EXECUTIVE SUMMARY

ES.1. Executive Summary

ES.1.1. Background

In November 2004, a Lease by Application (LBA) was filed by Alton Coal Development, LLC (ACD) to mine federal coal, using primarily surface-mining methods, near the town of Alton, Utah (Case Number UTU 081895). This application was filed under the regulations at 43 Code of Federal Regulations (CFR) 3425, Leasing on Application. This application includes nearly 2,683 surface acres and approximately 38 million tons of recoverable coal. The Bureau of Land Management (BLM) reconfigured the tract to exclude approximately 40 acres and to include approximately 898 additional acres. Acreage added to the tract during tract reconfiguration was based on the identification of additional recoverable coal reserves not included in the original LBA and on additional surface acreage deemed necessary for mine operations. The Alton Coal Tract LBA (hereafter the Alton Coal Tract or tract), as reconfigured, contains approximately 3,581 surface acres and 44.9–49.1 million tons of recoverable coal reserves.

To process an LBA, the BLM must establish the fair market value of the coal in the tract by evaluating the quantity and quality of the coal reserves. Any subsequent mining plan must achieve maximum economic recovery of the tract's coal resources in the context of applicable laws, regulations, and leasing stipulations (standard and special). In addition, before the BLM can issue a decision to offer a tract for lease, the BLM must fulfill the requirements of the National Environmental Policy Act (NEPA) by evaluating the potential environmental impacts of leasing and mining federal coal.

On November 28, 2006, a Notice of Intent (NOI) to prepare an environmental impact statement (EIS) for the Alton Coal Tract was published in the Federal Register. This EIS has been prepared to evaluate the potential direct, indirect, and cumulative environmental impacts of leasing and recovering the federal coal included in the tract, based on ACD's preliminary plan and reasonable alternatives. The BLM will use the analysis in this EIS to decide whether to a) hold a competitive, sealed-bid lease sale for the tract; b) hold a competitive, sealed-bid lease sale for a modified tract; or c) reject the lease application and not offer the tract for sale at this time. The impacts of mining the coal are considered in this EIS because mining the coal is a logical consequence of issuing a lease. A record of decision (ROD) will be issued, and if the decision is to offer the tract for lease, a sale would be held. If a lease sale is held, the bidding at the sale would be open to any qualified bidder; it would not be limited to the applicant. A lease would be issued to the highest bidder at the sale, provided that the high bid meets or exceeds the fair market value of the coal, as determined by BLM's economic evaluation and if the U.S. Department of Justice (DOJ) determines that there would be no antitrust violations.

In return for receiving a lease, the lessee must pay the federal government a bonus equal to the amount it bids at the time the lease sale is held (the bonus can be paid in five yearly installments), make annual rental payments to the federal government, and make royalty payments to the federal government when the coal is mined. Federal bonus, rental, and royalty payments are equally divided with the state in which the lease is located.

All coal reserves in the Alton Coal Tract are federally owned, though surface ownership is mixed. Under Alternative B (the Proposed Action), approximately 2,280 surface acres of the tract are in federal (BLM) ownership, and 1,296 surface acres are in private ownership (eight different private surface owners). Private surface owners may be qualified to give consent to mine federal minerals under the private surface owner's estate according to 43 CFR 3400.0-5. Surface ownership under Alternative A (No Action Alternative) and Alternative C is also discussed in greater detail in Chapter 2 of the EIS. If this EIS process results in a competitive lease sale for the tract, a final determination of private surface-owner

qualification and private surface-owner consultation would take place prior to leasing. All surface owners have been notified of the Proposed Action. Further, both hardcopy and electronic versions of this EIS have been distributed to surface owners.

ES.1.2. Purpose and Need for Action

The BLM-managed coal leasing program encourages the development of domestic coal reserves. As a result of the leasing and subsequent mining and sale of federal coal resources, the public continues to receive a reliable domestic supply of coal for use in the electric power sector and in the industrial sector. BLM recognizes that the continued extraction of coal is a component of meeting the nation's current and future electrical energy and industrial needs. Therefore, private development of federal coal reserves is integral to the BLM coal leasing program under authority of the Federal Land Policy and Management Act of 1976 and the Mineral Leasing Act of 1920 (MLA), as amended by the Federal Coal Leasing Act Amendments of 1976. The MLA requires that all public lands not specifically closed to leasing be open to lease for the exploration and development of mineral resources. A federal coal lease grants the lessee the exclusive right to obtain a mining permit for, and to mine coal on, the leased tract. This lease is subject to the terms of the lease, the mining permit, and applicable state and federal laws. Before a new leased tract can be mined, the lessee must have their detailed plans approved (in the permit application package [PAP]) to conduct mining and reclamation operations. Further, a primary goal of the Energy Policy Act of 2005 is to add energy supplies from diverse sources, including domestic oil, gas, and coal, as well as hydropower and nuclear power.

