Chapter 5
Cumulative Effects

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Chapter 5 Cumulative Effects

5.1 Introduction

As required under NEPA and the regulations implementing NEPA, this section analyzes potential cumulative impacts from past, present, and reasonably foreseeable future actions (RFFAs) combined with the Proposed Action within the cumulative effects study area (CESA) specific to the resources for which cumulative impacts may be anticipated. A cumulative impact is defined as “the impact which results from the incremental impact of the action, decision, or project when added to other past, present, and RFFAs, 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 Code of Federal Regulations 1508.7). This analysis focuses on cumulative impacts of the Proposed Action and other actions both within and outside of the Proposed Action area. Major past and present land uses and disturbances within the resource CESAs, that are projected to continue into the future, include: mineral development and exploration, utilities, infrastructure and public purpose, roads, wildfires, livestock grazing, agriculture, and mining. Dispersed recreation (including hunting, fishing, and off-highway vehicle use) and residential development also occur in portions of the CESAs.

The sizes of the CESAs vary by resource. Cumulative effects should be evaluated in terms of the specific resource, ecosystem, and human community being impacted. To determine the size of the CESAs, each environmental resource was analyzed to determine the extent to which the environmental effect from the project could be reasonably detected and then include the geographic areas of resources that could be affected. However, for simplicity, ease of cumulative effect analysis, and in an attempt to avoid having only slightly different CESAs for a number of resources, CESA boundaries were left identical for multiple resources where it seemed reasonable and conservative to do so.

Nevada BLM Instruction Memo NV-90-435 specifies that impacts must first be identified for the Proposed Action (i.e. Midway Gold, Pan Mine Project) before cumulative impacts with other actions can occur (BLM, 1990).

For the purposes of this analysis and under federal regulations, “impacts” and “effects” are assumed to have the same meaning and are interchangeable. The cumulative effects analysis was accomplished through the following steps:

- Step 1: Review and assess the BLM's Data Adequacy Standards that determine the level of evaluation necessary to analyze the potential effects of the Proposed Action;
- Step 2: Establish appropriate geographical area CESAs for analysis by resource;
- Step 3: Identify all past, present, and RFFAs relevant to the resources in the CESAs;

- Step 4: Summarize the effects of the Proposed Action in conjunction with past, present, proposed, and RFFAs; and

- Step 5: Provide a cumulative impacts analysis and discussion.

Information utilized in the cumulative impacts analysis was gathered from the following sources: BLM's LR2000, the Nevada Atlas and Gazetteer, GIS shape files provided by BLM, USFS, Nevada Bureau of Mines and Geology, aerial photography, Eureka County, and White Pine County.

Environmental consequences of the Proposed Action and alternatives are described in Chapter 4. Since no direct or indirect impacts to paleontology, environmental justice, and Native American Concerns associated with the Proposed Action were identified in Chapter 4, they are not addressed in the cumulative impacts discussion. Also, not discussed in the cumulative impacts discussion, as impacts were found to be negligible, are the following wildlife species: mule deer, antelope, and migratory birds. Based upon the analysis conducted for each resource, it was determined necessary to analyze cumulative impacts for the following resources:

- Water Resources;
- Geology and Minerals;
- Soils;
- Air Resources;
- Vegetation including Noxious and Non-native Invasive Weeds and Special Status Species;
- Wildlife including Golden Eagles;
- Special Status Species Greater Sage-Grouse;
- Range Resources;
- Wild Horses;
- Cultural Resources;
- Land Use and Access;
- Visual Resources;
- Recreation;
- Socioeconomics; and
- Hazardous Materials and Waste.

The geographical areas considered for the analysis of cumulative effects are illustrated on the associated resource figures. The CESA boundaries vary in size and shape to reflect each evaluated resource. Some resources are represented by the same CESAs. Table 5.1-1 outlines the CESAs, their size and the figures that describe their boundaries.

Table 5.1-1 Cumulative Effects Study Area by Resource

Resource	Cumulative Effects Study Area	Size of Area (acres)	Figure
Water Resources, Soils, Air Resources, Vegetation Including Noxious and Non-Native Invasive Weeds	Hydrographic sub-basin 154 and the northern part of hydrographic sub-basin 173B to the White Pine County Line, plus a boundary extension west approximately 43,500 feet to include the South West Power Line Alternative	777,116	5.5-1
Geology and Minerals	Hydrographic sub-basin 154 from U.S. Highway 50 south and the northern part of hydrographic sub-basin 173B	365,171	5.5-1
General Wildlife, including Golden Eagle	General Wildlife and Golden Eagle: ten mile buffer around the project area	370,509	5.10-1
Special Status Species Greater Sage-Grouse	Greater Sage-Grouse: Diamond PMU, Butte/Buck/White Pine PMU	3,657,236	5.10-1
Range Resources	Newark, South Pancake, and Duckwater Allotments	1,157,124	5.5-1
Cultural Resources	Eureka Mining District, Pancake Mining District, American Vanadium Gibellini Mine and the Historic Lincoln Highway	112,226	5.5-1
Land Use and Access, Recreation and Wilderness	White Pine County, U.S. Highway 50 from Eureka to Ely, and SR 379 (Fish Creek Road) from U.S. Highway 50 to the White Pine County/Nye County line.	5,695,931	5.14-1
Wild Horses	Pancake HMA, Sand Springs West HMA, and Monte Cristo Wild Horse Territory	1,096,997	5.5-1
Visual Resources	The Proposed Action and Action Alternatives viewshed.	685,897	5.14-1
Socioeconomics	White Pine County, Eureka County with special emphasis on Eureka Township, and Duckwater	8,367,375	5.14-1
Hazardous Materials and Waste	Transportation routes between Elko, Ely, and Eureka and other major transport hubs	4,734,101	5.18-1

Table 5.1-2 outlines all the actions considered in the cumulative impacts analysis, their status (*PP-Past and Present Actions, RF-Reasonably Foreseeable*), and potential environmental impacts to resources (*1-Water Resources, 2-Geology and Minerals, 3-Soils, 4-Air Resources, 5-Vegetation Including Noxious and Non-Native, Invasive Weeds and Special Status Plants, 6-General Wildlife and Golden Eagle, 6a-Special Status Species Greater Sage-Grouse 7-Range Resources, 8-Cultural Resources, 9-Land Use and Access, 10-Recreation and Wilderness, 11-Wild Horses, 12-Visual Resources, 13-Socioeconomics, 14-Hazardous Materials and Waste).*

Table 5.1-2 Summary of Activities that May Cumulatively Affect Resources

Project Descriptions	Status	Anticipated Resources That Could Be Cumulatively Impacted
Mineral Development and Exploration		
Mining and Exploration POO	PP, RF	1, 2, 3, 4, 5, 6, 6a, 7, 8, 9, 10, 11, 12, 13, 14
Exploration Notices	PP, RF	1, 2, 3, 4, 5, 6, 6a 7, 8, 9, 10, 11, 12, 13, 14
Sand and Gravel Extraction Operations	PP, RF	1, 2, 3, 4, 5, 6, 6a, 7, 9, 10, 11, 12, 13
Utilities Infrastructure and Public Purpose		
Utility Lines (power lines, fiber optic lines and telephone)	PP, RF	1, 2, 3, 4, 5, 6, 6a, 7, 8, 9, 10, 11, 12, 13, 14
Railroads and Airports	PP, RF	6, 9, 10
Public Purpose	PP	6, 8, 13
Wind Generation	RF	9, 10, 13
Oil, Gas and Geothermal Development		
Oil, Gas and Geothermal Development	PP, RF	1, 2, 3, 4, 5, 6, 6a, 7, 8, 9, 10, 13
Roads		
Federal	PP, RF	1, 2, 3, 4, 5, 6, 6a, 7, 8, 9, 10, 11, 12, 13, 14
State	PP, RF	1, 2, 3, 4, 5, 6, 6a, 7, 8, 9, 10, 11, 12, 13, 14
Local/County	PP, RF	6, 7, 9, 10, 11, 12, 13
Forest Service	PP, RF	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13
Bureau of Land Management	PP, RF	6, 7, 9, 10, 11, 12, 13
Other Roads	PP, RF	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Recreation		
Eureka County Fairgrounds	PP, RF	6, 8, 13
Fuel Treatment, Burn Control and Restoration Projects		
Wildfires	PP, RF	1, 2, 3, 4, 5, 6a 7, 9, 10, 11, 13
Fuel Treatments, Burn Control and Restoration Projects	PP,RF	1,2, 3, 4, 5, 6a, 7, 9, 10, 12, 13
Urban Development		
Eureka Canyon Subdivision	PP, RF	6, 8, 13

5.1.1 Time Frame for Analysis

The reasonably foreseeable estimated time frame for the cumulative impact analysis is presented in Table 2.3-2. This includes the estimated 13 years to complete mining activities.

5.1.2 Past, Present, Reasonably Foreseeable Future Actions, Disturbances and Projects

Projects are defined for this FEIS as activities that could interact with the Proposed Action in a manner that would result in cumulative impacts. Projects have been grouped as past, present, and RFFAs. The projects are listed and described below. Surface disturbance characteristics were selected to describe the projects because it allows the combined surface disturbance impacts of all projects to be totaled. However, acres of disturbance are not applicable to socioeconomics and hazardous materials and waste impacts, therefore impacts are discussed qualitatively. The projects are shown in Figures 5.5-1, 5.10-1, 5.14-1, and 5.18-1. Table 5.1-3 indentifies potential interactions among the projects and resources and quantifies surface disturbance in acres of each past, present, and RFFAs relevant to each resource CESA.

Table 5.1-3 Past, Present, and Reasonably Foreseeable Future Actions for the Pan Mine Project Cumulative Effects Study Area

Past, Present, and Reasonably Foreseeable Future Actions, Disturbances and Projects	Air Resources, Water, Soils, Vegetation including Noxious and Non-Native Invasive Weeds and Special Status Plants	Geology and Minerals	General Wildlife and Golden Eagle	Special Status Species Greater Sage-Grouse	Range Resources	Land Use and Access, Recreation and Wilderness	Wild Horses	Visual Resources	Cultural Resources
CESA Acres	**777,116**	**365,171**	**370,509**	**3,657,236**	**1,157,124**	**5,695,931**	**1,096,997**	**685,897**	**112,226**
Surface Disturbance Acres									
Past Actions									
Mineral Development and Exploration Past Actions									
Illipah Mine	29	**	**	165	**	165	**	29	**
Easy Junior	232	232	232	232	232	232	232	232	232
Golden Butte Mine	**	**	**	10	**	10	**	**	**
Ward Taylor Mine	**	**	**	**	**	51	**	**	**
Silverado Mill	14	14	14	14	14	14	**	14	**
Windfall Ventures	**	**	**	10.5	**	**	**	10.5	10.5
Cocomongo Project	**	**	**	2	**	2	**	**	**
Pan Project Exploration	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
NOIs	890	240	260	3,165	625	2,515	485	700	360
Utilities, Infrastructure and Public Purpose Past Actions									
Sierra Pacific Falcon to Gonder Power Line	368	**	271	1,416	388	1,154	**	407	97
Mt. Wheeler Machacek Substation	**	**	**	6.2	**	**	**	**	**
Other Utility Lines	265	79	178	945	255	1,216	**	844	154
Airports and Railroads	**	**	**	970	**	5,408	**	**	**
Eureka County Landfills and Sewage Treatment Facilities	**	**	**	120	**	**	**	**	40
City of Ely Class I Landfill	**	**	**	50	**	50	**	**	**
Spring Valley Wind Generation Wind Farm Development	**	**	**	**	**	517	**	**	**
Roads Past Actions[2]									
U.S. Highways	315	**	321	1,104	264	2,048	327	388	485
State Routes	491	36	260	814	578	766	196	269	400
Local/County Roads	6	**	3	463	21	2	155	48	**
BLM Roads	**	**	**	1,145	32	112	389	2.12	**
USFS Roads	351	116	**	928	12	1,835	12	354	**
Other Roads	2,497	672	1,367	16,584	3,818	31,345	2,022	2,291	664
Recreation Past Actions									
Old Eureka County Fairgrounds	**	**	**	10	**	**	**	**	10
Wild land Fires, Restoration and Seeding Past Actions									
Wildland Fire (1999)	**	**	**	208	**	773	**	**	**
Wildland Fire (2000)	1,606	**	**	17,889	38	13,419	**	1,654	**
Wildland Fire (2001)	2,743	**	**	12,686	106	13,546	**	2,770	**
Wildland Fire (2002)	**	**	**	234	**	**	**	**	**
Wildland Fire (2004)	**	**	**	5,145	**	6,354	**	**	**
Wildland Fire (2005)	**	**	**	468	**	468	**	**	**
Wildland Fire (2006)	**	**	**	214	**	3,676	**	193	**
Wildland Fire (2007)	4,278	4,278	**	4,888	**	6,741	33	4,663	**

Past, Present, and Reasonably Foreseeable Future Actions, Disturbances and Projects	Air Resources, Water, Soils, Vegetation including Noxious and Non-Native Invasive Weeds and Special Status Plants	Geology and Minerals	General Wildlife and Golden Eagle	Special Status Species Greater Sage-Grouse	Range Resources	Land Use and Access, Recreation and Wilderness	Wild Horses	Visual Resources	Cultural Resources
CESA Acres	**777,116**	**365,171**	**370,509**	**3,657,236**	**1,157,124**	**5,695,931**	**1,096,997**	**685,897**	**112,226**
Surface Disturbance Acres									
Wildland Fire (2008)	**	**	**	19	**	641	16	**	**
2007 Currant Prescribed Burn Project	3,700	3,700	**	3,700	**	3,700	**	3,700	**
2009 Currant Triangle Pinyon-Juniper Cutting	300	300	**	300	**	300	**	300	**
2009 White River and Ellison Mowing and Seeding Project	**	**	**	200	**	200	**	**	**
2010 White Pine Sagebrush Restoration Project	**	**	**	5,000	**	5,000	**	**	**
North Schell/Ward Mountain Restoration Project	**	**	**	52,180	**	64,361	**	**	**
Past Actions Total Disturbance Acres	**18,097**	**9,679**	**2,658**	**131,297**	**6,395**	**166,633**	**3,879**	**18,881**	**2,465**
Present Actions									
Mineral Development and Exploration Present Actions									
Bald Mountain Mine, North Operations	700	3,600	**	2,735	**	3,600	**	**	**
Yankee Mine	**	**	**	354	**	354	**	**	**
Alligator Ridge Project	**	**	**	350	**	580	**	**	**
Casino/Winrock Mine	**	**	**	56	**	225	**	**	**
Ruby Hill Mine	**	**	**	1,058	**	**	**	**	591
Lookout Mountain Exploration	**	**	**	56	**	**	**	40	56
Limousine Butte Exploration Project	**	**	**	77	**	76.7	**	**	**
Robinson Mine	**	**	**	1,058	**	1,058	**	**	**
Gold Rock Exploration Project	140	140	140	140	140	140	140	140	140
Pan II Project	17	17	17	17	17	17	17	17	17
The Centennial Exploration Project	2	2	2	2	**	2	2	2	**
Cathedral Canyon Exploration Project	5	5	**	5	**	5	5	5	**
Cottonwood Creek Geophysical Exploration	**	**	**	2,880	**	2,880	**	**	**
NOIs	10.2	15.1	9	52.1	15.7	10.7	10.8	18.5	16.6
Sand and Gravel Operations	13.5	11.5	8	440	8	265	4	13	**
Oil, Gas, and Geothermal Development Present Actions									
Oil, Gas and Geothermal Development	67	67	49	337	140	322	**	**	5
Utilities, Infrastructure and Public Purpose Present Actions									
On Line Project	**	**	**	1,164	**	1,091	**	**	**
Urban Development Present Actions									
Eureka Canyon Subdivision	**	**	**	164	**	**	**	**	164
Recreation Present Actions									
Eureka Canyon Fairgrounds	**	**	**	30	**	**	**	**	30
Wild land Fires, Restoration and Seeding Present Actions									
2010 White Pine Pinyon-Juniper Removal Project	2,000	2,000	**	2,000	2,000	2,000	**	2,000	**
Present Actions Total Disturbance Acres	**2,955**	**5,858**	**225**	**12,975**	**2,321**	**12,626**	**179**	**2,236**	**1,020**

Past, Present, and Reasonably Foreseeable Future Actions, Disturbances and Projects	Air Resources, Water, Soils, Vegetation including Noxious and Non-Native Invasive Weeds and Special Status Plants	Geology and Minerals	General Wildlife and Golden Eagle	Special Status Species Greater Sage-Grouse	Range Resources	Land Use and Access, Recreation and Wilderness	Wild Horses	Visual Resources	Cultural Resources
CESA Acres	**777,116**	**365,171**	**370,509**	**3,657,236**	**1,157,124**	**5,695,931**	**1,096,997**	**685,897**	**112,226**
Surface Disturbance Acres									
Reasonably Foreseeable Future Actions									
Mineral Development and Exploration Reasonably Foreseeable Future Actions									
Mount Hope Mine	**	8,318	**	**	**	**	**	**	**
Bald Mountain, North Operations Expansion	**	10,073	**	10,073	**	10,073	**	**	**
Alligator Ridge and Yankee Mine (Bald Mountain, South Operations)	**	3,643	**	3,643	**	3,643	**	**	**
Mt. Hamilton LLC Centennial-Seligman Mining Project	474	474	474	474	**	474	474	474	**
Nekekim Mining Project	**	**	**	**	**	**	50	**	**
American Vanadium Gibellini Mine	**	730	**	730	**	**	**	730	730
Windfall Project	**	**	**	150	**	**	**	150	150
Wheeler Ridge Mineral Exploration Project	50	50	50	50	**	50	50	50	**
Gold Rock Mine	3,749	3,749	3,749	3,749	3,749	3,749	3,749	3,749	3,749
NOI	**	**	**	0.5	**	**	**	**	0.48
Sand and Gravel Operations	8	5.5	8	13	8	18	4.5	8	**
Utilities, Infrastructure and Public Purpose Reasonably Foreseeable Future Actions									
Southwest Intertie Project North	**	**	**	1,212	**	1,212	**	**	**
Machacek to Mount Hope Power Line	**	**	**	252	**	**	**	**	**
Mount Wheeler Power Inc. Transmission Line Upgrades	9	**	**	9	**	**	**	**	9
Clark, Lincoln and White Pine Counties Water Development Project	**	**	**	**	**	2,950	**	**	**
Eureka County Landfill	**	**	**	80	**	**	**	**	80
Wild land Fires, Restorations and Seeding Reasonably Foreseeable Future Actions									
Overland Pass Habitat Improvement/Fuel Reduction Project	**	**	**	40,000	**	40,000	**	**	**
Stonehouse Habitat Improvement Projects	**	**	**	**	**	19,000	**	**	**
Reasonably Foreseeable Future Actions Total Disturbance Acres	4,290	27,043	4,281	60,436	3,757	81,169	4,328	5,161	4,718
Past, Present, and Reasonably Foreseeable Future Actions Total Disturbance Acres	25,342	42,580	7,164	204,708	12,473	260,428	8,386	26,278	8,203

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The reclamation acres for past and present disturbance acres displayed in Table 5.1-3 have been subtracted. For roads, the acres of disturbance within each resource CESA is combined for each road type (i.e. U.S. Highways, State Routes, etc). For mineral development and exploration, the acres of disturbance for each individual action is displayed on Table 5.1-3.

5.2 Past Actions

5.2.1 Mineral Development and Exploration Past Actions

The acres of disturbance within each resource CESA for past mineral development and exploration are presented in Table 5.1-3. If a past action has been reclaimed, it is not included in Table 5.1-3 as a disturbance. A brief summary of each mineral development and exploration past action is presented below.

Illipah Mine

The Illipah Mine is inactive and is located approximately four miles north of Antelope Summit on U.S. Highway 50. Several companies have conducted exploration in the area of the mine over the last 10 years. Approximately 200 acres of disturbance are associated with the mine (BLM, 2009b). Approximately 35 acres have been reclaimed (BLM, 2012b).

White Pine Mine

The White Pine Mine is an inactive, reclaimed mine located approximately five miles south of Ruby Lake National Wildlife Refuge in White Pine County. Approximately 67 acres of disturbance are associated with the mine (BLM, 2012b). Approximately 67 acres have been reclaimed (USDA, 2012b).

