

Skyline Mine Flat Canyon Coal Lease Tract UTU-77114
Mining Plan Modification
Environmental Assessment
April 2017



Prepared in cooperation with the
US Department of the Interior Bureau of Land Management, US Department of Agriculture Forest
Service, and Utah Division of Oil, Gas, and Mining

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Table of Contents

Chapter 1 Introduction	1
1.1 Introduction	1
1.2 Background	2
1.3 Regulatory Framework and Necessary Authorizations	4
1.4 Purpose and Need for the Proposed Action	6
1.4.1 Purpose	6
1.4.2 Need	7
1.5 Outreach and Issues Identification	7
1.5.1 Scoping	7
1.5.2 Draft EA and FONSI	8
Chapter 2 Proposed Action and Alternatives	11
2.1 Introduction	11
2.2 Existing Operations	11
2.2.1 Mining Methods	13
2.2.2 Topsoil	14
2.2.3 Waste Rock Storage	14
2.2.4 Access and Haul Roads	14
2.2.5 Power Lines	14
2.2.6 Ponds, Impoundments, Diversions	15
2.2.7 Water Source	15
2.2.8 Hazardous Materials	15
2.2.9 Mine Personnel	16
2.2.10 Rail Transport	16
2.2.11 Reclamation	16
2.2.12 Life of Operations	18
2.2.13 Project Design Features	18
2.3 Proposed Action Alternative	24
2.3.1 Topsoil	25
2.3.2 Waste Rock Storage	25
2.3.3 Access and Haul Roads	25
2.3.4 Power Lines	25
2.3.5 Mine Facilities	25
2.3.6 Ponds, Impoundments, Diversion	25
2.3.7 Water Source	27
2.3.8 Hazardous Material	27
2.3.9 Mine Personnel	27
2.3.10 Rail Transport	27
2.3.11 Reclamation	27
2.3.12 Life of Operations	27
2.3.13 Project Design Features	27
2.4 No Action	33
2.4.1 Alternatives Considered but Eliminated from Detailed Analysis	34
Chapter 3 Affected Environment	37

3.1	Introduction	37
3.2	Topography and Geology	50
3.3	Air Quality and Climate Change	54
3.3.1	Air Quality.....	54
3.3.2	Climate Change	62
3.4	Social and Economic	65
3.5	Greater Sage-Grouse	67
3.6	Water Resources	69
3.6.1	Surface Water	69
3.6.2	Groundwater	71
3.6.3	Surface and Groundwater Quality	72
3.6.4	Mine Dewatering and Discharges.....	72
3.7	Soils	73
Chapter 4 Direct and Indirect Impacts		75
4.1	Introduction	75
4.1.1	Summary of Direct and Indirect Environmental Impacts.....	76
4.2	Topography and Geology	77
4.2.1	Proposed Action.....	77
4.2.2	No Action.....	78
4.3	Air Quality and Climate Change	78
4.3.1	Proposed Action.....	79
4.3.2	No Action.....	89
4.4	Social and Economic	89
4.4.1	Proposed Action.....	89
4.4.2	No Action.....	91
4.5	Greater Sage-Grouse	92
4.5.1	Proposed Action.....	92
4.5.2	No Action.....	93
4.6	Water Resources	93
4.6.1	Proposed Action.....	93
4.6.2	No Action.....	98
4.7	Soils	98
4.7.1	Proposed Action.....	99
4.7.2	No Action.....	100
Chapter 5 Cumulative Impacts		101
5.1	Introduction	101
5.1.1	Analysis Areas	101
5.1.2	Past, Present, and Reasonably Foreseeable Actions.....	101
5.2	Cumulative Impacts	103
5.2.1	Topography and Geology	103
5.2.2	Air Quality and Climate Change	103
5.2.3	Social and Economic	105
5.2.4	Greater Sage-Grouse	105
5.2.5	Water.....	105

5.2.6 Soils.....	106
Chapter 6 Coordination and Consultation.....	107
6.1 Agencies and People Consulted.....	107
6.1.1 Tribal Consultation	107
6.2 Preparers and Participants.....	108
References.....	109

List of Tables

Table 1. Approved Facilities and Acres of Disturbance	11
Table 2. Annual Shipments to Power Plants from Skyline Mine No.3*, 2010-2015	13
Table 3. Summary of the Proposed Action.....	25
Table 4. Issue Disposition.....	38
Table 5. NAAQS.....	56
Table 6. Federal Prevention of Significant Deterioration Limits.....	57
Table 7. MATS Emission Requirements – Coal and Oil-Fired Units	59
Table 8. Utah Large Industrial Source Emissions (Tons per Year) by Facility - 2012	60
Table 9. 2012 Oil and Gas Compressor and Gas Plant Emissions (Tons per Year)	60
Table 10. 1995-2014 Estimated US Greenhouse Gas Emissions Allocated to Economic Sectors (in Million Metric Tons of CO _{2e})	63
Table 11. US SO ₂ (Indirect GHG) Emissions.....	64
Table 12. Employment by Industry – Carbon and Sanpete Counties.....	65
Table 13. 2015 Electricity Generation Fuel Sources.....	67
Table 14. Comparison of Direct and Indirect Impacts.....	76
Table 15. Regulated Pollutants Evaluated for Air Quality Permit	79
Table 16. Skyline Mine Criteria Pollutant Emission Calculations (tons per year).....	81
Table 17. Black Carbon Emissions (tons per year) from Haul Trucks, Proposed Action.....	82
Table 18. Direct GHG Emissions (metric tons per year), Maximum 8 Million Tons	85
Table 19. Ozone Precursor Emissions Rates Based on Maximum Annual Coal Production	85
Table 20. Railcar Criteria Pollutant Emissions	86
Table 21. GHG Coal Combustion Emissions, Proposed Action	88
Table 22. Rail Transport GHG Emissions	88
Table 23. 2011 Triennial Inventory (tons/year)	103
Table 24. Skyline Mine Direct and Indirect Emissions as a Percentage of the Utah Cumulative Total Emissions	104
Table 25. List of Preparers	108
Table 26. Contractors	108
Table 27. Comments on the Draft EA Resulting in Modifications to the EA.....	C-1

List of Figures

Figure 1. Project Location3
Figure 2. Skyline Mine Coal Flow Diagram12
Figure 3. Proposed Action26
Figure 4. Topography.....51
Figure 5. Previous Mining52
Figure 6. Generalized Columnar Section53
Figure 7. Regional Airshed55
Figure 8. Sage Grouse Priority Habitat Management Areas68
Figure 9. Watershed Boundaries70
Figure 10. Subsidence96
Figure 11. Project Vicinity Coal Mines.....102

Appendices

- Appendix A Outreach Letters and Legal Notices**
- Appendix B Water Monitoring Results**
- Appendix C Draft EA Public Comments and Responses**
- Appendix D Biological Assessment**

Acronyms

Acronym	Definition
°F	Degrees Fahrenheit
µS/cm	Micro-Siemens per centimeter
µg/m ³	Micrograms per cubic meter
AQI	Air quality index
ASLM	Assistant Secretary of Land and Minerals Management (Department of the Interior)
BLM	Bureau of Land Management
CAA	Clean Air Act of 1970
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
CO ₃	Carbon trioxide
CWA	Clean Water Act of 1972
DEQ	Department of Environmental Quality (DEQ)
DOGM	Division of Oil, Gas, and Mining (Utah)
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973
ETV	Emission threshold value
FCLAA	Federal Coal Leasing Amendments Act of 1976
FDR	Forest Development Roads
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
GHG	Greenhouse gas
gpm	Gallons per minute
GWh	Gigawatt hours
HAPs	Hazardous air pollutants
HCO ₃	Bicarbonate
HFCs	Hydrofluorocarbons
MATS	Mercury and Air Toxics Standards
MER	Maximum Economic Recovery
Mg	Magnesium
mg/L	Milligrams per liter
MLA	Mineral Leasing Act of 1920
MMPA	Mining and Minerals Policy Act of 1970
MMT	Million metric tons
MPDD	Mining plan decision document
N ₂ O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NFMA	National Forest Management Act of 1976
NHPA	National Historic Preservation Act of 1966
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
O ₃	Ozone

Acronym	Definition
ONRR	Office of Natural Resources Revenue
OSMRE	Office of Surface Mining Reclamation and Enforcement
PAP	Permit application package
Pb	Lead
PFCs	Perfluorocarbons
PM ₁₀	Particulate matter less than 10 microns in diameter
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
ppb	Parts per billion
ppm	Parts per million
R2P2	Resource Recovery and Protection Plan
ROD	Record of Decision
SC-CO ₂	Social Cost of Carbon
SF ₆	Sulfur hexafluoride
SHPO	State Historic Preservation Office
SIR	Supplemental Information Report
SMCRA	Surface Mining Control and Reclamation Act of 1977
SO ₂	Sulfur dioxide
SO ₄	Sulfate
SO _x	Sulfur oxides
SR	State Route
TDS	Total dissolved solids
U.S.C.	United States Code
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality
UDWR	Utah Division of Wildlife Resources
UPDES	Utah Pollutant Discharge Elimination System
US	United States
USFWS	United States Fish Wildlife Service
VOC	Volatile Organic Compounds

Chapter 1

Introduction

1.1 Introduction

This Environmental Assessment (EA) has been prepared by the United States (US) Department of the Interior (DOI), Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region Office, in cooperation with the Utah Division of Oil, Gas, and Mining (DOG M); US Forest Service Manti-La Sal National Forest; and the Bureau of Land Management (BLM) Utah State Office and Price Field Office. The EA analyzes the potential environmental impacts of a mining plan modification proposed by Canyon Fuel Company, LLC owned by Bowie Resource Holdings, to underground mine new federally leased coal in the Flat Canyon Federal Coal Lease Tract UTU-77114 at the Skyline Mine. Canyon Fuel Company, LLC submitted a permit application package (PAP) which included Flat Canyon Federal Coal Lease Tract UTU-77114 into their Surface Mining Control and Reclamation Act of 1977 (SMCRA), as amended, permit. Including the new lease UTU-77114 in the mining plan would extend the life of the Skyline Mine by approximately 9 to 12 years. The Skyline Mine is located 27 road miles west of Helper, Utah, and approximately 5 miles southwest of Scofield, Utah.

OSMRE published a draft EA and unsigned Finding of No Significant Impact in June 2016 (see **Section 1.5**). Modifications made to the EA are indicated with gray shaded text. Appendix C – Draft EA Public Comments and Responses has also been added.

Mining activities may produce up to 8 million tons per year of coal (a limit established in the air permit Approval Order DAQE-AN0092007-03 issued by the Utah Department of Environmental Quality, Division of Air Quality) from UTU-77114. However, it is anticipated that the Skyline Mine would likely produce 3 to 4.5 million tons per year, which has been their general range of production over the past 10 years.

The EA review has been conducted in accordance with the National Environmental Policy Act of 1969 (NEPA) as amended and the President’s Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [Code of Federal Regulations (CFR)] 1500-1508); DOI regulations for implementation of NEPA (43 CFR Part 46); DOI Departmental Manual Part 516; and OSMRE guidance on implementing NEPA, including the OSMRE *Handbook on Procedures for Implementing the National Environmental Policy Act* (OSMRE 1989). Information gathered from federal, state, and local agencies; Canyon Fuel Company, LLC; publicly available literature; and other sources such as Canyon Fuel Company, LLC’s PAP, were used in the preparation of this EA.

The NEPA requires federal agencies to disclose the potential environmental impacts of projects they authorize and to make a determination as to whether the analyzed actions would significantly impact the environment. The term “significantly” is defined in 40 CFR 1508.27. If OSMRE determines that the project would have significant impacts following the analysis in the EA, then an Environmental Impact Statement (EIS) would be prepared. If OSMRE determines that the potential

impacts would not be significant, OSMRE would prepare a “Finding of No Significant Impact” to document this finding, and, accordingly, would not prepare an EIS.

1.2 Background

Canyon Fuel Company, LLC has operated the Skyline Mine (**Figure 1**) since 1981 under Utah DOGM Permit C/007/0005. On February 27, 2015, Canyon Fuel Company, LLC submitted a significant revision to their mining plan to the Utah DOGM for the inclusion of the new Flat Canyon Federal Coal Lease Tract UTU-77114 into their SMCRA permit. Figure 1 shows the areas of disturbance covered by the permit and bonding. The Flat Canyon Federal Coal Lease Tract UTU-77114 encompasses approximately 2,692 acres of federal coal reserves of the Wasatch Plateau Coal Field on National Forest System lands within the Manti-La Sal National Forest:

- Township 13 South, Range 6 East, Salt Lake Meridian
 - Section 21, Lots 1-4, E1/2E1/2;
 - Section 28, Lots 1-8, S1/2NW1/4, SW1/4; and
 - Section 33, E1/2, E1/2W1/2, NW1/4NW1/4, SW1/4SW1/4.

Consisting of 1,430 surface acres of federal coal.

- Township 14 South, Range 6 East, Salt Lake Meridian
 - Section 4, Lots 1-4 S1/2N1/2, S1/2; and
 - Section 5, Lots 1-4 S1/2N1/2, S1/2.

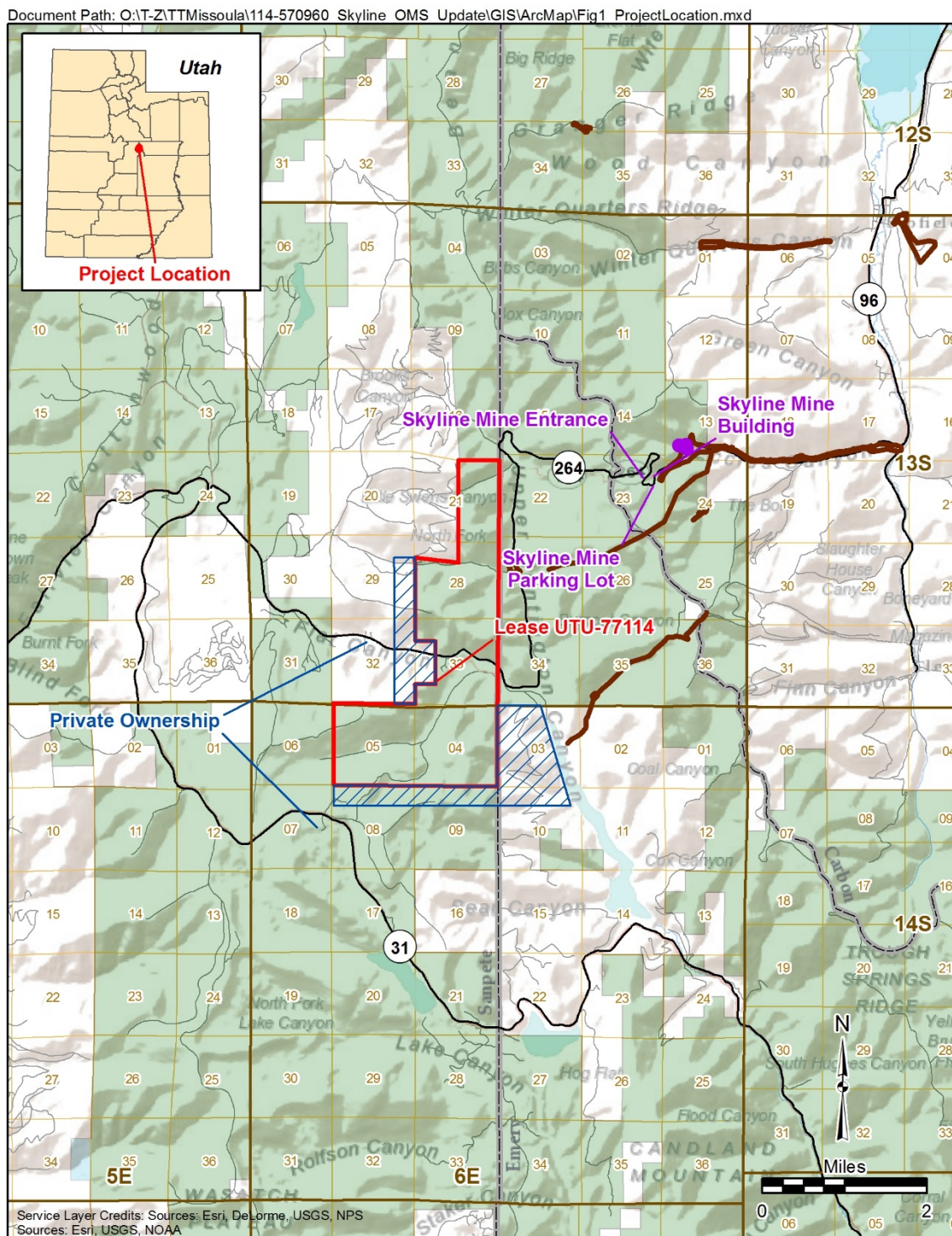
Consisting of 1,262 surface acres of federal coal.

Two areas of privately-owned land, consisting of approximately 1,100 surface acres, (which includes 268 coal acres) are adjacent to the Flat Canyon Federal Coal Lease Tract UTU-77114:

- Township 13 South, Range 6 East, Salt Lake Meridian
 - Section 29 E1/2SE1/4, SE1/4NE1/4, S1/2NE1/4NE1/4 and
 - Section 32, E1/2E1/2.
- Township 14 South, Range 6 East, Salt Lake Meridian
 - Section 3, Lots 1 and 2; S1/2NE1/4; E1/2SE1/4; E1/2W1/2SE1/4; NW1/4NW1/4SE1/4;
 - Section 8, N1/2N1/2;
 - Section 9, N1/2N1/2; and
 - Section 10, N1/2NW1/4; NW1/4NE1/4; W1/2NE1/4NE1/4.

The Flat Canyon Federal Coal Lease Tract UTU-77114 and adjacent private lands are collectively the Project Area; therefore, the total area analyzed in this EA is approximately 3,792 acres, with a probable maximum of 47 million tons of federal and private coal to be mined over 9 to 12 years. Flat Canyon Federal Coal Lease Tract UTU-77114 is in Sanpete County, Utah, while private surface and coal ownership extends into Emery County. The Skyline Mine surface facilities are in Carbon County.

Figure 1 - Project Location



Legend

Skyline Mine	Private Surface and Coal Ownership	Land Ownership
SMCRA Permit Boundary	Township	Private
Lease Boundary UTU-77114	Section Boundary	State
		USFS

Project Location
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah

The Forest Service, Manti-La Sal National Forest manages the surface resources within their jurisdiction and other uses including, but not limited to, special use permits for outfitting, rights-of-way, grazing permits, and scientific collection permits. Subsurface minerals are managed by the BLM. All of the coal resources are subsurface (1,500 feet underground). On March 18, 1998, Canyon Fuel Company, LLC requested to mine the Flat Canyon Lease tract. The Manti-La Sal National Forest, and the BLM Utah State Office, with OSMRE as a cooperating agency, completed a Final Environmental Impact Statement (FEIS) reviewing the impacts of the federal coal leasing action (US Forest Service, 2002a), the BLM also signed a Record of Decision (ROD) (BLM, 2002) to offer the lease for sale, and the Forest Service issued a ROD in 2002 (US Forest Service, 2002b) consenting to the leasing action proposed by the BLM.

Canyon Fuel Company, LLC subsequently requested that the sale of the lease be delayed. On June 21, 2012, Canyon Fuel Company requested to reinstate the lease sale. Because the NEPA review was more than 10 years old, in compliance with the Forest Service Handbook 1909.15, the Manti-La Sal National Forest reviewed the project and completed a supplemental information report (SIR) (US Forest Service, 2013), which identified the changed conditions, determined that the new information did “not constitute significant new circumstances or information relevant to environmental concerns and bearing” on the decision, and confirmed the Forest Service consent to lease decision. The Forest Service issued a consent letter on February 4, 2015. The BLM also completed a Determination of NEPA Adequacy (BLM, 2015a) under BLM Handbook 1700-1, determining that the 2002 analysis was adequate to support the NEPA decision under current circumstances. The Flat Canyon Federal Coal Lease Tract UTU-77114 was actioned on June 17, 2015. Canyon Fuel Company, LLC leased the Flat Canyon Federal Coal Lease Tract UTU-77114 from the BLM on July 1, 2015.

1.3 Regulatory Framework and Necessary Authorizations

The following key laws, as amended, establish the primary authorities, responsibilities, and requirements for developing federal coal resources:

- Mineral Leasing Act of 1920 (MLA);
- National Historic Preservation Act of 1966 (NHPA);
- National Environmental Policy Act of 1969 (NEPA);
- Mining and Minerals Policy Act of 1970 (MMPA);
- Clean Air Act of 1970 (CAA);
- Clean Water Act of 1972 (CWA);
- Endangered Species Act of 1973 (ESA);
- Utah Surface Coal Mining Reclamation Act of 1979;
- Federal Land Policy and Management Act of 1976 (FLPMA);
- Federal Coal Leasing Amendments Act of 1976 (FCLAA);
- National Forest Management Act of 1976 (NFMA); and
- Surface Mining Control and Reclamation Act of 1977 (SMCRA).

The MLA and FCLAA provide the legal foundation for the leasing and development of federal coal resources. BLM is the federal agency delegated the authority to offer federal coal resources for leasing and to issue leases. The Forest Service has authority to consent to BLM issuing leases on National Forest System lands. If consent is given, the Forest Service identifies conditions (stipulations) for use and protection of the non-mineral resources in the lands subject to leasing.

The MMPA declares that it is the continuing policy of the federal government to foster and encourage the orderly and economic development of domestic mineral resources. In that context, BLM complies with FLPMA and the Forest Service complies with NFMA to plan for multiple uses of public lands and determine if the land is suitable and available for coal leasing and development. Through preparation of land use plans and/or in response to coal industry proposals to lease federal coal, BLM complies with NEPA to disclose the potential impacts from coal leasing and development, and also complies with the NHPA, CAA, CWA, ESA, and other environmental laws ensuring appropriate protection of other resources. BLM then makes the lands determined suitable for coal development available for leasing. BLM is also responsible for ensuring that the public receives fair market value for the leasing of federal coal. Once a lease is issued, BLM ensures that the maximum economic recovery of coal is achieved during the mining of federal leases and ensures that waste of federal coal resources is minimized through review and approval of a mine's Resource Recovery and Protection Plan (R2P2) as required under the MLA. BLM implements its responsibilities for leasing and oversight of coal exploration and development under its regulations at CFR, Title 43, Public Lands, Subtitle B, Chapter II, BLM, Department of the Interior, Subchapter C – Minerals Management, Parts 3400 – 3480.

On surface estate managed by the Forest Service, the Forest Service must consent with the approval terms of coal mining, determine the adequacy of the reclamation bond, and ensure coal mining plans are consistent with lease stipulations. The Forest Service implements its responsibilities for oversight of coal exploration and development following the Forest Service Manual 2800.

SMCRA provides the legal framework for the federal government to regulate coal mining by balancing the need for continued domestic coal production with protection of the environment and society while also ensuring the mined land is returned to beneficial use when mining is finished. OSMRE implements its responsibilities for the MLA and SMCRA under regulations at CFR Title 30 - Mineral Resources, Chapter VII - OSMRE, Department of the Interior, Subchapters A-T, Parts 700-955.

As provided for under SMCRA, OSMRE works with coal producing states to develop their own regulatory programs to regulate coal mining. Once a regulatory program is approved for a state, OSMRE provides oversight. OSMRE has approved Utah DOGM's coal regulatory program (30 CFR Part 944 (OSMRE, 1994)), therefore Utah DOGM manages its program under Utah Coal Mining and Reclamation Act (1979). Utah DOGM has the authority and responsibility to make decisions to approve surface and underground coal mining permits and regulate coal mining in Utah under Utah Administrative Code R645-301. The Utah DOGM will review the PAP specifying the mining and reclamation methods to be employed in the permit amendment. Once Utah DOGM finds the PAP administratively complete, the PAP will be submitted to OSMRE for review. The Utah DOGM will

continue to work with the permittee to finalize the PAP. Publication of the proposed significant revision, which is required before DOGM can approve a permit revision, is required for 4 consecutive weeks. The commenting period occurs over the course of the 4 consecutive weeks of publishing and also 30 days after the last publishing. After the public comment period and when the PAP is finalized, Utah DOGM will issue their findings and recommendations to OSMRE and, if deemed appropriate, issue the permit to the permittee.

Once the State's findings and recommendations are received, OSMRE will prepare a mining plan decision document (MPDD) in support of its recommendation to the Assistant Secretary for Land and Minerals Management (ASLM), who will decide whether or not to approve the mining plan modification and whether or not additional conditions are needed. Pursuant to 30 CFR 746.13, the OSMRE's recommendation shall be based on:

- The PAP including the R2P2;
- Information prepared in compliance with NEPA, including this EA including the federal land management agency;
- Documentation assuring compliance with the applicable requirements of federal laws, regulations, and executive orders other than NEPA;
- Comments and recommendations or concurrence of other federal agencies and the public;
- Findings and recommendations of the BLM with respect to the R2P2, federal lease requirements, and the MLA;
- Findings and recommendations of the Utah DOGM regarding the PAP and the Utah State program; and
- The findings and recommendations of the OSMRE regarding additional requirements of 30 CFR Chapter VII, Subchapter D.

1.4 Purpose and Need for the Proposed Action

As described at §1502.13 (40 CFR 1500-1508) the purpose and need statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the Proposed Action.

1.4.1 Purpose

The purpose of the action is established by the MLA and the SMCRA, which requires the evaluation of Canyon Fuel Company, LLC's PAP before Canyon Fuel Company, LLC may conduct underground mining and reclamation operations to develop the Flat Canyon Federal Coal Lease Tract UTU-77114. OSMRE is the agency responsible for making a recommendation to the ASLM to approve, disapprove, or approve with conditions the proposed mining plan modification. The ASLM will decide whether the mining plan modification is approved, disapproved, or approved with conditions.

1.4.2 Need

The need for the action is to provide the opportunity for Canyon Fuel Company, LLC to exercise its valid existing rights granted under Flat Canyon Federal Coal Lease Tract UTU-77114 to extract coal from their leased federal coal under the MLA. The Proposed Action to approve the mining of the coal within Flat Canyon Federal Coal Lease Tract UTU-77114 would also provide access for mining of private coal reserves, which would be geographically and economically accessible through the federal coal lease and contribute to continued operations for approximately 9 to 12 additional years.

1.5 Outreach and Issues Identification

1.5.1 Scoping

On October 9, 2015, a letter was sent to 62 addresses on a mailing list including adjacent landowners, federal, state, and local agencies, and other individuals and organizations known to be interested in coal mining activities in Carbon, Emery, and Sanpete counties. Legal notices announcing the project and requesting comments were published in the *Emery County Progress* and *Sun Advocate* newspapers on October 13 and 27, 2015, and the *Sanpete Messenger* on October 25 and 29, 2015. The letter and legal notices are in **Appendix A**.

OSMRE developed a project website, which provided additional notice, information, and comment opportunities: <http://www.wrcc.osmre.gov/initiatives/skylineMine.shtm>. The website was activated on October 16, 2015, and is updated periodically as additional information becomes available.

Five letters (WildEarth Guardians, Sierra Club, Sanpete County, Carbon County, Utah Office of the Governor Public Lands Policy Coordinating Office) were received (support and opposition), along with a mass mailing of approximately 273 emails largely stating the same opposition to the project. OSMRE reviewed all scoping comments received and issues identified to be evaluated in this EA.

The primary focus of WildEarth Guardian's letter was air quality and climate change, cumulative effects, threatened and endangered species, impacts on water quality, the social cost of carbon, and the need for an EIS. They also identified several potential alternatives, which are described in **Section 2.4.1**. The Sierra Club letter included issues similar to the WildEarth Guardians, along with the issues related to the Clean Power Plan. Sanpete County provided information on the economic impact Skyline Mine has on the county (jobs, royalty revenue, income, and revenue) to the state. Carbon County raised concerns about water resources and the importance of them, and economic importance (income and jobs). The mass mailing letters were generated by a WildEarth Guardians website alert and included the same issues as the letter from the WildEarth Guardians. The Governor's Office generally supported the employment and power supply qualities of the proposal and stated concerns about wildlife.

Examples of the comments related to the concerns listed include:

- *Climate Change Impacts, emissions of methane (including from mining activities), carbon dioxide, and other greenhouse gases that have been found to endanger public health and welfare, extent they contribute to global climate change.*

- 516 DM 13, approval of a mining plan requires an environmental impact statement (EIS) where “[t]he environmental impacts of the proposed mining operations are not adequately analyzed in an earlier environmental document covering the specific leases or mining activity,” “[t]he area to be mined is 1280 acres or more, or the annual full production level is 5 million tons or more,” and “[m]ining and reclamation operations will occur for 15 years or more.” 516 DM 13.4(A)(4). Upon review of available information, it appears that all three criteria are met with regards to the proposed mining plan modification.
- Use the social cost of carbon to analyze and disclose the climate impacts of the proposal.
- [A]nalyze whether the proposed Flat Canyon expansion would interfere with efforts to meet federal greenhouse gas emission reduction targets established by the Obama Administration and are in line with the goals of the Clean Power Plan and Climate Action Plan.
- Request for a social cost of carbon analysis
- The greatest environmental impact to Sanpete County is reflected in the Socio-Economic benefit. Currently, Skyline Mine employs over 200 full-time employees which contribute significantly to our economy. This equates to approximately \$14 million annually in wages and benefits for these employees. Therefore, it is imperative that this mine grow and continue to produce coal for the next 9-12 years.
- The estimated royalty revenue to Sanpete would be somewhere around \$2 million annually.
- [M]aintaining the water management program to protect our watershed would be an issue to consider through the EA process.
- [C]oal mining is the historic and economic backbone of Carbon County. Coal mining historically is the biggest supplier of high paying jobs in our county and for many years provided the highest royalty income to our government infrastructure until the last few years when oil and gas production over took it.
- The primary impact to wildlife likely to result from mining operations as proposed involves potential reduction of surface water flow associated with and caused by mining subsidence.

The issues and how they are included in the analysis are shown in in **Table 4** (see **Chapter 3**).

1.5.2 Draft EA and FONSI

The Skyline Mine Flat Canyon Coal Lease Mining Plan Modification EA and unsigned Finding of No Significant Impact (FONSI) were released for public review on June 16, 2016. The public comment period ended on July 28, 2016.

Letters notifying the public that the EA and unsigned FONSI were available were sent to 63 mailing addresses. This list of addresses included all who received the scoping notice and any others that commented during scoping, with the exception of those who submitted the campaign letters. A notice that the documents were available for review was published in the *Sun Advocate*, *Emery County Progress*, and *Sanpete Messenger* on June 16, 2016, stating that the EA would be available for review. Due to unforeseen circumstances, the EA was not published on the OSMRE’s website as anticipated; however, hardcopies of the EA were made available by June 16, 2016 at the public

locations listed below. Legal notices were again published on June 28 and 30 and July 12 and 14. The comment period was extended accordingly to allow the full 30 days.

- Manti-La Sal National Forest Supervisor's Office, 599 West Price River Road, Price, UT, 84501;
- Utah Division of Oil, Gas, and Mining, Public Information Center 1594 West North Temple, Salt Lake City, UT, 84116;
- Office of Surface Mining and Reclamation, 1999 Broadway, Suite 3320, Denver, CO, 80202;
- Bureau of Land Management, Utah State Office, 440 West 200 South, Suite 500, Salt Lake City, UT, 84101; and
- Price Library, 159 East Main Street, Price, UT, 84501.

The EA and unsigned FONSI were posted on the OSMRE's project website on June 28, 2016. Revised notices were published in the same newspapers and revised letters were sent directly to the 63 addresses.

A summary of the comments received and responses can be found in **Appendix C**.

Chapter 2

Proposed Action and Alternatives

2.1 Introduction

This chapter describes the alternatives considered and analyzed in detail; the Proposed Action and the No Action. In addition, it identifies alternatives considered but eliminated from detailed analysis. This chapter also describes the current operations, which explains the continuation of activities under the Proposed Action and under the No Action.

2.2 Existing Operations

Utah DOGM originally approved the SMCRA permit for the Skyline Mine in 1981 (DNR, 2015). Since then, Skyline Mine has operated an underground mine on leasehold interests on approximately 10,733 acres and mined almost 100 million tons of coal in 3 mining areas named Upper O’Conner Mine No. 1, Lower O’Connor A-Lower O’Connor B Mine No. 2, and the Lower O’Connor A Mine No. 3.

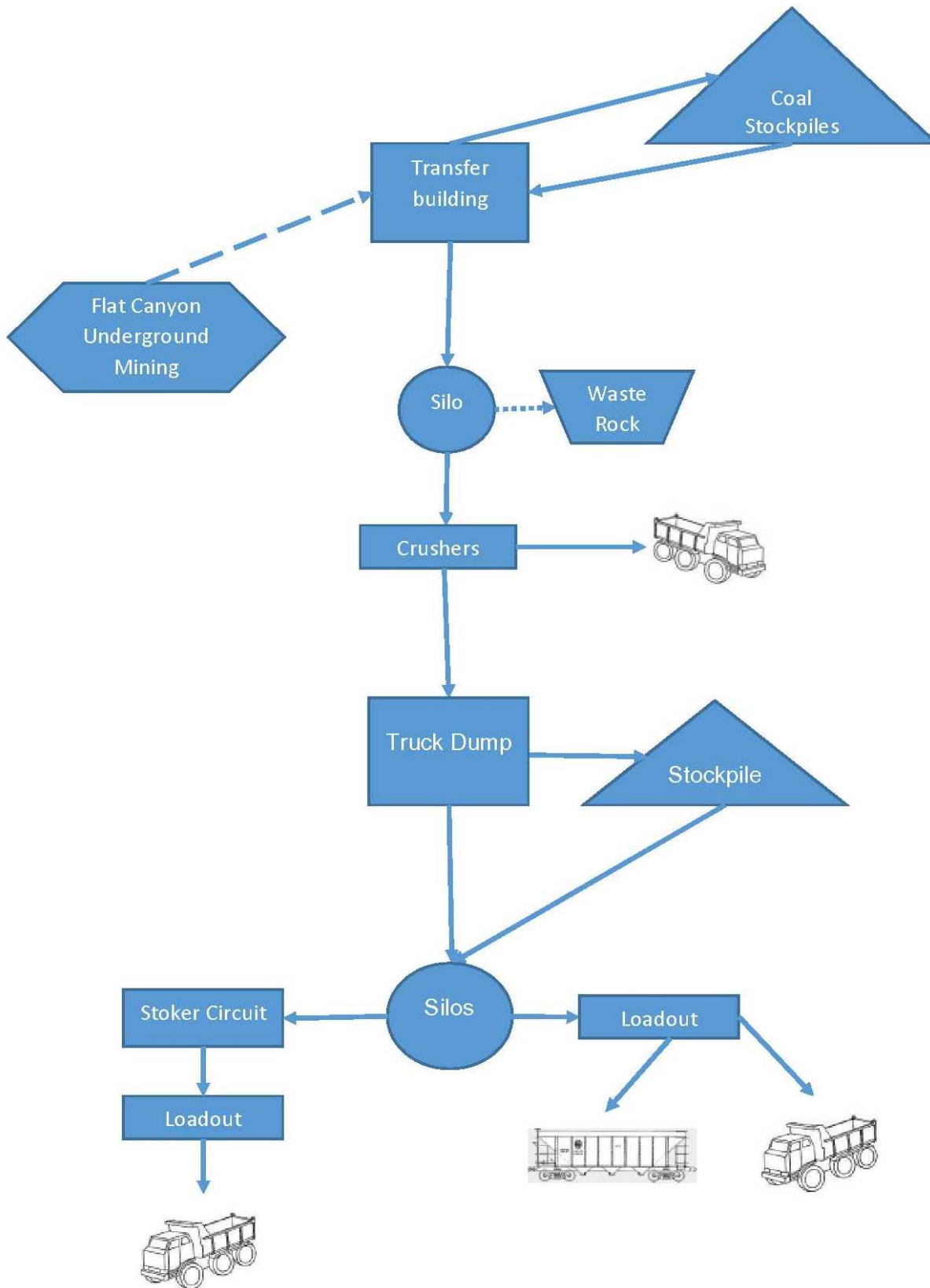
The Skyline Mine surface facilities are located in Township 13 South, Range 6 East, Section 13 (see **Figure 1**). Support facilities include a rail load-out, conveyors, coal stockpiles, crushers, waste rock storage, ventilation, and other systems. The existing mine facilities total approximately 140 acres of surface disturbance (**Table 1**). The coal is mined underground and transported by underground conveyor to the surface transfer building (see **Figure 2**).

Table 1 - Approved Facilities and Acres of Disturbance

Facility	Disturbed Acres
Swens Canyon Ventilation Facility (added 7/19/2016)	14.50
Load-out	13.86
Portal Yard	42.55
Water tanks, water lines, and well pads	0.60
Conveyor bench	14.18
Waste rock disposal site and road	32.48
South Fork breakout	0.96
James Canyon Buried Power Line	0.30
James Canyon Buried Pipeline	1.60
James Canyon water wells and road	2.95
Winter quarters ventilation facility	7.93
North of Graben Shaft	3.00
Winter Quarters Road	4.90
Total	139.81

Coal is transferred by covered conveyor either to a stockpile or to a silo. Stockpiled coal is eventually transferred via covered conveyor back to the transfer building (all transfer drop points are in buildings with baghouses) then on to the silo. After passing through the silo where waste rock

Figure 2 - Skyline Mine Coal Flow Diagram



and oversized material is segregated, coal is transferred by conveyor to crushers for crushing as needed. Some coal from the silos could enter the stoker circuit before going to another load-out bin, where it is loaded onto a truck for transportation to market. Waste rock from the silo is sent through a covered chute to the nearby waste rock pile. From the crushers, coal is transferred approximately 2 miles by covered pipe belt fully exposed (“tube”) conveyor to a unit train loading system or may be transferred onto trucks to be transported to customers on the public highway system.

Coal from Skyline Mine has typically gone to industrial customers and electrical power plants (Galecki, 2015a). Contracts are generally of short duration. Past contracts are not necessarily a predictor for future shipments. **Table 2** provides information on which electricity generating plants received coal from Skyline Mine within the past 6 years. The remainder of the coal was shipped to customers for mineral processing, heat generation, and coal ash materials. Coal from Skyline Mine is blended and destinations are based on (1) specific characteristics of coal being mined; (2) the characteristics of coal being mined at other Bowie Resource Holdings mines; and (3) specific needs of a customer.

Table 2 - Annual Shipments to Power Plants from Skyline Mine No. 3, 2010-2015

Plant/Year ¹	2010	2011	2012	2013	2014	2015
Colbert	--	--	6,661	--	--	--
Paradise	--	--	--	--	--	--
Shawnee	--	90,986	31,188	--	--	--
Reid Gardner	215,276	83,033	--	--	--	--
Allen Steam Plant	--	--	30	--	--	--
Cumberland (TN)	--	--	6,035	5,152	--	--
Carbon	255,520	327,248	50,618	--	--	--
Hunter	--	--	--	--	3,198	589,214
Intermountain Power Project	--	142,520	104,976	464,205	779,054	909,840
Huntington	--	--	--	--	--	303,216
North Valmy	689,605	854,023	216,615	--	--	193,149
Stockton Cogen	98,964	83,772	--	--	--	--
Stockton Biomass	--	--	--	--	--	--
Mt Poso Cogeneration	128,737	48,452	--	--	--	--
Total Shipped to Power Plants	1,388,102	1,630,034	416,123	469,357	782,252	1,995,419
Total Production From Skyline Mine ²	2,805,489	2,948,091	1,894,468	3,137,170	4,170,162	Data Not Available
Percentage used by Power Plants	49	55	22	15	19	Not Applicable

Source:

¹ (Energy Information Administration, 2016a).

² (Energy Information Administration, 2016b).

2.2.1 Mining Methods

Mining methods include continuous miner and longwall panel extraction. Longwall panels are generally more than 2,500 feet long, although they vary depending on physical and economic

factors. The minimum thickness has been 6 feet. Continuous miners are used for mine development and some limited using the first-mining room and pillar method, where pillars remain permanently to avoid subsidence.

Underground mine access is from 5 portals at different sites, which provide air intake, mining crew transportation, material transportation, and air exhaust. One additional portal is used for conveying coal from the mine. Portals were constructed in 1982.

2.2.2 Topsoil

Topsoil has been removed and stockpiled prior to construction and protected from wind and water erosion and contamination. To prevent suitable topsoil from being wasted or contaminated by spoil or other waste materials, topsoil removal was a separate operation. Stockpiled topsoil will not be removed or otherwise disturbed until required for redistribution operations on a prepared, regraded disturbed area. Stockpiled topsoil will be immediately seeded as they have in the past. The seed mix may need to be altered based on seed availability. Modifications will be based on consultation with Utah DOGM personnel.

2.2.3 Waste Rock Storage

The approved waste rock disposal site is 3.6 air miles from the Skyline Mine. It is an abandoned strip mine pit. Rock wastes are hauled by truck from the portal area and the rail load-out facility. Underground rock waste produced during mining operations is stored there when it cannot be permanently stored underground due to space. A very small portion is stored above ground because nearly all is kept underground.

2.2.4 Access and Haul Roads

The Eccles Canyon Road from Highway State Route (SR)-96 to Highway SR-31 has been included in the State Highway System as Utah State Highway SR-264. Approximately 2.5 miles of paving was completed on the road adjacent to Eccles Creek. The public road was constructed to bypass the mine portals and facilities. It is managed by the Utah Department of Transportation. The Mine Portal Road is approximately 1,200 feet of primary road, surfaced with crushed gravel. Other local roads provide access to the mine portals, storage areas, and various buildings.

A truck loop around the storage silos was upgraded from gravel to asphalt in 2009. The loop is accessed from SR-96. The upgrade reduced dust and track-out onto the highway. Subsequently, some asphalt areas were upgraded to concrete when the asphalt deteriorated.

2.2.5 Power Lines

Overhead power lines provide power to the mine and surface facilities. Underground mining operations, conveyors, buildings, and wells are powered with electricity. Electricity reaches the site via overhead power lines. From there, some power is distributed by buried cable. Cables are generally buried in next to a road.

2.2.6 Ponds, Impoundments, Diversions

Except for small areas, all water run-off from disturbed areas is directed to sediment ponds through a collection system of surface ditches, swales, and culverts. No drainage from the Utah State Highway system enters the mine drainage system. Four sediment ponds are used at the mine facilities.

1. The mine site sedimentation pond contains additional volume to adequately treat mine water discharge. This pond is located at the mine site adjacent to the crushing and truck loading station. Mine water is permitted to be discharged directly to Eccles Creek.
2. The coal load-out sediment pond treats surface runoff. This pond is designed to hold a peak run-off from a 6-hour 100-year storm event.
3. The rock disposal sediment pond is located at the west end of the disposal site. The design capacity of this pond is for run-off from a 10-year, 24-hour precipitation event, and 2 years of sediment yield.
4. The Winter Quarters ventilation facility pond is located at the east end of the Winter Quarters ventilation facility site. The volume of this pond provides retention of run-off from a 10-year, 24-hour storm.

When ponds are being cleaned of sediment (at least every 3 years), storm water discharge is discharged per the Utah Pollutant Discharge Elimination System (UPDES) permit requirements. All discharges from the ponds are permitted to discharge to nearby Creeks.

The 3 main tributaries to Eccles Creek are diverted under the mine facilities through a system of large culverts. This diversion system is designed to handle the run-off from a 100-year, 24-hour precipitation event. Four seep areas are dewatered with French drains and discharged directly to the diversion culverts. Run-off from surrounding hillsides is intercepted by a system of diversion channels that handle a 10-year, 24-hour storm event. These channels are lined with mature vegetation to reduce erosion and to provide energy dissipation. Channels have been seeded and have well-established vegetation.

The Mine and Reclamation Plan was updated in June 2016 to modify the monitoring for stream changes due to mine water discharge. The annual surveys will be conducted if sustained mine discharges are in excess of 7,500 gallons per minute (gpm) or 17 cubic feet per second (cfs). These surveys will be submitted in the respective Annual Report (Galecki, 2016b).

2.2.7 Water Source

Mine water is from underground sources on existing water rights. Underground storage sumps store mine drainage water. The water is used as mine process water within the mine. High or low pH is treated before discharge from the permit area.

2.2.8 Hazardous Materials

No toxic waste materials are anticipated. If any are identified, they will be stored and/or disposed of in accordance with all applicable state and federal regulations.

Diesel fuel, gasoline, and oil are stored in above ground tanks located behind impervious concrete walls, which form containment areas that will hold the entire contents of the single largest tank plus sufficient freeboard to allow for approximately 5 inches of precipitation.

The explosive magazine (for storing explosives for underground construction and mining activities) is not located near power line, fuel tanks, storage areas, or other possible sources of fire.