Given known technology and technological and demographic trends overall, the United States demand for coal is expected to increase by approximately 0.4% per year through 2035 (DOE/EIA 2010). Though coal-fired power plants are projected to account for less electricity generation in 2035 compared to 2008 (down from 48% in 2008 to 44% in 2035), in the United States, approximately 90% of coal consumption is in the electric power sector, and between 2008 and 2035, total electricity demand in the United States is expected to increase by 30% (DOE/EIA 2010). Furthermore, in Utah, approximately 82% of electrical energy is generated from coal (VandenBerg 2010). Although most (approximately 90%) of the coal consumption in the United States is in the electric power sector, coal is also used (approximately 10% of total demand) in the industrial sector. In the industrial sector, coal is used in the manufacture or production of cement, paper, chemicals, food, primary metals, and coal-based synthetic fuels (coal-to-liquids). It is also used in the industrial sector as a direct source of heat, as a feed stock, as boiler fuel for the production of process steam and electricity, and in the production of coke, which is used as an energy source and as raw material in steel production. Nonelectric power sector demand for coal is expected to slightly decline by 2035, though demand for coal in the emerging coal-to-liquids industry is expected to increase. Most of the projected increase in overall United States demand for coal, therefore, is expected from the electric power sector (DOE/EIA 2010).

According to the Utah Geological Survey (VandenBerg 2010), coal production in Utah decreased by 4.4 million tons (16.8%) between 2006 and 2009 due to mine closures, difficult mining conditions, and unexpectedly low production from several mines. Utah's long-term (50 years and beyond) coal future is shifting because accessible coal reserves are being depleted in the Book Cliffs and Wasatch Plateau coal fields. This makes it necessary for the coal industry to look to other Utah coal fields to meet future demands for coal. Further, most Utah mining companies have leased coal reserves for approximately 10–15 years of production; however, they are having difficulty adding new leases to extend their reserves. As a result, Utah coal production is outpacing tonnage leased (VandenBerg 2010).

ES.1.3. Public Involvement

ES.1.3.1. Public Scoping

The public scoping process was initiated on November 28, 2006 when the BLM published a NOI to prepare an EIS to offer the tract for competitive leasing. Five public scoping meetings followed. Each meeting was conducted in an open house format with BLM and ACD personnel present to answer questions and provide information. Other resources available at the public scoping meetings included informational display boards; one video explaining the conceptual mining and reclamation sequence; one video explaining a potential transportation route, including truck details; and comment forms on which to submit comments at the meetings. Informational display boards and comment forms are available in the Alton Coal Tract LBA EIS Public Scoping Report (SWCA Environmental Consultants [SWCA] 2007b), which was prepared following completion of the scoping process. Copies of the videos are available at the BLM Kanab Field Office (BLM-KFO). The 90-day scoping period closed on February 26, 2007.

ES.1.3.2. Summary of Issues

Issues and concerns raised during the public scoping process were divided into three categories: 1) those to be addressed through implementation and documentation of certain elements of the NEPA process; 2) those to be addressed through analysis of direct, indirect, and cumulative impacts; and 3) those to be addressed through the formulation of alternatives. The substantive issues and concerns are outlined below.

ES.1.3.2.1. LEASING TIMELINE

When is the appropriate time to begin the analysis of the EIS and consideration of leasing? Is it following submission of a detailed mining plan, or following a commitment to mine and sell coal?

ES.1.3.2.2. PREVIOUS DECISIONS AND LEGISLATION AND NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

Previous studies of coal mining at Alton have been completed. Why is additional environmental analysis required? How would the proposed lease meet the suitability requirements of Surface Mining Control and Reclamation Act (SMCRA) of 1977?

ES.1.3.2.3. BUREAU OF LAND MANAGEMENT'S ROLE AND POLICIES REGARDING PUBLIC LAND USE

What is BLM's responsibility to protect the public lands, while providing for their use and sustainability?

ES.1.3.2.4. SCOPE

Is coal mining on private lands and public (BLM) lands a connected action under NEPA, which would require an analysis in a single EIS?

ES.1.3.2.5. PURPOSE AND NEED

What are the public purposes and needs for this action and how will they affect the eventual decision to offer the tract for leasing or not? How will energy demand affect BLM's decision to lease the tract?

ES.1.3.2.6. ALTERNATIVES

What reasonable alternatives to the applicant's proposal to lease and mine federal coal reserves in the tract should BLM consider?

ES.1.3.2.7. AFFECTED ENVIRONMENT AND IMPACTS ANALYSIS

What would be the effects of the coal mine on the natural and cultural environment in and near the tract and on the human values connected to those resources and their uses?

ES.1.3.2.8. DATA AND EXPERTISE FOR IMPACTS ANALYSIS

What data and scientific literature must be collected and analyzed to ensure an adequate analysis of the effects of the Proposed Action and alternatives?

