STATE DECISION DOCUMENT (SDD)
BROOK MINING COMPANY, LLC.
BROOK MINE
PERMIT TO MINE COAL
TFN 6 2/025

In compliance with Article 4 of the Wyoming Environmental Quality Act (ACT) the Brook Mining Company, LLC, has applied for a permit to mine coal in Sheridan County, Wyoming. The permit acquisition proposes to include 4,548.8 acres in a coal mine using surface mining and highwall mining techniques. All applicable baseline for the subject lands has been added to the permit.

Brook Mining Company, LLC (Brook) filed their State Coal Mine Permit application with the Land Quality Division (LQD) of the Wyoming Department of Environmental Quality (WDEQ) on October 30, 2014 and, after full review and six rounds of deficiency responses, it was declared technically adequate and suitable for publication on December 1, 2016, per W.S. § 35-11-406(h). The following actions occurred during the subsequent evaluations of the Brook Mine Permit application:

- Brook published notice of its application beginning December 1, 2016 and the public comment period ran through January 27, 2017.
- Several parties objected and requested an informal conference. WDEQ Director Todd Parfitt denied the informal conference requests on January 30, 2017, and, at the same time, referred the objections to the Environmental Quality Council (EQC).
- The EQC held a contested case hearing on Brook's permit application from May 22 through 26, 2017, with the hearing concluding on June 7 and 8, 2017.
- The EQC issued findings of fact conclusions of law, and decision on Brook's permit application on September 27, 2017. The EQC ordered that Brook's application could not be approved and outlined a process for Brook to supplement their application to WDEQ for further review.
- Director Parfitt denied the Brook's permit application on October 11, 2017, without prejudice to Brook's ability to supplement the application in accordance with the EQC's findings of fact.
- On October 25, 2018, Brook submitted its revised application to WDEQ. Brook and LQD processed six additional rounds of deficiency declarations and responses on the revised application (Rounds 7 to 12), taking place from October 2018 through February 2020.
- The First Judicial District Court entered an Order Reversing the Decisions of the Environmental Quality Council and the Department of Environmental Quality on October 25, 2019. In this Order, the Court remanded Brook's initial permit application to WDEQ for a new determination. With a revised application pending before WDEQ, Brook did not seek a determination on the initial permit application.
- WDEQ found Brook's revised permit application technically complete and suitable for publication on February 26, 2020.
- Brook published notice of its revised permit application, beginning on March 3, 2020. The public comment period ended on April 23, 2020.
  WDEQ received objections to Brook's application and Director Parfitt scheduled an informal conference on May 13, 2020. WDEQ held this informal conference remotely,

using GoToWebinar. A video recording of the Informal Conference is available on YouTube at https://www.youtube.com/watch?v=vTHzRakH-JE&feature=emb_title.

Based on information set forth in the application or from that otherwise available and known to WDEQ, I find that the applicant has affirmatively demonstrated that:

No. 1. The application is accurate and complete (W.S. § 35-11-406(n)(i)).

Brook Mining Company, LLC has provided a sworn statement on the Wyoming Department of Environmental Quality/Land Quality Division's Form 1, dated November 19, 2019, certifying that all of the information contained in the permit application is true and correct to the best of their knowledge. In addition, and to the extent necessary and appropriate, independent agency verification supports the accuracy of the application. All of the information required by the Environmental Quality Act (Act) and its implementing regulations is contained in the application. This includes identification of interests, compliance information, resource information, land use information, pertinent maps and plans, the permit fee, other agency applications or approvals, an operations plan, a reclamation plan, license information, insurance information, proof of publication, and proof of public notice.

The identification of interests, compliance information, permit fee, license information, insurance information, bond, and land use information are contained in the Adjudication materials housed in Volume 1 of the permit. Exhibits that are referenced by the Adjudication volume are located in Volume 2. Information describing the resource, mine plan, reclamation plan and associated pertinent maps are contained in the Mine and Reclamation Plans of the permit application.

Conditions for Blasting:

Form 1, Condition 1: Structures identified in a pre-blast survey to (1) have plaster on lathe construction or (2) to otherwise face a greater risk to damage due to blasting vibrations will be subject to a 0.5 inches per second limit with a scaled distance factor of 85.

Form 1, Condition 2: The blasting schedule will be limited to weekdays, excluding holidays. The blasting schedule will also be limited to times between 8:00 AM and sunset. Blasting may not be conducted at times different from those announced in the blasting schedule except in conditions where operator or public safety requires detonation or for emergency blasting actions. Reasons for detonation outside of the published blasting schedule shall be documented.

No. 2. The reclamation plan can accomplish reclamation as required by the Act (W.S. § 35-11-406(n)(ii)) and Wyoming Department of Environmental Quality (WDEQ), LQD Rules and Regulations (RR), Chapter 4, Section 2:

(a) The mined land will be restored to a condition equal to or greater than its highest previous use.

The mined land will be restored to the pre-mine land uses of grazing land, fish and wildlife habitat, and recreation. Section RP.2.0 describes these land uses. These are the same land uses existing in the pre-mine environment except for approximately 40 acres currently permitted to be disturbed for a quarry which will be reclaimed to grazing land and fish and wildlife habitat. Water for stock and wildlife is furnished by stock ponds and by Slater Creek, an intermittent stream.

Section RP.8.4.3, Table RP.8-6, and Exhibit RP.3-1 describe post-mine permanent impoundments at the Brook Mine. Nine post-mine impoundments are planned to act as livestock and wildlife watering locations, as outlined in Section RP.8 of the Reclamation Plan. Two of the impoundments are new stock ponds, while the remaining seven impoundments are replacements for pre-mining features. Post-mine stock ponds will be permitted with the Wyoming State Engineer's Office (SEO). As discussed in Section RP.8.5 of the Reclamation Plan, post-mine impoundments are not predicted to significantly alter the surface water quantity available on or downstream of the permit area. The two additional post-mine impoundments make up a small fraction of the total contributing surface water quantity of the permit area.

(b) The approximate original contours of the land will be reestablished in a manner consistent with the proposed future use of the land (LQD RR Chapter 4, Section 2(b).

The Brook Mine will be a conventional surface coal mine during its first term period. Subsequent to this, the mining technique will change into a Highwall Recovery Mine, where a single cut or slot is removed from the top of the coal to establish an in-pit staging area for the highwall mining equipment, as described in Section MP.1.1. Because of this mining schema, disturbance to the surface is minimal, primarily focused on those acreages in and near the initial boxcuts. The highwall mining component is designed to not create any areas of subsidence, given the rock mechanics of the overburden materials, as defined in Section MP.13, and Addendum MP-6 of the Mine Plan. The final post-mine contours for the reclaimed surface are defined in Section RP.3 of the Reclamation plan and depicted on Exhibit RP.3-1.

The post-mining surface will approximate the original contours to the extent allowed by the availability of backfill. The declaration and justification of approximate original contour (AOC) can be found in Section RP.3.2 of the Reclamation Plan. The operator will construct ridges, swales, and undulations of sufficient magnitude to provide cover, visual barriers, and escape corridors, and to promote vegetation diversification commensurate with pre-mining conditions.

