

APPLICATION FORM: LAND USE & ZONING

OFFICE USE	
Activity No. _____	Receipt No. _____
Base Fee \$ _____	Date _____
Received By _____	Date _____
Deemed Complete By _____	Date _____

I. PROJECT NAME 10-East Emergency Air Borehole

II. TYPE OF REVIEW

This application form must be accompanied by the applicable submittal checklist.

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> Minor Use Permit | <input checked="" type="checkbox"/> Administrative Permit | <input type="checkbox"/> Site Plan Review | <input type="checkbox"/> Conditional Use Permit (CUP) |
| <input type="checkbox"/> Sign Permit | <input type="checkbox"/> Water Body Setback Permit | <input type="checkbox"/> Pre-Application Conference | <input type="checkbox"/> Special Use Permit (SUP) |
| <input type="checkbox"/> Special Event Permit | <input type="checkbox"/> Floodplain Development Permit | <input type="checkbox"/> Zoning Amendment/Rezoning | <input type="checkbox"/> Conceptual PUD |
| <input type="checkbox"/> Administrative Amendment to CUP/SUP/PUD/Site Plan | <input type="checkbox"/> Variance | <input type="checkbox"/> Final PUD | |

III. APPLICANT

Name Twentymile Coal, LLC
Mailing Address 29515 RCR27
City Oak Creek State Colorado Zip 80467
Phone 970.879.3800 Email jnettleton@peabodyenergy.com

Representative / Primary Contact Jerry Nettleton—Manager Environmental Affairs
Mailing Address Same as above
City _____ State _____ Zip _____
Phone 970.870.2712 Email jnettleton@peabodyenergy.com

IV. PROPERTY OWNER

Name Twentymile Coal, LLC (Leasee) *General Manager*
Mailing Address Same as above *COLORADO OPERATIONS*
City _____ State _____ Zip _____
Phone Same as above Email Same as above

V. PROPERTY INFORMATION

Property Address 29515 RCR27
General Location Approximately 23 miles SW of Steamboat Springs at the intersection of RCR27 and RCR33
Legal Description (may be attached) See attached
Parcel Identification No. (PIN) 945101001 Property Size (acres) Approximately 22,450 acres
Current Use Mining and Rangeland Zoning Mining and Ag/Forestry
Proposed Use Mining and Rangeland

VI. SIGNATURES

This application form must be signed by both the applicant and legal owner of the property. Attach additional pages if necessary.

By signing below, the applicant acknowledges that all information contained on this application form and within accompanying submittals are true and correct and agrees to pay all required fees associated with this application. The base fee is indented to cover the estimated minimum staff hours to process the application. Any additional staff hours will be assessed at \$120 per hour. The applicant signing below is responsible for all additional hourly fees. Failure to pay fees may result in revocation of a permit/approval.

[Signature]
Applicant's Signature

JERRY NETTLETON
Print/type name of applicant

By signing below, the property owner authorizes the applicant to petition Routt County for approval of the submitted application.



Twentymile Coal, LLC

29515 Routt County Road 27
Oak Creek, CO 80467
970.879.3800

Mr. Chad Phillips, Director
Routt County Regional Planning Department
PO Box 773749
Steamboat Springs, Colorado 80477
970.879.2704

August 3, 2015

**RE: Twentymile Coal, LLC - Foidel Creek Mine (Permit No. C-82-056), Administrative
Approval Request – 10- East Mid-Panel Emergency Air Borehole**

Dear Mr. Phillips:

With this submittal, Twentymile Coal, LLC (TC) is requesting County approval, under the established Administrative Approval Process, for installation, operation, and reclamation of a new emergency air borehole, to be located over the Wolf Creek 10-East Gate-road in an area that has previously been undermined by TC's ongoing mining operations. The proposed Borehole is located on lands which are controlled (fee surface and State minerals) by TC. The purpose of the borehole is two-fold; to obtain additional geologic information in this area; and to provide an emergency air-hole for air, supplies, and communications in this portion of the Wolf Creek Reserve, as a safety consideration, given the distance from existing ventilation and emergency escape hoist capabilities.

Environmental baseline studies, including cultural resource surveys and wildlife consultation with Colorado Parks and Wildlife (CPW), have been or are being completed for the proposed borehole and access road, as documented by the included cultural resource survey report and wildlife consultation letter. The borehole site will be accessed from the paved County Road (RCR27), using an existing established ranch access (Camilletti Road) and existing ranch roads to within less than 0.25 mile of the borehole location. Drilling is planned for late summer, and the remaining distance to the borehole is along a ridgeline, so no additional road construction is planned

The proposed borehole will not require any new road construction, however, a new borehole pad (maximum of approximately 200 x 200 ft.) will be constructed to support the initial corehole drilling and subsequent borehole completion activities. The 10-East Emergency Air Borehole installation will consist of the existing road access, the new borehole pad; adjacent soil material stockpiles, and a cased and grouted borehole extending into the Wolf Creek Coal Seam. The proposed pad and existing road locations are on a minor ridgeline, so upgradient drainage will be limited. The limited amount of drainage from upgradient areas will be intercepted and routed around the borehole pad by a small upgradient diversion ditch on the north and east sides of the pad, and the road will not cross any natural drainages, so no culvert installations will be needed. Drainage from the borehole pad will be controlled under a Small-Area Exemption. As an emergency air borehole, following drilling and completion the site would be accessed only in an emergency, and would not be accessed on a regular basis, so there would be no need to establish and maintain a long-term access road. The 10-East Emergency Air Borehole installation will remain in place until it is no longer needed to support ongoing or anticipated future mining operations. Reclamation of this installation will involve plugging and sealing the borehole, regrading the pad, soil material replacement, and reseeding.

2014 5MN UTILITY BOREHOLE MERGENCY PHONE LIST

Note: Occasionally cell phone service will become unavailable due to the 'dead-spots' around this area.

Drill crew must check cell phone each shift and when moving to a new site.

Contact Michael Berdine (leave voicemail) at beginning, midday (11am), and end of shift.

EMERGENCY NUMBERS

Routt County Sheriff Emergency Dispatch 911 (Routt Phone)	911
St. Mary's Care Flight (Helicopter)	(800) 332-4923
Yampa Valley Medical Center (Hospital in Steamboat Springs)	(970) 879-1322
Twentymile Ambulance / Facility Tech's	ER Direct - (970) 870-1040
Peabody Twentymile Mine - WHELAN SECURITY @ Mine Office	(970) 875-2157, (970) 875-2158
Peabody Twentymile Mine - Mine Office	970-879-3800

TWENTYMILE & SAGE CREEK SAFETY DEPARTMENT

Mike Crum	(970) 870-2711 (Tmle Office) Cell 970-367-6597
Catherine (Cat) Hegarty	(970) 870-2702 (Tmle Office)
Mark Beauchamp	(970) 875-2792 (Tmle office) Cell 970-367-6047

DRILLERS - WESTERN AMERICAN

Rex & Dorothy Polen - Drill Crew	(970) 629-2267 (Cell) (970) 824-3410 (Company Main) (970) 326-8649 (Home)
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DRILLERS - HIMES DRILLING

Brad and/or Matt Himes - Drill Crew	(970) 261-4474 (Brad's Cell) (970) 270-0031 (Matt's Cell) (970) 242-8893 (Office)
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PEABODY TWENTYMILE MINE SITE MANAGERS

Michael Berdine - Engineer/Site Manager	(970) 846-9686 (Cell) (970) 870-2782 (TCC Office)
Jerry Nettleton - Manager Environmental Affairs/Site Manager	(970) 870-2712 (TCC Office) (970) 761-0125 (Cell) (970) 879-1859 (Home)

ENVIRONMENTAL/PERMITTING ALL WORKSITES

Jerry Nettleton - Manager Environmental Affairs/Site Manager	(970) 870-2712 (TCC Office) (970) 761-0125 (Cell) (970) 879-1859 (Home)
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PEABODY LANDS DEPARTMENT

Kendra Quick - Director Land West, Peabody Investments Corp.	(307) 687-3953 (Office) (307) 660-6156 (Cell)
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LANDOWNERS

Twentymile Coal, LLC	(970) 879-3800
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In the case of emergency please contact the Twentymile Facility Technicians (970) 870-2700. Twentymile Emergency Management procedures include mandatory contact with the Twentymile Safety Department and if necessary, contact with the County Sheriff's Department and dispatch of the Twentymile or Yampa Valley Medical Center ambulance or Flight for Life, under cooperative agreement with Routt County Emergency Services.