ES.1.3.2.9. COOPERATING AND CONSULTING AGENCIES

What role will BLM's partners play in the EIS analysis of the Proposed Action and the alternatives?

ES.1.3.2.10. PUBLIC INVOLVEMENT

What opportunities for public involvement should BLM provide to ensure disclosure of information and informed decision making?

ES.1.3.2.11. NATIONAL ENVIRONMENTAL POLICY ACT DECISIONS

What role will local residents play in the decision-making process? How will impacts to Bryce Canyon National Park affect the Alton LBA tract leasing decision?

ES.1.3.2.12. AESTHETIC RESOURCES

What effect would noise created by coal mining and coal truck traffic have on the relative noise levels existing in the area, including the town of Alton, adjacent public lands, and nearby parks and monuments? What effect would the coal mining operation, coal truck traffic, and dust and smoke caused by mining have on the local landscape (scenic quality) and surrounding viewshed? How would lighting for nighttime mining operations affect the darkness of the night sky from key nighttime-sky viewing points such as Bryce Canyon National Park?

ES.1.3.2.13. AIR RESOURCES

How would the development and operation (e.g., construction, heavy equipment use, and transportation of coal) of the coal mine affect local and regional air quality? What effect would deposition of dust and other pollutants produced by mining have on water, wildlife, vegetation, recreation uses, and structures in and adjacent to the mining operations? What contribution would emissions produced from the mining operation, transportation of coal, and ultimate use of the coal add to the cumulative effect of carbon emissions on global warming?

ES.1.3.2.14. CULTURAL RESOURCES

What impact would coal mining and transporting coal have on prehistoric and historic cultural resources in the tract and along transportation routes? How would coal mining and transporting coal impact existing and eligible National Register sites and traditional cultural properties (TCP)?

ES.1.3.2.15. FIRE MANAGEMENT

What impact would coal mining, including truck traffic to transport coal, have on air quality; and how would those changes in air quality affect BLM's ability to conduct prescribed burning in wildland-urban interface (WUI) areas to reduce threats of wildfire? What impact would revegetation required for tract reclamation have on wildland fire frequency and severity?

ES.1.3.2.16. GEOLOGY AND MINERALS

How would coal mining on the tract affect geologic and mineral resources present there? What geologic hazards exist on and near the tract and how would they be affected by mining operations and vice versa? What is the potential for underground coal fires and what are the environmental consequences of an underground fire?

ES.1.3.2.17. HAZARDOUS MATERIALS

What impact would generation, temporary storage, and disposal of hazardous materials (such as those regulated under the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act, the Resource Conservation and Recovery Act, and the Toxic Substances Control Act) have on people and the environment?

ES.1.3.2.18. LAND USE AND ACCESS

What impact would development and operation of a coal mine have on local private property values and future development potential of those lands? What effect would coal truck traffic have on private property values along transportation routes (e.g., KFO Route 116 and U.S. Route 89 [US-89])? What impact would development and operation of a coal mine have on the town of Alton (e.g., air quality, aesthetics, water quality, and public health and safety)? How would public lands be used and managed following reclamation of the coal mine?

ES.1.3.2.19. LIVESTOCK GRAZING

How would coal development, mining, and reclamation affect grazing and pasturelands around Alton (e.g., removal of vegetation and restricted access to grazing land for ranchers), and how would that affect short-term and long-term livestock grazing and production? How would road dust and exhaust from passing coal truck traffic affect vegetation growth and palatability of the vegetation for livestock forage?

ES.1.3.2.20. PALEONTOLOGY

How would surface disturbance (e.g., surface mining, road construction, and facilities construction) created by coal mining impact fossils in the tract?

ES.1.3.2.21. PUBLIC HEALTH AND SAFETY

How would coal truck traffic through towns along potential transportation routes affect public safety in those towns and along the travel routes? What risk of injury and adverse health effects would the mine workers and local public face as a result of mine development? (Public Health and Safety issues are addressed in the socioeconomics section of Chapter 4.)

ES.1.3.2.22. SPECIAL DESIGNATIONS

How would coal mining impact the air quality, viewshed, and nighttime sky of Bryce Canyon National Park? How would coal mining impact the resources (air quality, viewsheds, recreation, etc.) of other nearby parks and monuments, including the Grand Staircase-Escalante National Monument; Arches, Canyonlands, and Zion national parks; Kodachrome State Park; and Red Canyon and other public lands? How would the noise and presence of coal truck traffic affect the visitor experience at these parks, monuments, and public lands? (Issues related to special designations are addressed in the aesthetic resources, air resources, and recreation sections of Chapter 4.)