Slope analysis of the post-mine topography for the Brook Mine was conducted using the same procedures as the pre-mine slope analysis detailed in Section D5.1.3 of Appendix D5, Volume IV. The results for the pre-mine slope analysis are shown on Exhibit D5.1-1 in Volume IV and the results for the post-mine slope analysis are displayed on Exhibit RP.3-2 of the Reclamation Plan. Channels and drainage basins are designed to be

erosionally stable and to function in a manner like the pre-mining drainage system.

(c) The Reclamation Plan provides for the removal, segregation, preservation, and replacement of topsoil or an approved substitute, and for the appropriate management of any toxic, acid-forming, or hazardous materials uncovered or created by the mining operation (LQD R&R, Chapter 4, Section 2(c).

Topsoil salvage and stockpiling practices are provided in Section MP.4.2.1. The baseline soil characterization will be utilized along with pre-salvage observations in the field to assure all suitable soil material will be identified and salvaged during mining.

Topsoil replacement is discussed in Section RP.5 of the Reclamation Plan. Brook Mine will replace topsoil evenly across the mine area at an average depth of 18 inches, with a variability of six inches, with these depths re-evaluated following each term renewal. Brook Mine has no plans to create additional areas of zero topsoil replacement.

Handling of acid, potentially acid, and toxic overburden is discussed in Section RP.4.1. The re-graded backfill will be sampled at 500 ft. grid centers to a depth of four feet and analyzed for overburden suitability as detailed in the Mine Plan section MP.4.6.2. Criteria to establish suitability are listed on Table MP.4-7.

A minimum of six and ten feet of suitable backfill material, excluding topsoil, will cover any unsuitable material under minor channels and major channels and their floodplains, respectively (Section RP.4.2.). Permanent post-mining impoundments will meet the same backfill quality criteria as defined for minor and major channels.

(d) Revegetation of all affected lands will be accomplished in a manner consistent with the reclamation plan and the proposed future use of the land (LQD RR Chapter 4, Section 2(d)).

Revegetation practices are discussed in Section RP.6 of the permit. The mine will restore a diverse permanent vegetative cover on all affected lands of the same seasonal native variety and/or a mixture of species that will support the post-mine land uses. Modifications may be necessary as reclamation and mining technologies progress, or in the event of changes in site conditions or regulatory requirement. The seed mixes are diverse and should meet future use of the land. The revegetation plan has been designed to meet short- and long-term reclamation goals of restoring the land to the usefulness and activity it sustained prior to surface mining. Revegetation will be facilitated by:

1. Controlling erosion and sedimentation,
2. Reestablishing a self-sustaining vegetative cover which is comparable to pre-mine conditions; and
3. Restoring livestock grazing, wildlife habitat, watershed condition, and aesthetic values to meet the approved post-mine land use objectives.

The seed mixes are listed in Table RP.6-2. The methods of revegetation and planting procedures are discussed in Section RP.6.1 through RP.6.3. The shrub and tree

density goals and standards are discussed in Section RP.6.4.5 and RP.6.5. Noxious weeds treatments are considered in Section RP.6.6. Revegetation monitoring is detailed in Section RP.6.7. The protection and management of seeded areas is covered in Section RP.6.9 and RP.6.10.

(e) Unchannelized surface water and ephemeral streams will be diverted around the operation or passed through sedimentation ponds to protect the operation and downstream water rights, and to control unnecessary erosion and water pollution (LQD RR Chapter 4, Section 2(e), (f), and (g)).

Surface water impacts at the Brook Mine will be considerably less than those at a conventional surface, or strip, mine in the Powder River Basin. As previously presented, the highwall mining operation will open trenches from which the highwall miner will extract coal from underneath the undisturbed overburden. Therefore, this method of mining leaves most of the surface undisturbed. With much of the surface undisturbed, runoff characteristics, infiltration, sediment yield and geomorphology will remain unchanged in most of the watershed.

All streams within the permit area are ephemeral, except Slater Creek, which is intermittent. The hydrologic and sediment control plan is presented in Mine Plan Sections MP.5.1 through MP.5.7. Discussion of the diversion of unchannelized surface water and ephemeral streams is presented in Mine Plan Section MP.5.4. Locations and the nature of surface water control features are found in Exhibit MP.5-1 of the Mine Plan.

Alternative Sediment Control Measures (ASCMs) will be in place during the life of the mine in those areas subject to erosion. ASCMs include ditches, dams, silt fences, straw wattles, sediment traps and basins, vegetated surfaces, and earthen berms. ASCMs are discussed in Section MP.5 and Addendum MP-1 of the Mine Plan. ASCMs will not be used as the primary sediment control within one-half mile of the Tongue River and Goose Creek. The one-half mile buffer is shown in Exhibit MP.5-1 of the Mine Plan. ASCMs will be inspected and maintained to ensure their effectiveness as described in Section MP.5 and Addendum MP-1 of the Mine Plan.

The Brook Mine will also use sedimentation impoundments and flood control reservoirs to control erosion and protect downstream water quality. Sedimentation impoundments are discussed in Section MP.5.2 of the Mine Plan. Flood control reservoirs are discussed in Section MP.5.4 of the Mine Plan. The locations of these features are found in Exhibit MP.5-1 of the Mine Plan. Designs of these features to be used over the first term of mining are found in Addendum MP-2 of the Mine Plan. The maintenance plan for all impoundments is provided in Section MP.5.6 of the Mine Plan.

(f) Although the applicant proposes to mine near or through a perennial or intermittent stream, the original stream channel will be reclaimed. During and after the operation, the water quantity and quality of the stream, and its value as wildlife habitat, will be preserved (LQD RR Chapter 4, Section 2(r)(ii)).

Mining operations proposed for the life of the mine will disturb minimal portions of Slater

Creek and Hidden Water Creek channels. Hydrologic control plans for Hidden Water Creek and Slater Creek, including temporary diversion plans appear in Section MP.5.4 and Exhibit MP.5-2 (Sheets 1-4) of the Mine Plan. All diversions currently planned are on Hidden Water Creek and will be temporary. Slater Creek will not be directly disturbed except for a short reach where the channel will be redirected to flow through a culvert under a haul road. A 100-foot buffer around the boundary of Slater Creek within the permit boundary will be marked prior to disturbance to minimize impacts to the stream and alluvium. The buffer is shown in Exhibit MP.5-1 of the Mine Plan. All other channels currently slated for disturbance by mining exhibit ephemeral flow. Detailed discussion on reclamation of the drainage channels is presented in Reclamation Plan Section RP-8.1. Due to the mining method and minor surface disturbance, the post-mine drainage basins will be reclaimed to near pre-mine conditions and the drainage basin characteristics will be similar. No perennial streams will be affected.

Wetland habitat disturbed by mining will be reestablished as discussed in Section RP.9 of the Reclamation Plan.

(g) All permanent water impoundments will be constructed to prevent structural failures, safety hazards, and water contamination, and to accommodate revegetation. They will also meet the design criteria and performance standards outlined in LQD RR Chapter 4, Section 2(g).