ENVIRONMENTAL ANALYSIS REPORT

The proposed 10-East Emergency Air Borehole activities will result in minimal impact to the environmental resources of the area. The proposed activities include short-duration, localized access and pad construction, drilling and casing of the emergency air borehole, any required emergency use of the borehole, and reclamation of the borehole and pad, when they are no longer needed to support ongoing operations.

Geologic Hazards: There are no known geologic hazards for the proposed borehole pad and road. The general topography of the proposed borehole area is a relatively gentle east-northeast oriented ridge with moderately sloping sideslopes. The site is adjacent to a tributary to Fish Creek, with the junction of this tributary with Fish Creek located east of the borehole site.

Hydrologic Hazards: There are no anticipated hydrologic hazards for the proposed borehole and access. Both the borehole and access lie on a low ridge above the nearby tributary drainage. The borehole completion activities will involve drilling through sandstone units, which may function as aquifers in the area (dependent on recharge, transmissivity, and lateral continuity). On completion of drilling, the borehole will be cased and grouted to minimize the potential for any hydraulic communication between the multiple sandstone units.

Vegetation: Previous vegetation investigations for the existing TC Foidel Creek Mine Permit did not identify any currently listed threatened or endangered plant species as occurring within the project area. The only rare plant species with Federal status that potentially could occur in the project area is the Ute Lady's Tresses orchid (*Spiranthes diluvialis*). The only suitable habitat for this species mapped in Routt County is in the vicinity of the Yampa River along the floodplain, which is several miles north and west of the project area. Several plants regarded as rare by the Colorado Natural Heritage Program (CNHP, <http://www.cnhp.colostate.edu>; accessed 08/03/15) have been located in the Little Snake Resource Area, though mostly at lower elevations and to the west of the project area. The only CNHP rare plant species with some potential for occurrence in the TC area are Harrington beardtongue (*Penstemon harringtonii*) and Autumn willow (*Salix serissima*). Habitat for Harrington beardtongue typically occurs at elevations between 6,800 and 9,200 feet, and while much of the area is within this elevation range, no occurrences of Harrington beardtongue have been identified in this area. Habitat for Autumn willow is defined as occurring between 7,800 and 9,300 feet. While elevations in the area approach 7,500 feet, no occurrences of Autumn willow have been identified in the project area.

Wildlife: The sagebrush, pastureland and mixed brush vegetation types in this area support a variety of wildlife species. Information on wildlife in the vicinity of the Twentymile area was obtained from federal and state agencies, as well as site-specific studies for adjacent coal properties. The Bureau of Land Management (BLM) and Colorado Parks and Wildlife (CPW), in partnership with CNHP, keep information on area wildlife including big-game and game birds and other species of concern. This includes federal- and state-listed threatened and endangered (T&E) species, and other species considered to be rare or of special interest.

Big Game: The general project area provides good year-round habitat for deer, elk, and pronghorn. The CPW and U.S. Fish and Wildlife Service (USFWS) have identified winter range

within the project and adjacent areas (Natural Diversity Information Source; <http://www.ndis.nrel.colostate.edu>; accessed 4/7/08).

Raptors: The project area does not contain potential nesting habitat for raptors, although nearby cliff areas to the west and south may be utilized for nesting, and the project and adjacent areas are utilized by raptors for hunting. CPW data includes historic nest sites of golden eagles, red-tailed hawks, and other *Buteo* species. Bald eagles are listed as a state threatened species. CPW data shows a historic bald eagle nest location approximately 8 miles north of the project area, as well as, winter range along the Yampa River corridor. The ferruginous hawk and peregrine falcon are state listed species of concerns, as well as on the BLM's sensitive species list. Their occurrence in the area is likely, however, there are no known nest locations in or near the project area (CPW data shows the nesting distribution for the ferruginous hawk further to the west in Moffat County).

Game Birds: Greater sage-grouse and Columbian sharp-tailed grouse (both state and BLM species of concern) are known to inhabit and/or utilize the general area. CPW mapping identifies sage grouse and sharp-tailed grouse leks (both active and inactive) within the Mine and adjacent areas. Additional leks may exist in the general vicinity.

TC has consulted with the CPW regarding potential impacts to grouse and grouse habitat in the borehole project area. The project area does not encroach on any known grouse leks or the associated areas of "Restricted Surface Occupancy". The CPW wildlife consultation letter for this exploration program is provided in Appendix A.

Federal and State Species of Concern: Greater sandhill cranes are a state species of concern (CNHP, 2008). Wildlife surveys have documented historic sandhill crane nest locations in the general area, but no recent evidence of nesting in the project area. The dominant nesting areas in the general area are approximately 10-15 miles to the north, along the Yampa River. Area fields and improved cropland pasture are used by cranes on an intermittent basis for loafing and/or foraging.

Other BLM sensitive species or state species of concern with the potential to occur in the project area are the northern goshawk, mountain plover, black tern, long-billed curlew and white-faced Ibis. Their occurrence in the immediate project area would be as a rare seasonal visitor or migrant passing through the area.

Threatened or Endangered Species: The western yellow-billed cuckoo is a candidate for listing by USFWS under the Endangered Species Act (ESA). Habitat for this bird may occur along the Yampa River corridor (areas to the north and west have been identified as designated Critical Habitat) and its presence is possible in the vicinity as a rare seasonal visitor or migrant passing through the area. As noted above, the bald eagle is listed as state threatened. Foraging bald eagles are commonly observed in the area in winter, when they are most numerous in the region.

Habitat for the Bonytail, Colorado pike-minnow, humpback chub and razorback sucker does not occur within the project area. Critical habitat for these fish species, which are federally-listed endangered species under the ESA, exists in the Yampa River downstream in Moffat County.

As part of the required consultation process, TC has provided the CPW with mapping and other information on the proposed project for review. Appendix A presents the CPW wildlife consultation prepared for this project. It is not anticipated that the proposed activities will negatively impact existing wildlife species or populations.

Given this information, TC submits that the borehole and reclamation activities described in this application will not jeopardize the continued existence of any threatened or endangered species listed pursuant to Section 4 of the Endangered Species Act of 1973 (16 U.S.C. 1533) or the Nongame, Endangered or Threatened Species Conservation Act (Section 33-8-101 *et seq.* C.R.S. 1973), or result in the destruction or adverse modification of critical habitat for those species.