ES.1.3.2.23. SPECIAL STATUS SPECIES

How would development and operation of a coal mine impact special status species and their habitat, including Greater Sage-grouse (*Centrocercus urophasianus*), Utah prairie dog (*Cynomys parvidens*), Burrowing Owl (*Athene cunicularia*), Bald Eagle (*Haliaeetus leucocephalus*), Golden Eagle (*Aquila chrysaetos*), pygmy rabbit (*Brachylagus idahoensis*), Northern Goshawk (*Accipiter gentilis*), Ferruginous Hawk (*Buteo regalis*), Bonneville cutthroat trout (*Oncorhynchus clarkii utah*), and Utah Physa? What effect would noise from coal truck traffic have on special status species? How would wildlife mortality from vehicle collisions affect wildlife populations? (Special status species issues are addressed in the wildlife and special status species section of Chapter 4.)

ES.1.3.2.24. SOCIOECONOMICS

What opportunities for employment would development and operation of the coal mine create? How would development and operation of a coal mine affect local businesses and tourism? How would development and operation of a coal mine affect tax revenues to Kane and Garfield counties? What, if any, additional county services (i.e., ambulance, fire fighting, sheriff, etc.) would be required to support the mine? What effect would coal truck traffic have on tourism and local businesses along potential transportation routes? What are the economic benefits of development and operation of a coal mine? How would development of the tract contribute to the supply of coal available for use in the region?

ES.1.3.2.25. SOILS

What impact would development and operation of a coal mine (including final reclamation) have on productivity of soils, including biological soil crusts? How would coal mining affect farmland productivity? What impact would development and operation of a coal mine have on soil stability and rates of erosion? What effect would road and coal dust and exhaust from mine-related traffic have on soil productivity in proximity to roads in the tract and along potential transportation routes?

ES.1.3.2.26. VEGETATION

How would coal development, mining, and reclamation affect vegetation communities in the tract? What effect would coal mining, including truck traffic to transport coal, have on the introduction and spread of exotic vegetation? What effect would road and coal dust and exhaust from mine-related traffic have on the health and growth of vegetation adjacent to roads in the tract and along potential transportation routes?

ES.1.3.2.27. WATER RESOURCES

What effect would development and operation of a coal mine have on surface-water and groundwater quality and quantity? How would mining operations impact riparian areas and wetlands? How would coal mining affect the possible existence of an alluvial valley floor (AVF) near the town of Alton? How would road and coal dust and vehicle exhaust, resulting from operation of coal trucks, impact the quality of water bodies adjacent to transportation routes?

ES.1.3.2.28. WILDLIFE

What effect would development and operation of a coal mine, including reclamation and coal truck traffic, have on wildlife and their habitat, including nocturnal wildlife?

ES.1.3.2.29. ALTERNATIVES

Should the BLM delay offering the tract for lease until less-impacting extractive processes are developed? What are practical alternatives to surface mining in the tract? The BLM should consider foregoing the coal lease and instead promote development of alternative forms of energy such as solar and wind. How would operations be designed and controlled to prevent the release of unsafe levels of nitrogen dioxide (NO_2)? Coal mining should be designed, and modified if needed, to reduce impacts to Bryce Canyon National Park. What methods of coal transportation (e.g., slurry, rail, and truck) should be considered to reduce impacts to the environment, nearby communities, and public safety? Construction of a power plant next to the mine should be considered as a way to eliminate impacts from coal truck traffic.

ES.1.4. Alternatives

Three alternatives are analyzed in detail in this EIS: Alternative A (No Action), Alternative B (the Proposed Action), and Alternative C (Reduced Tract Acreage and Seasonal Restrictions).

ES.1.4.1. Alternative A: No Action

Under the No Action Alternative, ACD's application to lease the coal included in the Alton Coal Tract under the Proposed Action or Alternative C would not be approved, the LBA tract would not be offered for competitive lease sale, and the coal included in the LBA tract would not be mined.

Rejection of the application would not affect mining activities on private land adjacent to the tract (i.e., the Coal Hollow Mine). The Coal Hollow Mine consists of approximately 635 acres of land and approximately 5 million short tons of recoverable coal leased from private surface and mineral owners. Average annual coal production is anticipated to be approximately 2 million tons and mining activities are expected to employ approximately 160 persons (100 at the tract and 60 for coal trucking operations); though initial operations and startup would employ much fewer (approximately 16 employees). Rejection of the application would also not affect an anticipated permit application from ACD to mine fee coal on private lands adjacent to the tract to the north.

To compare the economic and environmental consequences of mining these lands versus not mining them, this EIS was prepared under the assumption that the tract would not be mined in the near future if the No Action Alternative is selected. Under the No Action Alternative, the public lands within the tract would continue to be managed in accordance with the *Kanab Field Office Record of Decision and Approved Resource Management Plan* (RMP) (BLM 2008b), hereafter referred to as the KFO RMP. The area would be managed for livestock grazing, recreation (primarily hunting and off-highway vehicle

[OHV] use), and wildlife habitat. Vegetation treatments (wildlife habitat treatments, watershed treatments, livestock rangeland treatments, wildland fire use, fuels treatments, and stewardship contracting) would occur in support of the BLM's Healthy Lands Initiative. Private lands within the tract would continue to be used for livestock grazing, farming, and dispersed recreation (especially hunting).