Green Springs Mine

Green Springs Mine is an inactive, reclaimed mine located approximately 16 miles north east of Duckwater, Nevada. U.S. Minerals Exploration Company conducted mining operations, which included excavating ore from three open pits. Approximately 115 acres of disturbance were permitted for mining operations (USFS, 1987). All acres of disturbance have been reclaimed (BLM, 2012b).

Easy Junior

Easy Junior is an inactive mine located approximately 65 miles west of Ely, Nevada. Past operators include Alta Gold Co. and Echo Bay Exploration Inc. Approximately 432 acres of disturbance are associated with the mine (BLM, 2004c). Approximately 200 acres have been reclaimed (BLM, 2012b). This is the site of Midway's approved Gold Rock exploration plan of operations.

Golden Butte Mine

The Golden Butte Mine is an inactive mine located approximately 45 miles northwest of Ely, Nevada that consisted of an open pit and heap leach operation. Approximately 150 acres of

disturbance are associated with the mine (BLM, 2012b). Approximately 140 acres has been reclaimed (USDA, 2012b).

Ward Taylor Mine

The Ward Taylor Mine is an inactive underground mine located approximately 11 miles south of Ely, Nevada. Past operators include Alta Gold Co. and Silver King Mines, Inc. Approximately 51 acres of disturbance are associated with the mine (BLM, 2012b).

Jewell Project

The Jewell Project is a mineral exploration project located approximately five miles south of Eureka, Nevada and conducted by Barrick Mining Co. Approximately 12 acres of disturbance were associated with exploration activities. Approximately 12 acres have been reclaimed (BLM, 2012b).

Silverado Mill

The Silverado Mill is an inactive, unreclaimed mill site located approximately three miles north of U.S. Highway 50. Past operators include Einar C. Erickson and G and S Construction Inc. There are approximately 14 acres of unreclaimed disturbance is associated with the site (BLM, 2012b).

Gator Claims Exploration Drilling

Gator Claims Exploration Drilling is a mineral exploration project located in the southern portion of Alligator Ridge, approximately 10 miles south of Bald Mountain Mine conducted by Placer Dome US Inc. Approximately 19 acres of disturbance are associated with the exploration. Approximately 19 acres have been reclaimed (BLM, 2012b).

Windfall Ventures

Windfall ventures is a mineral exploration project located approximately five miles south of Eureka, Nevada conducted by American Selco, Inc. Approximately 15 acres of disturbance are associated with the exploration. Approximately 4.5 acres have been reclaimed (BLM, 2012b).

Cocomongo Project

The Cocomongo Project is a mineral exploration project located in Egan canyon and conducted by Earth's Partners LLC. Approximately two acres of disturbance are associated with the exploration. Reclamation is pending (BLM, 2012b).

Mount Hamilton Mine

The Mount Hamilton Mine is an inactive mine located approximately eight miles northeast of the Easy Junior Mine and operated by REA Gold Corp. Approximately 520 acres of disturbance is associated with the mine. Approximately 520 acres have been reclaimed (USDA, 2012b).

Pan Project Exploration

The Pan Project Exploration was a mineral exploration project located approximately 30 miles southeast of Eureka, Nevada. The exploration activities occurred on portions of the proposed project area throughout 1990, and were conducted by Alta Gold Co. Approximately 12.3 acres of disturbance is associated with the project (BLM, 2012b).

Monte Exploration Project

The Monte Exploration Project is a mineral exploration project located approximately 25 miles southeast of Eureka, Nevada conducted by Alta Gold Co. Approximately 6.7 acres disturbance are associated with the project. Approximately 6.7 acres have been reclaimed (BLM, 2012b).

The Gold Bar Mine and Gold Bar II Mine below are within Eureka County, and are within the Socioeconomic CESA. These mines are not shown on Table 5.1-3 because acres of disturbance are not applicable to socioeconomic impacts; therefore, impacts are discussed qualitatively. These mines are discussed below in order to describe the mineral development and exploration activities within the socioeconomic CESA. Projects within the socioeconomic CESA are discussed qualitatively in Section 5.17.

Gold Bar Mine

The Gold Bar Mine is an inactive mine located approximately 30 miles northwest of Eureka, Nevada and was operated by Atlas Gold Mining, Inc. Approximately, 1,175 acres of disturbance are associated with the mine, and approximately 200 acres have been reclaimed (BLM, 2012b).

Gold Bar II Mine

The Gold Bar II Mine is an inactive mine located approximately 30 miles northwest of Eureka, Nevada. Gold Bar Mine II was operated by Atlas Gold Mining, Inc. Approximately 853 acres of disturbance are associated with the mine, and no reclamation activities have occurred (BLM, 2012b).

Notices of Intent

There are several closed or expired NOIs within the CESA boundaries (BLM, 2012b). Up to five acres of disturbance may occur under a NOI, though actual disturbance could be less in many cases. Past disturbance associated with NOIs is presented in Table 5.1-3. Due to the large number of past, present, and reasonably foreseeable future NOIs within the CESA boundaries, NOIs were not included on any of the CESA maps presented in this section.

Sand and Gravel Operations

There are numerous past permitted gravel pits within the CESA boundary that are closed (BLM, 2012b). Table 5.1-3 and the CESA maps presented in this section do not display these past gravel pits because many of them have been closed for several years which would likely allow for natural revegetation of disturbed areas. Gravel pits that have been subjected to renewed operations are included in the disturbance area for the present or RFFAs in Table 5.1-3.

5.2.2 Utilities, Infrastructure and Public Purpose Past Actions

The acres of disturbance within each resource CESA for past utilities, infrastructure and public purpose are presented in Table 5.1-3.

Sierra Pacific Power Company Falcon to Gonder Power Line

The Sierra Pacific Power Company Falcon to Gonder Transmission Project involved the construction of a 345 kV power line, generally located between Ely and Dunphy, Nevada. The power line was constructed in 2003, is approximately 180 miles long, has a construction disturbance width of 160 feet, and consists of steel H-frame towers (BLM, 2001b). The location of the Falcon to Gonder Power Line is shown on Figure 5.14-1, and the acreage of disturbance within each CESA is shown in Table 5.1-3.

Mount Wheeler Power Machacek Substation

The Mount Wheeler Power Machacek Substation is an existing 6.2-acre substation located approximately 0.5 miles northeast of the Ruby Hill Mine (USDA, 2012b).

Other Utility Lines

The CESAs include several other utility lines including 230 kV power lines, 69 kV power lines, and fiber optic lines. The most current past actions are presented in Table 5.2-1.

Table 5.2-1 Other Utility Lines Past Actions

Utility	CESA(s)	Approximate Miles within Each CESA	Approximate Acres within Each CESA
230 kV power line heading east to the Gonder Substation (ROW width approximately 30 feet)	Air Resources, Water, Soils, Vegetation including Noxious and Non-Native Invasive Weeds and Special Status Species	19	69
	Sensitive Status Species Greater Sage-Grouse	73	265
	Range Resources	20	72
	Cultural Resources	5	18
	Land Use and Access, Recreation and Wilderness	59	215
	Visual Resources	21	630
	Socioeconomic	117	425
69 kV power line from Gonder Substation north along Interstate 93 (ROW approximately 15 feet)	Land Use and Access, Recreation and Wilderness and Socioeconomics	40	73
230 kV power line from Utah State Line to Gonder Substation (ROW approximately 15 feet)	Land Use and Access, Recreation and Wilderness and Socioeconomics	37	67
Ely to Sunnyside Fiber Optic Line (ROW approximately 20 feet)	Special Status Species Greater Sage-Grouse, Land Use and Access, , Recreation and Wilderness and Socioeconomics	45	109

Utility	CESA(s)	Approximate Miles within Each CESA	Approximate Acres within Each CESA
Fiber Optic Extension from Eureka to Newark Valley (ROW approximately 20 feet)	Air Resources, Water, Soils, Vegetation including Noxious and Non-Native Invasive Weeds and Special Status Species, Range Resources, Land Use and Access, Recreation and Wilderness, and Visual Resources	23	56
	General Wildlife and Golden Eagle	19	46
	Special Status Species Greater Sage-Grouse, and Socioeconomic	50	121
	Cultural Resources	6	15
Ely to Cherry Creek Fiber Optic Line (ROW approximately 20 feet)	Special Status Species Greater Sage-Grouse	3	7
	Land Use and Access, Recreation and Wilderness and Socioeconomic	53	128
Buried fiber optic line from Newark Valley to Ely (ROW approximately 20 feet)	Air Resources, Water, Soils, Vegetation including Special Status Species, Range Resources, and Visual Resources	25	61
	General Wildlife and Golden Eagle	7	17
	Special Status Species Greater Sage-Grouse, Land Use and Access, Recreation and Wilderness and Socioeconomics	70	168
Silver State Fiber Optic Line (ROW approximately 25 feet)	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species and Geology and Minerals	26	79
	General Wildlife and Golden Eagle	26	79
	Special Status Species Greater Sage-Grouse	91	275
	Range Resources	22	66
	Land use and Access, Recreation and Wilderness	132	400
	Socioeconomics	172	521
	Visual Resources	32	97
	Cultural Resources	40	121

The airports and railroads within the CESA boundaries are discussed below. Table 5.1-3 displays the total acres for past action disturbance of Airports and Railroads.

Eureka Municipal Airport

The Eureka Airport has a runway length of 7,300 feet (BLM, 2001b). Approximately 800 acres of disturbance are within the special status species greater sage-grouse and socioeconomic CESA (USDA, 2012b).

White Pine County Airport (Yelland Field, Ely)

The White Pine County Airport has two runways with approximate lengths of 6,000 feet and 4,800 feet (BLM, 2001b). Approximately 3,450 acres of disturbance are within the land use and access, recreation and wilderness and socioeconomic CESA (BLM, 2012b).

Nevada Northern Railroad

The Nevada Northern Railroad runs north to south and is generally parallel to U.S. Highway 93. Total construction width disturbance is approximately 40 feet (BLM, 2001b). Approximately 35 miles are within the special status species greater sage-grouse CESA; and approximately 74 miles are within the land use and access, recreation and wilderness and socioeconomic CESA (USDA, 2012b).

Union Pacific Railroad

The Union Pacific Railroad is generally parallel to Interstate 80 and approximately 34 miles is within the socioeconomics CESA. Approximate ROW width for the Union Pacific Railroad is 200 feet (USGS, 2012f).

Past action disturbance acres for the landfills and sewage treatment facilities as discussed below are combined and displayed in Table 5.1-3.

Eureka County Sanitary Landfills

There are two landfills within Eureka County. The Eureka County Sanitary Landfill is located approximately 14 miles from Eureka, Nevada and the Eureka County Landfill is located approximately 1,900 feet east of U.S. Highway 50. There are approximately 20 acres of disturbance associated with each of these landfills within the special status species greater sage-grouse, socioeconomic, and cultural resources CESA (BLM, 2012b).

City of Ely Class I Landfill

The City of Ely operates a Class I municipal solid waste site and Class III construction and demolition debris landfill. Approximately 50 acres of disturbance are associated with the City of Ely Landfill. The City of Ely landfill is located one mile north of the City of Ely.

Eureka County Sewage Treatment Facility

The Eureka County Sewage Treatment Facility is located approximately one mile northeast of Eureka. Approximately 80 acres of disturbance associated with the facility is within the special status greater sage-grouse and socioeconomic CESA (BLM, 2012b).

Spring Valley Wind Generation Wind Farm Development

The Spring Valley Wind Generation Wind Farm Development is a 150 megawatt wind farm located approximately 25 miles southeast of Ely, Nevada operated by Spring Valley Wind, LLC There are currently 63 wind turbines and associated facilities (BLM, 2012b). The project includes approximately 8,600 acres are leased area, with a total disturbance area of approximately 517 acres (USDA, 2012b; BLM, 2012b).

5.2.3 Roads Past Actions

Table 5.2-2 displays miles of roads within each resource CESA. Acres of roads within each resource CESA are displayed in Table 5.1-3.

Table 5.2-2 Roads Past Actions

Roads	CESA(s)	Approximate Miles within Each CESA
Interstate 80, Approximate 400-foot ROW	Hazardous Materials and Waste and Socioeconomics	25
U.S. Highway 50, Approximate 100-foot ROW	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species and Geology and Minerals	26
	General Wildlife and Golden Eagle	26
	Special Status Species Greater Sage-Grouse	91
	Range Resources	21.8
	Land Use and Access, Recreation and Wilderness	142
	Socioeconomics	172
	Visual	32
	Hazardous Materials and Waste	80.4
	Cultural	40
U.S. Highway 6, Approximate 100 foot ROW	Special Status Species Greater Sage-Grouse	44
	Range Resources	19
	Land Use and Access, Recreation and Wilderness, and Socioeconomics	100
U.S. Highway 93, Approximate 100 foot ROW	Land Use and Access, Recreation and Wilderness, and Socioeconomics	54
SR 892 (Strawberry Road), Approximate 70 foot ROW	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species	38.1
	General Wildlife and Golden Eagle	11
	Special Status Species Greater Sage-Grouse	46
	Range Resources	21
	Land Use and Access, Recreation and Wilderness and Socioeconomics	55
	Visual Resources	12
	Hazardous Materials and Waste	55
SR 228, Approximate 70 foot ROW	Hazardous Materials and Waste	49

Roads	CESA(s)	Approximate Miles within Each CESA
SR 227 (Lamoille Highway), Approximate 100-foot ROW	Hazardous Materials and Waste	8
SR 278, Approximate 60-foot ROW	Special Status Species Greater Sage-Grouse	17
	Hazardous Materials and Waste	87
	Socioeconomics	82
SR 379, Approximate 60-foot ROW	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species	23
	Geology and Minerals	5
	General Wildlife and Golden Eagle	23
	Special Status Species Greater Sage-Grouse	23
	Range Resources	55
	Land Use and Access, Recreation and Wilderness	22
	Socioeconomics	23
	Wild Horses	27
	Visual Resources	23
	Cultural Resources	55
SR 318, Approximate-50 foot ROW	Special Status Species Greater Sage-Grouse	22
	Land Use and Access, Recreation and Wilderness, and Socioeconomics	23
BLM Roads, Approximate 50-foot ROW	Special Status Species Greater Sage-Grouse	189
	Range Resources	5
	Land Use and Access, Recreation and Wilderness	18
	Socioeconomics	580
	Wild Horses	64
	Visual Resources	0.4
USFS Roads, Approximate 20-foot ROW	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species	145
	Geology and Minerals	48
	Special Status Species Greater Sage-Grouse	383
	Range Resources	5
	Land Use and Access, Recreation and Wilderness, and Socioeconomics	757
	Wild Horses	5
	Visual Resources	146

Roads	CESA(s)	Approximate Miles within Each CESA
Local/County Roads, Approximate 50-foot ROW	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species	1
	Special Status Species Greater Sage-Grouse	76
	Range Resources	3
	Land Use and Access, Recreation and Wilderness	0.3
	Socioeconomics	412
	Wild Horses	26
	Visual Resources	8
Other Roads, Approximate 20-foot ROW	Air Resources, Water, Soils, Vegetation Including Noxious and Non-Native Invasive Weeds and Special Status Species	1,030
	Geology and Minerals	277
	General Wildlife and Golden Eagle	564
	Special Status Species Greater Sage-Grouse	6,841
	Range Resources	1,575
	Land Use and Access, Recreation and Wilderness	12,930
	Socioeconomics	17,219
	Wild Horses	834
	Visual Resources	945
	Cultural Resources	274

5.2.4 Recreation Past Actions

Old Eureka County Fairgrounds

The old Eureka County fairgrounds are located approximately two miles south of Eureka, Nevada. Approximately 10 acres of disturbance are associated with the fairgrounds within the special status species greater sage-grouse, cultural resources, and socioeconomic CESA (USDA, 2012b).

Recreation, Wilderness Study Areas, Wilderness Areas and National/State Parks

In order to assess cumulative impacts of recreation areas, the acreages for the individual resource CESAs were combined (Table 5.1-3). Recreation areas presented in Table 5.2-3 are not necessarily considered disturbance areas but are necessary to analyze cumulative impacts. Table 5.2-3 presents the total acres of each of the recreation areas within the overall CESA boundary.

Table 5.2-3 Recreation, Wilderness Study Areas, Wilderness Areas and National/State Parks Past Actions

Recreation, WSA, Wilderness Areas and National/State Parks	Total Acres
Ward Charcoal Ovens State Historic Park	800
Great Basin National Park	77,100
Ruby Lake National Wildlife Refuge	10,349
Cave Lake State Park	4,500
Goshute Canyon Wilderness	42,544
South Egan Range Wilderness	67,214
Mount Grafton Wilderness	78,754
Mt. Moriah Wilderness (BLM and USFS)	92,419
Becky Peak Wilderness	18,119
Bristlecone Wilderness	14,095
Government Peak Wilderness	6,313
Highland Ridge Wilderness	68,627
Schellback Wilderness	36,143
Red Mountain Wilderness	17,563
Bald Mountain Wilderness	22,366
Currant Mountain Wilderness	20,904
White Pine Range Wilderness	40,013
High Schells Wilderness	121,497
Blue Eagle WSA	15,536
Riordan Well WSA	13,625
Roberts Mountain WSA	15,180
Simpson Park WSA	49,366
Park Range WSA	33,810

5.2.5 Wild land Fires, Restoration, and Seeding Past Actions

Wildland Fires

Several wildland fires have occurred within the overall CESA boundary between 1999 and 2008 (Figure 5.2-1). The total acres of past fires for each CESA are presented in Table 5.1-3. Revegetation treatments typically consist of seeding native species and treating noxious weeds to minimize infestations (USFS, 2012b).

USFS Restoration Treatments

The 2007 Currant Prescribed Burn Project involved treating approximately 3,700 acres of a pinyon-juniper community to reduce the risk of large wildfires by diversifying the age classes and structures (Stever, 2012). The project is located in the Currant Creek Allotment approximately 35 miles to the southwest of Ely, Nevada.

Figure 5.2-1 Wildfire Activity

The 2009 Currant Triangle Pinyon-Juniper Cutting Project involved cutting and leaving approximately 300 acres of pinyon-juniper that were expanding into an old chaining/seeding area (Stever, 2012). The project is located approximately 35 miles to the southwest of Ely, Nevada.

The 2009 White River and Ellison Mowing and Seeding Project involved mowing and seeding approximately 200 acres of mountain and basin big sagebrush communities to improve the sagebrush habitats for sage-grouse, mule deer, and elk (Stever, 2012). The project is located approximately 40 miles southwest of Ely, Nevada.

The 2010 White Pine Sagebrush Restoration Project involved cutting and leaving or removing pinyon-juniper on up to 5,000 acres which includes portions of the Ellison Basin and Currant Creek Allotments (Stever, 2012). The project is located approximately 35 miles southwest of Ely, Nevada.

North Schell/Ward Mountain Restoration Project

The North Schell Restoration Project area is located approximately 20 miles northeast of Ely, Nevada. The Ward Mountain Restoration Project area is located approximately one mile south of Ely, Nevada. Both projects will use mechanical treatment methods and prescribed fire to restore vegetative communities and improve wildlife habitats to reduce the severity of wildfires on approximately 24,361 acres in the North Schell Restoration Project and 40,000 acres in the Ward Mountain Restoration Project (Stever, 2012).

Expansion of Pinyon and Juniper Trees and other Woody Species

Pinyon and juniper have spread and are expected to continue spreading into shrubland and grassland (BLM, 2009b).

Spread of Forest Insects and Diseases

Several years of drought in western states have resulted in severe stress on pinyon pine that have become more susceptible to insect infestations (BLM, 2009b).

5.3 Present Actions

5.3.1 Mineral Development and Exploration Present Actions

This section includes current mining projects, NOIs, and sand and gravel operations. The acres of disturbance within each resource CESA for present mineral development and exploration are presented in Table 5.1-3. The following narrative provides a brief summary of each mineral development and exploration present action.

Bald Mountain Mine

The Bald Mountain Mine, North Operations is located north of the Yankee and Alligator Ridge mines and approximately 36 miles north of U.S. Highway 50 and operated by Barrick Gold U.S. Inc. The mine consists of the Bald Mountain Mine and Mooney Basin POO. Approximately

8,899 acres of disturbance is permitted for the mine (BLM, 2009b). Approximately 3,600 acres of currently existing disturbance is associated with the mine (USDA, 2012b).

Yankee Mine

The Yankee Mine is located approximately five miles south of Bald Mountain and is operated by Barrick Gold U.S. Inc. Past operators include Amselco Exploration, Inc. and Placer Dome U.S. The mine consists of a heap leach facility, three process ponds, a central processing plant, 17 pits, and several waste rock stockpiles (BLM, 2009b). Approximately 354 acres of disturbance is associated with the mine (USDA, 2012b).

