* § 4(a)(xiv); Ch. 19 § 2(a)(i).

50. Additionally, the Cumulative Hydrologic Impacts Assessment (“CHIA”) has not been completed. DEQ admits that the CHIA is necessary to support the “material damage” finding under Section 406(n)(iii). Tr. at 413, 436, 444 (Testimony of Mr. Kunze that the DEQ cannot make the 406(n) findings without the CHIA).

51. While the CHIA is a document separate from the permit application, Tr. at 413, a “common practice” of DEQ is to finalize the CHIA by the time of public comment to afford an opportunity to raise comments or objections on the CHIA – a process that did not happen here. *Id.* at 423-25; Ex. POW 53.<sup>5</sup>

## **II. The Permit Application Does Not Include Sufficient Information to Assess and Control Subsidence Risk**

52. The company has an obligation to prevent subsidence. A coal mining permit application with underground components, such as this permit application, must include “[i]nformation and evaluations on the potential for and the extent of subsidence, and the effect it may have on structures, the continued use of the surface land and aquifers or recharge areas” and “[e]xcept for areas where planned subsidence is projected to be used, measures to be taken in the

---

<sup>5</sup> Testimony at the hearing established that the CHIA was started in 2014 but comments were not requested by reviewing agencies until December 2016, preventing the CHIA from being finalized by the end of the public comment period. Tr. at 425-26 (Testimony of Mr. Kunze with summary from Dr. Bagley).

mine to prevent or minimize subsidence, including backfilling of voids and leaving areas in which no coal is removed.” Coal Rules Ch. 7 § 1(a)(v).

53. Additionally, “[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. 2 § 2(b)(iii); Ch. 7 § 2(b)(iii); *see also* Tr. at 57 (Mr. Kristiansen discussing the subsidence control requirements of Ch. 7 § 2).

54. DEQ regulations further provide that “[a]uger mining may be limited or prohibited to minimize . . . unwarranted subsidence” Coal Rules Ch. 5 § 6(b); *see also* Coal Rules Ch. 3 § 5 (requiring information in the permit application to demonstrate compliance with these standards). This regulation applies to the Brook permit because at various times in the mine plan, the company refers to highwall mining as auger mining or “a similar method to auger mining.” Ex. DEQ 12 at 59, 88, 192; *see also* Tr. at 119, 233 (testimony of Mr. Kristiansen that the auger mining regulations apply to the Brook Mine).

55. DEQ’s Guideline No. 6A, Format and General Content Guideline for Permit Applications, Amendments and Revisions for Coal Mining Operations, requires a subsidence control plan for underground mining operations. A subsidence control plan is also required by federal regulations, incorporated into the state SMCRA program. *See* 30 C.F.R. § 784.20, *et seq.*

56. As acknowledged by DEQ, “subsidence control is of key importance to the mine plan.” Tr. at 162 (Testimony of Mr. Kristiansen).

57. In spite of this “importance,” as explained below, DEQ let the permit applicant proceed with an admittedly deficient subsidence control plan that does not achieve its required objective: to assess, control, and prevent subsidence at the mine site.

**A. Subsidence is Prevalent in the Area & Subsidence Risk is Amplified by an Overlap Between the Proposed Permit and Existing AML Projects**

58. Abandoned mine land (“AML”) division reclamation work to address subsidence problems in the area is widespread and ongoing. *See* Ex. POW 38-47, 80-82, 86-88. The permit area and areas adjacent to the permit area has active subsidence. Tr. at 1225-26 (Testimony of Dr. Marino); *id.* at 1019-22 (Testimony of Mr. Buyok).

59. DEQ was fully aware of this history of subsidence at the time of its review of the permit application. Tr. at 165 (Testimony of Mr. Kristiansen: “The mines in the Sheridan area all subsided at one point in the past, sooner or later.”); *Id.* at 238; Ex. POW 54.

60. Brook’s proposed permit boundary overlaps with abandoned mines known to cause subsidence. DEQ Ex. 12-145; Tr. at 239-42 (Testimony of Mr. Kristiansen). Brook’s underground mining will occur in close proximity to, and in some cases overlap with these abandoned mines. *Id.*; *see also* Tr. at 244-45 (Testimony of Mr. Kristiansen).

61. In spite of the prevalence of subsidence in the area from abandoned mines, and in spite of the overlap between Brook’s permit and some of these abandoned mines, Brook did not assess potential impacts related to subsidence from its proposed mine. Tr. at 170 (Testimony of Mr. Kristiansen). The company merely partially mapped the historic mining and the potential overlap. *Id.* Brook did not include a discussion about the various AML projects and subsidence caused by historic mining in its subsidence control plan. *Id.* at 752-53 (Testimony of Mr. Barron).

62. Nor did DEQ conduct any independent analysis of potential impacts of ongoing subsidence in the area and its relationship to the proposed Brook Mine. Tr. at 244 (Testimony of Mr. Kristiansen).

63. Nor did Brook verify anticipated subsidence potential at their site with actual subsidence conditions in the permit area. Ex. POW 12 at 13-14, 18 (Dr. Marino concluding: “There is a massive amount of surface subsidence in the area at mine depths similar to that proposed . . . both sag and pit subsidence would be expected at the Brook Mine.”).

64. DEQ and Brook did not even consult with the AML Division staff during review of the permit application to discuss the implications of and concerns related to ongoing subsidence in the area. Tr. at 243 (Testimony of Mr. Kristiansen); Tr. at 757 (Testimony of Mr. Barron).

**B. Testimony Demonstrated DEQ Did Not Have the Expertise to Review the Subsidence Control Plan for Technical Accuracy or Completeness**

65. The review of the Brook permit was one of the first jobs Mr. Kristiansen had when he started working at DEQ. Tr. at 218-19 (Testimony of Mr. Kristiansen). The Brook permit was the first coal mine permit Mr. Kristiansen coordinated while at DEQ. *Id.* at 226.

66. Mr. Kristiansen does not have any prior experience in reviewing subsidence control plans or highwall mine permits. Tr. at 163 (Testimony of Mr. Kristiansen); *Id.* at 227; Ex. GIL 21-23. Mr. Kristiansen admitted that the District III office of the Land Quality Division did not have experience in reviewing underground mine permits, and Brook’s permit application was the first highwall mine proposal the District had reviewed. Tr. at 226-27.

67. Because of his lack of experience, Mr. Kristiansen “had to attend” training by the Office of Surface Mining Reclamation and Enforcement (“OSMRE”). Tr. at 164. However, in review of the permit application, Mr. Kristiansen did not utilize key chapters of the OSMRE training materials related to subsidence prevention and risk. *Compare* Ex. DEQ 17-20 to Ex. POW 84; *see also* Tr. at 167, 376-77. Notably, he did not consider or evaluate important formulas related to geotechnical engineering and subsidence risk. *Id.* at 251.

68. Nor did Mr. Kristiansen perform any independent verification of admittedly “limited” and “basic” analysis done by Brook’s consultant. Tr. at 166-68; 237.