ES.1.4.2. Alternative B: Proposed Action

Under the Proposed Action, recoverable portions of in-place coal reserves would be mined over approximately 25 years using 1) surface-mining methods where the depth of overburden would be approximately 200 to 300 feet, and 2) underground methods (development mining, auger mining, highwall mining, longwall mining, and/or room and pillar mining) where the depth of overburden exceeds approximately 200 to 300 feet. The choice of mining method, however, can vary from the 200- to 300-foot overburden threshold depending on the coal thickness, overburden type, overburden (highwall) stability, underground mining techniques available, operating and capital costs, and coal market economics. The analysis considers surface disturbance for approximately 200 to 300 feet of overburden removal. These are generally referred to as overburden removal scenarios in the text. Approximately 2 million tons of coal per year would be mined once topsoil stockpiling and initial overburden removal has occurred. Reclamation would be concurrent with mining over the course of the estimated 25-year mine life and would be followed by a potential 10-year reclamation and revegetation monitoring period.

BLM independently evaluated the coal resources included in the tract. BLM estimates that the tract under the Proposed Action consists of approximately 59,600,000 tons of in-place coal and that an estimated 44.9–49.1 million tons of coal would be recoverable from the tract. The amount of recoverable coal depends on whether surface-mining methods would be discontinued at approximately 200 feet of overburden removal (44.9 million tons of recoverable coal) or approximately 300 feet of overburden removal (49.1 million tons of recoverable coal). BLM estimates that in areas where coal would be mined by surface-mining methods, approximately 90% of the estimated in-place coal reserves could be recoverable. However, in those portions of the tract that must be mined by underground mining methods, approximately 50% of the in-place coal reserves could be recoverable. These percentage recovery estimates are based on assumptions about the depth to which the use of surface-mining methods is feasible and the extent of the no-coal zone.

Details on mining methods, facilities, reclamation, and operations can be found in Chapter 2 of the EIS.

ES.1.4.3. Alternative C: Reduced Tract Acreage and Seasonal Restrictions

Under Alternative C, the Alton Coal Tract would be modified to exclude the northwest portion (Block NW) of the tract located near the town of Alton. Further, certain mining activities in the southern portion of the tract (Block S) would be subject to seasonal restrictions to reduce impacts to the local Greater Sage-grouse population (hereafter generally referred to as sage-grouse). Under Alternative C, the modified tract would be offered for lease at a sealed-bid, competitive lease sale, subject to standard and special lease stipulations developed for the tract.

Consistent with the purpose and need for the federal action, the intent of Alternative C is to resolve, in part or in full, the following: issues related to the local sage-grouse population, noise, and visual impacts to the town of Alton, and issues related to conflicting land uses (agriculture versus surface mining). Alternative C may also reduce impacts to other resources such as springs and surface waters, wildlife, soils, public health and safety, paleontological resources, cultural resources, and vegetation.

Under Alternative C, the tract would be modified to exclude Block NW. The modified tract would encompass approximately 3,173 acres, of which approximately 2,280 acres are federal surface and mineral estate and 893 acres are split estate; private surface estate and federal mineral estate. As under the Proposed Action, not all surface estates, private or federal, have coal reserves underlying them.

Under Alternative C, recoverable portions of in-place coal reserves would be mined over approximately 21 years using 1) surface-mining methods where the depth of overburden would be approximately 200 to 300 feet, and 2) underground methods (development mining, auger mining, highwall mining, longwall mining, and/or room and pillar mining) where the depth of overburden would exceed approximately 200 to 300 feet. As under the Proposed Action, the choice of mining method, however, can vary from the 200- to 300-foot overburden threshold depending on the coal thickness, overburden type, overburden (highwall) stability, underground mining techniques available, operating and capital costs, and coal market economics. Per-year coal production and reclamation and revegetation monitoring would be the same as under the Proposed Action with the exception of operations in Block S of the tract where seasonal timing restrictions would apply. Due to these seasonal timing restrictions, the length of time between initiation of the mining process and concurrently occurring reclamation activities would be extended for some pits.

BLM estimates that the tract configuration under Alternative C includes approximately 52.1 million tons of in-place coal and that an estimated 38.1–42.3 million tons of coal would be recoverable from the tract. Percentage coal recovery estimates for surface versus underground mining are the same under Alternative C as they are under the Proposed Action.

Details on mining methods, facilities, reclamation, and operations can be found in Chapter 2 of the EIS.

ES.1.4.4. Permits, Approvals, Regulatory Compliance, Mitigation, and Monitoring

There are certain permits, approvals, and regulatory compliance, mitigation, and monitoring measures that would be required under either action alternative. These are related to 1) compliance with existing local, state, and federal rules and regulations with respect to surface coal mining and 2) special mitigation and monitoring requirements (i.e., special lease stipulations) developed for the tract. See Table 1.2 in Chapter 1 and Table 2.3 in Chapter 2 for a summary of permits, approvals, and regulatory compliance requirements for the successful bidder.