Alligator Ridge Project

The Alligator Ridge Project is located approximately 11 miles south of Barrick's Mooney Basin and controlled by Barrick Gold U.S. Inc. Past operators include Bald Mountain Mining, Inc. and USMX, Inc. The mine includes open pits, waste rock facilities, and a heap leach facility. Closure and reclamation activities were mostly completed by 2000. Approximately 938 acres of disturbance was permitted for the mine (BLM, 2009b). Approximately 580 acres of disturbance is associated with the mine (USDA, 2012b).

Casino/Winrock Mine

The Casino/Winrock Mine is located in south Ruby Valley and controlled Barrick Gold, Inc (BLM, 2009b). Approximately 225 acres of disturbance is associated with the mine (USDA, 2012b).

Ruby Hill Mine

The Ruby Hill Mine is a mining operation located approximately 0.7 miles northwest of Eureka, Nevada within the historic Eureka Mining District and controlled by Barrick Gold Corporation (BLM, 2005). The existing project includes an open pit, WRDAs, heap leach pad, and process facilities. Approximately 1,742.4 acres of disturbance are permitted for the mine (BLM, 2012h); however, 1,058 acres of current disturbance is associated with the mine (USDA, 2012b).

Lookout Mountain Exploration Project

The Lookout Mountain Exploration Project is located approximately eight miles south of Eureka, Nevada and controlled by BH Minerals USA Inc. Previous operators include Echo Bay. Exploration activities include construction of drill sites, roads, and temporary structures. Approximately 8.5 acres of previous disturbance was inherited from Echo Bay. Approximately 266.4 acres of disturbance is permitted for the project (BLM, 2010c). Approximately 56 acres are currently disturbed (BLM, 2012b).

Limousine Butte Exploration Project

The Limousine Butte Exploration Project is a mineral exploration project located in White Pine County and controlled by U.S. Gold Exploration. The project consists of four authorized notices including Resurrection Ridge, Ticup, Cadillac Valley, and Continental Valley. Approximately 88.7 acres of disturbance is associated with the project (BLM, 2008e). Approximately 12 acres have been reclaimed (BLM, 2012b).

Robinson Mine

The Robinson Mine, a copper, molybdenum, and gold mine, is located approximately three miles west of Ely, Nevada and controlled by BHP Copper North America (BLM, 1993). Approximately 2,340 acres of disturbance are associated with the mine (BLM, 2012b).

Gold Rock Exploration Plan

The Gold Rock Exploration Plan is a mineral exploration project located approximately 17 miles north of Duckwater, Nevada, located within portions of the past Easy Junior Mine project area. The exploration project is being performed by Midway. Approximately 140 acres of disturbance are associated with the project (BLM, 2012b).

Pan II Project

The Pan II Project is a mineral exploration project located approximately 20 miles north of Duckwater, Nevada and controlled by Midway. Approximately 20 acres of disturbance are associated with the project. Approximately three acres have been reclaimed (BLM, 2012b).

The following mines are not shown on Table 5.1-3 because acres of disturbance are not applicable to socioeconomic impacts; therefore, impacts are discussed qualitatively. These mines are discussed below in order to describe the mineral development and exploration activities within the socioeconomic CESA. Projects within the socioeconomic CESA are discussed qualitatively in Section 5.17. The following mines (Goldstrike Mine, Buckhorn Mine, Tonkin Springs Mine, Bootstrap Mine, Newmont North Operations, Carlin Mine, Leeville Underground, Gold Quarry, Chevas Exploration Project, High Desert Exploration Project, Newmont Mike Exploration Project, and Mill Canyon and Horse Canyon Exploration Project) are within Eureka County, and are within the socioeconomic CESA.

Barrick Goldstrike Mine

Barrick Goldstrike Mine is located within both Eureka County and Elko County and controlled by Barrick Gold of North America. Mine operations include open pit/underground mining, milling with associated tailings disposal facilities and ancillary support facilities (BLM, 2010d). Approximately 7,616 acres of surface disturbance are within the socioeconomic CESA (USGS, 2012f).

Buckhorn Mine

The Buckhorn Mine is located approximately 47 miles north of U.S. Highway 50 and controlled by Buckhorn Mines Co. Approximately 465 acres of disturbance is associated with the mine (BLM, 2012b).

Tonkin Springs Mine

The Tonkin Spring Mine is located approximately 40 miles northeast of Eureka, Nevada. Approximately 448 acres of disturbance is associated with the mine (BLM, 2012b).

Bootstrap Mine

The Bootstrap Mine is located on the Eureka County and Elko County boarder and is controlled by Newmont Mining Corporation. Approximately 1,364 acres of disturbance are permitted for the mine (BLM, 2012b). Approximately 1,271 acres of disturbance are associated with the mine (BLM, 2010d).

Newmont North Operations

Newmont North Operations in located in northern Eureka County and controlled by Newmont Mining Corporation. Newmont North Operations consists of the Bluestar Mine, Genesis Mine, Deep Star Portal, Lantern Mine, North Lantern, Lantern 3, and North Area Leach Pad. Approximately 4,204 acres of disturbance are permitted for the operations area (BLM, 2012b). Approximately 3,910 acres of disturbance are associated with the mine (BLM, 2010d).

Carlin Mine

The Carlin Mine is located south of Newmont's North Operations in northern Eureka County and controlled by Newmont Mining Corporation. The Carlin Mine consists of Carlin Mine, Pete Mine, and Mill 1. Approximately 2,910 acres of disturbance are associated with the mine (BLM, 2010d).

Leeville Underground

Leeville Underground is an underground mine located in northern Eureka County and controlled by Newmont Mining Corporation. Approximately 566 acres of disturbance are associated with the mine (BLM, 2010d).

Gold Quarry

The Gold Quarry Mine is located in northern Eureka County and is controlled by Newmont Mining Corporation. Operations include the North/South haul road that connects Gold Quarry to the Newmont North Operations area. Approximately 9,878 acres of disturbance are associated with the mine and haul road (BLM, 2010d).

Chevas Exploration Project

The Chevas exploration project is located in northern Eureka County and controlled by Newmont Mining Corporation. Approximately 168 acres of disturbance are associated with the project (BLM, 2010d).

High Desert Exploration Project

The High Desert exploration project is located in northern Eureka County and controlled by Newmont Mining Corporation. Approximately 164 acres of disturbance are associated with the site (BLM, 2010d).

Newmont Mike Exploration Project

The Mike Exploration project is located adjacent to Newmont's Gold Quarry mine and controlled by Newmont Mining Corporation. Approximately 48 acres of disturbance are associated with the project (BLM, 2010d).

Mill Canyon

Mill Canyon Mine is located approximately 17 miles south of Crescent Valley, Nevada and controlled my Barrick Gold Corporation. Previous operators include Newmont Mining Co. and Victoria Gold Corp. Approximately 220 acres of disturbance are associated with the mine (BLM, 2012b).

Horse Canyon Exploration Project

The Horse Canyon Exploration Project is located approximately 20 miles south of Crescent Valley Nevada and controlled by Barrick Cortez Inc. (Barrick, 2011). Approximately 688 acres of disturbance is associated with the project (BLM, 2012b).

The Centennial Exploration Project

EGM proposed the Centennial Exploration project. Approximately two acres of disturbance are associated with the project. The project is located by the Mount Hamilton Mine in White Pine County, Nevada (USFS, 2012a).

Cathedral Canyon Exploration Project

The Cathedral Canyon Exploration project is located approximately 50 miles west of Ely, Nevada and controlled by Bronco Creek Exploration Inc. Approximately five acres of disturbance is associated with the project (USFS, 2012a).

Cottonwood Creek Geophysical Exploration

Southern Nevada Water Authority is conducting magnetic and temperature borehole geophysical surveys on 4.5 square miles in the Cottonwood Creek area of White Pine County. Approximately 2,880 acres (pending) of disturbance have been approved (USFS, 2012c).

Notices of Intent

There are 40 authorized NOIs within the overall CESA boundary (BLM, 2012b). Up to five acres of disturbance may occur under a notice, though actual disturbance could be less in many cases. Table 5.1-3 displays the approximate acres within each CESA boundary.

Sand and Gravel Operations

There are approximately 63 sand and gravel operations within the overall CESA boundary (BLM, 2012b). Approximate disturbance associated with the sand and gravel operations are provided in Table 5.1-3. Due to the number of sand and gravel operations within the overall CESA boundary, no sand and gravel pits were plotted on the CESA maps.

5.3.2 Utilities Infrastructure and Public Purpose Present Actions

ON Line (One Nevada Transmission Line) Project

The joint NV Energy/Great Basin Transmission South, LLC. ON Line Project is an approved 500 kV transmission line project currently being built within the designated Southwest Intertie Project (SWIP) Utility Corridor within the ROW approved for the SWIP South segment. The 235-mile transmission line will extend between the newly constructed Robinson Summit substation at the northern terminus (approximately 18 miles northwest of Ely, Nevada) and the existing Harry

Allen substation at the southern terminus (just north of Las Vegas). In addition, a loop-in of the existing Falcon to Gonder 345 kV transmission line at Robinson Summit substation will be constructed and new equipment will be installed at the existing Harry Allen substation near Las Vegas. The Robinson Summit substation will require approximately 77 acres (BLM, 2010a). Approximately 48 miles (1,164 acres) of the ON Line Project falls within the special status species greater sage-grouse CESA and approximately 45 miles (1,091 acres) of the ON Line Project are within the land use and access, recreation and wilderness, and socioeconomic CESA (USDA, 2012a).

5.3.3 Oil, Gas, and Geothermal Development Present Actions

Table 5.1-3 displays the combined total acres for present action disturbance of oil, gas, and geothermal development and is discussed below. Disturbance associated with oil and gas development was calculated from the primary producing oil and gas field within the CESA boundary.

There are approximately 24 producing, drilled oil and gas wells, or wells associated with oil and gas production (i.e., injection wells, water wells and water disposal wells) in Eureka and White Pine counties (NBMG and Hess, 2011). There is one primary producing oil field, the Blackburn Oil Field, within the socioeconomic CESA (NBMG and Hess, 2001).

Blackburn Oil Field

The Blackburn Oil Field is located 50 miles north of Eureka Township in Eureka County, Nevada. Approximately 340 acres of disturbance are associated with the project (USDA, 2012b).

Geothermal Development

There are several warm heat wells and permitted geothermal wells within the CESAs (NBMG, 2012a). The breakdown of disturbance within each CESA was included with Oil and Gas Development disturbance and is shown on Table 5.1-3. Disturbance from oil and gas and geothermal wells assumes approximately 3 acres of disturbance for each well. Well locations are obtainable, however not displayed on the CESA figures presented in the section because disturbance associated with wells is minimal.

5.3.4 Recreation Present Actions

Eureka County Fairgrounds

The Eureka fairgrounds are located approximately one mile north of Eureka, Nevada. Approximately 30 acres of disturbance associated with the fairgrounds is within the special status species greater sage-grouse, socioeconomic, and cultural resources CESA (USDA, 2012b).

5.3.5 Wildland Fires, Restoration, and Seeding Present Actions

USFS Restoration Treatments

The 2010 White Pine Pinyon-Juniper Removal Project involved cutting and leaving small trees on up to 12,000 acres. Approximately 2,000 acres have currently been completed (USFS), and

10,000 acres still need restoration treatments (Stever, 2012). The project is located approximately 40 miles southwest of Ely, Nevada.

5.3.6 Urban Development Present Actions

Eureka Canyon Subdivision

The Eureka Canyon subdivision is an approved multifamily and single family subdivision located in Eureka, Nevada. The project includes open space, a greenbelt area, and temporary housing. Currently, the site has been graded and foundations have been constructed. Eureka County is currently in the process of finalizing the documents for the single family component of the project (ECBC, 2011). Approximately 164 acres of disturbance is associated with the subdivision (USGS, 2012f).

5.4 Reasonably Foreseeable Future Actions

5.4.1 Mineral Development and Exploration

Mount Hope

The Mount Hope Project is located approximately 23 miles northwest of Eureka, Nevada and controlled by Eureka Moly LLC. Eureka Moly LLC is currently conducting activities under NOIs within the Mount Hope Project area. The Mount Hope Project will consist of an open pit, waste rock disposal facilities, milling facilities, a molybdenite concentrate roaster and packaging plant, a ferromolybdenum plant, two tailings storage facilities, a 24-mile 230 kV electric power supply line from the existing Machacek substation (see below), and ancillary facilities. There is approximately 8,318 acres of proposed disturbance associated with the project (BLM, 2011f).

Bald Mountain Mine, South Operations

Barrick Gold US Inc. has a pending POO to encompass and expand the Alligator Ridge and Yankee Mine sites into one project, the South Operations Area Project. This would result in approximately 3,643 acres of disturbance (BLM, 2012b).

Bald Mountain Mine, North Operations

According to the North Operations Area Project Plan of Operations Amendment #4 (NVN-082888), Barrick Gold US Inc. is proposing to encompass and expand the Casino/Winrock Mine, White Pine Mine, and the Bald Mountain Mine North Operations increasing the total surface disturbance for the Bald Mountain Mine, North Operations to 13,673 acres. Factoring in the existing 3,600 acres of existing surface disturbance associated with the Bald Mountain Mine, North Operations, the POO would include an additional 10,073 acres of surface disturbance (BLM, 2012b).

Mt. Hamilton LLC Centennial-Seligman Mining Project

Mt. Hamilton LLC has a pending POO to conduct mining and exploration activities at the Centennial and Seligman ore deposits on the Mount Hamilton Mine. The project area contains approximately 1,404 acres of National Forest Service land and approximately 33.7 acres of

private land. The proposed exploration and mining operations would consist of approximately 474 acres of surface disturbance (Mt. Hamilton, 2012).

Nekekim Mining Project

The Nekekim Mining Project is located in Nye County and controlled by Nekekim Mining Corporation. Nekekim currently has a pending POO for the project. There is approximately 50 acres of proposed disturbance associated with the project is (BLM, 2012b).

American Vanadium Gibellini Mine

The American Vanadium Gibellini Mine is located approximately 20 miles south of Eureka, Nevada and controlled by American Vanadium US Inc. A POO has been submitted to disturb approximately 730 acres to construct, operate, reclaim, and close an open pit, heap leach, vanadium mining operation. The proposed project would also include a water and communications corridor extending 6.5 miles from the Fish Creek Ranch to the proposed project area, and a power corridor generally paralleling the Fish Creek Road to Highway 50. The power corridor proposed for the American Vanadium Gibellini Mine would largely be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, east along Fish Creek Road, and south terminating at the American Vanadium Gibellini mine site (Figure 5.4-1). The American Vanadium Gibellini Mine (Figure 5.5-1) is located within the Gibellini Mining District. There is no disturbance associated with the Gibellini Mining District. CESA Figure 5.5-1 shows the Gibellini Mining District overlaid on the proposed American Vanadium Gibellini Mine. Information on the Gibellini Mining District was obtained from GIS information from the Nevada Bureau of Mines and Geology.

Gold Rock Mine

The Gold Rock Mine is located approximately 65 miles west of Ely, Nevada, and is located at the previously mined Easy Junior mine site. Midway Gold currently is approved to conduct exploration operations for the Gold Rock project, which is discussed under present actions. Midway has submitted a POO that includes 3,749 acres of disturbance to operate, reclaim and close an open pit, heap leach mining operation (BLM, 2012b). The project would include mining out the existing Easy Junior pit and heap facilities, and reclaiming these facilities as a part of the over-all reclamation of the site. The Gold Rock Project Proposed Action would tie into the southernmost point of the Pan Mine power line south to Gold Rock approximately 13 miles. (Midway, 2013b).

Windfall Project

The Windfall Project is located approximately four miles south of Eureka, and controlled by BH Minerals who currently has pending a POO for the project. There is approximately 150 acres of proposed disturbance associated with the project (BLM, 2012b).

Figure 5.4-1 Reasonably Foreseeable Future Power Lines

Wheeler Ridge Mineral Exploration Project

The Wheeler Ridge Mineral Exploration Project is located in the White Pine Range and controlled by Mount Hamilton LLC. There is approximately 50 acres of proposed disturbance associated with the project (USFS, 2012b).

The following mines are within Eureka County, and are within the socioeconomic CESA: Greater Gold Quarry and Green Lantern. These mines are not shown on Table 5.1-3 because acres of disturbance are not applicable to socioeconomic impacts; therefore, impacts are discussed qualitatively. These mines are discussed below in order to describe the mineral development and exploration activities within the socioeconomic CESA. Projects within the socioeconomic CESA are discussed qualitatively in Section 5.17.

Gold Bar Project

The Gold Bar Project is located approximately 28 miles northwest of Eureka, Nevada and controlled by McEwen Mining Inc. who currently has a pending POO for the project. There is approximately 835 acres of proposed disturbance associated with the project (BLM, 2012b).

Greater Gold Quarry

The Greater Gold Quarry project is located approximately five miles north of Carlin, Nevada and controlled by Newmont Mining Corporation. There is approximately 1,468 acres of proposed disturbance associated with the mine expansion (BLM, 2010d).

Green Lantern

The proposed Green Lantern Project is located in northern Eureka County and is controlled by Newmont Mining Corporation. Approximately 244 acres of disturbance are proposed for the project (JBR, 2012d).

Griffon Project

Pilot Gold (USA) Inc. has a pending POO that would approve a gold exploration project involving no more than five acres of disturbance (USFS, 2012f).

Notices of Intent

There are three pending NOIs within the overall CESA boundary (BLM, 2012b). Up to five acres of disturbance may occur under a NOI, though actual disturbance could be less. Assuming five acres of disturbance, future disturbance associated with the pending NOIs would be 15 acres.

Sand and Gravel Operations

There are approximately 12 pending sand and gravel operations within the CESAs (BLM, 2012b). Approximate disturbance associated with the proposed sand and gravel operations are provided in Table-5.3-1.

5.4.2 Oil, Gas, and Geothermal Development

There are approximately 40 pending oil and gas leases within the overall CESA boundary (BLM, 2012b). There are approximately three oil or gas wells that are authorized but currently not

drilled (NBMG and Hess, 2011). Each of these proposed wells assumes three acres of disturbance and future disturbance associated with the future oil wells is estimated at approximately nine acres. Since no exact location of the oil and gas wells have been proposed, the acres of disturbance are not included on Table 5.1-3.

Alligator Ridge, NV: Oski Energy

Oski Energy is proposing to conduct geothermal exploration located adjacent to Alligator Ridge. Currently no work has been completed. Since the location of the project is unknown, the acres of disturbance is not included on Table 5.1-3 (NBMG, 2012c).

5.4.3 Utilities Infrastructure and Public Purpose

SWIP

Designated corridor established in the Ely and Las Vegas RMPs (within the project area) that provides for utility development and bundling to minimize impacts. The width varies from 2,640 to 3,500 feet (BLM, 2008b).Subsequently, this same utility corridor was federally designated in the West-wide Energy Corridor Programmatic EIS.

Machacek to Mount Hope Power Line

The Mount Hope Project is proposing a 24-mile, 230 kV electric power supply line from the existing Machacek substation to include a distribution system located within the Mount Hope Project. The power line would join the existing Falcon to Gondor 354 kilovolt line ROW near Eureka and follow the existing utility corridor (approximately 160 feet wide) to the Mount Hope Project Area. The Mount Hope Project would require the realignment of a section of the existing Falcon to Gondor power line (BLM, 2011f). Approximately 13 miles would be within the special status species greater sage-grouse CESA and approximately 24 miles within the socioeconomic CESA (USDA, 2012b).

Department of Energy (DOE) Electric Distribution Line

The DOE has a proposed Electric Distribution Line project pending. Total proposed disturbance associated with the DOE distribution line would be 611 acres (BLM, 2012b). Since no exact location of the distribution line has been proposed, the acres of disturbance is not included on Table 5.1-3.

Mount Wheeler Power Inc.

Mount Wheeler Power Inc. proposes to construct a new line from Windfall Canyon near Eureka, Nevada to New York Canyon located south of Carson City that will parallel a portion of their existing power line that follows U.S. Highway 50. The project will also include rebuilding a portion of the existing line to connect to the existing buried power line that provides power to the Communication site on Prospect Peak. Total disturbance will be approximately nine acres CESA (BLM, 2012b). Since no exact location of the transmission line construction and upgrades have been proposed, the disturbance is not included on Table 5.1-3.

