MONTANA DEPARTMENT OF ENVIORNMENTAL QUALITY COAL AND URANIUM PROGRAM CHECKLIST
DRAFT ENVIRONMENTAL ASSESSMENT
FOR SURFACE AND UNDERGROUND MINING PERMIT

DATE: February 1, 2016

SITE: West Decker Coal Mine

PERMITTEE: Decker Coal Company, LLC

CITY/TOWN: Decker

PERMIT ID: C1987001C

COUNTY: Big Horn

PROJECT: 2016 Renewal, RN7 West

LOCATION: T8S, R40E, Sections 27, 28, 29, 32, 33, and 34
T9S, R40E, Sections 2, 3, 4, 5, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, and 28

MINERAL PROPERTY OWNERSHIP:
Federal ☒ State ☒ Private ☒ County ☐ Tribal ☐

SURFACE PROPERTY OWNERSHIP:
Federal ☒ State ☒ Private ☒ County ☐ Tribal ☐

BACKGROUND: On December 7, 1973, Decker Coal Company was issued a strip mine permit (SMP C1987001C) to construct, operate, and reclaim West Decker Coal Mine in Big Horn County about 8 miles north of the Montana and Wyoming border. The total permitted area is 7,357 acres. Decker Coal Company commits to a reclamation plan designed to restore the natural function and utility of the land affected by mining activities. The reclamation plan is located in Section 17.24.313 of the Mining Permit.

TYPE AND PURPOSE OF ACTION: On July 29, 2015, Decker Coal Company submitted an application for renewal for West Decker Coal Mine. No additional mining, disturbance, or change to mining and reclamation plans are proposed; therefore, environmental impacts would remain constant and are summarized below.

N= No Present or No Impact will occur.
Y= Impacts may occur (explain under Potential Impacts).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?	[Y] Most soils within the proposed mine area were previously impacted by livestock grazing. Soils are tested for suitability parameters of texture, pH, electrical conductivity (EC), sodium adsorption ratio (SAR), saturation percentage, and Boron when EC exceeds 4.0. The test results are submitted to the Department of Environmental Quality (DEQ) for verification of suitability and salvage depth concurrence. The soil resource is salvaged using a two-lift salvage method. The first lift of soil material ("A" lift), containing A and B soil horizons, typically consists of the top six inches of the soil resource. The second lift of soil

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	material ("B" lift), containing B and C soil horizons, may include material down to 100 inches, sometimes greater. The "A" and "B" lift soils are distributed on regraded spoils tested for suitability parameters (listed below) where the postmining topography (PMT) has been met. If there are no regraded spoils available, surplus "A" and "B" lift soil are stockpiled separately in designated stockpile footprint zones. Each stockpile is marked with a sign identifying the soil type; additionally, soil stockpiles are protected from wind and water erosion. Decker Coal Company regrades spoils to the approved PMT following mining. The regraded spoils are sampled and tested for suitability parameters of pH, EC, SAR, saturation percentage, texture, and molybdenum prior to soil laydown. Test results are submitted to DEQ for approval. Once the PMT is achieved and the spoils are determined suitable, the "B" lift soil followed by the "A" lift soil is redistributed. The depth of redistributed soil is designated by the permitted target vegetation type. Following soil redistribution, an approved seed mix is applied during the next suitable planting period. Monitoring of vegetative success is used to identify areas where the soil may be unproductive. If an area is found to need treatment appropriate steps are identified and implemented to improve reclamation success.
2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	[Y] Surface Water: Impacts to surface water resources from West Decker Mine would result from changes to topography, drainage geomorphology, soils, and vegetation. Operational and post-reclamation impacts to surface water resources would include changes to surface runoff characteristics, sediment loads, and water chemistry. Specific changes to runoff characteristics include changes in the timing and volume of sediment and runoff from disturbed areas. Upstream impacts are also possible from head cutting into drainages upstream of the permit boundary. Existing and proposed mining would primarily disturb ephemeral mainstem and tributary drainages of Spring Creek, Pearson Creek, and Pond Creek, which are tributaries to the Tongue River. During mining, up gradient flows are diverted around active mining pits and into down gradient natural channels or up gradient impoundments that contain upstream water runoff. Migration of sediment during storm events is limited by utilizing best management practices (BMPs) to contain or treat flows via impoundments down gradient of the mine site. Potential effects to the surface water and alluvial groundwater quantity are minimized by instituting stream buffer zones or other methods to limit disturbances in channel reaches that will not be mined.