Soils: Soils within the project area are formed primarily from weathered fine-grained sandstone, siltstone and shale. The dominant soils are Argiustolls, Haplocryolls, and Palecryolls associations, and are moderately-deep to deep, well-drained, and have loam to fine-sandy-loam surface textures (Soil Survey Staff, Natural Resources Conservation Service, U.S. Department of Agriculture. Web Soil Survey. *Custom Soil Resources Report for Routt Area, Colorado, Parts of Rio Blanco and Routt Counties*. <http://websoilsurvey.nrcs.usda.gov/>accessed [04/07/08]).

The only potential for erosion problems would be associated with the drill-pad and road, however given the very limited size of the pad, limited road length, their location on a low ridgeline with very limited upgradient drainage, and the proposed drainage control measures, this potential is not significant. The borehole installation will remain in place until it is no longer needed to support ongoing or anticipated future mining operations, and the related drainage and sediment control measures will be maintained until the associated disturbance is reclaimed.

POLLUTION REPORT

Air Pollution Potential: The proposed borehole activities will have little or no impact on local and regional air resources. The limited vehicular traffic to and from the borehole will have minimal potential to generate any significant quantity of dust from the existing Mine and county roads. The rotary drill-rig will use a mud/water mixture to remove cuttings from the borings, thus minimal dust will be generated during the drilling process.

Water Pollution Controls: The water pollution control plan focuses on the borehole site where implementation of Best Management Practices (BMPs), i.e. rock check dams, silt fence, straw bales, etc., and limited pad size will effectively control runoff and sediment. Additionally, mud pits will be excavated at the drill-site or porta-pits will be used to contain any drilling fluids used during drilling operations. Following completion of the drilling and related activities, the mud pits will be backfilled, and the pad area will be graded and the disturbed areas will be reseeded with the temporary revegetation seed mix..

Note that a Construction Stormwater Discharge Permit is not required. The CDRMS has reviewed and approved the proposed site drainage measures under applicable provisions for a "Small Area Exemption"

Noise Abatement: The proposed borehole site is not within 0.5 mile of a private residence. TC plans to schedule drilling operations on a 12-hour per day basis, and may increase this up to 24-hours per day if necessary to complete drilling during the 2014 operating season. The drilling activities should take about seven days. The type of equipment that will be used includes a rotary drill-rig, water trucks, pipe trucks, pickup trucks, and miscellaneous support trucks.

Landscaping: A landscape plan is not necessary, given the limited nature of the borehole activities. The information provided in the reclamation plan addresses final site grading and revegetation for the access road and borehole pad.

RECLAMATION PLAN

The proposed access (existing and temporary) and borehole pad are located on adjacent low ridgelines and gentle slopes to minimize grading requirements. The maximum pad dimension will be 200 x 200 feet, and no new road disturbance is planned. Construction will be conducted in accordance with Rule 2.02.2(2)(f) and 4.21.4(5) of the Regulations of the Mined Land Reclamation Board for Coal Mining. Prior to earth-moving or excavations of any type, available soil materials will be salvaged and stored in an area that will be undisturbed and not subject to excessive wind or water erosion. After stripping and stockpiling the soil materials, minor grading will be completed to establish the drill pad and accommodate the drilling and support equipment. Runoff and sediment contributions from the soil material stockpile will be controlled through placement of a silt fence or straw wattles and a short diversion ditch discharging through a rock-lined sump.

Mud pits may be constructed within the graded pad area. The size of the required pits will be dependent on drilling depths and conditions. Materials excavated from the pits will be stockpiled on the margins of the pad area and used to backfill the pits after the drilling is completed. All drilling fluids will be contained within the mud pits, and all drilling supplies will be contained within the area of the drill pad. Any runoff and associated suspended sediment from the drill pad will be controlled and contained by the diversion ditch on the downgradient side(s) of the drill pad. On completion of drilling, the borehole will be cased and grouted, the mud pits will be allowed to dry out and will be backfilled, and the pad surface and road will be graded and reseeded with the temporary revegetation seed mixture. The pad and associated drainage control measures will be maintained during active use, and all disturbance will be reclaimed when no longer needed to support ongoing or anticipated future mining operations.

Proposed Reclamation Methods: Under the required CDRMS Minor Revision approval, the self-bond coverage in place with the Mined Land Reclamation Board is adequate to assure that the reclamation obligations are fulfilled. The following sections describe the specific proposed reclamation practices to be used to return areas disturbed by the borehole activities to a stable condition and productive use.

Borehole Plugging, Sealing, and Abandonment: The borehole will be plugged, sealed, and abandoned. A 10-foot cement plug will be poured (cement slurry above a flex-plug) at the bottom of the borehole, with the remaining open borehole interval will be filled with other suitable plugging material (plug gel or vendor-specific grout compounds) and/or drill cuttings to within 3 feet of the ground surface, and the borehole will be sealed with a 3-foot top plug. This will effectively plug and seal all coal beds and potential groundwater aquifers to prevent vertical groundwater migration and hydraulic communication between aquifers.

Surface casing will be cut-off at or below grade. The reclaimed borehole location will be marked with either a steel fence-post or a metal survey cap at or below ground level. The borehole location will be accurately surveyed, and distinctly numbered, allowing for future identification. Abandonment reports will be prepared and filed, as required by applicable regulations.

Pad Area Reclamation: On completion of any active use, the borehole will be plugged, sealed, and abandoned, as previously described, and the remaining surface disturbance will be reclaimed.

In accordance with Rules 2.02.2(2)(f) and 4.21.4(4), excavations, artificial flat areas, and embankments created during construction or drilling will be returned to their original contour through backfilling and grading. Stockpiled soil materials will be replaced, and the disturbed areas will be reseeded. Seeding of the reclaimed site will occur during the first favorable seeding period (typically late fall [preferred], or early spring) following completion of site reclamation. The following summarizes the steps and general sequence for site reclamation:

- 1) On completion of activities at a given site, all trash, debris, and drilling equipment and supplies will be removed from the site
- 2) Drilling fluids in mud pits will be allowed to dry, or they may be pumped from the mud pit for off-site disposal. Mud pits or excavated trenches will be backfilled with the excavated material and compacted to minimize any settling. Any excess drill cuttings will be spread over the drill pad, and any the access road and drill pad will be regraded and gravel surfaced.
- 3) On completion of use the pad will be regraded to approximate its original configuration and blend with the adjacent terrain.
- 4) Stockpiled soil materials will be redistributed at a uniform thickness over disturbed areas
- 5) Disturbed areas will be reseeded to stabilize the surface and control erosion using a seed mixture developed in consultation with the surface landowner and CPW. Soil materials will be scarified prior to seeding, and areas will be drill or broadcast seeded at the prescribed rates. A harrow or similar implement will be used to drag the surface and cover the seed following seeding.