69. Mr. Kristiansen testified that he did not conduct independent verification because Brook’s consultant had “levels of experience significantly higher than [he] has,” Tr. at 168, although he was not sure who actually prepared the subsidence control plan. *Id.* at 253. Mr. Kristiansen also admitted that Dr. Marino has more experience than him. *Id.* at 251.

70. In fact, Mr. Kristiansen testified that he “was not expert enough” to even know what “technical and scientific standards” a subsidence control plan must meet. *Id.* at 234.

71. Nor did he have any experience or background in using any of the formulas discussed in the OSMRE course materials. *Id.* at 251.

72. Thus, even after the OSMRE course, Mr. Kristiansen did not have expertise in reviewing a subsidence control plan. *Id.* at 252 (Testimony from Mr. Kristian: “I would not say I’m an expert, no.”)

73. Mr. Kristiansen was the only DEQ staff member who reviewed the subsidence control plan and he did not reach out for assistance from anyone else at DEQ for assistance with his review. *Id.* at 234. Nor did he consult any background information beyond the OSMRE course materials he reviewed. *Id.* at 252.

74. With this lack of experience and expertise on the part of DEQ, Brook’s subsidence control plan was essentially not reviewed and deemed “technically adequate” with no basis for that determination.

75. As such, DEQ’s determination of “technical adequacy” for the subsidence control plan was arbitrary and capricious and an abuse of discretion, as the agency had no factual basis for making its decision.

**C. The Subsidence Control Is Deficient Because It Was Not “Stamped” by a Professional Engineer**

76. Geotechnical information or analysis in a mine permit application must be provided by a licensed engineer in Wyoming. This is necessary for DEQ to be able to rely on the accuracy of the information. *See* Tr. at 379 (Testimony of Mr. Kristiansen that information provided by licensed engineers is “certifiably accurate.”); *id.* at 1238-39 (Testimony of Dr. Marino that other subsidence control plans he has seen have been stamped by professional engineers and if “you’re doing engineering work, there’s a stamp for it.”).

77. However, no professional engineer “stamped” the subsidence control plan, rendering it deficient. Tr. at 738 (Testimony of Mr. Barron).

**D. The Subsidence Control Plan and Associated Geotechnical Data is Neither Accurate nor Complete**

**1) Dr. Marino Concluded That the Subsidence Control Plan Is Deficient**

78. Geotechnical engineering expert Dr. Marino concluded that “the application is severely deficient in the analysis and data to be able to make any kind of analysis of what the likelihood of subsidence would be in the future.” Tr. at 1200 (Testimony of Dr. Marino); Ex. POW 12 at 17 (“A detailed and advanced subsidence engineering analysis is required given the reported geologic and mining conditions. However, the mine subsidence potential investigation provided in the mine application is wholly inadequate . . .”); Ex. POW 11 at 42 (The subsidence control plan has a “lack of geomechanical understanding” and “insufficient information”).

79. Dr. Marino also concluded that the data and analysis included in the subsidence control plan “is far below industry standards.” Tr. at 1228; POW 11 at 42. He also concluded that the permit application did not meet scientific standards. *Id.* at 1246 (“There’s no science, in essence”).



80. The application contained only “inferences of attempts at calculating” pillar strength, and Dr. Marino concluded “there’s no equations given, there’s no strengths given.” Tr. at 1208. Additionally, the equation that was used in the permit application is an equation for bituminous coal, not the subbituminous coal found in the permit area. *Id.* at 1208-09, 1247. There was also no assessment of pillar width and height. *Id.* at 1209.

81. The permit application did not include an assessment of the potential of roof or floor collapse. Tr. at 1211 (Testimony of Dr. Marino: “There’s no mention of failure of . . . roof or floor conditions in terms of analysis or safety factors or anything like that.”).

82. The permit application’s limited data prevents an accurate or complete analysis of subsidence risk and engineering safety factors. Tr. at 1216 (Testimony of Dr. Marino: “here, we don’t have hardly any input data. If you don’t have the right input data, even if you have the right prediction method, your calculated value is suspect.”); *id.* at 1223, 1234; Ex. POW 12 at 18 (concluding that the permit application “essentially [had] no short and long term mine stability analyses of all potential failure modes that can lead to surface subsidence” and “no appropriate examination of risk, severity, and types of potential subsidence”).

83. The permit application does not completely or accurately assess the complex and diverse geological conditions in the permit area. *See, eg.* Tr. at 1221 (Testimony of Dr. Marino: “we’ve got a variety of different depths, different thicknesses of coal, different interburden thicknesses, different seam splits, none of this is really addressed in the permit in the application.”); *id.* at 1244 (the permit application is “not complete in a technical form because there’s not enough information to evaluate various mining scenarios in the various geologic conditions.”); Ex. POW 12 at 17; Ex. POW 11 at 33.

## **2) Brook & DEQ Admit That the Subsidence Control Plan is Deficient**

84. DEQ admits that “data and studies” related to subsidence “have to be complete enough in this permit application to make and support” the finding that subsidence is not likely to occur. Tr. at 257 (Testimony of Mr. Kristiansen); *see also* Tr. at 742-43 (Testimony of Mr. Barron regarding this finding, its scope, and that its justification is a part of the permit application).

85. Yet, DEQ and Brook admit that additional geotechnical studies are needed before the company can justify the finding. *Id.*; *see also* Tr. at 323-25 (Mr. Kristiansen admitting that the testing Brook has done to date is not sufficient to assess whether subsidence will occur); *Id.* at 380; Tr. at 662, 743, 762 (Testimony of Mr. Barron: “To comply with the commitments within the permit there are additional studies that need to be done.”).

86. DEQ admits that the subsidence control plan contained “narrative” not technical information. Tr. at 247, 254 (Testimony of Mr. Kristiansen).

87. Brook admits that the finding that subsidence will not occur is not actually supported by data in the permit application and is merely a commitment to achieve a performance standard with no basis no show it will actually be achieved. Tr. at 745 (Testimony of Mr. Barron that the limited data in the permit application provided a “general sense” but did not provide a “specific conclusion” and that the statement in the subsidence control plan that “Highwall mining should not result in surface subsidence” was merely “a commitment to the performance standard.”).

88. For instance, the permit application is deficient because there was only one coal strength test done for the entire permit area. Tr. at 328 (Testimony of Mr. Kristiansen); *id.* at 1290 (Testimony of Dr. Marino: “it means nothing to me, one test”).

**E. Expert Dr. Marino Demonstrated Subsidence Risk if Mining Proceeds**

89. Dr. Marino's expert report concludes that "There is a serious risk of surface subsidence from roof collapse in the proposed mining [area]." Ex. POW 12 at 15; *see also* Tr. at 1225-28.

