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MIDWAY GOLD ROCK PROJECT

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1.0 PURPOSE AND NEED

1.1 INTRODUCTION

This environmental assessment (EA) has been prepared to analyze the potential impacts of Midway Gold US Inc.'s (Midway's) proposed exploration drilling activities for the Gold Rock Project, located on public lands managed by the U.S. Department of the Interior, Bureau of Land Management (BLM) Egan Field Office (FO). Midway's exploration plan of operations (2011 PoO), which describes the proposed exploration drilling activities, was submitted to the BLM in November 2011.

This EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action or its alternatives. The EA assists the BLM in project planning, ensuring compliance with the National Environmental Policy Act (NEPA), and determining whether any "significant" impacts could result from the analyzed actions. ("Significance" is defined by Council on Environmental Quality (CEQ) regulations for implementing NEPA and is found in 40 Code of Federal Regulations [CFR] 1508.27.) An EA provides evidence for determining whether to prepare an environmental impact statement (EIS) or a Finding of No Significant Impact (FONSI). A FONSI is a document that briefly presents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects) beyond those already addressed in the *2008 Ely Resource Management Plan* (RMP) and Record of Decision (ROD) (BLM 2008a), hereafter referred to as the 2008 Ely RMP. If the decision maker determines that this project would have "significant" impacts, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA that approves the alternative selected.

1.2 BACKGROUND

Midway is proposing an exploration and baseline data gathering program to determine whether development of the Gold Rock Project area (project area) is economical and feasible. Midway is currently conducting Notice of Intent (Notice)-level exploration activities of 5 acres in the project area. Midway has prepared the 2011 PoO to expand the work and authorize additional exploration drilling and ancillary exploration-related activities up to 137 acres, for a total of 142 acres.

The work would be conducted within a 5,528-acre project area, located approximately 15 miles south of U.S. Highway 50, in Sections 3–5, 8–10, 15–17, 21, and 22, Township 15 North, Range 56 East (Figure 1-1).

Midway would conduct the following activities: 1) drilling reverse circulation (RC) and core holes; 2) geologic mapping; 3) trenching and bulk sampling; 4) groundwater monitoring wells; and 5) construction and maintenance of exploration roads, drill sites and sumps, and sediment traps. Support facilities would include a laydown area and portable toilets. Ancillary facilities would include a portable microwave tower for communications.

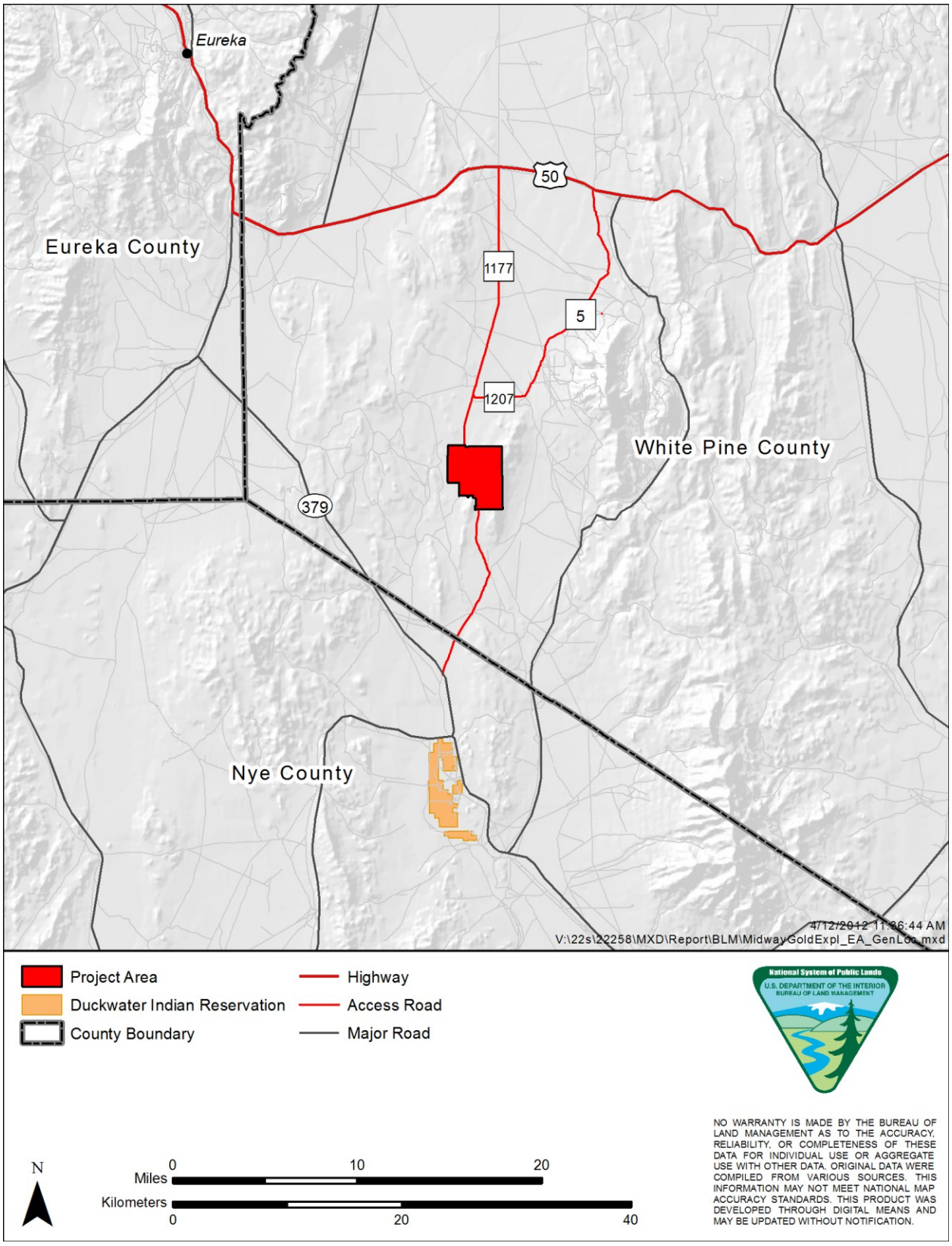

Figure 1-1. General project location.

1.3 PURPOSE AND NEED FOR THE ACTION

The BLM's purpose is to provide Midway with the opportunity to explore their valid existing mining claims on BLM lands. The need for the action is established by the BLM's responsibility under the Mining Law of 1872, Section 302 of the Federal Land Policy and Management Act (FLPMA), and the BLM Surface Management Regulations at 43 CFR 3809. Under these regulations, the BLM is required to review the 2011 PoO to ensure that Midway's exploration activities do not cause unnecessary or undue degradation of the public lands and include appropriate reclamation.

1.4 DECISION TO BE MADE

The decision that BLM will make based on the NEPA analysis would be to approve the 2011 PoO with no modifications to authorize the exploration activities; approve the 2011 PoO with additional mitigation measures to prevent unnecessary or undue degradation of public lands and/or protect sensitive resource values and to provide for reclamation of disturbed areas; or not approve the 2011 PoO if mitigation measures would not prevent unnecessary or undue degradation of public lands.

1.5 BLM RESPONSIBILITIES AND RELATIONSHIP TO PLANNING

The BLM is responsible for the preparation of this EA, which was prepared in conformance with the policy guidance provided in the BLM NEPA Handbook H-1790-1 (BLM 2008b) and CEQ regulations for implementing NEPA (40 CFR 1500–1508). This EA will assist the BLM in project planning and in determining whether the Proposed Action is consistent with BLM policies. Pursuant to NEPA (40 CFR 1502.13), this EA has been prepared to provide sufficient evidence and analysis for 1) determining whether to prepare a more detailed EIS or 2) issuing a FONSI.

1.6 CONFORMANCE WITH BLM LAND USE PLAN(S)

The Proposed Action and the No Action Alternative described below are in conformance with the 2008 Ely RMP (BLM 2008a). The Goals and Objectives within the ROD for the RMP for Mineral Extraction are listed on pages 92-103 of the ROD. The goal listed on page 92 states, "Allow development of solid leasable and locatable minerals in a manner to prevent unnecessary or undue degradation" to the public lands. The objective and minerals decision (MIN-14) listed on page 100 states, "Allow locatable mineral development on approximately 9.9 million acres of federal mineral estate, subject to the prevention of unnecessary or undue degradation of the public lands" (BLM 2008a).

The BLM is responsible for administering access to mineral rights on certain federal lands as authorized by the General Mining Laws. Under the law, qualified prospectors are entitled to reasonable access to mineral deposits on public domain lands that have not been withdrawn from mineral entry. The BLM is also responsible for reviewing surface resources pursuant to the FLPMA (43 United States Code [USC] 1701 *et seq*.) and the attendant regulations for surface management of lands on mining claims under the General Mining Laws (43 CFR 3809). The surface management regulations require the BLM to comply with the National Environmental Policy Act of 1969, as amended (42 USC 4321 *et seq*.), and to ensure that the operator "conduct

all operations in a manner that complies with all pertinent federal and state laws (43 CFR 3809.420) and will not cause undue and unnecessary degradation of the public lands."

1.7 RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

NEPA is only one of many authorities that contain procedural requirements that pertain to treatment of elements of the environment when the BLM is considering a federal action. The Proposed Action and the No Action Alternative are consistent with federal, state, and local laws, regulations, and plans and programs. Appendix 1 of the BLM NEPA Handbook (2008b) contains a list of many of the supplemental authorities that may apply to BLM actions.

The Proposed Action and the No Action Alternative are consistent with these federal statutes and regulations. The Proposed Action and the No Action Alternative are also consistent with state plans and policies for the management of mineral and water resources, conservation of special-status species, and cultural resource protection, as well as with the 2007 White Pine County Public Land Policy Plan and the 2008 White Pine County Land Use Plan Element to the White Pine County Master Plan.

1.8 IDENTIFICATION OF ISSUES

1.8.1 *Internal Scoping*

A BLM interdisciplinary (ID) team analyzed the potential consequences of the Proposed Action during internal scoping held on November 16, 2011. The following resource issues are analyzed and addressed in Chapter 3 of this EA:

- **Air Quality:** What impacts would the surface disturbance and operation of heavy equipment and vehicles for drilling, trenching, and road building have on air quality and National Ambient Air Quality Standards (NAAQS) attainment status for the area?
- **Soils:** What impacts would surface disturbance for drilling, trenching, and road building have on soil productivity in the area, particularly with regard to compaction, reclamation, and erosion?
- **Cultural Resources:** What impacts would surface disturbance for drilling, trenching, and road building and use of overland travel vehicles have on identified cultural sites? How would the project affect sites eligible for the National Register of Historic Places (NRHP)? What impacts would the project have on unknown (buried) cultural sites?
- **Paleontological Resources:** What impacts would the surface disturbance associated with drilling and trenching and road building have on fossils?
- **Socioeconomics:** What impacts would the project have on employment opportunities or housing availability in the area?
- **Wildlif**e: How would the surface disturbance associated with drilling, trenching, and road building and the construction of sumps affect big game (deer and antelope) and big-game habitat, and predator, small-mammal, reptile, and avian species? How would the human activity and noise associated with the operation of heavy equipment and vehicles affect these species?

- **Special-Status Species:**
  - **Greater Sage-grouse** (*Centrocercus urophasianus*): What impacts would the project's proposed access routes and associated vehicular traffic have on greater sage-grouse leks in the area? How would project construction, noise, and human activity affect greater sage-grouse and greater sage-grouse habitat?
  - **Pygmy Rabbit** (*Brachylagus idahoensis*)*:* What impacts would the surface disturbance associated with drilling, trenching, and road building and the construction of sumps have on pygmy rabbit and pygmy rabbit habitat?
  - **Migratory Birds, including raptors:** What impacts would the surface disturbance associated with drilling, trenching, and road building and the construction of sumps have on migratory birds and migratory bird nests? How would project construction, noise, and human activity affect these species?
  - **Bats** What impacts would habitat reduction have on bat species?
- **Vegetation:** What impacts would the surface disturbance associated with drilling, trenching, and road building or overland travel have on project area vegetation, particularly with regard to species that do not recover well or that take a long time for successful reclamation? What impacts would drilling, trenching, road building, and overland travel have on the introduction or spread of noxious weeds?
- **Visual Resources:** What impacts would the drilling, trenching, and road building and the construction of sumps have on the project area viewshed? What impacts would nighttime drilling activities have on the night sky?
- **Recreation Resources:** How would the exploration project and the proposed development of additional access roads affect motorized recreation and hunting in the project area?
- **Transportation and Access:** How would the project area traffic affect the county or state road system? What impacts would the project area activities and traffic have on transportation and access to/from the nearby Duckwater Reservation? What impact would the construction of new access roads have on transportation and access in and around the project area?

1.8.2 *Public Scoping*

As required under NEPA, the BLM solicited public comments on the Proposed Action. The BLM used comments received during the scoping period to determine the following:

- important issues to be addressed,
- possible data needs and sources,
- alternatives to be assessed, and
- potential effects of the alternatives on the human environment.

A public scoping letter was sent out on December 2, 2011, and comments were requested within 30 days of receipt of that letter. The mailing list can be found in the administrative record. No comments were received.

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2.0 DESCRIPTION OF ALTERNATIVES

2.1 INTRODUCTION

This EA analyzes the Proposed Action and the No Action Alternative. The No Action Alternative is considered and analyzed to provide a baseline against which to compare the impacts of the Proposed Action. No other alternatives were brought forward for detailed analysis (see Section 2.4 for further details and rationale concerning alternatives eliminated from detailed analysis).

2.2 ALTERNATIVE A: PROPOSED ACTION

Midway is proposing a phased program of surface disturbance to authorize exploration drilling and ancillary exploration-related activities on up to 137 acres. Midway is currently conducting Notice-level exploration activities on 5 acres in the project area. Phase I surface disturbances constitute approximately 64.6 acres, including the construction of 165 drill sites during the 2012 and 2013 drilling seasons (generally defined as spring/summer/fall). The remaining 72.4 acres planned under the Proposed Action would be implemented in a phased manner over the subsequent exploration seasons, until a mining PoO is submitted and authorized. The combined Notice, Phase I, and subsequent phases of surface disturbance would total 142 acres.

The following activities constitute the Proposed Action:

- Using overland travel;
- Constructing drill roads;
- Constructing drill pads and sumps;
- Conducting geologic mapping;
- Performing surface hand sampling of rocks, soils and/or vegetation;
- Excavating trenches for activities such as geotechnical testing, geochemical analyses, bulk samples, or metallurgical analyses;
- Drilling auger boreholes;
- Constructing groundwater monitoring wells and monitoring these wells;
- Installing a mobile microwave tower for communications; and
- Using one laydown area for temporary storage of drilling materials, equipment, and support facilities.

Figure 2-1 shows the locations of these activities for Phase I. The specific locations for proposed activities beyond Phase I would be based on the results of the phased exploration approach and cannot be specified at this time. Prior to beginning each subsequent phase, Midway would provide a work plan detailing specific locations and acreage of proposed disturbance. The plan would include an as-built map of previous phase disturbances, a map of the new phase proposed disturbance, and updated reclamation bonding. The location of the microwave tower is also not yet determined, and therefore is not shown in Figure 2-1.

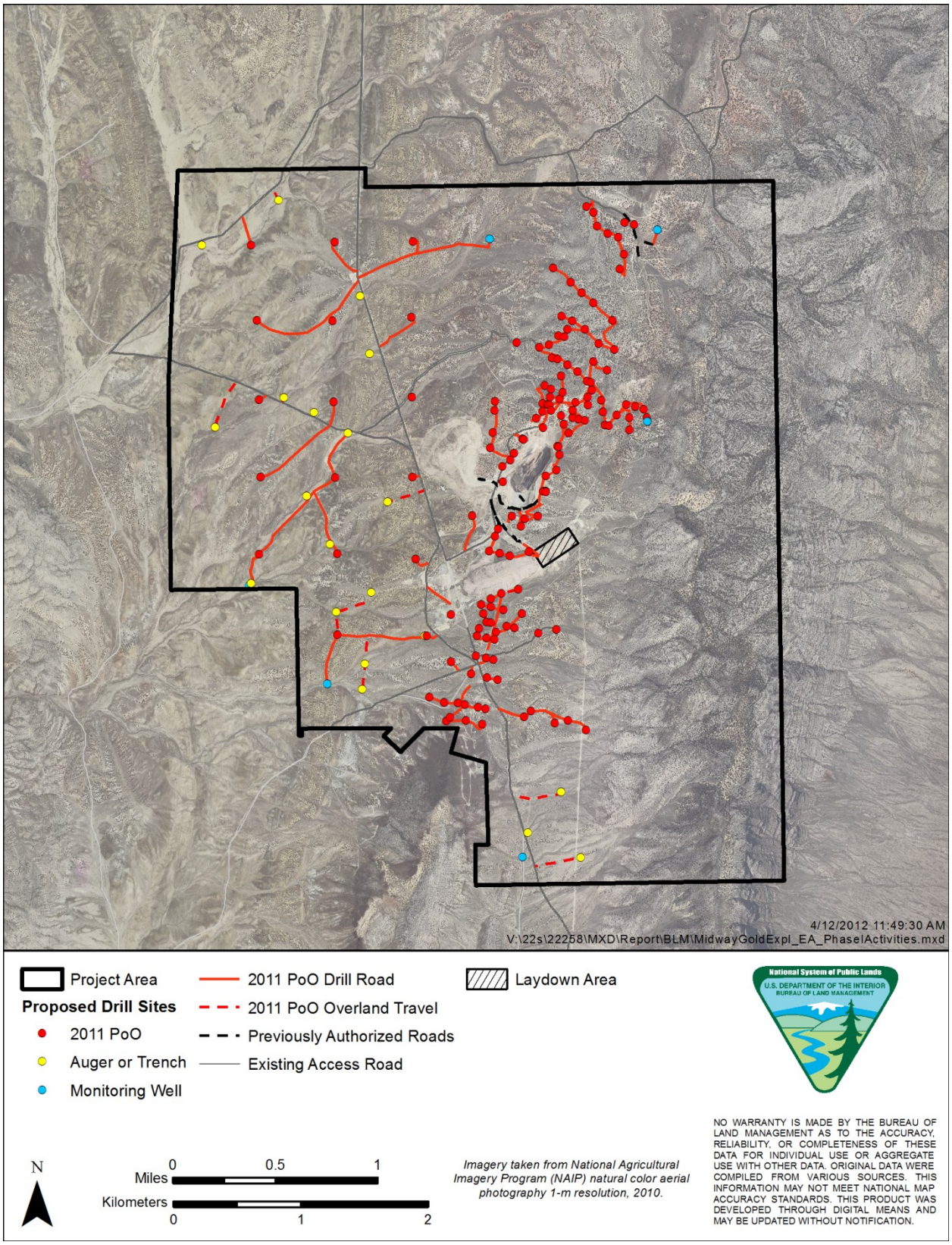

Figure 2-1. Location of project activities.

Table 2-1 lists the proposed surface disturbance. All of the proposed surface disturbance would be on public lands managed by the BLM Egan FO. The allocation of acreage by activity outlined in Table 2-1 is representative of the planned exploration; acreage may be redistributed within the limit of the total 137 acres included in the Proposed Action to accomplish the planned exploration.

Table 2-1. Proposed Surface Disturbance under the Proposed Action

	2011 PoO Phase I		2011 PoO Future Phases		Total	
		Acres		Acres†		Acres
Drill roads	70,703 feet	32.5	TBD	41.3	TBD	73.8
Overland travel	10,762 feet	2.5	TBD	4.3	TBD	6.8
Drill sites (pads and sumps)	165 sites	15.6	TBD	22.4	TBD	38
Auger/trench sites	20 sites	2.0	TBD	4.3	TBD	6.3
Laydown area*	1 area	12.0	0	0	TBD	12
Total		**64.6**		**72.4**		**136.9**

* Located on area previously disturbed by Easy Junior mine operations. Midway would reclaim any area surface disturbance due to Midway activities, but would not be responsible for reclamation due to any previous activities on these acres.

† The acreage by activity type for future phases of exploration are estimated on the general proportion of each activity in Phase I, but may change, depending on results of Phase I exploration. However, total disturbance for future phases would not exceed 72.4 acres, regardless of the results of Phase I drilling.

2.2.1 *Project Area Location and Access*

The 5,528-acre project area is located on the east side of the Pancake Range in White Pine County, Nevada; approximately 30 miles southeast of Eureka, 50 miles west of Ely, and 15 miles south of U.S. Highway 50 (see Figure 1-1). The project area would have two access options from the north and one from the south.

- From the north, access would be provided by either Green Springs Road (White Pine County Road 5) or Easy Junior Road (White Pine County Road 1177), both of which are unpaved county roads that originate at U.S. Highway 50.
- From the south, access would be provided by an unmarked county road branching from the Duckwater Road (Nevada State Highway 379).

Road use agreements with White Pine and Nye counties would allow Midway to perform road maintenance and snow removal for year-round access to the site on all three roads. All access road maintenance would be done in accordance with the road use agreements and could include grading and watering. Where appropriate and necessary, road base, or gravel, would be placed on the road to reduce rutting. No other road modifications would occur.