Construction material is noncombustible and covered with a fire retardant.

According to the Mine and Reclamation Plan, extensive testing of soil material near the coal seams failed to identify the presence of any materials capable of causing acidity or toxicity problems. However, material placed in the waste disposal site will be sampled every 2,000 tons of waste placement and tested for potential toxic or acid forming material. Should acidity or toxicity problems be identified during operations or reclamation, remedial action will be taken in coordination with the Utah DOGM. Testing has not identified acid- or toxin-generating material to date.

2.2.9 Mine Personnel

The mine currently directly employs approximately 320 people plus indirectly 1,162 people total (Bacon & Kojima, 2011).

2.2.10 Rail Transport

The majority of coal is conveyed to the unit train load-out then shipped via rail. The Denver and Rio Grande Western Railroad Company designed the rail haulage system. The load-out facility is capable of loading a 12,000-ton unit train in less than 4 hours. Trains generally have anywhere from 40 to 107 cars each. The cars hold 90 to 116 tons of coal. Depending on contracts, the needs of their customers, coal quality, and the needs of Bowie Resource Holdings, the number of trains leaving the mine varies from 2 to 10 per week (Galecki, 2017).

2.2.11 Reclamation

The Reclamation Plan is described in detail in Section 4.1 through Section 4.25 of the Mine and Reclamation Plan and summarized here.

Eventual reclamation of the mine site will satisfy the standards current at the time of reclamation and will be conducted using the most applicable current technology. The mine site will be returned to a wildlife/grazing habitat. It is not intended that all of the disturbed areas will be returned to their original contours or configurations. Steep slopes will be stabilized and revegetated where returning them to their original condition is not practical as it could create additional disturbance. Stream diversions, other than those in the portal area, will be left in their present channels.

Closure of large diameter openings will prevent mine drainage from entering surface water. They will be sealed using backfilling with other non-combustible material. Mine portals will be broken up and used as backfill at reclamation. Fans and motors will be salvaged.

All surface structures will be removed and salvaged when possible. Silos will be demolished and used as backfill material or will be hauled away. The overland conveyor will be completely removed at reclamation. Steel, exterior siding and conveyor equipment will be salvaged. Disturbed areas will

be scarified and a minimum of 6 inches of topsoil will be placed. Regrading and revegetation of the conveyor route will be performed. Machinery will be removed and concrete stack tube and reclaim tunnel will be demolished and used as backfill in the portal entrances. The foundation for the stack tube and some of the reclaimed tunnel will be left in place where cover will avoid interference with final reclamation requirements.

Final contours on rock disposal sites will remain as constructed. Part of the disturbed area will be leveled off and reclaimed to native rangeland as requested by the landowner. The access road to the rock disposal site will remain except the cattle guard will be removed.

Vent shafts and emergency escape shaft will be sealed and backfilled with an engineered fill. The shafts will be backfilled above the pad surface with excess fill to allow for settling. The slope will be sealed with solid, substantial, incombustible materials. Slopes will be re-contoured and reseeded.

Solid waste generated by the abandonment will be collected and removed. Concrete footers will be fractured to a minimum of 2 feet below the surface. Foundations will be broken up and removed, and used for backfill.

At mine closure, benches will be ripped, topsoiled, and revegetated. The cut slopes will be reduced to a more gradual grade and will be topsoiled and revegetated. This will return the mine site to the desired wildlife and grazing (rangeland) habitat.

No impoundments, sediment ponds, or treatment facilities will remain. Diversions and culverts which may remain will be renovated to the approved design specification prior to abandonment. Water transmission lines buried in the highway right-of-way will remain in place. Ponds will be drained; the sediment will be tested for toxicity and removed for disposal as appropriate, allowing the pond to dry out. When the soil is dry, the railroad load-out pond will be backfilled. The portal pond will be configured as part of stream reclamation. The landowner has requested the Scofield Waste Disposal Site sediment pond be retained.

All highwalls and cut slopes will be reclaimed using geotechnically stable fill slopes with surfaces that have been sufficiently roughened with deep gouging. The bench slopes will be graded back to the approximate original contour at a two horizontal to one vertical slope or shallower upon abandonment with a bulldozer. A geotechnical analysis will be made of the slope at the time of reclamation and design adjustment made as necessary to insure slope stability.

The mine support roads will be reclaimed in the permit area. Culverts and blacktop surfacing material will be removed. Reclamation would then include re-contouring, ripping, adding cross drains, water bars, topsoil, and seed.

Vegetation will be established to prevent erosion, to optimize the edge effect and to provide cover. Perennial woody species will be emphasized along with those of proven nutritional value and ability to support wildlife. All areas to be reseeded will be mulched. Various mulches will be used including straw, wood fibers, and excelsior mats.

Fencing, irrigation, and weed control will be used only as needed, according to operation testing results.

2.2.12 Life of Operations

The currently approved mining is anticipated to be complete in 2018 from the existing leases.

2.2.13 Project Design Features

2.2.13.1 Measures for the Mine and Reclamation Plan

The Mine and Reclamation Plan was initially approved in 1981 by Utah DOGM and has been updated since. It has requirements and commitments to protect the environment and minimize impacts. Some of them include:

Subsidence Impact Prevention Measures

- Subsidence is monitored.
- Where subsidence could damage surface resources, non-subsidence room and pillar first mining methods will be used.
- A natural gas pipeline will be protected from subsidence from coal mining. Wherever the pipeline and creek buffer zones coincide, creek buffer zone requirements will take precedence.
- No mining will be conducted beneath Electric Lake.
- Subsidence damage of any surface structures despite the planned subsidence prevention measures will be repaired.
- If it is determined that subsidence causes surface damage or a loss of flow in a perennial stream, the best technology currently available to mitigate the damage will be employed. These may include backfilling with surrounding native material, incorporating bentonite or other water-retaining native material into the backfill, or possibly temporarily bypassing/piping flow through impacted areas until mitigation is achieved.

Long-Term Topsoil Stockpile Protection

- A stable surface is provided in an area outside the influence of active operation.
- As a stockpile was completed, it was left in a rough condition to minimize erosion.
- A diversion ditch was dug around these piles to divert runoff from entering the stockpiled area.
- Storage piles were vegetated with quick-growing, soil-stabilizing plants. Revegetation involved the immediate seeding of stockpiled topsoil.
- Signs are posted to protect the stockpiles from accidental use as fill or from other inadvertent material contamination.
- The establishment of noxious plant species is prevented.
- The slope of stockpiles does not exceed 2h:1v.

Protection of Hydrological Balance

- Canyon Fuel Company, LLC inspects and maintains diversion channels throughout the site.

- All mine site operations will be conducted in such a way as to minimize potential impacts to surface and subsurface water quality.
- Water originating in or flowing through disturbed areas is collected by a drainage control system and suspended materials allowed to settle in sediment control ponds before being discharged into the natural drainage system.
- Stream buffer zones are designated with signs.
- Grease and oil in underground water is removed before the water is pumped out of the mine and discharged.
- Groundwater and surface-water will be monitored to verify that mining-related impacts do not occur or to identify the magnitude and character of potential impacts. Samples are collected quarterly. The water monitoring program collects quantity and quality data at springs, streams, and well monitoring sites. Monitoring data is submitted to the Utah DOGM quarterly.

Fish and Wildlife

- Canyon Fuel Company, LLC will minimize disturbances and adverse impacts on fish, wildlife, and related environmental values identified in baseline studies.
- Posted speed limits will be maintained on the Eccles Canyon road to minimize animal-vehicle collisions. Warning signs indicating animal crossings are installed.
- Power transmission lines were designed and constructed to comply with the guidelines set forth in “Environmental Criteria for Electric Transmission System”. Power distribution was designed and constructed in accordance with the REA Bulletin 61-10 “Power line Contacts by Eagles and Other Large Birds”.
- If necessary, a wire fence will be erected and maintained around the perimeter of the portal area to protect grazing stock and wildlife. Other vent shafts and structures will be similarly fenced, covered, or otherwise protected if required.
- Wildlife will be excluded from ponds if necessary.
- No persistent pesticides will be used unless approved by the regulatory authority as part of a reclamation management plan.
- Raptor data will be updated annually in the late spring/early summer.

2.2.13.2 Air Quality

Skyline Mine’s Approval Order DAQE-AN0092007-03 (UDAQ, 2015b), includes requirements to prepare and operate in accordance with a submitted fugitive coal dust emissions control plan. The requirements are supported by the Utah Administrative Code. The requirements listed in Section II.B.1 (Requirements and Limitations) of Approval Order DAQE-AN0092007-03 are:

- Coal shall be transferred only by enclosed conveyor. Inter-site truck haulage site may be used only during conveyor emergency periods. The direct offsite shipments by truck of coal and waste material combined total shall not exceed 8,000,000 tons per rolling 12-month period. The direct offsite shipments by truck of coal from each individual load-out shall not exceed 4,500,000 tons per rolling 12-month period [R307-401-8].

- Compliance with the limitations shall be determined on a rolling 12-month total. The owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records shall be kept for all periods when the plant is in operation. Records, including rolling 12-month totals, shall be made available to the Director or Director's representative upon request and the records shall include the 2-year period prior to the date of the request. The records of shipments shall be determined by supervisor monitoring and maintenance of an operations log. The records shall be kept on a monthly basis [R307-401-8].
- Conveyor transfer points shall contain flaps on entry and discharge ends [R307-401-8].
- The upper elevation silo (8,000-ton capacity) shall be controlled by two baghouses, Day Model 72RF10 or equivalent. The baghouses shall be operated when coal being transported is dry (less than 4 percent (%) moisture) or whenever opacity readings exceed 20 percent [R307-401-8].
- Two lower elevation silos, rated at 15,000-ton capacity each, shall be controlled by two baghouses, Dynaclone Model 6A or equivalent. The baghouses shall be operated when the coal being transported is dry (less than 4 percent moisture) or whenever opacity readings exceed 20 percent [R307-401-8].
- The Headhouse rail load-out shall be controlled by one baghouse, Dynaclone Model 7A or equivalent. Storage at train load-out facilities shall be enclosed with venting to fabric filter baghouses. The baghouse shall be operated when the coal being transported is dry (less than 4 percent moisture) or whenever opacity readings exceed 20 percent [R307-401-8].
- Visible emissions from the following emissions points shall not exceed the following values:
 - A. All conveyor transfer points – 20 percent opacity
 - B. Conveyor drop points – 20 percent opacity
 - C. All other points – 20 percent opacityOpacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9 [R307-401-8].
- Visible emissions from haul road traffic and mobile equipment shall not exceed 20 percent opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15-second intervals over a 6-minute period shall not apply. Six points, distributed along the length of the haul road, shall be chosen by the Director or Director's representative. An opacity reading shall be made at each point when a vehicle passes the selected point. Opacity readings shall be made no less than one half vehicle length behind the vehicle and no less than one half the height of the vehicle. The accumulated 6 readings shall be averaged for the compliance value [R304-401-8].
- The following production limits shall not be exceeded:
 - A. 600,000 tons maximum capacity in the upper elevation stockpile
 - B. 8,000,000 tons maximum throughput for the upper elevation stockpile and lower elevation stockpile combined

- C. 300 tons maximum capacity in the emergency storage pile
- D. 500,000 tons maximum capacity in the lower elevation stockpile
- E. 8,000,000 tons coal produced per rolling 12-month period [R307-401-8]
- o Compliance with the limitations shall be determined on a rolling 12-month total. The owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of production shall be kept for all periods when the plant is in operation. Records of production including rolling 12-month totals, shall be made available to the Director or Director's representative upon request and the records shall include the 2-year period prior to the date of the request. The records of production shall be determined by examination of company coal sales records and examination of company throughput records for the points in question. The records shall be kept on a monthly basis [R307-401-8].
- All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. Records of water treatment shall be kept for all periods when the plant is in operation. The records shall include the following items.
 - A. Date of treatment
 - B. Number of treatments made, dilution ratio, and quantity
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made [R307-401-8]
- The speed of vehicles on the haul roads shall not exceed 25 miles per hour [R307-401-8].
- The Eccles Canyon road (State Highway U-96) is paved, and the owner/operator shall clean all coal spills on the road immediately. There shall be no "track out" of fugitive dust from unpaved roads onto the paved haul roads [R307-401-8].
- The moisture content of the material shall be maintained at a value of no less than 4 percent of water by weight. The moisture content shall be tested, if directed by the Director, using the appropriate ASTM method [R307-401-8].
- The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant during recovery operations only or as determined necessary by the Director [R307-401-8].
- The coal fines content of the stored coal shall not exceed 5.1 percent by weight, and that of the haul roads and pile areas shall not exceed 10 percent by weight. The coal fines content shall be determined, if directed by the Director, using appropriate ASTM method. The coal fines content is defined as all material passing a No. 200 US Standard Sieve [R307-401-8].

- The sulfur content of any fuel oil burned shall not exceed 15 parts per million by weight as determined by ASTM Method D-4294-89 or approved equivalent. The sulfur content shall be tested, if directed by the Director [R307-401-8].

2.2.13.3 Utah Pollutant Discharge Eliminating Permit UT0023540

The Utah Department of Environmental Quality (DEQ), Division of Water Quality issued a discharge permit (UT0023450) to Skyline Mine, effective May 1, 2015 and valid through midnight on April 30, 2020 authorizing discharges.

Skyline Mine is permitted to discharge mine water at outfall locations. The permit establishes limits on the discharge from these points into the Eccles Creek, UP Canyon Creek, and Winter Quarters Canyon Creek (all tributaries to the Price and Colorado River systems (UDEQ, 2015). The permit includes limits on discharge quality, monitoring requirements, sampling methods, testing methods, and reporting requirements.

The permit also specifies the requirements of a storm water pollution prevention plan, which includes Measurements and Controls for minimizing water pollution:

- **Good Housekeeping** – Good housekeeping requires the maintenance of areas that may contribute pollutants to storm water discharges in a clean, orderly manner. These are practices that would minimize the generation of pollutants at the source or before it would be necessary to employ sediment ponds or other control measures at the discharge outlets. Where applicable, such measures or other equivalent measures would include the following: sweepers and covered storage to minimize dust generation and storm runoff; conservation of vegetation where possible to minimize erosion; watering of haul roads to minimize dust generation; collection, removal, and proper disposal of waste oils and other fluids resulting from vehicle and equipment maintenance; or other equivalent measures.
- **Preventative Maintenance** – A preventative maintenance program shall involve timely inspection and maintenance of storm water management devices as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems. Where applicable, such measures would include the following; removal and proper disposal of settled solids, in catch basins to allow sufficient retention capacity; periodic replacement of siltation control measures subject to deterioration such as straw bales; inspections of storage tanks and pressure lines for fuels, lubricants, hydraulic fluid or slurry to prevent leaks due to deterioration of faulty connections; or other equivalent measures.
- **Spill Prevention and Response Procedures** – Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean-up shall be available to personnel.

- Inspections – In addition to or as part of the comprehensive site evaluation required under paragraph 3a.(4) of this section, qualified facilities personnel shall be identified to inspect designated areas of the facility at appropriate intervals specified in the plan.
- Employee Training – Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping, and material management practices. The pollution prevention plan shall identify periodic dates for such training.
- Record Keeping and Internal Reporting Procedures – A description of incidents (such as spills, or other discharges) along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
- Non-storm Water Discharges:
 - Certification – The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges such as drainage from underground portions of inactive mines or floor drains from maintenance or coal handling buildings. The certification shall include the identification of potential significant sources of non-storm water discharges at the site, a description of the results of any test and/or evaluation of potential significant sources of non-storm water discharges at the site, a description of the results of any test and/or evaluation, a description of the evaluation criteria or testing method used, the data of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with Part IV.G.4 of this permit.
 - Exceptions – Except for flows from the firefighting activities, authorized sources of non-storm water listed in Part I.E.2.a that are combined with storm water discharges associated with industrial activities must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.
 - Failure to Certify – If Skyline Mine is unable to provide the certification required (testing or other evaluation for non-storm water discharges), the Director must be notified within 180 days after the effective date of this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure for any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water to the storm discharge lines; and why adequate tests for such storm discharge lines were not feasible. Non-storm water discharges to waters of the state that are not authorized by a UPDES are unlawful, and must be terminated.
- Sediment and Erosion Control – The plan shall identify areas that, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify

structural, vegetative, and/or stabilization measures to be used to limit erosion and reduce sediment concentrations in storm water discharges. As indicated in paragraph I.E.3 above, SMCRA requirement regarding sediment and erosion control measures are primary requirements of the pollution prevention plan for mining-related areas subject to SMCRA authority. The following sediment and erosion control measures or other equivalent measures, should be included in the plan where reasonable and appropriate for all areas subject to storm water runoff:

- Stabilization Measures – Interim and permanent stabilization measures to minimize erosion and lessen amount of structural sediment control measures needed, including: mature vegetation preservation; temporary seeding; permanent seeding and planting; temporary mulching, matting, and netting; sod stabilization; vegetative buffer strips; temporary chemical mulch, soil binders, and soil palliatives; nonacidic road surfacing material; and protective trees.
- Structural Measures – Structural measures to lessen erosion and reduce sediment discharges, including; silt fences; earth dikes; straw dikes' gradient terraces; drainage swales; sediment traps; pipe slope drains; porous rock check dams; sedimentation ponds; riprap channel protection; capping of contaminated sources; and physical/chemical treatment of storm water.
- Management of Flow – The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (other than those as sediment and erosion control measures listed above) used to manage storm water runoff in a manner that reduces pollutants in storm water runoff from the site. The plan shall provide that the measures, which the permittee determines to be reasonable and appropriate, shall be implemented and maintained. Appropriate measures may include: discharge diversions; drainage/storm water conveyances; runoff dispersion; sediment control and collection; vegetation/soil stabilization; capping of contaminated sources; treatment; or other equivalent measures.

2.3 Proposed Action Alternative

The Proposed Action is to approve the mining of the coal within Flat Canyon Federal Coal Lease Tract UTU-77114 and make a recommendation to the ASLM to approve the MPDD. The MPDD would authorize Canyon Fuel Company, LLC to expand their underground Skyline Mine operations west from the current mining operation. **Table 3** summarizes the activities. No new surface facilities or disturbances are proposed. Access to the coal would be from the existing underground mine.

The Proposed Action (**Figure 3**) would authorize Canyon Fuel Company, LLC to expand their underground Skyline Mine operations west from the current mining operations into approximately 2,692 acres of federal coal reserves and to access another 1,100 acres of private coal. Typical depths of cover from the minable coal seam to the surface range from 900 feet to 2,300 feet. The Proposed Action would produce a probable maximum of 47 million tons of federal and private coal and extend the life of the Skyline Mine by approximately 9 to 12 years. Utah DOGM has not set a maximum number of tons Skyline Mine can produce annually; however, the current air quality permit, DAQE-AN0092007-03 (DEQ, UDAQ, 2015), at Skyline Mine limits the mine to a maximum

of 8 million tons per year. Over the last 6 years, Skyline Mine produced 1.9 to 4.2 million tons of coal a year (**Table 2**). In the future, Skyline Mine anticipates mining 3 to 4.5 million tons of coal per year.

Table 3 - Summary of the Proposed Action

Condition Evaluated	Proposed Action
Federal Coal	Probable maximum of 42
Federal Coal	2,692 coal acres
Federal Surface	2,692 acres
Federal Disturbance Area	0 acres
Private Coal	5 million tons
Private Coal	1,100 coal acres
Private Surface	0 acres
Private Disturbance Area	0 acres
Remaining full production	Approximately 9 to 12 years

Mine operations would not change as a consequence of the modification and operations would continue to be conducted as described in **Section 2.2 - Existing Operations**.

2.3.1 Topsoil

No new topsoil will be removed and no waste rock piles are planned to facilitate the Flat Canyon Federal Coal Lease Tract UTU-77114 mining and there would be no impact from acid-or toxic-forming materials.

2.3.2 Waste Rock Storage

Waste rock would be managed as described under the Existing Operations.

2.3.3 Access and Haul Roads

There would be no change in the access or haul roads as described under the Existing Operations.

2.3.4 Power Lines

There would be no change in the power supply or requirements as described under the Existing Operations.

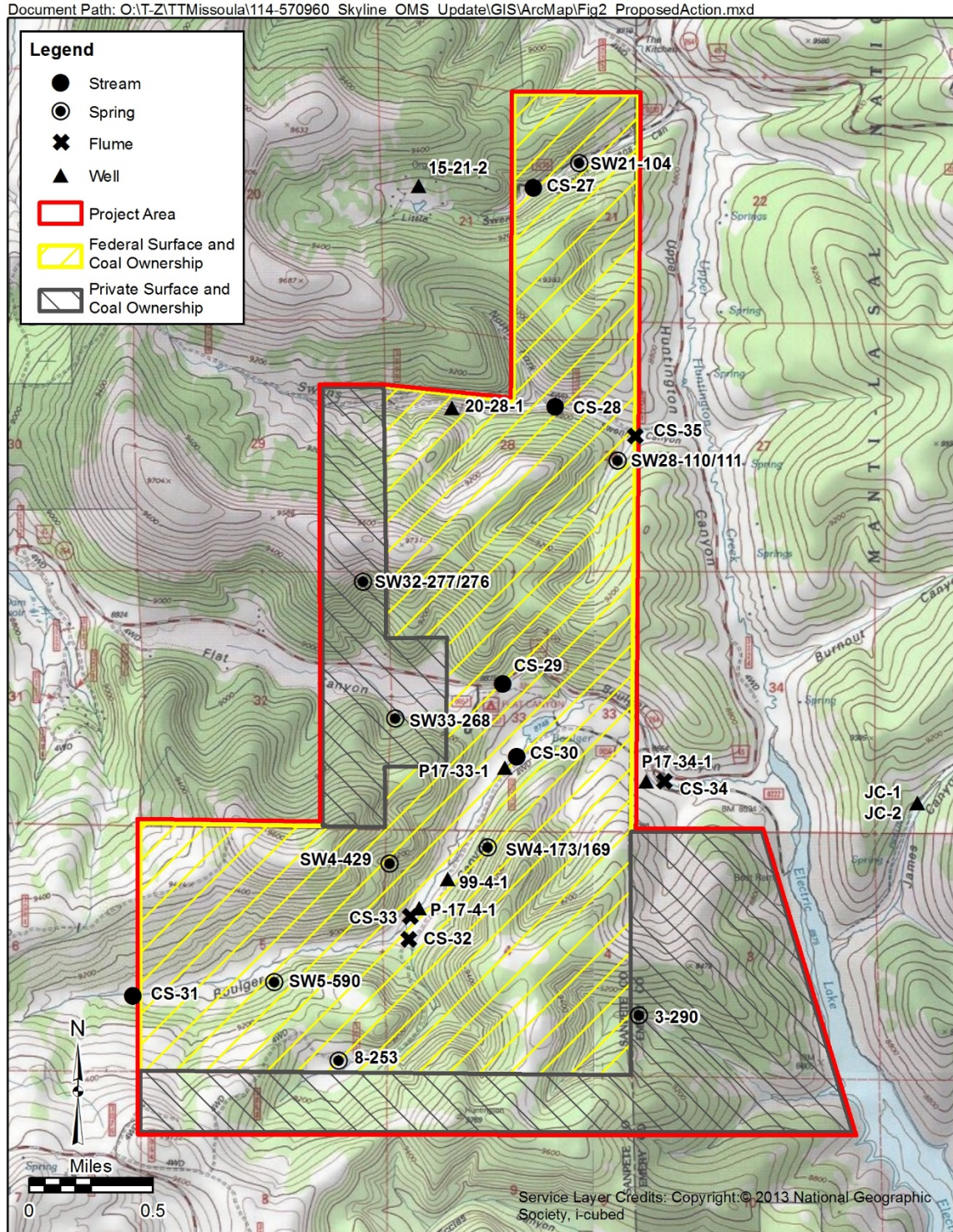
2.3.5 Mine Facilities

There would be no change in the mine facilities as described under the Existing Operations.

2.3.6 Ponds, Impoundments, Diversion

There would be no change in the settling ponds, impoundments, or diversion described under the Existing Operations.

Figure 3 - Proposed Action



**Proposed Action
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah**

2.3.7 Water Source

There would be no change in the water source described under the Existing Operations.

2.3.8 Hazardous Material

There would be no change in the handling or production of hazardous materials described under the Existing Operations.

2.3.9 Mine Personnel

There would be no change in the mine personnel described under the Existing Operations.

2.3.10 Rail Transport

There would be no change in the rail transport described under the Existing Operations.

2.3.11 Reclamation

There would be no change in the reclamation requirements described under the Existing Operations, except that reclamation would be initiated at the end of the future mining in 9 to 12 years.

2.3.12 Life of Operations

The Proposed Action would extend the mine life by 9 to 12 years (2027 to 2030), depending on the rate of production between 3 and 4.5 million tons per year.

2.3.13 Project Design Features

Design Features listed in Section 2.2.14 and 2.3.7 of the Mine and Reclamation Plan and the Air Permit would apply, along with the additional measures attached to the Flat Canyon Federal Coal Lease Tract UTU-77114 listed below.

In their letter concurring with the terms of the federal mining plan approval (US Forest Service, 2017), the Manti-La Sal National Forest included a condition so that the project would conform to the 2015 Greater Sage-grouse Record of Decision for Idaho and Southwest Montana, Nevada, and Utah amendment to the Manti-La Sal Forest Plan (US Forest Service, 2015).

Groundwater and Surface Water Monitoring

The complete groundwater and surface water monitoring program for the Skyline Mine is outlined in Section 2.3.7, in Table 2.3.7-1, and on the Map 2.3.6-1 within the Mine and Reclamation Plan. The water monitoring program developed for the Flat Canyon lease is based upon recommendations within the Probable Hydrologic Consequences report (Petersen Hydrologic, LLC, 2014a) and analysis of all baseline hydrologic and geologic information. The monitoring sites within and directly adjacent to the Flat Canyon lease are as follows (see **Figure 3**):

- At 12 spring monitoring locations, Canyon Fuel Company, LLC monitors flow and water quality at SW32-276/277, SW33-268, SW4-429, SW5-590, SW21-104, SW28-110/111, SW4-169/174-3-290, and 8-253.

- Water level data at 6 piezometers along Boulger Creek - P17-4-1 (east and west), P17-33-1 (east and west), P17-34-1 (north and south) adjacent to stream monitoring sites CS-30, CS-33, and CS-34.
- “Paired” springs have been added to the monitoring program. These include SW28-110/110, SW32-277/276, and SW4-173/169.
- Water levels in the deeper inactive-zone of the Star Point Sandstone in wells 15-21-2, 99-4-1, and JC-2 and water quality in the Star Point Formation from JC-1.
- Surface water quality and quantity monitoring at sites CS-27, CS-28, CS-29, CS-30, and CS-31, and only water quality at CS-32, CS-33, CS-34, and CS-35.

2.3.13.1 Stipulations Attached to Flat Canyon Federal Coal Lease UTU-77114

The Flat Canyon Federal Coal Lease Tract UTU-77114 contains special stipulations. The following stipulations are attached to the executed coal lease (BLM, 2015a).

1. In accordance with Section 523(b) of the “Surface Mining Control and Reclamation Act of 1977,” surface mining and reclamation operations conducted on this lease are to conform with the requirements of this act and are subject to compliance with Office of Surface Mining regulations, or as applicable the Utah program approved under the cooperative agreement in accordance with Section 523(c). The US Government does not warrant that the entire tract will be susceptible to mining.
2. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee prior to disturbance shall, immediately bring them to the attention of the appropriate authorities. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

3. If there is reason to believe that threatened or endangered species of plants or animals, or migratory bird species of high federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

4. The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data are adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the interrelationship of the geology, topography, surface and ground water hydrology, vegetation, and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.
5. Power lines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, power lines will be located at least 100 yards from public roads.
6. The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site specific environmental analysis will be prepared for each new mine site development and for major modifications to existing developments to examine alternatives and mitigate conflicts.
7. Consideration will be given to site selection to reduce adverse visual impacts. Where alternative sites are available, and each alternative is technically feasible, the alternatives involving the least damage to the scenery and other resources shall be selected. Permanent structures and facilities will be designed, and screening techniques employed, to reduce visual impacts, and where possible achieve a final landscape compatible with the natural surroundings. The creation of unusual, objectionable, or unnatural land forms and vegetative landscape features will be avoided.
8. The Lessee shall be required to establish a monitoring system to locate, measure, and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology, and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.
9. The Lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), Lessees may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.
10. Except at locations specifically approved by the Authorized Officer, with the concurrence of the Forest Service, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

Limited subsidence zones consisting of perennial streams in the lease, Boulger Reservoir/Dam, SR-264, and Flat Canyon Campground are specifically approved for subsidence resulting from a single-seam of full-extraction mining. The limited-subsidence zones, where subsidence from a second overlapping seam of full-extraction mining is not approved, will be determined based on the typical angle-of-draw for past operations in the Skyline Mine Permit Area (23 degrees). "Angle-of-draw" is defined in the FEIS (pages 4-7). The angle-of-draw will be applied to perennial stream buffer zones that include the natural floodplain and alluvium in perennial drainages, bounded by the first major slope break in the associated canyons. For structures, it will be applied to an area delineated by a 50-foot slope break in the associated canyons. For structures, it will be applied to an area delineated by a 50-foot radius or distance from the major structures that could sustain damage.

The Authorized Officer can approve full extraction of multiple seams in limited subsidence zones, if the Lessee can provide information, based on actual subsidence data from the tract, that impacts can be tolerated or mitigated. The Forest Service will have to consent to the decision and issue a new record of decision.

11. In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specifically approved locations.
12. If removal of timber is required for clearing of construction sites, etc., such timber shall be removed in accordance with the regulations of the surface management agency.
13. The coal contained within, and authorized for mining under this lease, shall be extracted only by underground mining methods.
14. Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.
15. In order to protect big game wintering areas, elk calving and deer fawning areas, sage-grouse strutting areas, and other critical wildlife habitat and/or activities specific to surface uses outside the mine development area may be curtailed during specific periods of the year.
16. Support facilities, structures, equipment, and similar developments will be removed from the lease area within 2 years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease form is applicable. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages, reestablished, and the areas returned to an acceptable post mining land use.
17. The Lessee at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed, or displaced corner monuments (section corners, quarter corners, etc.) their accessories and appendages (witness trees, bearing trees, etc.), or restore them to their original condition and location, or at other locations that meet the requirements of the rectangular surveying system. This work

shall be conducted at the expense of the Lessee, by BLM, to the standards and guidelines found in the Manual of Surveying Instructions, DOI.

18. The Lessee, at his expense, will be responsible to replace any surface and/or developed ground water sources identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses (authorized by 36 CFR 251).
19. The Licensee/Permittee/Lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter 11, of the CFRs governing the use and management of the National Forest System when not inconsistent with the rights granted by the Secretary of the Interior in the license/permit/lease. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the National Forest System prior to approval of a permit/operation plan by the Secretary of Interior, (2) uses of all existing improvements, such as FDR, within and outside the area licensed, permitted or leased by the Secretary of the Interior, and (3) use and occupancy of the National Forest System not authorized by a permit/operation plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed to:

Forest Supervisor
Manti-La Sal National Forest
599 West Price River Drive
Price, Utah 84501
Telephone No.: 435-637-2817

The Forest Supervisor is the authorized representative of the Secretary of Agriculture.

20. Notwithstanding the approval of a resource recovery and protection plan by the BLM, lessor reserves the right to seek damages against the operator/Lessee in the event (1) the operator/Lessee fails to achieve maximum economic recovery [as defined at 43 CFR §3480.0-5(21)] of the recoverable coal reserves. Damages shall be measured on the bases of the royalty that would have been payable on the wasted or unrecovered coal.

The parties recognize that under an approved R2P2, conditions may require a modification by the operator/Lessee of that plan. In the event a coal bed or portion thereof is not to be mined or is rendered un-minable by the operation, the operator shall submit appropriate justification to obtain approval by the Authorized Officer to leave such reserves unmined. Upon approval by the Authorized Officer, such coal beds or portions thereof shall not be subject to damages as described above. Further, nothing in this section shall prevent the operator/Lessee from exercising its right to relinquish all or a portion of the lease as authorized by statute and regulation.

In the event the Authorized Officer determines that the R2P2 modification will not attain Maximum Economic Recovery (MER) resulting from changed conditions, the Authorized Officer will give proper notice to the operator/Lessee as required under applicable

regulations. The Authorized Officer will order a new R2P2 modification if necessary, identifying additional reserves to be mined in order to attain MER. Upon a final administrative or judicial ruling upholding such ordered modification, any reserves left unmined (wasted) under that plan will be subject to damages as described in the first paragraph under this section.

Subject to the right to appeal hereinafter set forth, payment of the value of the royalty on such unmined recoverable coal reserves shall become due and payable upon determination by the Authorized Officer that the coal reserves have been rendered un-minable or at such time that the Lessee has demonstrated an unwillingness to extract the coal.

The BLM may enforce this provision either by issuing a written decision requiring payment of the ONRR demand for such royalties, or by issuing a notice of non-compliance. A decision or notice of non-compliance issued by the lessor that payment is due under this stipulation is appealable as allowed by law.

21. WASTE CERTIFICATION: The Lessee shall provide upon abandonment and/or sealing off a mined area and prior to lease termination/relinquishment, certification to the lessor that, based upon a complete search of all the operator's records for the mine and upon their knowledge of past operations, there has been no hazardous substances per (40 CFR 302.4) or used oil as per Utah State Management Rule R-315-15, deposited within the lease, either on the surface or underground, or that all remedial action necessary has been taken to protect human health and the environment with respect to any such substances remaining on the property. The back-up documentation to be provided shall be described by the lessor prior to the first certification and shall include all documentation applicable to the Emergency Planning and Community Right-to-know Act (Public Law 99-499), Title III of the Superfund Amendments and Reauthorization Act of 1986 or equivalent.

22. ABANDONMENT OF EQUIPMENT: The Lessee/operator is responsible for compliance with reporting regarding toxic and hazardous material and substances under federal law and all associated amendments and regulations for the handling such materials on the land surface and in underground mine workings.

The Lessee/operator must remove mine equipment and materials not needed for continued operations, roof support and mine safety from underground workings prior to abandonment of mine sections. Exceptions can be approved by the Authorized Officer (BLM) in consultation with the surface management agency. Creation of a situation that would prevent removal of such material and by retreat or abandonment of mine sections without prior authorization would be considered noncompliance with lease terms and conditions and subject to appropriate penalties under the lease.

23. UNDERGROUND INSPECTION: All safe and accessible areas shall be inspected prior to being sealed. The Lessee shall notify the Authorized Officer in writing 30 days prior to the sealing of any areas in the mine and state the reason for closure. Prior to seals being put into place, the Lessee shall inspect the area and document any equipment/machinery, hazardous substances, and used oil that is to be left underground.

The purpose of this inspection will be: (1) to provide documentation for compliance with 42 United States Code (U.S.C.) 9620 Section 120(h) and State Management Rule R-315-15, and to assure that certification will be meaningful at the time of lease relinquishment, and (2) to document the inspection with a mine map showing location of equipment/machinery (model, type of fluid, amount remaining, batteries etc.) that is proposed to be left underground. In addition, these items will be photographed at the Lessee's expense and shall be submitted to the Authorized Officer as part of the certification. The abandonment of any equipment/machinery shall be on a case by case basis and shall not be accomplished unless the Authorized Officer has granted a written approval.

24. All shafts or portals will be filled after mining has ceased or abandoned and all designs will be approved by the Authorized Officer.
25. Prior to development of the panels that would cause subsidence of the Boulger Reservoir, the Lessee shall submit a plan for approval of mining under the reservoir facilities to the Authorized Officer. This plan shall include, but not be limited to, type of mining, when and how the dam will be taken out of service while undermining and/or subjected to mining-induced acceleration of 0.1g and greater, and what mitigation measures will be taken to place the dam and reservoir back into full service. This plan shall be submitted to and be approved by the Authorized Officer of the BLM, with consent of the surface management agency, and any requirements by the regulatory authority.
26. Prior to development of the panels that would cause subsidence of the Flat Canyon Campground, the Lessee shall submit a plan for approval to conduct mining under the campground. This plan shall include but not be limited to type of mining, when and how the Flat Canyon Campground will be taken out of service and what mitigation measures will be taken to place the Flat Canyon Campground back into full service. The plan shall be submitted to and be approved by the Authorized Officer of the BLM, with the consent of the surface management agency, in addition to any requirements required by the regulatory authority.
27. The Lessee shall submit a plan for monitoring the gradient of the perennial streams within the lease and the associated effects to aquatic ecosystems and wetlands. The plan shall also include measures for mitigating detrimental effects discovered during monitoring. The plan shall be submitted to and be approved by the Authorized Officer of the BLM, with consent of the surface management agency in addition to any requirements by the regulatory authority, prior to mining.
28. The Lessee shall immediately notify the Authorized Officer of any seismic events that trigger a Richter scale reading in excess of 3.0.

2.4 No Action

Under the No Action, the MPDD to mine the Flat Canyon Federal Coal Lease Tract UTU-77114 would not be prepared by OSMRE and therefore ASLM approval would not occur. On February 10, 2017, Utah DOGM approved the significant revision associated with the Proposed Action, without

ASLM approval, Utah DOGM's permit would not change, however mining would not occur in UTU-77114.

The federal coal reserves in the Flat Canyon Federal Coal Lease Tract UTU-77114 would not be recovered with this particular action. Mining would continue as described in **Section 2.2** until available coal reserves are mined out in 2018 (Galecki, 2015b). Longwall panel development would cease within approximately one year and underground mining would cease completely within approximately two years. The state and private coal reserves to the south and west would not be accessible. While a portion of these state and private reserves might be reached by reorientation, the accessible coal would not be economically mineable. Coal resources would be economically isolated and sterilized from use for the public need and the mine would close prematurely. Reclamation would last two years after closure. Monitoring of the reclamation would continue for at least the 10-year bond period.

Under the No Action, removal of coal, air quality impacts or any other effects associated with mining operations in the Flat Canyon Federal Coal Lease Tract UTU-77114 would not occur.

2.4.1 Alternatives Considered but Eliminated from Detailed Analysis

This section discusses alternatives that were considered but eliminated from detailed analysis. Reasons that an alternative might not be considered in detail, in accordance with the CEQ's NEPA implementing regulations (40 CFR 1502.14), are:

- Ineffective (does not respond to the purpose and need);
- Technically or economically infeasible (consider whether implementation of the alternative is likely given past and current practice and technology);
- Inconsistent with the basic policy objectives for the management of the area (such as, not in conformance with land use plans);
- Remote or speculative;
- Substantially similar in design to an alternative that is analyzed; or
- Substantially similar in impacts to an alternative that is analyzed.

Alternatives proposed during public outreach are described briefly below, along with the reasons they were eliminated from detailed analysis.

2.4.1.1 Alternative Mining Levels

Alternatives that would limit the amount of coal or acreage to be mined to lower levels than are currently proposed were suggested to reduce the impacts on air quality and climate change.

These alternatives were not considered in detail because they would not meet the purpose and need (see **Section 1.4**) and would be inconsistent with the MLA requirement to maximize recovery by achieving MER of this energy resource (43 CFR § 3480.0-5 (21)). OSMRE's purpose and need is to evaluate Canyon Fuel Company, LLC's proposed mining plan modification submitted in accordance with the federal coal lease granted to Canyon Fuel Company, LLC.

2.4.1.2 Low or No Pollutant Emitting Equipment

This proposed alternative would require that equipment used for mining produce less or no emissions (natural gas-fired vehicles and machinery, and electric machinery powered by solar or other renewable energy sources), and establish equipment maintenance standards to minimize emissions to the maximum extent practicable.

Mining at Skyline Mine has the potential to emit at the levels identified in **Section 3.3** and **Section 4.3**, which would not result in ambient quality concentrations exceeding the federal or state air quality standards.

The Skyline Mine currently uses all electric production units underground. The shuttle cars and longwall system are driven by electricity while transport vehicles are diesel, managed by a stringent exhaust filtering replacement program. Ventilation is managed by both forced exhausting fans, and passive exhaust portals. Dust and other airborne particulates are managed using water sprays which sometimes include a binding additive. Since no significant impacts on air quality are anticipated, an alternative that requires low or non-polluting equipment is eliminated from detailed analysis as it would have impacts similar to the Proposed Action.

2.4.1.3 Other Air Quality Mitigation to Limit or Reduce Other Greenhouse Gas (GHG) Emissions

Other alternatives were suggested that:

- Require stronger emission limits at power plants that use coal from the Skyline Mine;
- Eliminate nitrogen dioxide (NO₂) emissions during any blasting operations (including an alternative that prohibits cast blasting to prevent orange clouds from forming);
- Require a compensatory reduction in emissions for any and all emissions that would continue or increase as a result of the proposed coal lease by securing commitments from oil and gas operators in the region to reduce their emissions;
- Require the use of low carbon fuels for the operation of any heavy machinery; or
- Require that the Skyline Mine use renewable energy for power.

These alternatives were eliminated from detailed analysis because OSMRE does not have the regulatory authority to require electricity generating plants to reduce emissions and the emissions are regulated by states or countries where the plants are located.

The Skyline Mine is an underground mine and does not use “cast blasting”. Alternatives to prohibit cast blasting are unnecessary. Emissions from mining underground are released to the atmosphere through the mine’s ventilation system.

Requiring additional emission control measures for those that use the Skyline Mine coal and nearby oil and gas operations would be outside the scope of OSMRE's authority. Further, such an alternative would not be reasonable, as the Skyline Mine must comply with the requirements of the CAA and obtain approval of an air quality permit from the DEQ, Department of Air Quality, under

the requirements of the Utah Air Conservation Act (Title 19, Chapter 2 of the Utah Code). The air permit incorporates measures that address the issues raised.

2.4.1.4 Offsite Mitigation or Compensation

Comments suggested that there should be mitigation requirements, such as offsite mitigation, mitigation that requires compensation, or offset carbon dioxide (CO₂) emissions from the Skyline Mine and the power plants fueled with coal from the Skyline Mine. Offsite mitigation could include developing a comparable amount of renewable energy.

The Proposed Action has the potential to emit CO₂ at the levels identified in **Section 3.3** and **Section 4.3**. CO₂ emissions from the Proposed Action are estimated at 14,893 metric tons per year, well below the US Environmental Protection Agency's (EPA) Final Mandatory Reporting of Greenhouse Gases Rule threshold of 25,000 metric tons per year of carbon dioxide equivalent (CO₂e) (40 CFR Part 98).

Because no significant impacts are predicted from CO₂ emissions attributed to the Proposed Action, an alternative that requires compensatory mitigation is eliminated from detailed analysis.

Chapter 3

Affected Environment

3.1 Introduction

This chapter describes the current condition of resources that could be affected by the Proposed Action. **Table 4** lists the issues, along with how they are incorporated into the analysis or otherwise addressed.

The summary of cumulative impacts in **Table 4** refers to **Table 2.1** in the Forest Service's 2002 ROD (US Forest Service, 2002b). The analysis of the impacts of the selected alternative included surface disturbance, vent shafts, and exploration holes. These activities were either completed or no longer proposed and are not included in the Proposed Action or No Action analyzed in this EA. **Table 4** includes the summary of cumulative impacts from the mining of the Flat Canyon Federal Coal Lease Tract UTU-77114 identified in the Forest Service's 2002 ROD, but excludes the impacts from surface disturbance, vent shaft, or exploration drilling.

The CEQ's definition of a cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time" (40 CFR 1508.7). Therefore, if a project would have no direct or indirect effect, it would not have any cumulative effect.

Table 4 - Issue Disposition

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
Air Quality and Climate Change	FEIS Section 2.4; SIR pages 5-8	Not Applicable	Not Applicable	Yes Air Quality and Climate change analysis is discussed in EA Sections 3.3, 4.3 and 5.3.	On July 13, 2015, the DEQ approved the modification to Skyline Mine's air quality permit (DQAE-AN0092007-03) to increase haulage of coal and add staking tube (DEQ, UDAQ, 2015).
Cultural Resources	FEIS Section 3.1.12	FEIS Section 4.1.11	No impact from mining, subsidence impacts avoided through "subsidence protection zones"	No	The Forest Service's 2002 ROD indicates little potential for damage from subsidence. Cracks would heal in 1 or 2 years. The State Historic Preservation Office (SHPO) concurred with a determination that no historic properties would be affected (Utah SHPO, 2001). There would be no direct or indirect impacts and therefore, no cumulative impact on cultural resources.
Environmental Justice	Not Addressed	Not Addressed	Not Addressed	Yes Sections 3.4, 4.4, and 5.2.3.	There are no environmental justice populations present in the Project Area or vicinity and therefore it is not analyzed further in this EA. No minority or low-income populations ¹ are located in Sanpete County; minority population is 14.1 percent (white alone) according to the 2014 (US Census Bureau, 2014).