The operator has documented in the Reclamation Plan, Section RP.8.2, Exhibit RP.8-1, and Table RP.8-6, that provisions of Chapter 4, Section 2(g) will be met. Design, operation, and location of permanent impoundments is also discussed in Section RP.8.2. Locations are illustrated on Exhibit RP.2-1 and Exhibit RP.3-1. The impoundments will be used as a source of water for livestock and wildlife and the addition of two impoundments over what existed pre-mine will result in a net increase in surface water storage capacity. Most of these post-mine impoundments will include wetland mitigation features, in support of the post-mine land use of recreation and wildlife habitat. Detailed designs for the impoundments will be developed and submitted to LQD and SEO for approval prior to construction. All permanent impoundments will be permitted in accordance with the applicable Mine Safety and Health Administration (MSHA), SEO, and WDEQ/LQD rules, regulations, and guidelines. Post-mine water quality monitoring plans for these impoundments are described in Section RP.8.4.3.

(h) The reclamation plan will ensure protection of the quantity, quality, and legal rights to surface water and ground water within and adjacent to the permit area (LQD RR Chapter 4, Section 2(i)). Surface water and ground water quality and quantity will be monitored during the course of mining and reclamation operations to determine the extent of the disturbance to the hydrologic balance. The monitoring system is based on the results of the probable hydrologic consequences assessment and monitoring will be adequate to plan for modification of mining activities, if necessary, to minimize adverse effects on the water of the state. Plans for the proper installation, operation, maintenance, and removal of all necessary monitoring equipment have been included in the permit application (LQD RR Chapter 2, Section 5(a)(ix)).

Surface Water

Mine Plan Section MP.6.1 describes the probable hydrologic impacts to surface water during mining. The overall impacts to surface water at the Brook Mine are predicted to be less than a conventional surface strip mine due to the nature of the highwall mining operation which will leave most of the surface undisturbed. Temporary and localized impacts are predicted due to disturbance from the surface mine and the highwall mining trenches. Highwall mining trenches, ASCMs, and impoundments may temporarily reduce and attenuate runoff in local drainages and through flow to the Tongue River. Disturbances to the Slater Creek and Hidden Water Creek channels are discussed above in Finding No. 2(e). Temporary diversions on Hidden Water Creek will be used to route water around the highwall mining trenches as discussed above in Finding No. 2(e). Temporary increases in soil erosion will be controlled with ASCMs and sedimentation impoundments as discussed above in Finding No. 2(e). These features will protect downstream water quality. Discharge permits from the WDEQ/WQD will be obtained prior to the discharge of any water from impoundments to ensure water quality standards for receiving streams are met. The mine permit application predicts minimal changes in surface water quality in the Tongue River and other streams adjacent to the mine permit boundary.

The Brook Mine completed a surface water rights search for inside and within one mile of the permit area using the Wyoming State Engineer's Office database. The search found 45 reservoir surface water rights and 47 diversion ditch water rights. These are included in Appendix D6 in Tables D6.1-9 (Stockponds and Impoundments) and D6.1-10 (Diversions) and are shown on Exhibit D6.1-2 in Appendix D6 and Exhibit 5 in Adjudication Volume 2.

Surface water rights within the permit boundary and within three miles of the permit area are also detailed in Section WR-1 of Volume 1, Adjudication. These water rights are depicted on Exhibit 7 in Volume 2 of the Adjudication file. The Probable Hydrologic Consequences (PHC) Section of the Mine Plan, Section MP.6.1, evaluated the potential for the mine operation to impact surface water rights. The PHC predicts no impacts to downstream water rights due to the limited impact on surface water runoff. Sections MP.6.1 and MP.6.3 of the Mine Plan provides a commitment to replace any affected surface water right with a water source of similar quantity and quality until such time that the original water right's functionality is restored. Section RP.8.5.2 of the Reclamation Plan also predicts no impacts to surface water rights downstream from the mine since the quantity of surface waters will not significantly altered by mining.

The final hydrologic reconstruction plan for drainage basins affected by mining within the Brook Mine permit area is provided in Section RP.8.1 (Drainage Basin Reconstruction) and on Exhibit RP.8-1. Post-mine drainage basin characteristics are presented in Table RP.8-1. The results of post-mining flood studies are provided in Table RP.8-2 for the 6-hour events and Table RP.8-3 for the 24-hour events for comparison to the pre-mining flood estimates derived in Appendix D6. These post-mine flood estimates were used with baseline geomorphic characteristics presented in Appendix D6 to provide a basis for the design of the reclaimed channel and floodplain cross sections. Stream reaches for which designed cross sections are provided are identified in plan on Exhibit RP.8-1 and in profile on Exhibit RP.8-2.

Reclamation Plan Section RP.8.5 provides the post-mine probable hydrologic consequences section for surface water. The PHC concludes that no permanent impacts on the surface water quantity and quality will result due to mining.

The operational surface water monitoring plan for the Brook Mine is outlined in Mine Plan Section MP.7.1. Monitoring within the permit boundary includes two stations on Slater Creek, two stations on Hidden Water Creek, and numerous existing impoundments. Additional monitoring sites outside the permit boundary are on the Tongue River, the Tongue River Ditch, and Goose Creek. On the Tongue River, there is one site upstream of the Slater Creek confluence, one site at Monarch, and one site downstream at the Highway 338 crossing. The locations of the monitoring sites are shown on Mine Plan Exhibit MP.7-1. Details on the monitoring stations are summarized in Mine Plan Table MP.7-1. Continuous flow measurements will be taken at the Slater Creek and Hidden Water Creek stations between April and October. All monitoring stations will be sampled for water quality and instantaneous discharge on a quarterly basis. The water samples will be analyzed for the parameters listed in Mine Plan Table MP.7-2. Mine Plan Section MP.7.1 outlines the Quality Assurance/Quality Control measures to be followed with all sampling.

As discussed in Reclamation Plan Section RP.8.4.2, a post-mine surface water monitoring program will be implemented after reclamation is complete. The post-mine monitoring program mirrors the operational program and the monitoring sites are listed in Reclamation Plan Table RP.8-9. The locations of these sites are shown on Exhibit RP.8-4. Water quality samples will be obtained as indicated in Table RP.8-9. The water samples will be analyzed for the parameters listed in Table RP.8-8.

Groundwater

Groundwater rights inside and within three miles of the permit area are detailed in Section WR-1 of Volume 1, Adjudication. These water rights are depicted on Exhibit 8 in Volume 2 of the Adjudication file. Sections MP.5.8 and MP.6.3.2 of the Mine Plan provides a commitment to replace any groundwater right with a water source of similar quantity and quality until such time that the original water right's functionality is restored.

The groundwater model simulated impacts to water wells are discussed in Section MP.6.2.4. Table MP.6-2 provides a tabulation of all the groundwater rights that fall within the maximum extent of model predicted drawdowns shown in Exhibits MP.6-1, MP.6-2, MP.6-3, MP.6-4, or MP.6-5. Table MP.6-2A provides the list of five wells that show modeled drawdown greater than one foot that is caused by the proposed mining.