ES.1.4.5. Alternatives Eliminated from Detailed Analysis

Aside from the Proposed Action and Alternative C, 12 alternatives were considered during the course of alternatives development. Each of these was eliminated from detailed analysis in the EIS. Chapter 2, Sections 2.6.1.1 through 2.6.1.12 of the EIS provide descriptions of these alternatives along with the rationale for eliminating each of them from detailed analysis.

In addition to the alternatives eliminated, certain components of the federal action would be independent of the elements of any alternative. In the EIS, these were considered options, any one of which could be chosen in combination with any alternative and would not necessitate changes in the alternative, or vice versa. Those options that were considered but not carried forward for detailed analysis are described in Chapter 2, Section 2.6.2 of the EIS.

ES.1.5. Affected Environment

ES.1.5.1. General Setting

The tract is located in Kane County, Utah approximately 0.10 mile south of the town of Alton and 2.9 miles east of US-89. The tract occurs at approximately 6,900 feet above sea level in the semiarid foothills of the Colorado Plateau Semidesert Province (Woods et al. 2001) of south-central Utah. The tract is located in the Alton Amphitheater between the Paunsaugunt Plateau to the northeast, Long Valley (Virgin River) to the west, and approximately 5.0 miles north and northwest of the Grand Staircase-Escalante National Monument. Mean annual precipitation in the town of Alton was approximately 16 inches from 1928 to 2006, and mean annual temperature for this same time period was 60.2°F (2006). The Colorado Plateau province receives most of its precipitation in the form of snow during the winter months; summers are generally hot and dry with a mid- to late-summer monsoon period when frequent thunderstorms occur (2006). The tract is characterized by a series of low-rising hills and benches cut by the north–south running Kanab Creek and by long diagonal washes that flow from the surrounding mountain ranges. Vegetation in the tract is typical of the Great Basin and includes large open areas of bunchgrass, perennial grasses, and sagebrush interspersed with dense stands of juniper and pinyon pine (*Pinus edulis*). Tall fir trees are apparent on the more rugged mountains to the northwest of the tract. Generally, the vegetation cover is continuous across most of the tract, broken by two-track dirt roads and fence lines.

Under the Proposed Action, the tract includes approximately 3,576 acres of land. All coal resources located within the tract are federally (BLM) owned and managed. Approximately 2,280 surface acres of the tract are under BLM management, and the remaining 1,296 surface acres are under private ownership. Under Alternative C, the tract includes approximately 3,173 acres of land. As under the Proposed Action, all coal resources under this tract configuration are federally (BLM) owned and managed; although, surface ownership is split between the BLM (2,280 acres) and private owners (893 acres). Coal reserves are known to occur beneath approximately 2,152 and 1,856 acres of the tract under the Proposed Action and Alternative C, respectively.

The entirety of the reasonably foreseeable coal haul transportation route also occurs in southern Utah, more specifically in Kane, Garfield, and Iron counties near Alton, Hatch, Panguitch, and Cedar City. The total length of the route is approximately 110 miles. Existing vehicle traffic consists of local residents; tourists to Bryce Canyon National Park, Dixie National Forest, and BLM-administered lands; and commercial truck traffic. Transportation infrastructure associated with the tract and the coal haul transportation route includes numerous unimproved, dirt access roads and two-track trails, KFO Route 116, US-89, State Road (SR) 20, Interstate (I) 15, and SR-56. The Union Pacific Railroad 21-mile branch to the Salt Lake City-Los Angeles line is located west of Cedar City, Utah and is the nearest railroad facility to the tract.

ES.1.6. Environmental Consequences

Table 2.5 in Chapter 2 of this EIS summarizes the potential impacts to each element of the environment under each alternative. Detailed descriptions of the impacts are provided in Chapter 4, along with a discussion of potential mitigation measures, residual impacts, short-term uses versus long-term productivity, and irretrievable and irreversible commitments of resources that would result from implementation of the alternatives. Cumulative impacts to resource values and uses of the tract that would result from implementation of the alternatives are also discussed in Chapter 4. A summary describing the general conclusions of the effects analysis is presented below.

ES.1.6.1. Aesthetic Resources

Increased ambient noise levels, short-term modifications to visual resources, and perceptible increase in nighttime skyglow would occur from the implementation of either action alternative.