¹ Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. Low Income annual statistical poverty thresholds from the Bureau of the Census' Current Population Report. http://www3.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
					<p>The poverty level is 15.7 percent (2009-2013). Emery County's minority population in 2013 was 3.4 percent (white alone) according to the Census Bureau the poverty level was 10.0 percent (2013) (US Census Bureau, 2014). Power stations supplied by Skyline Mine provide relatively low cost electrical power to populations that include low-income populations. As there are no direct or indirect impacts on environmental justice populations, there would be no cumulative impacts.</p>
Farm Lands (prime or unique)	Not Addressed	Not Addressed	Not Applicable	No	<p>No prime or unique farm lands occur in the vicinity (NRCS, 2014) and therefore there would be no direct, indirect, or cumulative impacts on farmlands.</p>
Fish (Aquatic Wildlife)	FEIS Section 3.1.8	FEIS Section 4.1.7	FEIS 4.1.7, pages 4-56; Impacts considered: surface disturbance and logging, human uses. Cumulative impacts study area would not change.	No	<p>The FEIS found there would be no direct impacts on fish populations from subsidence and mine water discharge. Tributaries to Upper Huntington Creek provide spawning habitat for cutthroat trout, and there is low probability that subsidence will alter drainages. Rainbow trout are stocked yearly in Boulger Reservoir. The Forest Service's 2002 FEIS determined no impact on Boulger Reservoir from subsidence and no cumulative impacts on fish. Indirectly, coal combustion can affect fish. Coal combustion facilities are regulated to minimize emissions that adversely affect fish. Due to the representative nature of the emissions</p>

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
					analysis for coal combustion in this EA, OSMRE determined that indirect impacts to biological and water resources were not quantifiable, and therefore could not be analyzed, as those resources depend on site-specific landscape and ecosystem characteristics that would be different for every location.
Wildlife	FEIS Section 3.1.8 SIR (pages 4-5)	FEIS Section 4.1.7	Cumulative impacts study area would not change. There are no new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts.	No	The FEIS found impacts from underground mining or subsidence would be negligible, and cited monitoring requirements that would be implemented. Indirectly, coal combustion can affect wildlife resources. Coal combustion facilities are regulated to minimize emissions that adversely affect wildlife. Due to the representative nature of the emissions analysis for coal combustion in this EA, OSMRE determined that indirect impacts to biological and water resources were not quantifiable, and therefore could not be analyzed, as those resources depend on site-specific landscape and ecosystem characteristics that would be different for every location.
Floodplains	Not Applicable	ROD findings of consistency with Other Laws and Regulations, pages 20 and 21.	Not Applicable	No	The ROD found that floodplains would not be affected. Proposed activities would not alter natural floodplains; Project Area would be within Zone C (low risk). The selected alternative will be in compliance with Executive Order

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
					11988 (Floodplain Management) and therefore, there would be no direct, indirect, or cumulative impacts
Geology	FEIS Section 3.1.2	FEIS Section 4.1.2; addressed surface disturbance, subsidence, and seismicity	FEIS Section 4.1.2, pages 4-20; Cumulative impacts study area would not change. There are no new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts.	Yes Section 3.2 and Section 4.2.	Geology is carried forward for informational purposes and for supporting related resources. Geology analysis is discussed in EA.
Grazing Management	FEIS Section 2.4	FEIS Section 2.4	FEIS Section 2.4	No	No range improvements were identified that could be damaged by subsidence and a no impact determination was made on forage in the Forest Service's 2002 FEIS.
Hazardous Materials	FEIS Section 4.1.4, 4.1.5	FEIS Section 4.1.5; ROD page 11	FEIS pages 4-43	No	The potential for surface and groundwater contamination is unlikely as Canyon Fuel Company, LLC is required to obtain approval from regulatory agencies to abandon equipment underground and given present evidence that there would be no connection between equipment and surface and groundwater; low permeability of rock layers exposed in Project Area. Canyon Fuel Company, LLC is required to remove all fluids, batteries, etc. prior to abandoning any approved equipment underground and therefore, there would be no direct, indirect, or cumulative impacts.
Land Use Authorization	FEIS Section 2.4 (Issues Not	FEIS Section 2.4 (Issues Not	FEIS Section 2.4 (Issues Not	No	Mining-induced subsidence and seismicity would not damage Beaver

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
	Considered)	Considered)	Considered).		Dams Reservoir or Electric Lake, and their associated dams as neither dam would be mined-under or subsided. The Maximum Credible Event of Richter 3.45 would not produce ground shaking sufficient to damage facilities or dams at Beaver Dams Reservoir or Electric Lake. Additionally, the BLM has no plans to develop the lease area so no conflict would develop with a BLM Withdrawal in the lease area.
Migratory Birds	FEIS Section 3.1.8	FEIS Section 4.1.7	Cumulative impacts study area would not change. There are no new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts.	No	The Forest Service's 2002 FEIS found impacts from underground mining or subsidence would be negligible, and cited monitoring requirements that would be implemented.
Native American Cultural Concerns	Not Addressed	Not Addressed	Not Addressed	No	In 2001, the Hopi Tribe (The Hopi Tribe, 2001) and Utah SHPO concurred that no historic property resources were present. Government-to-Government consultation between OSMRE and the Hopi and Southern Ute Tribes, and Santa Clara Pueblos under Section 106 of the Historic Resources Preservation Act for this project are ongoing.
Noise	Not identified as an issue during scoping, therefore; not addressed.	ROD pg. 12.	Not identified as an issue during scoping, therefore; not addressed.	No	All mining production would be underground. Current levels of noise would continue, however, there would be no additional noise generated on the surface. There are no noise-sensitive receptors (such as schools or hospitals) in the Project Area or within a distance

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
					<p>which would warrant analysis. The nearest school is approximately 13 miles away from the mine and separated by mountains. The nearest greater sage-grouse lek is approximately 10 miles away and would not be affected by mine-related noise. ROD states, "there would be no long-term noise that would displace [wildlife] use." There would be no direct or indirect impacts, and therefore no cumulative impacts.</p>
Noxious Weeds, Invasive and Non-native Species	FEIS Section 2.4	FEIS Section 2.4	FEIS Section 2.4	No	<p>Requirements for the prevention and spread of noxious weeds and reclamation are included in stipulations and Utah DOGM permit. Outside of these reclamation activities there would be no surface disturbance associated with mining of the Flat Canyon Coal Lease Tract. UTU-77114, therefore there would be no direct, indirect, or cumulative impacts.</p>
Paleontological Resources	FEIS Section 3.1.12	FEIS Section 4.1.11	FEIS 4-73; potential for unanticipated discoveries; protection measures in place; No change in cumulative impacts study area and no new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts.	No	<p>Fossils of bone material are rarely found in the coal seams. No significant sites with Cretaceous plants and animals, including dinosaurs have been identified in the Project Area. No discoveries of Pleistocene mammal remains have been made in the Project Area; although it is likely they occur within the canyon bottoms and floodplains in the Project Area. Therefore, there would be no direct, indirect, or cumulative impacts.</p>
Recreation	FEIS Section	FEIS Section 4.1.8	FEIS 4.1.8, pages 4-62;	No	The Forest Service's 2002 FEIS

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
	3.1.9		Impacts considered: human use of reservoirs, oil and gas development		evaluated subsidence and determined no impact on Boulder Reservoir or Flat Canyon Campground due to subsidence and subsidence prevention zones.
Social and Economic Values	FEIS Section 3.1.14	FEIS Section 3.1.13	FEIS pages 4-74; Impacts considered: employment, mining economy in Utah.	Yes Sections 3.4, 4.4, and 5.2.3	Updated information is provided for revenue, employment, and coal value.
Soils	Not Addressed	Not Addressed	Not Addressed	Yes Sections 3.7, 4.7, and 5.2.6	Subsidence may result in cracks or larger openings on the surface where soil could be lost if it falls into the subsurface or washed away. The potential is negligible to minor and would be mitigated by a stipulation included in the Flat Canyon Lease requiring mining to be conducted to prevent surface subsidence that would create hazardous condition.
Threatened or Endangered, Candidate, and Proposed Wildlife and Plants	FEIS Sections 3.1.7 and 3.1.8; SIR pages 4-5.	FEIS Sections 4.1.6 and 4.1.7; SIR pages 4-5.	Not Addressed	No	There would be no impact on threatened and endangered species. The Forest Service SIR identified no suitable habitat within the Flat Canyon Federal Coal Lease Tract UTU-77114 for 3 candidate species added to the US Fish and Wildlife Service county list since the Forest Service's 2002 FEIS. There would be no impact on threatened and endangered species. Indirectly, coal combustion can affect threatened, endangered, candidate, or proposed wildlife or plants. Coal combustion facilities are regulated to minimize emissions that adversely affect these species. Due to the representative nature of the emissions

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
					analysis for coal combustion in this EA, OSMRE determined that indirect impacts to biological and water resources were not quantifiable, and therefore could not be analyzed, as those resources depend on site-specific landscape and ecosystem characteristics that would be different for every location.
Rare Plants, Fish, and Wildlife, Including greater sage-grouse	FEIS Sections 3.1.7 and 3.1.8; SIR pages 4-5.	FEIS Sections 4.1.6 and 4.1.7; SIR pages 4-5.	Not Applicable	Yes Greater sage-grouse is discussed in Sections 3.5, 4.5, and 5.2.4.	There would be no impact on sensitive species (ROD, Attachment 3, pages 12-13). For Forest Service sensitive species, the SIR identified the western boreal toad as the only species with suitable habitat within the lease area. The SIR concluded that the original amphibian analysis was complete in the FEIS and no additional analysis was necessary. Indirectly, coal combustion can affect rare plant, fish, and wildlife. Coal combustion facilities are regulated to minimize emissions that adversely affect these species. Due to the representative nature of the emissions analysis for coal combustion in this EA, OSMRE determined that indirect impacts to biological and water resources were not quantifiable, and therefore could not be analyzed, as those resources depend on site-specific landscape and ecosystem characteristics that would be different for every location.
Inventoried	FEIS Section	FEIS Section	FEIS Section	No	There would no direct, indirect, or

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
Roadless Area	2.4; SIR page 3.	2.4; SIR page 3.	2.4; SIR page 3.		cumulative impacts on Inventoried Roadless Areas or Unroaded Undeveloped Areas because none are located within the Project Area.
Transportation and Access	FEIS Section 3.1.11	FEIS Section 4.1.10	FEIS pages 4-68; Impacts considered: other uses on SR-264 and SR-31. No change in cumulative impacts study area or new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts	No	The Forest Service's 2002 FEIS disclosed that minor cracks from subsidence could occur on SR-264 that would need repair. On National Forest and private roads, larger cracks are expected. These cracks would also require repair by Lessee.
Vegetation	FEIS Section 3.1.7	FEIS Section 4.1.6	FEIS Section 4.1.6; Impacts considered: surface disturbance, grazing, human uses. No change in cumulative impacts study area or new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts.	No	There would be no impact on vegetation because no surface disturbance is proposed. Subsidence would be negligible and would not affect vegetation.
Visual Resources	FEIS Section 3.1.10	FEIS Section 4.1.9	FEIS pages 4-66: considered additional private development, oil and gas. No change in cumulative impacts study area or new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts	No	Visual quality would not be affected. There would be no apparent visible impacts of mining-induced subsidence and seismicity. Impacts from past mine development are consistent with visual quality objectives.

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
Water Quality, Surface/ Groundwater	FEIS Sections 3.1.5 and 3.1.6; SIR page 3.	FEIS Sections 4.1.4 and 4.1.5; SIR pages 3-4.	FEIS Section 4.1.4; Impacts considered: Skyline Mine construction, water diversions and changes in discharge, grazing pressure on riparian; subsidence impacts on surface flows, dewatering of deep-perched aquifers. No change in cumulative impacts study area or new past, present or reasonably foreseeable actions that have or would cause additional cumulative impacts.	Yes Sections 3.6, 4.6, and 5.2.5.	Impacts on water determined in the Forest Service's 2002 FEIS included mine water discharge, possible subsidence in Huntington drainage, possible interception of groundwater and contamination from oils and other fluids. Indirectly, coal combustion can affect water quality. Coal combustion facilities are regulated to minimize emissions that adversely affect water quality. Due to the representative nature of the emissions analysis for coal combustion in this EA, OSMRE determined that indirect impacts to biological and water resources were not quantifiable, and therefore could not be analyzed, as those resources depend on site-specific landscape and ecosystem characteristics that would be different for every location.
Water Rights	Not Addressed	FEIS Section 4.1.5, pg. 4-40	Not Applicable	No	The Proposed Action would not affect groundwater or surface water flow and therefore no impacts on water rights. There would be no impact on water rights. Water rights in the Project Area are addressed under Water Replacement Rules. Utah Code 40-10-18 requires the mine operator to "promptly replace any state appropriated water in existence prior to the application for a surface coal mining and reclamation permit."
Wetlands/ Riparian Zones	FEIS Section 3.1.7	FEIS Section 4.1.6	FEIS page 4-48 states that "...current management	No	The Forest Service's 2002 FEIS noted subsidence of perennial stream

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
			practices are leading to improvement of riparian conditions".		channels would not occur with the possible exception of the Cunningham Drainage. No impacts to riparian vegetation in the vicinity of the stream channel are anticipated. Most of the springs that maintain wetlands are located adjacent to the valley bottom and would be within the subsidence protection zone. No adverse impacts to wetlands are anticipated. Indirectly, coal combustion can affect wetlands and riparian areas. Coal combustion facilities are regulated to minimize emissions that adversely affect wetlands and riparian areas. Due to the representative nature of the emissions analysis for coal combustion in this EA, OSMRE determined that indirect impacts to biological and water resources were not quantifiable, and therefore could not be analyzed, as those resources depend on site-specific landscape and ecosystem characteristics that would be different for every location.
Wild and Scenic Rivers	Not Addressed	Not Addressed	Not Addressed	No	Wild and Scenic Rivers would not be affected because no Wild and Scenic rivers occur in or near the Project Area. Virgin River, at a distance of 175 miles to the southwest, is closest Wild and Scenic River.
Wilderness/ Wilderness Study Areas	Not Addressed	Not Addressed	Not Addressed	No	Wilderness or Wilderness Study Areas are not present within or near the Project Area. Mt. Nebo Wilderness Area, located 25 miles to the northwest,

Resource	Affected Environment (FEIS or SIR Reference)	Environmental Consequences (FEIS, SIR, or ROD Reference)	Cumulative Impacts (FEIS or ROD Table 2.1 Selected Alternative)	Brought Forward for Further Analysis	Rationale for Elimination, Summary of Impacts from ROD or EA
					is the closest wilderness area.

SIR – Supplemental Information Report

3.2 Topography and Geology

The Flat Canyon Coal Lease Tract UTU-77114 lies in the interior of the Wasatch Plateau. The Wasatch Plateau has been incised by deep canyons shaped by glaciers and by wind and water erosion. Huntington Canyon drains the eastern flank of the Wasatch Plateau. Upper Huntington Creek along the eastern project boundary forms the headwaters of Huntington Canyon, trending north-south (see **Figure 4**). The Flat Canyon Coal Lease Tract UTU-77114 lies on the western slope of Upper Huntington Creek and the tributaries that drain the west slope of Huntington Canyon. The major tributaries generally trend east-west.

Previous mining includes the Skyline Mine with surface facilities located to the east in Eccles Canyon (see **Figure 4**, single seam mining shown for simplicity). Coal was extracted from underground using the longwall mining method. Mining occurred in 3 separate coal seams that partially overlap. Historically, two sets of longwall mining equipment operating were used concurrently in separate mine levels. However, current production is from a single longwall face operating in the Lower O'Conner A Seam of the Skyline No. 3 Mine (DNR, 2015). See **Figure 6** for a generalized columnar section for the Flat Canyon Coal Lease Tract UTU-77114.

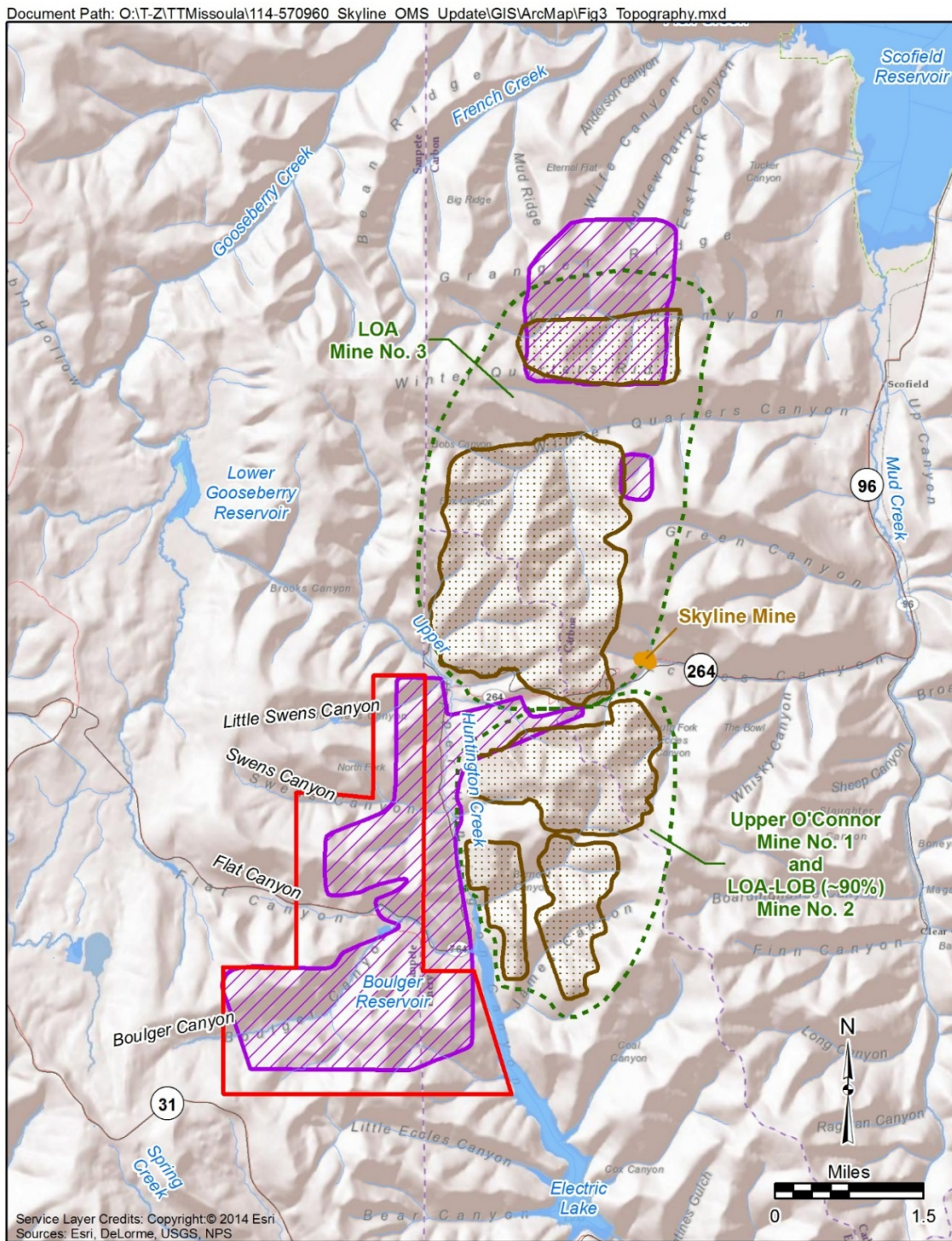
Full extraction longwall mining results in failure of the immediate roof strata, leading to fracture and flexure of the overburden rocks progressing upwards and resulting in surface subsidence. The degree of subsidence varies with the mining layout, geology, thickness of extraction, and amount and type of overburden. With the overburden depths at the Skyline Mine, flexure of the rock strata occurs near the surface due to differential subsidence, generally without fracture. However, in some isolated areas, tension fractures can open, such as where massive rock beds are located near the surface or above stacked barrier pillars.

Subsidence produces a zone of flexure where tension can sometimes result in minor cracking of the surface that soon close and rapidly heal. Permanent tensile zones that produce fractures may take longer to heal. Of the total area mined at Skyline Mine (10,733 acres), less than 0.5 percent of the area has produced tensile fractures. Additionally, the overburden depth in this subsided area was as low as 600 feet. **Figure 4** shows past areas of subsidence, along with the current Project Area and previously mined areas of Skyline Mine. Similar conditions are not present in the Project Area. The depth of overburden is greater than 1,000 feet. No major slope failures have been observed at Skyline Mine.

Mining-induced seismicity has also been experienced as a direct result of longwall mining at Skyline Mine. Seismicity, the propagation of measurable earthquake waves, results from collapsing ground.

A study of this phenomenon was carried out from 1986 to 1996 while the Skyline Mine was operating in the northern section of the current mining area (Arabasz, et al., 1997). Results of the study indicated a very strong correlation between mining induced seismicity and longwall production at depths greater than 1,500 feet. No surface damage or slope failure was reported due to the seismicity.

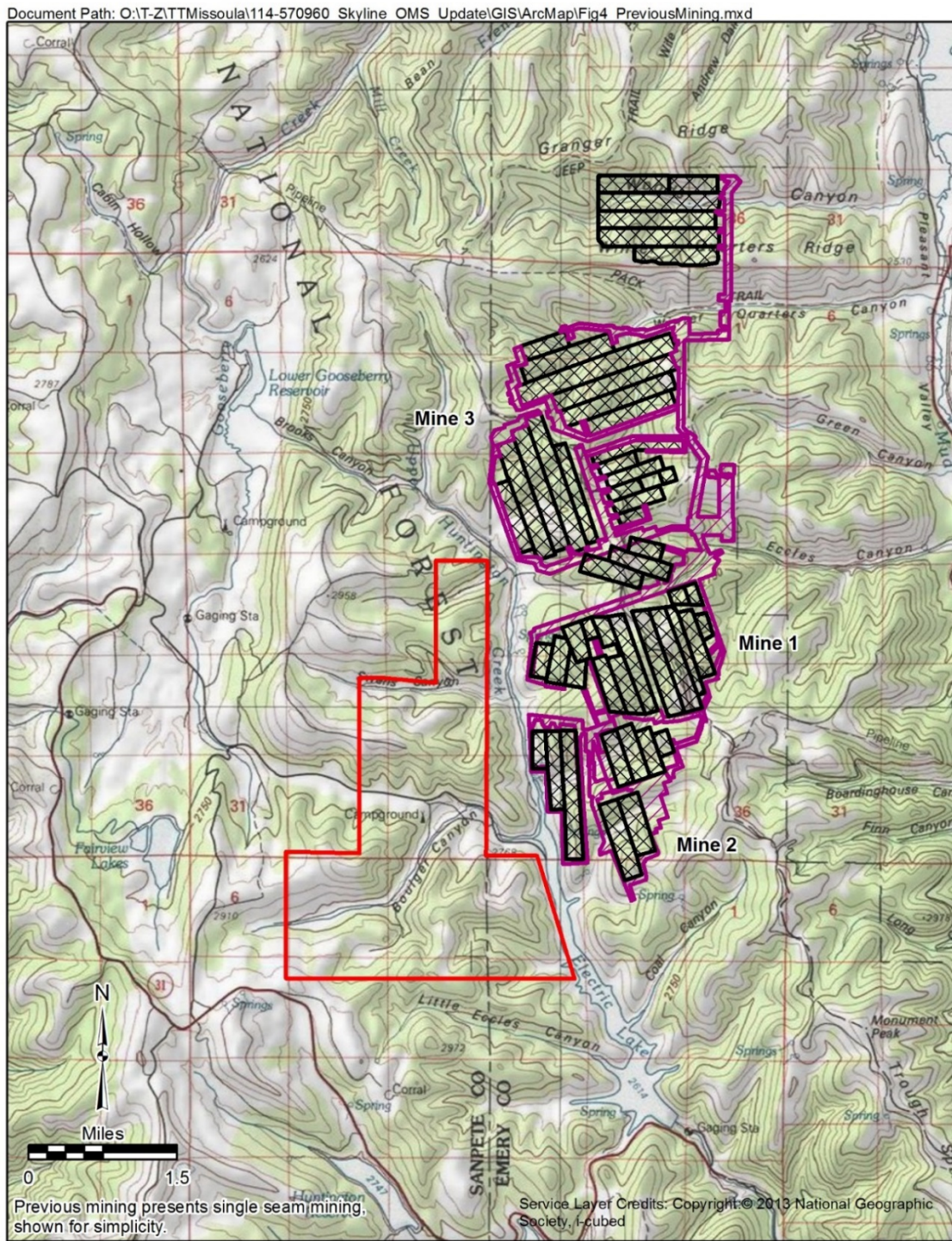
Figure 4 - Topography





- Legend**
- Skyline Mine
 - Project Area
 - Lake
 - Stream/River
 - Past Subsidence
 - Estimated Subsidence
 - Previously Mined Area

Topography
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah

Figure 5 - Previous Mining



Legend

-  Mined Long Panel
-  Mined Room and Pillar
-  Project Area

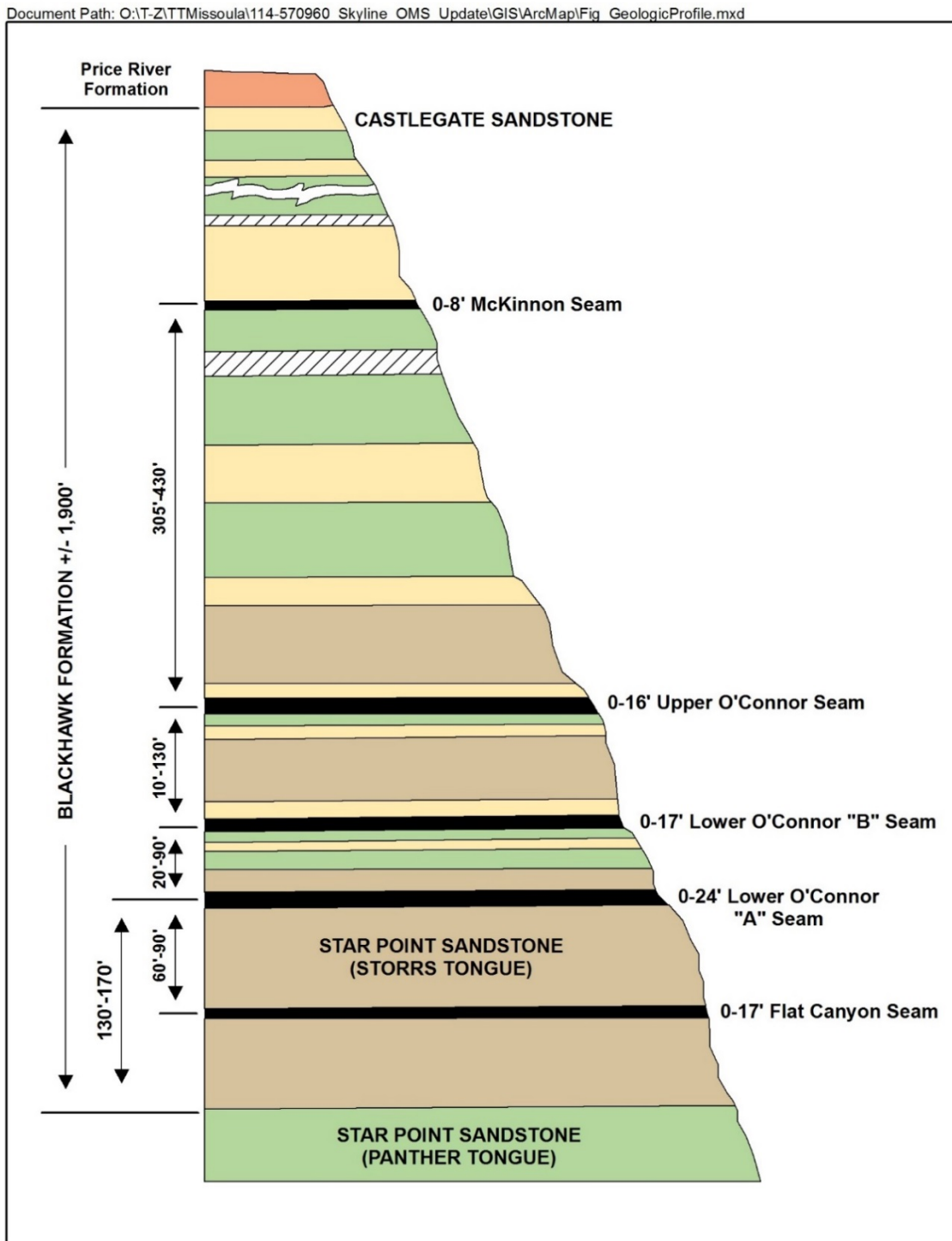
Previous Mining

Flat Canyon Mine

Plan Modification EA

Sanpete, Carbon, and Emery Counties, Utah

Figure 6 - Generalized Columnar Section



Generalized Columnar Section
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah

3.3 Air Quality and Climate Change

3.3.1 Air Quality

3.3.1.1 Airshed for Analysis

The regional airshed for analysis was delineated using topography with consideration of the climatic wind regime based on the location of Skyline Mine's surface facilities (where the emissions occur). The Skyline Mine facilities were assessed to determine the likely region where local emission impacts could occur to determine the likely region of influence. The regional airshed is approximately 1,891 square miles (**Figure 7**). The airshed's northern boundary runs along the north side of Highway 6 from the town of Tucker to Helper, Utah. The northeast part of the airshed is bounded by the Book Cliffs from Helper to just south of East Carbon. The southeast boundary of the airshed is made up of Flattop Mountain, Cedar Mountain, Sids Mountain and various ridges in between to approximately 4 miles north of County Road 803. The southwest boundary lies between the towns of Ferron and Moore and turns north at Young's Peak. The western boundary runs along the eastern boundary of the Manta-La Sal National Forest north to Red Point then heads northwest to Candland Mountain. The boundary continues north on along the east side of Electric Lake along ridgetops to the town of Tucker.

3.3.1.2 Regulatory Requirements

Federal actions must meet the requirements of the CAA and must not cause or contribute to a violation of applicable air quality standards. The State of Utah, Division of Air Quality (UDAQ) is the delegated authority for implementing the CAA in Utah and has developed a State Implementation Plan, outlining the requirements and regulations that the state will follow to assure that it is and will remain in compliance. There is no county or local air quality permitting requirements.

Criteria Pollutants National Ambient Air Quality Standards

The EPA sets the standards for the criteria pollutants (**Table 5**). The National Ambient Air Quality Standards (NAAQS) include primary and secondary standards for criteria pollutants. Primary standards provide for the protection of the public health, including "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide for the protection of the public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The EPA designates whole or partial counties as attainment, non-attainment, or maintenance for each criteria air pollutant. Areas of the country where air pollution levels persistently exceed the NAAQS are designated as nonattainment. Areas that are able to meet the NAAQS are designated as attainment areas. These designations have been developed to help areas with air pollution above the NAAQS to conform, and to prevent the deterioration of air quality in areas that currently meet the NAAQS. The monitored ambient air quality levels in the regional airshed indicate that the criteria pollutant levels for all criteria pollutants are below the applicable NAAQS (**Table 5**), therefore, EPA has designated the area as an attainment area for all criteria pollutants. In attainment areas like Carbon County, the CAA allows for growth and limited degradation of the ambient air quality that may be associated with that growth.

Figure 7 - Regional Airshed



Table 5 - NAAQS

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month period	0.15 µg/m ³ (1)	Not to be exceeded
Nitrogen Dioxide (NO ₂)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb ⁽²⁾	Annual Mean
Ozone (O ₃)		primary and secondary	8 hours	0.070 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Matter (PM)	PM _{2.5}	primary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)		primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	Not to be exceeded more than once per year

Source: (EPA, 2016a)

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards additionally remain in impact in some areas. Revocation of the previous (2008) O₃ standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

µg/m³ – micrograms per cubic meter of air

ppm – parts per million

ppb – parts per billion

Prevention of Significant Deterioration

The CAA also divides areas where air quality is already cleaner than required by federal standards into 3 classes, and specifies the increments of SO₂, NO₂ and PM pollution allowed in each class (**Table 6**) as regulated by the Prevention of Significant Deterioration regulations (40 CFR 52.21).

Table 6 - Federal Prevention of Significant Deterioration Limits

Pollutant	Averaging Time	Class I Area Maximum Allowable Increase ($\mu\text{g}/\text{m}^3$)	Class II Area Maximum Allowable Increase ($\mu\text{g}/\text{m}^3$)	Class III Area Maximum Allowable Increase ($\mu\text{g}/\text{m}^3$)
PM _{2.5}	Annual	1	4	8
	24-hour	2	9	18
PM ₁₀	Annual	4	17	34
	24-hour	8	30	60
SO ₂	Annual	2	20	40
	24-hour	5	91	182
	3-hour	25	512	700
NO ₂	Annual	2.5	25	50

$\mu\text{g}/\text{m}^3$ = Micrograms per cubic meter of air

The 5 mandatory Class I areas in Utah include: Zion National Park, Bryce National Park, Capitol Reef National Park, Arches National Park, and Canyonlands National Park (UAC, 2016). The closest Class I area is Capitol Reef, approximately 75 miles to the southwest of the project. This Class I area would not be affected by the proposed action. The allowable increments of new pollution in these areas are very small. All other areas are designated as Class II except non-attainment areas (UAC, 2016); where allowable increments of new pollution are modest. Class III represents selected areas that states may designate for development; allowable increments of new pollution are large (but not exceeding NAAQS). No Class III areas are designated in Utah (UAC, 2016). Because the Project Area is not in a national park or a non-attainment area, it is located in a Class II area².

The regulations are applicable to a source pollutant if the source has the potential to exceed the major source thresholds of either 100 or 250 tons per year of a regulated New Source Review pollutant, depending on the type of source pollutant. For stationary source categories listed in the regulation, the threshold is 100 tons per year, while the threshold for source categories that are not listed, such as surface mining operations, is 250 tons per year. The potential to emit calculation does not include fugitive emissions for the purpose of determining if the facility exceeds 250 tons per year. Fugitive emissions are defined by EPA as, “*those emissions that could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening*”.

The Skyline Mine is classified as a minor source of emissions that would not exceed the 250 tons per year threshold for non-listed sources. Therefore, Prevention of Significant Deterioration regulations and preconstruction monitoring are not applicable to the mine or the Proposed Action.

Hazardous Air Pollutants

The CAA also enacted the New Source Performance Standards and National Emissions Standards for Hazardous Air Pollutants (HAPs) for specific types of equipment located at new or modified stationary pollutant sources. New Source Performance Standards regulations limit emissions from

² R307-405 Permits: Major Sources in Attainment or Unclassified Areas.

source categories to minimize the deterioration of air quality. Stationary sources are required to meet these limits by installing newer equipment or adding pollution controls to older equipment that reduce emissions below the specified limit. The Proposed Action would not include equipment that is subject to these regulations. New Source Performance Standards and National Emissions Standards for HAPs standards will apply to final coal combustion.

Unlike criteria pollutants, there are no NAAQS for HAPs. Although, these pollutants are also regulated under the CAA, the approach taken is focused on restricting or limiting emissions of pollutants, setting emission standards and control requirements, and requiring record keeping and reporting of emissions to demonstrate on-going compliance with applicable limits and requirements.

HAPs are defined in 40 CFR Part 61 as a pollutant that causes or may cause cancer or serious health impacts such as birth defects. There are currently 187 listed HAPs (EPA, 2016b) The majority of HAPs originate from stationary sources (e.g., factories, refineries, power plants) and mobile sources (e.g., cars, trucks, buses), as well as indoor sources (building materials and cleaning solvents). Specific permitting requirements are a function of the type of source or activity to be permitted, the type(s) of pollutants, and the quantity of pollutants to be emitted. Sources that have the potential to emit greater than 10 tons per year of one of any one HAP; or more than 25 tons per year of all HAPs in aggregate; are classified as major sources. Sources are considered minor if they are less than the limits set for major sources.

The Skyline Mine would not be categorized as a major source for HAPs because the mine produces a maximum of 0.23 tons per year of total HAPs (HDR Engineering, Inc., 2015). Skyline Mine is not required to obtain a Federal Title V operating permit.

Mercury

The final location of coal combustion is regulated under environmental regulations. On December 16, 2011, the EPA finalized the first national standards (40 CFR Part 63) to reduce mercury and other toxic air pollution from coal and oil-fired power plants. These rules set technology-based emissions limitation standards for mercury and other toxic air pollutants, reflecting levels achieved by the best-performing sources currently in operation. The final rule sets standards for all HAPs emitted by coal- and oil-fired electric generating units with a capacity of 25 megawatts or greater. All regulated units are considered major under the final rule. EPA did not identify any size, design, or engineering distinction between major and area sources. Existing sources generally have up to 4 years to comply with the Mercury and Air Toxics Standards (MATS).

The emissions limits associated with the MATS rule are presented in **Table 7**. The National Electric Energy Data System identified coal and oil fueled electricity generating plants where the MATS rule is likely to apply (EPA, 2011). In Utah, the power plants that the MATS rule is likely to apply to are all coal fired. The plants and the county they are in are Bonanza (Uintah), Carbon (Carbon), Hunter (Emery), Huntington (Emery), Intermountain Power Project (Millard), KUCC (Salt Lake), and Sunnyside Cogen Associates (Carbon).

Table 7 - MATS Emission Requirements – Coal and Oil-Fired Units

Subcategory	Existing Mercury Emission Limit (lb/GWh)	New Mercury Emission Limit (lb/GWh)
Regular Coal	0.013	0.0002
Designed for Low Rank Coal ¹	0.12 or 0.040	0.04
IGCC (Gasified Coal)	0.03	0.003
Solid-oil Derived & Continental Liquid Oil	0.002	0.002
Continental Liquid Oil	NA	0.0001
Non-continental Liquid Oil	0.004	0.0004

Source: 40 CFR Part 63.

lb/GWh = pounds of pollutant per gigawatt – electric output

Greenhouse Gases

There are no NAAQS for GHGs. In its Endangerment and Cause or Contribute Findings for Greenhouse Gases under CAA Section 202(a) (FR EPA-HQ-OAR-2009-0171), EPA determined that GHGs are air pollutants subject to regulation under the CAA. EPA acted on its understanding that GHG pollutants have long-term impacts on the climate because of their increasing concentrations in the earth's atmosphere, which has been tied to industrialization and the burning of fossil fuels. The amount of GHG emissions produced by mining or burning coal varies depending on the mining technique used (i.e., surface versus underground mining) and combustion technologies employed.

EPA has regulated 6 key GHGs: CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF₆). Because CO₂ is the most prevalent of the regulated GHGs, the EPA references the impact of GHG emissions in terms of their equivalence to CO₂ or CO₂e.

Under the EPA's GHG Mandatory Reporting Rule (74 FR 56260, 40 CFR 98), coal mines subject to the rule are required to report emissions in accordance with the requirements of Subpart FF, which is applicable to underground coal mines. The EPA Tailoring Rule (70 FR 31514, 40 CFR 51, 52, 70, and 71) was, in part, struck down by a 2014 Supreme Court decision. Based on the Supreme Court decision, an underground mine is subject to permitting for GHGs only if the mine has the potential to emit more than 100,000 tons per year of CO₂e and if the mine exceeded the major source threshold for one or more criteria pollutants.

The Obama Administration's Clean Power Plan [40 CFR Part 60 Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, 2015, (EPA, 2015a)] directs regulations for power plants and does not apply to OSMRE's Proposed Action to approve a mining plan modification.

3.3.1.3 Regional and Local Air Quality

The Project Area and regional airshed are currently in attainment or unclassified for all criteria pollutants. Population centers or areas of specific interest in the region are monitored for criteria pollutants and as a result the data collected for this analysis is regionally representative. The UDAQ

maintains a network of monitoring stations across the state. One of these monitoring stations is located in Price, Utah (Carbon County). There are no monitoring stations in the surrounding counties (Sanpete and Emery). In the late 1990s the EPA allowed monitoring to cease where pollutants were less than 60 percent of the NAAQS (UDAQ, 2015a). There are no local monitoring stations.

Industrial Sources

Permitted air quality emission sources located within 50 miles of the Skyline Mine are shown in **Table 8**. DEQ includes all sources of air quality emissions that are required by law to acquire a state air quality permit. Sources such as dust from dirt roads, agricultural operations, recreational activities, and automobile use are not included because they are not regulated as stationary industrial sources but have the capacity to produce air quality emissions regionally.

Table 8 - Utah Large Industrial Source Emissions (Tons per Year) by Facility - 2012

Site Name (Miles from Skyline Mine)	City	County	CO	NO _x	PM ₁₀	SO _x	PM _{2.5}	VOC
Wellington Asphalt Plant (28)	Wellington	Carbon	3.59	8.8	0.8	3.5	0.3	4.8
Oak Spring Turbine Compressor Station (12)	Spring Glen	Carbon	2.6	55.2	11.1	0.2	11.1	0.9
Carbon Power Plant (18)	Helper		153.6	3,587.8	459.8	8,307.7	432.7	18.4
Price Dew Point Plant (21)	-	Carbon	4.0	1.5	0.1	0.0	0.1	21.2
East Carbon Landfill (40)	East Carbon	Carbon	9.0	18.8	11.4	1.9	3.2	42.5
Sunnyside Cogeneration Facility (45)	Carbon County	Carbon	68.3	400.6	61.2	586.3	38.9	11.7
Huntington Power Plant (22)	Huntington	Emery	4,012.2	7,389.8	665.9	2,301.2	244.1	83.1
South Town Quarry & Concrete Batch Plant (34)	Nephi	Juab	2.9	11.7	8.7	0.9	3.1	1.1
Salem Aggregate Facility (34)	Salem	Utah	1.3	4.5	13.8	0.7	1.4	0.4
Gomex Pit- Aggregate Processing Plant (33)	Spanish Fork	Utah	0.3	1.1	1.9	0.1	0.9	0.1

Source: <http://enviro.deq.utah.gov/>. (UDAQ, 2016)

NO_x – nitrogen oxides

SO_x – sulfur oxides

VOC – volatile organic compounds

Table 9 indicates the oil and gas compressor and gas plant emissions for 2012 in Utah.

Table 9 - 2012 Oil and Gas Compressor and Gas Plant Emissions (Tons per Year)

Site Name (Miles from Skyline Mine)	NO _x	VOC	NO _x & VOC Combined
Scofield Compressor Station (6.7)	2.05	1.66	3.70
Oak Spring Turbine Compressor Station (12.1)	55.16	0.89	56.05
Drunkards Wash Compressor Station (19.6)	58.91	44.45	103.36
Emma Park Natural Gas Treatment Plant (24.4)	58.91	44.45	103.36
Aberdeen Field Compressor Station (24.5)	58.91	44.45	103.36
Cave Pad Compressor Station (25.2)	6.95	2.55	9.50

Source: (UDAQ, 2016).

NO_x – nitrogen oxides VOC – volatile organic compounds

Ambient Background Monitoring

The record keeping and reporting required by the Approval Order: DAQE-AN10092001-15 provides evidence that Skyline Mine is in compliance with all permit standards. The Skyline Mine is required to maintain records of operational throughput to provide evidence of compliance with all throughput limitations. The maximum throughputs listed in the Approval Order were used to calculate the facility potential to emit emissions. The facility emissions will not be exceeded as long as the throughput limits are not exceeded.

The only monitoring station in the regional airshed is in Price, Utah, approximately 25 miles east-southeast of the Project Area.

PM₁₀

PM₁₀ data monitoring data from Price showed the highest 24-hr concentration was 48 micrograms per cubic meter of air; below the NAAQS of 150 micrograms per cubic meter (**Table 5**). The meteorological data is for January 1, 2006 through December 31, 2010 (HDR Engineering, Inc., 2015).

NO₂

The Price monitoring station registered one exceedance of the NO₂ 1-hour NAAQS in 2012 and none in 2013 or 2014 (UDAQ, 2015a). The highest hourly background at the site during 2014 was 6.1 parts per billion (ppb) which is below the NAAQS (100 ppb).

Ozone

The Price monitoring station registered one exceedance of the ozone 8-hour 2008 NAAQS in 2012, and none in 2013 or 2014 (UDAQ, 2015a). The highest 8-hr background at the site during 2014 was 0.067 parts per million which is below the NAAQS (0.070 parts per million [ppm], or 70 ppb).