Beehive Telephone Communication Facility Cave Mountain

Beehive Telephone Inc. is proposing to install a communication site consisting of a communications shelter, tower, propane generator, and propane tanks on Cave Mountain at an existing communication facility (USFS, 2012c). The project is in the proposal development stage and no disturbance acreage has been proposed. Since the disturbance acreage is unknown, no disturbance was included on Table 5.1-3.

Clark, Lincoln, and White Pine Counties Groundwater Development Project

Southern Nevada Water Authority (SNWA) submitted a request to the BLM to obtain a ROW on BLM managed land to develop groundwater rights that have previously been authorized for development by the Nevada State Engineer. The project proposes to convey up to 155,000 afy of water, with up to 122,000 afy of groundwater developed by SNWA and the remaining capacity provided to Lincoln County. Water rights applications for Spring, Cave, Delamar, Dry Lake, and Snake Valley are still pending (BLM, 2012i).

Proposed facilities for the *Clark, Lincoln, and White Pine Counties Groundwater Development Project* include:

- Approximately 306 miles of buried water pipelines;
- Approximately five pumping stations;
- Approximately six regulating tanks;
- One water treatment facility and a buried water storage reservoir;
- Approximately 323 miles of 230 kV, 69 kV, and 25 kV overhead power lines; and
- Two electrical substations (230 kV to 60 kV) and five secondary substations (60 kV to 25 kV).

Within the CESAs, it is estimated that there will be approximately 110 miles of primary water pipeline, 130 miles of a 230 kV power transmission line, two 10-acre pumping stations, and one 10-acre substation. Water pipeline ROW width would be 100 feet and the power line easement width would be 100 feet (BLM, 2012h). Estimated disturbance within the CESAs is shown in Table 5.1-3.

Eureka County Landfill

A Plan of Development has been submitted to expand the existing Eureka County Landfill. There is approximately 80 acres of proposed disturbance associated with the Eureka County Landfill expansion (BLM, 2012i).

5.4.4 Roads

Siegel Creek Road Restoration

The USFS is proposing to reclaim approximately 11.5 miles of unauthorized roads to reduce soil erosion, reduce sedimentation into stream, and reduce road densities to improve habitats for wildlife. The project is located in the northeast portion of the Schell management unit of the Ely Ranger District, approximately 40 miles northeast of Ely, Nevada. The project is currently under analysis with the USFS and no disturbance has been proposed at this time (USFS, 2012e).

Since the project is currently under analysis with no proposed disturbance associated with it, no disturbance was included in Table 5.1-3.

5.4.5 Wildland Fires, Restoration, and Seeding

Fire and Natural Occurrences

Overland Pass Habitat Improvement/Fuel Reduction Project

The Overland Pass Habitat Improvement Project is a joint project between BLM, USFS, and NDOW. The project is located in the Overland Pass area, at the southern end of the Ruby Mountains about 55 miles south of Elko and 80 miles northwest of Ely, Nevada. The project will provide for vegetative diversity and improve habitat for the greater sage-grouse, mule deer, elk, and pronghorn antelope, and reduce the risk of catastrophic wild land fire by selectively thinning pinion-pine and juniper from sagebrush communities. The project area is 40,000 acres, and treatment is planned for approximately 17,000 acres (BLM, 2012j).

Ward Mountain Interagency Landscape Restoration and Fuels Reduction Project

The USFS, BLM, and tribal entities propose to reduce the ecological departure from the reference conditions by reducing Fire Regime Condition Class and reduce the threat of wildfire to the city of Ely and surrounding area, and improve wildlife habitat using a variety of treatment methods. The project is located in the lands surrounding Ward Mountain, which is southwest of Ely, Nevada. The project is currently in the initial planning stages so there are no acres of disturbance currently proposed (USFS, 2012d). Since the project is in the initial planning stages with no current proposed disturbance, no disturbance was added to Table 5.1-3.

Ely Westside Rangeland Project EIS

The West Side Rangeland Project EIS reauthorized continued livestock grazing on the Blackrock, Cherry Creek, Currant, Ellison Basin, Illipah, Pine Creek/Quinn Canyon, Tom Plain, Treasure Hill, and Troy Mountain Allotments. Grazing was not authorized on the Big Creek, Hooper Canyon, and Irwin Canyon allotments, which have been vacant for a number of years. Six of the allotments are within the White Pine Range (USFS, 2011). Since no disturbance was proposed with this action, no disturbance is included on Table 5.1-3.

Fuelwood Harvest

Personal use fuelwood harvest occurs on USFS- and BLM-administered lands throughout the CESAs. All USFS lands except the Murray Watershed area are open for green fuelwood harvesting. Future fuelwood harvesting is expected to continue (Stever, 2012).

The Stonehouse Habitat Improvement and Fuels Reduction Project

The Stonehouse Habitat Improvement and Fuels Reduction Project is a BLM-approved project, which will treat up to 19,000 acres of pinyon-juniper to reduce fuels and improve habitats for greater sage-grouse and other wildlife species (BLM, 2010e).

5.5 Water Resources

5.5.1 CESA Boundary

Surface Water

The CESA boundary for surface water resources includes hydrographic sub-basin 154, the northern part of hydrographic sub-basin 173B to the White Pine County Line, and an extension west approximately 43,500 feet to include the South West Power Line Alternative (Figure 5.5-1). The total area of this CESA is 777,116 acres (1,214 square miles). This CESA boundary was chosen because it encompasses all of the Proposed Action and action alternatives disturbance areas as well as the hydrographic sub-basins in which they occur. These are the areas within which other water uses could cumulatively interact with the water sources associated with the Proposed Action.

Groundwater

The CESA boundary for groundwater resources is the same as that for surface water.

Wetlands

There are no known wetlands in or near the Proposed Action or Action Alternatives; therefore, there is no impact to wetlands, and they are not considered further in this section.

5.5.2 Introduction

The CESA includes high elevation headwater areas, relatively low elevation terminal basins (i.e. playas), and elevations in between. The climate is generally semiarid, and, as is typical for the Great Basin, precipitation varies markedly with elevation. The natural hydrologic characteristics of the CESA are in large part a function of its climate, geology, and vegetation. Thus, these characteristics vary within the 1,200-plus square miles that the CESA covers.

Undeveloped wildlands comprise the majority of the CESA. Its highest elevations are primarily lands that are managed by the USFS. The BLM manages the public land encompassing much of the CESA's lower elevations, although there are also sections of privately-owned land. Primary land uses within the CESA that can affect water resources include those which use water (e.g., mining, agriculture) as well as those which have the potential to affect water quality (e.g., transportation, grazing).

5.5.3 Past and Present Disturbances

Several of the past and present activities listed in Table 5.1-3 occur within the water resources CESA and likely affect the quantity or quality of surface water and/or groundwater. The Illipah, Easy Junior, Silverado, Cathedral, and Bald Mountain mines, the Gold Rock, Pan I, Pan II, and Centennial exploration activities, and various sand and gravel pits have used or are currently using water (typically groundwater) as part of their operations, either for dust control or processing (Figure 5.5-1). These entities may also affect water quality. General surface disturbance can cause sediment loading; channel rerouting can cause erosion/sedimentation;

and inadvertent spills of process water, drilling fluids, or other hazardous substances can contaminate surface water or shallow groundwater.

Sierra Pacific Power Company's Falcon to Gonder power line, as well as other utility lines placed by other utilities, may have used water during construction; their largest potential post-construction effect is likely related to erosion/sedimentation associated with access roads or unreclaimed disturbances. Other unpaved roads, such as those crossing public land within the CESA, can also be a source of sedimentation. All roads, including United States, state, local, private, and USFS roads, can present water quality impacts due to inadvertent spills or releases during vehicular accidents.

Oil and gas development has occurred within the water resources CESA. This activity typically uses water, and also has the potential to degrade both surface water and groundwater if drilling fluids are not properly managed, or if wells are not properly developed. New roads are often built in association with oil and gas development, with the same potential consequences as mentioned above. Other activities, such as grazing, that are not described in Table 5.1-3 also have the same potential consequences because they use water and involve land disturbance.

The largest water use in the CESA is irrigation, with permits totaling over 27,000 afy, which is 150 percent of perennial yield for the Newark Valley. However, the actual amount of water used for irrigation is less than the permitted amount, being approximately 9,300 afy in 2011 and 2012. Using 9,300 afy for irrigation, total water use for the basin would be approximately 10,736 afy, which is well below the perennial yield for the basin (18,000 afy). In addition to its significance relative to water use, irrigation can affect water quality through return flows that have had contact with agricultural chemicals or that mobilize sediment from cultivated fields. Agricultural chemicals can affect both surface water and groundwater quality.

Finally, several previous wildland fires, a prescribed burn, and a pinyon-juniper removal project may have resulted in channel incision and potentially continue to provide elevated sediment loads to CESA area stream channels. In sum, all of these activities have the potential to affect water resources.

5.5.4 Reasonably Foreseeable Future Disturbances

RFFAs are summarized at the end of Table 5.1-3. They include many of the same types of activities (with the same potential effects) as described in Section 5.1.3. Wheeler Ridge mineral exploration, Gold Rock Mine, Mt. Hamilton LLC Centennial-Seligman Mining project, various sand and gravel pits, and the Mount Wheeler power line upgrade are the primary proposed projects listed in the table that may occur within the water CESA. All of them would require surface disturbance. Often, the greatest risk to surface water with these types of projects is during and immediately after construction. Generally, the potential impacts to water resources from these RFFAs are the same as described above for the past and present activities.

Figure 5.5-1 Water, Geology, Soil, Air, Vegetation, Range, Wild Horses, and Cultural CESAs

5.5.5 Cumulative Disturbances

Of the total 777,116 acres covered by the water resources CESA, 25,342 acres of disturbance are associated with past, present, and RFFAs, which is a disturbance of approximately three percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 28,546 acres, or about 3.7 percent of the CESA. This is 12.6 percent disturbance increase within the CESA. This does not include other acreage associated with agriculture or other activities that also have the potential to affect water resources. The amount of acreage disturbed by any one activity or type of activity may not be directly proportional to water impacts because of the different types of links between surface disturbances (e.g. type of activity, soil type, slope) and the potential for elevated erosion rates. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21- mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the American Vanadium Gibellini mine site (Figure 5.4-1).

5.5.6 Cumulative Effects

Surface Water

Potential cumulative impacts to surface water resources are minor. Ground disturbances and/or channel rerouting associated with noted past, present, and RFFAs, as well as the Proposed Action and action alternatives can cause erosion and sedimentation. As noted in Section 4.2.2, potential environmental impacts to surface water resources from the Proposed Action during construction and operations include possible increases in sediment delivery due to erosion resulting from native vegetation clearing, stockpiling of topsoil, contact with waste rock, and general soil disturbance. This can affect water quality and channel stability even in ephemeral or intermittent channels such as those found in the CESA.

The same potential impacts are also associated with the action alternatives as well as the past, present, and RFFAs. However, like the Pan Project, these impacts would be reduced through stormwater management and other BMPs. Most of these impacts are also temporary and subject to reclamation activities, which reduce the impact of an individual activity over time and reduce the potential for cumulative impact because the activities occur at various times. Further, these activities are spatially dispersed and the effects are generally localized when they occur within the type of environment found in the CESA. Cumulatively, this impact would be minor.

Groundwater

The Proposed Action includes two or more water supply wells to be developed in the regional, carbonate bedrock aquifer. Together these wells would be capable of providing approximately 1,200 afy of groundwater, which would be a small percentage (approximately 6.7 percent) of the aquifer's perennial yield. Because Midway has leased water rights from an existing user, it

would not add cumulatively to the quantity of water appropriated from the aquifer by the other activities described above in Sections 5.1.3 and 5.1.4 and would not cause use to exceed perennial yield (use would still only be approximately two-thirds of perennial yield). Thus, the overall cumulative impact to groundwater availability is considered negligible.

Potential cumulative impacts to groundwater quality may occur due to inadvertent releases of hazardous substances, as a result of leakage or releases from mining or processing facilities, or due to inadvertent accidents or spills. This potential impact includes waste rock leachate, hydrocarbon spills, process water leaks or spills, septic system/leach field releases, and drilling fluid escape. The Proposed Action, action alternatives, and the past, present, and RFFAs include no-discharge designs for all process facilities. BMPs such as spill control plans, leak detection systems, and other EPMs directed at protecting water quality, which prevent these types of impacts from occurring or control them if they do occur. Further, any contaminant releases would be mitigated before reaching live surface waters or groundwater, and would therefore be short-term. There is no currently available information suggesting there may be widespread impacts to groundwater quality in the CESA from past and present actions. The distances between these widely separated actions would also mitigate water quality impacts from any of these actions impacting any of the other actions. Cumulatively, this impact would be negligible.

The cumulative effects to wetlands, surface water, and groundwater under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to wetlands and groundwater under the Southwest Power Line Alternative would be the same as those due to the Proposed Action. The Southwest Power Line Alternative would impact more ephemeral stream channels than the Proposed Action, in some cases modifying existing channels to serve as the power line maintenance road. Because of this, impacts to surface water due to the Southwest Power Line Alternative would be moderate.

Cumulative effects to wetlands, surface water, and groundwater under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.6 Geology and Minerals

5.6.1 CESA Boundary

The CESA boundary for geology and mineral resources includes White Pine County's hydrographic sub-basin 154 from U.S. Highway 50 south and the northern portion of hydrographic sub-basin 173 (Figure 5.5-1). The total area of this CESA is 365,171 acres, and includes BLM, USFS, and private lands. This CESA boundary was chosen because it encompasses areas of each hydrographic sub-basin where geology and mineral resources would be affected.

5.6.2 Introduction

Mining and exploration activities typically have the largest impacts on geology and mineral resources because they contribute to mineral resource depletion, removal of mineral resources from availability for development, topographic changes, and affect geotechnical stability. Other actions with potential effects on geology, such as sand and gravel extraction operations; utility lines; oil, gas, and geothermal development; roads; wildland fires; and fuel treatment, burn control, and restoration projects also disturb surface acreage; however, they typically conform closely to the local topography and have negligible, if any, impacts on geology and mineral resources. Disturbance associated with utilities, infrastructure, public purpose projects, wildland fires, restoration, and seeding projects are not included in the disturbance calculations presented below because the impacts are not directly related to geology.

5.6.3 Past and Present Disturbances

Past and present mineral development and exploration projects located within the CESA include the Easy Junior Mine (232 past acres and 140 present acres associated with the Gold Rock Exploration Project), Silverado Mill (14 acres), Pan Project exploration (12.3 acres), Bald Mountain Mine (3,600 acres), the Pan II Project (17 acres), the Centennial Exploration project (2 acres), and the Cathedral Canyon exploration project (5 acres) for a total past and present disturbance of approximately 4,022 acres due to mining and exploration activities.

There are approximately 240 acres of disturbance associated with past NOIs within the CESA, and approximately 15.1 acres of present NOI disturbance. Also within the geology and mineral resources CESA, there are approximately 11.5 acres of disturbance associated with sand and gravel operations, approximately 67 acres of disturbance associated with oil, gas, and geothermal development projects; and approximately 79 acres of disturbance associated with the Silver State fiber optic line.

Roads account for approximately 824 acres of disturbance within the geology and mineral resources CESA. This acreage includes approximately 36 acres of state routes, 116 acres of USFS roads, and 672 acres of other roads. These disturbances are included in total disturbed acreage in Table 5.1-3; however, such disturbances are generally limited to surface disturbances, and therefore do not have a significant impact on geology and mineral resources. In addition, there are numerous roads in the geology and minerals CESA that are not designated as local, county, BLM, or USFS roads. These are generally private, and are not included in disturbed acre calculations.

Approximately 4,278 acres of the CESA has burned in the past, and another 4,000 acres of surface disturbance associated with prescribed burns and vegetation removal has occurred as well. These actions are surface disturbances and have no impact on geology and minerals; therefore, they are not considered in further analysis on this resource.

5.6.4 Reasonably Foreseeable Future Disturbances

Foreseeable future disturbances within the geology and mineral resources CESA include the Mount Hope Mine, a proposed molybdenum mine that would cause approximately 8,318 acres of disturbance; the American Vanadium Gibellini Mine, a proposed vanadium mine that would add approximately 730 acres of exploration disturbance; the Wheeler Ridge exploration project that would add approximately 50 acres of associated disturbance; Barrick Gold US Inc. has a pending POO to expand the Alligator Ridge and Yankee Mine sites into one project, the South Operations Area Project, which would create a total of 3,643 acres of disturbance; Barrick Gold US Inc. has a pending POO to encompass and expand the Casino/Winrock Mine, White Pine Mine, and the Bald Mountain Mine North Operations, which will increase authorized disturbance of the Bald Mountain Mine, North Operations by approximately 10,073 acres; the Gold Rock Mine which would create a total of 3,749 acres of disturbance; the Mt. Hamilton LLC Centennial-Seligman Mining/Exploration Project will disturb approximately 474 acres on NFS lands. Approximately 5.5 additional acres of disturbance is likely to occur within the geology and mineral resources CESA due to future sand and gravel operations.

5.6.5 Cumulative Disturbances

Of the total 365,171 acres covered by the Geology and Minerals CESA, approximately 31,398 acres of major past, present, and RFFA disturbances to geology and minerals ,as presented above in Sections 5.6.3 and 5.6.4, is known and quantifiable within the CESA, which is a disturbance of approximately 8.6 percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 34,602 acres, or about 9.5 percent of the CESA. This is a 10.2 percent disturbance increase within the CESA. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

Gold-bearing ore would be removed from the Pancake Range reserves as part of the Proposed Action; however, compared to total gold reserves available in the CESA, this would be a moderate loss.

5.6.6 Cumulative Effects

The Proposed Action would contribute to the depletion of gold reserves within the CESA which is a finite resource. However, this would be a small percentage of the reserves within the CESA. Considering past, present, and RFFA disturbances in the geology and mineral resources CESA that may affect geology and minerals combined with the Proposed Action, cumulative disturbance effects on geology and mineral resources would be less than five percent of the CESA, and minor.

The cumulative effects to geology and mineral resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to geology and mineral resources under the Southwest Power Line Alternative would be the same as those due to the Proposed Action.

Cumulative effects to geology and mineral resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.7 Soils

5.7.1 CESA Boundary

The CESA boundary for soil resources includes hydrographic sub-basin 154 and the portion of hydrographic sub-basin 173B north of the White Pine County line (Figure 5.5-1). The total area of this CESA is 777,116 acres, and includes BLM, USFS, and private lands. This CESA boundary was chosen because erosion of soils and sedimentation associated with the Proposed Action would be limited to these areas.

5.7.2 Introduction

The main impact to soils is disturbance of the ground surface, which depends primarily on land use. Primary sources of surface disturbance within the CESA include mining, exploration NOIs; sand and gravel extraction operations; agriculture; utility lines; oil, gas, and geothermal development; roads; wild land fires; and fuel treatment, burn control, and restoration projects. Surface soil disturbance results from each of these actions. Acres of disturbance described in the sections below are summarized in Table 5.3-1.

5.7.3 Past and Present Disturbances

Past mineral development and exploration actions within the CESA include the Illipah Mine, Easy Junior Mine, Silverado Mill, and Pan Project exploration, which resulted in a combined disturbance of approximately 287 acres. Some or all of each of these projects have not been actively reclaimed; however, natural reclamation of vegetation species has occurred over time and has resulted in various levels of revegetation. Revegetation is important for soil stability and erosion prevention.

Present mineral development and exploration actions within the CESA include several active mines and mineral exploration projects. The Bald Mountain Mine is currently causing approximately 700 acres of surface disturbance within the CESA. Other mining and exploration projects within the CESA include the Gold Rock exploration project (approximately 140 acres), the Pan II Project (approximately 17 acres), the Cathedral Canyon exploration project (approximately 5 acres), and the Centennial exploration project (approximately 2 acres). Impacts of past and present mineral development and exploration can be long-term. Soil is physically removed and then replaced during reclamation, and if an area is not reclaimed, or

soils are not salvaged, existing soils may be buried. The primary effect of mining on soil resources is increased soil erosion which subsequently results in increased sediment in downstream surface waters. Reclamation of vegetation species and other EPMs as outlined in Section 2.3.14 help to prevent these effects.