2.2.2 *Drill Site Access and Drill Road Construction*

To access drill sites, existing roads or overland travel would be used to the extent possible[1]. Drill roads would be constructed where necessary.

[1] "Overland travel" is used to refer to off-road travel by Midway construction vehicles to drill sites. Overland travel areas would be reclaimed.

Drill roads would be constructed using a bulldozer for areas of gentle sloping terrain (2.5:1 or less) or a tracked excavator in areas of steep terrain. The proposed roads and spurs would be bladed to an average width of 20 feet, including side cast material, with drainage control installed as needed. The depth of the cut for newly constructed exploration roads would average 3 feet or less. The top foot of surface soil and plant materials would be moved or replaced upon reclamation. Road grades would generally be 10% or less; however, steeper grades could be necessary for short pitches. Balanced cut-and-fill construction would be used to the extent possible to minimize the exposed cut slopes and the volume of fill material. Road construction within drainages would be avoided where possible. When drainages must be crossed by a road, best management practices (BMPs) would be followed to minimize the surface disturbance and erosion potential (see Section 2.2.13 for more information on BMPs and standard operating procedures [SOPs]). Temporary culverts may be used to minimize surface impacts. It is not anticipated that blasting would be necessary to construct roadbeds. Rock outcrops and areas of shallow soils on bedrock, where present, would be avoided whenever possible.

Locations for Phase I drill roads are shown in Figure 2-1. Total disturbance for Phase I drill roads is estimated at 32.5 acres (see Table 2-1).

2.2.3 *Drill Site Construction*

Drilling would be conducted using truck-, track-, buggy-, or skid-mounted RC drill rigs and core rigs. Drill pads, which require earth moving, would be located and constructed using standard construction practices for temporary mineral exploration roads and pads to minimize surface disturbance, erosion, and visual contrast, as well as to facilitate reclamation. Surface soil and plant materials would be bladed or bulldozed to one side and returned during reclamation. The surface area impacted by each drill site would vary, depending on the type of drill rig used. Standard drill pads would be 80 feet long × 50 feet wide, with sumps 35 feet long × 15 feet wide × 6 feet deep, totaling 4,000 square feet for the pad and sump. This size sump would have a capacity of approximately 25,000 gallons. Buggy- or track-mounted rigs would require smaller sites and, depending on the site, may not require pad construction. Truck-mounted drills for deeper drilling would require larger pads of 5,000 square feet, measuring approximately 100 × 50 feet, with sumps up to 40 feet long × 25 feet wide × 10 feet deep to accommodate potential groundwater, if encountered. The larger sumps would have a capacity of approximately 84,000 gallons. Drill sites for the truck-mounted rigs used on the deep wells would be the largest pads, with a maximum dimension of 100 × 50 feet. Ten percent of the pads (17) are likely to be of this larger size.

A sump would be used at each drill site to contain drill cuttings and control drilling fluids. Sumps would vary in depth from six to 10 feet, depending on pad size and available area at each drill site. Sumps would be constructed to the shallowest depth possible given each particular site to allow for maximum evaporation. At least one side of the sumps would be sloped for easy access/egress. Sumps would be lined as needed to assure that there would be containment of drilling fluids. Sumps would be fenced with safety netting to keep large animals out and provide a warning for recreational traffic. Standard, nontoxic, drilling muds and additives such as Floc 360™, Abandonite™, Alcomer 120L™, bentonite, EZ-mud™, Polyplus™, and Super Plug™ would be used. To minimize surface disturbance, any trenches dug at the site would be partially backfilled and used as the sump. When the sump is no longer needed, it would be allowed to dry by infiltration or evaporation to prevent discharge of drilling fluids during reclamation. Per BLM

IM NVL0000-2011-008, sumps are required to be "liquid free" within 30 days of drilling completion. If there are extenuating circumstances where a sump would need to be left open, those would be handled on a case-by-case basis. If liners are used to hold fluids for core drilling, the sumps will be pumped to an unlined sump and allowed to infiltrate/evaporate, and the liners would be removed. Liners would either be removed, or ripped and buried in place, as determined by the BLM. Once dry, the sumps would be backfilled and graded to the natural contour. The area would then be seeded with the reclamation seed mix previously approved for the area (see Appendix A, Reclamation Plan). A drill pad and sump may be used for more than one drill hole.

Locations for Phase I drill sites are shown in Figure 2-1. Total disturbance for Phase I drill sites (pads and sumps) would be 15.6 acres (see Table 2-1).

2.2.4 *Drill Hole Completion*

Drill holes would be plugged immediately after completion of drilling in accordance with Nevada Administrative Code (NAC) Chapters 534.421 and 534.425 except for those holes left open as pre-collars or monitoring wells. About 10% of the holes would be up to 2,000 feet deep. At any one time, a maximum of six RC holes, up to 700 feet deep, would remain open until the deeper portion of the hole can be completed with a core drill. A temporary cap would be placed on the surface casing until the core rig moves onto the site. Once core drilling is complete, the hole would be plugged as described above. If any drill hole produces artesian flow, the drill hole would be contained pursuant to Nevada Revised Statutes (NRS) 534.060 and NAC 534.378 and would be sealed by the method described in Subsection 2 of NAC 534.4371. If casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420 or the casings would be completely removed from the drill hole and then be plugged in accordance with NAC 534.4369 and NAC 534.4371.

2.2.5 *Trenches, Pits, and Auger Boreholes*

Trenches and pits would be excavated to acquire samples for a variety of purposes, including but not limited to, geotechnical testing, geochemical analyses, bulk samples, or metallurgical analyses. Trenches would typically be developed by side-casting the top foot of surface soil and plant materials for later replacement, digging through surface soils to bedrock—6 to 15 feet deep—depending on the range of the backhoe, or to refusal due to the presence of bedrock conditions. Pits would be developed in the same manner, but would typically only be about 3 feet deep, and may be dug by hand. Depending on depth and required benches, shallow trenches would be 2 feet wide, while deeper trenches may be as wide as 6 feet. Deeper trenches would be benched for safe access. Trenches dug to 4 feet deep would be 2 feet wide. Trenches dug from 4 to 8 feet deep would require at least one safety bench and would be at least 4 feet wide. Trenches dug more than 8 feet deep would require at least two safety benches and would be at least 6 feet wide. The total disturbance for the trenches would be up to 20 × 100 feet if dug to full depth. When completed, trenches would be backfilled, the surface soil replaced, the area recontoured to near the original contour, the top foot of surface soil and plant material would be spread back over the area, and the area seeded. Where possible, trenches would be located at drill sites and would be used afterward as a sump for the drill hole to reduce impacts. If used as a sump, the trenches would be backfilled to a maximum depth of 5 feet and the sides sloped for egress prior to use. With the exceptions of trenches that would be used as sumps, no more than one trench would be open at any one time.

Auger drilling would be limited to those areas with relatively deep soil profiles, although in general holes would be no more than 50 feet deep. Auger drill holes would be drilled with gas-powered, hand-operated augers, or small auger drills mounted on small trucks, tracked vehicles, or all-terrain vehicles (ATVs). The auger holes would be 4-inch-diameter holes drilled to a maximum depth of 50 feet or to bedrock, whichever is shallower. Pickup trucks would be used to transport the auger and crew to the location when the site is located on, or adjacent to, an existing roadway. When the sites are in undisturbed areas, off-road travel via tracked drills and ATVs would be used to access the drilling sites. A single tracked drill and ATV trip to the site would be made, followed by one trip out along the same tracks. Support and sampling personnel would travel to the location on foot from the nearest established road or on the initial trip of the ATV. The hole would be augured, the samples taken, and information logged. After the sampling and logging are completed, the hole would be backfilled by hand before personnel leave the site.

Locations for Phase I auger boreholes and trenches are shown in Figure 2-1. Total disturbance for Phase I trenches and auger boreholes, including areas for sidecast materials, would be 2.0 acres (see Table 2-1). Off-road travel to augur borehole sites by tracked drills and ATVs would not be reclaimed and is therefore not included in this acreage.

2.2.6 *Groundwater Monitoring Wells*

The Proposed Action includes development of six groundwater monitoring wells, to be sited on drill pads. Where possible, overland travel would be used to access the drill sites to minimize disturbance. The larger drill pad size of 50 × 100 feet would be used for monitoring wells. If possible, the monitoring wells would be drilled during Phase I.

Prior to drilling the monitoring wells, Midway would obtain the appropriate monitoring well waivers from the Nevada Division of Water Resources (NDWR). The wells would be designed to meet Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (BMRR) design specifications and would be approved before construction. Groundwater monitoring wells would be drilled and installed by a licensed water well driller. The monitoring wells would be monitored on a monthly or quarterly basis, depending on data needs. If no water were present, this would be noted.

Any groundwater monitoring wells would be plugged and abandoned according to NDWR requirements when they are no longer needed for environmental baseline data collection. Midway anticipates that monitoring and data collection would continue for a minimum of 4 years following completion of the monitoring wells. All of the project monitoring wells would be plugged and abandoned at the same time. Following well abandonment, the area would be reclaimed by being graded, scarified, and seeded.

Locations for groundwater monitoring wells are shown in Figure 2-1. Total disturbance for groundwater monitoring wells is part of the drill sites acreage (see Table 2-1).

2.2.7 *Laydown Area*

One laydown area would be used for temporary storage of drill pipe, drilling materials and supplies, drill samples, and construction equipment. To facilitate and support year-round drilling operations, Midway would place a temporary mobile office and portable sanitation facilities at the laydown area. The trailer may also be used by project geologists as a logging facility for examination of drill cuttings and cores.

The laydown area would be located on ground previously disturbed by the Easy Junior mine operations. A fence encompassing the entire laydown area would be erected.

The laydown area would also contain a 15,000-gallon, aboveground diesel fuel tank with a self-contained spill container that provides double containment for at least 1.5 times the tank size.

Temporary 2,000- to 6,000-gallon water storage tanks, used to minimize the number of water truck trips, would be labeled as nonpotable water and stored in the laydown area. These polypropylene tanks would be removed at project completion.

The location for the laydown area is shown in Figure 2-1. Total disturbance for the Phase I laydown area would be 12.0 acres (see Table 2-1).

2.2.8 *Sanitation and Ancillary Facilities*

Up to four portable toilets would be located on-site during drilling activities. These toilets would be supplied and serviced by a local supplier. They would be removed at the end of each field season. The portable toilets would be placed on previously disturbed sites. Other materials, including scrap, trash, and unusable equipment, would be removed on a weekly basis and disposed of in accordance with federal and state regulations and laws.

A portable microwave tower for communications would be installed at a location yet to be determined, but which would likely be on previously disturbed areas. The tower would be designed to provide communication for the safety of on-site workers, contractors, and regulators. The station would be solar powered if possible; if not, a generator would be used for power. An existing access road would be used to transport the tower to the location. The tower would be serviced periodically (typically on a quarterly basis) by a technician. The tower would be fenced with three strands of smooth wire and T-posts to preclude wild horses and cattle from scratching on the tower.

2.2.9 *Maintenance and/or Interim Reclamation*

Midway would monitor all drilling and road-building activities. Drill site monitoring would include visual inspections of the drill sumps during drill operations to ensure that the drill cuttings are contained. Should the observed condition indicate that the sump containment is inadequate, additional sump capacity would be built and/or incorporated into the drilling fluid management system. The constructed exploration drill roads, pads, and sumps would be maintained in operating condition until reclamation to prevent washouts and to reduce erosion, runoff, and sedimentation. All refuse generated by the project would be hauled off-site on a regular basis and disposed of at an authorized landfill facility off-site, consistent with applicable regulations.

Routine road maintenance may be required and would consist of smoothing ruts, filling holes with fill material, grading, and reestablishing drainage control when necessary. Dust control on the roads would be accomplished by watering the roads as necessary. It is currently anticipated that this would require up to approximately four truckloads of water per day (approximately 8,000-12,000 gallons; see Section 2.2.12.3, Water Use, for additional details about water use and sources) during active drilling periods in summer months. During less active drilling periods and during wetter months, this amount would be less.

The activities described in the 2011 PoO would not be conducted during severe winter conditions, in which case the project area would be stabilized using appropriate interim

reclamation and site management techniques. During extended periods of nonoperation or seasonal closure of the exploration activities, all motorized equipment would be removed from the project area. Trailers may be placed on the staging areas for storing drilling supplies and drill samples.

Exploration activities would continue until the exploration and mine development potential of the project has been fully evaluated. To a major extent, drilling success would determine the duration of project activities and the initiation of reclamation. If drilling activities locate mineral reserves that can be economically developed, disturbances would remain pending mine permitting. Only those access roads and drill pads needed for future exploration would remain open. Interim stabilization measures would be taken as necessary at these sites. Final reclamation would commence within 2 years if and when drilling results indicate that no resource is present.

Periods of non-operation are also anticipated between drilling phases. Once sumps have dried out, they would be backfilled and reclaimed as discussed in Section 2.2.10. No other issues related to periods of nonoperation are anticipated. All drill sites would be patrolled at the end of each drill period to ensure that all refuse and trash has been disposed of properly. In the event that fines are present below the drill sumps, the area would be scarified using a hand rake.

2.2.10 ***Final Reclamation***

Concurrent reclamation would take place to the degree possible by backfilling sumps, recontouring, scarifying, and seeding drill sites when the sumps become dry enough to backfill without causing a spill of drilling fluids.

Regrading and reshaping of all constructed drill sites and exploration roads would be completed to approximate the original topography. Fill material enhanced with the side-casted surface soil and plant material would be pulled onto the roadbeds to fill the road cuts and restore the slope to natural-appearing contours. For overland travel roads, upgraded roads, or pads that do not require replacement of sidecast material, reclamation would be accomplished with an excavator bucket, ripper, or bulldozer to knock down and smooth any berms and relieve road compaction. Tire tracks (trails created by overland travel) would be lightly scarified and left in a rough state as necessary to relieve compaction, inhibit soil loss from runoff, and prepare the seed bed.

Reclaimed surfaces would be revegetated to control runoff, reduce erosion, provide forage for wildlife, wild horses, and livestock, and reduce visual impacts. Seedbed preparation and seeding would generally take place in the 3rd or 4th quarter of the year, after grading and replacing side-casted surface soil and plant material on reclaimed areas. The preliminary reclamation seed mixture and application rate is included in Appendix A, Reclamation Plan. All reclaimed areas would be broadcast seeded with a cyclone-type bucket spreader. Broadcast seed would be covered by harrowing, raking, or other site-specific appropriate methods as necessary to provide seed cover and enhance germination.

Should any drainages be disturbed, any temporary culverts would be removed and the drainages would be reshaped to approach the preconstruction contours. The resulting channels would be of the same capacity as up- and downstream reaches, would be made nonerosive by use of surface stabilization techniques (rip-rap) where necessary, and would ultimately be revegetated. Following completion of earthwork, all disturbed areas would be broadcast seeded using the same methods described above.

The fuel tank, temporary buildings/trailers, storage containers and fencing would be removed from the laydown area when the exploration activities have been completed. All other equipment and supplies—including the microwave tower—would also be removed following completion of the project.

Appendix A, Midway's Reclamation Plan, includes a list of all measures to be taken to prevent unnecessary and undue degradation per 43 CFR 3809 and Nevada Department of Environmental Protection (NDEP) mining, reclamation, water quality, and air quality regulations.

2.2.11 *Post-reclamation Monitoring*

Post-closure management would commence on any reclaimed area following completion of the reclamation work for the area and would extend until the reclamation of the site or component has been accepted by the BLM and NDEP. For bonding purposes, a three-year post-closure management period is assumed following completion of reclamation construction on any site. For sites reclaimed early in the operations, management of the reclaimed sites would occur concurrently with operational site management. Monitoring would be conducted for three consecutive years in the third quarter of each year.

2.2.12 *Resource Requirements*

2.2.12.1 **Equipment**

Project personnel would access the site in four-wheel-drive vehicles. One or more truck-mounted, track-mounted, skid-mounted, or articulated buggy-mounted RC or core drill rigs would be used for drilling. Generally, a Caterpillar (Cat) D7 or D8 bulldozer or equivalent or a track-mounted excavator would be used to construct the roads and drill sites where needed. Roads and drill sites would be reclaimed using the same types of equipment. The following vehicles and equipment would be used in conjunction with project activities:

- Up to 10 truck-mounted, track-mounted, skid-mounted, or articulated buggy-mounted rotary RC or core drill rigs;
- 2,000- to 4,000-gallon water trucks; one per drill rig;
- One crew vehicle (4×4 pickup) per drill rig;
- One pipe truck per drill rig;
- One bulldozer for road construction;
- One excavator with pneumatic hammer;
- One auxiliary air compressor per drill rig;
- One booster truck per drill rig;
- One portable light plant/generator per drill rig;
- One pipe truck or trailer per drill rig;
- Up to two portable auger drills;
- Up to two down-hole survey trucks;
- Up to two ATVs, to be brought in by trailer as needed;
- Portable 2,000- to 6,000-gallon polypropylene tanks to store drill water; one per drill rig;
- One backhoe;
- One motor grader; and

- One skidsteer.

2.2.12.2 **Personnel and Travel**

The following personnel would be used in conjunction with project activities:

- Each drill rig would use a two- to four-person crew. The crew would carpool in one pickup truck to minimize the number of trips per day. Drilling would occur throughout the calendar year. Where multiple drill rigs are in use, a supervisor may also be present. The supervisor may cover multiple rigs.
- Each drill rig would have a water truck, which is expected to make at least one trip to the drill site for water each day. Depending on water needs for dust control, the water trucks may need to make multiple trips to the water source per day. The water source would be located within 10 miles of the project area (see Section 2.2.12.3, below).
- A pipe trailer truck would travel to the drill site at the beginning of work and back from the site at the completion of the work.
- Drilling muds would be delivered periodically as needed. Whenever possible, the mud would be delivered in bulk to minimize trips to the site.
- A down-hole survey truck would make one trip to and from each hole upon completion of drilling.
- One or more Midway geologists would travel to the project each day to supervise operations.

2.2.12.3 **Water Use**

Midway estimates that the drilling and dust control operations would require approximately 4,000 gallons per drill day per drill rig. Core drilling would require approximately 4,000 to 6,000 gallons per drill rig per drill day. In addition, dust control on drill roads would require up to approximately four truckloads of water per day (approximately 8,000–12,000 gallons). This water would be obtained from source(s) within 10 miles of the project area and would be brought in to the project area using the same access roads. Sources could include the use of the old Easy Junior mine well, located about 3 miles to the southeast of the project area. Midway would acquire or verify that all necessary NDWR waivers for temporary use of ground water for mineral exploration are in place.

2.2.12.4 **Hazardous Materials**

Hazardous materials used at the project area would include diesel fuel, gasoline, and lubricating grease. Approximately 625 gallons of diesel fuel would be stored in fuel delivery systems on vehicles and drill rigs. An aboveground diesel fuel tank of approximately 15,000 gallons, provided with its own double containment system, would be located at the laydown area. Approximately 125 gallons of gasoline would be stored in fuel delivery systems for light vehicles. Approximately 125 pounds of lubricating grease would be stored on the drill rigs or transported by drill trucks. All containers of hazardous substances would be labeled and handled in accordance with Nevada Department of Transportation (NDOT) and Mine Safety and Health Administration (MSHA) regulations.

2.2.13 *Applicant Committed Environmental Protection Measures*

The mineral exploration and reclamation activities proposed in the 2011 PoO have been specifically designed to prevent unnecessary or undue degradation and to comply with the environmental performance standards specified at 43 CFR 3809.420. Resource-specific environmental protection measures that Midway has committed to are described in Table 2-2, below.