SO₂ and CO

The monitoring station in Price does not measure SO₂ or CO. Three network stations outside the regional airshed monitor CO (in Hawthorne, Ogden, and North Provo). During the reporting period 2010 through 2015, none of the monitoring stations in the network registered exceedances of the NAAQS for CO. UDAQ reports that all areas in Utah are in compliance with the NAAQS for CO. (UDAQ, 2015a). Stations that monitor SO₂ are in Beach, Magna, North Salt Lake, Hawthorne, Bountiful, and Roosevelt. Of these, only the Beach station registered an exceedance of the primary 1-hour SO₂ NAAQS during the 2011 through 2014 reporting period. The exceedance occurred one time in 2013. All sites show a decreasing trend (UDAQ, 2015a).

EPA Air Quality Index

The air quality index (AQI) is a range used by the EPA to measure and characterize the quality of air at a given location (EPA, 2014). The AQI focuses on health impacts that may be experienced within a few hours or days after breathing polluted air. AQI index ranges from 0 to 500.

- 0 to 50 – good;
- 51 to 100 – moderate;
- 101 to 150 - unhealthy for sensitive groups;

- 151 to 200 – unhealthy;
- 201 to 300 - very unhealthy;
- 301 to 500 – hazardous;

The 2014 Carbon County AQI consisted of 350 days when air quality was good, and 15 days that experienced moderate conditions. From 2012 through 2014 Carbon County AQI consisted of 950 days registered as good, 144 days registered as moderate, and 1 day registered as unhealthy for sensitive groups.

3.3.2 Climate Change

Following publication of the draft EA, OSMRE determined that a revised GHG and climate change assessment would provide useful information to the decision maker and the public. The direct, indirect, and cumulative impacts (**Chapters 4 and 5**) were revised, which required revising the affected environment.

This document assesses the effects of the proposed action on climate change and the effect of climate change on the proposed action, and its environmental impacts through assessment of direct and indirect GHG emissions as a proxy for the assessment of potential climate change effects. Executive Order 13693 defines GHGs as CO₂, CH₄, N₂O, and fluorinated gases (hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride). These constituents are referred to as GHGs throughout the analysis. For consistency between projects, we describe GHG emissions in terms of “CO₂-equivalents” (CO₂e).

3.3.2.1 Analysis Area for Climate Change

For climate, climate change, and GHG analysis there is no specific analysis area, and project emissions are used as a proxy.

3.3.2.2 Greenhouse Gas Emissions and Climate Change

GHGs allow heat from the sun to pass through the upper atmosphere and warm the earth by blocking some of the heat that is radiated from the earth back into space.

Human-caused CO₂ emissions occur from the combustion of fossil fuels (i.e., oil, natural gas, and coal) by industry and in the transportation sector, and as a result of other chemical reactions (e.g., the manufacture of cement). CH₄ emissions occur from livestock and other agricultural practices and also from the decay of organic waste placed in municipal solid waste landfills. CH₄ also is emitted during the production and transport of coal, natural gas, and oil. N₂O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Fluorinated gases, while not abundant in the atmosphere, are powerful GHGs that are emitted from a variety of industrial processes and are often used as substitutes for carbon trioxide (CO₃)-depleting substances.

Utah

On a regional scale, the EPA estimated the 2013 CO₂ emissions in Utah were 66 million metric tons (MMT) which converts to 73 million tons, although coal mined from the Skyline Mine may or may not be used in Utah (Energy Information Administration, 2015a). The US emissions from fossil fuels

in 2015 was 5,264 MMT, of which 1,499 MMT were from coal (Energy Information Administration, 2015b).

United States

The EPA estimates the trend in GHG emissions in the US by source sector (e.g., industrial, land use, electricity generation, etc.); fuel source (e.g., coal, natural gas, geothermal, petroleum, etc.); and economic sector (e.g., residential, transportation, commercial, agriculture, etc.). **Table 10** shows the estimated GHG emissions by economic sector calculated based on output in units of CO₂e (EPA, 2016d). Compared to 1995, the 2014 US GHG emissions increased by 35 percent (based on total net emissions in 1995 divided by the total net emissions in 2014). CO₂e estimates are based on guidelines recommended by the Intergovernmental Panel on Climate Change from fossil fuel combustion, non-energy use of fuels, and stationary combustion, wastewater treatment, composting, landfills, cultivation, fermentation, etc. Reporting of emissions over 25,000 metric tons per year did not begin until 2009. The reporting is not used in the calculations of the estimated emissions in the EPA's report, but is used to "improve the national estimates presented" in the inventory (EPA, 2016d).

Table 10 - 1995-2014 Estimated US Greenhouse Gas Emissions Allocated to Economic Sectors (in Million Metric Tons of CO₂e)

Implied Sectors	1995	2005	2010	2014
Electric Power Industry	1,864.80	2,443.90	2,300.50	2,080.70
Transportation	1,551.30	1,999.60	1,827.40	1,810.30
Industry	1,620.90	1,486.20	1,394.50	1,461.70
Agriculture	563.40	600.20	631.10	625.40
Commercial	418.10	420.30	425.50	453.90
Residential	344.90	370.40	361.20	393.70
US Territories	33.70	58.20	45.30	44.70
Total Emissions	6,397.10	7,378.80	6,985.50	6,870.40
Land Use, Land-Use Change, and Forestry (Sink)	(738.00)	(698.50)	(766.40)	762.50
Net Emissions (Sources and Sinks)	5,659.10	6,680.30	6,219.10	7,632.90

Source: Table 2-10 (EPA, 2016d)

Note that "Land Use, Land-Use Change, and Forestry" represents a sink rather than a source, and is therefore presented in parentheses.

Additionally, some of these gases may react with other chemical compounds in the atmosphere to form compounds that are GHGs.

National SO₂ emissions across the US are listed in **Table 11**. SO₂ emission levels have decreased since 1995, primarily due to increased emission controls for SO₂, including the increased use of low sulfur coal from mines in the western states.

Table 11 - US SO₂ (Indirect GHG) Emissions

Gas/Source	GHG 1995 (MMT)	GHG 2000 (MMT)	GHG 2007 (MMT)
SO ₂	16.89	14.83	11.73
Energy (combustion, etc.)	15.77	13.80	10.89
Industrial Processes	1.12	1.03	0.84
Chemical manufacturing	0.26	0.31	0.23
Metals processing	0.48	0.28	0.19
Other	0.37	0.37	0.29

3.3.2.3 Regional Climate

The proximity of the Wasatch Mountains exerts a strong influence on the climate and weather of the area. Areas east of the Wasatch Range are characterized by hot, dry summers and cold, dry winters. Air movement at this latitude is predominately from the west and northwest year-round. The lower elevations receive less than 10 inches of precipitation annually. Higher elevations receive more than 14 inches of precipitation annually. Snow amounts are low east of the Wasatch Mountains. Average maximum temperatures in the area range from 97 degrees Fahrenheit (°F) in July to 33 °F in January. Average minimum temperatures range from 7 °F in January to 58 °F in July (BLM, 2008).

According to a report by the US Global Change Research Program (Melilo, et al., 2014), current temperatures are “almost 2 °F higher than historic averages”, over the last 110-year instrumental record. Based on predictions that average annual temperatures in the southwestern US will increase by 3.5 °F to 9.5 °F by 2099 (maximum 0.11 °F annually) (EPA, 2012a), during the 10-year additional life of the mine (through 2028), average annual temperatures might increase up to 1.5 °F. This report states that snowpack and streamflows have and will decrease and provides quantitative analysis for California and the Colorado River, but not Utah.

3.3.2.4 Local Climate and Meteorology

The Project Area and Skyline Mine are in an alpine subarctic climate with long cold winters and abundant snowfall, in excess of 200 inches per year. Additional climatic data can be found in the Probable Hydrologic Consequences report (Petersen Hydrologic, LLC, 2014a). Precipitation measured at the Skyline Mine surface facilities between 1985 and 2014 ranged from 17.2 inches to 29.4 inches per year (Canyon Fuel Company, LLC, 2014). Monthly average temperatures at the Skyline Mine range from 8.0 to 74.4 °F.

The Palmer Hydrologic Drought Index for the Utah Region 4 (south central) and Utah Region 5 (northern mountains), where the Project Area is situated were characterized from 2006 through 2010 by generally near-normal climatic conditions with brief alternating periods of wetness and dryness. During 2011 the region experienced a period of severe wetness. During 2012, 2013, and early 2014 the region has experienced a period of continuous dryness (Petersen Hydrologic, LLC, 2014a).

Black Carbon

Black carbon is a by-product of incomplete combustion of fossil fuels, biofuels, and biomass. Black carbon is a likely by-product that would be emitted from haul trucks used during coal mining operations and locomotives used to haul coal from the mine. Black carbon is an unregulated pollutant; however, the EPA does regulate diesel fuel quality, such that in recent years diesel fuel quality has been improved.

Of all mobile source emissions, 93 percent came from diesel engines in 2005 (EPA, 2016e). Black carbon directly absorbs light and reduces the reflection of heat off snow and ice as it gets deposited. Black carbon has been linked to climate impacts due to increased temperatures and accelerated ice and snow melt.

Black carbon is a component of the anthropogenic climate phenomenon; however, it is very short-lived in the atmosphere, lasting only a few days to a few weeks. Although short lived, while in the atmosphere black carbon is the most strongly light-absorbing component of particulate matter. Black carbon can absorb a million times more energy than CO₂. Black carbon is a major component of “soot”, a complex light-absorbing mixture that also contains some organic carbon.

3.4 Social and Economic

The Skyline Mine surface facilities are located in Carbon County. Historically, most of the mining has been located in Emery County and Carbon County. In 2013, the population of Carbon County was about 21,000 (US Department of Commerce, 2014a). The Flat Canyon Coal Lease Tract UTU-77114 is in Sanpete County, with private surface and coal ownership extending into Emery County. As the mining operations function through the mine facility in Carbon County, the tax revenue is recognized in Carbon County.

Table 12 shows the employment trend by industry and the overall contribution that each industry makes to the total labor earnings in Carbon and Sanpete counties. The average labor earnings per job in each industry were calculated by dividing the total labor earnings by the number of jobs.

Table 12 - Employment by Industry – Carbon and Sanpete Counties

Industry	Total Number of Jobs ^{a,c}		Total Labor Earnings per Industry (\$1000) ^{b,d}		Average Labor Earnings per Job	
	Carbon ¹	Sanpete ²	Carbon ¹	Sanpete ²	Carbon	Sanpete
Farm	301	1,025	\$329	\$55,135	\$1,093	\$53,790
Forestry, fishing, and agriculture services	NA	196	NA	12,211	NA	62,301
Mining (including fossil fuels)	935	93	88,699	5,648	94,865	60,731
Construction	562	644	29,744	23,548	52,925	36,565
Manufacturing	393	893	22,829	34,828	58,089	39,001
Utilities	123	17	16,028	1,397	130,309	82,176
Wholesale trade	490	152	35,245	3,865	71,929	25,427
Retail trade	1,440	1,215	44,451	23,548	30,869	19,381

Industry	Total Number of Jobs ^{a,c}		Total Labor Earnings per Industry (\$1000) ^{b,d}		Average Labor Earnings per Job	
	Carbon ¹	Sanpete ²	Carbon ¹	Sanpete ²	Carbon	Sanpete
Transportation and warehousing	521	276	\$30,464	\$12,077	\$58,472	\$43,757
Information	85	228	2,423	11,642	28,506	51,061
Finance and insurance	371	431	9,761	7,388	26,310	17,142
Real estate and rental and leasing	352	498	3,480	6,020	9,886	12,089
Professional and technical services	565	494	21,677	14,249	38,366	28,844
Management of companies and enterprises	72	NA	5,037	NA	69,958	NA
Administrative and waste services	525	252	16,236	4,602	30,926	18,262
Educational services	NA	378	NA	10,983	NA	29,056
Health care and social assistance	NA	848	NA	27,694	NA	32,658
Arts, entertainment, and recreation	152	177	1,381	1,026	9,086	5,797
Accommodation and food services	716	565	11,795	7,060	16,473	12,496
Other services, except public administration	820	717	31,716	27,416	38,678	38,237
Government	2,090	2,668	104,966	121,161	50,223	45,413
Total/Average	11,765	11,819	507,605	403,068	43,145	34,103

¹ 2013 data; ² 2014 data

NA = Not Applicable

Sources:

a (US Department of Commerce 2014b)

b (US Department of Commerce, 2014b)

c (US Department of Commerce, 2015a)

d (US Department of Commerce, 2015b)

The mining sector is an important contributor to the employment and income in Carbon, Emery, and Sanpete counties. The Skyline Mine employment contributes approximately \$39 million annually in wages and benefits for these employees. The estimated royalty revenue from Skyline Mine to the federal government is \$134 million, with about 50 percent or \$67 million to the State of Utah, and 50 percent from the State of Utah or \$33 million to the counties of Sanpete and Emery (Jarrett, 2015). Of the 320 employees, the employee distribution is approximately 30 percent from Carbon and Emery counties, 60 percent from Sanpete County, and 10 percent from Utah County (Galecki, 2015b). The mine currently directly employs approximately 320 people (Galecki, 2015b) plus indirectly 1,162 people total (Bacon & Kojima, 2011).

On July 1, 2015, Canyon Fuel Company, LLC was the successful bidder for the Flat Canyon Federal Coal Lease Tract UTU-77114 at \$17.2 million (\$0.4095 per ton) (BLM, 2015b). Revenue generated by this continued production of coal also benefits the State of Utah via the mineral lease funds, a portion of which funds the Permanent Community Impact Board. The Permanent Community Impact Board has been a major source for infrastructure projects in rural affected counties. Recent lower oil prices have decreased this fund.

In 2015 in the U.S., the industrial sector is the leading form of energy consumption (32 percent of total) followed by transportation (28 percent), residential (21 percent), and commercial (18 percent) (Energy Information Administration, 2016c).

Electricity generated for use in the US in 2015 came from sources listed in **Table 13**.

Table 13 - 2015 Electricity Generation Fuel Sources

Fuel Source	Percent of Total
Coal	33
Natural gas	33
Nuclear	20
Hydropower	6
Other renewables	7
Biomass	1.6
Geothermal	0.4
Solar	0.6
Wind	4.7
Petroleum	1
Other gases	<1

Source: (Energy Information Administration, 2016d).

3.5 Greater Sage-Grouse

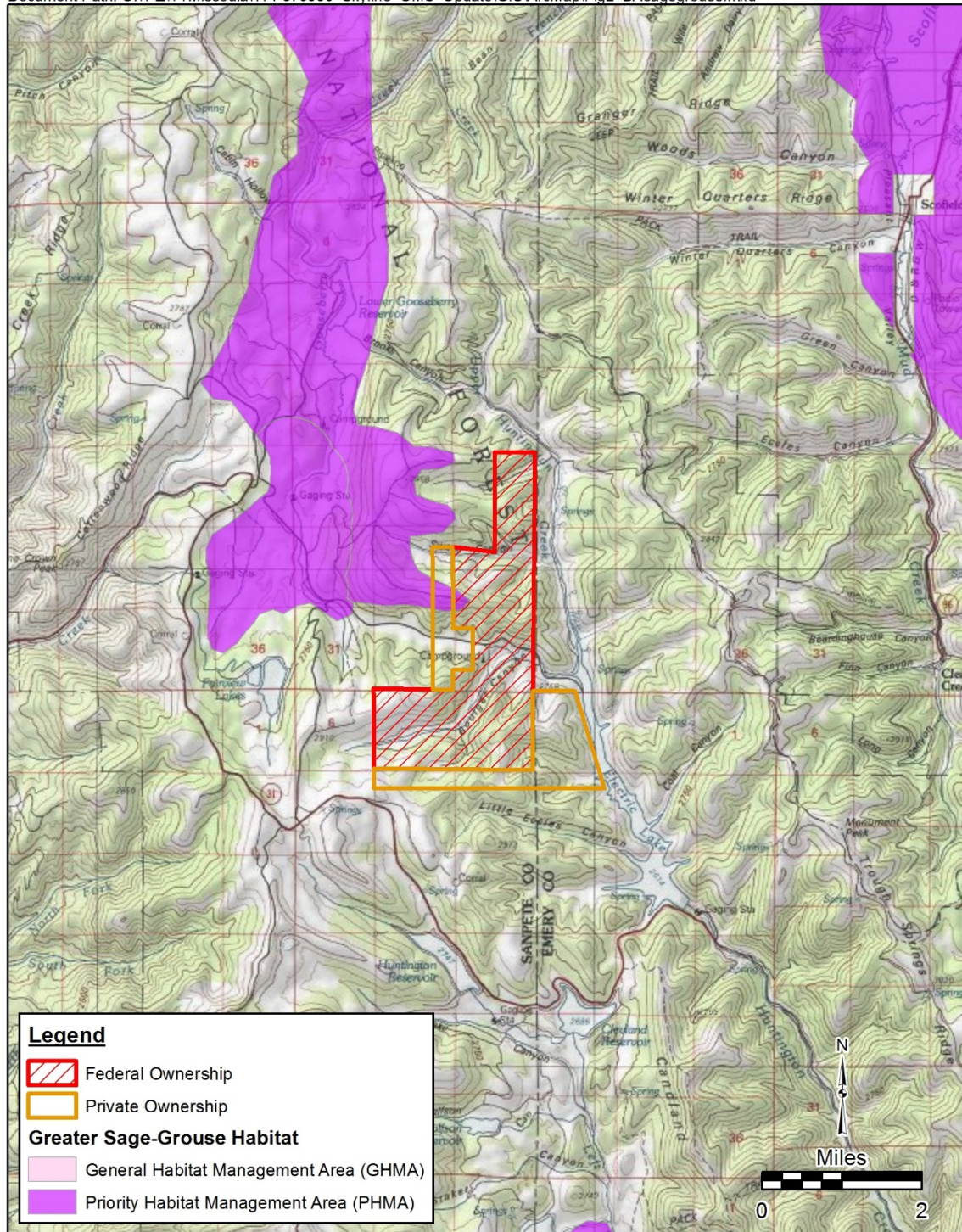
The SIR identified 3 candidate species that were added to the U.S. Fish and Wildlife Service (USFWS) county list since the 2002 FEIS. The SIR also confirmed that no suitable habitat for the additional species is found in the Project Area. For Forest Service sensitive species, the SIR identified the western boreal toad as the only species with suitable habitat within the lease area. The SIR concluded that the FEIS amphibian analysis was complete and no additional analysis was necessary. The greater sage-grouse (*Centrocercus urophasianus*) is the only species carried forward for analysis.

The BLM and Forest Service have identified Priority Habitat Management Areas and General Habitat Management Areas for greater sage-grouse. The Project Area is within the greater sage-grouse Carbon Biologically Significant Unit (**Figure 8**). In addition, BLM and Forest Service have mapped sagebrush focal areas, which are stronghold areas that contain the highest breeding densities of greater sage-grouse and highest quality sagebrush habitat. Both the Land Management Plan Amendments and Approved Resource Management Plan Amendments identify management decisions that apply to these habitat management areas on National Forest or BLM-administered land, such as limiting or eliminating new disturbance in Priority Habitat Management Areas and sagebrush focal areas, and minimizing surface disturbance in General Habitat Management Areas.

The Project Area is partially located in a Priority Habitat Management Areas but is not within a sagebrush focal area. Approximately 78.3 acres of the Priority Habitat Management Areas falls within the Project Area (22.8 acres of which are located on National Forest, and 55.5 acres are on private land). The closest lek is approximately 9.8 miles to the northeast around Scofield Reservoir.

Figure 8 - Sage Grouse Priority Habitat Management Areas

Document Path: O:\T-Z\TMissoula\114-570960 Skyline OMS Update\GIS\ArcMap\Fig2_BAsagegrouse.mxd



Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

**Greater Sage-Grouse Habitat
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah**

There is no nesting/brood rearing habitat or winter habitat in the Project Area (UDWR, 2014) This was confirmed in a letter finding from the Utah Division of Wildlife Resources dated October 9, 2014: "...classified as non-habitat for greater sage-grouse (Utah Division of Wildlife Resources, 2014).

The Forest Service and the BLM, as cooperating agencies, engaged in a collaborative, landscape-level conservation effort for greater sage-grouse to conserve the species' habitat and avoid the continued decline of populations. The process was in response to the 2010 USFWS finding that greater sage-grouse was warranted but precluded for listing as a threatened or endangered species under the Endangered Species Act (USFWS, 2010). The conservation effort culminated in the incorporation of greater sage-grouse conservation measures into agency land use plans. In September 2015, the Forest Service issued a Greater Sage-Grouse ROD for Idaho/Southwest Montana, Nevada, and Utah and Land Management Plan Amendments for these states (US Forest Service, 2015). In September 2015, the BLM issued a ROD and Approved Resource Management Plan Amendments for the Great Basin Region (including the Utah subregion) (BLM, 2015c). The Land Management Plan Amendments provide direction and guidance for management activities in sage-grouse habitat management areas on National Forest and the Approved Resource Management Plan Amendments provide direction and guidance for activities on lands administered by the BLM, including split-estate lands with BLM subsurface mineral rights.

3.6 Water Resources

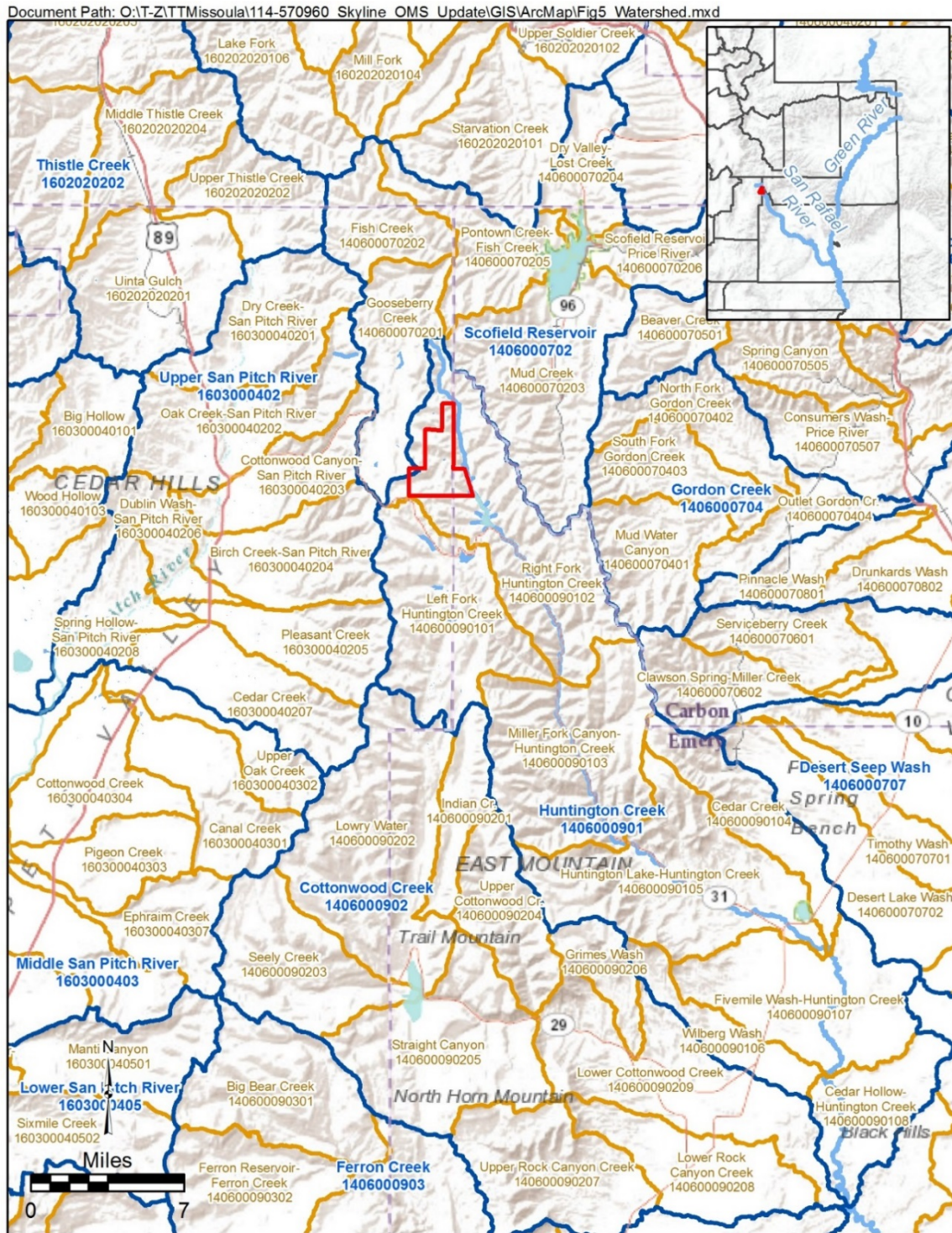
3.6.1 Surface Water

The Project Area lies within the Right Fork Huntington Creek Sub-watershed (Hydrologic Unit Code 140600090102) within the Huntington Creek Watershed (HUC 1406000901) (**Figure 9**). The Huntington Creek watershed is a tributary of the larger San Rafael River drainage which in turn drains to the Green River approximately 80 miles below the Project Area. Less than 6 percent of the southwestern project boundary lies in the Gooseberry Creek Sub-watershed (140600070201), which is part of the Price River drainage (**Figure 9**). The Price River flows to the Green River approximately 60 miles below the Project Area. Upper drainages in the Price River watershed drain first into Mud Creek, which empties to the Scofield Reservoir. Eccles Creek is the largest.

Perennial streams in the Project Area have been identified in Boulger, Flat, Swens, and Little Swens canyons; and in the upper portions of Huntington Canyon (**Figure 9**). The geomorphology of these sub-basins was described in detail in the 2002 FEIS (US Forest Service, 2002a). Stream flows are typical of intermountain regions, with relatively large flow volumes from snowmelt occurring in the spring and early summer months. As the spring runoff decreases in the later summer months, discharges drastically decrease to baseflows supported by active zone groundwater systems (Petersen Hydrologic, LLC, 2014a).

Electric Lake lies within Huntington Creek. The upper reaches above the dam of Electric Lake lie within the current Skyline Mine lease areas, but not within the footprint of the Project Area.

Figure 9 - Watershed Boundaries



Legend

- Project Boundary
- HUC-12 Boundary
- HUC-10 Boundary

Watershed Boundaries
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah

Many streams in the Project Area are gaining which suggests that perching layers identified beneath the systems effectively prevent streamflow losses to deeper groundwater systems in the subsurface (US Forest Service, 2002a). A study conducted by Canyon Fuel Company, LLC in Burnout Canyon, a tributary to Huntington Creek, concluded that there is little hydraulic connection between the perched perennial stream and their associated active shallow groundwater systems and the deeper groundwater systems, which may be intersected by mining. The study stated that “no perceptible or quantifiable diminutions in peak flow or baseflow discharge rates are apparent” (and the shallow groundwater system that sustains them) due to multiple-seam longwall mining occurring beneath the watershed (Petersen Hydrologic, LLC, 2014a). Monitoring was done in 8 stream locations. The study indicates that the Skyline Mine workings (and deeper groundwater system) below Burnout Canyon, would not affect discharge rates because streams are hydraulically isolated from the perched stream channel – shallow groundwater system.

Spring and seep surveys were conducted in the Project Area during low-flow conditions in the fall of 1997 and during high-flow conditions in the spring of 1998. Monitoring of springs and seeps during both low- and high-flow conditions were continued until 2000. Monitoring for flow and water quality for baseline conditions was resumed in 2006 and has continued to present, including 18 spring monitoring sites on 14 springs. The monitoring indicates that the potential for contamination, diminution, or interruption of groundwater systems is remote because the underground mining would intersect the inactive-zone groundwater in perched systems. These perched systems do not have any known uses or State appropriations (Peterson Hydrologic, LLC 2014a).

3.6.2 Groundwater

The geologic formations in the Project Area generally consist of interbedded shale, mudstone and siltstone that are laterally discontinuous. This discontinuity results in a lack of heterogeneity that affects water storage and transmission. In effect, groundwater flow is discontinuous and not generally transmitted great distances, either vertically or horizontally (Petersen Hydrologic, LLC, 2014a).

The shallow groundwater – surface water systems primarily consist of colluvial/shallow bedrock or alluvial deposits with enhanced weathering and fracturing. These systems occur in the thick soil mantle and slope wash colluvial deposits or higher permeable alluvial deposits. The relatively low-permeability horizons in bedrock formations hinder appreciable migration of groundwater to deeper stratigraphic horizons and create perched surface water conditions (Petersen Hydrologic, LLC, 2014a).

An additional formation called the Star Point Sandstone Formation does not outcrop in the Project Area, but lies both above (in some areas) and beneath the mining zones of the Skyline Mine. The Star Point Sandstone Formation is massive, moderately fine- to medium-grained sandstone that is moderately well consolidated. Individual sandstone units are separated in portions of the area by partings of low-permeability siltstones or mudstones. Studies have indicated that groundwater flowrates in the Star Point Sandstone Formation are low with hydraulic conductivities measured in minimally-fractured zones immediately south of the Project Area of 4.8×10^{-8} to 7.4×10^{-8} feet per second (Petersen Hydrologic, LLC, 2014b). However, in the Skyline Mine, inflows of groundwater

have occurred that are associated with fault and/or fracture systems (secondary permeability) encountered in the Star Point Sandstone Formation.

There are no known uses of the Star Point Sandstone water in the vicinity of the Project Area (Peterson Hydrologic, LLC 2014a). This is likely because of the extremely low primary hydraulic conductivity and the lateral discontinuous nature of the deep groundwater systems.

3.6.3 Surface and Groundwater Quality

Water quality results from the spring and seep monitoring program within the Project Area (Petersen Hydrologic, LLC, 2014a) show the shallow groundwater are low in total dissolved solids (TDS) (i.e. salts) and is of the calcium-bicarbonate geochemical type. This geochemical type is consistent with the dissolution of carbonate minerals and buffers against oxidation of sulfide minerals eliminating the potential for acid mine drainage or metal leaching.

The water quality of surface water drainages in the Project Area is similar to that observed in the springs and seeps that discharge from the perched shallow groundwater systems. The water quality is also of the calcium-bicarbonate geochemical type with low TDS concentrations (Petersen Hydrologic, LLC, 2014a). The Probable Hydrologic Consequences report (Petersen Hydrologic, LLC, 2014a) also concluded that the stream water quality compositions are generally the same because the streamflow is supported by the active shallow groundwater perched system.

Groundwater quality, including that of the Star Point Sandstone, meets State of Utah drinking water standards for the parameters that have been analyzed. Untreated spring water is used at cabins and campgrounds.

3.6.4 Mine Dewatering and Discharges

Eccles Creek drains to Mud Creek and then to the Scofield Reservoir. The Scofield Reservoir is approximately 2,800 acres with a capacity of approximately 74,000 acre-feet (US Forest Service, 2002a). Water produced in the underground workings of the Skyline Mine has historically been discharged into Eccles Creek just below the Manti-La Sal National Forest boundary. The discharge is permitted by a UPDES permit (UT0023540) (DWQ, 2015). The outfall which discharges to Eccles Creek is both the continuous pumped groundwater and storm water runoff from the mine. Because the mine water is comingled with storm water, the discharge is run through a small sedimentation pond as a best management practice. The water quality in Eccles Creek is monitored above the discharge outfall and at the point source of discharge as specified in the UPDES permit, included in the mine permit. Effluent limitations were established for total effluent flow, iron, total suspended solids, total dissolved solids, dissolved oxygen, pH, oil and grease, and whole effluent toxicity.

Before 1999, very little water was intercepted by underground mining. Small quantities of water were sometimes intercepted in some of the Skyline Mine workings, while adjacent workings were dry. The combined water discharge from the Skyline Mine was generally less than 1,000 gallons per minute and was typically a few hundred gallons per minute (Petersen Hydrologic, LLC, 2014a). Mining operations progressed to the southwestern portion of the Skyline Mine beginning in 1999, where appreciably more groundwater was intercepted. The primary source of the groundwater was upwelling from intercepted faults and fractures in the Star Point Sandstone Formation, which

underlay the Skyline Mine workings. In 2001, Canyon Fuel Company, LLC mined through a more significant fault which resulted in higher flows into the Skyline Mine workings and increased discharges to the Eccles Creek outfall. Groundwater inflows peaked in 2003 with discharges exceeding 8,000 gallons per minute (Petersen Hydrologic, LLC, 2014b). As a result of these increased flows, a groundwater pumping well (JC-1) was drilled and completed in a fracture system of the Star Point Sandstone Formation to depressurize this section of the formation. Water is pumped from this well and discharges to Electric Lake. Pumping rates have varied between 2,000 and 4,000 gallons per minute and continue to this day. Mining in this area was completed in 2003 and water levels in the Skyline Mine pool were allowed to rise and flood that portion of the Skyline Mine. By September 2004, the water levels in the southwest Skyline Mine pool had risen to the 8,350 foot level where it is maintained for current mining activities by pumping discharges to the Eccles Creek outfall. The pumping from the southwest pool decreased with additional head on the inflows with the discharge rates decreasing to a present day rate of approximately 1,880-2,000 gallons per minute.

Groundwater discharge supports base flow to creeks that are classified as “High Quality Waters – Category 1” by the State of Utah, Utah Administrative Code (UAC) R317-2 (Petersen Hydrologic, LLC, 2014a).

3.7 Soils

County soil survey data are not available for the Project Area (NRCS, 2016). However, based on similar elevation, topography, and vegetation, soils within the Project Area and Skyline Mine area can be expected to be similar to those found in a mapped area located immediately east of Huntington Creek. The 4 soil map units occupy the majority of this area are:

- Curecanti family – Pathead complex (Map Unit 23);
- Senchert family – Senchert complex (Map Unit 105);
- Trag – Croydon complex (Map Unit 118);
- Uinta – Toze families complex (Map Unit 125);

The Curecanti family – Pathead complex is found on convex and linear mountain slopes and canyons with slopes ranging from 40 to 70 percent located at elevations between 6,980 to 8,970 feet above sea level. These soils consist of loams and sandy loams derived from sandstone and shale colluvium. In areas where Curecanti family soils are present soil depths exceed 60 inches. Pathead soils are shallower, extending between 20 and 40 inches in depth before encountering lithic bedrock.

The Senchert family – Senchert complex is found on convex mountain slopes with slopes ranging from 30 to 50 percent located at elevations between 7,980 to 9,070 feet above sea level. These soils consist of loams, clay loams, and sandy loams derived from sandstone and shale alluvium and colluvium. These soils are between 20 and 40 inches deep and overlie lithic bedrock.

The Trag – Croydon complex is found on convex mountain slopes with slopes ranging from 30 to 60 percent located at elevations between 7,580 to 9,470 feet above sea level. These soils consist of

loams and clay loams derived from sandstone and shale alluvium and colluvium. In areas where Trag soils are present soil depths exceed 60 inches. Where Croydon soils are present, soil depths extend between 40 and 60 inches before encountering bedrock. This map unit is not prime farmland.

The Uinta – Toze families' complex is found on convex mountain slopes with slopes ranging from 35 to 70 percent located at elevations between 7,780 to 9,570 feet above sea level. These soils consist of clay loams, sandy loams, and silty loams derived from sandstone, shale, and siltstone colluvium. Areas where Uinta soils are present range from 40 to 60 inches before encountering bedrock. Toze soils are deeper and extend below 60 inches in depth.

Chapter 4

Direct and Indirect Impacts

4.1 Introduction

This chapter describes the direct and indirect impacts in sufficient detail to understand a change from the present as a result of the alternatives considered in detail (OSMRE, 1989). Direct impacts are those that are caused directly by the proposed activities at the same time and place (40 CFR 1508.8(a)). Indirect impacts are those that are removed in time and place (40 CFR 1508.8(b)). Impacts may be short-term (also referred to as temporary) or long-term. Short-term impacts generally occur for a short period during a specific time. Long-term impacts would generally last the life of the project and beyond. Impacts are also described by level of significance

- Major Impact: Impacts that potentially could cause irretrievable loss of a resource; significant depletion, change, or stress to resources; or stress within the social, cultural, and economic realm.
- Moderate Impact: Impacts that potentially could cause some change or stress to an environmental resource but the impact levels are not considered significant.
- Minor Impact: Impacts that potentially could be detectable but slight.
- Negligible Impact: Impacts in the lower limit of detection of an impact that could cause an insignificant change or stress to an environmental resource or use.
- No Impact: No discernible or measurable impacts.

Impacts are adverse unless specifically stated that they are beneficial.

The determination of impacts varies for each resource and the context of the specific Proposed Action. When available, the analysis applies quantitative thresholds to determine the level of significance. Other issues have been analyzed qualitatively.

Direct and indirect impacts from the Proposed Action would result from mining the coal, subsidence, water use and discharge, extending the life of the Skyline Mine by 9 to 12 years, coal transportation, and coal combustion. Direct and indirect impacts are analyzed in this EA for topography and geology from subsidence (to support the understanding of the impacts on water and soils), water (to update monitoring data), air quality and climate change (criteria pollutants and GHG), social and economic (environmental justice populations and updated employment and tax revenue), greater sage-grouse, and soils. The analysis of other resources is adequately addressed in the previously completed Flat Canyon Coal Lease Tract FEIS (US Forest Service, 2002a), its ROD (US Forest Service, 2002b), and the associated SIR (US Forest Service, 2013). The analysis in this EA tiers to the 2002 FEIS (40 CFR 1502.20) The 2002 FEIS, the Forest Service and BLM RODs, SIR, and BLM's Determination of NEPA Adequacy (see **Section 1.2**) are incorporated by reference (40 CFR 1502.21).

4.1.1 Summary of Direct and Indirect Environmental Impacts

Table 14 summarizes and compares the potential direct and indirect environmental impacts associated with the Proposed Action and the No Actions.

Table 14 - Comparison of Direct and Indirect Impacts

Resource	Proposed Action	No Action
Topography and Geology	Direct impacts on topographical changes or horizontal tension fractures from subsidence would be negligible and long-term. There would be no indirect impacts.	No direct or indirect long or short term impacts on topography.
Air Quality and Climate Change		
Emissions of Criteria Pollutants	Impacts on emissions of criteria pollutants would be negligible and long-term. Although it is possible to calculate the direct emissions of criteria pollutants from mining and processing coal under the Proposed Action, they would not be discernable or measure at any of the regional monitoring locations. Indirect effects would be negligible and long-term, remaining below levels as allowed under the current approval order.	There would be no direct impacts. Indirect impacts would be negligible and short-term, ending in 2018.
HAPs	There would be negligible long-term impact from the emission of HAPs. There would be negligible, long-term impact from the emission of mercury 14 pounds per year, or 166 pounds of mercury for the probable maximum total 47 million tons of federal and private coal.	There would be no direct impacts. Indirect impacts would be negligible and short-term, ending in 2018.
GHG	The direct emission of GHG would be negligible and long-term based on the measured emissions. GHG effects on the climate are negligible and long-term. CO ₂ e from rail transport would be negligible and long-term, 36,476 tons per year for 9 to 12 years.	There would be no direct impacts. Indirect impacts would be negligible and short-term, ending in 2018.
Social and Economic	Continued mine operation would extend 320 jobs at the mine and an undetermined number of support service jobs for 9 to 12 years. Impacts would be considered minor, beneficial, and long-term.	320 jobs at the mine and an undetermined number of associated jobs in the community would be end with mine closure in 2018. No royalties would be paid to the federal, state, or local governments. Industries to which Skyline Mine contributes indirectly would experience a decline in business and associated revenue. Impacts would be major and long-term.
Greater Sage-Grouse	No direct or indirect impacts are expected as Proposed Action concerns continuation of underground mining. Subsidence	There would be no direct or indirect impacts.

Resource	Proposed Action	No Action
	impacts to Priority Habitat Management Areas would be negligible and not likely to be perceptible to sage grouse.	
Water Resources		
Surface Water	Direct impacts to surface water from subsidence would be unlikely, as an adequate overburden exists between the surface water and the mining void. Additionally, overburden consists of bedrock formations with very low permeability. Surface water resources from potential subsidence cracks are not anticipated or would be negligible and long-term. Minor, short-term impacts on stream flow would continue. Additionally, based on past history, impacts on water quality of surface waters, groundwater, or springs would be negligible and short-term.	There would be no direct impacts because mining the Flat Canyon Lease would not occur. Indirect impacts would be negligible and short-term lasting until 2018 when mining would cease.
Groundwater	Additional mining in the Project Area would not result in any long-term or short-term impacts on groundwater flow. No indirect impacts on groundwater are anticipated.	There would be no impact on groundwater.
Soils	There would be no surface disturbance. Subsidence may cause minor cracks and larger openings where potential soil loss could occur. Direct impacts on soils would be negligible and short-term. Indirect impacts from ongoing mining operations would be minor and long-term until reclamation is achieved.	There would be no direct impacts. Indirect impacts from current ongoing mining activities would be minor and long-term until reclamation is achieved.

Resource mitigation measures can be found in the Flat Canyon Coal Lease Tract FEIS (US Forest Service, 2002a) and this document does not offer additional mitigation measures.

4.2 Topography and Geology

4.2.1 Proposed Action

A probable maximum of 42 million tons of mineable coal would be recovered from federal lands and another 5 million from private land through underground mining with the approval of the mining plan modification. Removal of the coal would affect the geologic structure in the Project Area.

4.2.1.1 Direct Impacts

Surface subsidence from extraction of the underground coal seams, would result in changes to topography depending upon rock strength, discontinuities, stress, thickness, and types of overburden, topography, mining methods and orientation, and the thickness of the coal seam extracted. Models (adjusted to local conditions based on monitoring) developed adjacent to the Project Area have improved the accuracy of subsidence predictions. Skyline Mine predicted the

subsidence associated with the Flat Canyon Federal Coal Lease Tract UTU-77114 to be a maximum of 2 feet (Canyon Fuel Company, LLC, 2015). The lease includes a stipulation that requires mining to be done in a manner that prevents surface subsidence that would cause hazardous conditions, result in damage to existing surface structures, or damage the flow of perennial streams (BLM, 2015d).

The likelihood that horizontal tension fractures from subsidence would develop is low, as the majority of mining would be conducted in single-seam mining. Observations of subsidence at the Skyline Mine from past mining have not found large tension fractures to be common and those were mitigated by filling the cracks or recontouring. **Section 4.5** further discusses the Probable Hydrologic Consequences report (Petersen Hydrologic, LLC, 2014a), which presents information supporting the low likelihood of significant subsidence to occur. **Therefore**, impacts to topography due to subsidence would be negligible and long-term because subsidence would occur for the duration of the project and beyond.

4.2.1.2 Indirect Impacts

There would be no indirect impacts on topography and geology under the Proposed Action.

4.2.2 No Action

4.2.2.1 Direct Impacts

Under the No Action, no coal would be recovered from the Flat Canyon Federal Coal Lease Tract UTU-77114 or the adjacent private lands with non-federal coal reserves. Even if an underground right-of-way were granted through the Flat Canyon Coal Lease Tract UTU-77114 for the purpose of mining the private reserves, it is unlikely that it would be economical to develop access tunnels the distance needed to reach the small amount of recoverable private coal reserves using the methods the Skyline Mine proposes. Subsidence on remaining accessible areas would be negligible; **therefore** there would be no direct long- or short-term impacts on topography.

4.2.2.2 Indirect Impacts

There would be no indirect impacts on topography under the No Action.

4.3 Air Quality and Climate Change

Direct impacts are those from activities including mining the coal in the Flat Canyon Federal Coal Lease Tract UTU-77114, moving the coal to the stockpile and the CH₄ emissions in the stock pile attributable to the Flat Canyon coal.

Indirect impacts result from taking coal from the stockpile, processing, and shipping it, as are all other mining activities at the Skyline Mine. Indirect impacts include CH₄ released from the stockpiles attributable to coal mined at the Skyline Mine other than the Flat Canyon coal. Indirect impacts also include transportation of the coal from Skyline Mine and coal combustion.

4.3.1 Proposed Action

4.3.1.1 Direct Impacts

Criteria Pollutants

Operations and Tailpipe Emissions

At Skyline Mine, direct mining-related air quality impacts would include fugitive dust emissions from coal handling and wind erosion of coal and other material stockpiles. The location, amount, and types of emission sources would not change from current permitted operations. The Proposed Action would extend these impacts by 9 to 12 years.

Coal would be mined underground, transported by underground conveyor and stockpiled. Fugitive dust from stockpiles is controlled by naturally occurring 8.5 percent moisture content and, when moisture content drops below 4 percent, process source emissions are controlled with a filter baghouse (HDR Engineering, Inc., 2015).