There are approximately 890 acres of past disturbance associated with 178 past NOIs within the CESA. Several utility, infrastructure, and public purpose projects are located within the CESA for a total of 633 acres of past disturbance. These include 368 acres of disturbance due to the Sierra Pacific Power Company Falcon to Gonder Power Line, which runs through the center portion of the CESA, and 265 acres due to the Silver State fiber optic line, a fiber optic extension from Eureka to Newark Valley, a buried fiber optic line from Newark Valley to Ely, and a 230 kV power line heading east to the Gonder Substation. Disturbance to soil resources associated with utility projects involve construction of access roads, which leads to soil compaction and removal of vegetation.

Currently, there are approximately five present NOIs causing 10.2 acres of present disturbance. Additional present disturbances within the CESA include approximately 13.5 acres associated with sand and gravel operations, and approximately 67 acres associated with oil, gas, and geothermal development projects.

There are approximately 3,704 acres of disturbance associated with roads within the CESA. This acreage includes approximately 315 acres of United States highways, 491 acres of state roads, 6 acres of local/county roads, 351 acres of USFS roads, and 2,497 acres of other roads. Other roads are classified as roads not designated as local, county, BLM, or USFS roads. This includes but is not limited to private roads and roads with no assigned or named ownership. Road construction has a long-term effect on soil resources from compaction of the ground or burial of soils. Roads alter water flow on the soil surface and create impervious surfaces that concentrate runoff and increase the potential for erosion of adjacent soils.

Approximately 8,626 acres of the CESA (approximately one percent) has previously burned as a result of wildland fire. In 2007, a prescribed burn was conducted on approximately 3,700 acres of pinyon-juniper woodland within the CESA to reduce fuels in order to prevent large wildland fires. The 2009 Currant Triangle Pinyon-Juniper Cutting Project involved cutting and/or mowing approximately 300 acres of pinyon-juniper woodland and sagebrush to reduce fuels for fire and improve wildlife habitat. Vegetation clearing activities and removal of the organic layers of the soil increase the risk of soil erosion. Extremely hot fires have the ability to change the top layers of the soil by altering the soil structure, productivity, chemistry, and hazard of erosion.

5.7.4 Reasonably Foreseeable Future Disturbances

Foreseeable future disturbances within the CESA include approximately 474 acres of disturbance associated with Mt. Hamilton LLC Centennial-Seligman Mining Project, approximately 50 acres of exploration associated with the Wheeler Ridge Exploration Project; approximately 3,749 acres associated with the proposed Gold Rock Mine; eight acres of proposed sand and gravel extraction operations, and nine acres of transmission line for Mount

Wheeler Power Inc. Effects of the RFFAs within the CESA on soil resources would be similar to the other activities which have already occurred.

The amount of wildland fire that will occur within the reasonably foreseeable future within the CESA is unknown and not quantifiable; therefore, it was not considered for this analysis.

5.7.5 Cumulative Disturbances

The CESA for soil resources is approximately 777,116 acres of BLM, USFS, and privately-controlled lands. Of the total 777,116 acres covered by the CESA, approximately 25,342 acres of disturbance from known and quantifiable past, present, and RFFAs have occurred, which is a disturbance of approximately three percent of the CESA. The Proposed Action would increase the disturbance by 3,204 acres to approximately 28,546 acres, or about 3.7 percent of the CESA. This is a 12.6 percent disturbance increase within the CESA. Approximately 6,000 acres of this disturbance is associated with fuel reduction projects such as the three that have previously occurred within the CESA. These projects are designed to have indirect, long-term effects related to protecting vegetation from the effects of fire. In turn, these projects protect soils from erosion, compaction, and damage from fire. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

5.7.6 Cumulative Effects

Effects to soil resources under the Proposed Action would be long term and minor to moderate due to construction activities and topsoil salvage. Erosion from storm water runoff and land affected by the mine would be controlled with BMPs. All present and RFFAs within the CESA that occur on BLM and USFS land will be subject to similar BMPs. Some past activities and reclamation actions have resulted in loss of soils and long-term soil productivity due to less strict BMP and reclamation measures. Considering past, present, and RFFAs in the soil resources CESA that may affect soils combined with the Proposed Action, cumulative effects to soils would be minor because the majority of disturbance would stabilize over time.

The cumulative effects to soil resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Under the Southwest Power Line Alternative, cumulative impacts to soils would be similar to those described under the Proposed Action.

Cumulative effects to soil resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.8 Air Resources

5.8.1 CESA Boundary

The CESA for air quality encompasses hydrographic sub-basin 154 and the northern part of hydrographic sub-basin 173B to the White Pine County line, plus a boundary extension west approximately 8.2 miles to include the South West Power Line Alternative (Figure 5.5-1). The air CESA was based on the anticipated extent of air impacts from project activities.

5.8.2 Introduction

Excellent air quality generally exists in the CESA. Cumulative effects to air quality in the CESA from past, present, and RFFAs are largely from air borne dust released by mining, utility construction, vehicle travel on unpaved roads, and smoke from wildfires or prescribed burns. Grazing and timber harvesting can produce fugitive dust, but the quantities are minimal and are expected to remain approximately equal to present conditions. Travel on unpaved roads in the CESA can affect air quality from vehicle emissions and fugitive dust, but this type of use has not affected air quality measurably in the past and is not considered a concern.

The nearest Class I area is the Great Basin National Park, east of the air resources CESA.

5.8.3 Past and Present Actions

Historic development in the CESA has included mining or mineral exploration activity, limited oil and gas well exploration and development, gravel pits, the U.S. Highway 50 corridor, and power line development (Table 5.1-3). Those projects have all accounted for short- to medium-term surface disturbance and emissions. Historic vegetation management efforts have included grazing and limited prescribed burning. Smoke generated during prescribed burns has intermittent impacts on local air quality, but prescribed burns prevent more significant impacts of larger, potentially catastrophic fires that could otherwise occur.

Currently, the only two operating mineral projects in the CESA are the Barrick Bald Mountain Mine and the Midway Gold Rock exploration project. There is also mining exploration occurring within the CESA such as the Cathedral Canyon, Centennial, and Pan II exploration projects. Further, there is limited ongoing exploration for oil and natural gas in the CESA. Most of the described ongoing activities, with the possible exception of the oil and gas development, occur in higher elevations. Land management agencies maintain grazing programs with the goal of maintaining vegetation integrity, which can help minimize dust generation. The agencies are becoming more aggressive in using prescribed fires as a land management tool.

5.8.4 Reasonably Foreseeable Future Actions

Foreseeable future activities in the CESA would be similar to those that are presently occurring. Most activities, with the exception of gravel pits and potential oil and gas development, are

or would be at elevations well above the valleys where sensitive receptors (human residences) are located. Past, present, and reasonably foreseeable gravel production generates dust that could lead to moderate impacts in the immediate vicinity. Those activities are generally at lower elevations.

An industrial activity in the CESA that has the potential to have moderate impacts on sensitive human receptors is the oil and gas exploration wells and possible subsequent development or expansion of existing wells. The BLM has issued a number of leases within the valley floor locations in the CESA. Drilling activities typically include a few weeks to one month construction phase during which ground disturbances and construction activity could have a moderate impact on air quality approximately one mile downwind from the well site and within approximately 100 yards of primary access routes. During operational exploratory drilling, large diesel engines typically power the drilling rig, and any natural gas discovered is either vented into the air or is flared off until processing equipment can be put in place. Flaring or gas venting at sites that show development potential could result in moderate air quality impacts within approximately one half mile from the well. Production of oil and/or gas reserves would take some time to get started but would represent an ongoing activity for the life of the well. The extent of moderate impacts from a production well site depends on the volume of oil or gas found, how it is stored or processed on-site, how it is transported off-site, and whether well production equipment must be run on electricity, diesel, or gas. Production wells beyond moderate size are not expected in or near the CESA. The area of moderate impact for potential oil and gas field development and production would be estimated to be limited to within a two-mile radius around developed well sites and within 100 yards of primary access routes.

Federal land management decisions, including fire management and energy development, could affect air quality in the CESA. Fire management activities would be expected to have little effect region-wide but could temporarily affect local areas.

5.8.5 Cumulative Disturbances

Disturbance within the CESA associated with other activities, in combination with potential ground disturbance from the Proposed Action for the reasonably foreseeable future, would allow the wind to lift and transport fugitive dust. Reclamation to minimize wind erosion and disturbed ground would be expected after the operational life span of each project. The cumulative impact of any high elevation operations, including the proposed project, would be expected to be mostly minor in areas of public activity or exposure. Ground disturbance in the lower elevations associated with utility corridors and other listed ground disturbances increase soil wind erosion and would continue to do so in the future until reclamation is successful. The air quality impacts from ground disturbance are typically localized and minor for all but the largest areas of disturbance. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21

mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

The traffic increase generated by increases in industrial activity in the CESA has the potential for moderate air quality impacts within approximately 150 yards of dirt or gravel roads.

5.8.6 Cumulative Effects

Cumulative air quality impacts are anticipated to be minor throughout the CESA. With foreseeable new projects, impacts to region-wide air quality are expected to remain minor. However, isolated pockets of moderate impacts are possible near potential oil and gas development, vehicle access routes, and active mining projects. Foreseeable projects could extend the extent of moderate impacts to areas around a larger number of project sites, or potentially over larger areas, if or when project sizes or areas of activity expand.

Land management activities and regional growth would likely result in minor impacts to ambient air quality across the CESA over the long-term, though intermittent actions such as prescribed fire could be expected to briefly result in moderate or possibly major impacts locally.

There would be no meaningful change in cumulative impacts to air quality under the two action alternatives or the No Action Alternative.

Climate Change

The GHG emission effects from the Proposed Action or action alternatives would incrementally contribute a negligible amount to the total volume of GHG released to the atmosphere. Project-related GHG emissions are dominated by fugitive sources. Vehicular travel makes up over 87 percent of the total 68,021 tons per year of CO_2e due to the proposed project. As with the regional scale, the GHG emissions are miniscule when compared to the total GHG emissions from the state of Nevada, the United States, and the world total. Table 5.8-1 relates the project area estimated GHG emissions with larger areas.

Table 5.8-1 Comparison of GHG Emissions

IPCC Region	CO2 1995 (MMT CO_2)	CO2 2005 (MMT CO_2)	Projected CO2 2013 (MMT CO_2)	2013 Percent of World Total
Pan Mine	NA	NA	0.0617	0.00019
Nevada	35.4	47.32 (2004)	53.15	0.16
United States	5,289.26	5,956.98	6,576.8	21.34
World Total	21,989.88	28,192.74	32,341.6	100

Source: Davis et al., 2007

According to the EPA, the global average temperature has risen by 1.4°F over the past century and is expected to raise another 2°F to 11.5°F over the next century (EPA, 2012a). Increasing

the GHG emissions to the atmosphere is expected to accelerate this temperature change. It is theorized that due to these changes in climate natural resources would be affected. Changes in temperature affect precipitation and water availability, which in turn affects the distribution of wildlife and vegetation. A rise in temperature promotes precipitation more in the form of rain instead of snow, which can change seasonal availability of surface runoff, affect groundwater recharge, and increase evaporation of local water resources. Climate change causing a reduction in water resources would increase competition for water between agricultural, municipal, and industrial uses. Climate change causing an increase in precipitation would accommodate additional growth and development in the area.

It is estimated that big sagebrush habitat throughout the western United States may decrease in geographic area by 59 percent during the 21st century as a result of both land use and climate change factors. Many species are dependent on big sagebrush habitat for survival, including sage-grouse, pygmy rabbit, mule deer and pronghorn antelope. Consequently, restoring big sagebrush habitat (reclamation) may be more difficult. At the same time the exotic annual, cheatgrass has greatly expanded its range as a result of increased wildfire activity and has contributed to a loss of sagebrush density (HTNF, 2011). Disturbance caused by the Proposed Action, and its potential impacts on big sagebrush habitat, would be a cumulative impact when combined with past, present and reasonably foreseeable future climate change effects. However, given the small geographic area of the Proposed Action, and time period of the project, any impacts the Proposed Action may contribute to the loss of big sagebrush habitat would be negligible and mitigated through reclamation (Loehman 2010 and Finch 2012).

5.9 Vegetation, Including Noxious and Non-Native, Invasive Weeds and Special Status Plants

5.9.1 CESA Boundary

The CESA boundary for vegetation including noxious and non-native, invasive weeds and special status plants includes hydrographic sub-basin 154 and the portion of hydrographic sub-basin 173B north of the White Pine County line (Figure 5.5-1). The total area of this CESA is 777,116 acres. This CESA boundary was chosen because it encompasses the hydrographic sub-basin boundary; cumulative effects would be limited to this area.

5.9.2 Introduction

Disturbance within the vegetation CESA primarily includes mining and exploration, exploration notices, sand and gravel extraction operations, utility lines, oil, gas, and geothermal development, roads, wild land fires and fuel treatments, burn control, and restoration projects. Disturbance associated with these actions involves vegetation clearing, which promotes the establishment of noxious and non-native species. Vegetation species within the CESA are common and widespread throughout Nevada.

5.9.3 Past and Present Disturbances

Past mineral development and exploration actions within the CESA includes the Illipah Mine, Easy Junior Mine, Silverado Mill, and Pan Project exploration for a combined disturbance of approximately 287 acres. All or portions of these projects have not been actively reclaimed; however, natural reclamation of vegetation species has occurred over time resulting in various levels of revegetation. Present mineral development and exploration actions within the CESA include several active mines and mineral exploration projects. The Bald Mountain Mine currently has approximately 700 acres of disturbance within the CESA.

Other mining and exploration projects within the CESA include the Gold Rock Exploration Project (approximately 140 acres), the Pan II Project (approximately 17 acres), the Cathedral Canyon exploration project (approximately 5 acres), and the Centennial exploration project (approximately 2 acres). Impacts of mineral development and exploration can be long-term; however reclamation of vegetation species, whether natural or man-made, will eventually occur. Noxious and non-native, invasive weed species are more likely to establish in disturbed areas; therefore, successful reclamation assists to limit the spread of these species.

There are approximately 890 acres of past disturbance and 10.2 acres of present disturbance associated with NOIs within the CESA. There are approximately 13.5 acres of disturbance associated with sand and gravel operations and approximately 67 acres of disturbance associated with oil, gas, and geothermal development projects within the CESA. Disturbance associated with these actions would create conditions favorable to the establishment of noxious and non-native invasive weeds.

The Sierra Pacific Power Company Falcon to Gonder Power Line runs through the center portion of the CESA for a total of approximately 368 acres of disturbance. Several additional utilities, infrastructure, and public purpose projects including the Silver State fiber optic line, a fiber optic extension line, a buried fiber optic line, and a 230 kV power line are located within the CESA for a total of 265 acres of additional past disturbance. A total of 633 acres within the CESA have been previously disturbed for utility projects. While these types of disturbances do not typically result in a loss of land access, vegetation clearing from construction of utilities and access roads increases the likelihood of noxious and non-native, invasive species establishment. After construction of these projects, access roads remain maintained which creates a minor, long-term impact to vegetation in the CESA. These roads may be also utilized by those who would not have otherwise traveled to these locations (i.e., recreational use), which may lead to the spread and establishment of noxious and non-native, invasive species.

There are approximately 3,704 acres of disturbance associated with roads within the CESA. This acreage includes approximately 315 acres of United States highway, 491 acres of state road, 6 acres of local/county road, 351 acres of USFS road, and 2,497 acres of other roads (i.e., those not designated as local, county, BLM, or USFS roads). This includes but is not limited to private roads and roads with no assigned or named ownership. Establishment of roads effects vegetation for the long-term. Areas disturbed by vehicles are often slower to reestablish because the soils have been compacted. Noxious and non-native, invasive species are typically

the first species to establish, especially along road corridors and where vehicles travel off road. Vehicles that travel off road spread seeds of noxious and non-native, invasive species. Roads create access into areas that might not otherwise be accessible. This increases the risk of off-highway vehicle use which has a greater likelihood of spreading seeds of noxious and non-native, invasive species.

Approximately 8,626 acres of the CESA (approximately one percent) has previously burned as a result of wildland fire. Burned areas result in patched landscapes that create natural fire breaks and diversify habitat for wildlife; however, often burned landscapes become dominated by noxious and non-native, invasive species. In 2007, a prescribed burn (Currant Project) was conducted on approximately 3,700 aces of pinyon-juniper woodland within the CESA to reduce fuels in order to prevent large wild land fires. The 2009 Currant Triangle Pinyon-Juniper Cutting Project involved cutting and/or mowing approximately 300 acres of pinyon-juniper woodland and sagebrush to reduce fuels for fire and improve wildlife habitat.

5.9.4 Reasonably Foreseeable Future Disturbances

Foreseeable future disturbances within the CESA include approximately 474 acres of disturbance associated with Mt. Hamilton LLC Centennial-Seligman Mining Project, approximately 50 acres of exploration associated with the Wheeler Ridge Exploration Project, approximately 3,749 acres associated with the Gold Rock Mine, eight acres of proposed sand and gravel extraction operations, and nine acres of transmission line for Mount Wheeler Power Inc. Disturbance as a result of these proposed activities would likely result in vegetation removal of 4,290 acres.

The amount of wild land fire that could occur within the reasonably foreseeable future within the CESA is unknown and not quantifiable; therefore, it was not considered for this analysis.

5.9.5 Cumulative Disturbances

The CESA for vegetation including noxious and non-native, invasive weeds and special status plants is approximately 777,116 acres of BLM, USFS, and privately-controlled lands. Of the 777,116 acres covered by the CESA, approximately 25,342 acres of disturbance are associated with past, present, and RFFAs, which is a disturbance of approximately three percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 28,546 acres, or approximately 3.7 percent of the CESA. This is 12.6 percent disturbance increase within the CESA. Approximately 4,000 acres of this disturbance (less than one percent) is associated with fuel reduction projects such as the four that have previously occurred within the CESA. These projects are designed to have indirect, long-term effects related to protecting vegetation from the effects of fire and improve conditions for various vegetation species. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the

American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

Disturbance associated with the Proposed Action to vegetation, including noxious and non-native invasive weeds, would be approximately 3,204 acres of vegetation removal much of which would be reclaimed.

For those projects with a federal nexus, reclamation and continued monitoring until successful establishment of vegetation species within disturbed areas associated with the past, present, and RFFA, including the Proposed Action, would result in improved vegetation composition, limit the spread and establishment of noxious and non-native invasive species, and reduce erosion potential within the CESA.

5.9.6 Cumulative Effects

Considering past, present, and RFFA disturbances in the vegetation CESA combined with the Proposed Action, cumulative effects to vegetation including noxious and non-native, invasive weeds and special status plants resources would be minor because the vegetation community types are common and widespread throughout the CESA.

The cumulative effects to vegetation resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to vegetation resources under the Southwest Power Line Alternative would be similar to those due to the Proposed Action. The additional disturbance of 68 acres of vegetation due to construction and maintenance of the power line and associated maintenance road would not significantly increase the impact to vegetation resources.

Cumulative effects to vegetation resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.10 Wildlife Resources, Including Special Status Wildlife, and Migratory Birds

5.10.1 CESA Boundary

The wildlife CESA includes two boundaries, general wildlife resources, migratory birds, and golden eagles, including the project area and a ten-mile buffer, and greater sage-grouse, including the Diamond and Butte/Buck/White Pine PMUs (Figure 5.10-1).

General Wildlife and Golden Eagles

The CESA boundary including the ten-mile buffer is 370,509 acres. The area within the ten-mile buffer was used to analyze effects to general wildlife because it incorporates the wildlife habitat within and adjacent to the project area where most of the impacts may occur from the Proposed Action (Section 4.8.2). This area was also used for golden eagles at the direction of the USFWS because it accounts for the golden eagle home range areas that may be impacted. As described in Section 4.8.2, effects from the Proposed Action on migratory birds would be long term and minor, and the effects from the Proposed Action on pygmy rabbits would be long term and negligible to minor. Cumulative effects to migratory birds and pygmy rabbits would be limited to the same 10-mile buffer as was used to analyze cumulative effects for general wildlife and golden eagles because it incorporates the area where most of the impacts to migratory birds and pygmy rabbits would occur.

Greater Sage-grouse

The total area of both PMUs is 3,657,236 acres. The Diamond PMU and the Butte/Buck/Bald PMU were used to analyze effects to the special status species greater sage-grouse because it covers where greater sage-grouse occur within and adjacent to the project area, and these units represent areas where greater sage-grouse are managed in Nevada.