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	Decker Coal uses intercepted stormwater and groundwater inflow in mine operations (dust control) or discharges excess water to the Tongue River under the DEQ Water Protection Bureau MPDES discharge permit MT000892 (issue May 2012). Since 2006, Decker Coal has not exceeded permit limits for TDS and SAR, and no increase in TDS or SAR attributable to coal mine operations has been seen in the Tongue River Reservoir. Water quality downstream of the reservoir and mine often contains less TDS and lower SAR than measured upstream of West Decker Mine. Reclamation would generally approximate premine topography and drainage basin morphology, but postmining topography would have changes in drainage basin size, channel location, and upland topography. The mine plan includes mining in the Spring, Pearson, and Pond Creek valley bottoms and in steeper, more diverse upland and ridge topography. Some steeper areas would be reclaimed to less steep terrain, with fewer headwater tributaries and reduced topographic diversity. The operator has committed to ongoing reevaluation of postmine topography (e.g. spoil placement, rough and final grading) to better approximate premine topography and related hydrologic characteristics and functions. Surface runoff (and water chemistry) would be similar to premine conditions where postmine topography (vegetation and soil) most closely approximate premine characteristics (e.g. basin size, tributary patterns, and slope diversity). Surface runoff could be reduced in areas where drainage density and topographic diversity are reduced (subject to more potential overland flow and infiltration), with potentially fewer runoff events from smaller storms. Any spoil aquifer discharges that develop (e.g. springs or intermittent/perennial channel reaches) are expected to have increased dissolved ions as discussed for groundwater systems in the following section. <u>Groundwater</u>: Mining has caused and will continue to cause changes to both the quantity and the quality of the groundwater in the mine area. Groundwater flow patterns in the West Decker area are in part controlled by the dip of the coal seams, geologic faults, coal mining activities, Coal Bed Methane (CBM) development, and the proximity of the Tongue River Reservoir. Complex geology and impacts from CBM preclude the development of a groundwater model, and a linear extrapolation drawdown model is used instead by the mine to predict total drawdown, as extensive CBM development in the early 2000's drastically reduced groundwater levels in coal seams, masking drawdown from mining activities. Drawdown in mined coal aquifers is predicted to extend over five miles to the southwest, partially due to the fault-controlled geology of the Decker area. Predicted drawdown by

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	2017 ranges from 10 to 70 feet in the West Decker permit area and to the south. The proximity of West Decker Mine and the Tongue River Reservoir has required management of high volumes of groundwater inflow. While some of this inflow is discharged under the MPDES permit, Decker Coal has also constructed a series to dikes between the reservoir and active mining areas of Pits 12, 16 East, and 16 South. These structures have proved effective at reducing inflow from the highly conductive alluvium and clinker that are in contact with the reservoir. These dikes, if left intact, could impact spoil aquifer recovery. Therefore, Decker Coal has committed to breaching or removing dikes once mining is complete to reestablish recharge to the spoils and the hydrologic balance. To date, the Pit 16 East cut-off trench and Pit 16 East water control dike have been breached. During reclamation, aquifers adjacent to the reservoir may experience high recovery rates until equilibrium is reached with the reservoir water levels, and Pit 16 groundwater is predicted to recover within five years after backfilling. In other mined areas to the south, groundwater recovery time is longer, on the order of tens of years. However, regional groundwater drawdown from CBM and adjacent coal mining activity could extend spoil aquifer recharge timelines to hundreds of years. Drawdown associated with mining has the potential to affect a small number of domestic and stock wells within the anticipated drawdown area but is not expected to interrupt supply. As the next lowest coal seam and dependable supply of groundwater equivalent in quality to the Anderson-Dietz (D1 and D2) seam(s), the D3/Canyon seam has been designated as the replacement for groundwater sources lost as a result of mining. If uses are interrupted by changes in water quality or diminishment of supply attributable to mining, the mine is required to replace the water resource. Water quality declines are attributable in large part to increased sulfate, sodium, and calcium ions dissolved from minerals in broken overburden rock backfilled into the pits as spoil. Once groundwater levels have recovered in the pit area, adequate flushing of the spoils over a period of decades is expected to return spoil water quality to near premine quality. Arsenic concentrations above human health standards have been recorded in some monitoring wells on the West Decker Mine. Arsenic has also been found in upgradient clinker wells that have not been affected by mining suggesting that natural sources of arsenic occur in the area. Spoil water and arsenic at the West Decker Mine currently does not pose a danger to groundwater users, as groundwater is migrating to the