The operational ground water monitoring program is discussed in Section MP.7.2 of the Mine Plan. The monitoring network includes wells completed in: alluvium, overburden, coal, underburden and backfill. The well locations are shown on Exhibit MP.7-1 and in Table MP.7-3. Table MP.7-2 lists monitoring water quality constituents. Water levels are measured in all the alluvium, overburden, coal, and underburden wells. The alluvial monitor well locations are itemized in Table MP.7-4. Monthly water levels are to be

measured at select wells dependent on the mining sequence and proximity of active mining.

The hydrologic monitoring plan is consistent with LQD Guideline 8 suggestions and is thus designed to expand as mining progresses, continually maintaining adequate coverage for determining the extent of disturbance to the hydrologic balance. Should there be an unexpected disturbance to the hydrologic balance, there would be ample time to modify mining activities.

All groundwater monitoring wells will be inspected annually and maintained as required and all monitoring results will be included in the WDEQ-LQD Annual Report. No well will be abandoned without WDEQ-LQD approval, and all drill holes and wells will be abandoned in accordance with LQD Rules and Regulations. The description of aquifer restoration and the post-mine ground water monitoring program is in the Reclamation Plan Section RP.8.3 and RP.8.4, respectively.

In Appendix D6 the overburden is shown to consist predominantly of fine-grained clastic materials having low permeability and rates of groundwater movement. The overburden encountered during baseline monitoring activities indicate that the overburden is predominantly dry. Due to the mining methods no long-term impacts are anticipated for the overburden. Significant recharge or discharge areas at the Brook Mine are also discussed in Appendix D6. The estimated Post-mine Potentiometric Surfaces for the reclaimed aquifer for the Masters and Carney Seams are presented respectively on Exhibit RP.8-3 and Exhibit RP.8-4. in the Reclamation Plan. Groundwater quantity and quality will be monitored until final bond release to determine the extent of the disturbance to the hydrologic balance.

Backfill wells to be constructed will be located to 1) replace monitor wells mined through during the life of the mine, and 2) adequately assess the reestablishment of groundwater levels and water quality. The basic design components for all newly reconstructed wells are shown on Figure RP.8-9. The groundwater quality samples will be analyzed for the parameters listed in Table RP.8-8. All monitoring wells will be plugged and reclaimed according to procedures outlined in WDEQ/LQD R&R and in the Mine Plan. Locations of post-mine monitor wells can be found in Exhibit RP.8-5.

The post-mining groundwater monitoring program is based upon assessment of the hydrologic consequence and designed to determine infiltration rates, recharge capacity, hydraulic characteristic, subsurface flow, and groundwater quality within the reclaimed lands and the adjacent areas. The intent of the post-mining groundwater monitoring efforts is to document the availability of groundwater and the suitability of the groundwater quality to be consistent with the approved post-mining land use of livestock grazing and wildlife habitat. Plans for the proper installation, operation, maintenance, and removal of all necessary monitoring equipment are also described in Section MP 7 and RP.8.4

Form 1, Condition 3: In July 2019, Brook Mine installed an alluvial monitor well 578415-AL-1, to monitor water levels and water quality of the Tongue River alluvium. Two quarters of data were collected in July 2019 and December 2019. These two

quarters of data are included in the permit application. Brook Mine has collected and submitted to WDEQ/LQD the third and fourth quarters of water level and water quality data for this alluvial monitor well. This data along with appropriate revisions to text, figures, and tables in Appendix D6 shall be submitted to WDEQ/LQD as a non-significant revision no later than August 31, 2020. In addition, Brook Mine shall monitor alluvial wells 578524-AL-1, 578420-AL-1, and 578415-AL-1 on a quarterly basis for the entire life of the Brook Mine. The quarterly data collected from these three wells shall be submitted to WDEQ/LQD in the standard Coal Annual Report Format as part of the annual report submittals.

(i) All constructed or upgraded roads and railroad spurs are included within the permit area from that point where they provide exclusive service and are covered by the reclamation bond (LQD RR Chapter 4, Section 2(j)).

Narrative on roads and transportation systems can be found in the Mine Plan in Section MP.3. All roads will be classified in one of two general road categories according to the WDEQ/LQD road classification system in Chapter 4, Coal Rules and Regulations. They will be designated primary roads or ancillary roads. Primary roads are any road used for transporting mineral or spoil, or frequently used for access or other purposes for a period more than six months, or roads to be retained for post-mining use. Ancillary roads are all other roads not classified as primary roads. The road system at and adjacent to the Brook Mine will consist of public access roads, primary access roads, primary haul roads, and ancillary roads. All roads within the permit boundary will be reclaimed as they are no longer of service. They will also be reclaimed at the end of mine life, should they be of service, even on a limited basis, throughout the life of the mine.

Primary access roads located outside of the immediate mining area will be designed and constructed in accordance with good engineering and environmental practice and will comply with applicable state and federal regulations. All roads will be closed to vehicular traffic when no longer needed, and then reclaimed unless retention is part of the approved post-mining land use.

The Burlington Northern Santa Fe (BNSF) railway borders and traverses through portions of the Brook Mine Permit Area. The location of the BNSF railway in relation to the Brook Mine Permit Area is presented on Exhibit MP.3-1, as are the locations of the primary haulroad system. The BNSF railway will not be used to transport coal.

(j) All buildings and structures constructed, used, or improved by the operator will be removed and dismantled or the applicant has demonstrated that the buildings and/or facilities will be of beneficial use in accomplishing the proposed use of the land after reclamation or for environmental monitoring. All support facilities are designed to achieve the performance required by the applicable standards and should cause no significant harm to the environment or public health and safety (LQD RR Chapter 4, Section 2(m) and (n)).

The buildings, structures, and facilities can be seen on Exhibit MP.2-1, Facilities Map.

Section MP.2 in the Mine Plan covers the narrative describing the mine facilities by type and nature of use. The administration building will be in Sheridan. The administration building will contain offices, a conference room, and training facilities. The change house includes offices, shower facilities for employees, and a large meeting area and equipment service facility. Additional facilities required for mine operation that will be in the vicinity of the change house and shop facilities will include a truck tire shop, a lab/sample building, and a substation for power. A truck ready line will also be located near the change house. Other facilities will include a fuel station, a freshwater cistern, a septic tank, and a leach field. Portable, in-pit crushers will be used at the Brook Mine. Therefore, crusher facilities will not be constructed. The crushed coal will be loaded in the pit and hauled using coal trucks. A coal storage pad will also be used as depicted on Exhibit MP.2-2 of the Mine Plan.