5.10.2 Introduction

General Wildlife and Golden Eagles

According to the Ecoregional Gap Analysis Program of the Southwest United States, the following dominant vegetation community types occur within the ten-mile buffer: great basin foothill and lower montane riparian woodland and shrubland; great basin pinyon-juniper woodland; great basin xeric mixed sagebrush shrubland; inter-mountain basins big sagebrush shrubland; inter-mountain basins big sagebrush steppe; inter-mountain basins cliff and canyon; inter-mountain basins montane sagebrush steppe; inter-mountain basins mountain mahogany woodland and shrubland; inter-mountain basins playa; inter-mountain basins semi-desert grassland; inter-mountain basins subalpine limber-bristlecone pine woodland; inter-mountain west aspen-mixed conifer forest and woodland complex; inter-mountain basins mixed salt desert scrub; inter-mountain basins semi-desert shrub steppe; inter-mountain basins greasewood flat; inter-mountain basins montane sagebrush steppe; North American arid west emergent marsh; rocky mountain alpine bedrock and scree; rocky mountain aspen forest and woodland; rocky mountain montane dry-mesic mixed conifer forest and woodland; rocky mountain montane mesic mixed conifer forest and woodland; rocky mountain subalpine dry-mesic spruce-fir forest and woodland; rocky mountain subalpine mesic spruce-fir forest and woodland; invasive annual and biennial forbland; invasive annual grassland; and invasive perennial grassland.

Past and present actions within this area have likely resulted in both beneficial and negative impacts, at various levels, on wildlife. The foremost effect to wildlife within the area has been habitat changes associated with past and present mineral development and exploration activities, and grazing. Quantified past and present disturbances measure approximately 2,883 acres or less than one percent of the CESA (Table 5.1-3). Other effects that are not quantified have included the majority of historic mineral development and exploration, noise disturbance/displacement from mineral development and exploration, roads, and recreational activities.

Effects related to land use include loss of habitat, displacement, and fragmentation as a result of mineral development and exploration, roads, fuels treatments, and recreation. Specific to small and less mobile wildlife species (i.e., small mammals, amphibians, and reptiles), past effects from direct crushing and mortality by livestock, large wild ungulates, and vehicles would likely also occur within the CESA. In addition, grazing can contribute effects by increasing competition for forage and changes in the structure or composition of native plant communities. Grazing within the wildlife CESA is conducted in compliance with standards and guidelines contained in the Ely District Office Resource Management Plan (BLM, 2008b).

Greater Sage-Grouse

Past and present actions within both greater sage-grouse PMUs would likely result in negative impacts, at various levels, on greater sage-grouse although some, such as pinyon juniper removal projects, may eventually have a positive effect on the populations within the CESA, and particularly their habitats. The foremost effects to greater sage-grouse within the area are habitat changes associated with past and present mineral development and exploration activities, roads and utilities, wild land fire, and seedings and restoration projects. Nest predation by common ravens may also have an effect on greater sage-grouse populations. Ravens can have substantial predatory impacts on prey species such as sage-grouse. Raven numbers have increased 300 percent in the western United States since 1980 (Coates and Delehanty, 2010). Quantified past and present disturbances measure approximately 144,272 acres or approximately four percent of the CESA (Table 5.1-3). Other effects that are not quantified include the majority of historic mineral development and exploration, noise disturbance/displacement from mineral development and exploration, roads, and recreational activities. In addition, grazing can contribute effects by increasing competition for forage and changes in the structure or composition of native plant communities.

5.10.3 Past and Present Disturbances

General Wildlife and Golden Eagles

Within the ten-mile buffer, major past and present disturbances to wildlife habitat have resulted from mineral development and exploration activities (694 acres quantified), oil gas and geothermal development (49 acres quantified), utility lines (449 acres quantified), recreation, existing roads (1,951), and livestock grazing.

Figure 5.10-1 Wildlife CESA

Past and present disturbances from mineral development and exploration activities have resulted in fragmentation of certain wildlife populations and their habitats, including migratory birds, pygmy rabbits, and golden eagle. Fragmentation effects within the ten-mile buffer have not been quantified by the land management agencies as quantification is very difficult because no studies are available.

Past and present disturbances from oil/gas and geothermal development activities as well as other utility line activities have resulted in disruption of certain wildlife populations and their habitats, including migratory birds, pygmy rabbits, and golden eagle. The relatively small area that has been impacted by these past and present activities (less than one percent of the CESA) would likely result in minor and temporary impacts. Fragmentation effects within the ten-mile buffer have not been quantified by the land management agencies as quantification is very difficult.

Human presence tends to disturb many species of wildlife throughout their habitats. Past and present recreational uses in the area include hunting, fishing, all-terrain vehicle (ATV) and Off Highway Vehicle (OHV) use, camping, and picnicking. Human disturbance during periods of the year when wildlife are otherwise stressed, due to a lack of forage and/or harsh weather (as occurs during the winter season), can further stress wildlife and may increase mortality. Activity during the breeding seasons for some species can lead to reduced reproductive success.

Road construction and use tends to fragment wildlife habitats and leads to increased mortalities for certain species within their habitats. However, some positive impacts may be realized by those species, such as raptors and scavengers, that benefit from increased carrion (i.e., road kill) within their habitats. In general, roads lead to increased direct mortality from vehicle collisions.

In general, wildlife are affected by livestock grazing due to competition for forage, direct mortality by trampling (i.e., amphibians and reptiles or nests of ground-nesting birds), and habitat removal/conversion. Reduction to grass understory can also impact nesting success, predation, and wildfire regimes. Proper rotation and stocking rates can minimize impacts to wildlife.

Past and present disturbance affecting migratory birds and pygmy rabbits has likely been the same as described for wildlife and golden eagles. Impacts from past and present actions on migratory birds and pygmy rabbits include vegetation removal which reduces potential habitat, forage and nesting area. Past and present disturbance and associated impacts on migratory bird populations has been minimized with the implementation of the MBTA as amended in 1972. Any disturbance that has occurred or is currently occurring within the migratory bird breeding season would require pre-construction surveys to identify nesting migratory birds prior to surface disturbance. In addition, the proposed EPMs outlined in Section 2.3.14 and the required pre-disturbance clearance surveys required for the Proposed Action would minimize potential impacts to pygmy rabbits.

Greater Sage-Grouse

Within both greater sage-grouse PMUs, past and present disturbances to greater sage-grouse habitat have resulted from the following: mineral development and exploration activities (12,891 acres quantified); oil/gas and geothermal activities (337 acres); utilities, infrastructure and public purpose activities (4,671 acres); urban development (164 acres); roads (21,038 acres); recreation (40 acres); wild land fire, seeding and restoration activities (105,131 acres); and livestock grazing.

Past and present disturbances from mineral development/exploration, oil/gas, and geothermal development activities can result in fragmentation of greater sage-grouse populations and their habitats. Effects from these activities cause increased ambient noise levels, which may have disturbed greater sage-grouse breeding, nesting, and brood rearing behavior. Direct mortalities and further habitat fragmentation from roads associated with these activities may have also occurred. Effects from these activities within the CESA have not been quantified by the land management agencies as quantification is very difficult.

Past and present disturbances from utilities, infrastructure and public purpose activities as well as other utility line activities have resulted in disruption of certain wildlife populations and their habitats, including sage-grouse. The relatively small area that has been impacted by these past and present activities would likely result in minor and temporary impacts. Fragmentation effects within the CESA have not been quantified by the land management agencies as quantification is very difficult.

Past and present disturbances from urban development activities would likely result in little or no effects to greater sage-grouse as they tend to be associated with areas adjacent or within previous urban disturbance and development. The relatively small area that has been impacted by these past and present activities would likely result in negligible and temporary impacts.

Road construction and use tends to fragment wildlife habitats and leads to increased mortalities for greater sage-grouse within their habitats. Mortalities may be direct from vehicle collisions or indirect from habitat fragmentation effects or other repercussions such as increased ambient noise levels which may lead to habitat avoidance or interfere with breeding activities.

Human presence in the form of recreation tends to disturb many species of wildlife throughout their habitats. Past and present recreational uses in the area include hunting, fishing, ATV/OHV use, camping, and picnicking. Human disturbance during periods of the year when wildlife are otherwise stressed, due to a lack of forage and/or harsh weather (as occurs during the winter season), can further stress wildlife and may increase mortality.

Wildland fire destroys greater sage-grouse habitat and leads to conversion from sagebrush dominant vegetation cover types to invasive annual grassland monocultures which have little or no value to the species. Wildlife fire fragments wildlife habitats and leads to increased direct and indirect mortalities of greater sage-grouse within their habitats. Reseeding and restoration activities post wild land fire may have positive results on greater sage-grouse habitats although

the effects from these activities are often not realized for many years until desirable plants have had an opportunity to become established.

In general, greater sage-grouse can be affected by livestock grazing due to competition for forage and habitat removal/conversion. Reduction to grass understory can also impact nesting success, predation, and wildfire regimes. Proper rotation and stocking rates can minimize impacts to wildlife.

5.10.4 Reasonably Foreseeable Future Disturbances

General Wildlife and Golden Eagles

Reasonably foreseeable future disturbances within this CESA include mineral development and exploration (4,273 acres quantified) and sand and gravel operations (8 acres quantified). These activities may lead to displacement and habitat fragmentation for general wildlife and golden eagles. Fragmentation effects within the CESA have not been quantified by the land management agencies as quantification is very difficult. Impacts from RFFAs on migratory birds and pygmy rabbits would be similar to those described for general wildlife and golden eagles, and would include vegetation removal which may reduce potential habitat, forage and nesting area.

Greater Sage-Grouse

Reasonably foreseeable future disturbances within this CESA include mineral exploration (18,870 acres quantified) and sand and gravel operations (13 acres quantified). Effects from these activities may cause increased ambient noise levels, which may disturb greater sage-grouse breeding, nesting, and brood rearing behavior. Direct mortalities, displacement and habitat fragmentation may also occur. Fragmentation effects within the CESA have not been quantified by the land management agencies as quantification is very difficult.

5.10.5 Cumulative Disturbances

General Wildlife and Golden Eagles

Of the 370,509 acres covered by the General Wildlife and Golden Eagles CESA, 7,164 acres of disturbance are associated with past, present, and RFFAs, which is a disturbance of approximately two percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 10,368 acres, or approximately 2.8 percent of the CESA. This is a 44.7 percent disturbance increase within the CESA.

Specific to general wildlife and golden eagles, wildlife displacement and habitat fragmentation from mineral development and exploration activities decreases survival and reproduction rates of affected individuals to some degree and increases competition.

Implementation of the Proposed Action would potentially result in displacement of less mobile small mammals, predatory mammals, and reptiles (general wildlife); displacement of golden eagles from one known nesting territory located within the project area; and dispersal of wildlife and some forms of recreation (hiking, hunting, ATV use, etc.) from the project area and surrounding habitat into adjacent undisturbed areas. Thus, displacement of some forms of

recreation from these alternatives has the potential to result in a minor cumulative effect to general wildlife and golden eagles for the duration of the Proposed Action as a result of the past and present effects from recreation on wildlife in the CESA.

Impacts from cumulative disturbance on migratory birds and pygmy rabbits would be similar to those described for general wildlife and golden eagles. The effects of past, present, and reasonably foreseeable future disturbances would be minimized with the implementation of the MBTA and associated pre-construction surveys during the migratory bird breeding season, as well as the pre-disturbance clearance surveys required prior to any disturbance of pygmy rabbit habitat. Impacts of cumulative surface disturbance would potentially result in fragmentation and loss of habitat within the area; however, impacts would be negligible to minor since adjacent habitat contains similar suitable foraging and nesting habitat.

The Gold Rock Project Proposed Action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

The effects of past management activities in the CESA on these species is not known. Any future management activities must meet standards and guidelines specifically developed to protect habitat for these species on public lands, thus future management activities should result in negligible to minor cumulative effects to these species via habitat losses and displacement.

Greater Sage-Grouse

Of the 3,657,236 acres covered by the greater sage-grouse CESA, 204,708 acres of disturbance are associated with past, present, and RFFAs, which is a disturbance of approximately 5.6 percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 207,912 acres, or about 5.7 percent of the CESA. This is a 1.6 percent disturbance increase within the CESA.

Specific to greater sage-grouse impacts from mineral development and exploration activities, decreases survival rates (i.e., decreased breeding, nesting, and brood survival) of affected individuals primarily through increased ambient noise levels, habitat fragmentation, and direct mortalities associated with collisions with vehicles, fences, and transmission lines.

The effects of past management activities in the CESA on greater sage-grouse is not known. Any future management activities must meet standards and guidelines specifically developed to protect habitat for greater sage-grouse on public lands, thus future management activities

should result in negligible to minor cumulative effects to these species via habitat losses and displacement.

5.10.6 Cumulative Effects

General Wildlife and Golden Eagles

Impacts from past, present, and RFFA in conjunction with the Proposed Action to general wildlife and golden eagles would result in cumulative displacement and habitat fragmentation. Impacts from past, present, and RFFA in conjunction with the Proposed Action to migratory birds and pygmy rabbits would result in similar impacts as described for general wildlife and golden eagles including cumulative habitat loss.

Cumulative effects to general wildlife golden eagles, pygmy rabbits and migratory birds are expected to be long term and negligible to minor, and cumulative effects due to displacement of wildlife would be negligible because the Proposed Action combined with past, present and RFFAs would only be approximately 2.8 percent of the CESA. In addition, the disturbance resulting from the Proposed Action would mostly be reclaimed after mining operations are completed which would help to reduce the long term impacts to general wildlife, golden eagle, pygmy rabbit and migratory bird habitat.

The cumulative effects to general wildlife, golden eagle, pygmy rabbit and migratory birds under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to general wildlife, golden eagle, pygmy rabbit and migratory birds under the Southwest Power Line Alternative would be similar to those under the Proposed Action and would be long term and negligible to minor.

Greater Sage-Grouse

Impacts from past, present, and RFFA in conjunction with the Proposed Action to greater sage-grouse would result in cumulative displacement and habitat fragmentation. The USGS study (Section 4.8) could potentially reveal additional greater sage-grouse movement patterns. Potential impacts associated with increased ambient noise levels throughout the CESA would include decreased greater sage-grouse breeding, nesting, and brood rearing activity from increased ambient noise levels associated with past, present, and RFFAs in combination with the Proposed Action.

Cumulative effects to greater sage-grouse are expected to be long term and moderate for activities associated with the Proposed Action because disturbance associated with the Proposed Action combined with past, present and RFFAs would only be approximately 5.7 percent of the CESA. In addition, the disturbance resulting from the Proposed Action would mostly be reclaimed after mining operations are completed, which would help to reduce the long term impact to greater sage-grouse habitat.

The cumulative effects to greater sage-grouse under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to greater sage-grouse resources under the Southwest Power Line Alternative would be long term and minor as it would reduce impacts on greater sage- grouse, as it moves the power line further from two active leks, it follows existing linear features in PPH and it impacts 1,441 fewer acres of PPH habitat than the Proposed Action. This alternative also reduces future habitat fragmentation by reducing powerlines associated with RFFAs, specifically the American Vanadium Gibellini Mine.

5.11 Range Resources

5.11.1 CESA Boundary

The CESA boundary for range resources includes the full extent of the Newark, South Pancake, and Duckwater grazing allotments. The total area of this CESA is 1,157,124 acres of BLM and privately controlled lands (Figure 5.5-1). This CESA boundary was chosen because it encompasses the allotments and the permitted range uses that are associated with the Proposed Action.

5.11.2 Introduction

Cumulative effects to range resources in the CESA primarily occur from mining and exploration POOs, exploration notices, sand and gravel extraction operations, utility lines, oil gas, and geothermal development, roads, wildfires, fuel treatments, burn control, and restoration projects. These activities often modify landscapes and remove vegetation resources that would otherwise be available for range resources. These disturbance activities also increase the likelihood of noxious and non-native, invasive species establishment. Acres of disturbance in the sections below are presented in Table 5.1-3.

5.11.3 Past and Present Disturbances

There are several past and present mineral development and exploration projects located within the CESA for a total of approximately 415 acres of disturbance. These projects include the Easy Junior Mine, Silverado Mill, the Gold Rock and Pan Project exploration activities. Extraction and exploration of mineral resources directly removes land from range resources use and increases the likelihood of spreading noxious and non-native invasive species. These species reduce the amount of usable range and available forage.

Approximately 640.7 acres of disturbance is associated with NOIs within the CESA. There are approximately eight acres of disturbance associated with sand and gravel operations, and another 140 acres of disturbance associated with oil, gas, and geothermal development projects within the CESA. Disturbances associated with these actions increases the likelihood of spreading noxious and non-native invasive species. These species reduce the amount of usable range and available forage.

The Sierra Pacific Power Company Falcon to Gondor power line runs through the northern portion of the CESA for a total disturbance of approximately 388 acres. Several additional utilities, infrastructure, and public purpose projects such as power lines and fiber optic lines are located within the CESA for a total of 255 acres of additional disturbance. A total of 643 acres within the CESA have been previously disturbed for utility projects. While this disturbance does not typically reduce access to range resources, vegetation clearing from construction of utilities and access roads increases the likelihood of noxious and non-native, invasive species establishment; therefore, reducing the amount of forage available for range resources.

There are approximately 4,725 acres of disturbance associated with roads within the range resources CESA. This acreage includes approximately 264 acres of United States highways, 578 acres of state routes, 21 acres of local and county roads, 32 acres of BLM roads, 12 acres of USFS roads, and 3,818 acres of other roads (e.g., private roads and roads without an assigned name or ownership).

Approximately 144 acres of the CESA has previously burned. Disturbance associated with unreclaimed wildfire areas is often naturally reestablished with noxious and non-native invasive species such as cheatgrass. These species reduce the amount of useable range and available forage.

5.11.4 Reasonably Foreseeable Future Disturbances

Foreseeable future disturbances within the CESA includes approximately 3,749 acres of proposed disturbance from the Gold Rock Mine, and approximately eight acres of proposed sand and gravel operations. Disturbance as a result of these proposed activities will remove approximately 3,757 acres from utilization by range resource use.

5.11.5 Cumulative Disturbances

Grazing would be postponed within the Proposed Action footprint until full reclamation of the disturbed areas occurs and land managers agree that the reclamation is suitable for range resource use.

The CESA for range resources is 1,157,124 acres (approximately 28,928 AUMs) of BLM and privately controlled lands. Of the total 1,157,124 acres covered by the CESA, approximately 12,473 acres of disturbance (approximately 312 AUMs) are associated with known and quantifiable past, present, and RFFAs, which is a disturbance of approximately one percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres (80 AUMs) to approximately 15,677 acres, or approximately one percent of the CESA. This is a 25.6 percent disturbance increase within the CESA. Reclamation and continued monitoring until successful establishment of vegetation species would result in improved range resources. Livestock grazing on the three allotments within the CESA would continue to occur into the reasonably foreseeable future. Cumulative disturbance to range resources within the CESA would be less than one percent. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project

which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

5.11.6 Cumulative Effects

Considering past, present, and RFFA disturbances in the range resources CESA, combined with the Proposed Action, cumulative effects to grazing resources would be negligible because range resources and vegetation community types are common and widespread throughout the CESA. Range displacement would be negligible to minor, and vegetation resources would be restored after successful reclamation.

The cumulative effects to range resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to range resources under the Southwest Power Line Alternative would be similar to those under the Proposed Action.

5.12 Wild Horses

5.12.1 CESA Boundary

The CESA boundary for wild horses includes the Pancake HMA, the Sand Springs West HMA, and the Monte Cristo Wild Horse Territory (Figure 5.5-1). The total area of this CESA is 1,096,997 acres. This CESA boundary was chosen because it encompasses the HMAs that include the project area as well as the adjacent use areas.

5.12.2 Introduction

Cumulative effects to wild horses in the CESA primarily occur from mining and exploration POOs, exploration notices, sand and gravel extraction operations, utility lines, roads, and wildfires. These activities often modify landscapes and remove vegetation resources that would otherwise be available for wild horse use. These disturbance activities also increase the likelihood of noxious and non-native, invasive species establishment which reduces the amount of available forage vegetation. Acres of disturbance in the sections below are presented in Table 5.1-3.

5.12.3 Past and Present Disturbances

Past and present mineral development and exploration projects located within the CESA include the Easy Junior Mine (232 past acres and 140 present acres associated with the Gold Rock Exploration Project), Pan Project exploration (12.3 acres), the Pan II Project (17 acres), the Centennial Exploration project (2 acres), and the Cathedral Canyon exploration project (5 acres)

for a total past and present disturbance of approximately 408 acres. Extraction and exploration of mineral resources directly removes vegetation from lands that could be used as cover and forage for wild horse use. Vegetation clearing activities increase the likelihood of spreading noxious and non-native invasive species. These species can further reduce the amount of available forage. Noise and increased human activity has the ability to displace herds into adjacent areas.