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	interior of the mine and resaturating the spoils. There are no down gradient users that would be affected by the change in water quality. No impacts to private landowners or change in uses of groundwater outside the permit area are anticipated. Following reclamation, restored groundwater flow paths go from recharge areas, through spoil aquifers, and eventually into the Tongue River Reservoir. Given the lower water quality of the spoils aquifer, impacts to the reservoir are possible. Using 2012 spoils water quality, modeling predicted the contribution of spoils water to reservoir TDS and SAR as essentially immeasurable at reservoir volumes above 20,000 acre-feet. For the period of 1999 to 2014, Tongue River Reservoir volumes ranged from approximately 20,000 to 82,000 acre-feet. While post-mine spoil water quality is unknown, current or future impacts to the Tongue River Reservoir are not predicted at this time.
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[Y] Pollutants, mainly particulates and combustion gases from mobile sources, would be produced by the mining activities within the mine plan at the same level as current mining operations. The expected levels of these pollutants would be addressed within the existing Montana Air Quality Permit (MAQP) #1435-07, issued July 27, 2012. All air quality regulations applicable to the mine area are contained within the MAQP.
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?	[Y] Vegetation communities would be removed by mining, and vegetation resources would be impacted in the short term. Long term, however, reclamation measures incorporated into the permit and are designed to mitigate the community loss, and provide for the approved post-mine land uses of grazing and wildlife habitat.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[Y] The West Decker Mine area consists of the disturbed area, reclaimed areas and undisturbed native habitats. Most of the native habitats consist of gently rolling topography bisected by low gradient, incised drainages. A variety of grassland and sage/grassland types are the primary vegetative types found within the native habitats. Mule deer and pronghorn antelope are frequently observed using these habitats. Upland game birds (sage-grouse and sharp-tailed grouse), a variety of landbirds, and several small mammals are known to utilize these habitats on and adjacent to the West Decker Mine. Red-tailed hawks, turkey vultures, northern harriers and kestrels are often observed foraging within these habitats. The northern harrier may also nest in these habitats.

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	Cottonwood/willow riparian habitats are found adjacent to the Tongue River and the Tongue River Reservoir. Compared to other habitats in the area, the cottonwood/willow riparian habitats have increased vegetative and structural diversity resulting in use by a greater diversity of wildlife species. In addition to the white-tailed deer and wild turkey, a number of landbird and small mammal species not normally found in the grassland and sage/grassland types frequent the riparian areas. The large cottonwoods provide suitable habitat for great blue heron and double-crested cormorant rookeries. Osprey nest along the reservoir on suitable snags, power poles, etc. Decker Coal Company has established artificial nesting structures to encourage additional nesting by osprey. Reclamation plans are designed to incorporate soil substrates, landscape and topographic diversity as mitigation measures. Vegetative resources (terrestrial and avian) would be affected for the short term; however, reclamation measures are incorporated in the permits for long term mitigation.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	[Y] Jurisdictional wetlands were identified in the West Decker Mine by the Army Corps of Engineers in 2009, all located along the Tongue River Reservoir. Prior to 2009, wetlands within the West Decker were identified by a 1991 National Wetlands Inventory project. However, by the 2009 assessment, all these wetlands had been destroyed or disturbed by mining activities or inundated when the Tongue River Reservoir capacity was increased in 1999. Opportunities may arise during reclamation to establish wetland communities. It is anticipated that minimal, if any, impacts to species of special concern would result from this renewal.
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[Y] The renewal would result in no adverse effect upon the known cultural, archeological and paleontological resources, and the operator's approved cultural resource memorandum of agreement (MOA) for Decker Coal protects incidental discoveries. No changes in the West Decker MOA are necessary and Decker Coal accordingly remains in Section 106 compliance for Area B.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[N] Although the Decker Coal Mine is adjacent to the Tongue River Reservoir; populated areas are limited to a few ranches and small tracts with homes outside the permit area. The mine is visible from state highway 314; however, traffic is minimal and Decker Coal actively works to advance reclamation and minimize the surface area under mining.
9. DEMANDS ON ENVIRONMENTAL RESOURCES	[N] Water supply at the mine is supplied via a production well located between the West Decker Mine and Tongue River Reservoir that pumps

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OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	from the clinker and D2 coal aquifers. No other groundwater uses in the area will be impacted by this well. Operational water at the mine is supplied by surface runoff collected in pits and sediment ponds, and water piped to the mine utilizing Tongue River Reservoir Water Rights.
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	[Y] The Tongue River Reservoir Recreation Area, livestock production, and CBM development are other activities in the vicinity with potential to affect the project. The recreation area and livestock operations are maintained with the current mining. No significant impacts to the Tongue River Reservoir Recreation Area are expected. Both the mine and CBM developers are using the coal resource. The mine would not affect the CBM project(s) in the area; however, due to discharge of large volumes of water, CBNG poses a significant impact to the mine as recharge to groundwater aquifers, including spoil aquifers, will be significantly slowed. However, almost all CBM wells in the Squirrel Creek area have been shut in or abandoned, and as of 2013, only 10 wells remain producing after a peak of well over 700 wells in the mid to late 2000's. Water level recovery has already been seen in many monitoring wells south of the West Decker permit.