The Proposed Action would extend the life of an underground mine and coal storage in stockpiles (see **Section 2.2**), such as it has been since 1981. Emissions associated with permitted sources would continue for approximately 9 to 12 years. Skyline Mine is currently operating under Approval Order DAQE-AN00092007-03 (DEQ, UDAQ, 2015). As Skyline Mine's current Approval Order covers proposed activities in the Flat Canyon Federal Coal Lease Tract UTU-77114, the UDAQ does not anticipate that the mining plan would result in emissions that would adversely affect human health or the environment. The proposed modifications would not alter the current production limits allowed under the Approval Order.

Table 15 shows the outcome of the inventory for operations currently permitted under Approval Order DAQE-AN00092007-03 (UDAQ, 2015b). An inventory is sufficient to demonstrate compliance with the NAAQS (per UDAQ Air Quality Rule R307-410-4) *Modelling of Criteria Pollutant Impacts in Attainment Areas*, because (except for PM₁₀) emission would not come near to the limits establishing the need to model emissions. Emissions below these limits are presumed not to pose a threat to exceeding the NAAQS and therefore no modeling is required.

Table 15 - Regulated Pollutants Evaluated for Air Quality Permit

Pollutant	Potential to Emit Facility Total (tons/year)	Requiring modeling per Air Quality Rule R307-410-4 ⁽¹⁾ (tons/year)
PM ₁₀	22.90	5 fugitive, 15 non-fugitive
PM _{2.5}	5.01	NA
NO _x	12.33	40
CO	10.36	100
SO ₂	0.07	40
VOC	0.68	NA

Source: (HDR Engineering, Inc., 2015). Operations included in the inventory are, natural gas fired heaters, natural gas fired boilers, conveyor transfer points, crushing operations, screening operations, rail/truck loading, stockpiling, stockpile conveyor transfer, truck loading, truck traffic, and truck traffic rail load-out.

(1) <http://www.rules.utah.gov/publicat/code/r307/r307-410.htm>.

The AERMOD model results for potential to emit PM_{10} is 147 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), which is below the NAAQS of $150 \mu\text{g}/\text{m}^3$ (**Table 5**). The modeled PM_{10} impact of $99 \mu\text{g}/\text{m}^3$, combined with distant background of $48 \mu\text{g}/\text{m}^3$ (see **Section 3.3.1.3**) is lower than the applicable NAAQS of $150 \mu\text{g}/\text{m}^3$ (**Table 5**); therefore, the Skyline Mine is in compliance with the standard.

Fugitive Sources

Emission sources at Skyline are predominantly fugitive in nature. Sources include conveyor transfer points, stockpile storage, truck, and railcar loading. Fugitive sources are included in **Table 15**.

There are multiple storage piles at various locations on the mine property, which contribute to windblown fugitive emissions. Covered conveyors are used to transport coal around the mine. Truck hauling at the mine is only allowed by the air permit when the conveyor system is not operational. Calculations of particulate matter emissions from wind erosion of the coal stockpile used the factors from EPA. The analysis assumed each stockpile would have a maximum of 5 percent of the surface disturbed in any 24-hours. Surface disturbance includes surface grading and stockpile management. Emissions from placing in or removing coal from the stockpile were calculated as transfer point operations. Because the stockpiles are not used for daily coal production, this method provides a conservatively high calculation (HDR Engineering, Inc., 2015).

Calculations of particulate emissions were estimated for the haul roads from the haul trucks entering and exiting the mine for coal load-out. There are 3 truck load-outs located at the mine. The truck load-outs are comprised of a semi enclosed structure. (HDR Engineering, Inc., 2015).

Process Emission Sources

The Skyline Mine includes several process sources of emissions through the mine conveyor system, which are included in **Table 15**. The emission sources consist of 2 crushers, 2 screens, multiple storage silos and bins, fifteen natural gas space heater, and 2 boilers. The majority of coal produced is directly transferred by conveyor through the system to the rail load-out where it is transported offsite after being loaded on to railcars. Dust emissions associated with the process emissions are controlled with 5 filter baghouses, 2 at the run of mine silo, one at a crusher, 2 at storage silos, and one at a rail load-out (HDR Engineering, Inc., 2015).

Tailpipe Emissions

Transportation of coal around the mine is by covered conveyor. Truck hauling at the mine is only allowed by the air permit when the conveyor system is not operational. Tailpipe emissions were estimated for the haul trucks entering and exiting the mine for coal load-out. There are 3 truck load-out locations located at the mine. The access road to the mine is paved and primarily used by employees coming to and from the mine using typical passenger vehicles.

Total Emissions

Using the assumptions and processes described above, emissions were calculated for criteria pollutants and HAPs (**Table 16**). This information is summarized from the notice of intent (NOI) to Construct (HDR Engineering, Inc., 2015) for a completed project and is assumed represent the

maximum direct emissions from mining Flat Canyon. Overall impacts would be negligible and long-term, lasting for 9 to 12 years. There would be no change in the attainment status of the airshed.

The haul road is primarily unpaved road with the exception the access point from the public road that is paved. Emissions were calculated using EPA factors (HDR Engineering, Inc., 2015). Water is used as a dust suppressant, which reduces the dust emissions by 75 percent. Trucks will use the haul roads at the rail load-out and stoker area which are paved.

Table 16 - Skyline Mine Criteria Pollutant Emission Calculations (tons per year)

Source	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC
Fugitive	13.29	2.45	NA	NA	NA	NA
Process	9.61	2.55	12.33	10.36	0.07	0.68
Tailpipe ¹	0.019	0.017	0.796	0.225	0.000	0.039
Total Annual Emissions²	22.92	5.02	13.13	10.59	0.07	0.72

Source: (HDR Engineering, Inc., 2015)

1 Tailpipe Emissions are calculated using EPA Emission facts, Average In-Use Emissions from Heavy-Duty Trucks Table 2 GWV Class VIIIb. Tailpipe emissions are only calculated for the haul trucks that operate onsite.

2 Total Annual Emissions will be slightly higher than the emissions identified for the facility in the Approval Order with the inclusion of Tailpipe emissions. Tailpipe emissions are not estimated in the NOI nor provided in the Approval Order.

PM₁₀ and PM_{2.5}

Particulate matter emissions from wind erosion of coal stockpiles used the factors from EPA. The analysis assumed each stockpile would have a maximum of 5 percent of the surface disturbed in any 24-hours (**Table 16**). Surface disturbance includes surface grading and stockpile management. Emissions from placing in or removing coal from the stockpile were calculated as transfer point operations. Because the stockpiles are not used for daily coal production, this method provides a conservatively high calculation (HDR Engineering, Inc., 2015). The stockpile and mine tube stacker combined are 7.3 acres. Canyon Fuel Company, LLC provided a PM₁₀ modeling analysis as part of their air application package and results indicate that the maximum predicted concentration of PM₁₀ would total 147 µg/m³, below the NAAQS concentration of 150 µg/m³ (HDR Engineering, Inc., 2015). The modeling was done using AERMOD version 14134.

NO_x, CO, SO₂, and VOC

In 2015, as part of the air permit, an emission inventory was completed on the mine's operations potential to emit (HDR Engineering, Inc., 2015). NO_x, CO, SO₂, and VOC emissions were estimated for the combustion sources located at the mine (**Table 16**). These emissions sources are comprised of fifteen natural-gas space heaters located at various locations throughout the mine, and 2 natural gas-boilers that are used for heating the mine shop building.

Black Carbon Emission Estimates

Black Carbon is a subset of the PM₁₀/PM_{2.5} emissions associated with diesel fuel combustion. Black carbon is effective at absorbing light and has a disproportionately larger impact on visibility degradation compared to other forms of particulate matter.

Black Carbon has been calculated as a percentage of PM_{2.5} emissions associated with the diesel fuel combustion of the coal transportation off site (Cai & Wang, 2014). The calculated black carbon emissions are based on emissions associated with the diesel haul trucks that transport coal offsite.

Amounts emitted are not regulated and, therefore, not measured. Black carbon emissions from diesel fuel would be negligible as seen in **Table 17**.

Table 17 - Black Carbon Emissions (tons per year) from Haul Trucks, Proposed Action

PM _{2.5}	Black Carbon Ratio	Black Carbon Emissions
0.017	0.56	0.0097

Source: Table 8. (Cai & Wang, 2014).

Black carbon and GHG emissions have been linked to climate impacts such as increased temperatures. Black carbon is a by-product of incomplete combustion of fossil fuels, biofuels, and biomass, and can be emitted from the tailpipes of diesel engines at Skyline Mine. Black carbon is an unregulated pollutant.

Because these negligible impacts on air quality would occur for the duration of the project, they are long term. Although it is possible to calculate the direct emissions of criteria pollutants from mining and processing coal under the Proposed Action, they would not be discernable or measure at any of the regional monitoring locations.

HAPs

Utah Administrative Code R307-410-5 requires any source submitting an NOI, which proposes to increase HAP emissions, evaluate the emission increase with respect to Acute Emission Threshold Values (ETVs) to determine if dispersion modeling is required. The Skyline will not increase HAP emissions because no sources of combustion will change from the Proposed Action. The total potential to emit of formaldehyde was evaluated with respect to the ETV for formaldehyde in order to provide a conservative estimate. Formaldehyde, a HAP, is estimated at 0.002 pounds per hour, well below the “worst-case” Acute Emissions Threshold Value of 0.0140. Because the potential emissions are lower than the worst-case ETV, no further analysis is required. Likewise, dispersion modeling is not required according to the Utah Administrative Code R307-410-5.

The majority of HAPs emitted would be the result of vehicle use. The major source threshold for HAPs is 10 tons per year of any one HAP or 25 tons per year of aggregate HAPs. The Skyline Mine would not be categorized as a major source for HAPs because the mine produces a maximum of 0.23 tons per year of total HAPs (HDR Engineering, Inc., 2015).

The impacts discussed above would be negligible, long-term from the emission of HAPs because they would be at the lower limits of detection.

GHG

GHG emissions may be comprised of any combination of emissions of CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. GHG emissions are calculated on a CO₂e basis per EPA's Greenhouse Gas Reporting Program. GHG emissions may be comprised of any combination of emissions of CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. GHG emissions are calculated on a CO₂e basis.

As presented in **Table 16**, the proposed action will potentially emit 14,893 tons CO₂e per year (from space heaters and boilers), which is less than the reference level established in the guidance. Consequently the mining plan modification will have no significant impact or impact on GHG annual emissions associated with the inventoried sources listed in the Approval Order.

Each regulated GHG has an associated global warming potential. Global warming potential (how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of carbon dioxide) was developed to allow for direct comparisons of global warming impacts of different gases. CO₂ is used as the reference gas and therefore has a global warming potential of 1. According to the EPA (EPA, 2016f), CH₄, and N₂O have global warming potentials over 100 years of 28 and 298, respectively. All associated GHG emissions are multiplied by each applicable global warming potential and aggregated together to obtain a final value of CO₂e in units of metric tons.

The potential to emit CO₂e from Skyline Mine operations (HDR Engineering, Inc., 2015) is 14,893 tons per year. As stated in **Section 3.3.2**, this level is below the 25,000 metric tons reporting limit established by EPA. Based on emission estimates for the Skyline Mine (HDR Engineering, Inc., 2015), no GHG reporting or permitting would apply because CO₂e emissions would be less than 100,000 tons per year and the mine is not a major source for other pollutants (see **Section 3.3.1.2**). GHG emissions reporting do apply to the facilities where coal from Skyline Mine would be used and future GHG permitting could apply for future modifications (if any). Impacts from GHG would be negligible and long-term, lasting from 9 to 12 years.

Climate Change Impacts on the Proposed Action

According to the U.S. Geological Survey's (USGS) National Climate Change Viewer³, climate change could produce the following impacts in Sanpete County, UT (USGS, 2016):

- Annual mean temperature increase of up to 4.5 °F,
- Annual mean precipitation increase of up to 0.4 inches per day,
- Annual mean snowfall decrease of up to 0.7 inches per year,
- Annual mean evaporation deficit increase of up to 0.2 inches per month, and
- No annual mean changes to runoff.

The Proposed Action would be expected to be completed by 2028 and therefore would not be subject to the full extent of these potential climate change impacts. However, for analysis purposes the EA assumes that the maximum annual mean value would be realized during the life of the mine.

Changes to the temperature, snowfall, precipitation levels, and streamflow (**Section 3.3.2.3**) could impact surface water, subsidence, greater sage grouse, and reclamation activities.

³The USGS National Climate Change Viewer was run for years 2025 – 2049 using the conservative climate change scenario (RCP8.5) which assumes no new climate change regulations or reductions would be implemented (USGS, 2016).

Surface Water

In the 10 to 12 year life of the project, natural variation results in dryer or wetter years (see **Section 3.6**). Considering the overall climate change timeframe of centuries, it is possible that decreased snowpack may be observable locally, or may not during the project timeframe. Likewise, decreases in streamflow may be observed, but during the mining dewatering timeframe of 10 to 12 years, mine dewatering may compensate for climate change related stream flow reduction, or may have no additional influence on streamflow. The Proposed Action would not affect any surface water bodies and groundwater sources due to the location of the groundwater formations. Therefore, the Proposed Action would also not affect these resources due to climate change.

Subsidence

The Proposed Action would not involve any new surface disturbance, therefore, it would not be impacted by changes to soil erosion. Also, the USGS National Climate Change Viewer does not predict any annual mean changes to runoff therefore it is anticipated that there wouldn't be any impacts from climate change to subsidence.

Greater Sage-grouse

The Proposed Action is consistent with the greater sage-grouse Land Management Plan Amendments for Utah and the Utah Approved Resource Management Plan Amendments which take into account potential climate change impacts on the greater sage-grouse (**Section 4.5.1**).

Reclamation

The post reclamation land use would be wildlife habitat and grazing, consisting of vegetation cover of grasses and shrubs. Potential changes to the natural environment, as listed above, could result in the need to consider different seed mixes during reclamation to account for the higher temperatures and increased precipitation levels. This change in reclamation would be re-evaluated before beginning reclamation activities and the Operator would consult with OSMRE and Utah DOGM if it resulted in changes to the approved reclamation plan.

Methane Emissions from Coal Extraction

CH₄ emissions were calculated in the Notice of Intent for Construction (HDR Engineering, Inc., 2015). Potential sources identified that emit CH₄ are natural gas-fired heaters in the rail load-out building and the one of the transfer points (BC-13 reclaim). No CH₄ emission sources were identified for conveyors, crushers, screening, load-out facilities (other than the heaters), truck loading, transfer points, or stockpiles, or emissions were not calculated.

Skyline Mine (Skyline Mine, 2015) reports that in 2015, the direct surface coal extraction at the mine released 17.3 tons of CH₄. This amount is equivalent to 364 metric tons of CO_{2e}. The CH₄ release was calculated using samples that were collected at monitoring points located at, Portal No.1 - No.5, Trespass Portal, BC-2 Portal, and Winter Quarters Portal. The CO_{2e} from the emissions inventory and the methane release from mining totals 15,257 metric tons of CO_{2e} emissions per year.

Another way to assess the potential impacts on GHG emissions is to use EPA emissions factors and the maximum mining rate of 8 million tons per year identified in their air permit. These calculated annual emissions are shown in **Table 18**. These calculations do not represent the mine's actual emissions under current or proposed operations, nor do they represent the mine's reporting requirements.

The direct emission of GHG would be negligible and long-term based on the measured emissions. GHG effects on the climate are negligible and long-term (see discussion above).

Table 18 - Direct GHG Emissions (metric tons per year), Maximum 8 Million Tons

Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Truck Transport Load-out	21.5	.005	.0002	21.67
CH ₄ Release Post Mining	--	2,144	--	15,008
CH ₄ Release Mining	--	4,288	--	107,200
Total	21.5	6432	.0002	122,229

4.3.1.2 Indirect Impacts

Criteria Pollutants

Operations

Indirect air quality impacts at the mine complex would include exhaust from combustion sources (i.e. trucks, maintenance equipment, and other motor vehicles). Ventilation emissions from the mine and coal preparation facility would also occur. These sources would continue to contribute CO, NO_x, SO₂, and PM. However, these emissions would be negligible and long-term, remaining below levels as allowed under Skyline Mine's current Approval Order.

Precursors of O₃ including NO_x and VOCs are generated by the combustion of coal. O₃ impacts from coal combustion are not quantifiable for the project specifically because Skyline Mine ships coal to many consumers which change over-time which creates high uncertainties and an inability to analyze indirect emissions. Emissions were estimated using EPA AP-42 emission factors for Bituminous and Subbituminous Coal Combustion (**Table 19**).

Table 19 - Ozone Precursor Emissions Rates Based on Maximum Annual Coal Production

Coal Combustion Rate (tons per year)	NO ₂ (tons per year)	VOC (tons per year)
8,000,000	29,600	240

Tailpipe Emissions Sources

Tailpipe emissions would be the same as the direct impacts.

Rail Transportation

Indirect emissions were estimated based on the largest, single, U.S.-based power plant consumer of Skyline Mine coal in 2015 as presented in **Table 2**, the Intermountain Power Project located in Millard County, Utah. Intermountain Power Project is used as a representative coal-fired power plant to quantify potential indirect emissions. The actual future coal destination as part of the Proposed Action is unknown because the distribution of coal from Skyline Mine varies every year.

The Intermountain Power Project is owned and operated by Intermountain Power Service Corporation. In 2015 Skyline Mine had shipped 909,840 tons of coal to Intermountain Generation Station; Intermountain used approximately 5,445,459 tons of coal in 2015 (Energy Information Administration, 2016a). The Skyline Mine accounts for approximately 16.7 percent of the total coal that was used at Intermountain Power Project in 2015.

The rail emissions are estimated on an annual shipping rate of 4 million tons per year (**Table 20**). The 4 million tons shipped was used as a conservative estimate. Four million tons per year is an approximate average of the amount of coal that Skyline produces annually. The mass of coal per an individual railcar is assumed to be 100 tons. A conservative estimate of 110 railcars was used to estimate the potential maximum number of railcars that could be associated with the coal train. This equates to 11,000 tons of coal per rail shipment. The maximum number of annual shipments is 364. It was assumed that 3 engines would be associated with each coal train rated at 4,000 brake/engine horsepower per engine.

Table 20 - Railcar Criteria Pollutant Emissions

Pollutant	Emission Factor (grams/brake horsepower-hour) ¹	Emissions (tons per year)
PM ₁₀	0.015	0.294
PM _{2.5} ²	0.01	0.285
NO _x	1.00	19.60
CO	1.28	25.09
SO ₂ ^{3,4}	Mass Balance	0.0005
VOC	0.04	0.78
Black Carbon ⁵	0.77	0.23

¹Unless otherwise noted, these emission factors are from Table 1 of EPA's Emission Factors for Locomotives dated April 2009. Tier 4 factors.

²PM_{2.5} emissions are estimated to be 0.97 times PM₁₀ emission per EPA's Emission Factors for Locomotives publication April 2009 (page 4).

³Emission (tpy) = annual engine load (bhp-hr/yr) x BSFC (British Thermal Unit/hp-hr) x density (lb/gal) x Fuel S-content (ppm S/10⁶) x MW ratio (lb SO₂/lb S) / (heating value (Btu/gal) x conversion (lb/ton))

⁴SO₂ fuel content is 15 ppm; bsfc = 7,000 Btu/hp-hr, heating value of 137,000 British Thermal Unit/gal, density = 7.05 lb/gal Molar weight ratio = 2.0 lb/SO₂/ lb S

⁵Appendix 2 of the EPA Report to Congress on Black Carbon 2012 indicates black carbon to be 77 percent of total PM <https://www3.epa.gov/blackcarbon/2012report/Appendix2.pdf>

⁶EPA Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, Optional Emissions From Commuting, Business Travel and Product Transport May 2008

A one-way haul distance was estimated at 163 miles with an assumed maximum speed of 80 miles per hour for freight trains. Emissions were calculated for the roundtrip assuming this distance each way. Based on this scenario, the maximum annual operating hours of the train is 1,482. The emissions were determined on an annual power usage, which are 17 million brake horsepower-hours.

HAPs

Indirect HAPs from operations would be the same as the direct impacts. In addition, mercury would be emitted from coal combustion.

Mercury emissions from burning coal depend on control strategies and equipment used to minimize emissions and the quality and characteristics of the coal. The final destination of the Skyline Mine's coal varies annually and frequently includes many different destinations. The indirect mercury emissions from combustion of the Skyline Mine coal cannot consider specific control strategies and equipment. Instead, indirect emissions were estimated based on the largest, U.S.-based power plant consumer of Skyline Mine coal in 2015 as presented in **Table 2**, the Intermountain Power Project. The actual mercury emissions from coal mined from the Flat Canyon Federal Coal Lease UTU-77114 will depend on the final destination and emissions control technology and permit requirements at those facilities.

In 2015, approximately 910,000 tons (equivalent to approximately 25 percent of Skyline Mine's 2014 production) of Skyline Mine's coal was shipped to the Intermountain Power Project. Using the 2015 Intermountain mercury stack test data, the Unit 1 mercury emission factor of 0.156 pounds/10¹² British thermal unit was used in the calculation. Unit 1 will generate more mercury emissions than Unit 2 which has a lower sampled emission rate. The 910,000 tons delivered in 2015 constituted approximately 17 percent of the total coal consumed by the Intermountain Power Project. Based on an average annual production at Skyline of 4 million tons (8 billion pounds), the mercury emissions from burning 100 percent Skyline Coal in the Intermountain Power Project generating stations would be 14 pounds per year, or 166 for the probable maximum total of 47 million tons of federal and private coal in the Proposed Action. These productions of HAPs impacts would be negligible and long-term.

GHG

Coal Combustion

Indirect air quality impacts also occur with coal combustion. Coal-fired power plants have a known association with GHGs, mercury, and selenium emissions.

In 2015, the EPA finalized a rule revising regulations for steam electric power plants. Based on technological improvements (particularly at coal-fired plants), the rule sets limits on toxic metals, nutrients, and other pollutants (e.g., arsenic, lead, mercury, selenium, chromium, and cadmium) in wastewater that can be discharged from power plants. The rule is projected to reduce the amount of targeted pollutants by 1.4 billion pounds (EPA, 2015b).

EPA introduced the Greenhouse Gas Reporting Program in 2010. The program collects GHG data from forty-one source categories. Most industries began reporting for 2010; additional industries began reporting for 2011. The regulations also provided a standardized means to assess and calculate GHG emissions. These calculation methods were codified in 40 CFR Part 98 for the calculation of combustion emissions the methods. These emissions calculations are an approved method for tabulating GHG emissions for the most common GHGs. The emissions are not dependent on emissions location or combustion type and provide both speciated and CO_{2e} emissions. CO_{2e} is a quantity that describes, for a given mixture and amount of GHG, the amount of CO₂ that would have the same global warming potential.

The EPA provides prepopulated spreadsheets for the calculation of stationary fuel combustion, which are based on their approved methodologies for GHG reporting. These spreadsheets were

used to assess the total GHG emissions from combustion of the coal produced by mining the Flat Canyon Federal Coal Lease Tract. CO₂e produced per ton of coal is 1.8846 metric tons.

By using the CO₂ GHG emissions calculation method found in 40 CFR Part 98 Mandatory Green House Gas Reporting, Subpart C General Stationary Fuel Combustion, Calculating GHG Emissions, Equation C-1, the emissions factor of 95.52 kilograms of CO₂ per million British thermal unit can be used to estimate emissions assumed from burning bituminous of coal in a power plant (**Table 21**) for the total coal from the Flat Canyon Federal Coal Lease Tract UTU-77114 (approximately 42 million tons) and the associated 5 million tons of private coal. The values detailed in **Table 21** represent 3 separate components. The first presents the total GHG emissions from the combustion of average annual rate of production (first row). These emissions would occur over the life of the mine until 2017. The second represents the maximum annual emissions assuming that all mined coal (at the maximum mining rate) is combusted in one year (second row). The third row shows CO₂ emissions from total consumption of the entire maximum probable amount in the Flat Canyon Federal Coal Lease Tract UTU-77114.

Table 21 - GHG Coal Combustion Emissions, Proposed Action

	Coal Combusted (Short Tons)	CO ₂ Emissions (Metric tons)
Anticipated annual production range	3 million to 4.5 million	5,653,800 to 8,480,700
Maximum allowable under the Approval Order	8.0 million	15,076,877
Total Federal and Private Coal	47 million	88,576,651

Tailpipe Emissions

Tailpipe emissions of criteria pollutants would be the same as the direct impacts.

Rail Transportation

Transportation emissions for the indirect emissions were not calculated for the indirect impact of coal movement for rail. The transportation distance is not identifiable because the final location of the coal varies. Railroad transportation emissions require that the haul distance be used to estimate emissions. Indirect emissions were estimated based on the rail distance to the single, largest, U.S. based power plant consumer of Skyline Mine coal in 2015 as presented in **Table 2** Intermountain Power Project. The actual future coal destination varies from year to year and it is uncertain where Skyline Mine coal will be consumed.

Table 22 - Rail Transport GHG Emissions

GHG	Emission Factor (pounds per mile)	Emissions (tons per year)
CO ₂	0.055	36,147
CH ₄	0.0000044	2.87
CH ₄ , CO ₂ e		71.85
N ₂ O	0.0000013	0.86
N ₂ O, CO ₂ e		256.94
CO ₂ e		36,476

GHG	Emission Factor (pounds per mile)	Emissions (tons per year)
EPA Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, Optional Emissions From Commuting, Business Travel and Product Transport May 2008		

GHG emissions from diesel-fuel trains hauling coal were estimated using the same assumptions listed above for the criteria pollutants. *The indirect emission of GHG would be negligible and long-term based on the calculated emissions.*

4.3.2 No Action

Under the No Action, emissions would not be released from within the federal coal lease area or the associated private lands as no coal would be recovered.

4.3.2.1 Direct Impacts

As the Flat Canyon coal would not be mined and transported, there would be no direct impacts on criteria pollutants, HAPs, or GHG from the No Action.

4.3.2.2 Indirect Impacts

Permitted emissions from the operations at the surface facilities complex would continue until the mine closes in about 2018 and then it would end. Air quality would continue to meet existing permit requirements and state and federal standards through the current mining plan for the life of the mine.

Criteria Pollutants

Under the No Action, direct impacts from coal stockpiling and transportation of non-Flat Canyon coal would produce criteria pollutant emissions at current emissions rates. Overall impacts would be negligible and short-term, lasting until 2018.

HAPs

The indirect impacts on HAPs under the No Action would be the same as those described under the Proposed Action except that the impacts would occur for a shorter duration (through 2018). These impacts would be negligible and short-term.

GHG

Under the No Action, 14,893 tons of CO_{2e} would continue to be emitted from mining activities through 2018. This would be a negligible impact. Impacts from rail transport would be the same as described under the annual indirect impacts of the Proposed Action.

Indirect GHG emission impacts from the No Action would be negligible and short-term.

4.4 Social and Economic

4.4.1 Proposed Action

Under the Proposed Action, the Proposed Action would be approved, and operation of the Skyline Mine would continue at its current level for up to 9 to 12 additional years.

4.4.1.1 Direct Impacts

Continued mine operation would extend the 320 jobs at the mine (with the exception of small variances based on production rates) and an undetermined number of support service jobs for 9 to 12 additional years. In 2015, Canyon Fuel Company, LLC spent approximately \$35,439,177 in gross wages including benefits. Approval of the mining plan modification would have a beneficial impact on employment and economic revenue in Sanpete, Carbon, and Emery counties. With current downsizing in the mine industry, there are several companies that rely on Skyline Mine including Badlands, Longwall Mining, Bookcliff Sales, Seetech, Morgantown, and United Central.

A probable maximum of 42 million tons of federal coal could be recovered at a total value of about \$1.6 billion, based on the approximate current average value as the coal leaves the mine (which does not include shipping) of \$40 per ton. Royalties to the Federal Treasury would amount to about \$134 million, the State of Utah would receive about \$67 million, and \$33 million could be dispersed to the counties including Sanpete, Carbon, and Emery counties. In the past, Skyline Mine has averaged \$14 million per year in royalty payments. Impacts would be considered minor (because they are an extension of the existing condition), beneficial, and long-term. Royalties are not paid to the Federal Treasury on the privately owned coal.

4.4.1.2 Indirect Impacts

Indirectly, mining plan modification approval would benefit numerous service industries including real estate, temporary employment, mining supplies, automotive supplies, office supplies, plumbing, heating-and-air conditioning, and construction. Skyline Mine also contributes to student enrollment at local schools and funding for social services.

Social Cost of Carbon

The EPA and other federal agencies estimate the social cost of carbon (SC-CO₂) to calculate the climate benefits of rulemakings and for use in cost-benefit analyses of proposed regulations that could impact cumulative global emissions. Calculating the SC-CO₂ is a way to estimate the economic damages associated with an increase in CO₂ emissions. The calculated dollar cost of a metric ton of CO₂e, typically expressed as one million tons in a single year, represents the value of damages avoided for an associated carbon emissions reduction.

According to the EPA: *“The SC-CO₂ is meant to be a comprehensive estimate of climate change damages and includes changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning. However, given current modeling and data limitations, it does not include all important damages. The models used to develop SC-CO₂ estimates, known as integrated assessment models, do not currently include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature because of a lack of precise information on the nature of damages and because the science incorporated into these models naturally lags behind the most recent research. Nonetheless, the SC-CO₂ is a useful measure to assess the benefits of CO₂ reductions.”* (EPA, 2016g).

While an estimate of the GHG emissions is made, given data and resources available, the net effect on global GHG emissions or climate change cannot be made. Given the global nature of climate change, calculating the SC-CO₂ from an individual project would require assessing the impact on the global market for coal and the corresponding global effect on GHG emissions. An estimation of the SC-CO₂ for this project would necessitate speculation and use of assumptions about (1) the global market for various energy sources, (2) future emissions of greenhouse gases, (3) the effects of past and future emissions on the climate system, (4) the impact of changes in climate on the physical and biological environment, and (5) the translation of these environmental impacts into economic costs or benefits on a global scale.

Although CEQ NEPA regulations allow agencies to use a cost-benefit analysis in a NEPA analysis in certain circumstances (40 CFR § 1502.23), it is not required. The CEQ regulation states (in part), “...for the purposes of complying with the Act, the weighing of the merits and drawbacks of various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations.” Unlike a cost-benefit analysis, the disclosure of revenue, wages, jobs, and royalties is primarily a regional economic impact analysis that estimates impacts on economic activity, which are not considered benefits or costs. There may be adverse environmental impacts from the use of fossil fuels and this EA discloses the impacts qualitatively as potential emissions. The analysis in total for all resources compares and discloses the impacts without converting them to a monetary value. Without any monetized benefits or costs for other resource impacts, monetized estimates of the SC-CO₂ would be presented in isolation, without any context for evaluating their significance.

OSMRE did not apply the social cost of carbon protocol in this analysis because the purpose of an environmental assessment is to determine whether to prepare an environmental impact statement or a finding of no significant impact (43 CFR Part 46 Subpart D). Specific threshold levels for the determination of significance based on cost or benefit have not been established and therefore would not be useful in determining significance. The Social Cost of Carbon would generate numbers that are OSMRE cannot compare to reference point for determining whether the numbers are significant.

4.4.2 No Action

4.4.2.1 Direct Impacts

Under the No Action, the life of Skyline Mine would not be extended beyond the current projection of 2018. The beneficial impacts described under the Proposed Action would end.

The probable maximum of 42 million tons of federal coal would not be recovered under the No Action. In addition some of the reserves (approximately 5 million tons) are on adjacent private land (see **Table 3**). If the mining plan modification is not approved, none of the reserves could be recovered and it is highly unlikely that it would be mined in the future by the Skyline Mine. Access from any other location would not be economical due to the costs of developing alternative portal facilities on adjacent lands and the small amount of coal in the private reserves.

With the closure of Skyline Mine, 320 jobs at the mine and an undetermined number of associated jobs in the community would be lost, along with the indirect 1,162 people total. Additionally, no royalties would be paid to the federal, state, or local governments. Wages and benefits, Abandoned Mine Land fees, royalties, and property tax revenue from mining would be eliminated if mining did not continue. The estimated potential revenue to the counties would not be distributed by the State. The Permanent Community Impact Board, which has been a major source for infrastructure projects in rural counties, would also receive less funding. The No Action constitutes a major, long-term impact to the social conditions and economics of the local area and a lesser impact to the State of Utah.

4.4.2.2 Indirect Impacts

Without continued operation of Skyline Mine, industries to which the mine contributes indirectly would incur a decline in business and associated revenue. These industries include retail, accommodations, and real estate. With the loss of 320 high-paying jobs, houses would likely flood the market and school enrollment would decline as mine workers and their families leave the area. Additionally, with the downturn in the mining industry, local communities would likely need to consider raising revenue through other means to maintain the same level of social services. The No Action would have a major, long-term impact local businesses, schools, and social services.

4.5 Greater Sage-Grouse

4.5.1 Proposed Action

Removal of the coal would not affect special status plants, fish, and wildlife, including greater sage-grouse, as all mining would occur underground. No surface disturbance would occur.

4.5.1.1 Direct Impacts

The Proposed Action would not directly affect greater sage-grouse as all activities would be underground. When consenting to new underground coal leases, the Land Management Plan Amendments and Approved Resource Management Plan Amendments prohibit the placement of surface facilities on federal land in Priority Habitat Management Areas. Because no new surface facilities would be located within Priority Habitat Management Areas, disturbance and density limits would not apply and the Proposed Action is consistent with the Greater Sage-grouse Land Management Plan Amendments for Utah and the Utah Approved Resource Management Plan Amendments. Therefore, there would be no impacts on greater sage-grouse.

4.5.1.2 Indirect Impacts

No indirect impacts on greater sage-grouse or Priority Habitat Management Areas would occur. Estimated subsidence areas (as shown on **Figure 8**) encompass approximately 18.9 acres within the Priority Habitat Management Areas. As the Priority Habitat Management Areas within the subsidence zone is minimal and on the edge where subsidence would be reduced there would be no impacts because they would not be detectible. As analyzed in the Forest Service's 2002 FEIS and described in **Table 4**, there would be no impacts on general vegetation due to subsidence. Greater sage-grouse use of the Priority Habitat Management Areas would not be altered by

subsidence-related surface cracks. If cracks occur, they would be negligible changes to the ground surface and would not result in sage grouse avoiding the area. Thus there would be no impact on greater sage-grouse.

There would be no noise impacts on greater sage-grouse because all activity in the Project Area would be underground. The closest leks are more than 9.8 miles away. No lek buffers, noise restrictions, or seasonal restrictions would be required. **Therefore**, there would be no indirect impacts on sage-grouse.

4.5.2 No Action

There would be no direct or indirect impacts on greater sage-grouse because no greater sage-grouse habitat occurs within the current mine subsidence area.

4.6 Water Resources

4.6.1 Proposed Action

4.6.1.1 Direct Impacts

Surface Water

Impacts on water resources are evaluated based on the potential for subsidence and mine water discharge.

The geologic conditions, lithologies, and bedrock formations in the Project Area are similar to those in the current mine area. The deeper groundwater system of the Star Point Sandstone Formation is not in hydraulic connection with the land surface or the shallow alluvial or colluvial bedrock groundwater systems which support perennial stream flow and springs. As a result, mining at Skyline Mine has not affected surface water flow **and** additional mining is not expected to result in any long-term or short-term impacts on surface water flow.

If subsidence results from mining activity and causes cracks to form on the surface in an area of a perennial stream, there is the potential for surface waters to be diverted, to pond, or for water to infiltrate to deeper groundwater systems. Skyline Mine predicted the subsidence to be a maximum of 2 feet (Canyon Fuel Company, LLC, 2015). As discussed in **Section 3.6.1**, mining at the Skyline Mine and associated subsidence has not impacted surface water flows. Petersen Hydrologic (2014a) reports that the potential for impacts to surface water from the upward migration of tension cracks at the Skyline Mine is low for the following reasons:

- The Society for Mining, Metallurgy, and Exploration Mining Engineers Handbook recommends a minimum vertical distance between the mine and an overlying waterbody or aquifer be 60 times the height of the mining void (SME, 2011). Since the mined coal-seams in the Skyline Mine are approximately 10 feet, the recommended best mining practices would suggest a minimum overburden of at least 600 feet would be sufficient to protect overlying water resources. The overburden at the Skyline Mine ranges from 900 to 2,300 feet, suggesting impacts to surface water or shallow groundwater systems from upwardly propagating fractures are not anticipated (Petersen Hydrologic, LLC 2014a).

- The bedrock formations which overlie the coal seams and that perch the shallow aquifer and perennial stream systems have very low permeability and are discontinuous. As a result, these formations are likely not capable of accepting or transporting appreciable quantities of water. Additionally, many of these formations contain swelling clays which would naturally heal cracks or fractures (Petersen Hydrologic, LLC 2014a).
- The results of Canyon Fuel's longwall extraction beneath Burnout Creek, adjacent to the tract, show that obvious detrimental effects to perennial stream-flow are unlikely if these drainages are undermined. The geology, overburden and degree of fracturing and faulting are expected to be similar to the Burnout Creek area. (US Forest Service, 2002a).

Figure 10 shows past and predicted areas of subsidence. Because of the geology of the area, impacts to surface water resources have not occurred from subsidence phenomena for over 30 years of mining at the Skyline Mine (Petersen Hydrologic, LLC, 2014a). **Appendix B** provides results of water monitoring. Subsidence-related impacts on water resources are not anticipated with approval of the mining plan modification. Because of the stated conditions above, impacts to surface water resources from potential subsidence cracks are not anticipated or would be negligible and self-healing and long-term.

Currently, discharges of pumped mine water from dewatering activities to Eccles Creek has been of good quality and meets water quality standards for the designated beneficial uses of the surface water. The Forest Service's 2002 FEIS reported that discharges of pumped mine water to Eccles Creek improved the water quality in Scofield Reservoir, which was listed in 2000 as an impaired water body for meeting water quality standards for phosphorous. Stream water quality and mine discharges are monitored under a UPDES permit which would continue through the life of the mine.

Industrial activities associated with mining have the potential to result in the spillage of fuels, oils and grease, or other potentially harmful compounds during equipment maintenance and operations, filling of storage tanks and vehicle tanks, or from storage tank leakage. The Skyline Mine operates under a Spill Prevention Control and Countermeasures Plan, which specifies site-specific practices to prevent, control, and remediate potential spills and pollution from oil based substances. To date, no spills have been reported from normal mine activities that resulted in significant impacts to surface or groundwater quality. Practices to manage, mitigate, and report minor incidental spills of petroleum products, such as could occur from vehicles are defined in the plan and regulated by the EPA. With approval of the Proposed Action, the potential for impacts to stream or groundwater quality from potential spills is considered low.

Spring and seep flow and water quality has been monitored since 1997 with no perceptible impacts to water quality (Petersen Hydrologic, LLC, 2014a). According to the Forest Service's 2002 FEIS, at closure surface water flow and quality would return to near pre-mining condition (US Forest Service, 2002a)

Based on past history, impacts on water quality of surface waters, groundwater, or springs would be negligible and short-term, because impacts from sediment or spills would be individually resolved within a few hours or days and water quality standards would continue to be met.

As mining at the Skyline Mine progresses westward into the Flat Canyon Lease Tract area and on a downward dip, there is the potential to further intercept substantial faults and fractures in the Star Point Sandstone similar to those encountered in the early 2000s. Water could discharge from water bearing faults and fractures occurring in tongues of the formation immediately below the mine area. Therefore, there is the potential for inflows into the Flat Canyon Lease Tract area that are as large, or larger, than those previously encountered. This would result in increased pumping and dewatering requirements to continue mine operations.

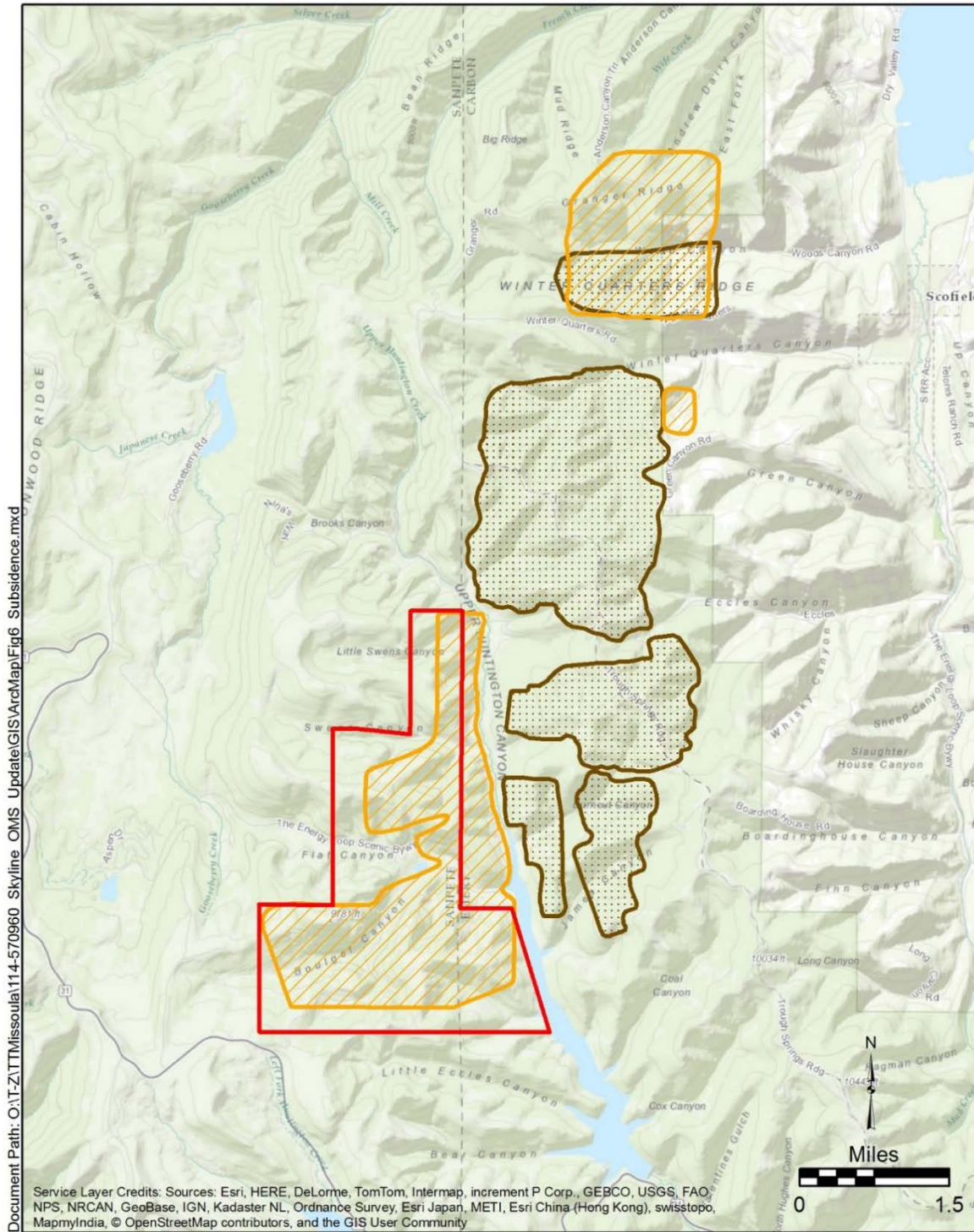
Increased discharge rates to Eccles Creek could impact stream geomorphology in both Eccles Creek and Mud Creek downstream. Early 2000s average discharge rate of 22 cfs did not result in observable changes to stream geomorphology (Petersen Hydrologic, LLC, 2014a). However, studies have been conducted that show sediments in Eccles Creek would entrain and be transported at discharge rates approximating 35 cfs (15,700 gallons per minute). A streamflow duration study showed that at a sustained discharge of 35 cfs, the number of sediment-transporting days would increase from 7 to 31 days in Eccles Creek and 13 to 20 days in Mud Creek (US Forest Service, 2002a). Potential increases to these levels or higher in the average annual discharge of these creeks could cause stream bank erosion, widening of the channel, a steepening of the channel gradient due to degradation of the substrate, bank sloughing or channel head cutting (US Forest Service, 2002a).

Upon publishing a notice of permit modification, Utah DOGM received comments from area water users. The water users raised concerns relative to potential impacts to state appropriated water rights and requested an informal hearing. During the hearing, the water users iterated their support for the project and the proposed mining within the Flat Canyon Lease; however, they also discussed their concerns that mining in the Flat Canyon Lease posed a potential threat to their state appropriated water rights. A contributing factor for their concerns was previously alleged impacts to Electric Lake Reservoir during the mining of Mine No. 2 in the Skyline Mine in the late 1990s early 2000s.

In response to the concerns raised by area water users, Utah DOGM hired a third party contractor, Loughlin Water Associates, Inc, to: (1) Review previously produced reports of the Electric Lake issue that arose from the mining of the No. 2 mine and provide comments as to the findings of said reports and (2) Review the proposed mining plan within the Flat Canyon Lease and determine if the proposed water monitoring plan was adequate to detect impacts to the hydrologic balance/state appropriated water rights during mining activity within the Flat Canyon Lease.