There are approximately 485 acres of past disturbance and 10.8 acres of present disturbance associated with NOIs within the CESA. There are approximately four acres of disturbance associated with sand and gravel operations and approximately 140 acres of disturbance associated with oil, gas, and geothermal development projects within the CESA. Disturbances associated with these actions increase the likelihood of spreading noxious and non-native invasive species. These species reduce the amount of usable range and available forage.

There are approximately 3,101 acres of disturbance associated with roads within the CESA. This acreage includes approximately 327 acres of United States highways, 196 acres of state routes, 155 acres of local and county roads, 389 acres of BLM roads, 12 acres of USFS roads, and 2,022 acres of other roads. Other roads are classified as roads not designated as local, county, BLM, or USFS roads. This includes but is not limited to private roads and roads without an assigned name or ownership. Risk of vehicular collisions and displacement increases with an increase in human activity. Approximately 49 acres of the CESA has previously burned. Disturbance associated with unreclaimed wildfire areas is often naturally reestablished with noxious and non-native invasive species such as cheatgrass. These species reduce the amount of useable range and available forage.

5.12.4 Reasonably Foreseeable Future Disturbances

Foreseeable future disturbances within the CESA include approximately 474 acres proposed disturbance associated with the Mt. Hamilton LLC Centennial Seligman Mining Project, approximately 50 acres of proposed disturbance associated with the Nekekim Mining Project, approximately 4.5 acres of proposed sand and gravel operations, approximately 50 acres of proposed disturbance associated with the Wheeler Ridge Mineral Exploration Project, and approximately 3,749 acres proposed disturbance associated with the Gold Rock Mine, for a total of approximately 4,328 acres. Disturbance as a result of these proposed activities would likely remove all 4,328 acres from utilization by wild horses.

5.12.5 Cumulative Disturbances

Resources associated with wild horses can be affected by mining disturbances such as the Proposed Action by directly removing cover and forage vegetation, automobile collisions, and displacement/disturbance from increased human activity. Although the mining activities associated with the Proposed Action would be temporary within the management areas, resources would be removed that could otherwise be utilized by wild horses.

The CESA for wild horses is 1,096,997 acres of BLM and USFS lands. Of the total 1,096,997 acres covered by the CESA, approximately 8,386 acres of disturbance are associated with past, present, or RFFAs, which is a disturbance of less than one percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 11,590 acres, or approximately one percent of the CESA. This is 38 percent disturbance increase within the CESA. Reclamation and continued monitoring until successful establishment of vegetation species within the disturbed areas associated with the past, present, and RFFAs would result in improved range resources. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1). There are little to no anticipated areas of significant importance to wild horses such as water resources within the portion of the CESA that wild horses would be displaced from (Sections 3.2, 4.2, and 5.5). Wild horses located within the Pancake HMA, Sand Springs West HMA, and Monte Cristo Wild Horse Territory would likely utilize forage throughout the remainder of undisturbed lands within the CESA.

5.12.6 Cumulative Effects

Cumulative effects to wild horses under the Proposed Action or alternatives in conjunction with past, present, and RFFAs would be long term and negligible to minor because the resources and vegetation community types used are common and widespread throughout the area. No areas of significant use by wild horses would be disturbed within the CESA. Wild horse displacement would be temporary, and vegetation resources would be restored after successful reclamation.

The cumulative effects to wild horse resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to wild horse resources under the Southwest Power Line Alternative would be similar to those under the Proposed Action.

Cumulative effects to wild horse resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.13 Cultural Resources

5.13.1 CESA Boundary

The CESA boundary for cultural resources includes the (Historic) Eureka Mining District, the (Historic) Pancake Mining District, the American Vanadium Gibellini Mine, and the Historic Lincoln Highway. The total area of this CESA is 112,226 acres (Figure 5.5-1). This CESA boundary was chosen because it encompasses the project area as well as the area of historic activities associated with the cultural resource sites in and around the project area.

5.13.2 Introduction

Cultural resources potentially vulnerable to cumulative effects include prehistoric sites, historic sites, historic structures, and TCPs. The incremental degradation of the resources reduces the information and interpretive potential of historic properties.

Approximately 108,277 acres of the CESA are managed by the BLM. This equates to 96.5 percent of the CESA under federal regulatory oversight. The remaining land includes 3,949 acres (3.5 percent) of private lands, which are subject to Section 106 of NHPA when a project is considered a federal undertaking. The primary land uses in the CESA include mining and ranching/livestock grazing.

5.13.3 Past and Present Disturbances

Past and present disturbances to cultural resources in the CESA are the result of mining, road construction and maintenance, above and below ground utilities, ranching/livestock grazing, residential and community development, fire, and likely vandalism and/or unauthorized artifact collection. The past and present land uses in the CESA could result in the loss, disturbance, theft, and burial of cultural artifacts and sites, as well as the modification and alteration of the setting of cultural sites and resources. The incremental degradation of cultural resources reduces the information and interpretive potential of historic properties.

Development on state and federal lands requires that cultural resource surveys be conducted to determine the presence of cultural resource sites eligible for listing on the National Register; there is no such requirement for disturbance on private lands unless there is a federal or state nexus. As directed by Section 106 of the NHPA, National Register-eligible sites are generally avoided or mitigated if avoidance is not possible for projects with a federal or state nexus. Projects/development disturbances conducted prior to 1966 (i.e., prior to NHPA) and/or those without a federal or state nexus generally did not identify/quantify cultural resource sites or impacts to them.

Sites that have been determined to be ineligible for the National Register did not require avoidance, have been discharged from management, and therefore could be impacted by the activities requiring the cultural resource inventory (i.e., development, utility installation, fence projects, road construction, etc.).

Past and present actions have disturbed approximately 3,485 acres (3.2 percent) of the CESA. Mining disturbances (1,435 acres) have included the Easy Junior, Windfall Ventures, and Ruby Hill Mine as well as exploration projects including the Gold Rock Exploration Project, Lookout Mountain Exploration Project, Pan Exploration Project, and Pan II Exploration Project. Road construction and maintenance has disturbed 1,549 acres; this includes portions of U.S. Highway 50 and SR 379, as well as unnamed miscellaneous roads. Additional past and present activities/disturbances in the CESA include the Falcon to Gonder power line, other miscellaneous local power lines, the Eureka County landfill, the Eureka County fairgrounds, a small amount of oil and gas development, and wildfire. Lastly the Eureka Canyon subdivision is an approved project currently under development with a 164-acre area of disturbance.

5.13.4 Reasonably Foreseeable Future Disturbances

The reasonably foreseeable disturbances in the CESA include continued mining operations, a new mining operation (American Vanadium Gibellini Mine), utility development, and land fill expansion. These are expected to disturb an additional 4,718 acres within the CESA; however, if there is a federal or state nexus, avoidance and/or mitigation of impacts to NRHP-eligible cultural resources would be required. Other unquantifiable disturbances would likely include road maintenance, grazing, vegetation management, and recreational activities.

Changes to private agricultural lands within the CESA are possible as some of these lands could be converted in the future from traditional agricultural utilization (ranching) to more residential and recreational utilization. The agencies are not aware of any such specific plans and these cannot be evaluated for this cumulative effects analysis.

Recreational use is expected to increase. Increases in dispersed recreational use of the area increases the potential for vandalism and/or artifact collection at cultural sites.

5.13.5 Cumulative Disturbances

Past, present, and RFFA disturbance to cultural resources in the CESA have been and would be the result of mining activities, road development, utility development, oil and gas development, ranching/livestock grazing, private development, and likely vandalism and unauthorized artifact collection. Private development and vandalism/unauthorized artifact collection are not quantifiable. Of the total 112,226 acres covered by the Cultural Resources CESA, 8,203 acres of disturbance are associated with past, present, or RFFAs, which is a disturbance of approximately seven percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 11,407 acres, or about 10 percent of the CESA. This is an 39 percent disturbance increase within the CESA. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US

Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

5.13.6 Cumulative Effects

Current and future development will contribute to the cumulative effects, both direct and indirect, on prehistoric and historic cultural resources in the CESA. All proposed, reasonably foreseeable developments would be completed under the oversight of Section 106 of NHPA if there were a federal or state nexus and thus project impacts would be individually addressed. Impacts to specific cultural resources would depend on the exact project location and extent of ground disturbance, as well as land jurisdiction. Section 106 of the NHPA requires avoidance and/or mitigation of impacts to NRHP-eligible cultural resources by federal undertakings. However, cumulative impacts to cultural resources from reasonably foreseeable projects would mostly result from ground disturbance related to new residential, commercial, or industrial developments on private lands without regulatory oversight.

Development of the Proposed Action would be 2.9 percent of the CESA and may contribute to the loss of site integrity of NRHP-eligible historic properties, if they could not be avoided by project design. This impact, in addition to other reasonably foreseeable future activities on federal or state lands would be minor. Data recovery of NRHP-eligible sites that could not be avoided would expand the regional database and knowledge of prehistoric and historic contexts. The mitigation measures developed to avoid direct impacts to cultural resources would also minimize contributions to cumulative effects. Cumulative impacts to cultural resources from past, present, and reasonably foreseeable future activities would be minor to moderate.

Increased disturbance from multiple actions could result in cumulative adverse impacts to as yet unknown cultural resource sites. Increased accessibility created by new roads built in association with projects can cause cumulative impacts related to increased public visitation, recreational impacts, unauthorized artifact collection, and vandalism.

Cumulative impacts to prehistoric and historic resources would be little different under any of the action alternatives. In contrast, selection of the No Action Alternative would result in no additional impacts to prehistoric and historic resources other than those already authorized. However, the cultural resource inventories conducted in support of the proposed project and others expand the regional database and knowledge of prehistoric and historic contexts.

5.14 Land Use and Access

5.14.1 CESA Boundary

The CESA boundary for land use and access includes White Pine County, U.S. Highway 50 from Eureka Township to Ely, and Fish Creek Road (SR 379) from U.S. Highway 50 to the White Pine/Nye County line (Figure 5.14-1). The total area of this CESA is 5,695,931 acres. This CESA boundary was chosen because it encompasses all of White Pine County, which is where the Proposed Action occurs, and includes the major transportation routes to the Proposed Action.

5.14.2 Introduction

White Pine County is comprised predominantly of federally-managed lands with approximately 96 percent of White Pine County lands being administered by federal agencies, mainly BLM and the USFS (PLUAC, 2007). Land use within the CESA consists mainly of agriculture, livestock grazing, mineral development and exploration, recreation, wildlife habitat, urban development, and renewable energy development. However, mining, agriculture, livestock grazing, and recreation are the predominant land uses within the CESA, and urban development (i.e., residential, commercial, and industrial) has historically been very nominal within White Pine County (White Pine County, 2009).

5.14.3 Past and Present Disturbances

Past and present disturbances that have affected land use and access in the CESA include metallic and non-metallic mineral extraction and exploration; utilities, infrastructure and public purpose projects; roads; wild land fires; and USFS and BLM restoration and treatment projects. Total past and present surface disturbance within the CESA is 179,259 acres, which is approximately three percent of the CESA.

There are approximately 583,679 acres of wilderness areas; 82,400 acres of national and state parks; and 10,349 acres of the Ruby Lake National Wildlife Refuge within the CESA. Whereas WSAs, wilderness areas, and national and state parks do not add to the cumulative surface disturbance within the CESA, they have a long-term impact since they restrict land use and access to varying degrees.

There has been approximately 486 acres of surface disturbance associated with past mining activities, which has been largely unreclaimed. In addition, approximately 2,515 acres of past disturbance are associated with NOIs. Present mining operations include Bald Mountain Mine and the Robinson Mine, as well as several exploration projects on USFS-administered land. Approximately 9,213 acres of disturbance are associated with present non-metallic and metallic mining or exploration operations. Land use and access are typically restricted in active mining operations. Impacts from mining operations can be long-term if left unreclaimed; however, impacts are typically short-term until reclamation is completed. The total disturbance area for past and present mineral development and exploration actions within the CESA is approximately 12,215 acres.

Figure 5.14-1 Land Use and Access, Visual Resources, Recreation and Wilderness, and Socioeconomics CESAs

Total surface disturbance from past and present power lines and fiber optic lines is approximately 3,461 acres. The Yelland Field Airport in Ely, the Nevada Northern Railroad, and the Ely Class I landfill has a total surface disturbance of approximately 5,458 acres within the CESA. Total past and present surface disturbance within the CESA from past and present utilities, infrastructure, and public purpose projects is approximately 8,919 acres. Power lines and fiber optic lines have a short-term impact on land use and access with impacts mainly occurring during construction. Impacts from landfills, airports, and railroads often have long-term impacts to land use and access since other land uses and access are restricted as long as the facilities remain in operation.

The renewable energy infrastructure within the CESA includes wind turbines and geothermal wells. The Spring Valley Wind Generation Wind Farm is within the CESA and has a surface disturbance of approximately 517 acres. There are several warm heat wells and permitted geothermal wells within the CESA. Surface disturbance within the CESA associated with the geothermal wells is approximately 322 acres. Disturbance associated with renewable energy facilities often has long-term impacts since land use and access are restricted as long as the projects remain in operation.

Several United States and state roads, county/local roads, and other roads are within the CESA. These roads include BLM roads, USFS roads, private roads, and other unimproved roads. Including U.S. Highway 50 and SR 379, which are part of the CESA, there is approximately 36,108 acres of disturbance within the CESA associated with roads. Impacts resulting from roads are long-term.

From 1999 to 2008, wildland fires burned approximately 45,618 acres within the CESA. Wildfires can create impacts on land use primarily for livestock grazing, agriculture and recreation. The USFS and the BLM have performed mowing and seeding, juniper/pinyon cutting and removal, and burn and restoration treatments on approximately 75,561 acres within the CESA. These impacts are typically short-term until revegetation and/or restoration are complete.

5.14.4 Reasonably Foreseeable Future Disturbances

RFFA within the CESA consist of mineral development and exploration activities, utilities and infrastructure, restoration and seeding projects, and limited urban development. Total surface disturbance associated with RFFA is approximately 81,169 acres, which represents approximately 1.4 percent of the CESA.

There are several proposed or pending mining or exploration operations within the CESA, which includes the Barrick Gold US, Inc. Bald Mountain Mine, South Operations, which includes mining at Alligator Ridge and Yankee Mine; the Bald Mountain Mine, North Operations Expansion, which encompasses and expands the Casino/Winrock Mine, White Pine Mine, and the Bald Mountain Mine North Operations; the Mount Hamilton LLC Centennial-Seligman Mining Project, and the Gold Rock Mine. Total disturbance resulting for RFFAs from mineral development and exploration is approximately 17,989 acres. These impacts would be short-term until mining operations cease and reclamation is completed.

The SWIP North and the Clark, Lincoln and White Pine Counties Water Development project would include a disturbance area of approximately 4,162 acres. Impacts from these two projects would range from short-term (i.e. pipeline and power line installation) to long-term (substation and water treatment facilities).

There are several restoration and treatment projects proposed by the USFS and BLM. These projects include approximately 59,000 acres within the CESA. These treatment and restoration projects would have short term and negligible impacts on land use.

The BLM recently conveyed 1,500 acres to White Pine County for the airport expansion and 160 acres are proposed to be conveyed to White Pine County for the Industrial Park expansion (40 acres have already been conveyed for this purpose) (White Pine County, 2009).

5.14.5 Cumulative Disturbances

The CESA for land use and access is 5,695,931 acres. Of the total 5,695,931 acres covered by the CESA, approximately 260,428 acres of disturbance are associated with past, present and RFFAs, which is a disturbance of approximately 4.6 percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 263,632 acres, a 1.2 percent disturbance increase within the CESA. Approximately 30,222 acres (less than one percent) of this disturbance is associated with mineral development and exploration, which has the most potential to impact land use and access by restricting other land uses during the life of the mining operation, restricting access during the life of the mining operation, and increasing traffic on major transportation routes. The disturbance resulting from the Proposed Action would mostly be reclaimed after mining operations are completed. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

5.14.6 Cumulative Effects

Considering past, present, and RFFAs within the CESA that may affect land use and access combined with the Proposed Action, cumulative effects to land use and access would be negligible because the land disturbance associated from past, present, RFFAs and the Proposed Action is less than five percent of the total CESA. Furthermore, the impacts to U.S. Highway 50 and SR 379 (Fish Creek Road) from the Proposed Action combined with past, present, and RFFAs would have a negligible increase of Annual Average Daily Traffic.

The cumulative effects to land use and access under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to land use and access under the Southwest Power Line Alternative would be similar to those under the Proposed Action.

Cumulative effects to land use and access under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.15 Visual Resources

5.15.1 CESA Boundary

The CESA boundary for visual resources includes the Proposed Action and action alternatives viewshed (Figure 5.14-1). The total area of this CESA is 685,897 acres. This CESA boundary was chosen because it encompasses the viewshed of the project as represented by the KOPs, based on the fact that it is the area where the project effects could be viewed relative to cumulative activities. Using a larger area would not capture any additional relevant effects.

5.15.2 Introduction

The most common landforms in the area are wide basins, which are bounded by ranges, and cut by small creeks and drainages. Although scenic variety exists in the topography and densities, arrangements, and colors of vegetation, no visually distinct landscapes are found in the CESA.

The majority of the CESA is under BLM jurisdiction, with some lands on the east side of the CESA under Humboldt-Toiyabe National Forest administration. A small portion of the CESA is private lands. The BLM-administered land in the CESA is managed under VRM Class III and IV, with the Loneliest Highway SRMA (4-mile buffer on either side of U.S. Highway 50) managed under VRM Class III.

5.15.3 Past and Present Disturbances

The CESA is generally not disturbed visually other than for roads, mining operations, range improvements, power lines, and pipelines. The largest type of disturbance is road construction. Quantified past and present disturbances (21,117 acres) have altered approximately two percent of the area visually. Historic mining operations are in various stages of natural re-vegetation.

Roads have disturbed 3,352 acres (0.5 percent) of the CESA. Utility construction has disturbed another 1,251 acres (0.2 percent) but has likely been mostly reclaimed, although power lines are visible in areas. Wildfire and vegetation management projects have affected the largest amount of vegetation, approximately 15,280 acres (2.2 percent) of the CESA. Burned areas, vegetation management, and livestock grazing are more or less visually acceptable; burned

areas if occurring as a natural wild land event are noticeable, but typically aren't perceived as man-caused or intrusive development. Livestock grazing is a common land use in the area and visually is a very small part of the present landscape.

5.15.4 Reasonably Foreseeable Future Disturbances

The reasonably foreseeable future disturbances within the visual resources CESA include mineral exploration and mining. These mining operations include the Mt. Hamilton LLC Centennial-Seligman Mining Project, which includes approximately 474 acres of disturbance; and continued mining at the Windfall Project, disturbing an additional 150 acres. Sand and gravel operations would disturb another eight acres. Lastly, the Wheeler Ridge Mineral Exploration Project would impact 50 acres, the American Vanadium Gibellini Mine would impact approximately 730 acres, and the Gold Rock Mine would impact approximately 3,749 acres. These 5,161 acres represent less than one percent of the CESA.

5.15.5 Cumulative Disturbances

Of the total 685,897 acres covered by the CESA, approximately 26,278 acres of disturbance are associated with past, present and RFFAs, which is a disturbance of approximately 3.8 percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 29,482 acres, or about 4.3 percent of the CESA. This is a 12 percent disturbance increase within the CESA. However, disturbances from wildfire and vegetation management, which account for 15,280 of the past, present and RFFA disturbance may not be visually perceived as disturbance. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

5.15.6 Cumulative Effects

Any newly reclaimed or unreclaimed linear features would continue to contrast with the existing landscape. Reclamation of mined areas in the CESA would reduce the visual contrast in the disturbed areas with adjacent vegetation. The reclaimed areas landscape would be revegetated primarily with grass and forbs and patches of shrubs and trees. The reclaimed areas would still be visible but would not be as obvious a visual impact as the mining activities themselves. Over time, the landscape views inclusive of reclaimed mining areas would become a more acceptable part of the landscape. The eventual establishment of 'islands of diversity' (clusters of planted trees and shrubs) would restore a setting more similar to the original landscape in approximately 15 to 50 years. Based on the analysis described in Section 4.14, the degree of contrast at each KOP would not conflict with the objectives of BLM VRM Class III or IV .The cumulative effects of the Proposed Action on the visual resources of the CESA would be minor to moderate, and long-term at each KOP.