Table 2-2. Applicant-committed Environmental Protection Measures (ACEPM)

Resource	Protection Measure
Cultural Resources	To prevent direct impacts to cultural resources, Midway would avoid all eligible or unevaluated cultural sites within the project area. As directed by the BLM all Phase 1 surface disturbance, as shown in Figure 2-1, would avoid all eligible cultural resource sites identified in the Class III cultural resources block study. Prior to beginning each subsequent phase, Midway would provide a work plan detailing specific locations and acreage of proposed disturbance. The plan would include an as-built map of previous phase disturbances, a map of the new phase proposed disturbance, and updated reclamation bonding. The BLM would review the proposed locations of the surface disturbance and notify Midway if the locations overlap an eligible or unevaluated cultural site identified in the Class III cultural resources block study. If an eligible or unevaluated cultural site is located within the area of proposed surface disturbance, the identified cultural site(s) would be avoided.
	Midway would ensure that all activities within 100 meters of a cultural discovery are halted and the discovery is appropriately protected, until the BLM Authorized Officer (AO) issues a Notice to Proceed. A Notice to Proceed may be issued by the BLM under any of the following conditions: • Evaluation of potentially eligible resource(s) results in a determination that the resource(s) are not eligible; • The fieldwork phase of the mitigation and treatment has been completed; and • The BLM has accepted a summary description of the fieldwork performed and a reporting schedule for that work.
	Archaeological monitors may be required in special cases as determined by BLM to avoid cultural resources in proximity to where mineral activities would be carried out. The BLM archaeologist would be informed prior to mineral activities in proximity to these cultural resources that require monitoring.
	Midway would inform all persons associated with the project that knowingly disturbing cultural resources (historic or archaeological) or collecting artifacts is illegal.
Paleonto-logical Resources	In the event that paleontological resources of potential scientific interest are encountered (including all vertebrate fossils and deposits of petrified wood), are located during exploration or reclamation activities, the activities would be stopped within 100 feet of the discovery, and the BLM would be notified. Activity that might impact the identified paleontological find would be suspended until after the discovery has been evaluated, any necessary mitigation measures completed, and the AO has issued a written Notice to Proceed.
Solid and Hazardous Waste	Project-related trash, garbage, debris, and foreign matter would be hauled from the site on a regular basis for disposal at an off-site authorized facility; no refuse would be disposed on-site. Site would be maintained and left in a clean and safe condition. Burning would not be allowed at the project area.
	Employees would be instructed regarding the types and locations of on-site petroleum products, as well as the health effects, hazards (such as fire and explosion), and environmental impacts associated with the products. In accordance with 29 CFR 1910.1200, a material safety data sheet (MSDS) for every chemical or hazardous material brought on-site would be kept on file at the mobile office.
	Fuel would be transferred from the 15,000-gallon aboveground tank (located at the laydown area) to and from pickup truck tanks by electric transfer pumps. A portable generator would be used at the 15,000-gallon tank location. Pickup trucks would be equipped with pumps that operate off the vehicle's electric supply. Sorbent materials shall be immediately available to control fuel spills up to 50 gallons. The fuel delivery transport operator would be certified and is the individual

Table 2-2. Applicant-committed Environmental Protection Measures (ACEPM)

Resource	Protection Measure
	responsible for loading the fuel tank. Clean-up supplies would be stored on-site in conex containers.
	Midway would store petroleum products such as gasoline, diesel fuel, helicopter fuel, and lubricants or any other hazardous materials in approved containers to prevent mixing, drainage, or accidents. Midway would adequately fence, post, or cover mud and separation pits, and hazardous material storage areas.
	Midway would not drain oil or lubricants onto the ground surface.
	In the event hazardous or regulated materials, such as diesel fuel, are spilled, Midway would take immediate measures to control the spill. Midway would Immediately clean up any spills under 25 gallons immediately and would clean up any spills over 25 gallons within 24 hours and report the incident to the BLM AO and Nevada Division of Environmental Protection. After clean up, the oil, toxic fluids, or chemicals and any contaminated material would be removed from the site and disposed of at an approved disposal facility.
	Midway would work with the AO on the containment of drilling fluids and drill hole cuttings.
	Mixing of herbicides and rinsing of herbicide containers and spray equipment would be conducted only in areas that are safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).
	All construction, operation, and maintenance activities would comply with all applicable Federal, State, and local laws and regulations regarding the use of hazardous substances and the protection of air and water quality.
Air Quality	Midway would use surface application of water from a water truck before and during surface clearing, and excavation activities to reduce fugitive dust emissions. Midway would use surface application of water and reduced speed limits on dirt access roads or other unpaved, unvegetated surfaces as needed (for example, during high-wind conditions) to reduce fugitive dust emissions. Draging or grading may be utilized to reduce road wear and dust generation on drill access routes.
	Drill rigs would be equipped with a cyclone to collect/sample dust to the greatest extent practicable. Drilling would be conducted using water as a dust control measure. No dry or air drilling would be conducted during exploration.
	All internal combustion equipment would be kept in good working order.
	Midway would cover construction materials and stockpiled soils if they are a source of fugitive dust.
Erosion and Sediment Control (Soil and Water Resources)	Midway would construct a containment barrier around all pumps used within 100 feet of a stream channel. The containment barrier would be of sufficient size to contain all fuel being stored or used on site.
	Midway would plug all drill holes per Nevada State statute (NDWR *Regulations for Water Well and Related Drilling*), as waivered. If artesian flow is encountered, the drill hole would be plugged immediately. The location, depth, and relative flow rate of any water intercepted would be reported to the Ely District Manager or the AO. Drill cuttings would be returned to the hole if possible, or at a minimum, raked and spread out so as not to impede regrowth of vegetation or to create erosion problems.
	Midway would use specialized low-surface impact equipment (e.g., balloon tired vehicles) or helicopters, as determined by the AO for activities in off-road areas where it is deemed necessary to protect fragile soils and other resource values.
	During periods of adverse soil moisture conditions caused by climatic factors such as thawing, heavy rains, snow, flooding, or drought, Midway would suspend activities on existing roads that could create excessive surface rutting. When adverse conditions exist, Midway would contact the AO for an evaluation and decision based on soil types, soil moisture, slope, vegetation, and cover.
	Midway would use BMPs for water management measures. These measures would include contour furrowing; terracing; reduction of steep cut and fill slopes; installing water bars in appropriate locations to control runoff and erosion; using sumps to manage drilling fluids; installing silt fences, weed-free hay bales, or other sediment control structures at appropriate

Table 2-2. Applicant-committed Environmental Protection Measures (ACEPM)

Resource	Protection Measure
	locations; having suitable spill control and cleanup equipment and supplies readily available; and implementing concurrent reclamation measures. Appendix B contains Midway's Reclamation Plan. When drainages must be crossed with a road, BMPs would be followed to minimize the surface disturbance and erosion potential. Temporary culverts could also be installed within the drilling area and as necessary on the access road. Maintenance of the exploration roads would include seasonal regrading when necessary. Midway would inspect erosion controls in the spring and fall and after exceptional storm events.
	Midway's restoration requirements include reshaping, recontouring, and/or resurfacing with growth medium, installation of water bars, and seeding on the contour. Removal of structures such as culverts, concrete pads, cattle guards, and signs would usually be required. Additional erosion control measures (e.g., fiber matting and barriers) to discourage road travel may be required as required by BLM.
	Midway would employ additional protective measures, such as restrictions on surface entry during periods of excessive runoff, avoidance of selected areas, and special reclamation techniques, on lands containing unstable/highly erodible soils, as determined by the AO.
	Soil stockpiles and road berms, if scheduled to be left in place over the growing season, would be seeded with an approved site-specific interim seed mix to reduce erosion, preserve the biological flora and fauna, and prevent the establishment of noxious weeds and other undesirable plant species.
	To provide for effective rehabilitation of the disturbed area, all available growth medium, as practical, would be removed and stockpiled. Any trees removed would be separated from soils and stockpiled separately. Midway would cover stockpiled soils if needed to minimize wind and water erosion of these stockpiles.
Vegetation Resources	Midway would keep removal and disturbance of vegetation to a minimum through construction site management (e.g., using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.). Midway would reclaim the disturbed area concurrently or at the earliest feasible time by recontouring to conform to pre-existing topography (including filling of trenches), to the extent possible, followed by redistribution of stockpiled growth medium over the reclaimed area. Compacted areas would be ripped to a depth of 12 inches unless in solid rock. Ripped areas may need further work to break up large clods and produce a fine-grained seed bed. Where seeding is required, Midway would use appropriate seed mixture and seeding techniques approved by the BLM AO. Midway would generally conduct reclamation with native seeds that are representative of the indigenous species present in the adjacent habitat, unless documenting rationale for potential seeding with selected non-native species. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. In all cases, seed mixes would be approved by the BLM AO prior to planting. Midway would generally seed during the 3rd and 4th quarter of the year.
	Areas would be considered to be satisfactorily reclaimed when all disturbed areas have been recontoured to blend with the natural topography, erosion has been stabilized, and an acceptable vegetative cover has been established. Midway would use the Nevada Guidelines for Successful Revegetation prepared by the Nevada Division of Environmental Protection, the BLM, and the U.S. Department of Agriculture Forest Service (or most current revision or replacement of this document) to determine if revegetation is successful. Reclamation bond release criteria would consist of the following: o The perennial plant cover of the reclaimed area would equal or exceed perennial cover of selected comparison areas (normally adjacent habitat). If the adjacent habitat is severely disturbed, an ecological site description may be used as a cover standard. Cover is normally canopy or foliar cover as estimated by the point intercept method. Selected cover can be determined using a method as described in Sampling Vegetation Attributes, Interagency Technical Reference, 1996, BLM/RS/ST- 96/002+1730. The Reclamation Plan for the project area would identify the site-specific release criteria and associated statistical methods in the Reclamation Plan or permit.
	Midway would respread weed-free vegetation removed from the right-of-way to provide

Table 2-2. Applicant-committed Environmental Protection Measures (ACEPM)

Resource	Protection Measure
	protection, nutrient recycling, and seed source.
Wildlife - general	Project-related traffic would observe prudent speed limits to protect wild horses, wildlife, and livestock.
Special-Status Species	Actions which would adversely impact a special-status species (including federally listed, proposed, and candidate species, state protected species, and BLM sensitive species or its habitat), would be modified to prevent possible future listing of these species as threatened or endangered.
	Raptors: Midway would protect active raptor nests in undisturbed areas within 0.25 mile of areas proposed for vegetation conversion using species-specific protection measures. Midway would inventory areas containing suitable nesting habitat for active raptor nests prior to the initiation of any project activities.
	Migratory Birds: Where possible, land clearing and surface disturbance would be timed to prevent destruction of active bird nests or young birds during the avian breeding season (April 15 to July 15, annually) to comply with the Migratory Bird Treaty Act (MBTA). If surface-disturbing activities are unavoidable during this period, Midway would have a qualified biologist survey the areas proposed for immediate disturbance for the presence of active nests. If active nests are located, or if other evidence of nesting is observed (mating pairs, territorial defense, carrying of nesting material, transporting of food), the area would be avoided to prevent destruction or disturbance of nests until the birds are no longer present. Avian surveys would be conducted only during the avian breeding season and immediately prior (within 7 days) to Midway conducting exploration activities that would result in disturbance. After such surveys are performed and disturbance created (i.e., road construction and drill pad development), Midway would not conduct any additional disturbance during the avian breeding season without first conducting another avian survey. After July 15, exploration activities would continue; no further avian surveys, in compliance with MBTA, would be conducted until the next year.

	The following restrictions apply to the following species:
	• Sage-grouse. No surface use would be allowed within ½ mile of an active sage-grouse lek from 5 a.m. until 10 a.m. during the period March 1 through May 15.
	• Ferruginous Hawk. Ferruginous Hawk nest sites would not be disturbed and no surface use would be allowed within ½ mile of an occupied Ferruginous Hawk nest during the period March 1 through June 30 or until the birds have fledged (left) the nest, as determined by a BLM biologist.
	• Buffers for other raptor species would be determined on a case-by-case basis.
	• Pygmy Rabbit. Within the Ely District, there are favorable habitats selected by pygmy rabbits as burrowing areas. Therefore, prior to entry into these areas, Midway would discuss the proposed activities with the AO who may require additional measures for the protection of pygmy rabbits and their habitats. Such measures may include:
	  o Avoidance of selected areas
	  o Restriction of activities near burrows during the months of April through June.

Invasive Nonnative Species	To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities; for emergency fire suppression; or for authorized off-road driving would be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment would be cleaned with power or high pressure equipment prior to entering or leaving the work site or Project Area. Vehicles used for emergency fire suppression would be cleaned as a part of check-in and demobilization procedures. Cleaning efforts would concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis would be applied to axels, frames, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out, and refuse would be disposed of in waste receptacles. Cleaning sites would be recorded using global positioning systems or other mutually acceptable equipment and provided to the BLM Ely District Weed Coordinator or designated contact person. Employees and contractors would be educated to identify weeds that could spread further in the project area.

Table 2-2. Applicant-committed Environmental Protection Measures (ACEPM)

Resource	Protection Measure
	To eliminate the transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials would not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials would be salvaged and stockpiled adjacent to the area from which they were stripped. During reclamation, the materials would be returned to the area from which they were stripped. Further, all source sites such as borrow pits, fill sources, or gravel pits used to supply inorganic materials used for construction, maintenance, or reclamation would be inspected and found to be free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District. Inspections would be conducted by a BLM weed scientist or qualified biologist as needed.
	In areas of known noxious weed infestations, monitoring of noxious weeds would be conducted on an annual basis. Monitoring would be conducted until project release. If the spread of noxious weeds is noted, the infested areas would be further evaluated to determine the appropriate remedial action and appropriate treatment. Appropriate weed control procedures, including target species, timing of control, and method of control, would be determined in consultation with BLM personnel.
	No noxious weeds would be allowed on the site for reclamation release. Any noxious weeds that become established would be controlled. Bonds would be retained for weed control until the site is returned to desired vegetative conditions.
	To eliminate the introduction of noxious weed seeds, roots, or rhizomes, all interim and final seed mixes, hay, straw, or other organic products used for reclamation or stabilization activities, feed, bedding would be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District.
	Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)
	Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected non-native species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable. In all cases, seed mixes would be approved by the BLM AO prior to planting.
Travel Management and Off-highway Vehicle Use	Midway would design access roads requiring construction with cut and fill to minimize surface disturbance and take into account the character of the landform, natural contours, cut material, depth of cut, where the fill material would be deposited, resource concerns, and visual contrast. Midway would avoid construction of access roads on steep hillsides and near watercourses where alternate routes provide adequate access.
Visual Resources	During the implementation of vegetation treatments, Midway would create irregular margins around treatment areas to better maintain and mimic the surrounding visual character of the landscape.
Fire Protection	Mobile equipment would be properly muffled and equipped with suitable fire suppression equipment, such as fire extinguishers, hand tools, and portable water pumps. All applicable state and federal fire laws and regulations would be complied with, and all reasonable measures would be taken to prevent and suppress fires in the project area. Adequate fire protection/suppression equipment prescribed by the National Fire Protection Association (NFPA) Codes 10 and NFPA 30 for the quantity of fuel stored would be on-site whenever work is being conducted. Midway would report uncontrolled fires immediately to the BLM Ely District Manager or AO. The BLM Fire Dispatch telephone number is (775) 289-1925 or 1-800-633-6092. After working hours, staff would call 911, the White Pine County Sheriff's Office at (775) 289-8801, the Lincoln County Sheriff's Office at (775) 962-5151, or the Nye County Sheriff's Office at (775) 482-8101.
Employee	Midway would train employees, contractors, and other related personnel regarding the

Table 2-2. Applicant-committed Environmental Protection Measures (ACEPM)

Resource	Protection Measure
Training	environmental and safety responsibilities required under the 2011 PoO.
Mineral Exploration and Extraction	Midway would notify the AO within 5 days of completion of reclamation work so that timely compliance inspections can be completed.
	Any change or amendment to the minerals operation would be brought to the attention of the Ely District Manager or an AO prior to implementation of the change on the ground.
	Existing access would be used whenever possible. Off-road vehicular travel would be held to an absolute minimum necessary to complete operations. Additional roads, if needed, would be kept to an absolute minimum. The location of all routes would be approved by the AO prior to construction.
	All survey monuments claim markers, witness corners, reference monuments, bearing trees, etc., would be protected against destruction, obliteration, or damage. When operations are concluded, Midway would remove all survey markers, stakes, flagging, etc., for which Midway has no further need.
	Removal or alteration of existing improvements (fences, cattle guards, etc.) would not be allowed without prior approval of the AO. Existing improvements would be maintained in a serviceable and safe condition. Upon completion of operations, any authorized facility alterations would be restored to the specifications of the AO.
	Midway would work with the AO on the containment of drilling fluids and drill whole cuttings and would adequately fence, post, or cover mud and separation pits.

2.3 ALTERNATIVE B: NO ACTION ALTERNATIVE

Under the No Action Alternative, the Proposed Action would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. Activities associated with this disturbance would include maintenance of existing access roads, construction of exploration roads, and construction of drill pads. This acreage would be reclaimed and released by the BLM, based on compliance with the revegetation success release criteria. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

Midway has chosen to resolve resource concerns surrounding proposed access through the development of route and timing options within the Proposed Action. No other alternatives or options were considered because 1) there is no redundancy with existing roads in the Proposed Action and 2) alternate exploration development configurations would not address unresolved conflicts concerning uses of available resources.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This section describes the existing environment of the area affected by the Proposed Action or alternatives under consideration, and discloses potential impacts of the Proposed Action and alternatives. Supplemental authorities that are subject to requirements specified by statute or executive order must be considered in all BLM environmental documents. The elements associated with the supplemental authorities listed in the NEPA Handbook (BLM 2008b, Appendix 1) and in the Nevada Instruction Memorandum 2009-030, Change 1, are listed in Appendix C. The appendix lists the elements and their status in the project area as well as the rationale to determine whether the element is present in the project area and would be affected by one or more elements of the Proposed Action. Supplemental authorities that may be affected by the Proposed Action are analyzed in this chapter. Those elements listed under the supplemental authorities that do not occur in the project area and would not be affected are summarized in Table 3-1 and eliminated from further discussion in this EA. The elimination of nonrelevant issues is consistent with 40 CFR 1500.4. Resources or uses that may be affected by the Proposed Action are analyzed in the remainder of this chapter.

Table 3-1. Resources Eliminated from Detailed Analysis in this Environmental Assessment

Resource	Rationale for Elimination
Wetland-riparian resources	Not present in the project area.
Prime and unique farmlands	Not present in the project area.
Livestock grazing	Due to the size of this project relative to the overall size of the grazing allotment, the phased nature of the project, and the concurrent rehabilitation, this exploration project would not affect livestock, designated animal unit months and/or BLM's Rangeland Health Standards.
Wild Horses	Due to the size of this project relative to the overall size of the herd management unit, the phased nature of the project, the concurrent rehabilitation, and the ACEPMs regarding road speed, this exploration project would not affect wild horse ability to forage, would cause minimal displacement, and minimal risk of mortality due to collisions with vehicles
Water rights	There is no project area water use associated with this project and therefore no project area water rights issues. Midway would purchase and transport all water to the project area.
Floodplains	Not present in the project area.
Forests and rangelands	No forests are present in the project area. BLM's Rangeland Health Standards would not be affected.
Wild and scenic rivers	Not present in the project area
Environmental justice	No adverse impacts that would disproportionally adversely impact minority or low-income populations.
Wilderness	Not present in the project area.
Lands with Wilderness Characteristics	An update to the Lands with Wilderness Characteristics inventory was completed. Resource is not present in the project area.
Special-status vegetation species	Site-specific surveys were conducted throughout the project area; no federally listed or BLM special-status species were identified in the project area.

The BLM has used environmental data collected in the project area to describe the affected environment and predict environmental effects that could result from the Proposed Action and alternatives. A level of uncertainty is associated with any set of data in terms of predicting outcomes, especially when natural systems are involved. The predictions described in this analysis are intended to allow comparison of alternatives to the Proposed Action, as well as provide a method to determine whether activities proposed by the applicant would be expected to comply with applicable federal, state, or local regulations.

3.2 GENERAL SETTING

The 5,528-acre project area is located on the eastern side of the Pancake Range in White Pine County, Nevada, approximately 30 miles southeast of Eureka, 50 miles west of Ely, and 15 miles south of U.S. Highway 50 (see Figure 1-1).

The climate and vegetation in the project area are typical of the higher elevation environment of the northern Basin and Range Province. The average annual precipitation is 9 inches (White Pine County Public Lands Policy Plan 2007). Temperatures during the winters are cool with periods of very cold weather with an average temperature in January of 23.9 degrees Fahrenheit (°F). The summers are dry, especially at the lower elevations, with an average high temperature in August of 65.5°F (White Pine County Tourism and Recreation Board 2012). Elevation in the project area ranges between 6,250 and 7,645 feet above mean sea level (amsl). The site topography varies from gently sloping to nearly vertical (on small rock outcrops in the higher elevations of the project area).

3.2.1 *Air Quality*

The analysis area for impacts to air quality comprises the following four 12-digit hydrologic unit code (HU 12) subwatersheds[2]: Headwaters Duckwater Creek, Upper Bull Creek, Middle Bull Creek, and Hoppe Spring. This area was chosen because it represents an ecologically connected area with clear topographical boundaries against which to measure impacts to air quality and visibility from activities located in the project area. The analysis area is 113,516 acres.

3.2.1.1 **Affected Environment**

As directed by the Clean Air Act, the Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) to limit the amount of pollutants in the atmosphere considered harmful to public health and the environment. The EPA uses six criteria pollutants as indicators of air quality and has established for each a maximum concentration above which adverse effects on human health could occur. The criteria pollutants are carbon monoxide (CO), lead, nitrogen dioxide, ozone, sulfur dioxide, carbon dioxide (CO_2), and particulate (solid) matter. The EPA also regulates 187 hazardous air pollutants that are known or suspected to cause cancer or other serious health effects. States are required to adopt standards that are at least as stringent as the NAAQS.

[2] Watersheds are classified into hydrologic units: first-field (region), second-field (sub-region), third-field (accounting unit), fourth-field (cataloguing unit), fifth-field (watershed), and sixth-field (subwatershed). Each hydrologic unit is identified by a unique hydrologic unit code (HU) consisting of two to twelve digits, based on the six levels of classification. A sixth-level watershed has a 12-digit HU code.