90. Dr. Marino's analysis shows that mine collapse is likely to occur because of the dominant presence of clay materials in the roof and floor on the mine. Tr. at 1210 (Testimony of Dr. Marino: "from reading the permit, the vast majority of the material's claystone . . . claystone is made of clay. And when that gets exposed to water, it deteriorates. It softens and swells and it causes failure."); *see also* Ex. POW 12 at 6, 9, 15-16 ("from our experience with the claystone roof and floor, the proposed mining can result in sag subsidence"); *id.* at 18. Brook's safety factor calculations did not account for the presence of clay. Tr. at 1226 ("no significant clay seam [is] assumed in the analysis.").

91. The presence of thin interburden and faulting also presents subsidence risk. *Id.* at 1219-21.

92. Dr. Marino found that even when using Brook's assumptions, "the stability factor calculates to an unacceptable value of less than one at [Brook's] pillar pressure where the panels are sufficiently wide." Ex. POW 12 at 11.

**F. Coal Recovery Ratios Do Not Cure the Deficiencies in the Permit Application**

93. DEQ confirmed Brook's finding that the mine would not create subsidence because of heavy reliance on an understanding that 50% of the coal would be left in the seam post-mining. Tr. at 120, 126, 169, 311, 330, 358 (Testimony of Mr. Kristiansen).

94. However, Brook's own permit application shows that recovery ratios will be from 45-60% and therefore will exceed 50%. Ex. DEQ 12 at 35; Tr. at 677, 760 (Testimony of Mr. Barron).

95. Dr. Marino's expert analysis shows Brook's extraction ratio could be as high as 60-70 percent. Tr. at 1204, 1236 (Testimony of Dr. Marino); Ex. POW 12 at 7.

96. Regardless, even Mr. Kristiansen admitted that the recovery ratio is just one factor to consider, and that you must also consider the strength and width of the coal pillars, the roof materials, and the floor materials to properly assess whether subsidence will occur. Tr. at 313-14.

97. Dr. Marino's expert analysis also shows that the 50% ratio should not be given as much weight as DEQ gives it. Tr. at 1236 (Testimony of Dr. Marino: "That standard . . . really doesn't apply if you have safety factors that are lower than what are acceptable. It should be based on safety factors, not on a percent."); *id.* at 1291 (noting that Brook's recovery rates "are general numbers that encompass[] the whole complex."); Ex. POW 12 at 7, 10 (noting that Brook's information is "typical" and generalized, not specific enough to provide DEQ a basis to conclude subsidence will be prevented).

98. Moreover, even assuming that the 50% extraction rate is technically significant *and* assuming that Ramaco will meet that rate, DEQ will not be able to independently verify or enforce the rate as a permit term or condition. Tr. at 229-30 (Testimony of Mr. Kristiansen: "I can't verify that"; admitting there is "no way" for DEQ to ensure compliance).

**G. The Future MSHA Ground Control Plan is Not a Substitute for a Technically Complete and Adequate Subsidence Control Plan**

99. Brook testified that the yet-to-come MSHA ground control plan can be viewed as a remedy for its deficient subsidence control plan. *See* Tr. 15-16 (Brook opening statement); *Id.* at 663 (Testimony of Mr. Barron: "the calculations necessary to provide the information for MSHA

are exactly the same data that DEQ is looking for each one of these panels.”); *Id.* at 746, 1533-34.<sup>6</sup>

100. Mr. Barron testified that the additional studies suggested by Dr. Marino in his expert report “are appropriate.” Tr. at 674-75 (admitting Dr. Marino’s expertise). However, he testified that these studies would be done for the MSHA ground control plan, not as part of the subsidence control plan. *Id.* at 675 (“it is a commitment as part of the permit application in the ground control plan that those [studies] will be done.”).

101. As Dr. Marino testified, the ground control plan is not a substitute for the additional geotechnical studies that must be done for the permit’s subsidence control plan *before* permit issuance. Tr. at 1202-03 (Testimony of Dr. Marino that MSHA won’t be concerned about stability in areas of the mine where miners will not be present, that MSHA is not the agency that “determines whether or not the mine plan is approved for surface subsidence,” and that the agency “has a different scope”); *id.* at 1241-42, 1245 (Dr. Marino testifying that future testing and analysis through the MSHA permit will not cure deficiencies in the subsidence control plan); Ex. POW 12 at 9 (“[A]pproval from MSHA (whose responsibility is safety) is irrelevant as the concern here is land subsidence.”).

102. Additionally, MSHA is focused on “looking at short-term conditions, when the miners are in, not when it’s abandoned.” Tr. at 1273 (Testimony of Dr. Marino that MSHA does not consider the risk of long-term subsidence at a mine site); *id.* at 1286 (testimony that the 1.3 safety factor is a “short-term safety factor” not long-term); *compare to id.* at 1535 (Testimony of Mr. Barron: “For the short term, we will stick with the 1.3 factor of safety.”).

---

<sup>6</sup> DEQ has never supported Brook’s assertions regarding the ground control plan. In fact, DEQ has little understanding of what a ground control plan even is or what it requires. *See* Tr. at 330, 344 (Testimony of Mr. Kristiansen saying “I do not know” in response to a question about what engineering studies MSHA requires).

103. Dr. Marino’s conclusion was based on significant professional experience in preparing and reviewing subsidence control plans over his multi-decade career. Tr. at 1196 (Testimony of Dr. Marino regarding his background and experience); *id.* at 1237 (“there’s nothing in [other subsidence control plans I have reviewed] about MSHA, because MSHA is not directly related to subsidence on the ground surface.”)

104. Dr. Marino’s conclusions that the ground control plan is not meant to control subsidence and is not a substitute for the subsidence control plan required as part of the permit application are verified by Mark Eslinger, a former Supervisory Mining Engineer for MSHA, who in the scope of his multi-decade career reviewed ground control plans. Exhibit A (letter from Mark Eslinger to Shannon Anderson, July 11, 2017 with attached C.V. of Mark Eslinger).<sup>7</sup>

105. Even Brook admits that the ground control plan is only meant to address the safety of miners. Tr. at 663, 747 (Testimony of Mr. Barron: MSHA is “an organization whose sole role is the protection of the safety of miners.”). As a result, Brook admits that MSHA will not focus on subsidence damage to land resources or any other potential impacts of subsidence except safety of workers. *Id.* at 748.

### **III. The Permit Application Does Not Have Sufficient Baseline Water Data**

106. Coal seam aquifers are locally and regionally important sources of water. *See* Tr. at 192 (Testimony of Mr. Kristiansen: “By and large, the coal beds are the primary aquifers in the basin . . .”)

107. In the permit area, and in surrounding areas, other aquifers, including overburden aquifers, also supply water for homes and agriculture or are capable of supplying water for these purposes.

---

<sup>7</sup> These exhibits are included as part of these findings to rebut testimony provided by Mr. Barron.

108. However, in spite of the presence of these aquifers, there was very little and in some cases *no* baseline data collected to analyze the characteristics of, and projected impacts to, these aquifers. *See, eg.* Tr. at 915 (Testimony of Mr. Gerlach); Ex. BHC 9.