The following seed mixture will be used to reseed and revegetate the 10E Emergency Air Borehole disturbance:

Rangeland mixture:

<u>Species</u>	<u>PLS lbs/acre</u>
Thickspike wheatgrass (Critana)	1.0
Mountain brome (Bromar)	2.0
Western wheatgrass (Arriba)	2.0
Slender wheatgrass (San Luis)	2.0
Bluebunch wheatgrass (Secar)	1.0
Basin wildrye (Trailhead)	2.0
Orchardgrass (Paiute)	0.25
Green needlegrass (Lodorm)	2.0
Canada bluegrass (Ruebens)	0.10
Sheep fescue (Covar)	0.25
Big bluegrass (Sherman)	0.25
Alfalfa (Falcata)	0.10
Rocky Mtn. penstemon (Bandera)	0.25
Palmer penstemon (Ceder)	0.10
Blue flax (Appar)	0.50
Arrowleaf balsaroot (Native)	0.50
Tailcup lupine (Native)	1.0

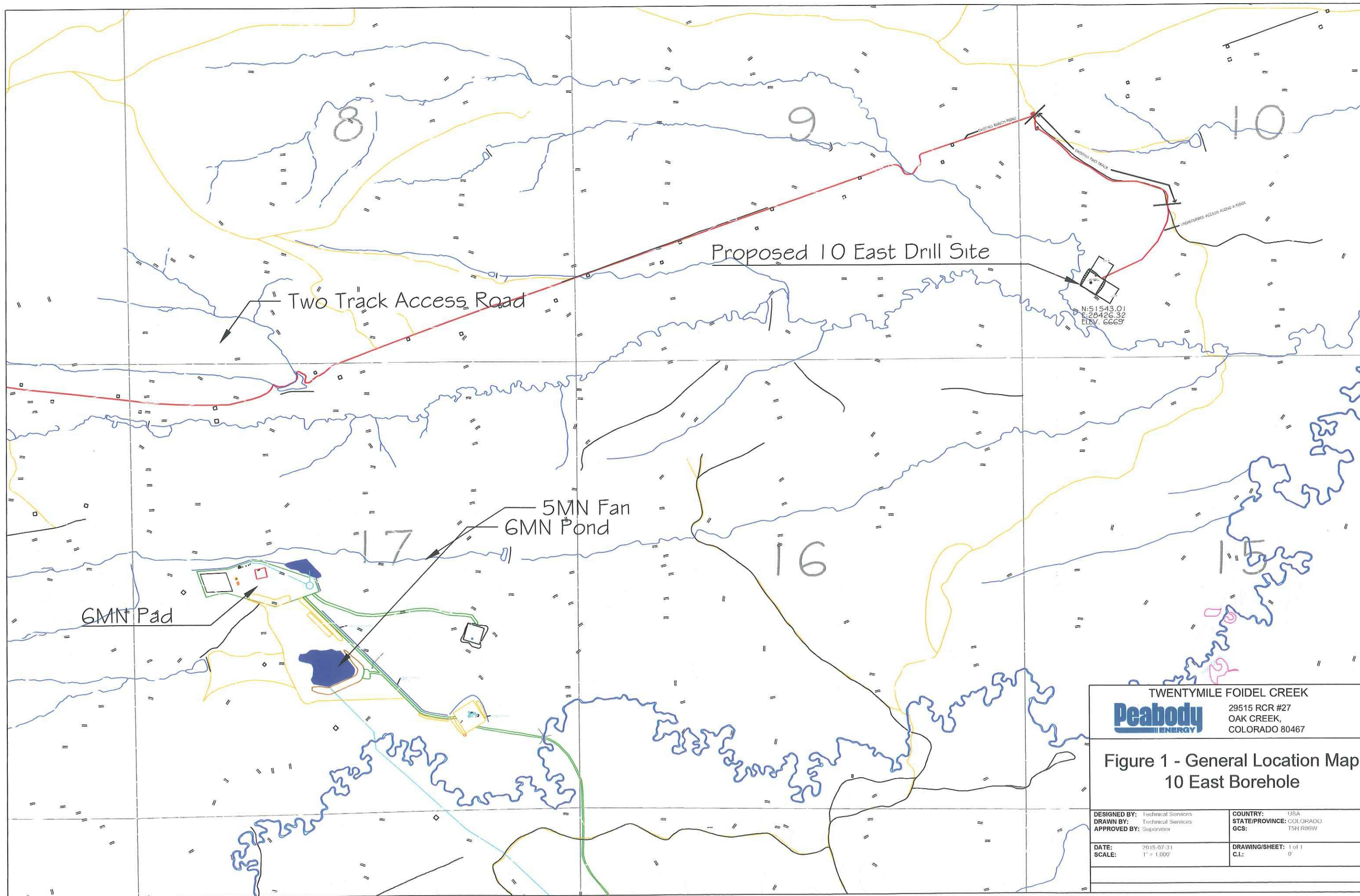
Yarrow (Native)	0.10
Pacific aster (Native)	0.10
Chokecherry (Native)	1.0
Serviceberry (Native)	0.50
Mountain snowberry (Native)	0.50
Antelope bitterbrush (Native)	<u>1.0</u>
Total PLS	18.5 (double for broadcast seeding)

The rangeland seed mixture has been used to seed mine disturbance areas, and lends itself to rapid and long-term surface stabilization, ease of establishment, maximum use of native species, high levels of utility for livestock and wildlife, good forage production potential, compatibility with naturally regenerating native species present in replaced topsoil and the ability to be self-sustaining. CPW has requested that TC add mountain big sagebrush (*Artemisia tridentate* Ssp. *vaseyana*) in the rangeland seed mixture (0.25 PLS/acre).

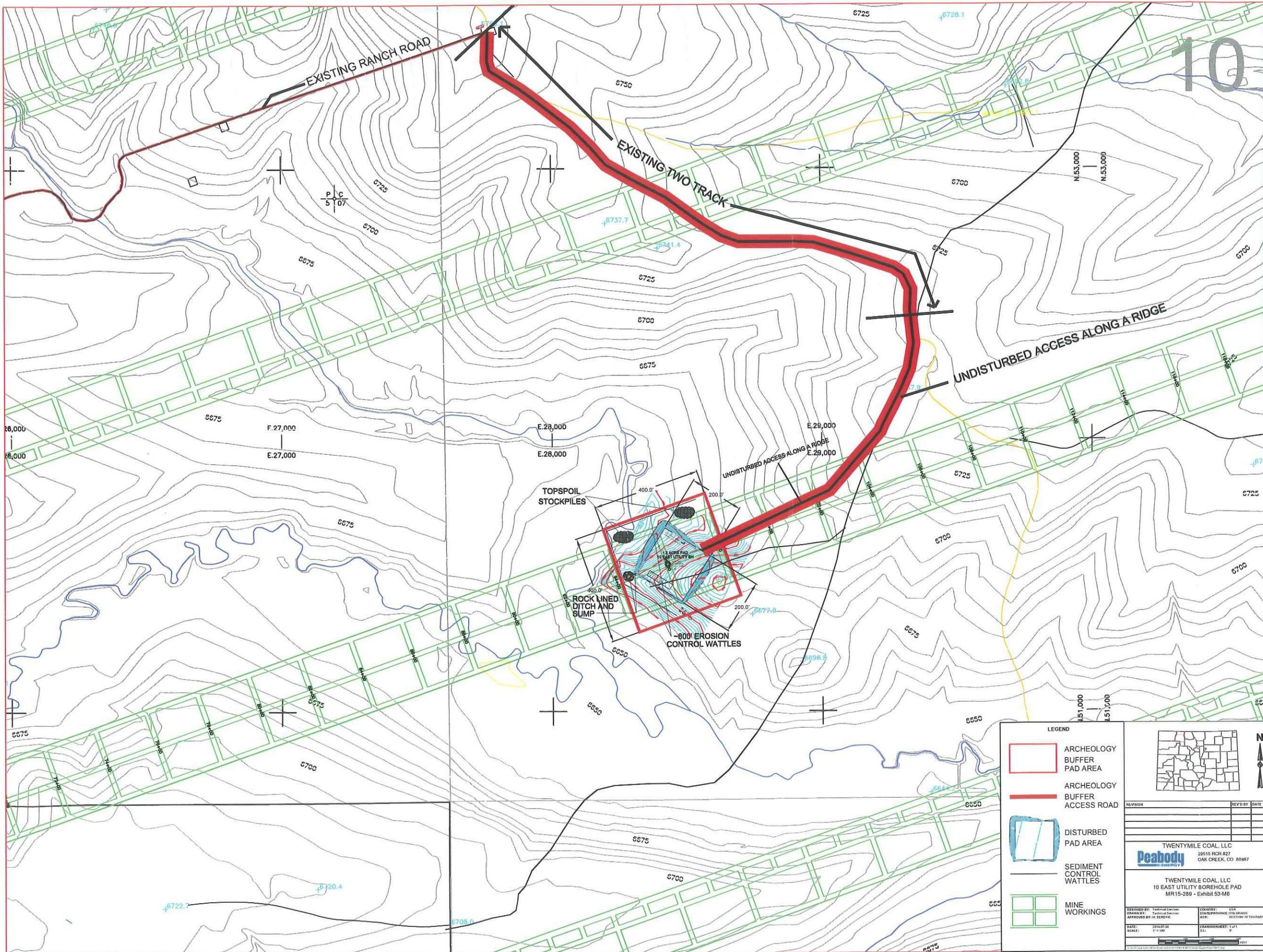
TC will monitor the reclaimed borehole disturbance for noxious weeds and, if necessary, implement treatment to control any noxious weeds in accordance with CDRMS guidelines and the County Weed Management Plan.