Following the completion of mining activities, and assuming that no future mining or mineral recovery is planned, all buildings, facilities, and equipment will be decommissioned and removed from the site. Equipment, surplus materials, and fuel and water tanks will be removed and disposed of off-site, and/or recycled in accordance with applicable regulations. Pipelines, power lines, culverts, building foundations, and building pads will be removed in accordance with applicable regulations. Debris may be buried on-site as allowable by closure guidelines and regulatory approval at the time of closure. Scrap material, refuse, unwanted equipment, and surplus materials will be removed and disposed at an appropriate landfill site. Any closed waste management units and/or sewage facilities will be cleaned, and all hazards will be remediated in accordance with applicable rules and regulations. Any sedimentation ponds and/or waste ponds will be closed in accordance with applicable rules and regulations.

The reclamation performance bond will be recalculated on an annual basis as part of the Annual Report process.

(k) A detailed time schedule for the mining and reclamation progression has been included in the reclamation plan (LQD RR Chapter 4, Section 2(k)).

The mining methods, schedules, and assessments can be found in the Mine Plan, Section MP.4. The expected coal removal sequence is displayed on Exhibit MP.4-1. Details regarding mining activities will be presented in the annual report. Exhibit MP.15-1 shows the areas within the permit boundary that will be mined using surface mining techniques as well as the areas that will be mined using highwall mining methods. The overburden removal sequence is shown on Exhibit MP.4-4. This exhibit shows overburden removed for trenches and surface mine areas. Exhibit MP.4-1 displays the coal removal sequence for the life of the mine.

The permit period for the Brook Mine will occur over a 43-year period while mining activities will occur over a 39 year period, as discussed in Section MP.1.6 of the Mine Plan. Any changes in reclamation schedule will be reflected in the annual report of the corresponding year. Reclamation will occur concurrently with mining activities. Monitoring of reclamation efforts will occur according to the monitoring plan approved by WDEQ/LQD. Monitoring will continue following closure and reclamation until suitable conditions concerning water quality and revegetation uptake have been reached.

(l) All exposed surface areas within the permit area will be protected and stabilized to effectively control erosion and air pollution attendant to erosion (LQD RR Chapter 4, Section 2(q)). In addition to relevant permit requirements determined by LQD, Brook Mine must comply with all requirements of the WDEQ-Air Quality Division air quality permit.

All exposed, unconsolidated surfaces within the permit area will be controlled by use of erosion control methods during the life of mine. Erosion control methods are described in Mine Plan Section MP.5 and discussed in above Finding No. 2(e). The narrative describing the different techniques for erosion control during reclamation is found in the Reclamation Plan, Section RP.6.9 and RP.6.10. Damage to the reclaimed surface from erosion will be repaired by regrading, installing temporary flow restrictors (such as straw bales) and reseeding to establish vegetation. Erosion control measures such as jute netting, erosion control blankets or other means may be utilized if site conditions require them. Air quality protection will be primarily directed to the control of particulate matter (predominately fugitive dust). During operations, dust control on haul roads and access roads will be accomplished by frequent watering and/or chemical dust suppressants. The permit application demonstrates the use of Best Available Control Technology on all emission sources.

(m) The mining and reclamation plan has been designed to minimize disturbance and adverse impacts on fish, wildlife, and related environmental values, and to achieve enhancement of these resources where practicable (Chapter 4, Section 2(r)).

A baseline assessment of wildlife in the Brook Mine Permit Area, and the vicinity, is provided in Appendix D9. The impact and mitigating measures are also discussed in Appendix D9. The Wildlife Monitoring Plan is presented in the Mine Plan in Addendum MP-8. Impacts to wildlife at the Brook Mine will be temporary loss of habitat, but temporary loss of habitat will be considerably less at the Brook Mine compared to conventional surface mines due to the lesser degree of surface disturbance. Habitat will be returned to wildlife use as soon as possible after reclaimed areas are determined to be stabilized. If the monitoring program described in Addendum MP-8 indicates adverse impacts on wildlife, approved changes will be implemented to mitigate damage.

Wildlife Restoration is in the Reclamation Plan in Section RP.7. The primary land disturbance will occur within and directly adjacent to select ephemeral drainages within the mine area. Reclamation of the disturbed wildlife habitats will focus on providing habitat features which promote maximum species diversity. Brook Mine plans to integrate several post-mine vegetation communities to promote diverse and stable post-mine habitats like those that were present pre-mine. Brook Mine is committed to reestablishing the eight wildlife habitats discussed in Appendix D9 that are planned to be disturbed within the Brook Mine Permit Area.

Post-mine impoundments and reclaimed ephemeral channels will provide a source of water for wildlife species throughout the mine area similar to pre-mine conditions. The

established aquatic habitats occurring in Goose Creek and the Tongue River will not be disturbed by mining activities. As discussed in Appendix D9, ephemeral drainages within the mine area are not viable fisheries; however, reclamation of these areas will provide habitat for a variety of wildlife species. This plan has been reviewed and approved by the U.S. Fish and Wildlife Service (November 6, 2013 and December 12, 2013) and Wyoming Game and Fish Department (December 23, 2013 and March 12, 2015).

Form 1, Condition No. 4: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to the permit to include the USFWS approval letter of their MBHFI and Raptor monitoring plan.

Form 1, Condition No. 5: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to update Appendix D9 with wildlife monitoring data obtained during their spring 2020 surveys. This application shall also include required revisions to the mine and reclamation plans to protect any sensitive species or nest location(s) as recommended by the USFWS.

Form 1, Condition No. 6: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to update the mine plan to include the commitment to prohibit surface disturbances within a two-mile buffer of any known sage-grouse lek from March 15 through June 30 of each calendar year to prevent impacts to lekking, nesting, and early brood rearing.

Form 1, Condition No. 7: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to update Appendix D10, the Mine Plan, and Reclamation Plan to incorporate as appropriate the June 19, 2020 wetlands jurisdictional determination from the US Army Corps of Engineers.

No. 3. The proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area (W.S. § 35-11-406(n)(iii)).

A draft Cumulative Hydrologic Impact Assessment (CHIA) for the proposed Brook Mine was completed in February 2020 to assess the potential for material damage to the hydrologic balance outside the proposed permit area (WDEQ-CHIA 39). Based on the information in the Brook Mine permit application and analysis presented in the CHIA, coal mining at the Brook Mine has been designed to prevent material damage to the hydrologic balance outside the mine permit boundary. The CHIA was submitted to the WDEQ Water Quality Division (WQD) and the Wyoming State Engineer's Office (SEO) for concurrence. Both the SEO's and WQD's reviews agreed with the LQD overall finding that the operation has been designed to prevent material damage to the hydrologic balance outside the mine permit boundary. The final version of the CHIA was signed by the Director of the Wyoming Department of Environmental Quality on July 01, 2020 and by the Wyoming State Engineer on July 02, 2020.

A summary of the CHIA follows below:

The proposed Brook Mine is adjacent to the Big Horn Mine (WDEQ/LQD Permit 213). The Big Horn Mine was not explicitly considered in the CHIA since nearly 98 percent of the permit area has been permanently reclaimed and fully bond released, and there are no detectable hydrologic impacts. The probable hydrological effects of the proposed Brook Mine were also determined to not be cumulative with other active coal permits in the upper Tongue River Basin further downstream in Wyoming and Montana. Since there are no predicted cumulative effects from other coal mines, the proposed Brook Mine is considered hydrologically isolated.