109. Mr. Wireman’s expert analysis shows that Brook did not collect baseline water samples in a scientifically defensible way, rendering the permit application deficient. *See, e.g.* Tr. at 1345-48; Ex. POW 17 at 3 (The permit application “present[s] a very incomplete characterization of the hydrogeology and surface water hydrology.”).

110. For instance, Brook did not conduct baseline water monitoring in the critically important TR-1 area – the first area Brook proposes to mine. *See* Tr. at 210-14, 383 (Testimony of Mr. Kristiansen); *Id.* at 513, 518, 519 (Testimony of Dr. Kuchanur). During technical review, DEQ identified the lack of data as a deficiency; however, Brook never provided additional information to remedy this deficiency. *Id.* This means that the lack of baseline water quality data for the TR-1 area remains a deficiency in the permit application. *Id.* at 217 (Testimony of Mr. Kristiansen admitting the deficiency and that this lack of data prevents the permit application from being “accurate” and “complete”). Additionally, generalities regarding aquifer characteristics from other portions of the mine are not applicable to this area, preventing other data from curing any deficiencies. *Id.* at 513.

111. Aside from the TR-1 area, no monitoring wells were completed in the overburden or interburden aquifers, at any locations throughout the permit area. Tr. at 511-12 (Testimony of Dr. Kuchanur); Ex. DEQ 6 at 24.

112. Testimony confirmed that “[m]onitoring in the alluvium is important.” Tr. at 533 (Testimony of Dr. Kuchanur). However, no baseline monitoring wells were completed in the alluvial aquifers – aquifers that are important to local agriculture and must be protected during

mining. *Id.* at 532, 539; *id.* at 1363-65, 1373 (Testimony of Mr. Wireman); Ex. POW 17 at 5 (Mr. Wireman’s conclusion that “[t]his is a serious omission.”); *see also id.* at 9.

113. Brook has committed to a limited set of three operational monitoring wells in the alluvium (Tr. at 533), but even if that operational monitoring was sufficient, it does not cure the lack of baseline monitoring.<sup>8</sup>

114. DEQ’s groundwater expert was not involved in decisions allowing Brook to limit its baseline water monitoring program. Tr. at 523 (Testimony of Dr. Kuchanur).

115. Only fifteen wells were used for assessment of groundwater levels, in the entire permit area. Tr. at 523, 567 (Testimony of Dr. Kuchanur). And these wells only collected baseline water data from the coal seams. *Id.* at 524. This means that no water data was collected for non-coal bearing aquifers. *Id.* at 1382-83 (Testimony of Mr. Wireman, noting that Brook’s application finds that most water wells in the area are not in the coal aquifers and no data is available for those aquifers).

116. Only *one* test was conducted to determine hydraulic conductivity, porosity, and storage coefficient values. Tr. at 524-25, 535, 1501 (Testimony of Dr. Kuchanur). This means that only *one* test was taken in the northeast portion of the permit for these very important water parameters and to characterize them for the entire permit area, rendering the analysis deficient. Tr. at 1354 (Testimony of Mr. Wireman); *id.* at 1355 (“a single value for the whole area . . . [can] in no way [] capture the complexity in the heterogeneity”); Ex. POW 17 at 5, 8; *see also id.* at 525 (Testimony of Dr. Kuchanur: “We need these parameters to characterize the aquifer”; acknowledging that if the test is not “an effective parameter that provides the best match to . . . what you see in the ground in terms of water levels” then the data is not sufficient.)

---

<sup>8</sup> Additional operational monitoring for water quality and quantity will not remedy deficiencies related to baseline water data collection. Operational monitoring (during or post-mining) will itself be deficient without a scientifically defensible baseline to compare monitoring results to.



117. Mr. Wireman concluded that Brook did not “get data from monitoring stations throughout this permit area” as required to properly assess baseline water conditions and to understand the complexity and diversity of water quality and quantity in the area. Tr. at 1345 (Testimony of Mr. Wireman); *see also id.* at 1349-51.

118. For surface water monitoring, upstream and downstream monitoring stations on Slater Creek and Hidden Water Creek were used for baseline water monitoring. Tr. at 395 (Testimony of Mr. Kunze). However, data during the winter months was not collected. *Id.* This resulted in no water quality data being collected for Hidden Water Creek. *Id.* at 396. Historic data indicates that “in Hidden Water Creek, there was typically water in that creek in the winter, not in the summer” and that means water was not collected at the time the stream typically has water. *Id.* at 1361, 1402 (Testimony of Mr. Wireman); Ex. POW 17 at 7.

119. The lack of data collection from October to March prevented consideration of “seasonal differences” that can be significant and “very important.” Tr. at 1345, 1361-62 (Testimony of Mr. Wireman).

120. Groundwater data did also not account for seasonal changes, rendering it deficient. *Id.* at 1355 (“a potentiometric surface drawn for January water levels could be quite different than the one drawn with May water levels”).

121. Aside from seasonal deficiencies, Brook’s data of Slater Creek was deficient in other ways too. Tr. at 1366 (“There’s not enough characterization of Slater Creek.”); *id.* at 1363 (Slater Creek monitoring was not used to determine hydraulic conductivity values).

122. Brook’s lack of baseline water monitoring data was supplemented with other data sources. Tr. at 396 (Testimony of Mr. Kunze). However, this data was very old and still deficient. *Id.* at 1362-63 (Testimony of Mr. Wireman).

123. Determining the baseline water quality of Hidden Water Creek is especially important as Brook plans to divert the stream for at least three years. Tr. at 404 (Testimony of Mr. Kunze). Without baseline water quality data for Hidden Water Creek it will be impossible for DEQ to know if the creek's water quality or quantity will be impacted by mining operations.

124. No water monitoring was conducted on the Tongue River or Goose Creek in the permit area. Tr. at 408, 411-12 (Testimony of Mr. Kunze); *id.* at 1367 (Testimony of Mr. Wireman); Ex. POW 17 at 5.

125. As a result of this limited data collection, the hydrologic impacts model was limited and assumptions had to be made. Ex. DEQ 12 at 213 ("Limitations and assumptions specific to this modeling effort are primarily due to the complexity of the hydrogeologic system and a lack of data on physical and hydraulic characteristics of the aquifers and confining units being modeled."); *see also* Tr. at 528 (Testimony of Dr. Kuchanur agreeing that there are assumptions and limitations in the model). The data collected provided a "limited understanding of the coal location, continuity and hydrology." Ex. DEQ 12 at 529; Ex. POW 17 at 8.

126. Given these limitations and assumptions, the model was designed to provide a "general understanding of regional groundwater impacts." *Id.* The model was not, as Dr. Kuchanur testified, sufficient to serve as a "good predictive tool" of probable hydrologic consequences specific to proposed mining activities. *Id.*; Tr. at 530; *see also id.* at 1368-70 (Testimony of Mr. Wireman regarding the model's deficiencies).