MAPS

10-EAST EMERGENCY AIR BOREHOLE



TWENTYMILE FOIDEL CREEK	
Peabody ENERGY	
29515 RCR #27 OAK CREEK, COLORADO 80467	
Figure 1 - General Location Map 10 East Borehole	
DESIGNED BY: Technical Services	COUNTRY: USA
DRAWN BY: Technical Services	STATE/PROVINCE: COLORADO
APPROVED BY: Supervisor	GCS: T5N R86W
DATE: 2015-07-31	DRAWING/SHEET: 1 of 1
SCALE: 1" = 1,000'	C.I.: 0"



10

- LEGEND
- ARCHEOLOGY BUFFER PAD AREA
 - ARCHEOLOGY BUFFER ACCESS ROAD
 - DISTURBED PAD AREA
 - SEDIMENT CONTROL WATTLES
 - MINE WORKINGS

REVISION

NO.	DESCRIPTION	DATE

DESIGNED BY: Technical Services
DRAWN BY: Technical Services
APPROVED BY: M. BENDIS

COUNTRY: USA
STATE/PROVINCE: COLORADO
SHEET: SECTION 10 TAUROAD

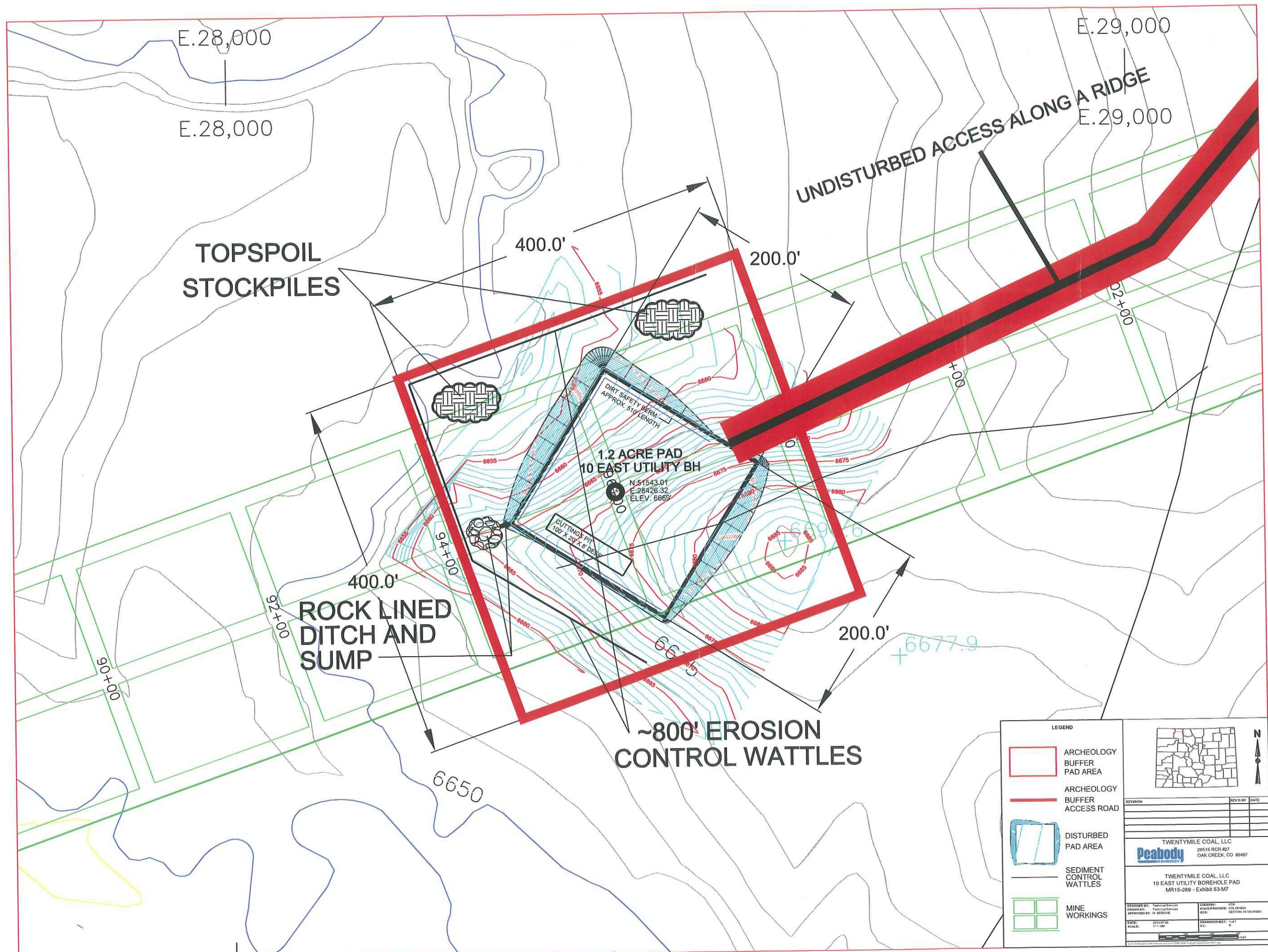
DATE: 10/14/2010
SCALE: 1" = 100'

DRAWINGSHEET: 1 of 1
SHEET: 0

Peabody ENERGY

TWENTYMILE COAL, LLC
29515 RCR #27
OAK CREEK, CO 80467

TWENTYMILE COAL, LLC
10 EAST UTILITY BOREHOLE PAD
MR15-289 - Exhibit 53-M6



APPENDIX A

COLORADO PARKS AND WILDLIFE CONSULTATION LETTER

Nettleton, Jerry

To: justin.pollock@state.co.us
Subject: FW: Twentymile Coal - Wildlife Consultation for Planned Drilling Activities
Attachments: DrillSiteMapWC_Grouse_201402331.pdf; MR15-289 Figure EX53-F6.pdf; WCR Supplemental Coreholes CPW Consultation Letter.pdf; Figure 1 10 East BH General Location Map 073115.pdf

Justin -

We are planning to drill and complete an emergency air borehole as part of the development plans for our Wolf Creek Reserve (see attached figures). The proposed borehole and related access generally fall outside of the identified "restricted use areas" for grouse (shown on the attached map). Conditions and considerations should be essentially the same as outlined in your previous consultation letter (attached for reference). Please review and let me know if you concur.