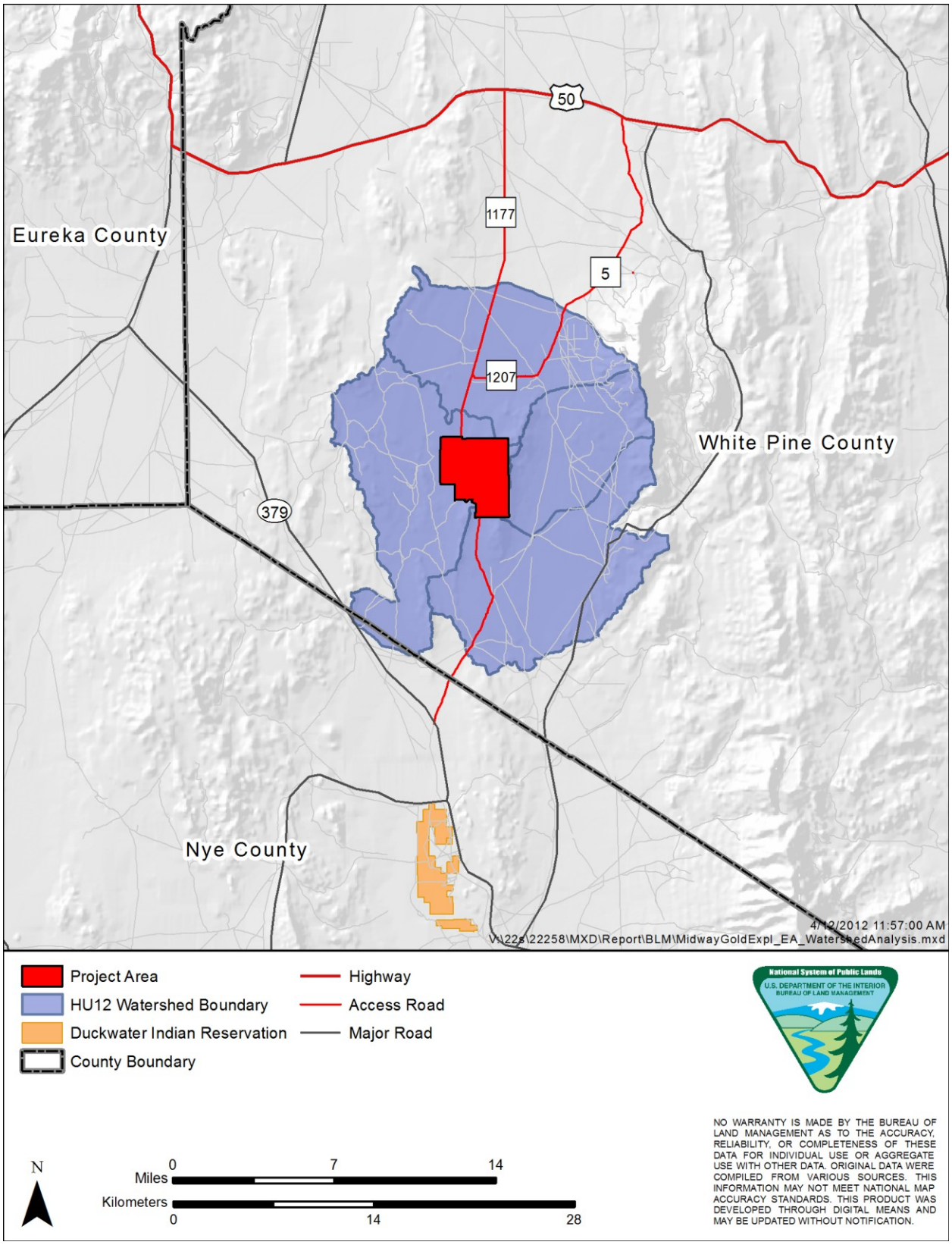

Figure 3-1. Air quality analysis area (Headwaters Duckwater Creek, Upper Bull Creek, Middle Bull Creek, and Hoppe Spring HU 12 subwatersheds).

Areas that do not meet the NAAQS standards (i.e., that are not in compliance) for criteria pollutants are called *nonattainment areas* and are routinely monitored. A particular geographic region may be designated an attainment area for some pollutants and a nonattainment area for others. A *maintenance area* is an area once designated as nonattainment that has subsequently demonstrated that it has attained and maintained a particular standard for 10 years. The analysis area is currently in attainment with the NAAQS (State of Nevada 2003). No data are available regarding emissions and concentrations of criteria pollutants within the analysis area.

Regional haze refers to haze that impairs visibility in all directions over a large area. In July 1999, the EPA announced a rule designed to protect and improve visibility in 156 national parks and wilderness areas throughout the country. The Regional Haze Regulations affect only Class I national parks and wilderness areas. There are no Class I areas in White Pine County subject to the rule.

3.2.1.2 **Environmental Consequences**

3.2.1.2.1 Proposed Action

Under the Proposed Action, fugitive dust would result from clearing, excavation, earth-moving, and grading activities associated with 137 acres of surface disturbance, including 13 miles of vehicular travel on dirt and gravel drill roads and 2.2 miles of overland travel routes. This comprises 0.12% of the analysis area. Fugitive dust would also result from vehicle travel along the project's 10- to 15-mile-long access roads. This dust would have short-term, adverse impacts on air quality and would temporarily reduce visibility in the local airshed. Wilderness areas, wilderness study areas, and areas of critical concern would not be impacted by changes in the local airshed due to their location more than 24 miles from the project area. Fugitive dust impacts would be temporary and would end at the completion of the exploration drilling activities. The phased nature of the project would reduce the severity of impacts on air quality and visibility by 1) spreading out the 137 acres of planned surface disturbance over a five-year time period and 2) conducting concurrent reclamation; however, it would therefore extend the length of time of those impacts.

Fugitive dust control methods would consist of the surface application of water from a water truck before and during surface clearing and excavation activities. In addition, surface application of water and reduced speed limits would be used on dirt access roads or other unpaved, unvegetated surfaces, as needed, to reduce fugitive dust emissions. Construction materials and stockpiled soils would be covered if they become a source of fugitive dust. Final reclamation activities, described in Section 2.2.10, would minimize long-term fugitive dust emissions through revegetation, regrading, and recontouring activities that would return the area to its existing condition.

The project would require up to 10 rotary RC or core drill rigs, up to 10 crew vehicles (4 × 4 pickups), up to 10 pipe trucks or trailers, one bulldozer, one excavator with a pneumatic hammer, up to 10 auxiliary air compressors, up to 10 booster trucks, up to 10 portable light plants/generators, up to two portable auger drills, up to two down-hole survey trucks, up to two ATVs, and up to 10 water trucks (2,000- to 4,000-gallon). Vehicles and equipment used in conjunction with project activities would emit both criteria pollutants and hazardous air pollutants, including nitrogen oxides, CO, sulfur oxides, particulate matter with aerodynamic diameter equal to or less than 10 micrometers (PM_{10}), CO_2, benzene, toluene, and xylenes.

Drill rigs would be equipped with a cyclone to collect/sample dust to the greatest extent practicable, resulting in further reductions to fugitive dust emissions. All internal combustion engines would be kept in good working order to limit criteria and hazardous air pollutant emissions. Concentrations are not expected to exceed the NAAQS based on the current attainment status of the area with relation to the number, and dispersed nature of the drill sites (up to 10 drill rigs operating at one time) within the 5,528-acre project area), and the number and type of vehicles and heavy equipment proposed.

3.2.1.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and the area would remain available for multiple-use activities allowed under BLM regulations. Midway would continue to explore the project area, which would include maintenance of existing access roads, construction of exploration roads, and construction of drill pads. Current air pollutant emissions from existing sources and Midway exploration activities would continue but would be less than under the Proposed Action. The area would remain in attainment with the NAAQS.

3.2.2 ***Cultural Resources***

Cultural resources include archaeological resources, which are the material remains of past human activity. Archaeological resources can be either prehistoric or historic in age (i.e., dating to either before or after the time of Euro-American settlement), and they include artifacts (portable objects of human manufacture); features such as firepits, houses, and other types of structures; rock art; and archaeological sites where any of the above may be found. Cultural resources can also include other types of places that are important to the heritage of contemporary peoples (e.g., traditional cultural properties).

Cultural resources are managed under a variety of laws and regulations including Section 106 of the National Historic Preservation Act of 1966 (NHPA) (36 CFR 800), which requires that federal agencies take into account the effect that a federal undertaking (or Proposed Action) may have on historic properties; i.e., any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP). A finding under Section 106 of the NHPA that an undertaking will adversely affect historic properties implies that there may be an impact for purposes of NEPA (40 CFR 1508.27(b)).

The analysis area for impacts to cultural resources is the 5,528-acre project area. This is the area of potential effect (APE) for purposes of review under Section 106 of the NHPA, all of which has been inventoried for cultural resources by ASM Affiliates (Patsch et al. 2012).

3.2.2.1 **Affected Environment**

Cultural resources identified within the project area consist of a variety of types of archaeological sites, including prehistoric lithic scatters, a prehistoric habitation site, a rock shelter, prehistoric/ethnohistoric game traps, an ethnohistoric (i.e., dating to the period of early Euro-American exploration and settlement) refuse scatter, historic habitation sites, charcoal platforms, historic refuse scatters, and historic road segments (Patsch et al. 2012). Temporally diagnostic artifacts (i.e., artifacts that provide an indication of the time at which sites were occupied) reflect prehistoric occupations dating from the Early to Late Archaic time periods, as

well as historic use of the area from the early 1900s through post-1950. The project area contains eight identified NRHP-eligible cultural resource sites (Table 3-2).

Table 3-2. NRHP-Eligible Sites within the Project Area

Site Number	NRHP Eligibility Criterion/a	Description	Time Period
26WP10386	D	historic habitation site that is likely associated with charcoal production	Historic period; late A.D. 1800s
26WP10388	D	prehistoric projectile point accumulation with an ethnohistoric locus	Middle and Late Archaic periods (3,500 BP-A.D. 1800s)
26WP10391	D	prehistoric habitation site	Late Archaic period (1,500 BP-A.D. 1800s)
26WP10394	D	prehistoric habitation site	Late Archaic period (1,500 BP-A.D. 1800s)
26WP10413	C and D	prehistoric/ethnohistoric antelope trap	Unknown
26WP10414	C and D	prehistoric/ethnohistoric antelope trap	Unknown
26WP10423	D	prehistoric rockshelter	Unknown
26WP10435	D	prehistoric lithic scatter	Middle Archaic period (3,500-1,500 BP)

The Early Archaic period corresponds to a time when the Great Basin experienced higher temperatures and reduced precipitation relative to modern conditions (Grayson 1993). Human lifeways during this period appear to have made use of both upland settings and valley bottoms. Grinding stones, indicative of intensive processing of seed resources, become more common throughout the region during this period than had previously been the case, and characteristic projectile points include Pinto, Humboldt, and Gatecliff Series types. The Middle Archaic period, marked by a return to the cooler and wetter climatic conditions of the late Holocene, appears to have been a period of human population growth in the eastern Great Basin. Elko Series projectile points comprise the most common point type of this period. The Late Archaic period is marked by the introduction of the bow-and-arrow. The spread of Numic-speaking peoples from southeastern California into the rest of the Great Basin may have occurred during this period, and this spread may be reflected by the appearance of brownware ceramics and Desert Series projectile points (e.g., Madsen and Rhode 1994). In the far eastern Great Basin, human lifeways characteristic of the Formative period are evident during part of the span of time that comprises the Late Archaic period elsewhere. Formative occupations in the far eastern Great Basin are considered to be part of the Fremont archaeological complex (e.g., Madsen and Simms 1998) and are characterized by lifeways that included some degree of reliance on corn agriculture (as opposed to the purely hunting and gathering subsistence practices of groups described as Late Archaic) and use of primarily grayware ceramics. The project area lies at approximately the westernmost extent of known Formative/Fremont sites.

The time of contact between Native Americans and Euro-Americans, sometimes called the ethnohistoric period, began in the early 1800s in the vicinity of the project area. Western Shoshone people occupied the area at this time, with settlements in northern Railroad Valley, particularly around Duckwater (Steward 1997). By the mid-1800s, the traditional hunting and gathering practices of these people began to be severely disrupted by Euro-American livestock grazing and private property restrictions. This ultimately led to the incorporation of the Western

Shoshone into the Euro-American cash economy, and to the establishment of a reservation at Duckwater in 1940.

Of the historic period Euro-American sites in the project area that can be associated with any specific activity, most are related to mining. The project area is located along the western periphery of the historically significant White Pine Mining District, which was organized in 1865 around Mt. Hamilton. This district was very productive for a time and had a population in the 1860s and 1870s of as high as 10,000 to 12,000. To the west of the project area is the historic Pancake Mining District, which was organized in the 1870s but never produced significant amounts of ore. In support of mines in districts such as White Pine and Pancake, charcoal was produced throughout the region. This involved harvesting pinyon and other trees and burning them on platforms or in kilns to produce charcoal for use in ore processing and other mining-related activities. Charcoal production facilities, such as platforms and habitation sites, are present within the project area; one NRHP-eligible site that appears to be associated with this activity has been identified (see Table Cult-1).

Other activities with which cultural resources in the project area may be associated with ranching, and the establishment of transportation routes such as early freight routes associated with mining districts and the later Lincoln Highway (established in the 1910s). Cattle and sheep ranching have been practiced in the general vicinity of the project area since the 1860s, though this industry has frequently been subject to stresses in this region due to overgrazing, harsh winters, and economic downturns. Historic transportation routes in the vicinity of the project area include the Pritchard Fast Freight and Hamilton-Eureka freight routes, which were most heavily used during the late 1800s. The Pony Express and Overland Stage routes pass to the north of the project area in northern portion of Newark Valley. The Lincoln Highway route generally corresponds to that of modern U.S. Hwy 50, which is located to the north of the project area, and present-day U.S. Hwy 6, located to the southeast of the project area, follows the route of the Midland Trail highway, construction of which was begun in 1913.

3.2.2.2 **Environmental Consequences**

3.2.2.2.1 Proposed Action

Under the Proposed Action, construction of drill roads, drill sites and sumps, augur holes or trenches, the laydown area, and the use of overland travel would cause surface and subsurface physical disturbance that could result in the destruction or inadvertent discovery of cultural resources. There would be 137 acres of surface disturbance, which is 2% of the project area.

This disturbance could result in damage or destruction to cultural resource sites. Prehistoric cultural resources in the project area could include those associated with the Early through Late Archaic periods. Ethnohistoric sites could include cultural resources associated with traditional hunting and gathering practices of the Western Shoshone. Historic resources in the project area could be those associated with mining (such as charcoal production sites), ranching, exploration, or the establishment of early transportation routes.

There are eight identified NRHP-eligible sites identified within the project area (Patsch et al. 2012; Humphrey, 2012; see Table 3-2). Potential for impacts to these sites or to previously unidentified resources would be precluded though the ACEPMs identified in Section 2.2.13:

- All previously identified NRHP-eligible sites will be avoided by project activities if possible, such that no direct impacts to them will occur. Prior to beginning each

subsequent phase, Midway would provide a work plan detailing specific locations and acreage of proposed disturbance. The BLM would review the proposed locations of the surface disturbance and notify Midway if the locations overlap an eligible or unevaluated cultural site identified in the Class III cultural resources block study. If an eligible or unevaluated cultural site is located within the area of proposed surface disturbance, the identified cultural site(s) would be avoided.

- All project activities that occur within 100 meters of any previously identified NRHP-eligible site would be monitored by a professional archaeologist who would stop activities in the event that any previously unidentified cultural resources are discovered, so that those resources can be evaluated.

If avoidance is not possible, a treatment plan for the affected sites would be prepared and mitigation of impacts would occur through archaeological data recovery investigations. These measures, stipulated by a Memorandum of Agreement signed by BLM, Egan FO and the Nevada State Historic Preservation Office for purposes of completing the review of the project under Section 106 of the NHPA, would ensure that no significant direct impacts to NRHP-eligible cultural resource sites will occur, whether or not those sites have been previously discovered.

Cultural resources can also be impacted by environmental changes that affect their setting. Within the project area, the addition of exploration activities would not be likely to change the current setting appreciably, because the dominant visual features in the project area are already mining-related (the heap leach pad and access roads associated with the former Easy Junior mine, see Visual Resources, Section 3.2.10). In addition, all of the NRHP-eligible cultural resource sites that have been identified within the project area are eligible for the NRHP under eligibility criterion D (i.e., due to their potential to provide information important in history or prehistory), and changes in setting would not affect the characteristics of these sites that make them eligible under this criterion because changes to a site's setting do not generally change their potential to supply information about the past. And finally, two of the previously identified NRHP-eligible sites within the project area—both antelope traps—are eligible under criterion C in addition to criterion D, but neither would changes in setting affect this aspect of the significance of these sites: these sites have been judged specifically to display distinctive characteristics and methods of construction, but changes in setting would not affect the construction methods and characteristics of these sites.

It is also possible that indirect impacts to cultural resources could occur as a result of an increased risk of discovery or damage through additional project area access available to recreationists or others from the development of new drill roads. The risk of indirect impacts to cultural resources would rise under the Proposed Action roughly in proportion to the ratio of miles of new roads relative to miles of existing roads. There are approximately 7 miles of road within the project area. Phase I activities would include the construction of 13.4 miles of new road, an increase of approximately 186% to the existing roads within the project area. A similar amount of road construction and overland travel is expected in Phase II activities. Midway phasing and ongoing reclamation would minimize the total acreage of open drill roads available for access; only those access roads needed for future exploration would remain open. Thus the miles of roads open at any one time would likely be less than the total of Phase I and Phase II activities. Midway would train its employees, contractors, and other related personnel regarding its cultural resources responsibilities required under the 2011 PoO.

3.2.2.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and the area would remain available for multiple-use activities allowed under BLM regulations. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval.

3.2.3 ***Paleontological Resources***

Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Fossils are considered nonrenewable resources because the organisms they represent no longer exist. The analysis area for impacts to paleontological resources is the 5,528-acre project area, because it represents the entire area of potential surface disturbance and therefore the entire area of potential impacts to paleontological resources.

3.2.3.1 **Affected Environment**

The BLM, in its General Procedural Guidance for Paleontological Resource Management H-8270-1 (revised 1998), classifies public lands based on the potential for paleontological "areas" to contain noteworthy occurrences of fossils.

Geologic units are defined based on physical characteristics and depositional environment, both of which are also indicative of potential to contain preserved fossils. The presence of pertinent geologic units at or near the surface can broadly predict the potential for finding important paleontological resources.

The Potential Fossil Yield Classification (PFYC) system was originally developed by the U.S. Forest Service's (USFS) Paleontology Center of Excellence, and the Region 2 (USFS) Paleo Initiative (USFS 1996). PFYC is in the process of being formally adopted by the BLM to promote consistency between agencies and throughout the BLM. Under the PFYC system, geologic units are classified from 1 to 5 based on the relative abundance of vertebrate fossils or uncommon invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential. The classification is not an assessment of whether important fossils are known to occur occasionally in these units; rather, it provides baseline guidance to assess and mitigate impacts to paleontological resources. The PFYC is usually consistent within a geologic unit.

The BLM has not currently designated PFYC classifications within the project area. In a paleontological mitigation-monitoring plan prepared for the BLM Ely District Office (Murphey and DeBusk 2011), PFYC classes were recommended for a number of geologic units identified along a transmission line route corridor in Nevada. The BLM Ely FO concurred with the PFYC recommendations for those geologic units. Although the PFYC recommendations in the monitoring plan were site-specific, it is reasonable to assume that the geologic units along the transmission line would have the same PFYC to those found in the project area, because of its similar physical characteristics and depositional environment. Using the 2011 data from Murphey and DeBusk, Table 3-3 describes the geologic units, the associated acreage within the project area, and the recommended PFYC.