127. The model was also deficient because it did not analyze or predict drawdowns to overburden aquifers. MP 6.2.3 ("Drawdowns of the overburden were not modeled . . ."); Tr. at 955 (Testimony of Mr. Gerlach: "there's no modeling of drawdown in the overburden."); Ex. POW 17 at 8 (Mr. Wireman concluding that "The modeling effort was limited to estimating

drawdowns in the coal seams . . . [m]odeling the coal seams as hydrologically isolated is not based on real data and is far too simplistic.”).

#### **IV. The Permit Does Not Comply With Water Well Replacement Requirements**

128. The WEQA requires coal mine operators to “replace” a surface or underground water supply “where the supply has been affected by contamination, diminution or interruption resulting from the surface coal mine operation.” W.S. § 35-11-415(b)(xii). A plan to meet these requirements must be a part of the permit application. Coal Rules Ch. 2 § 5(a)(ix)(E).

129. This requirement is especially important here, where 357 water wells are within the “zone of potential influence” of the mining operation. *See* Tr. at 288 (testimony of Mr. Kristiansen).

130. The permit application includes a commitment to replace only adjudicated water wells that will be impacted by mining activities. Ex. DEQ 12 at 52, 62.

131. The permit application’s water replacement limitations contravene the intent of Section 415’s requirements. Tr. at 521 (Testimony of Dr. Kuchanur); *see also* Ex. POW 17 at 4 (Mr. Wireman concluding that “Brook mine only agrees to replace impacted wells if they are adjudicated. This is not appropriate or sufficient since most domestic /stock wells are not adjudicated.”).

132. DEQ confirmed that removing “adjudicated” from the application is required through testimony at the hearing, and made the recommendation to the EQC to make the permit change. Tr. at 500, 520-22 (Testimony of Dr. Kuchanur).

#### **V. The Permit Application Does Not Contain Any Limits or Restrictions on Blasting to Protect Property and Public Health**

133. Blasting causes vibrations and is also a source of noise and air pollution. Tr. at 594-95 (Testimony of Mr. Emme).

134. “Orange clouds” produced from blasts often result from wet conditions. *Id.* at 597. Orange clouds have a high level of nitrogen oxides and the pollution that results is “highly toxic” and can be dangerous to breathe. *Id.* at 608. If an orange cloud “drifts” off site, it can settle back to the surface. *Id.*

135. Blasting is of particular concern to neighboring landowners. *Id.* at 1070-71 (Testimony of Ms. Collins); *Id.* at 1092-93 (Testimony of Mr. Bocek).

136. Blasting is also of concern to members of the public who recreate in the area given pollution, noise, and other impacts. Tr. at 1118 (Testimony of Ms. Malone).

137. A coal mine permit application must contain a blasting plan. Coal Rules Ch. 2 § 5(a)(vii). This plan must include “[p]roposed compliance with limitations on ground vibration and airblast, the basis for those limitations, and methods to be applied in controlling the adverse effects of blasting operations,” a “worst-case scenario” blasting estimate, identification of dwellings and structures in close proximity to proposed blasting locations, and a description and location of blasting monitors. *Id.*

138. The blasting plan must include sufficient terms and conditions for DEQ to determine compliance with the Chapter 6 blasting standards. To ensure compliance, the administrator (or his substitute) may request any additional information “determine[d] necessary” as part of the blasting plan. *Id.*; Tr. at 600 (Testimony of Mr. Emme). DEQ did not do that for this permit. *Id.*

139. Brook’s blasting plan is deficient because it does not describe how frequently blasting will occur and in what amounts or where blasting will occur. Tr. at 597-99 (Testimony of Mr. Emme).<sup>9</sup> Nor does it include the proposed locations of monitors.

---

<sup>9</sup> Brook originally proposed more detail but Mr. Emme asked them to remove it because if they would have blasted as proposed by the company “we’d have a lot of fly rock.” Tr. at 623.

140. It also does not describe what type of blasting will occur, for instance cast blasting, even though DEQ assumed that cast blasting would not be done in its review of the permit application. Tr. at 596 (Testimony of Mr. Emme).

141. Hundreds of residents live within a half-mile distance of the permit area, yet DEQ did not consider any restrictions or conditions on blasting to address impacts. Tr. at 593, 595 (Testimony of Mr. Emme).

142. DEQ (and in turn the EQC) has authority to limit blasting, in any number of ways, to protect public health and property. Tr. at 593-94 (Testimony of Mr. Emme that DEQ can put in place conditions if they are “advantageous.”).

#### **VI. The Permit Application Does Not Disclose or Assess Impacts from Mine Traffic**

143. The mine proposes to use large semi-trailer trucks with tandem trailers to transport coal. *See* Tr. at 148 (testimony of Mr. Kristiansen).

144. The mine plan is deficient because it does not estimate truck traffic, disclose any impacts to public or private roads used by the public, and does not include a traffic plan, even though according to the mine plan those “plans” have been “previously formulated.” Ex. DEQ 12 at 21.

#### **VII. The Permit Application Illegally Allows Mining Through and Under a County Road**

145. The permit application does not incorporate any agreements for road use with any governmental agencies or entities because no such agreements exist at this time. Tr. at 151 (Testimony of Mr. Kristiansen); Tr. at 702, 764 (Testimony of Mr. Barron that the permit applicant or consultants have not had any conversations with the county about road use).

146. Nor are there any proposals to relocate any public roads included in the permit application. *Id.* at 767 (Chairman Bagley: “Yeah, I would say that we have established that the plans to relocate that county road are not in the permit application.”).

147. Additionally, DEQ has not held a public comment opportunity or public hearing on any proposals to relocate any public roads within the permit area.

148. As such, the permit application is deficient because it does not include a 100 foot buffer around all public roads. Coal Rules Ch. 12 § 1(a)(v)(D); *see also* Ex. POW 31.

149. DEQ ignored this requirement in its permit review, partly because DEQ determined that only public roads outside the permit boundary would be impacted. Tr. at 277 (Testimony of Mr. Kristiansen that the “very minor” “narrative description” of impacts to public roads was sufficient because the roads are “outside the permit boundary.”).

150. However, the mine will directly impact Slater Creek Road inside the permit boundary, preventing landowners who use the road from accessing their property. *See* Ex. DEQ 12 at 131; Tr. at 279, 282 (Testimony of Mr. Kristiansen); *Id.* at 764-67 (Testimony of Mr. Barron that mining will come within 100 feet of Slater Creek Road and Slater Creek Road will have to be relocated); Ex. POW 33-34. The mine will also directly impact Hidden Water Road. *Id.*

#### **VIII. The Permit Application Does Not Disclose or Include Any Facilities Necessary to Process, Transport, or Sell the Coal**

151. For the purposes of delineating a permit boundary, the WEQA defines “Surface coal mining operation” to mean surface lands where surface coal mining activities take place and/or surface lands “incident” to underground coal mining activities. The operation shall also “include any adjacent land the use of which is incidental to any of these activities, all lands affected by the construction of new roads or the improvement or use of existing roads to gain access to the site

of these activities and for haulage . . . processing areas, shipping areas and other areas upon which are sited structures, facilities or other property or materials on the surface, resulting from or incident to these activities.” W.S. § 35-11-103(e)(xx); *see also* Tr. at 269 (Testimony of Mr. Kristiansen admitting that DEQ is supposed to require all facilities and roads that are incidental to mining to be included in the permit).