Thanks for your time and consideration -

Best regards,

Jerry

Jerry M. Nettleton
Manager Environmental Affairs
Twentymile Coal, LLC
29515 RCR27
Oak Creek, Colorado 80467
970.870.2712
jnettleton@peabodyenergy.com





COLORADO PARKS & WILDLIFE

925 Weiss Dr • Steamboat Springs, Colorado 80487
Phone (970) 871-2855
cpw.state.co.us

April 21, 2014

Jerry M. Nettleton
Manager Environmental Affairs
Twentymile Coal, LLC
29515 RCR27
Oak Creek, Colorado 80467

Re: WCR Supplemental Coal Corehole Project (Sections 9,10,11,14,15, and 16 T5N R86W

Dear MR. Nettleton,

Thank you for the opportunity to comment on the proposed installation of 12 additional Coal Quality Coreholes. The site selected for the aforementioned coreholes occupies land southwest of Steamboat Springs in section 9,10,11,14,15, and 16 T5N, R86W. The proposed activities will utilize existing County and ranch road when possible for access.

General Information

The Foidel Creek Mine is an area that has existing facilities from current mining activity. Existing vegetation is predominantly sagebrush, grassland, mountain shrub, mined and reclaimed mine.

The Twenty Mile Park area has been historically important for greater sage grouse, Columbian sharp-tailed grouse, elk, mule deer and antelope as well as numerous small mammals and raptors.

Potential Impacts

The majority of the impacts to wildlife from the construction of the proposed coreholes should be minimal due to the limited amount of acres disturbed and utilizing existing road for access.

The proposed locations for the coal coreholes are not within the production areas of Columbian Sharp-tailed Grouse. Construction and activity that do fall within production

STATE OF COLORADO

John W. Hickenlooper, Governor • Mike King, Executive Director, Department of Natural Resources
Bob D. Broscheid, Director, Colorado Parks and Wildlife
Parks and Wildlife Commission: Robert W. Bray • Chris Castilian, Secretary • Jeanne Horne
Bill Kane, Chair • Gaspar Perricone • James Pribyl • John Singletary
Mark Smith, Vice-Chair • James Vigil • Dean Wingfield • Michelle Zimmerman
Ex Officio Members: Mike King and John Salazar

areas should be conducted outside of the breeding and brood rearing time period (March 15-June 30) to minimize potential impacts.

No significant impacts are anticipated on big game species.

Reclamation

The following identifies reclamation recommendations for the pipeline and associated roads and equipment access points.

The performance standard for reclamation success is the establishment of a self-sustaining, vigorous, and diverse plant community on the site with a density sufficient to control erosion and non-native plant invasion. Reclamation efforts on disturbed areas should include the following:

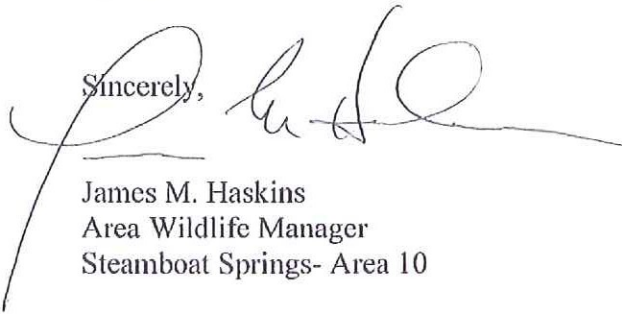
- On non-cropland, establish a uniform vegetative cover that reflects pre-disturbance or reference area forbs, shrubs and grasses.
- Fence livestock and/or wildlife out of newly reclaimed areas until reclamation standards have been met and plants are capable of sustaining herbivory.
- Census and assess the utilization of the reclaimed areas by target species such as Columbian sharp-tailed grouse and nesting raptors.

Reclamation seed mixes:

The CPW recommends a rangeland seed mix which contains a broad array of native grass, forb, and shrub species desirable for wildlife, including Columbian sharp-tailed grouse and greater sage-grouse. Use high diversity (10 species or more) reclamation seed mixes in Columbian sharp-tailed grouse habitat. Bunchgrass over sod-forming grasses can be used in seed mixes in order to provide more effective wildlife cover and to facilitate forb and shrub establishment. Avoid aggressive non-native grasses in Columbian sharp-tailed grouse habitat reclamation (e.g., intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc.). A small percentage (5% - 10%) of the appropriate species of big sagebrush should be re-seeded on disturbed sites. Reclamation of sage-grouse breeding habitat should include a substantially higher percentage of forbs than other areas. Native and select non-native forbs and legumes should be considered a vital component of reclamation seed mixes. Where slope is 10% or less, create seed mixes with approximately the following percentages of plant types (*on a Pure Live Seed basis*): grass=40%, shrub=30%, forbs=30% in order to facilitate forb and shrub establishment.

Thanks again for the opportunity to comment on the proposed coal coreholes. If you have any further questions, please contact District Wildlife Manager, Justin Pollock at (970) 629-1247.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Haskins', with a long horizontal flourish extending to the right.

James M. Haskins
Area Wildlife Manager
Steamboat Springs- Area 10

CC: Pollock, Haskins, Velarde

APPENDIX C

CERTIFICATE OF INSURANCE

CERTIFICATE OF LIABILITY INSURANCE

PFABENE-01

LEWIS, JY

DATE (MM/DD/YYYY)

7/22/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Willis of Tennessee, Inc.
c/o 26 Century Blvd
P.O. Box 305191
Nashville, TN 37230-5191

CONTACT NAME: Willis Certificate Center

PHONE (A/C No. Ext.): (877) 945-7378

FAX (A/C. No): (888) 467-2378

E-MAIL ADDRESS: certificates@willis.com

INSURER(S) AFFORDING COVERAGE

NAIC #

INSURER A: ACE American Insurance Company

22667

INSURED

Peabody Energy Corporation
Attn: Robert Fenley
701 Market Street
Suite 700
St. Louis, MO 63101-1826

INSURER B :

INSURER C:

INSURER D :

INSURER E :

INSURER F:

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR		TYPE OF INSURANCE		ADDL INSD	SUBRI WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/>	COMMERCIAL GENERAL LIABILITY				HDOG27396367	08/01/2015	08/01/2016	EACH OCCURRENCE \$ 5,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 5,000,000 GENERAL AGGREGATE \$ 6,000,000 PRODUCTS - COMP/KOP AGG \$ 6,000,000
	<input type="checkbox"/>	CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR		X					
	<input type="checkbox"/>								
	<input type="checkbox"/>								
	<input type="checkbox"/>	GEN'L AGGREGATE LIMIT APPLIES PER:							
	<input type="checkbox"/>	POLICY <input type="checkbox"/>	PRO-JECT <input type="checkbox"/>						
	<input type="checkbox"/>	LOC <input type="checkbox"/>							
	<input type="checkbox"/>	OTHER:							
	<input type="checkbox"/>	AUTOMOBILE LIABILITY							COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/>	ANY AUTO							\$
	<input type="checkbox"/>	ALL OWNED AUTOS	<input type="checkbox"/>	SCHEDULED AUTOS					\$
	<input type="checkbox"/>	HIRED AUTOS	<input type="checkbox"/>	NON-OWNED AUTOS					\$
	<input type="checkbox"/>	UMBRELLA LIAB	<input type="checkbox"/>	OCCUR					EACH OCCURRENCE \$
	<input type="checkbox"/>	EXCESS LIAB	<input type="checkbox"/>	CLAIMS-MADE					AGGREGATE \$
	<input type="checkbox"/>	DED <input type="checkbox"/>	RETENTION \$						\$
	<input type="checkbox"/>	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY							<input type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER
	<input type="checkbox"/>	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)		Y/N <input type="checkbox"/>	N/A				E.L. EACH ACCIDENT \$
	<input type="checkbox"/>	If yes, describe under DESCRIPTION OF OPERATIONS below							E.L. DISEASE - EA EMPLOYEE \$
	<input type="checkbox"/>								E.L. DISEASE - POLICY LIMIT \$
	<input type="checkbox"/>								

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Twentymile Coal, LLC

It is agreed that Colorado Division of Reclamation, Mining and Safety is included as an Additional Insured as respects to General Liability where required by contract or agreement. Covers operations at Twentymile Coal, LLC including the use of explosives.