Table 3-3. Acreage and Percentage of Project Area with Potential Paleontological Sensitivities

Geologic Unit(s)	Map Symbol	Age	Description	Project Area Acreage (Percentage)	Potential PFYC
Chainman Shale, Joana Limestone, Pilot Shale	MDcl	Lower Mississippian and Upper Devonian	Siltstone, limestone, shale, and sandstone. Pilot Shale is generally recognized as carbonaceous shale, overlain by the cliff-forming Joana Limestone. Siliciclastic quartz-bearing grit, chert, quartz sand, and siltstone in a calcareous matrix are common in Chainman Shale.	3,046.67 (55.1%)	2
Sedimentary rocks	Qal	Holocene and Pleistocene	Alluvium, undifferentiated. Present throughout Nevada.	1,335.46 (24.2%)	3b
Diamond Peak Formation, White Pine Range and west	IPMcl	Middle Pennsylvanian to Lower Mississippian	Shale, siltstone, sandstone, and conglomerate. Crops out across all of eastern Nevada. Overlain by carbonate rocks or by Permian and Upper Pennsylvanian clastic rocks.	673.23 (12.2%)	2
Devils Gate Limestone	Dc	Upper and Middle Devonian	Limestone and minor dolomite. Generally cliff-forming, thin-to thick-bedded limestone. Mainly shallow-water subtidal, intertidal, and supratidal deposits formed on a broad inner carbonate shelf.	461.89 (8.4%)	2
Jasperoid breccia	br	Tertiary to Jurassic	Part of a mixed breccia unit that identifies locally disrupted rocks. Tectonic, volcanic, and metamorphic origins.	10.53 (0.2%)	1
Younger sedimentary and volcanic rocks	Ts3	Pliocene and Miocene	Tuffaceous and other young Tertiary sedimentary rocks. Most are sedimentary with a strong volcanic component.	0.55 (<0.1%)	3b

Sources: Crafford (2007) and Murphey and DeBusk (2011).
Notes:
PFYC 1: Unlikely to contain recognizable fossil remains
PFYC 2: Not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils
PFYC 3b: Geologic units where fossil content varies in significance, abundance, and predicable occurrence; also geologic units of unknown fossil potential

As show in Table 3-3, over 75% of the project area (4,192 acres) consists of geologic units that are not likely to contain recognizable fossil remains, vertebrate fossils, or scientifically significant nonvertebrate fossils (PFYC 1 or 2). The remaining 24% of the project area (1,336 acres) consists of geologic units where fossil content varies in significance, abundance, and predictable occurrence, or geologic units of unknown fossil potential (PFYC 3b).

3.2.3.2 **Environmental Consequences**

3.2.3.2.1 Proposed Action

Under the Proposed Action, construction of drill roads, drill sites and sumps, augur holes or trenches, the laydown area, and the use of overland travel would cause surface and subsurface physical disturbance that could result in the destruction or discovery/recovery of paleontological resources. There would be 137 acres of surface disturbance. This is 2% of the project area. The

risk of these direct impacts depends on the disturbance in geological formations with the potential to yield fossils. During Phase I, approximately 85% of all proposed surface disturbance (55.54 acres) would be located in PFYC 1 or 2 areas; that is, areas unlikely to contain recognizable fossil remains, vertebrate fossils, or scientifically significant nonvertebrate fossils. The remaining 15% (9.67 acres) would be located in areas identified as PFYC 3b (fossil content varies in significance, abundance, and predicable occurrence; also geologic units of unknown fossil potential). These areas would comprise 0.17% of the total project area.

Indirect impacts to paleontological resources would include an increased risk of discovery or damage through additional project area access available to recreationists or others from the development of new drill roads. Under Phase I of the Proposed Action, there would be a maximum of 2.2 miles of new road present within 200 feet of the two geologic units with a potential PFYC of 3b. The percentage of Phase II proposed surface disturbance that would be apportioned to new roads is not known. Midway phasing and ongoing reclamation would minimize the total acreage of open drill roads available for access; only those access roads needed for future exploration would remain open. Thus the miles of roads near PFYC 3b areas that are open at any one time would likely be less than the 2.2 mile total. Midway would also train its employees, contractors, and other related personnel regarding the environmental responsibilities required under the 2011 PoO.

In the event that paleontological resources of potential scientific interest (including all vertebrate fossils and deposits of petrified wood) are encountered during exploration or reclamation activities, Midway would stop activities within 100 feet of the discovery and notify the BLM. Activity that might impact the identified paleontological find would be suspended until after the discovery has been evaluated, any necessary mitigation measures completed, and a BLM Authorized Officer (AO) has issued a written Notice to Proceed.

3.2.3.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and the area would remain available for multiple-use activities allowed under BLM regulations. Midway would continue to explore the project area, which would include maintenance of existing access roads, construction of exploration roads, and construction of drill pads. The potential for disturbance of paleontological resources by Midway and other users would continue to exist but would be less due to the reduced amount of surface disturbance.

3.2.4 ***Soil Resources***

The 5,528-acre project area is used as the area of analysis for impacts to soil resources because there is little hydrological connectivity to areas outside the project area. No surface water is located within 0.5 mile down gradient from the project area, and the few ephemeral tributaries that are present on-site contain water only a few days of the year. Therefore, the primary issues related to soils are impacts to fragile soils in the project area itself and reclamation potential for disturbed areas.

3.2.4.1 **Affected Environment**

3.2.4.1.1 Soil Types

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) data (NRCS 2006) were used to determine soil mapping units, soils series, and soil characteristics for

the project area. Ten soil types occur in the project area. Each soil series is rated as having a slight, moderate, high, or very high water and wind erosion hazards. These ratings were developed using soil erodibility, runoff factors, and the wind erodibility index, as defined in the National Soil Survey Handbook (NRCS 2003). Wind and water erosion hazards become critical issues when protective vegetation is removed during and following construction activities, including road construction. Typically, soils found on steeper slopes have a high water erosion hazard, and soils found on gentler slopes have a low water erosion hazard. Finer grained soils are at greater risk of wind erosion, and soils with more gravel and/or stones have a lower risk of wind erosion.

In addition, other factors may affect reclamation following surface disturbance. Reclamation-limiting factors within the ten soil types that would be impacted by the project consist of 1) soil drought susceptibility, 2) alkaline soils, and 3) rooting depth. Droughty soils are characterized by course texture, excessively rapid percolation rates (low water-holding capacity), and low organic matter content; as such, they are prone to soil erosion and have limited reclamation potential (BLM 2007). Alkaline soils (those with a high pH value) have a low water infiltration capacity and can also limit reclamation and revegetation potential due to reduced nutrient availability. Rooting depth, or depth to bedrock, is the soil depth to fixed rock; shallow soils are often not conducive to vegetation establishment and are prone to erosion. Table 3-4 contains a summary of the acres and characteristics of soil types within the project area.

Table 3-4. Acres and Characteristics of Soil Types within the Project Area

Soil Type	Acres in Project Area	Percentage of Project Area	Reclamation Limiting Factors
Bylo silt loam, 0%–2% slopes	89.64	1.6%	Highly restrictive: droughtiness and rooting depth Moderately restrictive: wind erosion and alkalinity
Palinor association	244.90	4.4%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity
Palinor-Roden association	1,904.37	34.4%	Highly restrictive: droughtiness Moderately restrictive: alkalinity
Palinor-Urmafot-Urmafot, very shallow association	212.94	3.9%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity
Roden-Haarvar association	353.26	6.4%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity
Roden-Izar Association	1,262.50	22.8%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity
Pookaloo-Hyzen association	689.58	12.5%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity
Eaglepass-Kyeer-Rock outcrop association	12.51	0.2%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity, rooting depth
Hyzen-Pookaloo-Tecomar association	127.18	2.3%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity, rooting depth
Zimbob-Eaglepass association	631.47	11.4%	Highly restrictive: water erosion and droughtiness Moderately restrictive: alkalinity
Total	**5,228.35**	**100%**	

In summary, all 10 soil types (100% of project area) have features that could limit project reclamation. All soil types found in the project area are also highly restrictive for droughtiness and moderately restrictive for alkalinity. Eight of the ten soil types (64% of project area) are highly restrictive for water erosion hazard. Three soils types (4.1% of project area) are highly or moderaltey restrictive for rooting depth. One soil type (1.6% of project area) is highly restrictive for wind erosion hazard.

3.2.4.1.2 Biological Soil Crusts

Biological soil crusts (also referred to variously as cryptogamic, microbiotic, crytpobiotic, and microphytic crusts) are found in the Great Basin and parts of the Mojave Desert. These biological crusts contribute to important ecological functions such as soil stabilization, water infiltration, and plant establishment (BLM 2001). No data exist on the distribution of biological soil crusts within the subwatersheds; however, biological soil crusts were noted during 2011 vegetation surveys conducted in the project area, mostly in transects dominated by black sagebrush (*Artemisia nova*) (EcoSynthesis and WRC 2012). In the project area, black sagebrush is most closely associated with the Great Basin Xeric Mixed Sagebrush Shrubland ecological system. There are approximately 1,970 acres of this ecological system in the project area (see Section 3.2.6 Vegetation).

3.2.4.2 **Environmental Consequences**

3.2.4.2.1 Proposed Action

Construction activities could result in soil compaction, soil erosion (from wind and water), and loss of soil productivity (ability to support vegetation). Under the Proposed Action, there would be a total of approximately 137 acres of surface disturbance over the life of the project. This is 2% of the project area. During Phase I, there would be direct impacts to soils through surface disturbance and vegetation removal on approximately 65 acres. As discussed in Section 3.2.4.1.2, most of these soils contain one or more characteristics that may limit the success of reclamation following disturbance. All soils impacted by Phase I activities would be highly restrictive to reclamation due to droughtiness and moderately restrictive due to alkalinity. In addition, almost 42% of the soils impacted by Phase I activities (approximately 27 acres) would be highly restrictive to reclamation due to water erosion hazards. Less than 1% of soils would have rooting depths and wind erosion hazards that would further limit reclamation. There would be a total of 72.4 acres of surface disturbance during Phase II activities. The exact locations of drill sites, drill roads, and auger/trench sites for Phase II activities are not known, but because the reclamation-limiting factors span across all soils types within the project area, it is expected that soil disturbed during Phase II would also have one or more reclamation-limiting factors regardless of location.

The acres of surface disturbance (and percentage of total disturbance) at risk for restricted reclamation is summarized in Table 3-5.

Table 3-5. Acres of Surface Disturbance (and percentage of total disturbance) at Risk of Restricted Reclamation

	Highly Restrictive Water Erosion Hazard	Moderately Restrictive Wind Erosion Hazard	Highly Restrictive Droughtiness	Moderately Restrictive Excess Alkalinity	Highly Restrictive Rooting Depth
Phase I activities[1]	27.34 (41.9%)	0.61 (0.9%)	65.21 (100%)	65.21 (100%)	0.61 (0.9%)
Phase 2 activities [2]	30.3 (41.9%)	0.65 (0.9%)	72.4 (100%)	72.4 (100%)	0.65 (0.9%)

[1] Phase I analysis is based on the drill site, access road, auger/trench size, overland travel areas, and laydown area location information provided in Map 2-1, and assumes the following:

- Weighted average drill pad/sump size
- 20-foot-wide drill roads
- 5-foot-wide overland travel route
- Maximum trench/auger sites, with additional buffer area as a conservative estimate

[2] Phase II analysis is based on application of the percentage of total disturbance identified for Phase I.

Biological soils crusts could also be disturbed, affecting soil stabilization, water infiltration, and plant establishment. Under Phase I activities, there would be surface disturbance to approximately 34 acres of the Great Basin Xeric Mixed Sagebrush Shrubland ecological system. This is less than 2% of the total acreage of this ecological system within the project area. It is expected that the Phase II soil disturbance would have a similar risk of restricted reclamation and/or impact to biological soil crusts.

Midway's phasing and ongoing reclamation would minimize the total acreage of drill roads and drill pads subject to wind or water erosion at any one time; only those access roads and drill pads needed for future exploration would remain open. Midway would also cover any stockpiled soil, if needed, to further minimize wind and water erosion. During periods of adverse soil moisture conditions caused by climatic factors such as thawing, heavy rains, snow, flooding, or drought, Midway would suspend activities on existing roads that could create excessive surface rutting. Midway would employ additional protective measures, such as restrictions on surface entry during periods of excessive runoff, avoidance of selected areas, and special reclamation techniques, on lands containing unstable/highly erodible soils, as determined by the AO. Maintenance of the exploration roads would include seasonal regrading when necessary. Midway would inspect erosion controls in the spring and fall and after exceptional storm events.

All areas would be reclaimed pursuant to Midway's Reclamation Plan as described in Appendix A which would also reduce impacts to soils in the project area. Per the ACEPMs described in Section 2.2.13, Table 2-2, Midway would also use specialized low-impact surface equipment (e.g., balloon-tired vehicles or helicopters) for activities in off-road areas where it is deemed necessary to protect fragile soils (such as biological soil crusts) and other resource values.

3.2.4.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and the area would remain available for multiple-use activities allowed under BLM regulations. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval. Current impacts to soils would continue.

3.2.5 *Water Resources*

The analysis area for impacts to water resources is the 35,064-acre Headwaters Duckwater Creek subwatershed (Figure 3-2). This area was chosen because the ephemeral tributaries within the project area drain into Duckwater Creek, which is located within this subwatershed.

3.2.5.1 **Affected Environment**

The Headwaters Duckwater Creek subwatershed is located within Hot Creek and Railroad valleys. Under section 303(d) of the Clean Water Act, all states, territories, and authorized tribes are required to identify any waterbody (including stream reaches, lakes, and waterbody segments) within their jurisdiction with chronic and recurring monitored violations of the applicable water quality criteria. No impaired waters have been reported to the EPA for either the Hot Creek Valley watershed or the Railroad Valley watershed (2006 was the most recent reporting year available). According to the 2006 *White Pine County Water Resources Plan*, the county's s surface water is in compliance with the 1972 Clean Water Act (White Pine County 2006).

National Wetlands Inventory show no wetlands in the project area and site-specific surveys conducted in 2011 found no evidence of hydrophytic vegetation (Ecosynthesis and WRC 2012). Several ephemeral tributaries are in the project area; however, these were determined not to be jurisdictional (Ecosynthesis and WRC 2012). Field observations in all months of the year indicate that these tributaries flow at most for a few days following heavy precipitation and not at all otherwise. The tributaries generally run from the Pancake Mountains in a southeasterly direction into Duckwater Creek. The connection to Duckwater Creek is approximately 2 miles west of the project area. Duckwater Creek is classified as an intermittent stream. No seeps and springs have been noted in the project area (EcoSynthesis and WRC 2012).

As part of a U.S. Geological Survey (USGS) study, water-level measurements in 418 wells were used to develop a potentiometric surface map of the carbonate-rock aquifer and a water table map of the basin-fill aquifer in the Basin and Range carbonate-rock aquifer system (analysis area encompassing approximately 13,500 square miles and including most of White Pine County, Nevada, and smaller areas of adjacent counties in Nevada and Utah. The map indicates that the approximate altitude of the water-level surface in the project area is between 5,500 and 6,000 feet (Wilson 2007). The project area elevation ranges between 6,250 and 7,645 feet; therefore, groundwater could be expected to be anywhere between 250 and 2,145 feet below the surface. The USGS National Water Information System Web Interface lists 15 groundwater monitoring well sites within the Hot Creek-Railroad and Little Smoky-Newark valleys. In 2011, groundwater levels ranged from 45 to 490 feet below land surface. Well depths ranged from 56 to 6,514 feet below land surface. Wells were completed in the Basin and Range basin-fill aquifer (national aquifer), Southern Nevada volcanic rock aquifer (national aquifer), Alluvial Fan Deposits local aquifer, Valley Fill local aquifer, and Bedrock local aquifer (USGS 2011).

Previous exploration activities indicate that the depth to groundwater is greater than 1,200 feet. During previous Midway Gold exploratory drilling near the project area (seven holes deeper than 1,000 feet), groundwater was encountered in one hole at an initial depth of 1,260 feet. No groundwater was encountered in the remaining six holes (Williams 2012). The *White Pine County Water Resources Plan* indicates that the general quality of groundwater in White Pine County is suitable to marginally suitable, with limited exceptions based on specific locations and

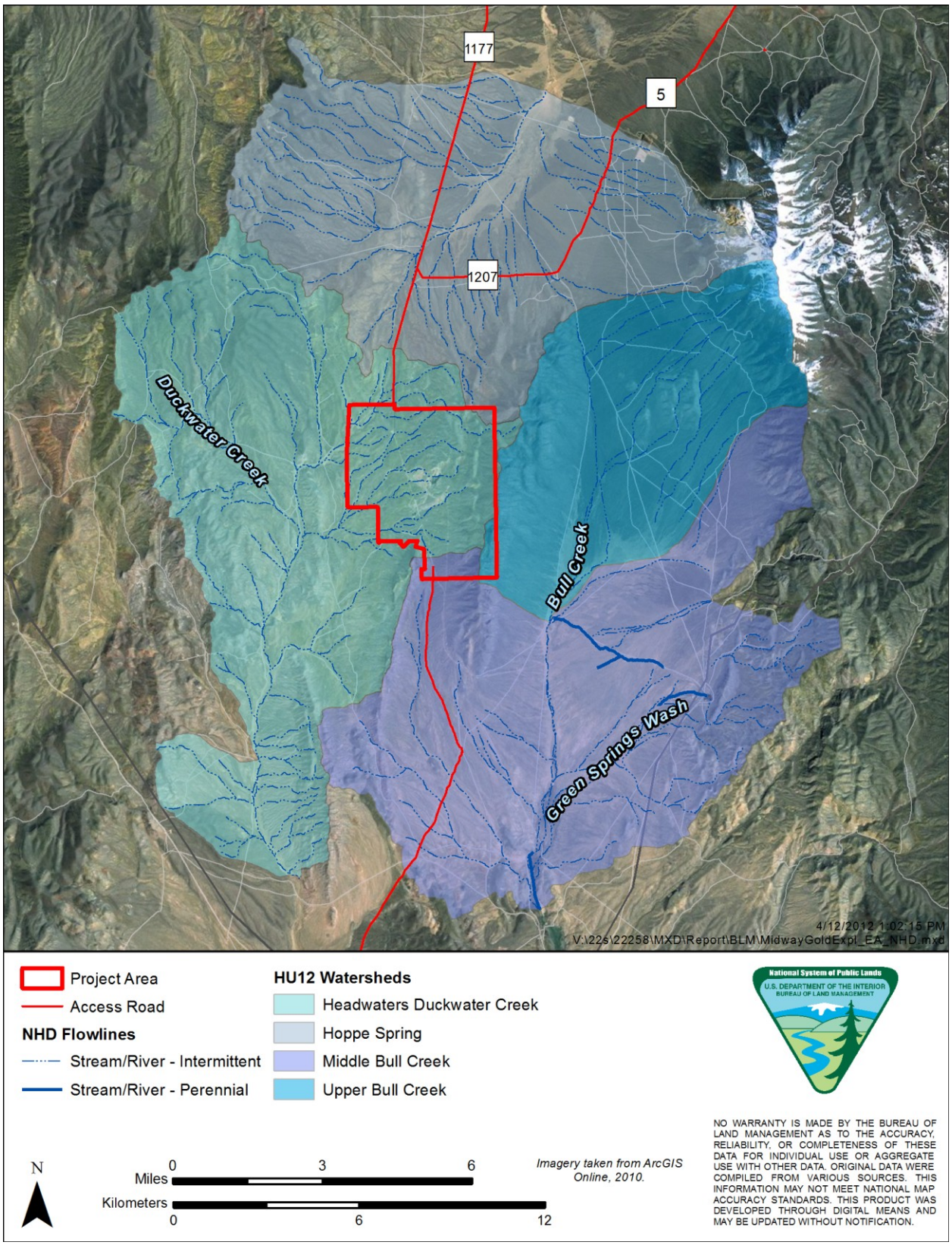

Figure 3-2. Project area hydrology, including the analysis area (the Headwater Duckwater Creek subwatershed).

proposed uses. In Newark Valley, total dissolved solids are elevated due to the natural process of salt buildup through evaporation in areas of shallow groundwater. Otherwise, chemical concentrations do not exceed the state or federal drinking water standards.

3.2.5.2 **Environmental Consequences**

3.2.5.2.1 Proposed Action

Under the Proposed Action, there would be approximately 137 acres of surface disturbance from the construction of drill roads, drill sites (pads and sumps), auger/trench sites, the laydown area, and the use of overland travel. This is 0.4% of the analysis area. These activities could temporarily and/or permanently change topography and current patterns of surface drainage, or degrade surface water quality due to erosion and increased sediment loading. However, there would be no direct impacts to permanent surface water resources because no such features are present in the project area. Phase I activities would disturb approximately 27 acres of soils classified as having a high water erosion hazard; a similar amount of disturbance is expected under Phase II activities (see Section 3.4.2.1.). Ephemeral tributaries in the project area generally run in a southeasterly direction into Duckwater Creek, an intermittent stream located approximately 2 miles from the project area. Based on field observations, these tributaries are expected to flow only for a few days following heavy precipitation. To reduce impacts to surface water resources, Midway would use the following BMPs and ACEPMs:

- Contour furrowing
- Terracing
- Reduction of steep cut and fill slopes
- Installation of water bars in appropriate locations to control runoff and erosion
- Use of sumps to manage drilling fluids
- Installation of silt fences, weed-free hay bales, or other sediment control structures

When drainages must be crossed with a road, BMPs such as the installation of temporary culverts would be followed to minimize surface disturbance and erosion potential. Maintenance of the exploration roads would include seasonal regrading when necessary. Midway would inspect erosion controls in the spring and fall and after exceptional storm events (see Section 2.2.2.13 and Appendix B, Midway's Reclamation Plan for additional detail).