ES.1.6.2. Air Resources

Under both action alternatives, emissions of criteria air pollutants (particulate matter $(PM)_{10}$, $PM_{2\,5}$, nitrogen oxides (NO_x), volatile organic compounds, carbon monoxide (CO), and sulfur dioxide [SO_2]) and hazardous air pollutants (HAP) (benzene, toluene, xylenes, formaldehyde, acetaldehyde, and acrolein) would occur as a result of mining and transporting coal. Based on the near-field modeling results, all air pollutant concentrations resulting from emissions would be within National Ambient Air Quality Standards (NAAQS) under the Proposed Action for the 200-foot overburden removal scenario. For the 300-foot overburden removal scenario, all air pollutant concentrations resulting from emissions would also be within NAAQS, with the exception of PM_{10} ¬(24-hour standard) and NO_2 (annual maximum), which would be violated. Air pollutant concentrations resulting from emissions under Alternative C (both overburden removal scenarios) would also be within NAAQS for all pollutants except PM_{10} (24-hour standard), which would be violated under both overburden removal scenarios, and NO_2 (annual maximum), which would be violated under the 300-foot overburden removal scenario.

Air quality impacts in the far-field (for criteria pollutants as well as visibility) would be within regulatory limits for both action alternatives and both overburden removal scenarios. Nitrogen and sulfur deposition would likewise be below threshold values.

ES.1.6.3. Cultural Resources

Archaeological sites eligible for the National Register would be adversely impacted from the implementation of either action alternative due to surface-disturbing activities associated with mining operations. Underground mining may impact unidentified archaeological sites. Native American traditionally cultural properties would be subject to adverse effects for the life of the mine under either action alternative. The Panguitch Historic District and Utah Heritage Highway 89/Mormon Pioneer Heritage Area (US-89) would be subject to adverse effects for the life of the mine under either action alternative. Sites that are not directly impacted by surface mining or facilities construction would be subject to a greater degree of threat for vandalism, looting, or unintentional destruction due to an increased human presence in the area.

ES.1.6.4. Fire Management

Under either action alternative, vegetation would be removed during mining and construction activities. The revegetation of the disturbed areas would lead to reduced Fire Regime Condition Class (FRCC) ratings. Increased movement to and from the tract by construction equipment and coal haul trucks would increase the risk of fuel leakage and/or sparking that could lead to wildfires in the tract and adjacent transportation corridors. Construction of centralized and dispersed facilities could lead to an increased risk of human-caused wildfires from construction activities in undisturbed vegetation on and adjacent to the tract

ES.1.6.5. Geology and Minerals

Both action alternatives would result in long-term adverse effects to topography, physiography, and stratigraphy. Removal of coal by underground mining methods would cause subsidence on portions of the tract overlying the area of coal removal. There would be a slight fault hazard from underground mining, and a risk to structures occurring on landslide deposits. Impacts to coal resources would occur from the production of recoverable coal over the life of the mine. Oil and gas resources would be unavailable for extraction for the life of the mine.

Because most of the burnt shale deposits in the tract have been or would be mined by the time a decision is made by the BLM on this EIS, direct impacts to burnt shale resources are unlikely. However, if mining operations expose burnt shale in the tract, they would likely be lost as economically recoverable resources because they would be mixed with other overburden during reclamation. If segregated from other overburden sufficiently, they may remain usable.

Salable pediment gravels in the tract would be directly impacted under the Proposed Action due to mixing with other overburden following surface mining.

It is not known how common septarian nodules are in the tract, or if they are present in sufficient density to be economically viable for development. However, any nodules present at or near the surface in areas that would be surface mined would be at risk of burial during reclamation, and therefore may be less accessible for development. The nodules would not be removed and would therefore still be available as a resource, but their development would likely be less economically viable and their concentration in any area would likely be reduced.

ES.1.6.6. Hazardous Materials

Movement to and from the tract by service vehicles and coal haul trucks has the potential to increase the risk of fuel leakage or solid waste spills in the tract and adjacent transportation corridors. Accidental or inadvertent leakages from storage tanks would also be possible. Spills would have adverse effects on soil, water, vegetation, and wildlife resources. Potential impacts would be mitigated through standard operating procedures (SOP) and through the creation of other plans and policies that relate to hazardous materials disposal, transport, and emergency response.

ES.1.6.7. Land Use and Access

Under both action alternatives, lands within the tract would be unavailable for grazing and recreation access during mining activities (life of mine). Agriculture, tourism, and recreation activities would also be prohibited or restricted during the life of the mine.

ES.1.6.8. Livestock Grazing

The action alternatives would result in the temporary loss of forage as a result of restricted access, spread of noxious weeds, and/or decreased palatability from construction dust and the temporary loss of water sources and range improvements, such as fences and cattle guards. In addition, the action alternatives would result in a loss of animal unit months (AUM) within allotments over the life of the mine and reclamation period. Impacts to livestock could occur from mortality from vehicle collisions.

ES.1.6.9. Paleontology

The coal extraction process would result in the permanent removal of fossils from the Dakota Formation and from the Tropic Shale in the tract, resulting in a long-term decrease in the productivity of paleontological resources in the area. It is anticipated that a large number of significant fossils would be destroyed or removed from context, particularly in the Tropic Shale.