CERTIFICATE HOLDER

Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Chris Hill, play

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CERTIFICATE OF LIABILITY INSURANCE

PEABENE-01

LEWISJY

DATE (MM/DD/YYYY)

7/22/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis of Tennessee, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 37230-5191	CONTACT NAME: Willis Certificate Center PHONE (A/C, No, Ext): (877) 945-7378 FAX (A/C, No): (888) 467-2378 E-MAIL ADDRESS: certificates@willis.com
INSURED Peabody Energy Corporation and Subsidiaries Attn: Robert Fenley 701 Market Street Suite 700 St. Louis, MO 63101-1826	INSURER(S) AFFORDING COVERAGE INSURER A: ACE American Insurance Company INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:
	NAIC # 22667

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.


INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	X	HDOG27396367	08/01/2015	08/01/2016	EACH OCCURRENCE \$ 5,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 5,000,000 GENERAL AGGREGATE \$ 6,000,000 PRODUCTS - COMPIOP AGG \$ 6,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS HIRED AUTOS SCHEDULED AUTOS NON-OWNED AUTOS		ISAH08858299	08/01/2015	08/01/2016	COMBINED SINGLE LIMIT (Ea accident) \$ 5,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB EXCESS LIAB DED RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$ PER STATUTE OTH-ER
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A				E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Named Insured includes Peabody Sage Creek Mining, LLC. Covers operations in Routt and Moffat Counties, Colorado, and Carbon County, Wyoming, including but not limited to damage from surface coal operations, the use of explosives, and damage to water wells, as well as all activities permitted under county permit approvals. See Attached: Covered operations/properties include: Mesa Gravel Pit - Peabody Sage Creek Mining, LLC (M-82-036); Red Rock Gravel Pit - Peabody Sage Creek Mining, LLC (M-78-315); Hayden Gulch Loadout - Hayden Gulch Terminal, LLC (C-92-081); Big Elk Property - Cottonwood Land Holdings, LLC; Williams Fork Mines - Moffat County Mining, LLC (C-81-044); Foidel Creek Mine - Twentymile Coal, LLC (C-82-056); Peabody Sage Creek Mine - Sage Creek Coal Company, LLC (C-09-087); Vista Ridge and Associated Real Estate Holdings - Twentymile Coal, LLC; Shoshone Mine - Shoshone Coal, LLC (477); Related Exploration and Development Activities. Covered entities include Peabody Energy Corporation and all associated subsidiaries
SEE ATTACHED ACORD 101

CERTIFICATE HOLDER

CANCELLATION

Routt County Board of Commissioners 136 Sixth Street P.O. Box 773840 Steamboat Springs, CO 80477	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE 
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AGENCY CUSTOMER ID: PEABENE-01

LEWISJY

LOC #: _____

ADDITIONAL REMARKS SCHEDULEPage 1 of 1

AGENCY Willis of Tennessee, Inc.		NAMED INSURED Peabody Energy Corporation and Subsidiaries Attn: Robert Fenley 701 Market Street Suite 700 St. Louis, MO 63101-1826	
POLICY NUMBER SEE PAGE 1		EFFECTIVE DATE: SEE PAGE 1	
CARRIER SEE PAGE 1	NAIC CODE SEE P 1		

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: ACORD 25 FORM TITLE: Certificate of Liability Insurance

Description of Operations/Locations/Vehicles:

operating in the noted coverage areas. In addition, those state and county governments with regulatory authority over the covered operations/properties are included as additional insured parties with respect to General Liability, where required by contract or agreement. General liability limits, as noted in the Certificate, apply to each covered operation/property, and are restricted only as designated (i.e.: Each Occurrence or Any One Person). County Governments and/or County Commissioners are identified as Additional Insured parties with respect to the General Liability coverage, however this coverage is limited to their interest(s) in the operations and activities of the Named Insured, and only for such terms and limits which are the lesser of the policies hereon, or the written requirements and/or agreements between the Named Insured and the Certificate Holder(s).

APPENDIX E

WEED MANAGEMENT PLAN

Twentymile Coal, LLC
Administrative Permit for Coal Exploration

Weed Management Plan



October 2011

Noxious Weed Management Program - Noxious weed infestations may occur on areas disturbed from site disturbance activities. In order to minimize potential adverse resource impacts that may result from noxious weed infestations; optimize revegetation success for the reclaimed areas; and fulfill sound land management objectives, Twentymile Coal, LLC (TC) will incorporate the following integrated noxious weed management program (weed program) from the approved CDRMS (Colorado Division of Reclamation, Mining, and Safety) permit.

TC's weed program is designed to effect full compliance with applicable provisions of CDRMS Rule 4.15.1(5), and was developed with reference to the Colorado Weed Management Act (CRS 35-5.5-115), the CDRMS's "Guideline for the Management of Noxious Weeds on Coal Mine Permit Areas", and in consultation with the local office of the Colorado State University Cooperative Extension Service (CSU-Extension Service, also the Routt County Weed Control agency). TC's weed program focuses on those noxious weed species listed by the Colorado Department of Agriculture, and will be modified, as appropriate to address any changes to this list. TC's integrated weed program consists of five interrelated components, as detailed in the following sections: Prevention, Identification and Mapping, Management Planning and Scheduling, Application of Selected Control Method(s), and Evaluation of Control Effectiveness.

Prevention - Prevention is the most important component of TC's weed program and includes the following items.

- Re-seed disturbed areas in a timely manner following site grading and soil material replacement using the methods outlined in Section 2.05.4, Reclamation Plan
- Develop and use seed mixtures which replicate native plant communities and encourage rapid vegetative reestablishment
- Plant only certified weed-free seed for the approved seed mixes
- Assess the need for any supplemental management measures. (ie: fertilization, reseeding, weed control, protection from wildlife, etc.) to assure effective vegetative reestablishment
- Wash off-road vehicles that are moving between different areas to minimize unintentional transport of noxious weed seed
- Minimize noxious weed propagation by treating any noxious weed infestations prior to seed-head maturation using mechanical, chemical, or biological controls, or a combination of these methods
- Monitor and evaluate weed control efforts on an annual basis as described in the following sections

Identification and Mapping - TC will utilize a range of resources to identify and map any noxious weed infestations within the TC Permit Area. Mine Environmental Staff is trained in noxious weed identification and, as a matter of practice, note any noxious weed occurrences observed any time they are in the field. In addition, Mine Environmental Staff, assisted by trained student and summer interns, will conduct spring and fall Environmental Management surveys of active areas, specifically to assess the condition of mine drainage structures, identify any new noxious weed occurrences, assess the effectiveness of weed management activities, and note any other environmental concerns that may require attention. TC maintains a working weed program map and records both observed noxious weed occurrences (from all sources, by weed species, location, and extent of infestation) and treatment activities.