Analysis from the CHIA and the information from the Brook Mine permit application indicates that the proposed mining will not cause a significant long-term or permanent adverse change to water quantity such that downstream surface water rights would be affected. The potential for mining to cause measurable changes to surface water quantity is deemed low due to the use of hydrologic control features, limited extent of surface disturbance, and reclamation practices. Based on the limited amount of acreage affected, there is a low likelihood of detecting changes in water quantity downstream on the Tongue River that would be attributable to the proposed mining.

The analysis from this CHIA and information in the Brook Mine permit application indicates that the proposed mining will not cause a significant long-term or permanent adverse change such that WQD surface water quality standards and classes of use are no longer met. The use of hydrologic and sediment control features helps to protect surface water quality and limit the potential for material damage. Potential increases in erosion and sediment yield at the proposed Brook Mine will be mitigated through a hydrologic and sediment control plan, which includes the use of ASCMs, temporary diversions, flood control reservoirs, and sedimentation impoundments. In addition, a 100-foot buffer will be established on either side of Slater Creek within the proposed permit boundary to help protect water quality of Slater Creek flowing within the proposed boundary and downstream water quality on the Tongue River. Continued monitoring and comparisons between stations upstream and downstream of mining disturbance will be used to evaluate water quality standard exceedance and material damage potential in the future.

Although coal mining will have impacts on groundwater within the proposed permit boundary, based on available data, information presented in the mine permit application, and analysis in the CHIA, the potential for material damage outside the permit boundary to groundwater quantity and groundwater quality is limited. Compared to the other aquifer units of interest, mining impacts to groundwater levels in the coal aquifer are more extensive since the coal seams are mined out and the hydraulic conductivity of the coal aquifer is higher than the overburden and underlying aquifers.

The proposed Brook Mine developed a three-dimensional MODFLOW groundwater model to predict groundwater level drawdown and associated recovery in the aquifers adjacent to the mining pits. Most of the wells within the model domain are stock or domestic wells and are completed in a geologic stratum below the Carney coal that would be mined. The groundwater model predicts a drawdown of greater than zero feet at five wells. The largest model predicted impact seen at any existing well outside of the proposed permit boundary is 3.3 feet. This impact is estimated to be temporary at

approximately four years. Model predicted drawdowns at the remaining four wells are less than two feet. In addition, if the existing wells with water rights are impaired due to coal mining operations, the proposed Brook Mine commits to providing a replacement water source similar in quantity and quality. Because of contemporaneous reclamation, the coal aquifer is expected to be on a recovery trend when mining stops in 39 years. Monitoring of groundwater levels and groundwater quality will continue at the monitor wells at the proposed Brook Mine up until final bond release to evaluate performance standards and reclamation success.

The mining impacts on groundwater quality in the undisturbed native coal aquifer outside the proposed Brook Mine permit boundary would depend on the hydrologic connection with the backfill aquifer and on the groundwater quality of the groundwater migrating from the backfill aquifer. The estimated physical characteristics, water level recovery, and water quality of the backfill aquifer were used as material damage indicators to evaluate the backfill aquifer and its effect on groundwater availability within the proposed mine permit boundary and flow to the undisturbed native aquifers. The predicted saturated extent of the backfill aquifer is like the observed baseline saturated extent of the coal seams. The Brook Mine predicts that the time for complete recovery of water levels in the backfill aquifer within the proposed mine permit boundary is about 10 to 20 years. Additionally, viability of the backfill aquifer for beneficial uses could likely be attained prior to full recovery since there would be a rapid initial recovery followed by an asymptotic slower recovery towards the initial static water level. The overall assessment indicates that the backfill aquifer will likely have sufficient permeability to yield enough water to support the proposed post-mining land use of livestock and wildlife.

Analysis in the CHIA and information in the Brook Mine permit application indicates that the potential for the backfill groundwater to migrate to and affect the adjacent undisturbed native aquifers outside the proposed mine permit boundary is minimal and localized. During removal and replacement of the overburden to backfill the mine pits and trenches, appropriate measures are taken to ensure that the water quality of the backfill aquifer will not be degraded such that post-mining land uses cannot be supported. It is generally expected that over time, the backfill aquifer will be flushed by groundwater flowing through the reclaimed material and down gradient to the native undisturbed aquifers. Thus, the water quality in the backfill is expected to support livestock use before the groundwater levels are completely recovered. Based on the predictions from the Brook Mine permit application and the observed data from the adjacent Big Horn Mine, it is expected that the backfill aquifer will be a viable supply source to support the proposed post-mining land use of livestock and wildlife. Therefore, groundwater migrating from the backfill aquifer to the native aquifers outside the mine permit boundary is expected to have a minimal effect and would not affect the ability of the existing wells to supply for their intended use. Overall, evaluation of the three material damage indicators suggests that there is limited potential for the proposed Brook Mine to cause material damage to the native aquifers outside the mine permit boundary.

No. 4. The area proposed to be mined is not included within an area designated unsuitable for

surface coal mining pursuant to W.S. § 35-11-425, within an area where mining is prohibited pursuant to Section 522(e) of P.L. 95-87, or within an area under review for this designation in an administrative proceeding (W.S. § 35-11-406(n)(iv)).

The mine area does not fall within the limitations of these requirements.

No. 5. *The proposed operation contains Alluvial Valley Floors (AVFs) within or adjacent to the permit area. However, it will not interrupt, discontinue, or preclude farming on AVFs that are irrigated or naturally subirrigated, excluding those on undeveloped rangelands which are not significant to farming and those on lands as to which the administrator finds that if the farming will be interrupted, discontinued, or precluded is of such small acreage as to be of negligible impact on the farm's agricultural production. The proposed operation will not materially damage the quantity or quality of water in surface or underground water systems that supply AVFs not subject to statutory exclusions. (W.S. § 35-11-406(n)(v)).*

The uppermost reaches of Slater Creek, within the permit boundary located in the SW quarter of Section 12, T.57N. R.85W.contain marginal acreage that was declared an AVF by LQD on February 10, 2016. The lands involved with the determination consist of 13.11 acres along the course of Slater Creek where the water system is classified as intermittent. The property appears to have never been farmed nor is it important to farming at present, as shown in Appendix D11, Exhibit D11.4-1. The lands immediately upstream from the permit boundary have been used in the past as irrigated cropland growing alfalfa hay. Hay production on these adjacent lands is dependent upon seasonal water availability so crop yields are variable. The land within the permit boundary is classified as undeveloped rangelands that is not significant to farming. Mining operations will not affect the Slater Creek drainage in this area so there will be no impacts from mining on these AVF lands.

Other drainages within and adjacent to the Brook Mine are the Tongue River drainage system and Goose Creek to the south, the Hidden Water Creek drainage to the north and northeast, and the East Fork of Early Creek to the west. The locations of these drainages as they relate to the permit boundary can be seen on Exhibit D11.1-1 and Exhibit D11.6-1, Appendix D11. The Hidden Water Creek valley and the Early Creek valley do not include any hay meadows or cropland inside of the study area as shown on Exhibits D11.1-1 and D11.4-1. Also, as shown by Exhibit D11.1-1, a sufficient water supply does not exist for consistent agricultural practices in East Fork Early Creek.