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] Heavy equipment, trucks, loaders, and blasting would create hazards; however, the operator must comply with all MSHA regulations. The operator currently utilizes proper precautions to enhance safety and would continue in the best interest of its employees. Additionally, public access would be controlled by the operator and limited to the facilities area unless accompanied by mine personnel. The operation should not significantly affect human health or safety.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] Historically, the area within the mine area mine area was pastureland, grazing land, and wildlife habitat. The final reclamation plan is designed to return the area to its previous use, with equal to or greater vegetation production than premining. There would; however, be a short-term loss of vegetative production during mining and reclamation of the area.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[N] The renewal is not expected to create new jobs.

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14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[Y] The renewal should not eliminate any tax revenues. It is expected that the mine would sustain production at current levels and not change the state or local tax base resulting from mine production.
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] No changes would occur as a result of the renewal.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N] There are multi-resource BLM management plans for the area. Lease agreements between Decker Coal and the BLM or the State of Montana for mining of the coal in the permit area remain current.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N] The mine area is not located in or adjacent to any wilderness areas. The Tongue River Reservoir and Tongue River Reservoir Recreation Area are adjacent to the mine area; however, no significant impact to access and quality of recreation in these areas is anticipated from this renewal.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N] The renewal is not expected to significantly affect local populations. Neither population increase nor residential decrease would be incurred by approving the renewal.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N] There are no known native or traditional lifestyle issues in the area. While there are known to be species of plants with traditional Native American utilization, none of them are unique occurrences.
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N] No shift in a unique cultural quality would result from continued mining.
21. PRIVATE PROPERTY IMPACTS: Are we regulating the	[N] The lands within the permit renewal area are owned by Decker Coal Company or the US Government (BLM). The mineral reserves are owned by US Government (BLM) and leased by Decker Coal Company. Surface

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use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.	uses would be limited during a period of time when mining is proceeding. Proposed state government activities would place some restrictions on the owner's use of the surface property, but not sufficient enough to constitute a taking because the owner is not deprived of property or all economic uses of that property.
22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.	[N]
23. PRIVATE PROPERTY IMPACTS: Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.	[N/A] DEQ has a level of discretion in its permitting decision.
24. OTHER APPROPRIATE SOCIAL AND ECOMONIC CIRCUMSTANCES:	[N] No other social and economic circumstances would be expected.

25. Alternatives Considered:

a) No Action: Under the "No Action" alternative, DEQ would deny approval of the renewal. This alternative would decrease the amount of disturbance, decrease the amount of coal produced and thereby, shorten the potential life of the mine by limiting development to the currently approved mine area. Additional mining would not be conducted. The mineral owners and mine operator would not utilize the resource. The potential use of this coal reserve would not be realized.

b) Approval: West Decker would continue with the current mine plan.

c) Approval with Modification: No modifications to the renewal application are proposed.

26. **Public Involvement: Availability of this Environmental Assessment was published in:** Notice of the Renewal application was published in the Billings Gazette of Billings, Montana by Decker Coal Company on November 14, 21, and 28, and December 5, 2015, the four consecutive weeks required under ARM 17.24.401(3). A 30-day public comment period followed the final date of publication and ended on January 4, 2016. Notice of availability of this Environmental Assessment will be published in the Billings Gazette beginning February 12, 2016, for two consecutive weeks. The public may comment on this EA through February 29, 2016 (this comment period coincides with that of the Notice of Acceptability).

27. **Other Governmental Agencies with Jurisdiction:** USDI, Bureau of Land Management, Montana Department of Environmental Quality, Water Protection Bureau (MPDES), Air Resources Management Bureau (air quality permit), Montana Department of Natural Resources and Conservation (water rights and mineral lease), and Office of Surface Mining.

28. **Magnitude and Significance of Potential Impacts:** There would be no significant impacts associated with this renewal that where not previously addressed in the EIS or subsequent EA's for expansion.

29. **Cumulative Effects:** No other new activities have been identified in the area.

Recommendation for Further Environmental Analysis:

☐ **EIS**

☐ **More Detailed EA**

X **No Further Analysis**

EA Checklist Prepared By:

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