Management Planning and Scheduling - Effective management and planning are key elements in assuring the effectiveness of TC's noxious weed control program. Any new information collected through the ongoing noxious weed identification and mapping efforts, along with treatment information from prior years is reviewed and evaluated. Based on this information, treatment strategies and schedules are developed during the early spring for the annual weed management program using the following steps:

- For mapped weed infestations, treatment methods are determined based on the weed species present using recommendations provided by the CSU Extension Service. Selection of treatment method(s) takes into consideration proximity to flowing water or water bodies, croplands, any livestock use, and historical response of identified weed species to prior treatment(s), based on review of control effectiveness. Treatment methods may include mechanical controls (tillage, mowing, burning, cutting/pulling), chemical controls (selective herbicides), biological controls (weed-specific insects or pathogens), or combinations of these methods. In general, treatment method(s) will be selected to achieve the most effective control with the resources available. As an example, where multiple weed species are present, the most effective overall control(s) will be applied, although the method(s) may not be optimal for each individual species.
- Scheduling of weed management treatments will also be based on the CSU Extension Service recommendations for specific weed species. For most species, control effectiveness can be significantly enhanced by scheduling treatment at specific stages of vegetative growth (typically spring and/or fall). To the extent possible, based on staff and contractor availability, treatment will be scheduled to optimize effectiveness.
- Priority and responsibilities for weed control are determined based on weed species present and the location and extent of weed infestations. Certain weed species are extremely aggressive, and first priority will be given to their control to prevent establishment and spread. Previously treated areas are second in priority, in order to maximize control effectiveness. Third in priority are any new weed infestations and areas where the weed infestation covers a large area, to prevent further spread. Lowest priority is given to isolated weed infestations of non-aggressive species which have not been previously treated, since these may be addressed by natural vegetative succession and pose a reduced risk of spread. Generally, grazing lessees are responsible for weed control on their lease areas, with TC sharing control costs and providing oversight, under the terms of the lease agreements. TC is responsible for weed control on remaining areas. All weed management activities (both TC and grazing lessee) follow the general priorities, as outlined above.

Application of Selected Control Method(s) - The following summarizes the proposed treatment methods for listed noxious weed species known to occur within the TC permit area. If treatment extends over a longer time period, or if control effectiveness is determined to be lower than anticipated, treatment methods or chemicals may be adjusted to improve long-term effectiveness. Approved or more effective chemicals for targeted weeds may change over time and these modifications will be incorporated, as appropriate.

Routt County Noxious Weed list:

- Yellow toadflax/butter and eggs - Spring spot spraying with Tordon (Banvel is alternative chemical)
- Hounds-tongue - Spring spraying (full coverage and spot) with mix of Escort, 2,4-D amine, and Activator 90 (Plateau is alternative chemical)

Colorado State Noxious Weed A and B lists:

- Bull thistle - Cutting/pulling prior to formation of seed-heads and then fall spraying with mix of Tordon, 2,4-D amine, and Activator 90 (Banvel and Curtail are alternative chemicals)
- Musk thistle - Cutting/pulling prior to formation of seed-heads and then fall spraying with mix of Tordon, 2,4-D amine, and Activator 90 (Banvel and Curtail are alternative chemicals)
- Canada thistle - Cutting/pulling prior to formation of seed-heads and then fall spraying with mix of Tordon, 2,4-D amine, and Activator 90 (Banvel and Curtail are alternative chemicals)
- Hoary cress (white top) - Spring spraying (full coverage and spot) with mix of Escort, 2,4-D amine, and Activator 90 (Plateau is alternative chemical),

For large areas or significant weed infestations, TC may utilize a weed-control contractor to achieve overall control (typically over several years) and then utilize in-house resources (Environmental Staff, student interns, summer students, contract labor) for ongoing maintenance control activities. TC maintains both a pick-up and an ATV with spray-tanks, spray bar (ATV only), and hand-sprayers, as well as several backpack tank sprayers for weed control. Chemical control activities are overseen by a U.S.-EPA Certified Pesticide Applicator, and pesticide storage, handling, and use procedures and personal protective equipment are utilized to prevent potentially hazardous personal or environmental exposures. Where control of extensive weed infestations results in limited vegetative cover or bare-ground, the affected area will either be inter-seeded or ripped and seeded, dependent on site-specific conditions. Certain areas where there may be a flammability hazard or where specific Mine Safety and Health Administration (MSHA) regulations apply may be treated with a long-lasting broad-spectrum herbicide such as Arsenal, Roundup, Sahara, or Throttle.

Table 1 summarizes controls, rates, and timing for weeds identified in the TC Permit Area and adjacent areas under TC's control:

TABLE 1 – CHEMICAL CONTROL METHODS

SPECIES	HERBICIDE	RATE	TIMING
Black henbane	2,4-D Amine/ Low Vol Ester 6	½ pt./ac	Spring
	Banvel	½ pt./ac	Fall
Bull thistle	2,4-D, Tordon	½ pt./ac	Spring*
Canada thistle	Banvel	½ pt./ac	Fall
	Escort	2 oz./ac	Spring *
Common cocklebur	Grazon P&D	2 pt./ac	Spring*
	2,4,D	½ pt./ac	
Common mullein	Grazon P&D	4 pt./ac + surfactant**	Spring
	Escort 2 oz/A		
Curly cup gum weed	Grazon P&D	2 pt./ac	Spring
	2,4D LV 6	1 lb. /ac	
Curly dock	Grazon P&D	2 pt./ac + surfactant**	Spring
	Tordon		
Dalmatian toadflax	Tordon	2 qt./ac	Spring
	2,4-D	1 lb./ac + surfactant**	
	Escort		
Field bindweed	2,4, D	1 lb./ac	Spring
Kochia	2,4-D	½ pt./ac	Spring
Leafy spurge	Tordon	2 qt./ac	Spring
Perennial pepperweed	Escort	2 oz./ac	Spring
Russian olive	Garlon 4	5%	Stump treatment spring
Russian thistle	2,4 D	½ pt./ac	Spring
Scotch thistle	2,4-D	½ pt./ac	Spring
	Tordon		
	Banvel	½ pt./ac	Fall
Tamarisk, Salt Cedar	Garlon 4	5%	Stump treatment
Yellow toadflax	Tordon	2 qt./ac	Spring
	2,4-D	1 lb./ac + surfactant**	
Whitetop, Hoary Cress	Escort	2 oz/ac	Spring
	2,4-D	½ pt./ac	
Bare ground treatment substations and explosive storage	Arsenal	20 lb/ac Pellets	Spring for total vegetation control per safety regulations.

SPOT TREATMENT MIXING (see label instructions for specific species)

- 1% Solution in 100 Gallons = 1 gallon of Chemical
- 1% Solution if 3 Gallons = 3.8 oz = 11.5 Tbsp = 114 ml
- 1% Solution in 1 Gallon = 1.3 oz = 4 Tbsp = 39 ml
- 2% solution in 1 Gallon = 2.5 oz. 8 Tbsp = 75 ml
- Escort package contains a measuring funnel. Use a ¼% mixture for spot spraying.

Evaluation of Control Effectiveness - Generally, in conjunction with the spring Environmental Management surveys, areas of previously identified and treated noxious weed infestations are inspected and the effectiveness of control measures is evaluated based on reduction or elimination of weed infestations. TC's grazing lessees and any weed-control contractors also provide similar information, based on their field observations. This information is utilized in the management planning process to determine the need for continued treatment and to modify treatment method(s), if indicated, to improve their effectiveness.

TC will provide Routt County with documentation from the Annual Reclamation Report pertaining to weed control and submit any significant changes to specific weed control plans (chemicals, rates, and timing) to the Routt County Weed Supervisor for review prior to weed control activities.