Impacts to groundwater quality could occur if groundwater is encountered during drilling activities. Up to 165 drill holes are included in the Proposed Action. The average drill hole depth would be 700 feet and therefore not be expected to encounter groundwater; however; approximately 10% of the holes would be drilled up to 2,000 feet deep. Impacts would effectively be eliminated, reduced, or mitigated though the application of required stipulations and through the Nevada State statute and BLM regulations and conditions of approval. Midway would use only approved drilling fluids and would plug all drill holes per Nevada State statute (see NDWR's *Regulations for Water Well and Related Drilling* [NDWR 2010]), as waivered. If artesian flow is encountered, the drill hole would be plugged immediately. In all cases, the location, depth, and relative flow rate of any water intercepted would be reported to the Ely District Manager or the AO. In addition, six groundwater monitoring wells would be drilled to a depth of 1,200 feet and monitored on a monthly or quarterly basis. Midway anticipates a minimum four-year monitoring period. Monitoring wells would be properly plugged and abandoned at the end of the monitoring period.

A sump would be used at each drill site (165 sumps) to contain drill cuttings and control drilling fluids. Surface water or groundwater contamination could occur due to leaching from the sumps. Depending on the type of drill site, sumps would be sized to contain either 25,000 or 84,000 gallons, which previous drilling experience at the project area has shown to be adequate for surface containment of drilling fluids and groundwater flow. Sumps would be lined, as needed, to assure that drilling fluids are contained. Standard, nontoxic drilling muds and additives such as Floc 360™, Abandonite™, Alcomer 120L™, bentonite, EZ-mud™, Polyplus™, and Super Plug™ would be used. Drill site monitoring would include visual inspections of the drill sumps to ensure that the drill cuttings are contained. When sumps are no longer needed, they would be allowed to dry by infiltration or evaporation to prevent discharge of drilling fluids during reclamation. Sumps would be constructed to the shallowest depth possible given each particular site to allow for maximum evaporation. Per BLM IM NVL0000-2011-008, sumps are required to be "liquid free" within 30 days of drilling completion. If extenuating circumstances exist where a sump would need to be left open, it would be handled on a case-by-case basis. Liners would either be removed, or ripped and buried in place, as determined by the BLM. Once dry, the sumps would be backfilled and graded to near original contour.

Surface and groundwater quality could also be impacted by potential spills of hazardous materials. Diesel fuel, gasoline, and lubricating grease would be stored on-site (quantities are described in Section 3.2.14.2). This risk would be minimized through application of the ACEPMs discussed in Section 2.2.13. Petroleum products or other hazardous materials would be stored in approved containers to prevent mixing, drainage, or accidents. All containers of hazardous substances would be handled in accordance with appropriate regulations.

3.2.5.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and the area would remain available for multiple-use activities allowed under BLM regulations. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. The risk of impacts to water resources from construction and drilling activities and from potential spills of hazardous materials would be present, but to a lesser degree because there would be less drilling and fewer hazardous materials present.

3.2.6 ***Vegetation Resources***

The analysis area for impacts to vegetation resources is the project area, because it represents a geographical area with identified similar vegetation against which to measure impacts from exploration activities. The project area is located near the geographic center of the Central Basin and Range ecoregion and includes areas of the Carbonate Sagebrush Valleys and Carbonate Woodland Zone ecoregions. The project area includes areas of undisturbed (or moderately disturbed) vegetation, areas of developed habitat (reclaimed mining disturbance and roads), and barren areas such as small outcrops, dirt roads, and portions of the inactive Easy Junior mine.

3.2.6.1 **Affected Environment**

3.2.6.1.1 Land Cover Mapping and Field Observations

Nine ecological systems were identified and mapped using Southwest Regional Landcover Data (SWReGAP; USGS 2005). Specific mapped ecological systems include Great Basin Pinyon-

Juniper Woodland and several types of Inter-Mountain Basin shrublands. The nine ecological systems mapped through SWReGAP can be grouped into five general national land cover classes (Table 3-6). In order of abundance, they are Shrub/Scrub, Evergreen Forest/Woodland, Sparsely Vegetated/Barren, Grassland/Herbaceous, and Altered or Disturbed. These general land covers are derived from the SWReGAP Land Cover Descriptions (USGS 2005) and augmented with site-specific data from 2011 biological baseline studies (EcoSynthesis and WRC 2012) and are further described in the sections below.

Table 3-6. Land Cover Classes and Acreages in the Project Area

National Land Cover Class	Ecological System	Acres (%) in Project Area
Shrub/Scrub	Great Basin Xeric Mixed Sagebrush Shrubland	1,968.76
	Inter-Mountain Basins Big Sagebrush Shrubland	1,624.55
	Inter-Mountain Basins Mixed Salt Desert Scrub	144.07
	Subtotal and percentage of project area	**3,737.38 (68%)**
Evergreen Forest/Woodland	Great Basin Pinyon-Juniper Woodland	1,710.67
	Subtotal and percentage of project area	**1,710.67 (31%)**
Sparsely Vegetated/Barren	Inter-Mountain Basins Cliff and Canyon	43.26
	Subtotal and percentage of project area	**43.26 (1%)**
Grassland/Herbaceous	Inter-Mountain Basins Montane Sagebrush Steppe	13.79
	Inter-Mountain Basins Semi-Desert Grassland	7.34
	Subtotal and percentage of project area	**21.13 (<1%)**
Altered or Disturbed	Invasive Annual Grassland	0.35
	Invasive Perennial Grassland	15.54
	Subtotal and percentage of project area	**15.89 (<1%)**
Total		**5,528.34**

As shown in Table 3-6, SWReGAP data show that project area vegetation consists of two main cover classes (Evergreen Forest/Woodland and Shrub/Scrub) with small amounts of barren lands, grasslands, and disturbed areas. Although the biological baseline studies used the SWReGAP land cover class data system of categorizing cover classes and ecological systems, the report also concluded that the SWReGAP mapping, which was made from remote sensing imagery, under-represents the extent of Great Basin Pinyon-Juniper Woodland and does not accurately discriminate between different sagebrush ecological systems and between shrubland (with little herbaceous cover) and steppe (with significant grass cover) (EcoSynthesis and WRC 2012). However, it does provide an overview of the basic land cover types, and a mapped baseline against which to compare impacts from the Proposed Action.

During vegetation baseline surveys, a total of 152 plant species were identified in the project area, none of which are federally listed or candidate species, BLM sensitive species, or other special-status plant species. No uncommon plant communities or wetlands were found in the project area (EcoSynthesis and WRC 2012).

Scrub/Shrub

The Scrub/Shrub class accounts for over half of the SWReGAP-identified vegetation (3,737 acres; 68%) in the project area. This class also comprises 68% of the entire BLM Ely District. Dominant shrub species include basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), black sagebrush, Bigelow sage (*Artemisia bigelovii*), antelope bitterbrush (*Purshia tridentata*), shadscale (*Atriplex confertifolia*), rabbitbrush (*Chrysothamnus viscidiflorus* and *Ericameria nauseosa*), horsebrush (*Tetradymia* spp.), and sagewort (*Artemisia frigida*). This land cover class may be codominated by semiarid grasses. This land cover class comprises three ecological systems:

- Great Basin Xeric Mixed Sagebrush Shrubland: Survey work conducted by EcoSynthesis and WRC indicates that this ecological system covers by far the most acreage within surveyed transect areas. It is consistently dominated by black sagebrush with virtually no other shrub cover. The herbaceous layer is split roughly evenly between squirrel tail (*Elymus elymoides*), one-sided blue grass (also known as Sandberg's bluegrass; *Poa secunda*), and Indian ricegrass (*Achnatherum hymenoides*) (EcoSynthesis and WRC 2012).
- Inter-Mountain Basins Big Sagebrush Shrubland: Survey work conducted by EcoSynthesis and WRC indicates that this ecological system is dominated by big sagebrush and occurs in the lower parts of the small valleys within the project area, perhaps associated with deeper soils where the slopes flatten out. Other species providing shrub cover include minor amounts of spiny hopsage (*Grayia spinosa*) and rabbitbrush species (yellow rabbitbrush and, very rarely, rubber rabbitbrush). The herbaceous layer is sparse and includes one-sided bluegrass and squirreltail, but also some Indian ricegrass (EcoSynthesis and WRC 2012).
- Inter-Mountain Basins Mixed Salt Desert Scrub: This ecological system is typically characterized by an open to moderately dense shrubland of one or more saltbush species. Other shrubs present may include Wyoming big sage, yellow rabbitbrush, rubber rabbitbrush, Mormon tea (*Ephedra nevadensis*), spiny hopsage, winterfat (*Krascheninnikovia lanata*), bud sage, or shortspine horsebrush. The herbaceous layer varies from sparse to moderately dense. Project area surveys conducted by EcoSynthesis and WRC were not able to identify the specific associations applicable to this ecological system because the expressions of this ecological system are scattered, small, and intergrade with surrounding vegetation, making composition and dominance determinations uncertain (EcoSynthesis and WRC 2012).

Evergreen Forest/Woodland

The Evergreen Forest/Woodland land cover class accounts for approximately 1,711 acres (31%) of SWReGAP-identified vegetation in the project area. This land cover class occurs where rainfall averages less than 30 inches per year, with summer thundershowers during the growing season contributing substantial moisture. All acreage is classified as the Great Basin Pinyon-Juniper Woodland ecological system. This ecological system is typically found on warm, dry sites on mountain slopes, mesas, plateaus, and ridges of dry mountain ranges of the Great Basin region and eastern foothills of the Sierra Nevada, at elevations ranging from 5,249 to 8,530 feet. Survey work conducted by EcoSynthesis and WRC indicates that the Great Basin Pinyon-Juniper Woodland ecological system is underrepresented by SWReGAP data and covers a greater

portion of the project area than any other ecological system. Within the project area, this system is characterized by a predominance of Utah juniper (*Juniperus osteosperma*), with a total tree canopy cover of approximately 30%–35%, and almost no woody or herbaceous understory, except near the edges of where the mapped system abuts other vegetation. Where present, the subshrub cover includes sulphur-flower buckwheat (*Eriogonum umbellatum* var. *dichrocephalum*) and Simpson's buckwheat (*E. microthecum* var. *simpsonii*). Herbaceous species comprise less than 1% cover, and local dominance varies. In some areas, the most abundant species is Steptoe Valley beardtongue (*Penstemon immanifestus*) and potentially thickleaf beardtongue (*P. pachyphyllus*); in others, stemless mock goldenweed (*Stenotus acaulis*). Many other species are locally common, including twinpod (*Physaria chambersii*), thickstem wild cabbage (*Caulanthus crassicaulis*), heartleaf twistflower (*Streptanthus cordatus*), and desert frasera (*Frasera albomarginata*) (EcoSynthesis and WRC 2012).

Barren Lands

The Barren Lands land cover class accounts for approximately 43 acres (1%) of SWReGAP-identified vegetation cover in the project area. All acreage is classified as the Inter-Mountain Basins Cliff and Canyon ecological system. This ecological system is found from foothill to subalpine elevations and includes barren and sparsely vegetated landscapes (generally <10% plant cover) of steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock types. Vegetation of unstable scree and talus slopes typically occur below cliff faces of this system. Widely scattered trees and shrubs may include species often common in adjacent ecological systems (USGS 2005). This class was noted and mapped during site-specific surveys (EcoSynthesis and WRC 2012).

Grasslands/Herbaceous

The Grasslands/Herbaceous land cover class accounts for approximately 21 acres (<1%) of SWReGAP-identified vegetation in the project area. Dominant species include saltbush, big sagebrush, rabbitbrush, Mormon tea, hopsage, winterfat, bud sagebrush (*Picrothamnus desertorum*), and horsebrush. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids including Indian ricegrass, blue grama, thickspike wheatgrass (*Elymus lanceolatus* ssp. *lanceolatus*), galleta (*Pleuraphis* spp.), threeawn, needle-and-thread (*Hesperostipa comate*), fescue (*Festuca* spp.), pinegrass (*Calamagrostis rubescens*), oatgrass (*Danthonia* spp.), and bluebunch wheatgrass (USGS 2005). This land cover class comprises two ecological systems:

- Inter-Mountain Basins Montane Sagebrush Steppe: This ecological system is composed primarily of mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and related taxa. This system was noted and mapped during site-specific surveys (EcoSynthesis and WRC 2012).
- Inter-Mountain Basins Semi-Desert Grassland: This ecological system typically occurs in lowland and upland areas and may occupy swales, playas, mesatops, plateau parks, alluvial flats, and plains. Although this system is included in SWReGAP data, it was not identified and mapped during site-specific surveys (EcoSynthesis and WRC 2012).

Disturbed/Altered Land

The Disturbed/Altered Land cover class accounts for approximately 16 acres (<1%) of SWReGAP-identified vegetation in the project area. These areas are typically dominated by

introduced annual grass species such as cheatgrass (*Bromus tectorum*) and California brome. This land cover class comprises two ecological systems:

- Invasive Annual Grasslands: This ecological system is dominated by introduced annual grass species such as wild oats (*Avena* spp.), brome grasses (*Bromus* spp.), and Mediterranean grasses (*Schismus* spp.) (USGS 2005).
- Invasive Perennial Grassland: This ecological system is dominated by introduced perennial grass species such as crested wheatgrass (*Agropyron cristatum*), smooth brome (*Bromus inermis*), Lehmann lovegrass (*Eragrostis lehmanniana)*, fountain grasses (*Pennisetum* spp.), bulbous bluegrass (*Poa bulbosa*), Kentucky bluegrass (*P. pratensis*) and intermediate wheatgrass (*Thinopyrum intermedium*) (USGS 2005).

Project-area surveys conducted by EcoSynthesis and WRC classified altered vegetation as follows:

- Reclamation Vegetation: This vegetation, occurring on reclaimed Easy Junior mine facilities, reflects the applied seed mix: bluebunch wheatgrass, creeping wild-rye (*Leymus triticoides*), and a few plants of four-wing saltbush (*Atriplex canescens*). The reclaimed roads also support Great Basin wild-rye (*L. cinereus*). These reclaimed areas are remarkably weed-free, but the roads support various densities of invasive species (usually low, but a few dense patches of tumble mustard [*Sisymbrium altissimum*] were found) (EcoSynthesis and WRC 2012).
- Ruderal Vegetation: This term refers to the patches of non-native species within the Easy Junior operations area and along existing county and other dirt roads that are usually too small to be mapped. In general, they consist of monocultures of clasping pepperweed (*Lepidium perfoliatum*), blue mustard (*Chorispora tenella*), halogeton (*Halogeton glomeratus*), or tumble mustard. Several other moderately invasive weeds are present, but usually only as scattered individuals (EcoSynthesis and WRC 2012).

3.2.6.1.2 Invasive and Noxious Weeds

The BLM defines a weed as a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition, and diversity of the site it occupies. A weed's presence deteriorates the health of the site, makes efficient use of natural resources difficult, and may interfere with management objectives for that site, because its invasiveness requires concerted efforts of manpower and resources to achieve removal. Noxious weed designation in the project area can come from the Nevada Department of Agriculture or from the U.S. Department of Agriculture Animal and Plant Health Inspection Service. Both noxious weed species and invasive weed species are found in the project area. The weed inventory conducted by the BLM Ely District in 2008 documented the following two weeds in the project area and along roads and drainages leading to the project area (see Appendix B, BLM Weed Assessment):

- Hoary cress (*Lepidium draba*): Located in the project area and along roads and drainages leading to the project area
- Russian Knapweed (*Acroptilon repens*): Located along roads and drainages leading to the project area

The weed assessment also noted the presence of invasive annual grasslands near the Easy Junior mine well (one potential water source).

BLM also noted that there was cheatgrass and halogeton scattered throughout the project area, but mainly along roads in and to the project area. Project area surveys conducted by EcoSynthesis and WRC identified some populations of tumble mustard, clasping pepperweed, and blue mustard.

3.2.6.2 **Environmental Consequences**

3.2.6.2.1 Proposed Action

Under the Proposed Action, direct impacts to vegetation would occur through surface disturbance and vegetation removal on approximately 65 acres of the 5,528-acre project area during Phase I activities. This comprises approximately 1% of the project area. Exact locations of drill sites, drill roads, and auger/trench sites for Phase II activities are not known, but would comprise approximately 72 acres of additional surface disturbance. It is assumed that the proportion of disturbance by ecological system would be similar to Phase I because the vegetation is relatively consistent throughout the project area. Table 3-7 identifies Phase I and Phase II impacts by ecological system.

Table 3-7. Phase I and Phase II Impacts by Ecological System

National Land Cover Class	Ecological System	Phase I Activities[1]		Phase II Activities[2]	
		Acreage	Percentage Disturbance to Ecological System in Project Area	Acreage	Percentage Disturbance to Ecological System in Project Area
Shrub/ Scrub	Great Basin Xeric Mixed Sagebrush Shrubland	34.20	1.7%	37.97	**1.9%**
	Inter-Mountain Basins Big Sagebrush Shrubland	14.60	0.9%	16.21	**1.0%**
	Inter-Mountain Basins Mixed Salt Desert Scrub	5.35	3.7%	5.94	**4.1%**
	Subtotal	***54.15***	***1.4%***	***60.12***	***1.6%***
Evergreen Forest/ Woodland	Great Basin Pinyon-Juniper Woodland	10.92	0.6%	12.13	**0.7%**
	Subtotal	***10.92***	***0.6%***	***12.13***	***0.7%***
Sparsely Vegetated/ Barren	Inter-Mountain Basins Cliff and Canyon	0.13	0.3%	0.15	**0.3%**
	Subtotal	***0.13***	***0.3%***	***0.15***	***0.3%***
Total[3]		**65.21**		**72.4**	

[1] Phase I analysis is based on the drill site, access road, auger/trench size, overland travel areas, and laydown area location information provided in Figure 2-1, and assumes the following:

- Weighted average drill pad/sump size
- 20-foot-wide drill roads
- 5-foot-wide overland travel route
- Maximum trench/auger sites, with additional buffer area as a conservative estimate

[2] Phase II analysis is based on application of the percentage of total disturbance identified for Phase I.

[3] Because of the phased nature of the project, only those access roads and drill pads needed for future exploration would remain open. Reclamation of some Phase I areas may be completed before Phase II activities are conducted; thus the total acreage of ongoing surface disturbance would not necessarily include all Phase I and Phase II activities.

Over 83% of the Phase I activities would occur in the Shrub/Scrub land cover class. Surface disturbance would impact approximately 1.7% of all available acres of this land cover class in

the project area. The remaining surface disturbance would occur primarily in the Great Basin Pinyon-Juniper Woodland ecological system; proposed disturbance would impact less than 1% of all available acres of this ecological system in the project area. As discussed in Section 3.2.6.1.1, site-specific surveys indicate that the Pinyon-Juniper Woodland ecological system is underrepresented in SWReGAP data for the project area; thus, it is likely that it is also underrepresented in disturbance acreages listed above.

Midway would reclaim all areas within two years if drilling results indicate that no resource is present. Per the ACEPMs described in Section 2.2.13, Table 2-2, Midway would generally conduct reclamation with native seeds that are representative of the indigenous species present in the adjacent habitat. Areas would be satisfactorily reclaimed when all disturbed areas have been recontoured to blend with the natural topography, erosion has been stabilized, and an acceptable vegetative cover has been established.

Indirect impacts to vegetation during Phase I and II activities could include the introduction or spread of noxious or invasive weeds to adjacent vegetation. Clearing of vegetation during construction could allow the establishment of undesirable plants that could compete with native plants for soil and water resources and ultimately reduce foraging habitat for herbivores. High growth rate and flammability of noxious or invasive weeds also tend to increase the risk of wildfire, because the weeds provide flammable fuels in the interspecies among shrubs, making them more susceptible to large, frequent, and uncharacteristic fires (BLM 2009). Roads, pull-offs, and other areas where vehicles may travel may result in vehicle tires and undercarriages transporting weed seeds to undisturbed locations. The area of risk for weed invasion is at least equal to the total area of Phase I and II disturbance, because these areas would be highly disturbed and devoid of vegetation prior to reclamation. However, because invasive weeds are frequently established along vehicle corridors, the area impacted by weeds could become larger than the area of direct disturbance. Cheatgrass is an invasive grass with a high potential to spread from disturbed areas. Bradley and Mustard (2006) found an increased probability of cheatgrass within approximately 22,500 feet of roads, with up to 13% greater probability of cheatgrass occurrence within 200 feet. Assuming a 200-foot buffer from all new project-related drill roads and overland travel routes, approximately 830 additional acres could be subject to invasive weed spread.

This risk would be minimized by the ACEPMs presented in Section 2.2.13, Table 2-2, which include measures to 1) educate personnel about invasive and noxious weeds; 2) minimize transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials; 3) monitor and control noxious weeds; and 4) reclaim areas with native seed representative of the indigenous species present in adjacent habitat. Midway would also use onsite water storage to reduce the number of vehicle trips to water sources and potential encounters with noxious weeds found in those areas.