The Loughlin Report (Loughlin Water Associates, 2016) concluded that the historical reports did not provide conclusive evidence that the mining activity within the Lower O'Connor A-Lower O'Connor B Mine No. 2 Mine had produced connectivity between Electric Lake Reservoir and the mine

Figure 10 - Subsidence



- Legend**
- Project Area
 - Estimated Subsidence
 - Past Subsidence

**Past and Estimated Subsidence
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah**

workings. The Loughlin Report did identify deficiencies with the proposed water monitoring plan for the Flat Canyon Lease. Loughlin et al. recommended additional water monitoring points are established in order to insure that the proposed water monitoring program was robust enough to detect potential impacts to Electric Lake and state appropriated water rights.

Based on its own internal review and the recommendations within the Loughlin Report (Loughlin Water Associates, 2016), Utah DOGM identified deficiencies with the proposed water monitoring plan and requested additional water monitoring points be established. The Skyline Mine and Utah DOGM resolved the identified deficiencies and Utah DOGM approved of the proposed water monitoring plan. The additional monitoring and reporting is described in Section 2.3.13.

Discharge is currently monitored (Petersen Hydrologic, LLC, 2014a). Before dewatering increases to discharges above 17 cfs (see Section 2.2.6), the monitoring program would be adjusted to document stream geomorphological parameters and characteristics. If needed, energy dissipation structures could be constructed to mitigate higher velocities associated with sustained higher discharges and prevent impacts to stream geomorphology. Water quality standards in streams that receive mine water discharge would continue to be met as a condition of the mine permit.

Discharge permits are managed by the State of Utah and renewed on a 5 year cycle. Permit conditions are modified as needed to adjust to potentially changing conditions in the water quality or discharge rate of the discharge. Minor, short-term impacts on stream flow would continue because discharge rates will be well below 15,700 gallons per minute (see Section 3.6.2) and monitoring will continue.

Groundwater

As discussed in **Section 3.6.2**, mining at the Skyline Mine and associated subsidence has not affected groundwater flows (Petersen Hydrologic, LLC, 2014a). The expected overburden will generally be greater than 1,000 feet suggesting that impacts on shallow groundwater systems are not likely. Based on this past experience, additional mining in the Project Area would not result in any long-term or short-term impacts on groundwater flow.

4.6.1.2 Indirect Impacts

Surface Water

Mine dewatering and discharges of groundwater to Eccles Creek creates a minor localized increase in stream flow in the Mud Creek watershed. Eccles Creek is well-armored and has shown little or no visual indication of erosional impacts (DOGM, 2013). No adverse impacts on water quality are being observed in Eccles Creek or Electric Lake, but any possible adverse trends are being documented (DOGM, 2013). There are no known uses or allocations of this localized minor increase in streamflow or identified impacts to water quality which could affect indirect impacts downstream. Consequently, indirect impacts from discharges of groundwater are not anticipated.

Power plants can emit mercury into the atmosphere with coal combustion. Mercury can affect the quality of surface water as it settles into streams and lakes through deposition or precipitation. Mercury can go through a series of chemical transformations that convert it to a highly toxic form, which may concentrate in fish and birds (Irwin, 2007). However, mercury contamination through

atmospheric deposition (see **Section 4.3.1.1**) is extremely difficult to determine as atmospheric mercury can be derived from any number of local, regional, or global sources. Thus, it is not possible to determine how much mercury would be deposited into surface water or where as an indirect impact of mining at Skyline Mine.

Groundwater

As discussed in **Section 3.6**, mining and associated subsidence has not impacted groundwater flows (Petersen Hydrologic, LLC, 2014a). There would be no impact on groundwater.

4.6.2 No Action

4.6.2.1 Surface and Groundwater Flow

Direct Impacts

Under the No Action, there would be no additional impacts to surface or groundwater systems. Mining would stop in 2018, and mine water discharge would no longer augment the flow in Eccles Creek.

Stream water quality and mine discharge monitoring would continue through the life of the mine. Spring and seep flow and water quality have also been monitored since 1997 with no perceptible impacts to water quality (Petersen Hydrologic, LLC, 2014a). **Therefore**, if the mining plan modification is not approved there would be negligible and short-term impacts on the quality of area surface waters, groundwater, or springs. Additionally, the potential for impacts to area stream water or groundwater quality from potential spills from continued operation of mine activities would be negligible and short term because spills would be individually resolved within a few hours or days and water quality standards would continue to be met

With no additional mining, and continued mining to the end of the current mining plan, no additional impacts to stream channel morphology in either Eccles Creek or Mud Creek would occur. Because the potentiometric surface is expected to recover to approximate pre-mining conditions after mining ceases, the overlying unsaturated zone should also be expected to recover to approximate pre-mining conditions (DOGM, 2013). There would be no long-term impacts.

Indirect Impacts

No indirect impacts from the No Action were identified. If the mine modification plan is not approved, indirect impacts associated with power plant coal combustion would continue until 2018. After this date, indirect impacts from Skyline Mine would cease; however, power plants would presumably obtain coal from other sources. **Therefore**, there would be no indirect impacts on mine dewatering discharges from the no action.

4.7 Soils

Impacts on soils are evaluated due to subsidence and past disturbance at the mine site.

4.7.1 Proposed Action

Under the Proposed Action, mining production activity would continue solely underground. No changes in mining methods or rates are proposed.

4.7.1.1 Direct Impacts

If subsidence results from mining activity and causes cracks or larger openings to form on the surface, there is the potential for soil to be lost if it falls into the subsurface either directly or after being washed into the opening by overland water flow. As discussed in **Sections 3.6.1, 4.2, and 4.6**, the potential for subsidence to occur to such an extent is negligible; also cracks are anticipated to self-heal.

If subsidence does occur, it will likely be limited to a settling of the ground surface resulting in the formation of shallow depressions without the formation of tension cracks or larger openings to the subsurface (see **Section 4.2**). If such depressions did form, it will be possible for adjacent soil to be washed into the depressions during periods of overland flow if vegetative cover was insufficient to prevent soil movement. This would result in an increase in soil depth within the depression and a corresponding decrease along its periphery. The extent of any soil movement would be limited by the presence of vegetation, frequency and severity of runoff events, and the depth and geometry of depressions formed by subsidence. The Flat Canyon Lease contains a stipulation requiring mining to be conducted in such a way as to prevent surface subsidence that would create hazardous conditions (including landslides) (BLM, 2015d). Impacts on soils would be negligible and short-term occurring at the time the longwall panel passes beneath the surface, then the soils will be undisturbed by mining allowing for the continuance of natural soil building and/or erosion processes to occur.

4.7.1.2 Indirect Impacts

Soil within existing soil stockpiles could undergo a reduction in productivity due to loss of soil structure, nutrients, and biological function and may also be subject to erosion. Drainage from mine site facilities is captured in sediment ponds and discharged after testing for toxicity, per the Mine and Reclamation Plan (Canyon Fuel Company, LLC, 2002). Impacts would be limited by best management practices such as revegetating the stockpiles until they are ready for use in reclamation.

Mine area reclamation will entail ripping soils regrading to a gradual slope, placing topsoil and revegetating to rangeland habitat, per the Mine and Reclamation Plan (Canyon Fuel Company, LLC, 2002). The mine also maintains a spill prevention control and counter measures plan to prevent and mitigate potential impacts from spilling hydrocarbon based products. Therefore indirect impacts would be minor and long-term until reclamation is achieved.

4.7.2 No Action

4.7.2.1 Direct Impacts

Direct impacts would be the same as indirect. No direct impacts would occur from mining the Flat Canyon Federal Coal Lease Tract UTU-77114.

4.7.2.2 Indirect Impacts

Indirect impacts on soils from the No Action would be the same as the indirect impacts from the Proposed Action, minor and **long-term** until reclamation of current mining activities are achieved.

Chapter 5

Cumulative Impacts

5.1 Introduction

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

5.1.1 Analysis Areas

The geographic extent of cumulative impacts varies by the type of resources, resource issues, and by the intensity and timeframe of the potential impacts. Different spatial and temporal analysis areas for cumulative impacts are identified by resource.

5.1.2 Past, Present, and Reasonably Foreseeable Actions

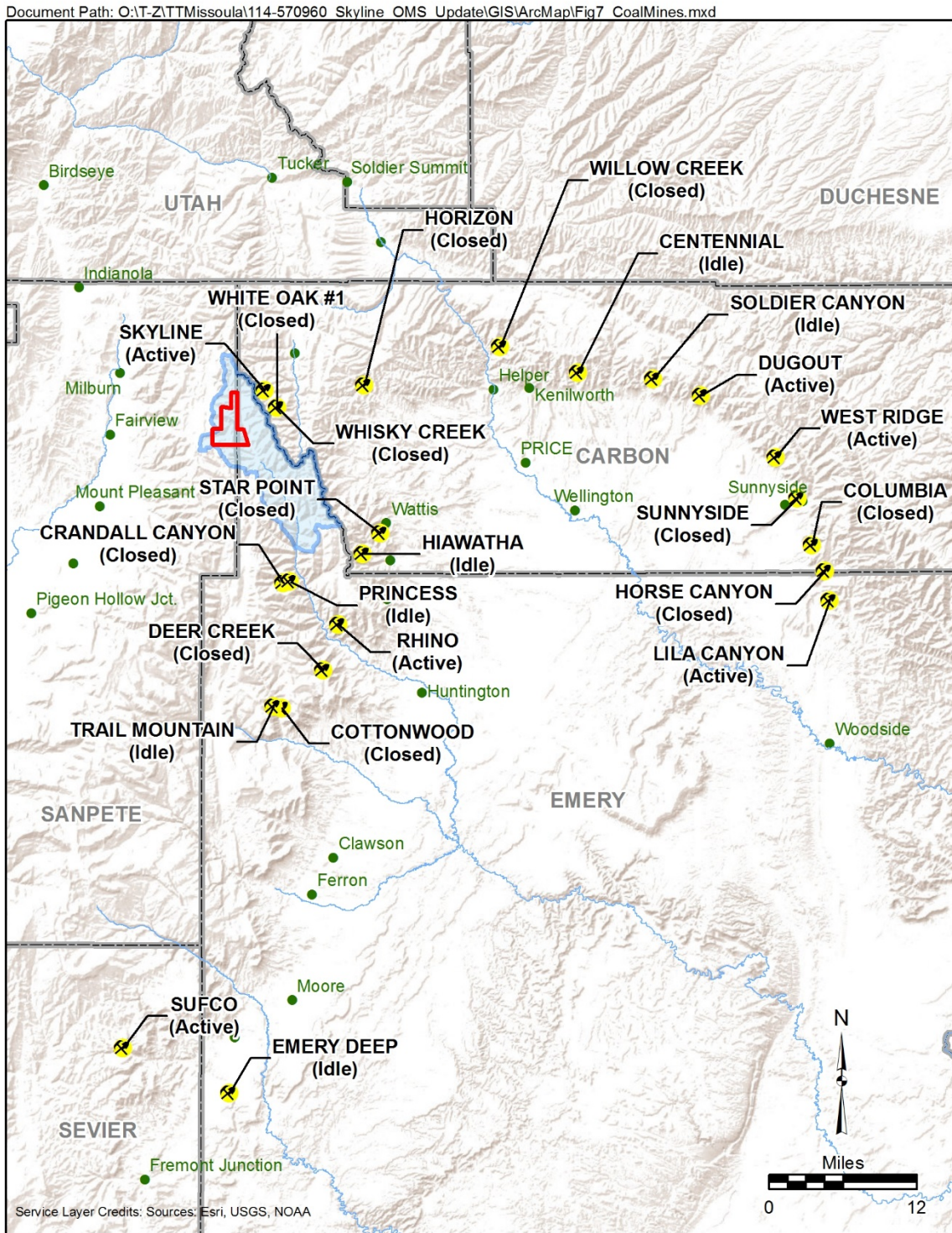
Past and present coal mining and exploration activities were for the Skyline Mining Complex, with surface facilities located in Eccles Canyon to the north and east of the Project Area. Abundant coal reserves have resulted in past and present exploration activities and federal coal tract leasing in the region. Other mines in the cumulative impacts analysis area include a small gravel pit outside Huntington Creek watershed and a few small gypsum mines downstream from the confluence of Huntington Creek and San Rafael River (Galecki, 2016a). Additionally, Carbon County's oil and gas industry produces an average of 67,000 barrels of oil and 73,304,025 thousand cubic feet) of gas volume over the last 4 years (Utah Department of Natural Resources, 2016).

The Project Area and vicinity is a highly used recreation area of the Manti-La Sal National Forest, offering camping, hiking, boating, fishing, motorized sightseeing, hunting, snowmobiling, and cross-country skiing. The cumulative impacts analysis areas encompass canyons in the Project Area which provide recreation access: Upper Huntington Creek Canyon, Flat Canyon, Boulger Canyon, Eccles Canyon, Little Swens, and Swens Canyon. Recreational attractions in the cumulative impacts analysis areas include stream fisheries, reservoirs, roads, trails, developed recreation sites, cabins, a girl's camp, and boat ramp facilities. With current population growth projections and the increasing popularity of outdoor recreation, it is likely that recreational use in the Project Area and vicinity will increase.

National Forest System Roads of the Manti-La Sal National Forest have also been used to support livestock grazing by private permittees. This activity is ongoing and will likely continue into the future.

Figure 11 Shows past and present mines nearby, as identified in a coal mine dataset from the Utah GIS portal that originated from USGS, and the Princess Mine from FindtheData.com (FindtheData.com, 2016).

Figure 11 - Project Vicinity Coal Mines



Legend

- Coal Mine (Mine Status)
- Project Area
- HUC-12 Right Fork of Huntington Cr. Boundary

Project Vicinity Coal Mines

Flat Canyon Mine

Plan Modification EA

Sanpete, Carbon, and Emery Counties, Utah

5.2 Cumulative Impacts

5.2.1 Topography and Geology

The cumulative analysis area for subsidence-related impacts is the Project Area plus areas of past subsidence and an estimated area of future subsidence, as shown in **Section 4.2.1.1**. This area is of sufficient size to account for the minor and long-term impacts to topography due to subsidence from mining the Flat Canyon lease. Subsidence has the potential to affect topography and geologic resources and water resources. Reasonably foreseeable actions identified (other surface mining operations, recreation and grazing) would not have impacts on topography and geology.

There would be no incremental increase from the Proposed Action on topography and geology in the cumulative effects study area beyond those assessed in the direct and indirect impacts.

5.2.2 Air Quality and Climate Change

The cumulative impacts analysis area for air quality encompasses the state of Utah. For air quality, similar direct and indirect emissions would be associated with the Flat Canyon Federal Coal Lease UTU-77114 (due to implementation of the current air quality permit) are already occurring in the local environment. As such, any cumulative air quality impacts from past and present actions are reflected in the air quality monitoring data collected in Utah, and the cumulative air quality impacts are represented by the baseline air quality conditions described in **Section 3.3.1.3**. The future impacts are also reflected because they are limited by the air permit.

Utah Air Emission Sources

Table 23 summarizes the county-by-county data for Utah as compiled every 3 years (triennial) in 2011 (UDAQ, 2014). This is the most recent inventory available in May 2016. These data include point (industrial/commercial), on-road, off-road, area, biogenic (soil decay), and wildfire emissions.

Table 23 - 2011 Triennial Inventory (tons/year)

County	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO _x
Beaver	2,655	436	2,079	13,876	26,490	75
Box Elder	10,313	2,121	7,366	40,012	38,771	163
Cache	10,854	1,647	3,842	22,511	13,437	172
Carbon	4,676	1,152	7,153	11,116	17,875	8,381
Daggett	604	94	1,324	3,858	8,386	2
Davis	7,601	1,807	9,368	38,462	12,718	474
Duchesne	6,912	1,082	11,934	19,793	57,798	144
Emery	5,390	1,133	22,212	30,835	36,805	7,246
Garfield	2,718	506	1,057	23,180	44,848	17
Grand	1,831	446	3,125	22,149	37,253	27
Iron	6,178	1,178	4,254	26,643	37,644	167
Juab	2,846	567	3,319	18,323	26,898	94
Kane	2,227	358	1,264	22,008	43,727	22
Millard	7,270	1,889	33,160	35,525	51,878	5,085
Morgan	2,898	377	2,582	5,964	7,401	385

County	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO _x
Piute	838	146	309	6,528	8,932	6
Rich	1,422	275	547	7,018	8,962	9
Salt Lake	31,874	6,747	31,941	145,225	35,626	4,208
San Juan	6,673	952	3,052	36,431	85,753	53
Sanpete	5,847	791	1,516	10,700	15,802	85
Sevier	6,757	916	2,092	12,780	18,106	91
Summit	7,736	1,145	4,466	15,066	18,904	215
Tooele	8,058	2,360	8,243	37,606	45,444	224
Uintah	9,547	1,420	12,348	26,282	109,809	228
Utah	12,551	3,045	14,613	63,421	30,939	426
Wasatch	3,689	597	1,448	8,705	12,590	16
Washington	11,644	1,697	6,026	39,318	44,443	92
Wayne	1,440	192	529	10,747	22,363	26
Weber	10,332	1,815	6,811	33,034	12,086	222
Statewide County Totals	193,380	36,892	207,979	787,115	931,690	28,358
Point Source Portables	86	38	394	163	39	60
Total	193,466	36,929	208,373	787,278	931,729	28,418

Source: Table 4 (UDAQ, 2014) Note: This report includes the following disclaimer "This report is intended to provide an overview of Utah's air quality. This report is published before end-of-year data can be audited and may be subject to change."

5.2.2.1 Proposed Action

The analysis above provided direct and indirect effects analysis for GHG emissions (See **Sections 4.3.1.1 and 4.3.1.2**). This document does not, however, attempt to translate these emissions into a cumulative climate change impact. It is not scientifically possible to determine the impact that would result on the global climate conditions from the emissions from this specific proposed action or in total from the emissions of other actions. The variables involved in such an analysis would make this determination conjectural and not within the rule of reason (40 CFR 1502.22(b)).

Criteria and HAPs Pollutants

The Skyline Mine facilities are located in Carbon County and the total emissions for Carbon County include the emissions from the Skyline Mine. **Table 24** provides the Skyline Mine emission contribution to the cumulative total emissions.

Table 24 - Skyline Mine Direct and Indirect Emissions as a Percentage of the Utah Cumulative Total Emissions

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO _x
Contribution to Cumulative Total (percent)	0.49	0.44	0.18	0.10	0.00	0.01

Source: These percentages are calculated based on the total annual emissions shown in **Table 16** divided by the Total in **Table 23**.

The Skyline Mine direct and indirect emissions already exist and no changes to production are proposed for criteria pollutants and HAPs. Cumulative impacts from Skyline Mine-related emissions and other regional emissions are included in the monitoring data described in **Section 3.3.1.3**.

Continued mining, operation of mine surface facilities, and associated vehicle traffic would contribute to the release of air pollution into the atmosphere at current levels for criteria pollutants and HAPs. Increasing recreational use in the area will contribute additional emissions, but the level will increase gradually and is unknown. Emissions would remain local in impact and there would be no cumulative impacts on larger scale particulate levels.

5.2.3 Social and Economic

The cumulative assessment area for impacts to social and economic resources includes Carbon, Emery, and Sanpete counties. The resource issues affected by the mining of the Flat Canyon Federal Coal Lease UTU-77114 include employment to tax revenue. The Proposed Action would not have an incremental increase within the cumulative assessment areas beyond those assessed in the direct and indirect impacts.

Royalties paid to the federal government from coal mined from federal leases is distributed to the state where the coal was mined. The state distributes the revenue to the cities, towns, counties, and other political subdivisions (school districts, special service districts, etc.). Utah received \$116.4 million in fiscal year 2015 from mineral royalties, including coal, oil, and gas lease royalties (ONRR, 2016). In Utah the distribution comes through the Permanent Community Impact Fund and the Utah Department of Transportation. In fiscal year 2015, the Permanent Community Impact Fund distributed \$156.6 million through grants and loan (Utah Department of Workforce Services, 2016). Mineral Lease Distributions for fiscal year 2015 through the Department of Transportation totaled \$53.3 million (Utah Department of Transportation, 2016). Carbon County received \$5.4 million, Emery County received \$2.1 million, and Sanpete County received \$7.8 million.

5.2.4 Greater Sage-Grouse

The Proposed Action would have no incremental increase in the cumulative assessment area for Greater sage-grouse beyond those assessed in the direct and indirect impacts.

5.2.5 Water

The cumulative impacts analysis area for water is the Right Fork Huntington Creek subwatershed. None of the past and present mines shown on **Figure 11** are located in this subwatershed. This area is of sufficient size to account for the minor and self-healing impacts on water resource due to subsidence from mining the Flat Canyon Federal Coal Lease (see **Section 4.2.1.1**).

The Cumulative Hydrologic Impact Analysis completed by the Utah DOGM found no evidence of material damage from the past mining operations, and no probability of material damage from actual or anticipated mining operations. The actual and proposed coal mining and reclamation operations have been designed to prevent material damage to the hydrologic balance outside the permit areas. (DOGM, 2013).

The Proposed Action would have no incremental increase in the cumulative assessment area for water in the Right Fork Huntington Creek subwatershed from other mines beyond those assessed in the direct and indirect impacts. Recreation and grazing have likely caused minor and localized, short-term impacts on water quality. Subsidence-related impacts have occurred within the

subwatershed (see **Section 5.2.1**), but no impacts to surface or groundwater resources have been identified and therefore do not contribute cumulative impacts. Impacts from past mining have been mitigated in the Trough Springs Ridge area by infilling tension fractures with soil. Subsidence from known potential future mining is related to the Proposed Action and addressed in the direct and indirect (Galecki, 2016a) impacts in **Section 4.5**.

5.2.6 Soils

The cumulative analysis area for soil-related impacts is the Project Area, plus areas of past subsidence, and existing soil stockpiles. Reasonably foreseeable actions identified include continued surface mining operations, recreation and grazing which could also increase soil erosion. This would occur under both the Proposed Action and the No Actions. **There would be no incremental increase from the Proposed Action on soil in the cumulative effects study area beyond those assessed in the direct and indirect impacts.**

Chapter 6

Coordination and Consultation

6.1 Agencies and People Consulted

The following people or agencies were consulted prior to and during the preparation of this EA:

- U. S. Forest Service, Price Ranger District
- U. S. Forest Service, Ferron Ranger District
- Carbon County
- Sanpete County
- Eastern Shoshone Chairperson and Tribal Council
- Hopi Chairperson and Tribal Council
- Confederated Tribes of the Goshute Reservation Chairperson and Tribal Council
- Ute Chairperson and Tribal Council
- Ute Mountain Chairperson and Tribal Council
- Pueblo of Zia Governor and Tribal Council
- Navajo President and Tribal Council
- Northwestern Band of the Shoshone Nation Chairperson and Tribal Council
- Paiute Tribe of Utah Chairperson and Tribal Council
- Pueblo of Jemez Governor and Tribal Council
- Pueblo of Laguna Governor and Tribal Council
- Pueblo of Santa Clara Governor and Tribal Council
- Pueblo of Zuni Governor and Tribal Council
- Shoshone-Bannock Tribes of Fort Hall Chairperson and Tribal Council
- Southern Ute Chairperson and Tribal Council
- Affected Landowners
- Sierra Club
- WildEarth Guardians

6.1.1 Tribal Consultation

Letters describing the proposed Project were sent to the Eastern Shoshone Chairperson and Tribal Council, the Hopi Chairperson and Tribal Council, the Confederated Tribes of the Goshute Reservation Chairperson and Tribal Council, the Ute Chairperson and Tribal Council, the Ute Mountain Chairperson and Tribal Council, the Pueblo of Zia Governor and Tribal Council, the Navajo President and Tribal Council, the Northwestern Band of the Shoshone Nation Chairperson and Tribal Council, the Paiute Tribe of Utah Chairperson and Tribal Council, the Pueblo of Jemez

Governor and Tribal Council, the Pueblo of Laguna Governor and Tribal Council, the Pueblo of Santa Clara Governor and Tribal Council, the Pueblo of Zuni Governor and Tribal Council, the Shoshone-Bannock Tribes of Fort Hall Chairperson and Tribal Council, and the Southern Ute Chairperson and Tribal Council on November 3 and 5, 2015.

The Hopi, Southern Ute, and Santa Clara Pueblo have corresponded with OSMRE and further discussions are ongoing.

6.2 Preparers and Participants

Table 25 shows a list of the preparers of this EA and those who participated in the preparation of this EA from OSMRE.

Table 25 - List of Preparers

Organization	Name	Title/ Project Responsibility
OSMRE	Marcelo Calle	Manager, Field Operations Branch
OSMRE	Nicole Caveny	Environmental Protection Specialist
OSMRE	Gretchen Pinkham	Natural Resource Specialist
BLM	Roger Bankert	Minerals Support Supervisor
BLM	Jefferson McKenzie	Mining Engineer
BLM	Leonard Herr	Air Quality Physical Scientist
BLM	Steve Rigby	Assistant Field Manager, Coal
Forest Service	Kyle Beagley	Minerals Specialist
Forest Service	Debra Miller	Assistant Regional Air Program Manager
Forest Service	Jeffrey Salow	Geologist
Utah DOGM	Steve Christensen	Utah Division of Oil & Gas, Hydrologist
Utah DOGM	Amanda Daniels	Utah Division of Oil & Gas, Hydrologist
Utah DOGM	Dana Dean	Utah Division of Oil & Gas, Associate Director of Mining
Utah DOGM	Daron Haddock	Utah Division of Oil & Gas, Environmental Manager

Table 26 shows a list of the preparers of this EA and those who participated in the preparation of this EA from the third party consultants Tetra Tech, Inc.

Table 26. Contractors

Organization	Name	Title/ Project Responsibility
Tetra Tech, Inc.	Cameo Flood	Project Manager
Tetra Tech, Inc.	Mark Asoian	Air Quality
Tetra Tech, Inc.	Lynn Peterson	GIS, Cultural, and Editor
Tetra Tech, Inc.	Tim Reeves	Water
Tetra Tech, Inc.	Wendy Rieth	Wildlife Biologist Sage-Grouse
Tetra Tech, Inc.	Stephen Tartaglia	Air Quality
Tetra Tech, Inc.	Michele Weidner	Reviewer
Tetra Tech, Inc.	Shane Matolyak	Environmental Scientist

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Appendix A
Outreach Letters and Legal Notices



United States Department of the Interior

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Western Region Office
1999 Broadway, Suite 3320
Denver, CO 80202-3050



October 9, 2015

Dear Interested Public Land User,

The U.S. Department of the Interior (DOI), Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region, will prepare an environmental assessment (EA) for the mining plan modification for the Canyon Fuel Company, LLC's (Canyon Fuel) Skyline Mine (the Project). Skyline Mine is located approximately five miles southwest of Scofield, in Carbon County, Utah. To comply with the Mineral Leasing Act 1920 (MLA), the DOI Assistant Secretary for Land and Minerals Management (ASLM) must approve the Project before any mining and reclamation can occur on lands containing leased Federal coal.

Skyline Mine is an underground operation proposing to modify their Surface Mining Control and Reclamation Act of 1977 Permit Area to include approximately 2,692 acres of federal coal within the Flat Canyon Coal Lease Tract (UTU77114) and to access approximately 1,100 acres of private coal reserves. Coal occurs in two seams throughout the project area and the majority of these seams could be mined, using longwall mining technology, to produce approximately 36 million tons of coal and extend the life of the Skyline Mine by 9 to 12 years. UTU77114 was issued by the Bureau of Land Management, and by consent of the Manti-La Sal National Forest, on September 11, 2015.

OSMRE is preparing this EA to evaluate the environmental impacts resulting from the Project, pursuant to the requirements of the National Environmental Policy Act of 1969. The EA will disclose the potential for direct, indirect, and cumulative impacts to the environment from the Project. Further, this EA will update, clarify, and provide new and additional environmental information for the Project. As a result of the EA process, OSMRE will determine whether or not there are significant environmental impacts. An environmental impact statement will be prepared if the EA identifies significant impacts. If a finding of no significant impact is reached, and pursuant to 30 CRF 746.13, OSMRE will prepare and submit to the ASLM a mining plan decision document recommending approval, disapproval, or conditional approval of the mining plan. The ASLM will approve, disapprove, or conditionally approve the mining plan approval document within the mining plan decision document. OSMRE is soliciting public comments. Your comments will help to determine the issues and alternatives that will be evaluated in the EA. You are invited to direct these comments to:

OSMRE WR
C/O: Nicole Caveny
Skyline Mine EA
1999 Broadway, Suite 3320
Denver, CO 80202-3050

Comments may also be emailed to: OSM-NEPA-UT@OSMRE.gov, ensure the subject line reads: ATTN: OSMRE, Skyline Mine, Flat Canyon MPDD EA. Comments should be received or postmarked no later than November 9, 2015 in order to be considered during the preparation of the EA. Comments received, including names and addresses of those who comment, will be considered part of the public record for this project and will be available for public inspection. Additional information regarding the Project may be obtained from Nicole Caveny, telephone number (303) 293-5078. When available, the EA and other supporting documentation will be posted at and may be obtained from <http://www.wrcc.osmre.gov/initiatives/skylinemine.shtm>.

Sincerely,



Marcelo Calle, Manager
Field Operations Branch

Legal notice published in the Sun Advocate and Emery County Progress on October 13 and October 27, 2015, and the Sanpete Messenger on October 15 and October 29, 2015.

PUBLIC NOTICE

**SKYLINE MINE MINING PLAN MODIFICATION
ENVIRONMENTAL ASSESSMENT**

The US Department of the Interior (DOI), Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region, will prepare an environmental assessment (EA) for the mining plan modification for the Canyon Fuel Company, LLC's Skyline Mine (the Project). Skyline Mine is located approximately five miles southwest of Scofield, in Carbon County, Utah. To comply with the Mineral Leasing Act of 1920, the DOI Assistant Secretary for Land and Minerals Management (ASLM) must approve the Project before any mining and reclamation can occur on lands containing leased Federal coal.

Skyline Mine is an underground operation proposing to modify their Surface Mining Control and Reclamation Act of 1977 Permit Area to include approximately 2,692 acres of federal coal within the Flat Canyon Coal Lease Tract (UTU77114) and to access approximately 1,100 acres of private coal reserves. Coal occurs in two seams throughout the project area and the majority of these seams could be mined, using longwall mining technology, to produce approximately 36 million tons of coal and extend the life of the Skyline Mine by 9 to 12 years. UTU77114 was issued by the Bureau of Land Management, and by consent of the Manti-La Sal National Forest, on September 11, 2015.

OSMRE is preparing this EA to evaluate the environmental impacts resulting from the Project, pursuant to the requirements of the National Environmental Policy Act of 1969. The EA will disclose the potential for direct, indirect, and cumulative impacts to the environment from the Project. Further, this EA will update, clarify, and provide new and additional environmental information for the Project. As a result of the EA process, OSMRE will determine whether or not there are significant environmental impacts. An environmental impact statement will be prepared if the EA identifies significant impacts. If a finding of no significant impact is reached, and pursuant to 30 CFR 746.13, OSMRE will prepare and submit to the ASLM a mining plan decision document recommending approval, disapproval, or conditional approval of the mining plan. The ASLM will approve, disapprove, or conditionally approve the mining plan approval document within the mining plan decision document.

OSMRE is soliciting public comments on the Project. Your comments will help to determine the issues and alternatives that will be evaluated in the environmental analysis. You are invited to direct these comments by email: osm-nepa-ut@osmre.gov, ensure the subject line reads: ATTN: OSMRE, Skyline Mine, Flat Canyon MPDD EA. Comment may also be received by mail: OSMRE WR, C/O Nicole Caveny, Skyline Mine, Flat Canyon MPDD EA, 1999 Broadway, Suite 3320, Denver, CO 80202 and be postmarked no later than November 9, 2015, in order to be considered during the preparation of the EA. Comments received, including names and addresses of those who comment, will be considered part of the public record for this Project and will be available for public inspection. Additional information regarding the Project may be obtained from Nicole Caveny, telephone number (303) 293-5078. When available, the EA and other supporting documentation will be posted at and may be obtained from <http://www.wrcc.osmre.gov/initiatives/skylinemine.shtml>.



United States Department of the Interior

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Western Region Office
1999 Broadway, Suite 3320
Denver, CO 80202-3050



June 16, 2016

Dear Interested Party,

The U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region Office, has prepared an environmental assessment (EA), to analyze environmental impacts of approving a federal mining plan modification for future underground mining operations into the Flat Canyon Federal Coal Lease Tract UTU-77114 as part of Canyon Fuel Company's Skyline Mine. As required by the National Environmental Policy Act of 1969, the EA discloses the potential for direct, indirect, and cumulative impacts. Resources analyzed in the EA include topography and geology, air quality and climate, social and economic, hydrology, soils, and greater sage-grouse.

Skyline Mine is located in Carbon and Emery counties, approximately five miles southwest of Scofield, Utah, about 18 miles west of Helper, Utah. The Flat Canyon Federal Coal Lease Tract UTU-77114 is in Sanpete County, Utah. Private land accessed extends into Emery County, Utah. The EA analyzes both the Flat Canyon Federal Coal Lease Tract UTU-77114 and the private coal. The Bureau of Land Management (BLM) issued the Federal Coal Lease UTU-77114 on July 1, 2015. Federal Coal Leases are administered by the BLM with consent from the U.S. Forest Service. Once a coal mining operator obtains the rights of a federal coal lease, two separate approvals are needed for a coal mine operator to conduct mining operations on federal coal leases: 1) an approved Surface Mining Control and Reclamation Act (SMCRA) of 1977 permit approved by the regulatory authority, in this case the Utah Division of Oil, Gas and Mining (DOGGM), and 2) an approved mining plan, or modification of a previously approved mining plan, by the Assistant Secretary for Land and Minerals Management (ASLM). The SMCRA mine permit approval by DOGM provides the basis for the ASLM's decision on the mining plan or mining plan modification. The SMCRA permit for the Skyline Mine (C/007/0005) was issued, by DOGM, in 1981. Canyon Fuel Company submitted Amendment Task ID #5017 to DOGM for approval on September 25, 2015. Subsequently, OSMRE determined that the addition to the Skyline Mine requires a mining plan modification with ASLM approval for mining to occur on that federal coal lease.

OSMRE is responsible for reviewing plans to conduct coal mining and reclamation operations on lands containing leased federal coal. Pursuant to 30 CFR 746, OSMRE must prepare and submit to the ASLM a decision document recommending approval, conditional approval or disapproval of the proposed mining plan modification. Approval of a mining plan modification would authorize underground mining to produce up to 8 million tons per year of coal (the limit established by the air permit Approval Order issued by the Utah Department of Environmental Quality, Division of Air Quality). Skyline Mine anticipates production between 3 and 4.5 million tons annually. The Flat Canyon Federal Coal Lease Tract UTU-77114 contains approximately 2,692 acres of federal mineral estate and contains a probable maximum of about 42 million tons of recoverable coal and provides access to 1,100 acres of private coal reserves (approximately 5 million tons of coal). If the mining plan modification is approved, mining operations would extend approximately 9 to 12 years.

OSMRE is soliciting public comments on the EA and the unsigned Finding of No Significant Impact (FONSI). The EA and unsigned FONSI are available for review as of June 16, 2016. All comments must be received or postmarked by July 18, 2016, to be considered. Documents are available for review online <http://www.wrcc.osmre.gov/initiatives/skylineMine.shtm>.

Printed versions of the EA and unsigned FONSI are also available for review at the following locations:

Office of Surface Mining and Reclamation

1999 Broadway, Suite 3320

Denver, CO 80202

Between the hours of 8:00 AM and 4:00 PM Monday through Friday (Closed Saturday and Sunday)

Manti-La Sal National Forest Supervisor's Office

599 West Price River Road

Price, UT 84501

Between the hours of 8:00 AM and 5:00 PM Monday through Friday (Closed Saturday and Sunday)

Utah Division of Oil, Gas and Mining, Public Information Center

1594 W. North Temple

Salt Lake City, UT 84116

Between the hours of 8:00 AM and 5:00 PM Monday through Friday (Closed Saturday and Sunday)

Bureau of Land Management, Utah State Office

440 West 200 South, Suite 500

Salt Lake City, Utah 84101

Between the hours of 7:45 AM and 4:30 PM Monday through Friday (Closed Saturday and Sunday).

Park City Library

159 East Main St

Price, UT 84101

Between the hours of 8:00 AM and 7:00 PM Monday through Friday, Saturday 9:00 AM to Noon (Closed Sunday)

You are invited to direct these comments by mail:

ATTN: OSMRE, Skyline Mine EA

C/O: Nicole Caveny

OSMRE WR

1999 Broadway, Suite 3320

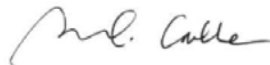
Denver, CO 80202

Comments may be emailed to OSM-nepa-ut@OSMRE.gov, with the subject line: ATTN: OSMRE, Skyline Mine EA.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – will be publicly available. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses will be available for public review to the extent consistent with applicable law.

Additional information regarding this Project may be obtained from Nicole Caveny at (303) 293-5078 or ncaveny@osmre.gov.

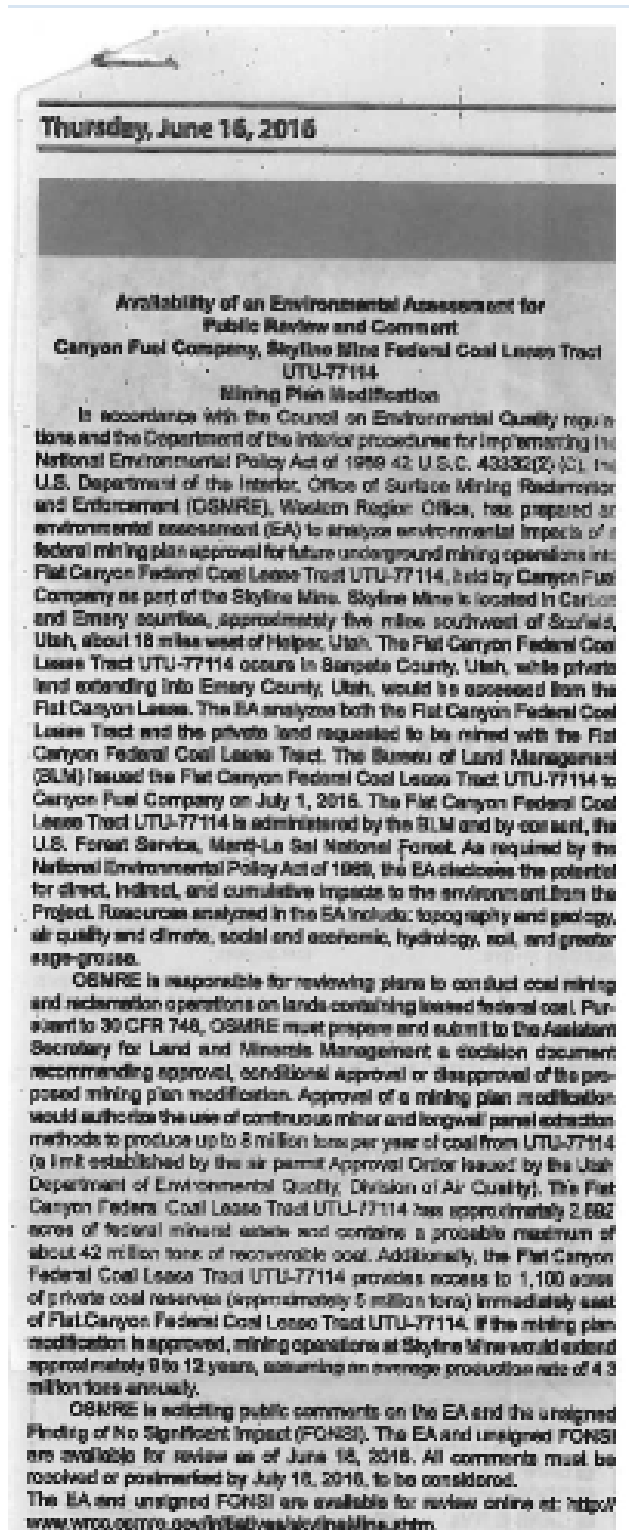
Sincerely,



Marcelo Calle, Manager
Field Operations Branch

2

Legal notice published in the Sun Advocate and Emery County Progress on June 14, and the Sanpete Messenger on June 16, 2016.



Printed versions of the EA and unsigned FONSI are also available for review at the following locations:

Office of Surface Mining and Reclamation
1888 Broadway, Suite 3320
Denver, CO 80202
Between the hours of 8:00 AM to 4:00 PM
Monday through Friday (Closed Saturday and Sunday)

Mont-La Sal National Forest Supervisor's Office
500 West Price River Road
Price, UT 84501
Between the hours of 8:00 AM and 5:00 PM
Monday through Friday (Closed Saturday and Sunday)

Utah Division of Oil, Gas and Mining
Public Information Center 1094 W. North Temple
Salt Lake City, UT 84116
Between the hours of 8:00 AM and 5:00 PM
Monday through Friday (Closed Saturday and Sunday)

Bureau of Land Management
Utah State Office
440 West 300 South, Suite 500
Salt Lake City, Utah 84101
Between the hours of 7:45 AM and 4:30 PM
Monday through Friday (Closed Saturday and Sunday)

Price Library
169 East Main St
Price, UT 84501
Between the hours of 8:00 AM and 7:00 PM
Monday through Friday and Saturday 9:00 AM to Noon (Closed Sunday)

You are invited to direct comments by mail: ATTN: OSMRE, Skyline Mine EA, C/O: Nicole Caveny, OSMRE WR, 1888 Broadway, Suite 3320, Denver, CO 80202. Comments can also be emailed to com-nepa-ut@osmre.gov with the subject line: ATTN: OSMRE, Skyline Mine EA. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – will be publicly available. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses will be available for public review to the extent consistent with applicable law.

Additional information regarding this Project may be obtained from Nicole Caveny at (303) 268-5076 or ncaveny@osmre.gov.

Public in Sanpete Messenger June 16, 2016.



United States Department of the
Interior

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT

Western Region Office
1999 Broadway, Suite
3320
Denver, CO 80202-3050



June 27, 2016

Dear Interested Party,

The U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region Office, is extending the public comment period by 10 days on the Environmental Assessment (EA) and unsigned Finding of No Significant Impact (FONSI) for the Skyline Mine Flat Canyon Federal Coal Lease Tract UTU-77114 mine plan modification. Interested parties will now have until July 28, 2016 to submit comments. The EA and unsigned FONSI are available for review as of June 24, 2016. All comments must be received or postmarked by July 28, 2016, to be considered. Documents are available for review online <http://www.wrcc.osmre.gov/initiatives/skylineMine.shtm>.

OSMRE has prepared an environmental assessment (EA), to analyze environmental impacts of approving a federal mining plan modification for future underground mining operations into the Flat Canyon Federal Coal Lease Tract UTU-77114 as part of Canyon Fuel Company's Skyline Mine. As required by the National Environmental Policy Act of 1969, the EA discloses the potential for direct, indirect, and cumulative impacts. Resources analyzed in the EA include topography and geology, air quality and climate, social and economic, hydrology, soils, and greater sage-grouse.

Skyline Mine is located in Carbon and Emery counties, approximately five miles southwest of Scofield, Utah, about 18 miles west of Helper, Utah. The Flat Canyon Federal Coal Lease Tract UTU-77114 is in Sanpete County, Utah. Private land accessed extends into Emery County, Utah. The EA analyzes both the Flat Canyon Federal Coal Lease Tract UTU-77114 and the private coal. The Bureau of Land Management (BLM) issued the Federal Coal Lease UTU-77114 on July 1, 2015. Federal Coal Leases are administered by the BLM with consent from the U.S. Forest Service. Once a coal mining operator obtains the rights of a federal coal lease, two separate approvals are needed for a coal mine operator to conduct mining operations on federal coal leases: 1) an approved Surface Mining Control and Reclamation Act (SMCRA) of 1977 permit approved by the regulatory authority, in this case the Utah Division of Oil, Gas and Mining (DOGM), and 2) an approved mining plan, or modification of a previously approved mining plan, by the Assistant Secretary for Land and Minerals Management (ASLM). The SMCRA mine permit approval by DOGM provides the basis for the ASLM's decision on the mining plan or mining plan modification. The SMCRA permit for the Skyline Mine (C/007/0005) was issued, by DOGM, in 1981. Canyon Fuel Company submitted Amendment Task ID #5017 to DOGM for approval on September 25, 2015. Subsequently, OSMRE determined that the addition to the Skyline Mine requires a mining plan modification with ASLM approval for mining to occur on that federal coal lease.