152. The permit application fails to include associated facilities necessary to get coal to a point of sale, including necessary roads and facilities. Ex. DEQ 12 at 21-22. These facilities were previously contemplated but were not included in the permit application. Ex. POW 48-50.

153. The permit application also is deficient because it does not include the proposed coal “processing areas” associated with Brook’s planned industrial park and manufacturing facilities, which are incidental to the mine. Ex. POW 26-27.

154. DEQ was fully aware of these facilities *before* the permit went to public notice and therefore they should have been considered by the agency in its review. Ex. POW 28.

#### **IX. The Permit Application Does Not Include Other Facilities Planned at the Mine**

155. Brook has planned a “long-term sump” at the TR-1 mine area. Tr. at 121-22; *Id.* at 193 (Testimony of Mr. Kristiansen: “The first pit, TR-1 pit is going to be kept as a sump . . . throughout mine life” for a variety of “different purposes.”).

156. Yet, this facility that will be in place the life of the mine is not identified or discussed *anywhere* in the permit application. Tr. at 198 (Testimony of Mr. Kristiansen).

157. There is also a corresponding lack of analysis of any associated impacts, including hydrologic impacts or impacts to land uses, which will result from this life of mine facility.

158. Brook anticipates it will need 328,200 gallons of water per day, and the TR-1 sump is a likely source for this water. Tr. at 433 (Testimony of Mr. Kunze).

## **X. The Permit Application Does Not Include an Accurate Projection of Coal Production**

159. The mine plan must include “[a] complete operations plan proposed to be conducted during the life of the mine” with an accurate estimate of “the number of acres that will be affected annually” and the “anticipated annual and total production by tonnage.” *Id.* at § 5(a)(i).

160. Accurately estimating the amount of coal to be mined is a critical component of any mine plan as it establishes the time period of the permit and the level of anticipated impacts. Ex. POW 1 at 3, Ex. POW 17 at 3.

161. Originally, company representatives stated publicly that they anticipated mining 6-8 million tons per year when “Asian export markets” were the proposed market for the coal. Ex. POW 25 at 4, 13. However, now, the company plans to mine a small amount of coal for “feedstock” for their planned processing and manufacturing facilities. *See, e.g.* Ex. POW 72 at 9 (showing use of 30,000 tons of coal for a similar facility to that proposed by Brook).

162. The project keeps shifting, but meanwhile, the estimated annual production in the mine plan has not been updated since 2014. Tr. at 273-74 (Testimony of Mr. Kristiansen admitting that the projected production estimates in the permit application were not updated and DEQ did not ask any questions of the company related to production estimates).

163. The permit application is deficient because it does not contain an accurate estimate of annual and total coal production.

## **XI. Coal Production Will Exceed the Limit Established by the Air Quality Permit**

164. The air quality permit is mentioned in the mine plan but says the permit “will be submitted.” Ex. DEQ 12 at 84. The permit application was not updated to disclose that there is a final air quality permit that was received *prior* the coal mining permit going to public notice nor does it explain any limits of on coal production that result from the air quality permit.



165. The air quality permit limits coal production at the Brook Mine to two million tons per year. Ex. POW 29 at 6.

166. For years four and five, estimated annual production exceeds two million tons, therefore proposing to violate the production limit established in the company's air quality permit. Ex. DEQ 12 at 98.

## **XII. The Permit Application Does Not Include a Proposed Bond that Meets the Requirements of Section 417**

167. Requirements for mine reclamation bonds are governed by Section 417 of the WEQA and corresponding DEQ regulations. Coal Rules Ch. 12 § 2.

168. The reclamation bond must cover the *entire* cost of surface and water reclamation, including estimates of costs of third-party contractors necessary for the state to assume reclamation responsibilities in the case of a bond default. W.S. § 35-11-417(c)(i) (the bond should equal the “cost of reclaiming the affected land disturbed” . . . “plus the administrator’s estimate of the additional cost to the state of bringing in personnel and equipment should the operator fail or the site be abandoned.”); *see also* Tr. at 611 (Mr. Emme testifying that the bond is important “[s]o if an operator walks away, the state has revenue money in place to reclaim the mine site.”).

169. The bond amount must account for “the worst-case scenario.” Tr. at 636 (Testimony of Mr. Emme); Ex. POW 64 at 15 (“The bond amount will reflect the ‘worst case scenario’ i.e., the cost of reclaiming the site if the permittee forfeits the bond at the point of maximum reclamation cost liability, under the reclamation and operation plans approved as part of the permit.”).

170. Like the necessary findings of Section 406(n) discussed above, DEQ has stated that it has yet to calculate the bond amount. Tr. at 586-87 (Testimony of Mr. Emme). The bond

amount is not yet calculated because Brook has not provided “specifics” on their mining plans for the first year of their operations. *Id.* at 587, 609.

171. The lack of a bond in the permit at the time of public comment, like the CHIA, prevented adequate public review and comment on the proposed bond amount. *See* Tr. at 611 (Mr. Emme testifying that “The bond is set in the permit, and there is a public comment period before the permit is approved.”); *id.* at 612-13 (Testimony of Mr. Emme that the bond amount for an initial permit is generally set at a time that allows public comment, but for this permit there is no public comment opportunity for the bond amount).

172. Since DEQ has yet to set the bond amount, the only bond estimate that was available for public comment was Brook’s estimate.

173. Brook’s bond estimate was deficient because it did not include the costs of certain contingency factors and does not follow DEQ guidance to establish other contingency factor amounts. Ex. DEQ 31 at 16; Ex. POW 1 at 10-11.

174. Contingency costs are necessary *regardless* of the scope or extent of mining activities. Tr. at 614 (Testimony of Mr. Emme). These contingency costs “are very important if the state has to take over [the] bond.” Tr. at 613 (Testimony of Mr. Emme); *see also* Tr. at 773 (Testimony of Mr. Barron confirming Mr. Emme’s statement).

175. As such, these lines should not have zero estimates. *Id.* at 614 (Testimony of Mr. Emme: “There should be some number.”).

### **XIII. The Permit Application Does Not Contain a Surface Owner Protection Bond**

176. In addition to the findings of Section 406(n), and the reclamation bond discussed above, a surface owner protection bond must be calculated prior to a decision on the permit application. *See* Tr. at 66-67 (Testimony of Mr. Kristiansen).

177. As far as the Resource Council is aware, the process to calculate that bond has not yet begun. Tr. at 201-02 (Testimony of Mr. Kristiansen).