Appendix B contains the BLM weed risk assessment conducted for the project area. The BLM risk assessment estimates the overall risk of impact from invasive and noxious weeds using the following formula:

Likelihood of noxious/invasive weed species spreading to the project area	X	Consequences of noxious/invasive weed establishment in the project area

The BLM risk assessment (Appendix B) rates the project activities as "moderate" in their potential for introducing or spreading noxious weeds, and "high" for the consequences of noxious weed establishment. This is because the area currently has very few weeds; therefore, any new infestations would impact nearby native plant communities and could alter the fire regime in the area. Based on an overall risk rating of "moderate," the BLM has included required mitigation, all of which is consistent with the ACEPMs contained in Chapter 2 (see Appendix B for a list of mitigation measures).

3.2.6.2.2 No Action Alternative

Under the No Action Alternative, the area would remain available for other multiple use activities as approved by the BLM. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval. Impacts to vegetation would be similar to those described under the Proposed Action but would affect less acreage and be of a shorter duration.

3.2.7 ***Wildlife , including Migratory Birds, Raptors and other Special-status Species***

The analysis area for impacts to wildlife and special-status species from surface disturbances is the 5,528 acre-project area. This area was chosen because it represents an area with continuity in habitat for which extensive survey work has been done. Proposed access roads are considered in the wildlife analysis because of their proximity to known sage-grouse leks and potential for wildlife-vehicular collisions. A detailed description of the vegetation in the project area is included in Section 3.2.6. In general, the project area is dominated by two land cover classes: Shrub/Scrub and Evergreen Forest/Woodland (i.e, the Great Basin Pinyon-Juniper Woodland ecological system).

The wildlife species in the project area are typical of the arid/semiarid environment in the central Great Basin and were identified by EcoSynthesis and WRC during wildlife surveys conducted from April through December 2011 (EcoSynthesis and WRC 2012).The study area included a loosely circumscribed geographic region extending approximately 10–20 miles from the project area in various directions, which was deemed pertinent to the understanding of biological resources that might be present in the project area. A total of 29 bird, 14 mammal, and two reptile species were directly observed, detected by sign (tracks, burrows, scat, feathers, bones, or vocalizations), or recorded by bat detectors in the project area during the baseline biological studies (EcoSynthesis and WRC 2012). No amphibians were identified and no fish or aquatic habitat is present in or within 1 mile of the project area.

On January 23, 2012, the Nevada Department of Wildlife (NDOW) provided information regarding known or potential occurrence of wildlife resources near the project area based on best available data from the NDOW's wildlife sight records, commercial reptile collections, scientific collections, raptor nest sites and ranges, greater sage-grouse leks and habitat, and big-game distributions databases. The results of that inquiry were summarized in a letter and series of maps (NDOW 2012). The NDOW response letter focuses on the project area plus a 3-mile buffer area for general wildlife; the migratory birds analysis includes all known nest data within 10 miles of the project area. Information from the biological studies and NDOW report is summarized below.

3.2.7.1 **Affected Environment**

3.2.7.1.1 Wildlife

Six of the bird species identified during the 2011 baseline surveys are migratory birds or designated special-status species. Seven of the bird species are raptors. These species are discussed in Section 3.2.7.2. The mourning dove (*Zenaida macroura*) was the only game bird observed in the project area; several roost and foraging sites for this species were identified based on the presence of scat. NDOW's response letter regarding known or potential occurrence of wildlife resources indicate that chukar (*Alectoris chukar*) have also been observed near the project area; however, chukar or chukar sign were not observed in the project area during the surveys. No aquatic habitat, waterfowl species, shorebirds, or colony nesting bird species were present in or within 1 mile of the project area (EcoSynthesis and WRC 2012).

The most commonly recorded species of small mammals, though seldom observed, were the black tailed hare (*Lepus californicus*) and the white-tailed antelope ground squirrel (*Ammospermophilus leucurus*). Kangaroo rat (*Dipodomys* sp.) burrows were common in the lower elevations of the project area. Desert cottontail (*Sylvilagus audubonii*) was also observed. Woodrat (*Neotoma spp*.) nests were relatively uncommon, but were found on rocky outcrops in the eastern portion of the project area. Coyote (*Canis latrans*) scat was noted throughout the project area, though no active or inactive den sites were found. No kit foxes (*Vulpes macrotis*) or badgers (*Taxidea taxus*) were observed, nor were any kit fox or badger signs found (EcoSynthesis and WRC 2012)

Using ultrasonic detectors, acoustic surveys were conducted for bat species on August 29 and 30, 2011. Detectors were placed in locations conducive to flight paths and roosting, primarily drainages with scattered areas in the Great Basin Pinyon-Juniper Woodland ecological system. Five species of bats were identified through these surveys: the big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), little brown bat (*Myotis lucifugus*), long-eared myotis (*Myotis evotis*), and small-footed myotis (*Myotis ciliolabrum*) (EcoSynthesis and WRC 2012). All five bat species are listed as BLM sensitive species.

NDOW's response letter regarding known or potential occurrence of wildlife resources near the project area indicates that occupied pronghorn antelope (*Antilocapra americana*) distribution exists throughout the entire project area and a 3-mile buffer area. Mule deer (*Odocoileus hemionus*) distribution exists in the Pancake Range in the eastern part of the project area and the 3-mile buffer area. Mule deer are also found west of the project area within the 3-mile buffer area (NDOW 2012). Consultation with NDOW indicates that mule deer use the project area primarily in winter, but may be found year-round. Mule deer movement corridors traverse in a northwest and northeast direction toward the project area (EcoSynthesis and WRC 2012). Elk occupy the White Pine Mountains to the east of the project area within the 3-mile buffer area. There are no known bighorn sheep distributions near the project area (NDOW 2012). Although no big-game mammals such as mule deer or pronghorn antelope were observed during the biological baseline studies, ungulate scat was recorded throughout the project area (most likely from mule deer). Skeletal remains of a mule deer were found in the northern part of the project area. No other sign of big-game mammals was found in the project area (EcoSynthesis and WRC 2012).

Two common species of lizards were recorded in the project area: the side-blotched lizard (*Uta stansburiana*) and the western fence lizard (*sceloporus occidentalis*). No snakes were observed during the study.

3.2.7.1.2 Migratory Birds, Raptors, and Special-status Species

Migratory Birds and Raptors

Migratory bird means any bird listed in 50 CFR 10.13. All native birds found commonly in the United States, with the exception of native resident game birds, are protected under the Migratory Bird Treaty Act (MBTA). This act makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; or possess any migratory bird part, nest, egg, or product, manufactured or not (16 USC 703–712).

NDOW's response letter indicates that various species of raptors, which use diverse habitat types, are known to reside near the project area. American kestrel (*Falco sparverius*), barn owl, burrowing owl, Cooper's hawk (*Accipiter cooperi*), ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), great horned owl, long-eared owl, merlin, northern goshawk, northern harrier (*Circus cyaneus*), northern saw-whet owl, osprey, peregrine falcon, prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture (*Cathartes aura*), and western screech owl have distribution ranges that include the project area and its 3-mile buffer area. NDOW also noted ferruginous hawk and golden eagle have been directly observed near the project area.

During the baseline biological surveys, seven species of raptors were observed in the project area. Prairie falcon, red-tailed hawk, golden eagle, and turkey vulture were seen flying over the project area. The American kestrel, Cooper's hawk, and northern harrier were observed foraging in the project area. Suitable nesting habitat is present in the project area for all the recorded raptor species, except for the prairie falcon. The golden eagle and the prairie falcon are designated special-status species and are discussed in Table 3-8. No known bald eagle nests are documented within 10 miles of the project area.

Special-status Species

Special-status species are species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed and federally proposed species that are protected under the Endangered Species Act (ESA), species considered as candidates for such listing by the U.S. Fish and Wildlife Service (USFWS), BLM sensitive species, and species that are state protected. In accordance with the ESA, federal agencies are prohibited from authorizing, funding, or carrying out actions that "destroy or adversely modify" critical habitat (ESA Section 7(a)(2)). If harm to individuals (take) or destruction or adverse modification of critical habitat cannot be avoided, the agency may seek an exemption (in addition to consultation with USFWS).

Table 3-7 provides a list of all wildlife special-status species identified in the biological baseline report (EcoSynthesis and WRC 2012) with potential to occur in the project area. The table also identifies habitat/diet needs as well as any recorded observations during the baseline studies.

Table 3-8. Wildlife Special-status Species with Potential To Occur in the Project Area

Common Name	Scientific Name	Status (federal/state)[1]	Habitat Association/Dietary Needs/Observations in Project Area[2]
BIRDS			
Brewer's sparrow	*Spizella breweri*	–/S	Observed in project area. Usually found in association with sagebrush but also found in desert scrub and creosote bush during migration and in winter.
Ferruginous hawk	*Buteo regalis*	S/P	Not observed in project area. Typically found in association with open, arid grasslands, prairie and shrub steppe country.
Golden eagle	*Aquila chrysaetos*	–/P	One immature observed flying over project area (not foraging). Nests are constructed on cliffs or in large trees. No nests or adult golden eagles were observed, and no suitable nest locations were found in the area proposed for surface disturbance. Feeds primarily on small mammals, especially rabbits, marmots, and ground squirrels, but also insects, snakes, birds, and carrion. Suitable golden eagle foraging habitat is present in the project area in black and big sagebrush shrublands. Cliffs and outcrops immediately outside and east of the project area provide some highly suitable nest sites for golden eagles (NDOW has a 1980 record for a golden eagle nest in this area) (EcoSynthesis and WRC 2012). NDOW reports one nest near the project area and four golden eagle nests within 10 miles of the project area (NDOW 2012).
Greater sage-grouse	*Centrocercus urophasianus*	C,S/–	No Greater sage-grouse or their sign was found in the project area. Highly dependent on sagebrush for cover and food. Project area holds little suitable habitat for sage-grouse; with the exception of drainages and low elevation hills in the westernmost portion of the project area, the habitat is primarily pinyon-juniper woodland of various densities. Sagebrush habitat that is present is almost exclusively dominated by black sagebrush, which is not suitable habitat for sage-grouse. Surveys conducted in April 2011 at three lek sites located along northern access routes observed three males strutting at the Seligman Canyon West lek. No sage-grouse were detected at the other leks and no sage-grouse or sage-grouse sign were found. Greater sage-grouse summer distribution exists outside of the project area in the northern, southern, and eastern portions of the 3-mile buffer area. The northernmost portion of the project area and a larger portion of the northern, southern, and eastern portions of the 3-mile buffer area contain sage-grouse winter distribution and nesting habitat. Core breeding habitat exists in sagebrush communities in Newark and Railroad valleys in the northern and eastern portions of the 3-mile buffer area.
Loggerhead shrike	*Lanius ludovicianus*	–/P	Observed in project area. Prefers grasslands, pastures, desert scrub habitats, open woodlands, and other open areas; typically nest in thick brush, shrubs, or small trees in open areas. The diet is composed of insects, small mammals, birds, and reptiles.
Pinyon jay	*Gymnorhinus cyanocephalus*	S/–	Observed in project area. Diet consists primarily of pinyon and other pine seeds, but also includes berries, small seeds, grains, and insects. Nests are located in trees, usually conifers.
Prairie falcon	*Falco mexicanus*	–/P	Observed in project area. Typically found in open habitats such as plains and prairies. The diet includes a variety of prey, but mammals such as ground squirrels are particularly important during the summer. Prey may be cached in vegetation or on a ledge, most commonly during early periods of brood rearing.

Table 3-8. Wildlife Special-status Species with Potential To Occur in the Project Area

Common Name	Scientific Name	Status (federal/state)[1]	Habitat Association/Dietary Needs/Observations in Project Area[2]	
Sage thrasher	*Oreoscoptes montanus*	S/S	Observed in project area. Found mostly in the shrub-dominated valleys and plains of the western United States. It is considered a sagebrush obligate, generally dependent on large patches and expanses of sagebrush steppe for successful breeding.	
Western burrowing owl	*Athene cunicularia hypugaea*	S/–	No burrowing owls or burrowing owl signs were observed in the project area. NDOW has indicated that no burrowing owl nest sites are near the project area.	
MAMMALS				
Pygmy rabbit	*Brachylagus idahoensis*	S/–	No pygmy rabbits and no evidence of current or past occupancy by pygmy rabbits were found in the project area. Black sagebrush shrubland, which comprises most of the sagebrush in the project area, is not considered suitable habitat. The very limited areas of big sagebrush habitat in the project area do not have the canopy height and canopy cover to provide highly suitable habitat and are therefore only marginally suitable. In addition, a model of potential pygmy rabbit habitat developed by the BLM's Ely FO does not depict any potential habitat for this species in the project area.	
Big brown bat	*Eptesicus fuscus*	S/S	Identified by acoustic survey.	Although bats forage over sagebrush and other shrubs found in the project area, these plants do not provide suitable long-term night and day roosting sites. Within the project area, potential day roosting habitat is located in rock outcrops, which are generally restricted to the eastern third of the project area, and in pinyon and juniper trees (EcoSynthesis and WRC 2012).
Brazilian free-tailed bat	*Tadarida brasiliensis*	S/P		
Small-footed myotis	*Myotis ciliolabrum*	S/–		
Long-eared myotis	*Myotis evotis*	S/–		
Little brown myotis	*Myotis lucifugus*	S/–		
Pallid bat	*Antrozous pallidus*	S/P	Not observed in project area.	
California myotis	*Myotis californicus*	S/–		
Townsend's big-eared bat	*Corynorhinus towsendii*	S/S		
Spotted bat	*Euderma maculatum*	S/T		
Silver-haired bat	*Lasionycteris noctivagans*	S/–		
Long-legged myotis	*Myotis volans*	S/–		
Yuma myotis	*Myotis yumanensis*	S/–		
Fringed myotis	*Myotis thysanodes*	S/P		
Western pipistrelle bat	*Pipistrellus hesperus*	S/–		

Source: EcoSynthesis and WRC (2012) and NDOW (2012).
[1] Federal statuses: E= listed endangered, T= listed threatened, C= candidate for listing under ESA, S= listed as sensitive by BLM (for state of Nevada);
State of Nevada statuses: E= endangered; T= threatened; P= protected; S= sensitive
[2] Directly observed or positively identified by sign or vocalization.

3.2.7.2 **Environmental Consequences**

3.2.7.2.1 Proposed Action

Wildlife

Impacts as a result of the Proposed Action would be similar for all wildlife species encountered in the project area and would generally consist of temporary habitat loss, disturbance from human activity and noise, and individual injury or mortality from vehicular collisions or drowning in sumps.

There would be temporary surface disturbance of 65 acres of existing wildlife habitat from exploration activities during Phase I; approximately 72 acres would be disturbed during Phase II. This comprises approximately 1% of the project area during each phase. Portions of Phase I would be reclaimed concurrently with development of Phase II. Surface disturbance would include a maximum of 70,703 linear feet of road during Phase I and a similar amount during Phase II. Wildlife habitat fragmentation would be unlikely to occur because Midway's phasing and ongoing reclamation would minimize the total acreage of disturbance and open roads; only those access roads and drill pads needed for future exploration would remain open. Midway would reclaim all areas within two years if drilling results indicate that no resource is present and would reclaim areas with native seeds that are representative of the indigenous species present in the adjacent habitat. Therefore, the quality, quantity, and distribution of suitable wildlife habitat are not expected to be substantially altered by project implementation.

Disturbance to wildlife from human activity and noise would likely be limited to temporary auditory and visual disturbances to individuals foraging in or near exploration activities. Individuals would likely leave the immediate area, resulting in a temporary spatial redistribution of individuals or habitat-use patterns during exploration activities; this would not be a long-term effect because undisturbed and suitable habitat exists around the drill sites. A maximum of 10 drill rigs would be operating at one time, in diverse locations, allowing wildlife to move around and between project activities.

Transportation associated with the Proposed Action would result in increased risk of vehicle-animal collisions on access roads or drill roads due to increased traffic associated with project activities. there would be approximately 70,700 feet of new drill roads (about 13 miles) during Phase I; the number and length of Phase II drill roads have not been determined. The two northern access routes would be 15.3 and 16.1 miles long; the southern access route would be 10.6 miles long. Risk of wildlife-vehicular collisions from project-related traffic would be reduced through prudent speed limits on all access roads and drill roads. Sumps would be fenced with safety netting to keep large animals out; however, smaller rodents and reptiles might still be able to gain access to sumps. Sumps would be constructed to the shallowest depth possible to allow for maximum evaporation, and at least one side of the sumps would be sloped for easy access/egress. Sumps are expected to dry quickly, but in the cases that they do not and drilling fluids that remain pose a hazard to wildlife, Midway would work with the BLM to reduce the wildlife hazard by either removing the fluid or backfilling the sump.

Migratory Birds and Raptors

Impacts to migratory birds include direct loss of habitat due to removal of a maximum of 137 acres of vegetation (2.5% of the project area, primarily in the Scrub/Shrub cover class and the

Great Basin Pinyon-Juniper Woodland ecological system); abandonment of nests during breeding seasons because of noise or human activity; and potential mortality due to direct loss resulting from vehicular collisions, construction, or exploration activities. These impacts would be minimized by the ACEPMs presented in Chapter 2. There is suitable habitat adjacent to the project area that is available for nesting. Midway's phasing and ongoing reclamation would minimize the total acreage of disturbance at any one time. Wherever possible, Midway would time land clearing, and surface disturbance would be timed to prevent potential disturbance to or destruction of active bird nests or young birds during the bird breeding season (May 15–July 31, annually). If surface-disturbing activities are unavoidable during this period, Midway would have a qualified biologist survey the areas proposed for immediate disturbance for the presence of active nests. If active nests are located, or if other evidence of nesting is observed (mating pairs, territorial defense, carrying of nesting material, transporting of food), the area would be avoided to prevent destruction or disturbance of nests until the birds are no longer present. Bird surveys would be conducted only during the bird breeding season and immediately prior (within seven days) to Midway's exploration activities that would result in disturbance. After such surveys are performed and disturbance created (i.e., road construction and drill pad development), Midway would not conduct any additional disturbance during the bird breeding season without first conducting another bird survey. After July 31, exploration activities would continue; in compliance with MBTA, no further bird surveys would be conducted until the next year.

Migratory birds could also be attracted to drilling mud sumps. Sumps are expected to dry quickly, but in the cases that they do not and drilling fluids that remain pose a hazard to wildlife, Midway would work with the BLM to reduce the wildlife hazard by either removing the fluid or backfilling the sump.

Indirect impacts to raptors under the Proposed Action could include a temporary relocation of prey away from the project area due to construction noise and activity within the proposed disturbance areas; however, there is suitable habitat for displaced prey adjacent to the project area that would be available for hunting.

Midway would protect active raptor nests in undisturbed areas within 0.25 mile of areas proposed for project activities using species-specific protection measures. Midway would inventory areas containing suitable nesting habitat for active raptor nests prior to the initiation of any project activities. Ferruginous hawk (which is also a BLM-sensitive species) nest sites would not be disturbed, and no surface use would be allowed within 0.5 mile of an occupied ferruginous hawk nest during the March 1 through June 30 period or until the birds have fledged (left) the nest, as determined by a BLM biologist.

Special-status Species

There would be no direct impacts to federally listed threatened or endangered wildlife species because no such species are found in the Project Area. The direct disturbance of 54 acres of the Shrub/Scrub land cover class during Phase I activities would result in an approximately 1.4% loss of the 3,737 total acres of this cover class within the 5,228-acre project area for BLM sensitive species that rely on this land cover class for food, forage, or cover. This includes several avian species and a variety of bat species. Site-specific surveys indicate that most of the Shrub/Scrub land cover on the project area is classified as the Great Basin Xeric Mixed Sagebrush Shrubland ecological system and exclusively dominated by black sagebrush, which is

not suitable habitat for greater sage-grouse or pygmy rabbit. Neither species has been observed within the project area (EcoSynthesis and WRC 2012). It should also be noted that the baseline survey report has noted that the SWReGAP vegetation models overestimates the acreage the Shrub/Scrub land cover; thus actual acreage of the Shrub/Scrub land cover loss is likely to be lower.

There would also be direct disturbance of 10 acres of the Great Basin Pinyon-Juniper Woodland ecological system during Phase 1 activities. This equates to less than 1% of the available 1,710 acres of this land cover class (within the 5,528-acre project area; however, as noted, SWReGAP vegetation models underestimates this ecological system). This would affect BLM-sensitive species such as the pinyon jay, which rely on this land cover class for food, and several species of bats, whose day roosting habitat is located in rock outcrops, and in pinyon and juniper trees.

A similar amount of disturbance to both these land cover classes is expected during Phase II; concurrent reclamation would reduce the amount of disturbance to less than the full sum of Phase I and II disturbance. These impacts would last until Midway reclaimed the disturbance areas. Midway would reclaim all areas within two years if drilling results indicate that no resource is present. Per the ACEPMs described in Section 2.2.13, Table 2-2, Midway would generally conduct reclamation with native seeds that are representative of the indigenous species present in the adjacent habitat.

Indirect impacts specific to the greater sage-grouse, a candidate species for federal listing and a BLM special-status species, would include potential abandonment of nests during breeding seasons due to noise or visual disturbances. Although the project area does not contain suitable breeding habitat, core breeding habitat exists in sagebrush communities in Newark and Railroad valleys in the northern and eastern portions of the 3-mile buffer area.