OSMRE is responsible for reviewing plans to conduct coal mining and reclamation operations on lands containing leased federal coal. Pursuant to 30 CFR 746, OSMRE must prepare and submit to the ASLM a decision document recommending approval, conditional approval or disapproval of the proposed mining plan modification. Approval of a mining plan modification would authorize underground mining to produce up to 8

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million tons per year of coal (the limit established by the air permit Approval Order issued by the Utah Department of Environmental Quality, Division of Air Quality).

Skyline Mine anticipates production between 3 and 4.5 million tons annually. The Flat Canyon Federal Coal Lease Tract UTU-77114 contains approximately 2,692 acres of federal mineral estate and contains a probable maximum of about 42 million tons of recoverable coal and provides access to 1,100 acres of private coal reserves (approximately 5 million tons of coal). If the mining plan modification is approved, mining operations would extend approximately 9 to 12 years.

Printed versions of the EA and unsigned FONSI are also available for review at the following locations:

Office of Surface Mining and Reclamation
1999 Broadway, Suite 3320
Denver, CO 80202
Between the hours of 8:00 AM and 4:00 PM Monday through Friday (Closed Saturday and Sunday)

Manti-La Sal National Forest Supervisor's Office
599 West Price River Road
Price, UT 84501
Between the hours of 8:00 AM and 5:00 PM Monday through Friday (Closed Saturday and Sunday)

Utah Division of Oil, Gas and Mining, Public Information Center
1594 W. North Temple
Salt Lake City, UT 84116
Between the hours of 8:00 AM and 5:00 PM Monday through Friday (Closed Saturday and Sunday)

Bureau of Land Management, Utah State Office
440 West 200 South, Suite 500
Salt Lake City, Utah 84101
Between the hours of 7:45 AM and 4:30 PM Monday through Friday (Closed Saturday and Sunday).

Park City Library
159 East Main St
Price, UT 84101
Between the hours of 8:00 AM and 7:00 PM Monday through Friday, Saturday 9:00 AM to Noon (Closed Sunday)

You are invited to direct these comments by mail:

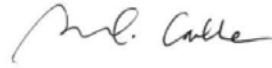
ATTN: OSMRE, Skyline Mine EA
C/O: Nicole Caveny
OSMRE WR
1999 Broadway, Suite 3320
Denver, CO 80202

Comments may be emailed to OSM-nepa-ut@OSMRE.gov, with the subject line: ATTN: OSMRE, Skyline Mine EA.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – will be publicly available. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses will be available for public review to the extent consistent with applicable law.

Additional information regarding this Project may be obtained from Nicole Caveny at (303) 293-5078 or ncaveny@osmre.gov.

Sincerely,



Marcelo Calle, Manager
Field Operations Branch

Legal notice published in the Sun Advocate and Emery County Progress on June 28 and July 12, 2016, and the Sanpete Messenger on June 30 and July 11, 2016.

Public Review and Comment Period Extension for the Environmental Assessment for the Canyon Fuel Company, Mine Federal Coal Lease Tract UTU-77114 Mining Plan Modification

U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region Office, is extending the public comment period by 10 days on the Environmental Assessment (EA) and unsigned Finding of No Significant Impact (FONSI). The EA and unsigned FONSI are available for review as of June 24, 2016. Interested parties will now have until July 28, 2016 to submit comments. All comments must be received or postmarked by July 28, 2016, to be considered.

The EA and unsigned FONSI are available for review online at <http://www.wrcc.osmre.gov/initiatives/skylineMine.shtm>.

In accordance with the Council on Environmental Quality regulations and the Department of the Interior procedures for implementing the National Environmental Policy Act of 1969 42 U.S.C. 43332(2) (C), OSMRE has prepared an environmental assessment (EA) to analyze environmental impacts of a federal mining plan approval for future underground mining operations into Flat Canyon Federal Coal Lease Tract UTU-77114, held by Canyon Fuel Company as part of the Skyline Mine. Skyline Mine is located in Carbon and Emery counties, approximately five miles southwest of Scofield, Utah, about 18 miles west of Helper, Utah. The Flat Canyon Federal Coal Lease Tract UTU-77114 occurs in Sanpete County, Utah, while private land extending into Emery County, Utah, would be accessed from the Flat Canyon Lease. The EA analyzes both the Flat Canyon Federal Coal Lease Tract and the private land requested to be mined with the Flat Canyon Federal Coal Lease Tract. The Bureau of Land Management (BLM) issued the Flat Canyon Federal Coal Lease Tract UTU-77114 to Canyon Fuel Company on July 1, 2015. The Flat Canyon Federal Coal Lease Tract UTU-77114 is administered by the BLM and by consent, the U.S. Forest Service, Manti-La Sal National Forest. As required by the National Environmental Policy Act of 1969, the EA discloses the potential for direct, indirect, and cumulative impacts to the environment from the Project. Resources analyzed in the EA include: topography and geology, air quality and climate, social and economic, hydrology, soil, and greater sage-grouse.

OSMRE is responsible for reviewing plans to conduct coal mining and reclamation operations on lands containing leased federal coal. Pursuant to 30 CFR 746, OSMRE must prepare and submit to the Assistant Secretary for Land and Minerals Management a decision document recommending approval, conditional approval or disapproval of the proposed mining plan modification. Approval of a mining plan modification would authorize the use of continuous miner and longwall panel extraction methods to produce up to 8 million tons per year of coal from UTU-77114 (a limit established by the air permit Approval Order issued by the Utah Department of Environmental Quality, Division of Air Quality). The Flat Canyon Federal Coal Lease Tract UTU-77114 has approximately 2,692 acres of federal mineral estate and contains a probable maximum of about 42 million tons of recoverable coal. Additionally, the Flat Canyon Federal Coal Lease Tract UTU-77114 provides access to 1,100 acres of private coal reserves (approximately 5 million tons) immediately east of Flat Canyon Federal Coal Lease Tract UTU-77114. If the mining plan modification is approved, mining operations at Skyline Mine would extend approximately 9 to 12 years, assuming an average production rate of 4.3 million tons annually.

Printed versions of the EA and unsigned FONSI are also available for review at the following locations:

Office of Surface Mining and Reclamation
1999 Broadway, Suite 3320
Denver, CO 80202
Between the hours of 8:00 AM to 4:00 PM
Monday through Friday (Closed Saturday and Sunday)

Manti-La Sal National Forest Supervisor's Office
599 West Price River Road
Price, UT 84501
Between the hours of 8:00 AM and 5:00 PM
Monday through Friday (Closed Saturday and Sunday)

Utah Division of Oil, Gas and Mining
Public Information Center 1594 W. North Temple
Salt Lake City, UT 84116
Between the hours of 8:00 AM and 5:00 PM
Monday through Friday (Closed Saturday and Sunday)

Bureau of Land Management Utah State Office
440 West 200 South, Suite 500 Salt Lake City, Utah 84101
Between the hours of 7:45 AM and 4:30 PM
Monday through Friday (Closed Saturday and Sunday).

Price Library
159 East Main St
Price, UT 84501
Between the hours of 8:00 AM and 7:00 PM
Monday through Friday and Saturday 9:00 AM to Noon (Closed Sunday).

You are invited to direct comments by mail: ATTN: OSMRE, Skyline Mine EA, C/O: Nicole Caveny, OSMRE WR, 1999 Broadway, Suite 3320, Denver, CO 80202. Comments can also be emailed to osm-nepa-ut@osmre.gov with the subject line: ATTN: OSMRE, Skyline Mine EA.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – will be publicly available. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses will be available for public review to the extent consistent with applicable law.

Additional information regarding this Project may be obtained from Nicole Caveny at (303) 293-5078 or ncaveny@osmre.gov.

Publish Sanpete Messenger June 30, July 14, 2016.

Appendix B
Water Monitoring Results

Average Discharge Rates and Solute Geochemical Compositions for Springs and Streams

Springs

Price River springs

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	C
29-138	5.6	7.26	439	24.1	272	83	8.0	2.2	0.0	300	0.0	4.0	3
32-277	6.1	7.33	257	1.8	170	41	6.8	1.2	0.2	163	0.0	7.8	0.8
MSS-1	4.9	7.71	374	1.05	228	62	8.5	1.0	0.0	240	0.0	10.0	1.0
Ave.	5.5	7.4	357	9.0	223	61.8	7.8	1.5	0.1	234	0.0	7.3	1.6

Price River/Castlegate contact springs

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	
29-133	4.0	7.33	324	35.5	193	60	4.8	1.7	0.0	211	0.0	5.3	1.2
Ave.	4.0	7.3	324	35.5	193	60	5	1.7	0.0	211	0.0	5.3	1.2

Castlegate Sandstone springs

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	
33-268	4.4	7.25	89	1.8	72	14	2.0	1.5	0.0	46	0.0	7.0	2.0
4-429	6.8	7.39	139	1.7	87	22	4.0	1.0	0.0	85	0.0	2.0	0.7
8-253	3.6	7.13	136	16.0	86	23	2.5	1.2	0.0	91	0.0	5.0	0.3
Ave.	4.9	7.3	122	6.5	81	19.7	2.8	1.2	0.0	73.9	0.0	4.7	1.0

Castlegate/Blackhawk contact springs

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	C
21-222	4.8	7.37	322	7.7	190	49	11.2	1.3	0.0	202	0.0	6.5	0.7
32-183	3.3	7.23	169	7.7	122	28	5.2	1.5	0.0	117	0.0	5.2	0.7
32-279	5.5	7.35	321	2.7	225	54	15.0	1.7	0.0	240	0.0	8.5	0.8
Ave.	4.5	7.3	271	6.0	179	43.7	10.4	1.5	0.0	186	0.0	6.7	0.7

Blackhawk Formation springs

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	C
28-110	6.0	7.51	340	2.0	208	56	9.8	2.0	0.0	225	0.0	7.0	1.5
3-290	7.0	8.00	219	14.9	158	39	6.3	2.6	0.43	155	0.07	5.3	2.0
4-173	4.7	7.45	233	1.1	185	48	9.2	1.8	0.0	195	0.0	5.2	1.5
5-231	2.9	7.15	206	3.2	138	37	4.3	1.8	0.0	141	0.0	7.3	0.8
Ave.	5.1	7.5	249	5.3	172	45.1	7.4	2.1	0.1	179	0.0	6.2	1.5

Groundwater storage tanks

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	C
MST-1	9.6	7.80	369	---	200	62	8.0	1.0	0.0	237	0.0	0.0	1.0
MST-2	8.0	8.20	195	---	140	30	2.0	2.0	0.0	112	0.0	0.0	2.0
MST-3	11.9	7.85	353	8.3	236	58	16.5	1.0	0.0	264	0.0	5.5	1.0

Creeks

Site	Temp °C	pH	Cond. µS/cm	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	C
C-5	7.5	7.85	192	28	141	36	5.8	2.3	0.0	148	0.0	4.3	1.2
C-6	8.9	8.46	235	240	137	37	6.0	3.0	0.0	132	6.5	5.5	3.5
C-7	9.4	8.45	261	1,200	139	38	7.0	2.0	0.0	161	2.5	4.0	1.0

Site	Temp °C	pH	Cond. $\mu\text{S}/\text{cm}$	Flow gpm	TDS mg/L	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	C
C-8	8.1	8.47	267	1,275	150	42	6.5	2.0	0.0	163	3.0	4.5	1.5
CS-10	7.9	7.72	241	984	143	39	4.9	2.9	0.4	131	0.6	17.9	3.0
CS-16	8.0	8.39	296	515	183	53	7.4	1.8	0.4	193	1.8	7.8	1.1
CS-17	7.8	8.37	278	187	173	48	6.8	1.8	0.4	171	1.2	8.3	1.6
CS-18	10.1	8.47	270	2,067	150	42	7.0	3.5	0.3	156	1.2	7.3	5.5
UPL-10	9.7	8.07	313	3,120	198	53	8.7	5.7	0.7	177	1.9	13.4	11.7

Source. Table 3 (Petersen Hydrologic, LLC, 2014a)

gpm – gallons per minute

mg/L – milligrams per liter

$\mu\text{S}/\text{cm}$ – Micro-Siemens per centimeter

Appendix C
Draft EA Public Comments and Responses

Response to Draft EA Publication

Legal notices notifying the public of the available Draft EA and FONSI for review and comment were published in the *Sun Advocate* and *Emery County Progress* on June 14, 2016, and the *Sanpete Messenger* on June 16, 2016. Fifty-nine outreach letters were sent directly to adjacent landowners, nearby community leaders, and other interested individuals announcing the availability of the Draft EA and FONSI. Twenty-five letters were sent to tribal contacts. Hard copies of the Draft EA were sent to public reading rooms as indicated in the legal notices. Legal notices notifying the public about an extension to the comment period of the Draft EA and FONSI for review and comment were published in the *Sun Advocate* and *Emery County Progress* on June 28 and July 12, 2016, and the *Sanpete Messenger* on June 30 and July 14, 2016. Outreach letters were sent to the adjacent landowners, nearby community leaders, other interested individuals and tribal contacts announcing the availability of the Draft EA and FONSI. Hard copies of the Draft EA and FONSI were sent to the public reading rooms as indicated in the legal notice. Comments were accepted from June 16, 2016, through July 28, 2016.

Comments on the draft EA in response to the notices of availability included individual comments and form letters. OSMRE received 3 individual letters from: the Shoshone Bannock Tribes (Fort Hall, Idaho), Mason Bishop (private citizen), and the WildEarth Guardians/Grand Canyon Trust (Denver, Colorado). Additionally, a letter campaign resulted in 6,240 submissions of similar form letters. On August 4, 2016, WildEarth Guardians/Grand Canyon Trust supplemented their comments.

A total of 6,243 comment letters and emails were received. OSMRE has reviewed and considered all comments.

Comment Analysis

All comments received were analyzed to identify substantive comments. Comments were considered substantive if they resulted in a modification to the EA (to correct information, provide additional information, or consideration of additional alternatives) or were specific and warranted a response. In addition, all comments (substantive and non-substantive) were categorized into a resource area to summarize where the public concerns occur (see Table C.1).

The purpose of this appendix is to provide responses to substantive comments and characterize the public comment concerns. The comment analysis is not used to count votes, but instead helps identify the public's concerns and determine if modifications need to be made to the EA to address them. All comments are part of the project record and have been considered in the decision.

Characterization Summary

The content of comments were categorized into resource areas and counted. Nearly all of the form letters contained similar if not identical comment text. Many people submitted the same form letter multiple times. In addition to the 3 separate letters identified above, the form letters were categorized and counted. For the purposed of this analysis 6,243 comment submissions were received (6,240 form letters and 3 individual letters). Results are shown in the table below.

Table C.1 - Comments by Resource Category

Comment Category	Number of Submissions with this comment	Percent of total comments
Air Quality and Climate Change	6,241	20%
Use of Public Lands	6,239	20%
Exporting Coal	6,239	20%
Social and Economic	6,242	20%
General Environmental Concerns	6,241	20%
Indian Trust Responsibilities and Treaty Rights	1	<1%
Cultural Resources	1	<1%
Water	2	<1%
Compliance with SMCRA and NEPA	1	<1%
Recreation	2	<1%
Access	1	<1%
Reclamation	2	<1%
Total	31,212	100%

Summary Comments

Comment 1:

Reject Bowie Resources' demands to expand its Skyline coal mine into the Flat Canyon area on the Manti-La Sal National Forest.

Response:

OSMRE is recommending the selection and approval of the Proposed Action because the impacts of approval of the mining plan modification would not have a significant impact on the quality of the human environment. The Proposed Action would not violate any known federal, state, local, or tribal law or requirement imposed for the protection of the environment, and is consistent with applicable plans, policies, and programs. OSMRE's decision rationale is explained in further detail in the FONSI.

Comment 2:

We cannot afford to shoulder the costs of more coal mining and more climate destruction.

Response:

See detailed response to Comment 14.

Comment 3:

The taxpayers will be left paying for reclamation due to bankruptcy of mining companies.

Response:

The State of Utah determines the bonding provisions and oversees reclamation under Utah Code Annotated 40-10. Bonding in the form of a surety bond (\$5,799,000 payable to the State of Utah and OSMRE) covers the cost of reclamation in the event the state has to complete the work due to Bowie's financial condition. Determining compliance with the bonding provisions of SMCRA is

outside the scope of this EA. Pursuant to 30 CFR 746.13, OSMRE's recommendation to the ALSM for a decision on the mining plan modification is based on separate and distinct actions including compliance with NEPA; the findings and recommendations of the BLM with respect to the R2P2; and the findings and recommendations of the regulatory authority with respect to the permit application. The OSMRE action of determining compliance with SMCRA and other requirements of federal laws, regulations, and executive orders is distinguished at 30 CFR 746.13 from OSMRE's action to assure compliance with NEPA.

Specific Comments

Commenter: The Shoshone-Bannock Tribe

Comment 4:

The proposed project is located within the traditional lands of the Shoshone-Bannock Tribes and has the potential to negatively impact use of the area and interfere with the Tribes ability to exercise inherent and treaty reserved rights on the unoccupied lands of the United States. Article IV of the Fort Bridger Treaty reserved the right to hunt on unoccupied lands of the United States. This right includes off-reservation hunting, gathering, and performing traditional cultural practices. The Tribes continue a subsistence lifestyle to maintain Tribal traditions, improve our health, and return to our aboriginal territories. In addition, the Tribes work diligently to ensure the protection, preservation and enhancement of those rights for future generations. Please add text that discusses the inclusion of Tribal Treaty rights and resources as the OSMRE analysis and determines mitigation required for this project. The OSMRE must, to the fullest extent possible, make every effort to protect Treaty rights and resources.

Response:

OSMRE discussed the cultural reports with and forwarded the cultural reports to the Tribe. The proposal is to conduct underground mining and would result in no surface disturbance (see individual resource impact summaries in **Table 4**, particularly wildlife and transportation), therefore, treaty rights to hunt on unoccupied lands will not be affected. Thus there would be no impacts on hunting, fishing, gathering, performing traditional cultural practices, or continuation of a subsistence lifestyle. No additional surface disturbance would occur and access to surface resources would not be modified. Executive Order 13175 (2000), Presidential Memorandum on Tribal Consultation (2009), Department of the Interior Secretary's Order 3292, Secretarial Order 3317 (2011), and OSMRE Directive 979 (2013) all affirm the direction for recognizing tribal rights in federal programs and projects and sets forth policies, procedures, and responsibilities for implementing them.

Comment 5:

The Tribes expect the OSMRE to fully protect Tribal rights and interests throughout the project, implementing management activities (surveys, inspections, and monitoring) that demonstrate a commitment to the federal trust responsibility. In order to make land management decisions for resource use on federal lands, the OSMRE must consult with the Tribes to gain an understanding of Tribal traditional and contemporary uses of natural resources, location and significance of historical and cultural sites, and Tribal customs. Without this information, direct, indirect and cumulative

impacts to resources protected under Treaty Rights cannot be determined. Please add text to the scoping documents that acknowledges the Federal Trust Responsibility of the OSMRE to the American Indian Tribes to protect natural and cultural resources as defined by treaties and other laws and policies.

Response:

Cultural surveys were conducted for the 2002 EIS (see **Table 4**). The EIS also discloses that subsidence would not affect prehistoric Native American sites. The Shoshone Bannock tribe received notification of the project during scoping through the Notice of Intent letter and when the EA was available for review through the Notice of Availability letter. OSMRE will continue to meet their obligations regarding government-to-government consultation, as will the Forest Service and the BLM per Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, work with tribes on a government-to-government bases to address tribal trust responsibilities, Department of the Interior directives 979, Presidential Memorandum on Tribal Consultation (November 9, 2009).

Comment 6:

The Tribes request, per Federal regulations, that cultural resource surveys (an archaeological site survey and a culturally-sensitive plant survey) be conducted prior to the commencement of work for all previously undisturbed areas (trench excavations, off road travel corridors, drill pads and sumps, and onsite facility locations) at the Flat Canyon Federal Coal Lease, Skyline Mine, including areas of overland travel to get to the site. These surveys must be conducted by qualified personnel and the results documented and archived in the project file. Any artifacts, culturally significant sites, or other significant findings must be assessed by the State Historic Preservation Office. Heritage resources are protected as mandated by the 1966 National Historic Preservation Act, as amended (NHPA), 36 CFR 800, the American Indian Religious Freedom Act, the Archaeological Resource Protection Act, the National Environmental Policy Act (NEPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).

Response:

Cultural resources surveys were conducted (see response to Comment 4) and the results were approved by the SHPO (see **Table 4**). These reports have been forwarded to the tribe. No historic properties will be affected. No new surface areas would be disturbed under the Proposed or No Action Alternatives. Therefore the National Historic Preservation Act, the American Indian Religious Freedom Act, the Archaeological Resource Protection Act, and the Native American Graves Protection and Repatriation Acts would be met. The EA was conducted to meet the requirements of the National Environmental Policy Act, as was the 2002 Final Environmental Impact Statement.

Comment 7:

The Tribes do not support the disturbance of natural federal land and resources for this project. Therefore, the Tribes request that the proponent, in cooperation with the OSMRE, prepare and submit for approval, prior to disturbance, a mitigation/reclamation plan. This plan shall specify full restoration of overland routes and timber-cleared areas associated with this project, including the

use of native plant species for revegetation, decommissioning temporary roads/travel routes, capping/abandoning coreholes, mitigating impacts from housing and sanitation facilities, decommissioning all housing and sanitation facilities and their associated impacts, and other transportation/use corridors.

The Tribes urge the OSMRE to actively restore the native plant communities (including those defined during the culturally-sensitive plant survey) affected by project activities and require specific management protocols for preventing the spread of noxious or invasive species during and after the project. Traditional, subsistence and medicinal plants and resources the Tribal members and of other tribes, rely upon have often been unduly compromised due to the introduction and invasion of non-native plants.

With regard to the use of hazardous materials at the exploration sites, please require immediate notification to the OSMRE of all spills, leaks, and accidental disposal of hazardous materials/chemicals.

The Tribes express concern about the potential impacts to visual resources and wilderness characteristics from this proposed exploration and any subsequent mineral discovery and development activities which may occur. Please add text to the scoping documents that every effort will be made to limit and restore visual resource destruction.

Water that is to be acquired for drilling/coring activities must be obtained from an approved potable water source to avoid introduction of contaminants to the surface and subsurface at the project area, in accordance with applicable state regulatory requirements. In addition, any lubrication or other drilling products to be used during coring must be approved for use in a potable well in order to protect the groundwater resource as a potential drinking water supply.

After coring is completed, please abandon and close the coreholes per applicable state regulatory requirements.

The Tribes request that all timber cut during the project be made available to local Tribal members for personal use as firewood. We also ask for adequate access to that firewood by locating it in an area easily accessible by Tribal member vehicles.

Response:

Reclamation is already accounted for and bonded by the Utah DOGM (see response to Comment 2). No new disturbance (including timber clearing, overland routes, native plant disturbance, roads, core holes, or facilities) would occur on National Forests under the Proposed and No Action Alternatives. Visuals and wilderness characteristics were addressed in the 2002 EIS. Because there would be no surface disturbance, there will be no impacts on visual quality or wilderness characteristics (see **Table 4**). Subsidence would not be visible and there are no wilderness areas within 25 miles of the project. Measures to control weeds and reestablish vegetation are already included in permits and stipulations. Spill prevention and response measures and reporting requirements are already included in the UPDES permit (see **Section 2.2.13** of the EA). No drilling is proposed and no water or use of drilling materials will be required for drilling.

Commenter: WildEarth Guardians**Comment 8:**

We are concerned first and foremost that OSMRE is apparently moving forward to approve the mining plan modification even before outstanding litigation over the issuance of federal coal lease UTU-77114, or the Flat Canyon coal lease, has been resolved.

As OSMRE is aware, Guardians and the Trust are in the U.S. District Court for the District of Utah challenging, among other things, the adequacy of the underlying National Environmental Policy Act (“NEPA”) analysis. See Exhibit 1, Proposed Second Amended Complaint, WildEarth Guardians and Grand Canyon Trust v. Jewell, Case No. 2:16-cv-00168- DN (June 24, 2016). [Footnote 1: *We further aver that the claims raised in our complaint would be equally applicable to any final action taken by OSMRE and the Secretary with regards to approval of the Skyline Mining Plan.*] The sale and issuance of the Flat Canyon Coal lease occurred more than 13 years after the initial Record of Decision (“ROD”) was issued by the Bureau of Land Management (“BLM”) and U.S. Forest Service (“USFS”) and after a final environmental impact statement (“EIS”) was prepared documenting and disclosing the reasonably foreseeable impacts of issuing the lease. Our federal court action challenges the fact that the BLM and USFS determined this 13 year-old FEIS adequately disclosed the potentially significant impacts of the Flat Canyon coal lease, even though the EIS did not even mention a number of potentially significant impacts. Further, the agencies determined no supplementation of the EIS was necessary, despite the development of significant new information and circumstances that occurred in the more than 13 years between the issuance of the FEIS and the issuance of the lease.

OSMRE, as well as Bowie Resources and its subsidiary, must understand that if we succeed in this litigation, we have requested the Flat Canyon lease be vacated. If this request for relief is granted, it is very likely that any mining plan modification approved by the Secretary of the Department of the Interior will necessarily become void given the absence of leased federal coal. This would mean that any mining and development of the Flat Canyon lease would cease.

To this end, with this comment letter, we are putting the agency, as well as the lessee, on notice that if mining and development are halted, any harms that may be claimed to befall OSMRE and/or Bowie Resources would be self-imposed. If OSMRE moves forward to recommend approval of the mining plan modification and the Secretary approves the modification, and if Bowie proceeds to commence mining and development, the parties would be doing so under the awareness that their actions could be halted as a result of our court action. If the parties choose to accept this risk, they do so at their own peril.

Furthermore, we hereby put OSMRE and the lessee on notice that, given the flaws in the Flat Canyon FEIS and the failure of the BLM and the USFS to supplement the FEIS, any approval by OSMRE that relies upon this FEIS would be equally flawed and invalid.

Given this, we strongly urge OSMRE and the Secretary to delay taking action on the proposed mining plan modification until litigation is fully resolved. Justification for delaying action on the proposed mining plan is bolstered by recent actions undertaken by the Secretary of the Interior. In

Secretarial Order 3338, issued on January 15, 2016, the Secretary proclaimed both a halt on the leasing of federal coal and the initiation of a programmatic environmental impact statement to consider and implement sweeping reforms to the federal coal program. In support of her actions, the Secretary cited concerns over “fair return,” “climate change,” and “market conditions.” Secretarial Order 3338 § 2(b). Although the Order did not put a halt to decisions undertaken by OSMRE, it speaks to the depth of the contemporary controversy and concerns surrounding federal coal management. Given that the Flat Canyon coal lease was approved in 2002, before fair return, climate change, and market conditions were remotely concerns related to the management of federal coal, it speaks to the need for OSMRE to proceed carefully and deliberately.

Put another way, OSMRE should not simply be a rubberstamp, but rather truly take into account the myriad changed circumstances that influence today’s coal management decisions and apply contemporary deliberation to the present mining plan modification.

Response:

There is a pending challenge to the BLM’s and the Forest Service’s compliance with the National Environmental Policy Act and the Administrative Procedure Act in approving and consenting to the Flat Canyon Coal Lease. *WildEarth Guardians v. Jewell, et al.*, No. 15-cv-01984-REB (D. Colo.). But BLM’s decision to offer the lease has not been stayed or enjoined. Accordingly, the decision is in effect and it is appropriate for OSMRE to tier to the EIS. CEQ encourages tiering to reduce redundancy in analysis. Per the CEQ regulations implementing NEPA (40 C.F.R. §§ 1502.20 and 1508.28), tiering is appropriate when proceeding from a broader environmental impact statement on a specific action to an analysis at a later stage, so that the agencies can focus on the issues which are ripe for decision and exclude from consideration issues already decided.

Comment 9:

In our prior comments, we pointed to the need for OSMRE to prepare an EIS. These comments do not appear to have been adequately addressed in the EA. In the meantime, we have additional concerns over the agency’s decision to prepare an EA, even though mining of the Flat Canyon coal lease clearly poses significant impacts to the environment.

To begin with, OSMRE’s attempt to tier its EA to the 2002 Flat Canyon coal lease FEIS, and in doing so avoid preparing its own EIS or supplemental EIS, is not supported by Interior Department NEPA regulations at 43 C.F.R § 46.140. These regulations state that: An environmental assessment may be prepared, and a finding of no significant impact reached, for a proposed action with significant effects, whether direct, indirect, or cumulative, if the environmental assessment is tiered to a broader environmental impact statement which fully analyzed those significant effects. 43 C.F.R. § 46.140(c). Here, the EIS being tiered to, namely the 2002 Flat Canyon coal lease FEIS, did not fully analyze the significant impacts of leasing and mining the lease. As Guardians explained in a 2015 letter to the BLM and USFS, the 2002 FEIS failed to address a number of potentially significant impacts, including the climate impacts related to the reasonably foreseeable consequence of coal combustion, air quality impacts, fish and wildlife impacts, and cumulative impacts related to additional federal coal management decisions, including additional leasing that had occurred since 2002.

To its credit, OSMRE appears to acknowledge the shortcomings in the 2002 FEIS in its current EA. The EA provides an air quality analysis, climate analysis, and significant updates to the dated analysis presented in the 2002 FEIS, implicitly acknowledging that the 2002 FEIS did not fully analyze significant relevant to the 2015 leasing action. However, what OSMRE does not seem to recognize is that an EA cannot tier to a deficient EIS, nor can it serve to “fix” deficiencies in an EIS. If an EIS is inadequate, or in need of updating or gap-filling, then the proper means of doing this is through a revised or supplemental EIS, not through an EA. Put another way, if an EIS fails to disclose significant impacts, an EA cannot be the vehicle for disclosing those impacts under NEPA. Only an EIS can be utilized to analyze and assess significant environmental impacts under NEPA. See 40 C.F.R. § 1502.3.

Response:

OSMRE has reviewed the conclusions in the EIS (including fish and wildlife) and determined that the EIS is sufficient (see **Table 4**). This EA tiers to the EIS which is appropriate according to 40 CFR 1508.28 because the EA is “a subsequent statement or analysis at a later stage...” and excludes “from consideration issues already decided or not yet ripe.” The EA analyzed the site-specific impacts including coal combustion on air quality and greater sage-grouse related to the federal mining plan modification. Rationale and findings are included in the FONSI.

Comment 10:

It is instructive to look to the BLM's NEPA Handbook for guidance on this issue.[Footnote 2: *This is especially true given that OSMRE's NEPA Handbook was prepared in 1989, while BLM's Handbook was prepared in 2008. Comparatively, BLM's guidance is more up-to-date, on point, and instructive.*]The agency's Handbook states that, when tiering to an EIS, “if there are new circumstances or information that would result in significant effects of an individual action not considered in the EIS, tiering to the EIS cannot provide the necessary analysis to support a [Finding of no Significant Impact] FONSI for [an] individual action[.]” BLM NEPA Handbook, Section 5.2.2 at 27. The Handbook further states that, “An EIS would need to be prepared for the individual action only if there are significant effects that have not been analyzed in the broader EIS.”

Here, there are significant impacts related to the mining of the Flat Canyon coal lease that were not considered in the 2002 FEIS. Accordingly, tiering is not allowed. Given this, an EIS must be prepared, not an EA.

Response:

See the response to Comment 9 regarding the purpose for the EA and the responses to Comments 8 and 9 on the appropriateness of tiering to the 2002 FEIS. The analysis in the EA did not show significant impacts that would require an EIS. The draft FONSI published with the EA provides rationale supporting the FONSI.

Comment 11:

Regardless, an EIS is compelled based solely on the Interior Department's Departmental Manual, 516 DM 13. The Manual states that, approval of a mining plan requires an EIS where “[t]he

environmental impacts of the proposed mining operations are not adequately analyzed in an earlier environmental document covering the specific leases or mining activity,” “[t]he area to be mined is 1280 acres or more, or the annual full production level is 5 million tons or more,” and “[m]ining and reclamation operations will occur for 15 years or more.” 516 DM 13.4(A)(4).

Upon review of available information, it still appears that all 3 criteria are met with regards to the Skyline Mining Plan.

In the case of the Flat Canyon tract, mining will impact more than 1,280 acres.

According to OSMRE’s notice, the mining plan modification will add more than 2,000 acres of federal coal to the Skyline Mine. Furthermore, the Skyline Mine is permitted to produce more than 5 million tons of coal annually. Additionally, according to OSMRE’s notice, the proposed mining plan would extend the life of the mine by 9 to 12 years. Already, the life of the mine is projected to extend to 2023 based on the addition of coal reserves through a modification of Federal Coal Lease UTU-67939. OSMRE’s approval would extend the life of the mine beyond 2030, or cumulatively more than 15 years.[Footnote 3: *Additionally, post-mining reclamation activities are likely to occur for several years, further indicating OSMRE’s decision will authorize mining and reclamation activities for 15 years or longer.*] Thus, 2 of the 3 factors for an EIS are met in this case.

With regards to the third criteria—whether the environmental impacts of the proposed mining have been adequately addressed in an earlier document—OSMRE’s EA confirms the 2002 FEIS did not adequately address the environmental impacts of the proposed action. The EA not only analyzes impacts that were not even addressed in the 2002 FEIS, but clearly presents updated analysis to compensate for the fact that the 2002 FEIS fails to adequately analyze the reasonably foreseeable impacts of mining the Flat Canyon lease.

Furthermore, as our complaint over the Flat Canyon lease alleges, the FEIS is flawed in a number of key regards and fails to demonstrate compliance with NEPA. If OSMRE chooses to rely on, or tier to, this FEIS, its decision would be legally flawed for the same reasons identified in our complaint.

To this end, it does not appear as if an EA or a Finding of no Significant Impact (“FONSI”) is warranted or justified. We again urge OSMRE to prepare an EIS for the proposed mining plan and comply with relevant procedures governing the preparation of an EIS.

Response:

The project was reviewed in light of Departmental Memorandum 516 (see Section 1.1). The complete text of the reference section of Chapter 13 of the Departmental Memorandum (page 3, item 4) states the following:

Approval of a proposed mining and reclamation plan for a surface mining operation that meets the following:

- (a) The environmental impacts of the proposed mining operation are not adequately analyzed in an earlier environmental document covering the specific leases or mining activity; and*

(b) The area to be mined is 1280 acres or more, or the annual full production level is 5 million tons or more; and

(c) Mining and reclamation operations will occur for 15 years or more.

The Proposed Action does not meet the scenario described in the Departmental Manual 516 DM 13, which requires **all 3 criteria** to be met to initiate an EIS. With regard to criteria (a), in 2002, the Forest Service completed the EIS for Flat Canyon Lease Tract and ROD. Therefore criteria (a) is not met.

- With regard to criteria (b), while the lease tract to be mined includes more than 1,280 acres, there would be no surface disturbance associated with it (per SMCRA, 30 U.S.C. 1266 Section 516).
- Similarly, while the air permit approves up to 8 million tons to be mined annually, the actual proposed is a maximum of 4.5 million tons, which is below the 5 million ton annual full production level listed in criteria (b) (see **Section 2.3** of the EA).
- Finally, mining and reclamation operations would occur over 2 years following completion of mining, for a total timeframe of “mining and reclamation operations of approximately 11-14 years, below the criteria (c) threshold of 15 years (see **Section 2.3.12** of the EA).

Departmental Manual 516 13 does not automatically mandate the preparation of an EIS if certain criteria are met. This guidance document only identifies major actions “normally requir[ing] the preparation of an EIS.” 516 DM 13.4(A). It also explicitly recognizes that OSMRE may choose not to prepare an EIS for any of the listed actions. See 516 DM 13.4(A) “If for any of these actions it is proposed not to prepare an EIS, an EA will be prepared and handled in accordance with Section 1501.4(e)(2)”. Thus, there is nothing in the Departmental Manual that diminishes OSMRE’s discretion to follow the NEPA requirements in order to determine whether any particular action is significant.

OSMRE has completed an EA to determine whether there would be significant effects as a result of approving the Skyline Flat Canyon Coal Lease Tract Mining Plan Modification. Under the MLA and SMCRA, the Secretary, as delegated to the ASLM, has the authority to approve, approve with conditions, or disapprove an application for a mining plan modification. As described in the EA **Section 1.3**, Regulatory Framework and Necessary Authorizations, OSMRE makes a recommendation to the ASLM on the decision for the mining plan modification. That recommendation is based on OSMRE’s consideration of 7 factors, one of which is compliance with NEPA (30 CFR 746.13).

The determination of significance is based on the context and intensity as defined by CEQ regulations 40 CFR 1508.27. The significance of the impacts to all resources is analyzed in the EA in **Chapters 4** and **5**, and the rationale for the conclusions reached is provided. For the reasons described in the FONSI, OSMRE has determined that there are no significant impacts. Therefore, an EIS is not required under this pretext. OSMRE has not yet submitted a recommendation to the ASLM on the decision.

Comment 12:

On May 27, 2016, the Utah Division of Oil, Gas and Mining (“DOG M”) issued a citation to Canyon Fuel for pumping water from the Skyline Mine directly into Eccles Creek and intentionally bypassing a sedimentation pond meant to prevent pollution of the creek. DOGM assessed a \$4,070 penalty against Canyon Fuel after concluding that the company violated numerous provisions of Utah’s coalmine-permitting regulations and the Skyline Mine’s reclamation plan.

This was not the first time that Canyon Fuel had violated water-quality conditions in its permits. The company was issued a similar citation in August 2008 after it repeatedly let “coal sediment-laden materials” discharge into Eccles Creek out of a damaged and poorly repaired pipe. And back in November 2001, the Utah Division of Water Quality issued a notice of violation to the company for violating its state issued Clean Water Act permit by pumping excess mine water directly into Eccles Creek.

None of these permit violations is mentioned in the EA, and OSMRE did not analyze the possibility that they may recur or the impacts that would result should they recur. See EA at 90–93. Indeed, the EA acknowledges that mining the Flat Canyon Lease area may well result in increased inflows into the mine “that are as large, or larger” than those encountered in the early 2000s. EA at 92. And those increased inflows are the very condition that caused Canyon Fuel to violate its water-quality permit in November 2001.

The EA should be revised to analyze whether increased inflows as the Flat Canyon lease area is mined may lead to comparable discharge violations and how increased inflows and resulting discharges can be mitigated. For example, the EA acknowledges that increased sedimentation of Eccles Creek will occur “at discharge rates approximating 35 [cubic feet per second (cfs)].” EA at 92. The EA then simply assumes that “the monitoring program” would be adjusted to document degradation of the creek if dewatering increases such that there are “sustained higher discharges above 35 cfs.” EA at 93. That analysis is illogical. If sustained discharge rates of 35 cfs are enough to degrade the creek, the EA should analyze mitigation measures to keep discharge rates below that threshold, rather than assume that the State of Utah can simply modify the mine’s discharge permit to “adjust to potentially changing conditions,” EA at 93.

OSMRE should revise the EA to consider Canyon Fuel’s history of violations, reassess the conclusions in the EA that “[w]ater quality standards would continue to be met” and “[i]mpacts on water quality would be negligible and short-term,” EA at 92, re-evaluate whether water-quality impacts from the Skyline Mining Plan may be significant, and determine whether additional water-quality-protection requirements should be imposed as a condition of approving the Mining Plan (if OSMRE maintains that proposed recommendation).

If OSMRE persists in its recommendation to approve the Skyline Mining Plan, it should also recommend that additional conditions be imposed to protect water quality given Canyon Fuel’s history of unauthorized discharges from the Skyline Mine into Eccles Creek...History suggests that Canyon Fuels’ state-issued SMCRA permit and state-issued federal Clean Water Act permit are insufficient to ensure that the company will discharge mine water in compliance with Utah’s Coal Mining and Reclamation Act (Utah Code Ann. § 40-10-2, et seq.) and the federal Clean Water Act.

And the stipulations included in the Flat Canyon lease (UTU-77114) include no provisions to protect water quality. They simply require Canyon Fuel to replace water that is adversely affected by mining operations rather than protect water quality in the first place.[Footnote 4: *The Lease stipulations also require the company to monitor the gradient of perennial streams and “mitigate detrimental effect discovered during monitoring.” EA at 31. If that vague requirement even relates to water quality, it should be clarified to explain how and augmented to explain exactly what Canyon Fuel is required to do.*] Thus, if OSMRE continues to recommend approval of the Modification, it should also recommend that additional stipulations be imposed as condition of approval to better protect water quality, such as augmented monitoring, inspection, preventative-maintenance, employee training, or bonding requirements.

Response:

OSMRE, through this analysis, has not determined a need for additional mitigation measures for water. Skyline Mine is permitted to discharge directly to the creek by the UPDES permit. Surface water quality is carefully monitored by Skyline Mine and regularly submitted to Utah DOGM. Utah DEQ and DOGM will continue to monitor and protect surface water quality through Skyline’s UPDES permit.

Skyline Mine has monitored and appropriately reported any water issues to the State of Utah DOGM, who has in turn responded (reports available online from the Utah Coal Program <http://linux3.ogm.utah.gov/WebStuff/wwwroot/coal/filesbypermit.php?C0070005>). Please see **Table 27** below for modifications made to the EA in response to this comment.

Determining compliance with the SMCRA permit is outside the scope of the EA. The basis for OSMRE’s recommendation to the ASLM on a decision on the mining plan modification is described in **Section 1.3**.

Comment 13:

The EA fails to analyze and assess impacts to air quality related to the combustion of coal from the Skyline Mine. In its EA, OSMRE asserts, for example, that emissions of ozone precursors generated by coal combustion “are not quantifiable because Skyline Mine ships coal to many consumers which change over-time which creates high uncertainties and in ability to analyze indirect emissions.” EA at 82. This assertion is not supported by the agency’s own disclosures in the EA, which indicate that coal from the Skyline Mine is consistently sold and burned at power plants in Utah, including the Hunter, Huntington, and Intermountain Power Project power plants.

Response:

The text referred to was incorrect and has been corrected because the EA does analyze the ozone precursors. See **Table 27** at the end of this Appendix.

The EA includes an analysis of the impacts from the combustion of coal (see **Section 4.3.1.2**).

Coal combustion related impacts to fish and wildlife species are not quantifiable for the project specifically because Skyline Mine ships coal to many consumers that change over-time which creates high uncertainties and an inability to analyze indirect emissions pursuant to CEQ 40 Most

Questions (Question 18) and 40 CFR 1502.22. The EA includes an indirect coal combustion emissions analysis for a representative power plant in Section 4.3.1.2.

Comment 14:

The EA appears to fail to analyze and assess the climate change impacts of approving the proposed mining plan. We are especially concerned that OSMRE did not calculate the costs of projected carbon emissions that would result from the Skyline Mining Plan.

In our prior comments, we detailed the need and appropriateness for an assessment of carbon costs. In the EA, OSMRE provides various reasons for rejecting such an analysis, including that there are no “specific threshold levels” and that inclusion of such an analysis would be misleading absent a full cost benefit analysis. EA at 87-88. With regards to a full cost benefit analysis, it is troubling to see that while OSMRE dismissed carbon costs, it was perfectly comfortable disclosing purported economic benefits associated with the Skyline Mine (EA at 87) and a clear monetary analysis of the economic benefits of more mining (EA at 62-64). If anything, the current analysis is misleading because it presumes carbon costs are \$0 and only discloses economic benefits. This is the hallmark of an analysis that lacks objectivity.

As to significance thresholds, it is unclear what barrier this presents for OSMRE. Is the agency looking for another entity to establish these thresholds? Under NEPA, agencies are tasked with the independent obligation to assess significance, not pass the duty off to some undefined entity. This does not serve to support OSMRE’s assertion that the climate impacts are not significant or that it was unreasonable to calculate carbon costs as a means to assess the potential significance of the climate impacts of the Skyline Mining Plan.

Response:

The information in the EA disclosing the employment and payments from coal mining were included to update the 2002 FEIS information on these subjects based on the current market value and employment. Section 4.4.1.2 of the EA explained why OSMRE determined that a social cost of carbon (SCC) analysis was not necessary for this project. NEPA does not require a cost-benefit analysis or the presentation of the SCC cost estimates quantitatively. Without a complete monetary cost-benefit analysis, which includes the social benefits of energy production, inclusion solely of a SCC analysis would be misleading. Therefore, OSMRE did not apply the SCC protocol in this analysis. Also, the analysis of the socioeconomic conditions presented in the EA is not dependent on the inclusion of SCC values and therefore no value was attributed to the potential impacts of climate change. The Skyline Flat Canyon Coal Lease Tract Mine Plan Modification EA evaluated the climate change impacts using GHG emissions (see Section 4.3 of the EA).