ES.1.6.10. Recreation

Both action alternatives would have some adverse effects to recreation resources. Lands available for dispersed recreation would be lost from mining over the life of the mine. Some designated OHV routes would be temporarily removed over the life of the mine. In addition, there would be some indirect adverse effects from displacement of recreational users onto adjacent public lands, which would affect recreational experiences of users on those lands.

ES.1.6.11. Socioeconomics

Implementation of either action alternative would result in an increase to the number of jobs, income, and additional taxes, fee, and payments. There would be an adverse impact to recreation, and adverse impacts to sense of community, social well-being, and tourism-related businesses. There would be impacts to population, housing, public health, safety, and environmental justice populations.

ES.1.6.12. Soils

Implementation of either action alternative would result in disturbance of soil resources through large-scale removal, stockpiling, and replacement of soils during mining. The disturbance (impact) caused by removing and replacing soils would be long term. Most of the impacts (caused by facilities, some roads, etc) would be long-term impacts, persisting for the life of the mine.

ES.1.6.13. Transportation

Either action alternative would result in an increase in commuter traffic and coal truck traffic through Cedar City, Hatch, and Panguitch.

ES.1.6.14. Vegetation

Vegetation would be removed for surface mining, construction, and road relocation under either action alternative. Lands would be susceptible to weed invasion. All disturbed acres would be reclaimed and revegetated after the life of the mine.

ES.1.6.15. Water Resources

Robinson Creek would be relocated, potentially affecting stream function, the associated riparian corridor, and water quality.

Both action alternatives would result in the diversion of runoff to retention ponds, and an associated loss of surface water from evaporation and infiltration would occur. There would be small sediment load into streams from dispersed facilities and road relocation. The loss of in-stream dilution could increase concentrations of total dissolved solids (TDS) over the state water quality standard of 1,200 milligrams per liter (mg/L). Reduced in-stream flows could result in less water available for irrigation downstream. There would be a small risk of surface water contamination from accidental spills on 48–49 miles of stream that is within 100 m of the transportation route. There would also be a small increase in fine particles in streams associated with deposition of fugitive dust and coal dust.

Groundwater would be affected by either action alternative through the use of groundwater for dust suppression, the removal of groundwater as moisture contained in coal, and the evaporation of groundwater exposed in pits.

There would be a direct removal and loss of function of wetlands and impacts to riparian areas due to surface mining and construction of dispersed facilities. Impact to wetlands and riparian areas would include the loss of habitat, loss of water filtration, and destabilization of streambanks.

Because floodplains and probable AVFs occur only within the tract's no coal zone there would be no direct impacts to these water-related features from pits. Both floodplains and AVFs would be adversely affected by the construction of dispersed facilities. Floodplain functions that could be lost include some degree of flood storage and attenuation, groundwater recharge, and erosion prevention. Although ground disturbance would occur in probable AVFs, the essential hydrologic functions of these areas would not be impacted and the physical capability of the land to be irrigated would not be changed.

ES.1.6.16. Wildlife and Special Status Species

Direct and indirect impacts from either action alternative would include habitat fragmentation, alteration, loss, and displacement due to surface disturbance, noise, ground vibration, night lighting, and increased risk of vehicle mortality associated with coal-haul trucks.

ES.1.6.17. Potential Mitigation Measures

Potential mitigation measures are also proposed for individual resources in Chapter 4 of the EIS. Residual impacts that would persist following implementation of mitigation measures are also addressed for each resource in Chapter 4. The selection of these proposed mitigation measures will be decided in the ROD.

ES.1.7. Consultation and Coordination

Initial involvement with respect to BLM's receipt and review of ACD's LBA and details on the public notification, public scoping process, and the cooperating agencies are described above. Chapter 5, Consultation and Coordination, provides further detail on consultation and coordination for the proposed tract and preparation of this EIS.

ES.1.8. Next Steps

The comment period on this Draft EIS will extend for 60 days following the U.S. Environmental Protection Agency's (EPA) publication of the Notice of Availability in the Federal Register. The BLM is also publishing a Notice of Availability and Notice of Hearing in the Federal Register. All timely comments on the Draft EIS will be considered in the preparation of the Final EIS. All substantive comments and information submitted will be summarized and addressed in the Final EIS. The Final EIS will then be completed and a Notice of Availability published in the Federal Register. After a 30-day waiting period, a ROD will be prepared and signed. The ROD, which will be signed by the authorized officer, will document the decisions made regarding the Proposed Action and alternatives. The BLM decision will apply only to public lands.

This EIS is not a decision document. Rather, it is a document that will inform the BLM's final decision on whether to hold a competitive lease sale for the tract and, in the event that the BLM decides to offer the tract for competitive leasing, what special stipulations would be attached to the lease. The EIS is being released to inform the public and interested parties of the potential impacts associated with implementing either action alternative.

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