178. Therefore, the EQC cannot find that the permit application should be approved.

## **PROPOSED PERMIT CONDITIONS OF APPROVAL & TERMS<sup>10</sup>**

### **Proposed Blasting Permit Terms**

**Rationale:** Blasting operations must prevent injury to persons and damage to public and private property outside the permit area. W.S. § 35-11-415(vi)(C). DEQ and the EQC have significant discretion to require permit terms to protect public health and safety and to prevent damage to homes and structures from blasting operations. *See Order, In the Matter of Objections by the Powder River Basin Resource Council to the Amendment of the RAG Eagle Butte Permit, Permit No. 428-T3, Docket No. 00-4802, June 26, 2003 at 10-12; Tr. at 608 (Mr. Emme testifying that “In the Powder River Basin, all the mines have either permit conditions or have voluntarily put restrictions on their operations.”); id. at 617-18, 639-40.*

#### **Proposed Permit Terms:**

Brook shall not conduct cast blasting. Blasting will only be authorized from 9 a.m. to 4 p.m., M-F. No blasting shall occur on public holidays. Brook shall not conduct blasting if wind is directed at any residence or business within 2,500 of the proposed blast. No blasting can take place on days with inversions or inclement weather (snow, rain). Brook will install, at its expense, a seismic monitor for any adjacent landowner that requests one as part of a pre-blast survey. The requesting landowner shall have access to all data collected. Brook will install, at its expense, a downhole camera for a water well to observe any impacts pre, during, and post blast for any landowner that requests one as part of a pre-blast survey.<sup>11</sup> The requesting landowner shall have access to all data collected. Brook will provide notice to any landowner within ½ mile of its permit area of proposed blasting times and locations.

### **Proposed Permit Term to Include the Buyoks’ Homes and Wells within the Area Designated For Pre-Blast Surveys**

**Rationale:** A resident or owner of a man-made dwelling or structure within one-half mile of any portion of the permitted area can request a pre-blasting survey. W.S. § 35-11-415(vi)(E). According to Brook’s GIS mapping, Mr. Buyok’s home lies around 40 feet outside the ½ mile boundary and his water well lies about 20 feet outside the boundary. Tr. at 1017-18 (Testimony of Mr. Buyok). Brook has offered to include Mr. Buyok’s

---

<sup>10</sup> Brook expressed a willingness to accept any permit condition proposed by the DEQ or the Council. Tr. at 713-14; 781 (Testimony of Mr. Barron: Brook would be “okay with any conditions that this council will find are necessary for the permit application.”).

<sup>11</sup> DEQ has required and used downhole cameras before. *See* Tr. at 607 (Testimony of Mr. Emme).

home and well within the zone for pre-blast surveys as an enforceable condition of the permit. *Id.* at 1055, 1524-25 (Testimony of Mr. Barron).

**Proposed Permit Term:** Brook will conduct a pre-blast survey for John Buyok and/or any member of his family if requested.

### **Proposed Permit Term to Implement the Proper County Road Buffer**

**Rationale:** See section VII above.

**Proposed Permit Term:** No surface or underground mining shall occur within 100 feet of any public road. Should Brook obtain authorization to relocate a public road, the company shall incorporate that change as a permit amendment. Any request to relocate a road shall be subject to public comment and hearing pursuant to Ch. 12 § 1(a)(v)(D) of the Coal Rules and Regulations.

### **Proposed Permit Term for Replacement of Water Wells**

**Rationale:** See section IV above.

**Proposed Permit Term:** Remove the word “adjudicated” from any description of water rights that will be replaced by Brook.

### **Proposed Condition of Approval to Defer Mining Until Baseline Water Quality Studies Are Complete & Findings Regarding Material Damage Are Made**

**Rationale:** Baseline water quality sampling was deficient. While this means that the permit application should be denied, at the very least, mining should not be authorized until baseline samples are collected, analyzed, and reviewed by DEQ. DEQ itself agrees with this permit condition. Tr. at 363 (Testimony of Mr. Kristiansen); *Id.* at 411-12, 431 (Testimony of Mr. Kunze regarding monitoring on the Tongue and Goose Rivers).

**Proposed Condition:** Brook shall not commence coal mining operations until additional ground and surface water baseline water quality samples are collected, in a scientifically defensible manner, for the entire permit area.<sup>12</sup> Baseline samples must be taken for the overburden and alluvial aquifers, in addition to the coal seams. Samples must be collected seasonally for at least one year prior to mining. The inclusion of baseline water quality data shall be considered a major amendment to the permit and the new data will be subject to public notice and comment.

Brook shall also commit to continued monitoring at the baseline locations during operations and post-mining, until final bond release.

---

<sup>12</sup> If Brook wishes to amend its permit boundary to limit the scope of baseline monitoring or subsidence assessment, it can do so, but only as a major modification to its permit, subject to public notice and comment.

### **Proposed Condition of Approval to Defer Mining Until Alluvial Valley Floor Determinations Are Complete**

**Rationale:** Mr. Kristiansen testified that DEQ is planning to include a permit condition that will “halt” mining should it be determined that an AVF would be “disturbed” by mining. Tr. at 116. However, given the vagueness of what that permit condition is, and the narrowness of equating “disturbance” to actual physical disturbance by mining (see discussion in Section III(B) above), a more carefully tailored permit condition is needed to comply with legal restrictions related to alluvial valley floor protection.

**Proposed Condition:** No coal operations can lawfully occur until DEQ finishes assessment and determination of all AVFs in lands adjacent to the permit.<sup>13</sup> Specifically, no coal operations shall commence within ½ mile of the “potential” AVF identified in DEQ Exhibit 16 until a complete assessment of the delineation of the AVF is complete and until DEQ further reviews the mine permit application for potential impacts to the AVF from hydrologic connections between the mining area and the AVF.

### **Proposed Condition of Approval to Defer Mining Until Geotechnical Studies Are Complete to Demonstrate Subsidence Control and Prevention**

**Rationale:** Dr. Marino’s testimony and exhibits discussed geotechnical studies and tests that must be complete in order to properly assess subsidence risk and to demonstrate subsidence control. *See, e.g.* Tr. at 1231-33.<sup>14</sup>

**Proposed Condition:** Brook shall not commence coal mining operations until it completes the geotechnical studies and tests identified by Dr. Marino in Ex. POW 94-D for the entire permit area. Brook will also at all times comply with the engineering design recommendations identified in Ex. POW 94-D. Brook must amend its permit application to include this information. Such an amendment will be considered a major modification to the permit and will be subject to public notice and comment (and public participation requirements of Sections 406(k) and (p)). A ground control plan submitted to MSHA shall not be sufficient to comply with this condition.

### **Proposed Permit Term that Requires Brook to Reclaim and Remediate All Subsidence Incidents in its Permit Area**

**Rationale:** Given the overlap between historic abandoned mines and proposed mining by Brook, and given the ongoing subsidence problems caused by the abandoned mines in the area, testimony from Mr. Kristiansen showed that DEQ will have a difficult, if not “impossible” time, assigning liability to Brook if any subsidence occurs in the area, even if it is caused by the company. Tr. at 245, 320, 361-62 (Testimony of Mr. Kristiansen). If liability is not assigned, the AML Division will be responsible for all remediation. Brook

---

<sup>13</sup> “Adjacent lands” is defined in the WEQA as “all lands within one-half mile of the proposed permit area.” W.S. § 35-11-103(e)(vii).