In accordance with NEPA’s implementing regulations, “the weighing of the merits and drawbacks of the various alternatives need not be displayed using a monetary cost-benefit analysis and should not be when there are important qualitative considerations.” 40 C.F.R. 1502.23. Accordingly, OSMRE is not required to conduct an analysis of the SCC and has chosen not to use that method for this EA. See also *Earthports, Inc., et al. v. FERC et al.*, 828 F.3d 949 (D.C. Cir. 2016).

Comment 15:

The EA is entirely silent on the impacts of coal exports, even though we called on OSMRE to address such impacts.

That Bowie Resources likely exports coal from the Skyline Mine appears very certain. In a recent statement regarding an Initial Public Offering, Bowie stated that it exports coal “to a variety of growing economies on the Pacific Rim.” See Exhibit 10, NASDAQ, “Bowie Resource Partners LP,” website available at <http://www.nasdaq.com/markets/ipos/company/bowieresource-partners-lp-968514-78744>. Reports indicate Bowie exports 1-3 million tons annually from its mines in Utah and is moving to lock in additional approvals, including a new coal export facility in Oakland, CA and additional federal coal leases, to maintain and/or increase its export capacity. See Exhibit 11, Maffly, B., “Utah coal: California here it comes—and not everyone is happy,” Salt Lake Tribune (April 25, 2015), available at <http://www.sltrib.com/home/2425141-155/utah-coal-california-here-it-comes?fullpage=1>. Although Oakland recently voted against a new coal export facility, a recent story indicates that Bowie’s plans are by no means dead and that the company remains dead set on its export plans. See Exhibit 12, Tory, S., “How Utah coal interests helped push a secret plan to export coal from California,” High Country News (July 21, 2016), available online at https://www.hcn.org/articles/how-a-utah-coal-company-fueled-asecret-plan-to-export-coal-from-california-Keep-It-In-The-Ground-Oakland-terminal/print_view.

Given this, OSMRE must fully analyze and assess the impacts of exporting coal from the Skyline Mine. Such an analysis and assessment must take into account the impacts of hauling coal by rail, the impacts of port operations and coal handling at export terminals, the impacts of shipping coal overseas, and the combustion impacts of burning coal overseas. To this end, OSMRE must address the reasonably foreseeable impacts of the new coal export facility in Oakland, CA.

Response:

Canyon Fuel Company, LLC has not indicated the regularity or amount of Skyline coal that may be exported. It would be speculative to assume an amount or frequency of exportation would occur. Thus only indirect impacts associated with domestic coal combustion were analyzed in the EA. As shown in Table 2 of the Draft EA, the Skyline Mine has historically supplied domestic power plants with the coal over the past 5 years. The EA assumes that the domestic coal market would be sufficient for the Proposed Action as demonstrated by the historical data.

Comment 16:

OSMRE did not respond to our initial comments regarding the need to analyze and assess the impacts of similar and cumulative mining and coal leasing approvals that are under consideration by the U.S. Department of the Interior in the same area. Under NEPA, an agency must analyze the impacts of “similar” and “cumulative” actions in the same NEPA document in order to adequately disclose impacts in an Environmental Impact Statement (“EIS”) or provide sufficient justification for a FONSI in an EA. See 40 C.F.R. §§ 1508.25(a)(2) and (3).

Here, the U.S. Department of the Interior is currently weighing numerous coal decisions, similar to the proposed action at hand, which pose similar and cumulative impacts in terms of greenhouse

gas emissions and climate impacts, particularly in terms of carbon costs [See original comment for full list of projects].

These are just a handful of the coal decisions pending before Interior that pose potentially significant climate impacts. Other proposals include BLM's consideration of numerous lease modifications and lease readjustments, as well as other OSMRE mining plan reviews that may not yet be proposed or public. Given past approvals, the cumulative impacts could be even more significant.

The justification for addressing these similar and cumulative actions in a single NEPA document is underscored by OSMRE's own EA. As the agency acknowledges, the proper scope of analysis for greenhouse gas emissions and climate impacts is at least national in scale. See EA at 101. Given this broad geographic scope, it is imperative that OSMRE analyze the impacts of mining at the Skyline Mine consistent with the scope required under NEPA in order to ensure that impacts are fully analyze and assessed.

Response:

These other activities are not identified specifically as additional cumulative effects because, while new mining plans may be approved, OSMRE analyzes the potential impacts associated with mines that have submitted a new or modified lease application. The overall production of coal is not anticipated to increase and current uses are already accounted for in **Section 5.2.2.1**.

All GHG emissions contribute to cumulative climate change on a global scale. However, it is not scientifically possible to determine the impact that would result on the global climate conditions from the emissions from this specific proposed action or in total from the emissions of other actions. The variables involved in such an analysis would make this determination conjectural and not within the rule of reason. 40 CFR 1502.22(b). Therefore, it would be inconsistent with the NEPA to require the preparation of an EIS for every Federal action that may cause GHG emissions regardless of the magnitude of those emissions. For this reason, past projects and other projects that may or may not be approved by OSMRE are not included in the GHG emissions cumulative effects analysis.

Comment 17:

In analyzing and assess the impacts of the proposed mining plan modification, as well as the appropriateness of issuing the plan, OSMRE must analyze and assess whether Utah's SMCRA permit is sufficient to meet the requirements of SMCRA. If the permit is not adequate, OSMRE must either craft its mining plan approval to address the inadequacies and/or disapprove of the proposed mining plan. The duty for OSMRE and the Secretary to ensure compliance with SMCRA is supported by both the Mineral Leasing act and SMCRA...Here, we are concerned that the Skyline Mine may not be appropriately permitted and regulated under SMCRA by the State of Utah, which would warrant disapproval or modification of the proposed Skyline Mining Plan.

Our first concern relates to the bonding of the Skyline Mine. As WildEarth Guardians pointed out in a citizen complaint filed at the end of 2015, the State of Utah has failed to ensure the reclamation bond for the Skyline Mine, as well as other Bowie mines in Utah, has been increased to reflect inflation. In response, OSMRE sent Ten Day Notice letters to the State of Utah acknowledging the

likelihood of violations of SMCRA bonding requirements. To date, our complaint has yet to be resolved and all indications are that Skyline continues to be inadequately bonded. Given this, OSMRE cannot recommend approval of the Skyline Mining Plan. Either the agency must recommend disapproval or modification to ensure adequate bonding under SMCRA.

Response:

OSMRE has a State-Federal cooperative agreement with Utah DOGM under 30 CFR Part 944 and coordinates with the State of Utah on the management of their SMCRA program. The State of Utah has their own program that is federally approved allowing them to manage the mines. OSMRE operates as oversight to ensure the mine is complying with requirements of SMCRA. Utah DOGM can request additional support when needed. Determining compliance with the SMCRA permit is outside the scope of the EA. The basis for OSMRE's recommendation to the ASLM on a decision on the mining plan modification is described in **Section 1.3**.

Comment 18:

Our second concern relates to Bowie Resources' apparent pattern and practice of violating water quality standards at the Skyline Mine. SMCRA regulations require that coal mine operators discharge water "in compliance with all applicable State and Federal water quality laws and regulations[.]" Here, it appears that the Skyline Mine SMCRA permit is not sufficient to ensure that mining operations consistently and effectively comply with state and federal water quality laws and regulations, and thus is not consistent with SMCRA. Given this, OSMRE cannot recommend approval of the Skyline Mining Plan. Either the agency must recommend disapproval or modification to ensure compliance with water quality standards under SMCRA.

Response:

See responses to Comment 12 and Comment 17.

Also see response to comments that resulted in changes to the EA in **Table 27**.

Comments Resulting in Changes to the EA

Some comments were best addressed with changes or additions to the EA. These comments and the changes to address them are shown in **Table 27**.

Table 27 Comments on the Draft EA Resulting in Modifications to the EA

Comment	Response	EA Changes
<p>The EA should be revised to analyze whether increased inflows as the Flat Canyon lease area is mined may lead to comparable discharge violations and how increased inflows and resulting discharges can be mitigated. For example, the EA acknowledges that increased sedimentation of Eccles Creek will occur “at discharge rates approximating 35 [cubic feet per second (cfs)].” ... If sustained discharge rates of 35 cfs are enough to degrade the creek, the EA should analyze mitigation measures to keep discharge rates below that threshold, rather than assume that the State of Utah can simply modify the mine’s discharge permit to “adjust to potentially changing conditions,”</p>	<p>Canyon Fuel Company, LLC updated their Mine and Reclamation Plan June 31, 2016, at the request of DOGM.</p>	<p>Section 2.2.6 has been updated and the analysis in Section 4.6.1.1 has been updated to reflect the new standard.</p>
<p>We are especially concerned that OSMRE did not calculate the costs of projected carbon emissions that would result from the Skyline Mining Plan</p>	<p>Section 4.4.1.2 addresses the cost of carbon question.</p>	<p>Additional rationale for foregoing an analysis of the social cost of carbon is provided in Section 4.4.1.2.</p>
<p>OSMRE must prepare a NEPA analysis that properly compares greenhouse gas emission increase and decreases between the action and no action alternatives, properly assesses the significance of the greenhouse gas emission in terms of relevant and proper context and intensity, considers mitigation measures, and uses current scientific information and methodologies to assess impacts. CEQ’s NEPA guidance makes clear that agencies must consider the effects of climate change on a proposed action and its environmental impacts. While the EA acknowledges that temperatures in the area are likely to increase by 1.5 °F in the next 10 years, there is no analysis of what this increase temperature will mean in terms of water quantity and quality impacts, vegetation impacts, soils impacts, among other things. More importantly, there is no analysis or assessment of the impacts this temperature increase will have on Bowie Resource’s ability to fully comply with its mining permit and meet other applicable environmental and public health protection standards.</p>	<p>The climate change analysis has been revised since publication of the Draft EA. OSMRE recognizes that relevant, reasonable mitigation measures may be discussed even if they are outside the agency’s jurisdiction per the CEQ regulations on implementing NEPA (40 CFR 1502.14(c)). However, OSMRE does not have the regulatory authority to monitor or enforce mitigation on the transportation or combustion of coal associated with this project in accordance with the June 2016 DOI Landscape-scale Mitigation in NEPA Analysis, Decision-Making, and Implementation Monitoring Memorandum.</p>	<p>Sections 3.3.2, 5.2.2.1, and 5.2.5.</p>

Comment	Response	EA Changes
	GHG emissions from coal combustion are regulated by EPA and state air quality departments and are out of scope of the mining plan modification EA. As required, the EA does analyze the impacts.	
<p>Since we submitted our comment letter, the White House Council on Environmental Quality (“CEQ”) finalized guidance regarding agency analysis and assessment of climate impacts under the National Environmental Policy Act.</p> <p>As CEQ’s guidance makes clear, OSMRE’s analysis and assessment is not supported under NEPA.</p>	<p>The EA has been updated following publication of the Draft EA. The comparison to the national GHG emissions has been removed.</p>	<p>Section 5.2.2.1.</p>
<p>In its EA, OSMRE asserts, for example, that emissions of ozone precursors generated by coal combustion “are not quantifiable because Skyline Mine ships coal to many consumers which change over-time which creates high uncertainties and in ability to analyze indirect emissions.” EA at 82.</p>	<p>OSMRE agrees that this statement is incorrect because the Ozone precursors were quantified. The text has been modified to explain that calculations are not specific to the project but are general from standard calculation methods.</p>	<p>Section 4.3.1.2.</p>

Appendix D
Biological Assessment

Biological Assessment for the Skyline Mine Flat Canyon Coal Lease Tract Mining Plan Modification

December 28, 2015

PRESENTED TO

Office of Surface Mining Reclamation and Enforcement

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TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 PROPOSED ACTION	1
2.1 action area	3
3.0 ECOLOGICAL SETTING	3
4.0 SPECIES/CRITICAL HABITAT CONSIDERED	4
5.0 EFFECTS ANALYSIS	7
6.0 CONCLUSION AND DETERMINATION OF EFFECTS	9
7.0 LITERATURE CITED	11

LIST OF TABLES

Table 1. Threatened and Endangered Species List for the Project	4
Table 2. Effects Determinations	9

LIST OF FIGURES

Figure 1. Project Area and Action Area	2
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APPENDICES

APPENDIX A – USFWS OFFICIAL IPAC LIST FOR THE PROJECT

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
BA	Biological Assessment
BLM	Bureau of Land Management
CP	Colorado Plateau
DOI	United States Department of the Interior
DPS	Distinct Population Segment
EA	environmental assessment
EIS	environmental impact statement
ESA	Endangered Species Act
IPAC	Information, Planning, and Conservation
OSMRE	Office of Surface Mining Reclamation and Enforcement
SMCRA	Surface Mining Control and Reclamation Act
USFS	United State Forest Service
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

The United States (U.S.) Department of the Interior (DOI), Office of Surface Mining Reclamation and Enforcement (OSMRE), Western Region, is preparing an environmental assessment (EA) for the Skyline Mine, federal coal lease UTU-77114, mining plan decision document (MPDD) modification. The Proposed Action is for OSMRE to make a recommendation to the Assistant Secretary of Land and Minerals Management (ASLM) about whether or not to approve the permit application package (PAP) to expand the life of their underground Skyline Mine near Helper, Utah for inclusion of the Flat Canyon Lease to the Skyline Mine. The ASLM will review the MPDD and make a decision to approve, conditionally approve or deny the PAP submitted by Canyon Fuel Company (owned by Bowie Resources), which proposes an additional 3,792 acres of federal and private coal reserves at Skyline Mine. In 2002, the U.S. Forest Service (USFS), in cooperation with the Bureau of Land Management (BLM), completed an Environmental Impact Statement (EIS) analyzing the BLM action of offering the Flat Canyon Coal Lease Tract (UTU-77114) for competitive leasing (USFS and BLM 2002). BLM issued the lease for this tract to Canyon Fuel Company on July 1, 2015.

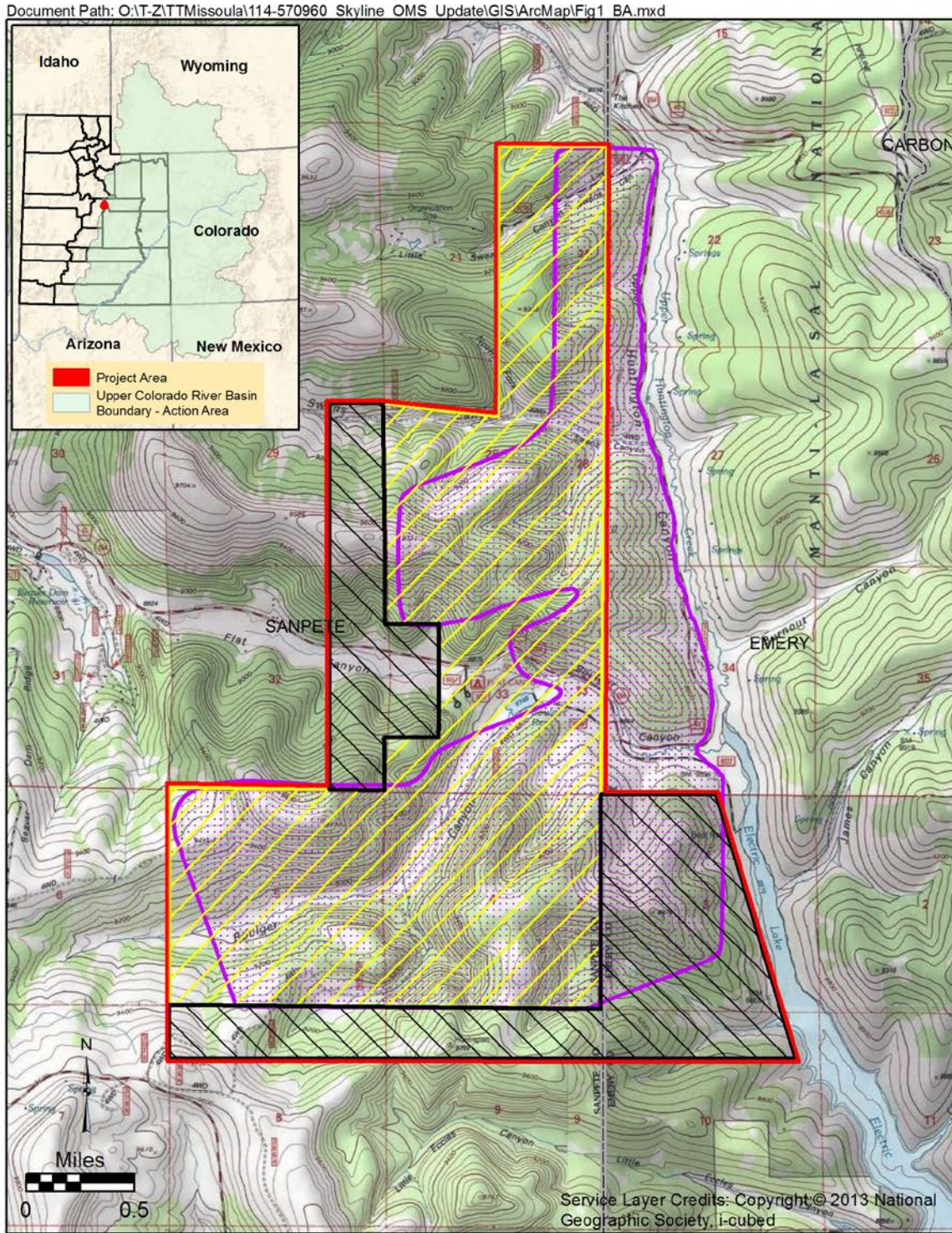
Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure that any activities they authorize, fund, or carry out, do not jeopardize the continued existence of any species federally listed as threatened or endangered. This Biological Assessment (BA) has been prepared to analyze and disclose impacts from the Proposed Action on federally listed threatened, endangered, candidate, and proposed species. This analysis will determine if the Proposed Action would adversely affect any listed species or result in adverse modification or destruction of critical habitat, requiring consultation with the U.S. Fish and Wildlife Service (USFWS).

2.0 PROPOSED ACTION

The Skyline Mine has been in operation since 1981. The Proposed Action is to modify the mining plan for the Skyline Mine to include approximately 2,692 acres of federal coal within the Flat Canyon Coal Lease Tract (UTU77114) and 1,100 acres of private coal reserves. Mining the Flat Canyon lease would extend the life of the mine by 10.5 years. The Proposed Action would take place approximately five miles southwest of the town of Scofield, Utah in Emery and Sanpete counties, Utah. It would be located on the Manti-La Sal National Forest and private lands within sections 21, 28, 29, 32, and 33 in Township 13 South, Range 6 East; and sections 3, 4, 5, 8, 9 and 10 in Township 14 South, Range 6 East (Salt Lake Meridian) (Figure 1). The Flat Canyon Coal Lease Tract and private coal reserves are located to the south and west of the existing Skyline Mine. The 'Project Area' is defined in this BA as all areas where underground mining activities would occur, which is delineated by the Flat Canyon Coal Lease Tract and the private coal reserves as shown on **Figure 1**.

Coal occurs in two seams, which would be mined using longwall mining technology. No surface facilities are proposed. There would be no new sources of noise or other human disturbances/activities above ground as a result of the Proposed Action.

Figure 1. Project Area and Action Area



Legend

- Project Area
- Federal Surface and Coal Ownership
- Private Surface and Coal Ownership
- Estimated Subsidence

Project Area and Action Area
Flat Canyon Mine
Plan Modification EA
Sanpete, Carbon, and Emery Counties, Utah

2.1 ACTION AREA

This BA evaluates the potential for the Proposed Action to cause subsidence, which in turn may modify topography, surface flows, and potentially result in water depletions downstream. Water depletions from the Colorado River or any tributary to the Colorado River may result in adverse effects to endangered fish. To analyze effects on aquatic species listed in Emery and Sanpete counties, which occur in the Colorado River system, the Action Area is defined as the upper Colorado River watershed (**Figure 1**). However, a smaller effects area is considered for terrestrial species because the Proposed Action's area of influence on terrestrial species is localized to the Project Area and to where subsidence may occur rather than throughout the Upper Colorado River Basin. The area of estimated subsidence is shown in **Figure 1**.

3.0 ECOLOGICAL SETTING

The Project Area is located in east-central Utah southwest of the town of Helper in Emery and Sanpete counties on the Manti-La Sal National Forest and private lands. It lies within the Wasatch Plateau physiographic province. This plateau has been incised by deep canyons shaped by glaciers and by wind and water erosion. Topography in the area is mountainous with narrow ridges and deep U-shaped canyons. Elevations range from approximately 8,550 to 9,800 feet. The area experiences four seasonal weather patterns, ranging from relatively hot summers to cold winters with snowpack accumulations. From 1981-2010, average minimum temperatures ranged from 11°F in December to 46°F in July. Average maximum temperatures range from 32°F in December to 76°F in July. Precipitation falls mostly as snow from October to April, with average annual precipitation over this period totaling 25.7 inches (Western Regional Climate Center, 2016).

The most common vegetation community is aspen (*Populus tremuloides*) forest, which is characterized by mature aspen trees and various montane shrubs and forbs in the understory. Coniferous forests and mixed aspen-coniferous forests are also present. Coniferous cover types typically occur on hillsides with northern or eastern exposures, and are dominated by Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) (Alpine Ecological 2015). Intermixed with the forest types are montane grasslands, dry and wet meadows, and sagebrush-steppe communities. Dominant montane grasses include slender wheatgrass (*Elymus trachycaulus*), mountain brome (*Bromus marginatus*), and Letterman's needlegrass (*Achnatherum lettermanii*). Dry meadows are characterized by Kentucky bluegrass (*Poa pratensis*), bentgrass (*Agrostis gigantea*), and Ross sedge (*Carex rossii*) while wet meadows are vegetated with various sedges (*Carex aquatilis*, *C. nebrascensis*, *C. utriculata*). Sagebrush species include mountain big sage (*Artemisia tridentata vaseyana*) and silver sage (*Artemisia cana*).

There are riparian communities associated with streams and springs. In the steeper areas, the drainages are narrow and lined with coniferous and aspen forest types. In flatter drainages, such as Flat Canyon, wide, sub-irrigated wet meadows comprise the drainage bottom. The majority of the riparian areas are wet meadow and grassland types (USFS and BLM 2002). The Project Area is located west of Upper Huntington Creek and Electric Lake (a reservoir formed by a dam on Huntington Creek), and is within the San Rafael River watershed within the larger Upper Colorado River Basin. Perennial, intermittent, and ephemeral streams show seasonal peak flows in the spring and early summer from snow melt (Petersen 2014). Perennial streams drain Boulger Canyon, Flat Canyon, Swens Canyon, and Little Swens Canyon, which flow east into Upper Huntington Canyon. Upper Huntington Creek is perennial, and flows into the San Rafael River drainage. The San Rafael River flows into the Green River approximately 80 miles to the southeast of the Project Area, and then into the Colorado River. A small portion of the Project Area drains west into Beaver Dam and Gooseberry Creek, which flows into the Price River and eventually into the Green River. Numerous springs are located throughout the Project Area.

Past and present influences on baseline conditions include underground coal mining (other portions of the Skyline Mine have been mined adjacent to the Flat Canyon lease tract), exploratory drilling for coal, occasional timber and wood products recovery, livestock grazing, roads and trails, and outdoor recreation activities. The Manti-La

National Forest manages land in and around the project area and these lands are a highly used recreation area, offering camping, hiking, boating, fishing, motorized sightseeing, hunting, snowmobiling, and cross-country skiing.

4.0 SPECIES/CRITICAL HABITAT CONSIDERED

An official species list was obtained for the project from the USFWS Information, Planning, and Conservation (IPaC) website on November 2, 2015 (Appendix A). There are nine threatened or endangered species on the list, but no designated critical habitat. Table 1 presents the federally listed species identified on the USFWS list, and describes the species' distribution, habitat, and consideration for further analysis.

Table 1. Threatened and Endangered Species List for the Project

Species and Status	Habitat and Distribution	Consideration for Analysis
Birds		
Mexican Spotted Owl (<i>Strix occidentalis lucida</i>) Threatened (Emery County)	Ranges year-round across the southwestern U.S. and Mexico in disjunct areas consisting of isolated mountain ranges and canyon lands. Range-wide habitat consists of old growth or mature forests as well as rocky canyons (USFWS 2012a) The Project Area is located in the Colorado Plateau (CP) where this species is generally limited to rocky canyon land and rarely occurs in forested habitat. In the CP, it inhabits deep, steep-walled canyons and hanging (side) canyons where the dominant cover type is typically pine juniper woodlands and mixed conifer forest (USFWS 2012a). Extensive surveys have documented few breeding pairs on National Forests in Utah (USFWS 2012a). On the Manti La Sal National Forest, breeding is known only from the Monticello District in San Juan County (140 miles to the southwest of the Project) (USFS 2010). The closest designated critical habitat is located 55 miles to the east of the Project Area along the Green River.	Not Considered. The species does not occur in the Project Area. No suitable habitat is present. Forest communities are patches intermixed with sagebrush openings, and lack the complex structure and closed canopy this species requires. There are no rocky canyons present.
Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>) Endangered (Emery County)	Breeding range for this subspecies includes the southwestern U.S. and northern Mexico. It inhabits dense riparian tree and shrub habitat, especially where willows and/or tamarisk are present as well as standing water or saturated soils. It is typically found below 8,500 feet in elevation (USFWS 2014). Published range maps indicate this subspecies occurs only in southern Utah (USFWS 2002a). However, USFWS lists it in portions of central Utah. Due to the difficulty in distinguishing between subspecies in the field and their intermixing during migration, the range limits of the subspecies <i>extimus</i> are not fully understood (Bosworth 2003). The subspecies of willow flycatchers that occur in high elevation areas of central Utah may be either <i>Empidonax traillii extimus</i> or <i>E. t. adastus</i> (USFWS 2002a), though it is likely the <i>adastus</i> subspecies (Bosworth 2003).	Not considered. The species does not occur in the Project Area. Riparian habitat consists of open wet meadows or forest types. Small, isolated patches of willow shrubs may occur but dense, extensive stands of willows are not present. In addition, the Project Area is above the

Species and Status	Habitat and Distribution	Consideration for Analysis
	<p>The closest designated critical habitat is located in southern Utah 170 miles to the south of the Project.</p>	<p>upper elevational limit for this species.</p>
<p>Yellow-billed Cuckoo (<i>Coccyzus americanus</i>), Western U.S. Distinct Population Segment (DPS)</p> <p>Threatened (Emery and Sanpete counties)</p>	<p>The Western U.S. DPS historically bred throughout riparian areas west of the Continental Divide, but is currently found only in scattered locations within this range. It is a riparian obligate that nests almost exclusively in large tracts of low to moderate elevation riparian woodlands with native broadleaf trees and shrubs, most commonly in cottonwood-willow-dominated woodlands (Haltermann et al. 2015). Suitable breeding habitat in Utah is multi-layered riparian woodlands (with a tree overstory and shrubby understory) and at least 12 acres (five hectares) in size. The species is typically found below 8,500 feet USFWS (2015).</p> <p>The closest critical habitat proposed for this species is 85 miles to the northeast along the Green River.</p>	<p>Not considered.</p> <p>The species does not occur in the Project Area.</p> <p>The Project Area is above the upper elevational limit for this species and there are no cottonwood-dominated riparian woodlands present.</p>
<p>Fish</p>		
<p>Bonytail Chub (<i>Gila elegans</i>)</p> <p>Endangered (Emery and Sanpete counties)</p>	<p>Historically, bonytail chub inhabited the larger rivers of the Upper and Lower Colorado River Basin. Currently, there are no self-sustaining populations of bonytail that exist in the wild, and few individuals have been caught throughout the Colorado River Basin (USFWS 2012b). In the Upper Colorado River Basin, stocking occurs in the Green and Colorado rivers (UCREFRP 2015).</p> <p>The closest designated critical habitat to the Project area is 65 miles to the east in Desolation/Gray Canyon (Green River).</p>	<p>Considered. This species does not occur in the Project Area, as there is no large river habitat, and the Project Area is outside the species' geographic range.</p> <p>However, this species is addressed further in order to analyze the potential for underground mining result in water depletions and the associated potential effect on downstream waters in the Action Area.</p>
<p>Colorado Pikeminnow (=squawfish) (<i>Ptychocheilus lucius</i>)</p> <p>Endangered (Emery and Sanpete counties)</p>	<p>Historically, this species was abundant in the main stem of the Upper and Lower Colorado River and most of its major tributaries (UCREFRP 2015b). In the Upper Colorado River Basin, wild, reproducing populations occur in the Green, Colorado, and San Juan river subbasins (USFWS 2002b).</p> <p>The closest designated critical habitat to the Project area is the Green River, located 65 miles to the east.</p>	<p>Considered. This species does not occur in the Project Area because there is no large river habitat and the Project is outside the species' geographic range.</p> <p>However, this species is addressed further in order to</p>

Species and Status	Habitat and Distribution	Consideration for Analysis
		analyze the potential for the underground mining to result in water depletions and the associated potential effect on downstream waters in the Action Area.
<p>Humpback Chub (<i>Gila cypha</i>)</p> <p>Endangered (Emery and Sanpete counties)</p>	<p>Historically, this species inhabited the swift and turbulent waters in canyons of the Colorado River Basin, including the Colorado, Green, Yampa, and Little Colorado River (UCREFRP 2015c). In the Upper Colorado River Basin there are currently five self-sustaining populations (USFWS 2011a). The closest to the Project Area is in Desolation/Gray Canyon on the Green River, located 65 miles to the east. It is also designated critical habitat.</p>	<p>Considered. This species does not occur in the Project Area because there is no large river habitat and the Project is outside the species' geographic range.</p> <p>However, this species is addressed further in order to analyze the potential for underground mining result in water depletions and the associated potential effect on downstream waters in the Action Area.</p>
<p>Razorback Sucker (<i>Xyrauchen texanus</i>)</p> <p>Endangered (Emery and Sanpete counties)</p>	<p>Historically, this species was widely distributed in warm-water reaches of larger rivers of the Upper and Lower Colorado River basins. In the Upper Colorado River basin it is currently found in small numbers in the Green, Colorado, and San Juan river basins (USFWS 2002c). All populations in the Upper Colorado River Basin are currently supplemented with stocked fish (UCREFRP 2015d).</p> <p>The closest designated critical habitat to the Project area is the Green River, located 65 miles to the east.</p>	<p>Considered. This species does not occur in the Project Area because there is no large river habitat and the Project is outside the species' geographic range.</p> <p>However, this species is addressed further in order to analyze the potential for underground mining to result in water depletions and the associated potential effect on downstream waters in the Action Area.</p>

Species and Status	Habitat and Distribution	Consideration for Analysis
Plants		
Barneby Reed-mustard <i>(Schoenocrambe barnebyi)</i> Endangered (Emery County)	This species is endemic to Wayne and Emery counties in Utah. Populations occur on the Moenkopi Formation, Kaibab Limestone, and on the Carmel Formation on coarse soils derived from cobble and gravel river terrace deposits, or rocky surfaces. It grows in desert shrublands with shadscale, Indian ricegrass, and pygmy sagebrush. Elevation range is 4,800 to 6,500 feet (USFWS 2011b). No critical habitat has been designated for this species	Not Considered. This plant does not occur in the Project Area. No desert scrub habitat is present and the Project Area is above the upper elevational limit of this species.
Jones Cycladenia <i>(Cycladenia humilllis var. jonesii)</i> Threatened (Emery County)	The <i>jonesii</i> variety of this species is known from five different areas in Arizona and Utah. It grows on gypsiferous, saline soils of the Cutler, Summerville, and Chinle formations. Typical plant communities where it occurs include mixed desert scrub, juniper, or wild buckwheat-Mormon tea. Elevation range is 4,390 to 6,000 feet in elevation (USFWS 2008) No critical habitat has been designated for this species	Not Considered. This plant does not occur in the Project Area. No desert scrub or juniper habitat is present and the Project Area above upper elevational limit of this species. The two sites known from Emery County, Utah occur on lower elevation BLM lands (USFWS 2008).

None of the listed bird or plant species or their critical habitats occur in the Project Area or area of estimated subsidence. They will not be evaluated further in this analysis.

The potential effects of subsidence on federally listed fish within the Upper Colorado River Basin are considered in this analysis.

5.0 EFFECTS ANALYSIS

All mining activities would be underground; mining would continue at current levels for an additional 10.5 years. There would be no new surface development. No direct or indirect effects from surface disturbance activities or above ground noise would occur. Mining-related subsidence may occur within the estimated subsidence area shown on Figure 1. General effects of subsidence on water resources were evaluated. In general, subsidence may affect groundwater and quantity of surface water and by altering spring discharge locations, or changing stream gradient and morphology. Pooling of water and increased deposition of sediment, or reductions in surface flows could result in degraded water quality.

The potential for subsidence to occur as a result of underground mining activities was evaluated. The potential has been found to be low due to the thickness of the overburden (greater than 1,000 feet) and past experience in other portions of the Skyline Mine (Petersen 2014). Petersen Hydrologic completed a recent study on

groundwater and surface water, and analyzed probable hydrologic consequences (Petersen 2014). The springs and streams in the Project Area discharge from a shallow active-zone groundwater system, which has active groundwater flow from recharge to surface discharge areas.

Below the active zone, an impermeable layer is present, which prevents downward migration of active-zone groundwater into deeper horizons and also creates perched groundwater conditions in this deeper layer of strata. This inactive groundwater zone contains 2,000 to 19,000-year old groundwater that is independent of seasonal precipitation or short-term climatic variability at the surface. The inactive zone is not part of a regionally continuous aquifer but occurs in isolated partitions in the bedrock. The water from active and inactive zones underlying the Project Area and area of estimated subsidence do not interact, rather these zones are independent. Mining would occur in the inactive zone where groundwater is isolated from interactions with surface waters. Groundwater intercepted during underground mining would be from the perched inactive zone and not from the active surface water zone. Therefore, no measurable decrease in the flow of surface streams or springs is expected. This has been the case in previously mined areas of the Skyline Mine, and was specifically studied at Burnout Canyon, which has similar hydrogeologic conditions. In addition, mining has made available water from the inactive zone that was previously unavailable, but is now discharged at a rate of several thousands of gallons per minute. The amount of water that is discharged would gradually diminish over time as the water encountered underground in the mine is removed.

Petersen (2014) concluded that availability of surface water would not be affected by underground mining associated with the Proposed Action. No downward water migration or loss of springs or other surface waters is anticipated following underground mining. Therefore, there would be no loss of water in the Project Area nor in the Action Area (Upper Colorado River Basin).

Skyline Mine currently discharges water into Electric Lake and Eccles Creek to minimize water flowing into the mine. Underground water encountered during mining of the Project Area would also be discharged to these locations. The outfall which discharges to Eccles Creek is both the continuous pumped groundwater and stormwater runoff from the mine. Because the mine water is comingled with stormwater, the discharge is run through a small sedimentation pond as a best management practice. The mine monitors its discharge into Electric Lake and Eccles Creek, as well as the condition of other streams and springs, and implements a sediment control program for these discharge areas (BLM 2002; USFS and BLM 2002; Petersen 2014). Water quality and discharge flow would continue to be monitored under a Utah Pollutant Discharge Elimination System permit (BLM 2002).

Potential effects on surface water quality, or changes in stream morphology or spring discharge locations are not anticipated, but should they occur, they would be limited and localized within the estimated subsidence area. As discussed above, the geology of the area greatly reduces the risk of subsidence, and during the 30 years of mining at Skyline Mine, there have been no impacts to surface water resource from subsidence. Although impacts are not anticipated, impacts may occur from potential subsidence cracks. In the past, fractures were observed after mining in the Trough Springs Ridge area. Tension fractures opened in a zone that was 1,500 feet long with fractures that were several inches to five feet wide and up to 200 feet long. The fractures created a short-term safety hazard, but were mitigated by filling in with soil and no long-term adverse impact was expected. If subsidence cracks do occur in the Flat Canyon lease area, they would likely be minor and self-healing. They would not affect the endangered Colorado River fish because the fish occur at least 80 miles downstream of the Project Area. Potential effects of the Proposed Action would not affect listed fish downstream in larger rivers of the Colorado River system.

In addition, special stipulations of the lease approval require monitoring of perennial stream gradients and associated effects to aquatic ecosystems and wetlands (BLM 2002). Mitigation measures are required if detrimental effects are discovered during monitoring (BLM 2002). The special stipulations also require the replacement of any surface or developed groundwater source that may be lost or adversely affected by mining

(USFS and BLM 2002; BLM 2002). Currently, springs or spring-fed water tanks and streams are monitored or proposed for monitoring (Petersen 2014).

For these reasons, effects on water quality and quantity due to subsidence would be negligible, and would be mitigated if effects do occur. Therefore, there would be no effect to bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), or razorback sucker (*Xyrauchen texanus*) or their downstream critical habitat.

6.0 CONCLUSION AND DETERMINATION OF EFFECTS

The Proposed Action would have no effect on any of the nine federally listed species. No critical habitat is present in the Project Area, and no critical habitat in the Action Area would be destroyed or adversely modified. Formal consultation with USFWS is not required. **Table 2** lists the Section 7 effects determinations for the nine federally listed species and critical habitat identified for the Project, as well as the rationale for the determinations.

Table 2. Effects Determinations

Species	Effects Determination for Species	Effects Determination for Critical Habitat
Birds		
Mexican Spotted Owl	No Effect. This species would not occur in the portions of the Action Area considered for effects (i.e., the Project Area).	No destruction or adverse modification. There is no critical habitat within 140 miles of the effects analysis area.
Southwestern Willow Flycatcher	No Effect. This species would not occur in the portions of the Action Area considered for effects (i.e., the Project Area).	No destruction or adverse modification. There is no critical habitat within 170 miles of the effects analysis area.
Yellow-billed Cuckoo, Western U.S. DPS	No Effect. This species would not occur in the portions of the Action Area considered for effects (i.e., the Project Area).	No destruction or adverse modification. There is no critical habitat within 85 miles of the effects analysis area.
Fish		
Bonytail Chub	No Effect. This species would not occur in the Project Area. Individuals in the Action Area (i.e., Upper Colorado River Basin) would not be affected by water depletions since none are anticipated.	No destruction or adverse modification. There is no critical habitat in the Project Area. No water depletions would occur; therefore, there would be no adverse modification to critical habitat downstream in the Action Area.
Colorado Pikeminnow	No Effect. This species would not occur in the Project Area. Individuals in the Action Area (i.e., Upper Colorado River Basin) would not be affected by water depletions since none are anticipated.	No destruction or adverse modification. There is no critical habitat in the Project Area. No water depletions would occur; therefore, there would be no adverse modification to critical habitat downstream in the Action Area.

Species	Effects Determination for Species	Effects Determination for Critical Habitat
Humpback Chub	No Effect. This species would not occur in the Project Area. Individuals in the Action Area (i.e., Upper Colorado River Basin) would not be affected by water depletions since none are anticipated.	No destruction or adverse modification. There is no critical habitat in the Project Area. No water depletions would occur; therefore, there would be no adverse modification to critical habitat downstream in the Action Area.
Razorback Sucker	No Effect. This species would not occur in the Project Area. Individuals in the Action Area (i.e., Upper Colorado River Basin) would not be affected by water depletions since none are anticipated.	No destruction or adverse modification. There is no critical habitat in the Project Area. No water depletions would occur; therefore, there would be no adverse modification to critical habitat downstream in the Action Area.
Plants		
Barneby Reed-mustard	No Effect. This species would not occur in the portions of the Action Area considered for effects (i.e., the Project Area).	N/A
Jones Cycladenia	No Effect. This species would not occur in the portions of the Action Area considered for effects (i.e., the Project Area).	N/A

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APPENDIX A – USFWS OFFICIAL IPAC LIST FOR THE PROJECT



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Utah Ecological Services Field Office
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UT 84119

PHONE: (801)975-3330 FAX: (801)975-3331

URL: www.fws.gov; www.fws.gov/utahfieldoffice/

Consultation Code: 06E23000-2016-SLI-0029

November 02, 2015

Event Code: 06E23000-2016-E-00061

Project Name: Skyline Mine - Mining Plan Modification EA

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Skyline Mine - Mining Plan Modification EA

Official Species List

Provided by:

Utah Ecological Services Field Office
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<http://www.fws.gov>
<http://www.fws.gov/utahfieldoffice/>

Consultation Code: 06E23000-2016-SLI-0029

Event Code: 06E23000-2016-E-00061

Project Type: MINING

Project Name: Skyline Mine - Mining Plan Modification EA

Project Description: The OSMRE will prepare an EA for a mine plan modification for the Canyon Fuel Co.'s Skyline Mine. Skyline Mine is an underground coal operation proposing to modify their min permit to include 2,692 acres of federal coal within the Flat Canyon Coal Lease Tract, and 1,100 acres of private coal reserves. The majority of this coal could be mined using long wall mining technology. No surface disturbance or water withdrawals are proposed at this time.

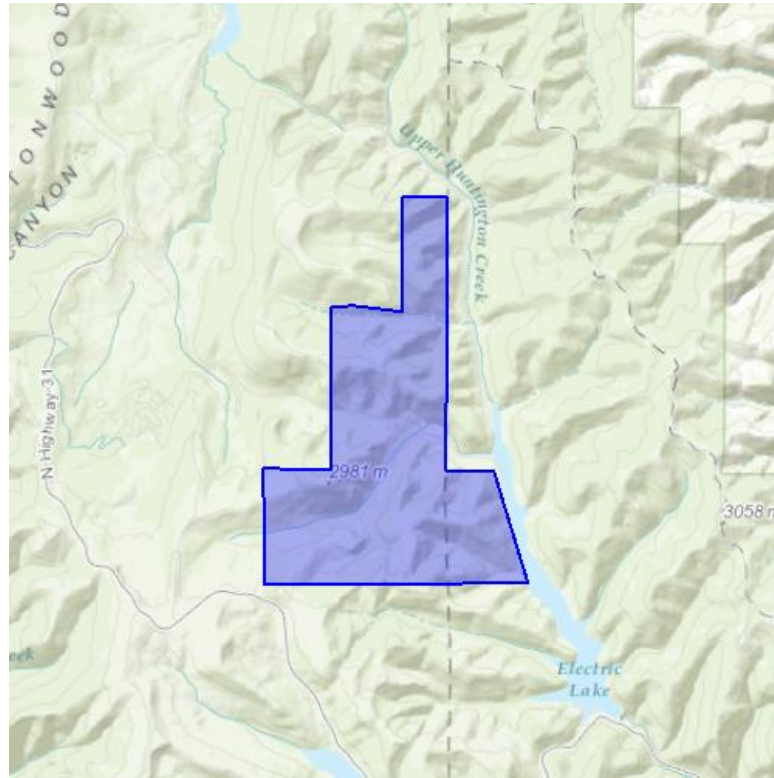
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Skyline Mine - Mining Plan Modification EA

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-111.24750287113136 39.68227894306945, -111.24790034105413 39.63904737137909, -111.23797525414733 39.63906812828951, -111.2310656651646 39.62145253928513, -111.28508835346888 39.6213432497518, -111.28522481644228 39.639486890535935, -111.27132774324481 39.639336396668526, -111.27147810989962 39.66507877834774, -111.26682190464679 39.665083989017674, -111.26682311760204 39.665139126044096, -111.25687490105874 39.664264053442885, -111.2569094009873 39.68233370037775, -111.24750287113136 39.68227894306945)))

Project Counties: Emery, UT | Sanpete, UT



Endangered Species Act Species List

There are a total of 9 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Mexican Spotted owl (<i>Strix occidentalis lucida</i>) Population: Entire	Threatened	Final designated	
Southwestern Willow flycatcher (<i>Empidonax traillii extimus</i>) Population: Entire	Endangered	Final designated	
Yellow-Billed Cuckoo (<i>Coccyzus americanus</i>) Population: Western U.S. DPS	Threatened	Proposed	
Fishes			
Bonytail chub (<i>Gila elegans</i>) Population: Entire	Endangered	Final designated	
Colorado pikeminnow (<i>Ptychocheilus lucius</i>) Population: Entire, except EXPN	Endangered	Final designated	
Humpback chub (<i>Gila cypha</i>) Population: Entire	Endangered	Final designated	
Razorback sucker (<i>Xyrauchen</i>)	Endangered	Final designated	



United States Department of Interior
Fish and Wildlife Service

Project name: Skyline Mine - Mining Plan Modification EA

<i>texanus</i> Population: Entire			
Flowering Plants			
Barneby reed-mustard (<i>Schoenocrambe barnebyi</i>)	Endangered		
Jones Cycladenia (<i>Cycladenia humilis</i> <i>var. jonesii</i>)	Threatened		



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Critical habitats that lie within your project area

There are no critical habitats within your project area.