On January 10, 2020, the LQD determined that portions of Slater Creek immediately upstream of the proposed Brook Mine permit boundary and the Tongue River south of the proposed permit boundary are AVFs. The determination did not identify any potential for mining activities to interrupt, discontinue, or preclude agricultural activities on the AVFs. Since the AVFs would not be affected by mining it was determined that a significance to farming test was not required.

Coal mine operations must not cause material damage to the quantity and quality of water in surface or groundwater systems that supply AVFs not subject to statutory exclusions (W.S. § 35-11-406(n)(v)(B)). The CHIA completed for the Brook Mine

(WDEQ-CHIA 39) conducted a material damage assessment for the AVFs adjacent to the permit boundary and those previously declared to be significant to farming on the Tongue River downstream of the Big Horn Mine by considering the potential for changes in surface water quantity, surface water quality, alluvial water levels, and alluvial water quality. The analysis in the CHIA, the information in the Brook Mine permit application, and the January 10, 2020 LQD AVF determination indicates that the proposed mining will not cause material damage to the surface water and groundwater hydrology components that support the adjacent and downstream AVFs. The ability for flood irrigation and subirrigation in the downstream AVFs is predicted to be maintained throughout the proposed mining and reclamation operation.

No. 6. The area to be surface mined does not contain prime farmland (W.S. § 35-11-406(n)(vi)).

The Natural Resources Conservation Service (NRCS) has not located any prime farmlands within the Brook Mine permit boundary. The nearest identified prime farmlands are located on the John Bocek ranch, approximately one-half to one-mile northwest of any surface disturbance slated for the Brook Mine.

No. 7. The schedule required by W.S. § 35-11-406(a)(xiv) and the compliance review conducted by WDEQ/LQD indicates that all surface coal mining operations owned or controlled by the applicant are currently in compliance with this act and all applicable State and Federal laws, or that any violation has been or is in the process of being corrected to the satisfaction of the authority, department or agency which has jurisdiction over the violation (W.S. § 35-11-406(n)(vii)).

Applicant Violator System (AVS) evaluations were requested on November 13, 2014, December 2, 2016, October 31, 2019, and February 27, 2020 and no violations were retrieved by the system. WDEQ requested an AVS determination on July 1, 2020, which revealed an outstanding cessation order issued by the State of West Virginia to Jewell Valley Mining, LLC, an entity related to the applicant. WDEQ investigated this violation and learned it was an outdated entry. It was subsequently removed from the AVS system. WDEQ requested another AVS determination on July 2, 2020, which revealed an outstanding civil penalty issued by the State of West Virginia to Ramaco Resources, LLC. WDEQ contacted the West Virginia Department of Environmental Protection to confirm the details of this violation and also notified the applicant. The applicant resolved the outstanding civil penalty on July 6, 2020. WDEQ requested a final AVS determination on July 6, 2020 and no violations were retrieved by the system.

No. 8. Neither the applicant nor operator controls or has controlled mining operations with a demonstrated pattern of willful violations of such nature and duration with such resulting irreparable harm to the environment as to indicate reckless, knowing or intentional conduct (W.S. § 35-11-406(o)).

The applicant has not demonstrated a pattern of willful violations resulting in

environmental harm.

No. 9. The applicant does not qualify for an experimental practice variance (LQD Coal Rules and Regulations, Chapter 9).

Currently, there are no experimental practice variances agreed to with Brook Mine.

No. 10. All appropriate Federal, State, and local government agencies with an interest in historic preservation have approved the proposed operation, because it will not adversely affect any site(s) included in, or eligible for inclusion in, the National Register of Historic Places. A plan to mitigate adverse effects has been approved by the State Historic Preservation Office, or other appropriate agencies, and has been attached to the permit by condition (LQD RR Chapter 12, Section 1(a)(v)(C)).

The surface ownership of the permit area is all private. The coal ownership is also all private. Due to the fact that no public land or public coal resource is being impacted by the mining operation, no cultural resource surveys or evaluations have been performed. There are no sites within the permit boundary that are included In the National Register of Historic Places nor are there any sites being considered for the NRHP.

No. 11. Although the proposed operation is within one hundred (100) feet of the outside right-of-way line of a public road, the road may be relocated or the area affected because the applicant has obtained the necessary approvals of the authority with jurisdiction over the public road prior to the term-of-permit within which the road will be reconstructed. Public notice and an opportunity for public hearings for this purpose will be provided and the required written finding will be made determining that the interest of the public and the affected landowners will be protected from the proposed operation (LQD RR Chapter 12, Section 1(a)(v)(D)).

There are no indications within the current Mine Plan or Reclamation Plan of the Brook Mine that any public roads will be relocated or reconstructed by the mining operation. Should public roads be included as access points and travel corridors later in mine life, affected roads will be designed and certified by a professional engineer and brought into the Mine Plan at that time.

No. 12. For the term covered by the permit, the proposed operation will be consistent with other surface coal mining and reclamation operations proposed or contemplated in pending or approved mining permits (LQD RR Chapter 12, Section 1(a)(iv)(A)).

The Brook Mine permit application meets all permitting requirements for a regular coal mining permit under the WDEQ/LQD permitting process. The activities which will create affected lands, and which will reclaim the affected lands meet all WDEQ/LQD performance standards.

Form 1, Condition 8: Within ninety (90) days of each LQD approval revision for Permit No. 213 (Big Horn Coal Mine) which affects the "Dual Permitted Areas" between Permit Nos. 213 and the Brook Mine permit, Brook Mine shall submit a revision to their permit. This revision application shall update and revise all text and maps associated with the

"Dual Permitted Area" to bring the Brook Mine Permit into accord with the revised Permit No. 213. The LQD District III Office shall notify Brook Mine of the need to submit any such revisions. Brook Mine shall also notify Big Horn Coal Company of any revision application Brook Mine submits to LQD that affects lands within the DPA. This notification shall occur within 7 days after a Temporary File Number (TFN) has been assigned to the revision by LQD.

No. 13. The mining and reclamation activities proposed will not affect the continued existence of endangered or threatened species or result in the destruction or adverse modification of their critical habitats (LQD RR Chapter 4, Section 2(r)(iii)).

No habitats crucial to the survival of a threatened or endangered species exist within the permit area. The mine plan and reclamation plan will not jeopardize the continued existence of any threatened or endangered species. The USFWS has reviewed the Wildlife Monitoring Plan in Section RP.7 and has determined that as long as the operation is conducted as proposed all wildlife issues of federal interest will be adequately addressed. This correspondence is included in Addendum D9-1.

No. 14. No mining or reclamation activities will take place within the boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, or any National Forest (LQD RR Chapter 12, Section 1(a)(v)(A) and (B)).

There are no lands within the Brook Mine permit boundary classified as the specific land types listed above.