<sup>14</sup> *See* note 15 *supra*.

has committed to remediate subsidence if it occurs, Tr. at 676, and the permit should be crafted to hold them to that commitment.<sup>15</sup>

**Proposed Permit Terms:** Brook shall conduct ongoing monitoring of subsidence activity within its permit boundary and DEQ shall include review of subsidence activity during regular inspections of the mine site. Brook will be responsible for all reclamation and remediation associated with any subsidence incidents that occur in areas that Brook is actively mining or has mined.

When subsidence-related damage to land, structures or facilities occurs, or when contamination, diminution, or interruption to a water supply occurs, DEQ will require Brook to obtain additional performance bond in the amount of the estimated cost of the repairs or in the amount of the estimated cost to replace the water supply, until the repair or replacement is completed.<sup>16</sup> Before releasing the company's performance bond, DEQ must conduct a full assessment of subsidence risk and determine that subsidence is not likely to occur inside the area proposed for bond release. DEQ must consult with independent experts if the agency staff does not have the expertise to make that determination. Like the bond release proposal itself, DEQ's determination shall be subject to public notice and comment, and an affected party may object to DEQ's determination.

If subsidence causes damage to land or structures, DEQ must suspend mining under or adjacent to such land or structures until the subsidence control plan is modified to ensure prevention of further damage to such land or structures.

At all times Brook shall maintain at least a 500 foot horizontal and vertical buffer between previous mines and current mining operations.

### **Permit Term to Require a Public Comment Period on the Bond Amount Set by DEQ**

**Rationale:** Testimony from Mr. Emme confirmed that DEQ normally has an initial bond amount available for public notice and comment as part of a permit application. However, in this case, the bond amount has yet to be set and DEQ did not have a draft bond amount available at the time of public notice and comment. This means that the bond amount will be unreviewable (by the public or in fact Brook itself), in violation of public participation opportunities.

---

<sup>15</sup> This commitment is also required by federal SMCRA regulations, incorporated into the state program. 30 C.F.R. § 817.121 ("Repair of damage to surface lands. The permittee must correct any material damage resulting from subsidence caused to surface lands, to the extent technologically and economically feasible, by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of supporting before subsidence damage.")

<sup>16</sup> The proposal for additional bond is consistent with federal requirements, incorporated into the state program. 30 C.F.R. § 817.121(c)(5).

**Condition of Approval:** Brook may not commence coal mining operations until such time as DEQ has made its proposed bond amount available for public inspection, notice, and a thirty (30) day comment period. Any interested member of the public may submit comments on or objections to the proposed bond amount within the 30 day comment period. Objections to the proposed bond amount shall be handled in accordance with Sections 406(k) and (p) of the Environmental Quality Act and corresponding DEQ public participation rules and regulations.<sup>17</sup>

### **Adoption of Permit Conditions and Terms Proposed by Big Horn Coal Company and the Fishers**

**Proposed Terms & Conditions:** The Resource Council also adopts and hereby incorporates by reference any permit terms and conditions proposed by the other objecting parties, including but not limited to the terms and conditions proposed in Ex. BHC 5, to the extent that they do not conflict with the terms and conditions proposed above.

### **CONCLUSION & REQUESTED REMEDY**

Given the deficiencies in the permit application described above, and the absence of specific regulatory findings necessary to issue a permit, the permit applicant has not met its burden to demonstrate that the application “is in compliance with this act and all applicable state laws” pursuant to Section 406(n).

As a result, the EQC must conclude that the permit application should be denied. The EQC should issue findings of fact and law and “a decision on the application” that orders the DEQ to deny the permit application within fifteen days of receipt of the EQC’s decision pursuant to Section 406(p).

Alternatively, the EQC could (1) make a finding that DEQ cannot issue the permit until all required findings under Section 406(n) are made, until the reclamation bond amount is calculated pursuant to Section 417 and the surface owner protection bond is calculated pursuant to Section 416, and until deficiencies in the permit application raised by the parties are addressed; (2) stay proceedings until DEQ makes its required findings; and (3) allow the parties’

---

<sup>17</sup> In proposing this condition of approval, the Resource Council is not waiving its ability to exercise its rights and remedies to challenge DEQ’s bond calculation through W.S. § 35-11-1001.

time to respond and present additional evidence and testimony, as needed. Staying proceedings will afford DEQ time beyond the statutorily provided 15 days to finalize the CHIA and other needed documents and reviews and to respond to public comments and make any needed changes to the permit.

However, should the EQC decide to order the DEQ to approve the permit, it should be approved *only* with the permit terms and conditions listed above.

Respectfully submitted this 24th day of July, 2017.

/s/ Shannon Anderson  
Shannon Anderson  
Powder River Basin Resource Council  
934 N. Main St., Sheridan, WY 82801  
(307) 672-5809  
[sanderson@powderriverbasin.org](mailto:sanderson@powderriverbasin.org)



## CERTIFICATE OF SERVICE

I hereby certify that on July 24, 2017, I served a copy of the foregoing **PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW** on the following parties by electronic mail, and through the EQC's electronic filing system, which will send a notice of electronic filing to all counsel and parties of record.

Andrew Kuhlmann  
James LaRock  
Wyoming Attorney General's Office  
[andrew.kuhlmann@wyo.gov](mailto:andrew.kuhlmann@wyo.gov)  
[james.larock@wyo.gov](mailto:james.larock@wyo.gov)  
*Attorneys for DEQ*

Todd Parfitt  
Director, DEQ  
[todd.parfitt@wyo.gov](mailto:todd.parfitt@wyo.gov)

Jeff Pope  
Isaac Sutphin  
Thomas Sansonetti  
Holland and Hart, LLP  
[JSPope@hollandhart.com](mailto:JSPope@hollandhart.com)  
[INSutphin@hollandhart.com](mailto:INSutphin@hollandhart.com)  
[TLSansonetti@hollandhart.com](mailto:TLSansonetti@hollandhart.com)  
*Attorneys for Brook Mining Co., LLC*

Lynne Boomgaarden,  
Clayton Gregersen  
Crowley Fleck PLLP  
[lboomgaarden@crowleyfleck.com](mailto:lboomgaarden@crowleyfleck.com)  
[cgregersen@crowleyfleck.com](mailto:cgregersen@crowleyfleck.com)  
*Attorneys for Big Horn Coal Co.*

Jay Gilbertz  
Yonkee & Toner, LLP  
[jgilbertz@yonkeetoner.com](mailto:jgilbertz@yonkeetoner.com)  
*Attorney for Mary Brezik-Fisher & David Fisher*

/s/Shannon Anderson  
Shannon Anderson