The past and present actions in the CESA produce very little light pollution and have no meaningful adverse impact on the darkness of the night sky. The RFFAs in the CESA, particularly the mining projects, would be expected to require a similar number and types of light sources for operation that the Proposed Action requires. The Proposed Action is anticipated to have negligible impacts on the night sky during operation; thus, the RFFAs in the CESA would be expected to have negligible impacts when considering individually. Effects would also be negligible when considered collectively because each reasonably foreseeable mining project would occur in a remote location in the CESA widely separated from the other RFFAs such that the intensity or concentration of light sources in any given area would not increase to a level producing more than negligible light pollution. Therefore, the cumulative effects of Proposed Action on dark skies would be negligible. Light sources associated with the proposed project would be permanently removed from the project area and the CESA upon completion of reclamation.

The cumulative effects to visual resources under the Waste Rock Disposal Site Design Alternative would be similar to those under the Proposed Action, with the exception that it would disturb 79 fewer acres. The cumulative effects on dark skies would also be the same as those described under the Proposed Action.

Cumulative effects to visual resources under the Southwest Power Line Alternative would be similar to those under the Proposed Action. Some of the actual visual impacts at each KOP would change because of the difference in placement of the power line, but the overall effects would still be negligible to minor, and long-term at each KOP. The cumulative effects on dark skies would be the same as those described under the Proposed Action

Cumulative effects to visual resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.16 Recreation

5.16.1 CESA Boundary

The CESA boundary for Recreation is White Pine County (Figure 5.14-1). The total area of this CESA is 5,695,931 acres (Figure 5.14-1). This CESA boundary was chosen because general dispersed recreational opportunities that are available in the project area are available in abundance in White Pine County and it includes the major transportation routes that would be used to access the area surrounding the project area for recreation.

5.16.2 Introduction

Existing recreational use within the CESA is dispersed and includes fall and summer activities such as hiking, primitive camping, off-highway vehicle use, hunting, and fishing. The winter months provides snowshoeing, cross-country skiing, backcountry snowmobiling and ski opportunities. The primary land uses within the CESA are grazing, extractive activities (mining, gas and oil leases), and utility distribution. These land uses all have the potential to affect the

quality and quantity of recreational activities within the CESA by affecting the actual acreage available for recreation; or visual impacts such as transmission lines, air pollution, or disturbances associated with extractive activities. While the area for dispersed recreation is expansive, developed recreation sites are limited in scope and capacity.

5.16.3 Past and Present Disturbances

The current land uses for (thus disturbances within) the recreation CESA can be found in Table 5.1-3 and described in Sections 5.2 through 5.4.

Past and present extractive activities include 9,424 acres of mines and exploration projects (e.g., Illipah Mine, Easy Junior Mine, Robinson Mine, Golden Butte Mine, Silverado Mine, Bald Mountain Mine, Limousine Butte exploration, Gold Rock exploration, Pan exploration, and Pan II exploration, etc.), 2,526 acres associated with NOIs, 265 acres of sand and gravel operations, and 322 acres of oil and gas exploration and development within the CESA. Lands occupied by extractive activities have reduced recreational value, or may reduce acreage available for recreation when vegetation and/or wildlife are adversely affected.

Past and present road disturbance, including United States interstates and highways, state routes, local/county roads, BLM and USFS roads, and other roads totals 36,108 acres (less than one percent) of the CESA. For those seeking solitude and a primitive outdoor experience, development of roads can impact the visual recreation experience.

Past and present disturbance associated with utilities, infrastructure, and public purposes projects includes existing transmission and generation facilities (e.g., Falcon to Gonder Power Line, Spring Valley Wind Generation Wind Farm, ON Line Transmission Line, etc), landfills and sewage treatment facilities, airports, and railroads. The past and present disturbances resulting from utilities, infrastructure, and public purpose projects total 9,436 acres. Lands occupied by utilities, infrastructure, and public purpose facilities are no longer available for recreation. Transmission lines, for example, may be visible from portions of recreation areas, such as scenic byways and trails, and could be visible to backcountry hikers.

Disturbances such as wildfire (45,618 acres) and vegetation management projects (75,561 acres) have also impacted the CESA. The USFS and the BLM have performed mowing and seeding, juniper/pinyon cutting and removal, and burn and restoration treatments. These impacts are typically short term until revegetation and/or restoration are complete. The long-term impacts can be beneficial, improving recreational opportunities.

Past and present disturbances within the CESA have impacted 179,259 acres or three percent of the CESA.

5.16.4 Reasonably Foreseeable Future Disturbances

Reasonably foreseeable future expansion of extractive activities including mine development and exploration would disturb another 18,007 acres in the CESA. If exploration proves economic feasibility of resource development, additional disturbances are likely. Construction of

the proposed SWIP North and the Clark, Lincoln, and White Pine counties water development project would impact 4,162 acres. Both extractive activities and utility development projects result in an influx of temporary construction workers followed by permanent operations staff. The effect of increased population would be evident in White Pine County, where the existing population is relatively small. Developed and dispersed recreation areas, particularly those in proximity to developments would see increased visitation and more intensive use due to population increases associated with construction and operation. There are several developed campgrounds on federal and state lands in the CESA (publiclands.org, 2012). Increased use could mean that facility users recreate in a more heavily used setting, encountering other users, and different types of use. User conflicts over the limited number of developed facilities, and adverse impacts to the resource/facilities from intensive use could result.

Future vegetation management projects (Overland Pass Habitat Improvement/Fuel Reduction Project, and Stonehouse Habitat Improvement Project; 59,000 acres) would improve habitat conditions for wildlife and over time would likely improve the recreation experience.

5.16.5 Cumulative Disturbances

The effects of past, present, and RFFAs on recreation in the CESA result mainly from restricted access as a result of mining-related and utility projects. Public access to mines must be restricted for safety reasons as long as the mines are in operation. Notices of intent and oil and gas projects could also affect recreation although involve a smaller footprint than mining projects. Of the total 5,695,931 acres covered by the CESA, approximately 260,428 acres of disturbance are associated with past, present, or RFFAs, which is a disturbance of approximately 4.6 percent of the CESA. The Proposed Action would increase the disturbance within the CESA by 3,204 acres to approximately 263,632 acres, or about 4.6 percent of the CESA. This is a 1.2 percent disturbance increase within the CESA. Impacts would be temporary for all but unreclaimed mining features (i.e., pits) and utility ROWs that would remain inaccessible for recreation as mine facilities would be fenced and would be restricted during active mining and reclamation. Hunting could be affected directly as a result of cumulative impacts to game animal habitat and movement patterns. Increased traffic on public roads is not anticipated to affect access to public lands for recreation. The Gold Rock Project proposed action would extend the power supply proposed for the Pan Project south from Pan to Gold Rock. Thus the power line proposed for the Pan Project would also be used to supply power to the Gold Rock Project which would tie into the southernmost portion of the Pan Project power line. American Vanadium's proposed action power line for the Gibellini Mine would be within the same corridor as the Southwest Power Line Alternative for the Pan Project (BLM, 2013a). The proposed 21-mile route for the American Vanadium Gibellini Mine power line would run west from the junction at Strawberry Road and US Highway 50 along US Highway 50 then head south along SR 379, west along Fish Creek Road, and south terminating at the Gibellini mine site (Figure 5.4-1).

5.16.6 Cumulative Effects

Impacts would be temporary for all but unreclaimed mining features (i.e., pits) and utility ROWs that would remain inaccessible for recreation as mine facilities would be fenced and would be

restricted during active mining and reclamation. The principal impact on recreation would result from those projects that restrict access to recreational users of public lands. Hunting is currently among the most prevalent recreational activity within the CESA. Any visibly unclaimed or newly reclaimed linear features would continue to be used as roads by recreationists. The impact of increased traffic and indirect effects on game animals should be minimal as game animals would likely be displaced to adjacent habitat (Section 4.8.2).

The cumulative effects to recreation resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to recreation resources under the Southwest Power Line Alternative would be similar to those under the Proposed Action.

Cumulative effects to recreation resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.17 Socioeconomics

5.17.1 CESA Boundary

The CESA boundary for socioeconomic resources includes White Pine County, Eureka County with special emphasis on Eureka Township, and Duckwater (Figure 5.14-1). The total area of this CESA is 8,367,375 acres. This CESA boundary was chosen because individuals and businesses that would be affected are primarily located in these counties and communities.

5.17.2 Introduction

The social and economic structures and relationships that are in place in the CESA in support of previous and current mining and other activity in the area are described in Section 3.16, in addition to the local, mine-related employment and activity. Along with this description in Section 3.16, the analysis presented in Section 4.16 includes a detailed discussion of the potential direct and indirect economic effects of all alternatives, including No Action, for the CESA.

The majority of lands in both White Pine County (95.6 percent) and Eureka County (79 percent) are federal land, the bulk of which is under BLM jurisdiction. The economies of both of these rural counties rely on mining and ranching/agriculture and these activities dominate land use.

5.17.3 Past and Present Disturbances

All data in Sections 3.16 on socioeconomic conditions, fiscal conditions, public services and utilities apply to the CESA analysis. The past and present land uses in the CESA have had a direct effect on socioeconomics of White Pine and Eureka counties through changes to employment (both type and amount), changes to the landscape which effect sense of place, changes in housing availability, and changes to the overall population. Past and present actions

have resulted in the current socioeconomic conditions in the CESA, as described in Section 3.16.

5.17.4 Reasonably Foreseeable Future Disturbances

Reasonably foreseeable projects include mineral exploration and new and continuing mining operations (Table 5.1-3). Other developments would include oil, gas, and geothermal development and utility construction such as the ON Line 230/500kV transmission line. Future mining operations and proposed expansions to existing mining operations include Mount Hope and the Bald Mountain Mine. The Mount Hope project would create approximately 567 jobs over the first 24 months of construction and operations. After construction is completed, it is anticipated that operations would employ approximately 370 employees for nine years, which the number of workers would gradually build to 455 workers in year 20, remain at that level for five years and then gradually decline to approximately 220 workers in year 40 (BLM, 2011f). The Bald Mountain Mine, North Operations expansion would have no change to the current 350 full-time work force required at the Bald Mountain Mine. However, according to the South Operations Area Project Plan of Operations (NVN-090443), the Bald Mountain Mine, South Operations, encompassing and expanding the Alligator Ridge and Yankee Mine sites, would require an additional 100 full-time employees. The American Vanadium Gibellini Mine would have a proposed mine life of approximately 10 years. During the production phase of the project, the American Vanadium Gibellini Mine would employ approximately 120 employees (BLM, 2013b). Mining operations on the Gold Rock Mine would last approximately 10 years. During the operations phase, the Gold Rock mine would employ approximately 250 employees with a peak of approximately 300 employees (Midway, 2013b). Mining operations at the Mt. Hamilton LLC Centennial-Seligman Mining Project would last for approximately 8.5 years. During full operation, total employment would vary between 69 to 82 employees (Mt. Hamilton, 2012). The Eureka Canyon Subdivision, located in Eureka Township, would include multifamily and single family residences, open space, a greenbelt area, and temporary housing; this would provide some additional housing needed to support these other projects. Construction and/or operation of the reasonably foreseeable projects would create positive impacts on local economies and increased employment opportunities, drawing on the local and regional workforce. Concurrent construction or operation of similar projects could result in a demand for labor that cannot be met by the region's labor pool, which could lead to an influx of nonlocal workers. This population increase could impact socioeconomic conditions and public services and utility.

5.17.5 Cumulative Disturbances

The economies of the two counties are dependent to a large degree on mining activity, which is determined to a large extent by the market price for gold, silver, and other extracted minerals. Consequently, economic activity tends to cycle between boom and bust. When mineral prices are high, employment and wages rise and a shortage of skilled workers develops. Home prices tend to rise as new employees move into the area and local businesses profit from increased spending. A drop in mineral prices or other limitations on mine development result in a reversal of this process; employment and spending fall and local businesses falter. This cyclical pattern

is detrimental to the counties' financial stability and their ability to plan for the future and provide reliable services to the community.

Mining is likely to be the dominant industry in White Pine and Eureka counties for the foreseeable future, and the counties can suppress the boom and bust cycle only by increasing economic diversity. Tourism spending in White Pine County has been increasing, and additional spending, independent of mining, comes from the State Prison and federal, state, and local government offices. The economy of Eureka County is dominated by mining and will probably remain so for the foreseeable future.

The most significant recent effect on the White Pine County economy has come from renewed activity in the Robinson Mining District, a project that has largely restored the soundness of the county's finances. Several other reasonably foreseeable major projects have been proposed for White Pine County.

The Proposed Action would have a significant impact on the socioeconomic resources of both counties. An estimated 160 people are anticipated to be employed during the construction of the mine and associated facilities, and 150 people during operation; it is likely these workers would reside in Eureka or in Ely.

5.17.6 Cumulative Effects

The Proposed Action would contribute to cumulative effects on socioeconomics by increasing employment, income, and the demand for housing, schools, law enforcement, fire protection, and other services and infrastructure. This project would have a significant positive impact on Eureka and White Pine counties but could present problems such as inadequate housing and increased demand for sewage treatment, water, and other county services. The addition of the Proposed Action would have a much smaller impact to county services but would add to the overall cumulative impact. The contribution of the Proposed Action to cumulative effects on socioeconomics in Eureka County would be minimal compared with the present and reasonably foreseeable future mining projects. The contribution of the past, present and reasonably foreseeable future disturbance, including the Proposed Action, to cumulative effects on socioeconomics in White Pine County would be moderate. Also both counties have collected and are anticipated to continue collecting ad valorem taxes from net proceeds of other mining operations within their boundaries.

The cumulative effects to socioeconomic resources under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to socioeconomic resources under the Southwest Power Line Alternative would be similar to those under the Proposed Action, with a possible slight increase in construction-related incidents, and a subsequent increase in calls to emergency services.
Cumulative effects to socioeconomic resources under the No Action Alternative would include 100 acres of previously authorized disturbance within the project area.

5.18 Hazardous Materials and Waste

5.18.1 CESA Boundary

The CESA for Hazardous Materials and Waste includes on-site storage and disposal areas, and the transportation routes analyzed in this document as shown on Figure 5.18-1. This includes the potential transportation routes of Interstate 80 to the north of the project area, U.S. Highway 50 to the east, SR 278 to the west, and U.S. Highway 93 to the east. Cumulative effects were analyzed by analyzing the potential transportation routes surrounding the project area. This CESA was chosen because the risk of a reportable spill amount or fuel released to the environment is more likely during transportation than during storage or use.

5.18.2 Introduction

This section provides an inventory of existing or reasonably foreseeable future mine operations that transport hazardous materials on the transportation routes analyzed for the Proposed Action (Section 3.18). Currently, the project area is undeveloped with no history of hazardous or solid waste generation or disposal. Under the Proposed Action, the use, storage, transport, and disposal of hazardous materials or solid wastes would change. Therefore, there would be an increase in the cumulative effects of these waste management activities from the Proposed Action associated with the CESA.

The cumulative effects of the heap leach and waste rock disposal areas are included within the following discussion of mine disturbance areas associated with the CESA.

5.18.3 Past and Present Actions

The transportation routes discussed in Section 3.18 have been used in the past to transport hazardous materials, including reagents and petroleum, to nearby mining operations, towns, and ranches. Vehicles using these routes contain petroleum products. Maintenance of these routes by the NDOT has included the application of herbicides annually within the highway ROW to minimize vegetation.

Present actions which may involve the transport of chemicals on the routes analyzed include mineral activities of the Hycroft, Twin Creeks, and Getchell Mines located north of Interstate 80 in Humboldt County; the Midas, Jerritt Canyon, Hollister, Goldstrike, Meikle, Carlin, Gold Quarry, and Leeville mines located north of Interstate 80 in Elko and Eureka counties; the Florida Canyon, Marigold, and Coeur Rochester Mines located south of Interstate 80 in Pershing County; the Phoenix, Argenta, and Cortez Hills/Pipeline Mines located south of Interstate 80 in Lander County; the Emigrant Mine located south of Interstate 80 in Elko County; the Ruby Hill Mine located south of U.S. Highway 50 in Eureka County; the Mount Hope Project located west of SR 278 in Eureka County; the Robinson Mine located south of U.S. Highway 50 in White Pine County; and the Bald Mountain Mine (including Mooney Basin, Alligator Ridge, and Yankee Mines) located north of U.S. Highway 50 in White Pine County (Figure 5.18-1).

These operations bring increased vehicle traffic on the analyzed transportation routes, and would involve the transport of varying amounts of chemical reagents and petroleum products to the sites for use in mining exploration and operation and maintenance activities. Increased traffic on the transportation routes also increases the potential for vehicle collision with a supply vehicle.

5.18.4 Reasonably Foreseeable Future Actions

Reasonably foreseeable generators of solid and/or hazardous waste associated with the CESA include the ongoing mining operations listed in Section 5.3, and any new mining operations or construction projects that may occur in the future. All future mining or construction projects would be required to comply with all state, federal, and local regulations relevant to the transport, handling, and disposal of all wastes.

The RFFAs shown in Table 5.1-3 could cause an increase in vehicular traffic on the analyzed transportation routes. New mining projects would require chemical deliveries to support construction, mining, and processing activities and removal of hazardous wastes from the sites to existing disposal facilities. Construction projects would require the mobilization of construction equipment, fuel, and possibly other chemicals needed for construction equipment.

5.18.5 Cumulative Disturbances

Under the Proposed Action or action alternatives, it is reasonable to expect that the analyzed transportation routes in Section 3.18 would be used to transport hazardous materials at levels that are greater than current levels. In addition, the NDOT would continue with their application of herbicides within the ROW of these transportation routes.

All hazardous wastes generated during the mining operations for the Proposed Action would be transported to off-site licensed facilities for treatment and disposal. All non-hazardous solid wastes would be disposed of in the proposed on-site Class III landfill. In the context of existing and reasonably foreseeable solid and hazardous waste generation locally and regionally, the Proposed Action would constitute an increase in hazardous waste generation and solid waste management in the project area, as well as increased transportation of hazardous waste on analyzed transportation routes.

The Proposed Action or action alternatives could result in potential spills of petroleum materials. However, because of the adherence to the Spill Prevention, Control, and Countermeasures (SPCC) Plan, it is improbable that a leak or spill from mining operations would reach potential water sources adjacent to the mine. Many of the past, present, and reasonably foreseeable future projects in addition to other mining operations also create the potential for chemical and petroleum spills and possible contamination of potential water sources along the analyzed transportation routes (Figure 3.18-1). However, BMPs and an SPCC Plan would typically be required for most of the projects and mining operations, substantially reducing the risk and the potential for cumulative effects relating to chemicals and petroleum products. The largest potential for fuel or chemical spills would be from vehicles and chemical or fuel transport trucks traveling on the potential transportation routes (Section 3.18).

Figure 5.18-1 Hazardous Materials and Waste CESA

The cumulative impacts on hazardous waste are mainly due to industrial projects and especially mining. Therefore, the Proposed Action is one of the potential contributors associated with the CESA. An increase in traffic associated with the Proposed Action and other reasonably foreseeable future actions could increase the likelihood of vehicle collisions on the access roads, thus possibly increasing the probability of accidents resulting in a release of a hazardous material. Use of off-site hazardous waste disposal facilities would increase for disposal of the increased volumes of hazardous waste.

With the proper implementation of the Emergency Response Plan for on- and off-site incidents, cumulative impacts associated with storage, use, and transportation of hazardous materials would not be anticipated.

5.18.6 Cumulative Effects

Given the existing capacity and regulatory framework for generators, transporters, and storage and disposal facilities, the Proposed Action, in combination with the other projects, would have negligible effects on hazardous materials and wastes generation and management. As noted in Section 3.18, the Proposed Action would comply with all local, state, and federal regulatory requirements.

The cumulative effects to hazardous materials and wastes under the Waste Rock Disposal Site Design Alternative would be the same as those under the Proposed Action, with the exception that it would disturb 79 fewer acres.

Cumulative effects to hazardous materials and wastes under the Southwest Power Line Alternative would be the same as those under the Proposed Action.

Cumulative effects to hazardous materials and wastes under the No Action Alternative would include the production of materials and waste related to exploration operations.

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