No. 15. No mining or reclamation activities will be conducted within three hundred feet of any occupied dwelling, public building, school, church, community, institutional building, or public park, nor within one hundred feet of a cemetery (LQD RR Chapter 12, Section 1(a)(v)(E), (F), and (G)).

Brook Mine does not propose to mine within three hundred feet of the aforementioned structures or facilities.

No. 16. Public notice was given in The Sheridan Press from March 3, 2020 through March 24, 2020.

The summary of conditions to be applied to the Form 1 approval of this application:

Form 1, Condition 1: Structures identified in a pre-blast survey to (1) have plaster on lathe construction or (2) to otherwise face a greater risk to damage due to blasting vibrations will be subject to a 0.5 inches per second limit with a scaled distance factor of 85.

Form 1, Condition 2: The blasting schedule will be limited to weekdays, excluding holidays. The blasting schedule will also be limited to times between 8:00 AM and sunset. Blasting may not be conducted at times different from those announced in the

blasting schedule except in conditions where operator or public safety requires detonation or for emergency blasting actions. Reasons for detonation outside of the published blasting schedule shall be documented.

Form 1, Condition 3: In July 2019, Brook Mine installed an alluvial monitor well 578415-AL-1, to monitor water levels and water quality of the Tongue River alluvium. Two quarters of data were collected in July 2019 and December 2019. These two quarters of data are included in the permit application. Brook Mine has collected and submitted to WDEQ/LQD the third and fourth quarters of water level and water quality data for this alluvial monitor well. This data along with appropriate revisions to text, figures, and tables in Appendix D6 shall be submitted to WDEQ/LQD as a non-significant revision no later than August 31, 2020. In addition, Brook Mine shall monitor alluvial wells 578524-AL-1, 578420-AL-1, and 578415-AL-1 on a quarterly basis for the entire life of the Brook Mine. The quarterly data collected from these three wells shall be submitted to WDEQ/LQD in the standard Coal Annual Report Format as part of the annual report submittals.

Form 1, Condition No. 4: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to the permit to include the USFWS approval letter of their MBHFI and Raptor monitoring plan.

Form 1, Condition No. 5: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to update Appendix D9 with wildlife monitoring data obtained during their spring 2020 surveys. This application shall also include required revisions to the mine and reclamation plans to protect any sensitive species or nest location(s) as recommended by the USFWS.

Form 1, Condition No. 6: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to update the mine plan to include the commitment to prohibit surface disturbances within a two-mile buffer of any known sage-grouse lek from March 15 through June 30 of each calendar year to prevent impacts to lekking, nesting, and early brood rearing.

Form 1, Condition No. 7: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to update Appendix D10, the Mine Plan, and Reclamation Plan to incorporate as appropriate the June 19, 2020 wetlands jurisdictional determination from the US Army Corps of Engineers.

Form 1, Condition 8: Within ninety (90) days of each LQD approval revision for Permit No. 213 (Big Horn Coal Mine) which affects the "Dual Permitted Areas" between Permit Nos. 213 and the Brook Mine permit, Brook Mine shall submit a revision to their permit. This revision application shall update and revise all text and maps associated with the "Dual Permitted Area" to bring the Brook Mine Permit into accord with the revised Permit No. 213. The LQD District III Office shall notify Brook Mine of the need to submit any such revisions. Brook Mine shall also notify Big Horn Coal Company of any revision application Brook Mine submits to LQD that affects lands within the DPA. This notification shall occur within 7 days after a Temporary File Number (TFN) has been assigned to the revision by LQD.

Form 1, Condition 9: Before commencing mining in the TR-1 area or any subsequent highwall mining panel, Brook Mine shall provide WDEQ/LQD with the results from physical property testing of cores from a minimum of at least three geotechnical core holes for each panel to be mined. For the TR-1 area, this will require drilling and sampling at least two more core holes in addition to the previously tested hole 2017-4 core. The location and number of the core holes to be drilled should be based on a geostatistical algorithm, such as Kriging (Gaussian process regression), to demonstrate the adequacy of the core holes for purposes of characterizing each highwall mining panel. Samples collected from each core hole should include the roof, coal, and floor of the proposed highwall mining panel. For all future core holes, Atterberg limits and consolidated-drained triaxial testing should be performed in addition to the testing procedures performed on core hole 2017-4.

The results of the core laboratory testing shall be reviewed and analyzed by a Wyoming registered Professional Geologist or Engineer. The Mine Plan and Subsidence Control Plan shall be revised, if necessary, based upon the additional data and analyses.

Form 1, Condition 10: Brook Mine shall submit all data and analysis from the geotechnical testing required in Condition No. **9** to WDEQ/LQD in the form of non-significant revisions to the Mine Plan and Subsidence Control Plan. Brook Mine shall not commence mining in any new highwall mining panel until WDEQ/LQD has provided written approval of the corresponding non-significant revision.

Form 1, Condition 11: Within 60 days of approval of the Brook Mine Permit, Brook Mine shall submit a non-significant revision to correct an inadvertent omission from the third paragraph of Section MP-6.4 of Mine Plan Addendum MP-6. The third paragraph of Section MP-6.4 shall be revised to the following, which existed in the permit application prior to the March 2019 responses to comments:

"Regardless of its right to subside the surface, the operator acknowledges that, if subsidence due to its mining operation causes material damage or reduces the value of the reasonably foreseeable use of the surface lands, the land will, to the extent technologically feasible, be restored to a condition capable of supporting the uses it was capable of supporting prior to subsidence. The operator will continue to perform remediation on any subsidence, detected during or subsequent to the 6-month monitoring period, until bond release is approved."

Form 1, Condition 12: The Brook Mining Company, LLC reclamation bond for PT0841 in the amount of $1,358,637 must be posted and approved prior to commencement of mine related disturbance.

Brook Mining Company, LLC has demonstrated that the Brook Mine surface coal mine permit application substantially complies with Article 4 of the Wyoming Environmental Quality Act and all other applicable State and Federal Laws and regulations.

As authorized by W.S. § 35-11-406(n), I hereby recommend the issuance of a coal mining permit to Brook Coal Mining Company, LLC for the Brook Mine with the

conditions described within this document and the following standard conditions, as required by Wyoming Department of Environmental Quality, Land Quality Division Rules and Regulations Chapter 12, Section 1(a)(xviii):

(A) All operations shall be conducted in accordance with the approved mining and reclamation plan and any conditions of the permit or license.

(B) The rights of entry shall be provided as described by the Act and any regulations promulgated pursuant thereto.

(C) The operation shall be conducted in a manner which prevents violation of any other applicable State or Federal law.

(D) All possible steps shall be taken to minimize any adverse impact to the environment or public health and safety resulting from noncompliance with this approved mining and reclamation plan and other terms and conditions of any permit or license, including monitoring to define the nature of the noncompliance and warning of any potentially dangerous condition; and

(E) All reclamation fees shall be paid as required by Title IV, P.L. 95-87, for coal produced under the permit for sale, transfer, or use.

Signed this 7th day of July, 2020

Alan Edwards

Acting Administrator, Land Quality Division