Viewshed analyses were conducted to determine impacts to sage-grouse from disturbance in the project area and proposed access roads.

The view from 12 inches above the Monte Cristo West lek (the lek located closest to the project area, approximately 2.5 miles from the project area, and adjacent to the County Road 1207) was analyzed at two increments:

- ground level to 12 feet above ground level, representing vehicles, equipment or personnel
- 12 feet above ground level to 30 feet above the ground level, representing the height of the drilling rigs

As indicated on Figure 3-3, sage-grouse would be able to see any vehicles, equipment, or human travelling along most of both northern access roads. Most of the project area itself is topographically shielded from the lek; however, sage-grouse would be able to see vehicles, equipment, or humans in the easternmost portion of the project area, at a distance of approximately 2.6 to 5.4 miles. A small portion of the eastern part of the project area is located such that taller drilling rigs up to 30 feet would be seen from the sage-grouse lek.

Impacts to sage-grouse breeding would be minimized through the ACEPMs presented in Section 2.2.13. No surface use would be allowed within 0.5 mile of any sage-grouse lek between 5.a.m. until 10 a.m. during the breeding period (March 1 through May 15).

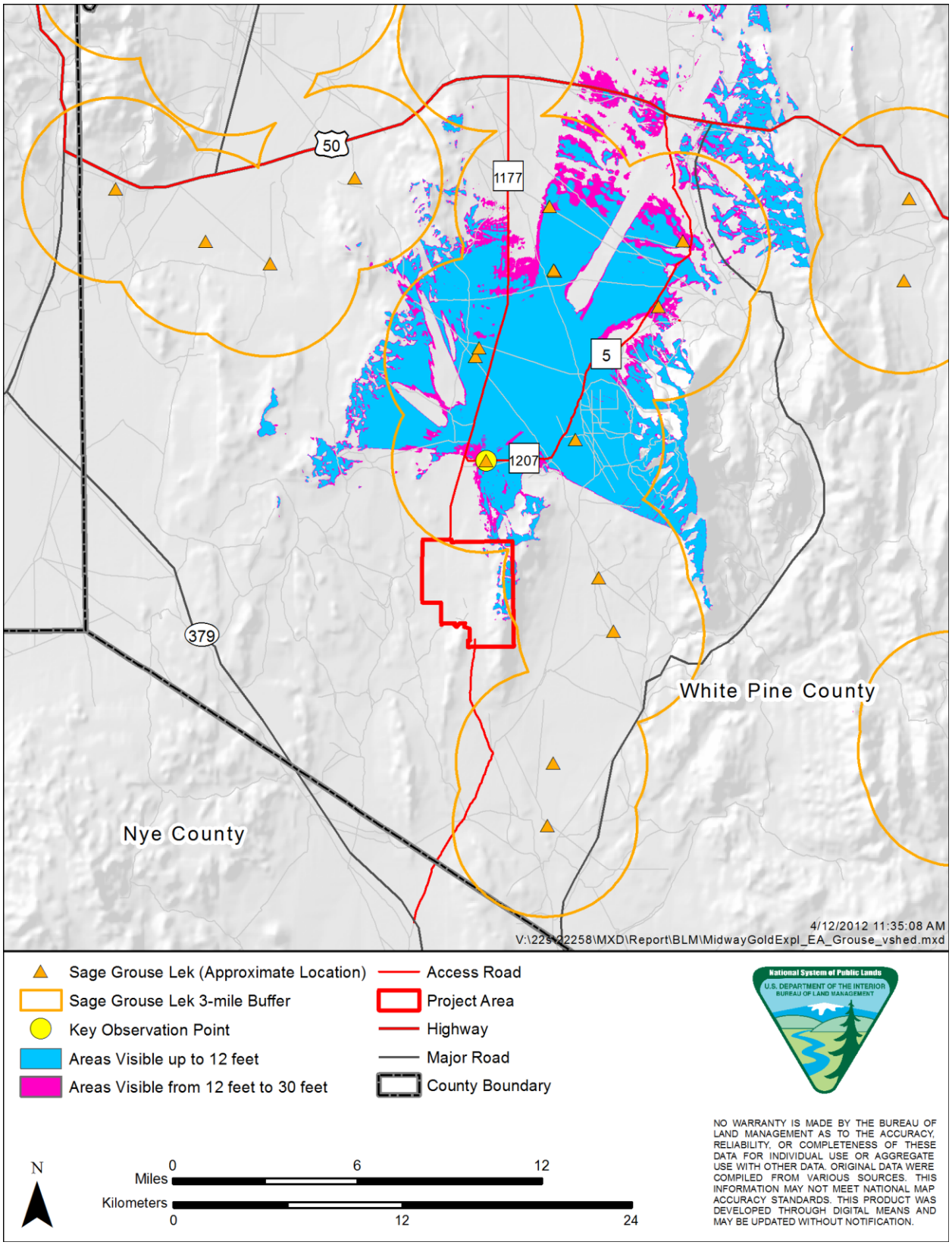

Figure 3-3. Lek viewshed analysis.

Acoustic communication is known to be important in the reproductive behaviors of sage-grouse. There is evidence that the acoustic displays produced by males on leks facilitate reproduction in at least two ways. First, females use these vocalizations to find leks within the habitat. Second, after arrival at a lek, there is evidence that females use male vocalizations (and other aspects of male display) to choose a mate. Anthropogenic noise in the sage grouse habitat may mask vocalizations produced by males, interfering both with females' ability to locate leks and to choose mates. (Upper Green River Basin Sage-Grouse Working Group 2007).

Under the Proposed Action, there would be road construction and drilling activities within the project area, and vehicular traffic along the access roads. There are 13 sage grouse leks located within three miles of the project area or access roads (see Figure 3-3); a portion of the 3-mile buffer areas surrounding three of the leks overlap onto the project area. All of the proposed northern access roads (county roads 1177, 1207, and 5) are within one or more 3-mile buffer areas. There are two leks just west of County Road 1177, three leks just east of County Road 5, and one lek (Monte Cristo West, the lek used for the viewshed analysis) located adjacent to County Road 1205, about 2.5 miles north of the project area. There are also two lek buffer boundaries that overlap onto the southern access road.

A project area noise assessment (EDI 2012) was conducted to 1) calculate the maximum noise levels that would be generated in any one place by project operations, and 2) identify resulting noise levels at each of the leks along the access roads, given the attenuation that would result due to distance, topography, and typical atmospheric conditions. Table 3-9 provides the noise levels from equipment and vehicles used for the noise assessment.

Table 3-9. Noise Levels from Equipment Associated with the Proposed Action

Description	Manufacturer's Description	Equipment Function	dB(A) @ 100 ft.
Dozer	CAT – D8	Drill Site Preparation	76
Motor Grader	CAT-14G	Access Road and Drill Site Preparation	72
Service Vehicles	Pick Up Trucks	Employee, Delivery, etc.	69
Drill	Morooka	Exploratory Drilling	78
Drill	Schramm 685	Exploratory Drilling	78
Motor Grader	CAT-14G	Road and Drill Site	72
Dozer	CAT-D8	Maintenance	76
Service Vehicles	Pickup Trucks	Employee, Delivery, etc.	69
Water Trucks		Dust Control	65
Motor Grader	CAT-14G	Site Clearing	72
Dozer	CAT-D8	Site Clearing	76
Water Truck		Dust Control, Planting	65
Service Vehicles		Employee	69
Cultivator		Planting and Seeding	65

Source: EDI 2012

The assessment considered three different operating scenarios: 1) operation of one bulldozer (estimated at 76 dBA at 100 ft.), representing early project construction activities); 2) operation of 10 drill sites (estimated collectively at 88 dBA), representing maximum exploration-only

activity; and 3) operation of 10 drill sites in close proximity to an operating bulldozer (estimated collectively as 88 dBA), representing concurrent road construction and drill operating activities.

Because drilling and road locations have only been identified for Phase I activities, the noise assessment was designed to measure potential noise levels from five locations along the border of the project area. Collectively, the sites are the closest possible drilling locations to all of the leks, and therefore represent the loudest possible project area noise sources that could cause disturbance to breeding sage grouse (Figure 3-4).

For each scenario, the noise assessment first identified the decibel level at 100 feet from the source using the factors identified in Table 3-9. The assessment then calculated noise levels at each of the leks, taking into account three factors that affect noise levels:

- attention from distance; which typically has a drop-off rate of 6 dBA per doubling of distance;
- reductions in decibel level based on standard atmospheric conditions (no rain, snow, or wind);
- noise reductions based on site-specific terrain, using topographical maps to develop cross section maps that identify any noise barrier or barriers between the source and the lek and calculating reductions when there is terrain barrier of significance.

As shown in Table 3-10, under all three scenarios and at all potential sites, the noise attenuation from distance, atmosphere and terrain would result in the noise level at leks from project area-activities remaining below the current noise levels of 35 dBA.

Table 3-10. Nose Levels from Equipment Associated with the Proposed Action

Lek No.	Distance to lek (feet)	Distance Reduction (1)	Atm Reduction (2)	Terrain Reduction (3)	Sum (1+2+3)	Project Area Noise Level at lek (dB(A))			Increase to Ambient Noise level at lek (35dBA)
						One Dozer	Ten Drills	One Dozer & Ten Drills	
1	79,200	58	>40	24	122	NA	NA	NA	No change
2	62,500	56	>40	24	120	NA	NA	NA	No change
3	55,800	55	>40	24	119	NA	NA	NA	No change
4	62,500	56	>40	24	120	<15	<15	<15	No change
5	57,500	55	>40	0	95	<15	<15	<15	No change
6	58,300	55	>40	2	97	<15	<15	<15	No change
7	45,800	53	>40	0	93	<15	<15	<15	No change
8	47,500	54	>40	10	104	<15	<15	<15	No change
9	31,300	50	31	2	83	<15	<15	<15	No change
10	32,500	50	32	2	84	<15	<15	<15	No change
11	13,700	43	13	10	66	22	22	22	No change
12	20,000	46	20	10	76	<15	<15	<15	No change
13	15,000	43	15	10	68	20	20	20	No change
14	20,000	46	20	0	66	22	22	22	No change
15	30,300	50	30	0	80	<15	<15	<15	No change

NA: noise from project activities would be completely inaudible.

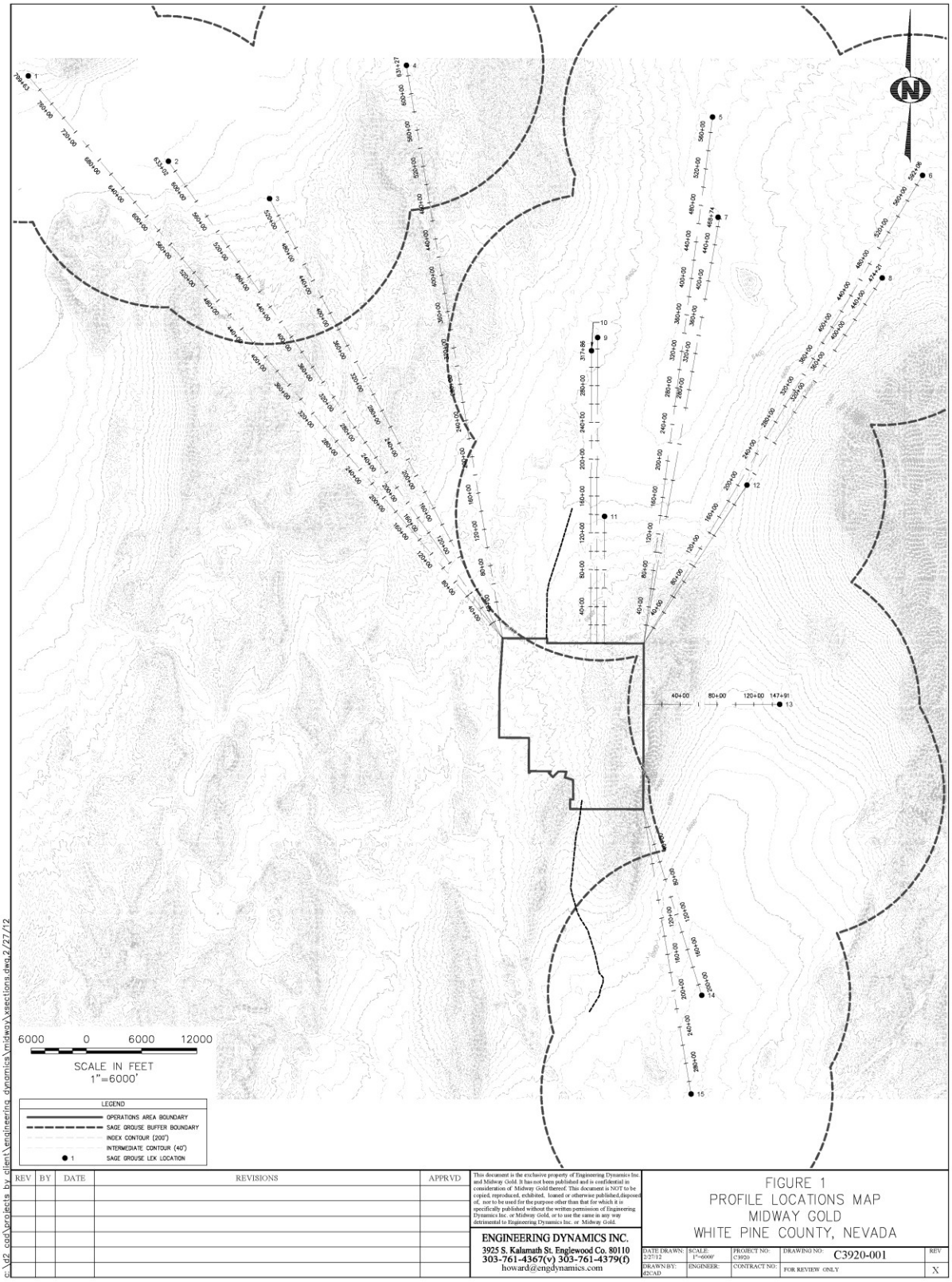

Figure 3-4. Location of the five source points used for noise assessments as related to leks.

Modeling of traffic noise study was performed using the Federal Highway Administrations FHWA Traffic Noise Model (TNM), Version 2.5. This program allows the user to specify, in 3-dimensional coordinates, the location of the roadway, the noise receptors, existence of any noise barriers and vehicle information.

The modeling used the following assumptions:

- The proposed access roads will be gravel, and have an assumed width of 20 feet, one lane each direction. For this analysis, EDI assumed a long straight roadway section, with no grade.
- At shift change, there would be as many as 20 vehicles in and out of the project area (ten in each direction); 2) four delivery medium truck operations (two each direction); and 3) up to four heavy truck operations (two each direction). For heavy truck traffic, the model also considered the height of the exhaust stack, which is about 8 to 10 ft. above roadway level and would therefore require a barrier of at least 12 ft. above roadway level to have any terrain reductions.
- Receiver specifications were taken as perpendicular distances from the centerline of the roadway; 50 foot increments from 50 to 300 feet.
- Atmospheric conditions would include no rain, snow, or wind.
- Pickup trucks have standard exhaust systems (i.e., no straight pipes).

Traffic noise levels were modeled for the following combinations of these vehicle volumes:

- Case 1: 20 cars, representing employee commute
- Case 2: 20 cars and 4 medium trucks, representing employee commute plus a moderate level of concurrent equipment delivery
- Case 3: 4 medium trucks only, representing a moderate level of concurrent weekly supply traffic not occurring during commuting hours
- Case 4: 4 medium trucks and 4 heavy trucks, representing maximum concurrent weekly supply delivery not occurring during commuting hours
- Case 5: 20 cars, 4 medium trucks, and 4 heavy trucks, representing the maximum level of concurrent traffic if there is no ride-sharing.
- Case 6: 10 cars, 2 medium trucks and 2 heavy trucks, representing the maximum level of concurrent traffic if ride-sharing is employed.

Two vehicle speeds were considered for each scenario, 55 mph as defined by the BLM and 35 mph (a more realistic speed limit for some sections of roadway), for a total of 12 possible scenarios.

Under all scenarios, noise would attenuate to existing noise levels (35 dBA) within 2,000 feet. There are 3 leks along the access roads that are less than 2,000 feet and which would be subject to a potential increase in noise levels. Table 3-11 present attenuation data for the three leks.

Table 3-11 Traffic Noise Levels at Leks within 2,000 feet From Access Roads

Lek No.	Distance to lek (feet)	Noise Level at lek-dB(A) (55mph/35/mph)					
		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
6	1,400	32/31	34/32	32/31	34/32	35/33	36/33
8	912	36/35	38/35	37/35	38/36	39/37	40/38
11	90	54/53	55/\54	54/53	55/54	57/55	57/55

Note: Calculated traffic noise levels are rounded up to the nearest dB(A), which is why several of the Cases have the same predicted noise levels.

As shown above, traffic noise does exceed 35 dB(A) at three leks. This analysis is a conservative estimate of impacts because USGS contours do not show any cuts or barrow pits along the access roads, which would further reduce noise levels. However, as discussed previously large truck traffic would require a 12 ft barrier above roadway level to have any terrain reductions.

The impacts of noise on sage grouse leks would be minimized through the application of the ACEPMs in Section 2.2.13, which would not allow any surface use within 0.5 mile of an active sage-grouse lek from 5 a.m. until 10 a.m. during the period March 1 through May 15. This would restrict commuting and project delivery traffic during the period when sage grouse are most likely to engage in breeding or strutting rituals.

Reducing vehicle speed to 15 mph within 0.5 miles of the lek could be used to reduce the noise at the leks located near the access roads. This would reduce the dBA approximately 3 dBA, which would mean that noise levels at lek 6 would be reduced to ambient noise levels under all scenarios. Noise levels at lek 8 would be reduced to ambient noise levels in cases 1 through 5; case 6 noise levels would be 36 dBA. Noise levels at lek 11 would be reduced to between 51 and 53 dBA, but would still be well above existing noise levels. This measure is included in Section 3.3, Mitigation.

3.2.7.2.2 *No Action Alternative*

Under the No Action Alternative, the area would remain available for other multiple use activities as approved by the BLM. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval. Impacts to wildlife would be similar to those described under the Proposed Action but would affect less acreage and be of a shorter duration. There would still be project area and traffic noise associated with Notice-level activities. Project area noise would attenuate to baseline levels at leks. Noise from traffic could still be in excess of 35 dBA at the thee leks closest to the access roads, but would be lower than the Proposed Action, due to fewer numbers of vehicles.

3.2.8 ***Visual Resources***

Visual resource management (VRM) is a system for minimizing the visual impacts of surface-disturbing activities and maintaining scenic values for the future. Visual resources consist of landforms vegetation, bodies of water and human-made structures. These elements of the landscape can be described in terms of their form, line, color, and texture. Visual resources are identified through the Visual Resource Management (VRM) inventory. This inventory consists of a scenic quality evaluation, sensitivity level analysis and a delineation of distance zones. Based on these factors, BLM-administered lands are placed into four visual resource inventory

classes: VRM Class I, II, III and IV. Class I and II are the most valued, Class III represents a moderate value and Class IV is of the least value. VRM classes serve two purposes: (1) as an inventory tool that portrays the relative value of visual resources in the area, and (2) as a management tool that provides an objective for managing visual resources.

Visual resource management also includes impacts from light pollution. A *natural lightscape* is defined by the National Park Service as a "place or environment characterized by the natural rhythm of the sun and moon cycles, clean air, and of dark nights unperturbed by artificial light" (NPS 2012). Light pollution is defined as the illumination of the night sky caused by artificial light sources (Bortle 2001). Effects of light pollution consist of a decrease in the visibility of stars and other natural night sky features, as well as a disruption in natural lightscapes from direct glare. Light pollution is caused by artificial light sources that are directed upward or sideways. Light then scatters throughout the atmosphere, resulting in skyglow.

To effectively evaluate the visual impacts of a proposed project, a contrast rating is done from the most critical viewpoints, called key observation points (KOPs). This is usually along commonly traveled routes or at other likely observation points. Using BLM Form 8400-4-Visual Contrast Rating Worksheet, visual resource specialists evaluate the degree of visual contrasts from each KOP based on the form, line, color, and texture changes between the existing landscapes and how the landscapes would look after implementation of the Proposed Action. The analysis area for impacts to visual resources consists of the project area and all areas within a 5-mile radius around the project area, which roughly marks the background views and an area from which a casual observer may distinguish elements of the Proposed Action (Figure 3-5).

3.2.8.1 **Affected Environment**

The Project Area occurs within a classic basin and range landscape that consists of an open valley flanked by north-south-trending ridges. The dominant visual features in the project area are the heap leach pad and access roads associated with the former Easy Junior mine. Vegetation typical of the Great Basin occurs throughout the project area. Sagebrush is interspersed with other shrubs and grasses that contribute to the scenic quality of the area. Exposed gray, buff, and tan-colored soils also add contrasts and scenic quality to the area. Additional vegetation consists of the darker green juniper present throughout the area. Most of the project area falls within VRM Class IV. The Class IV management objective is "to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements" (BLM 1986).

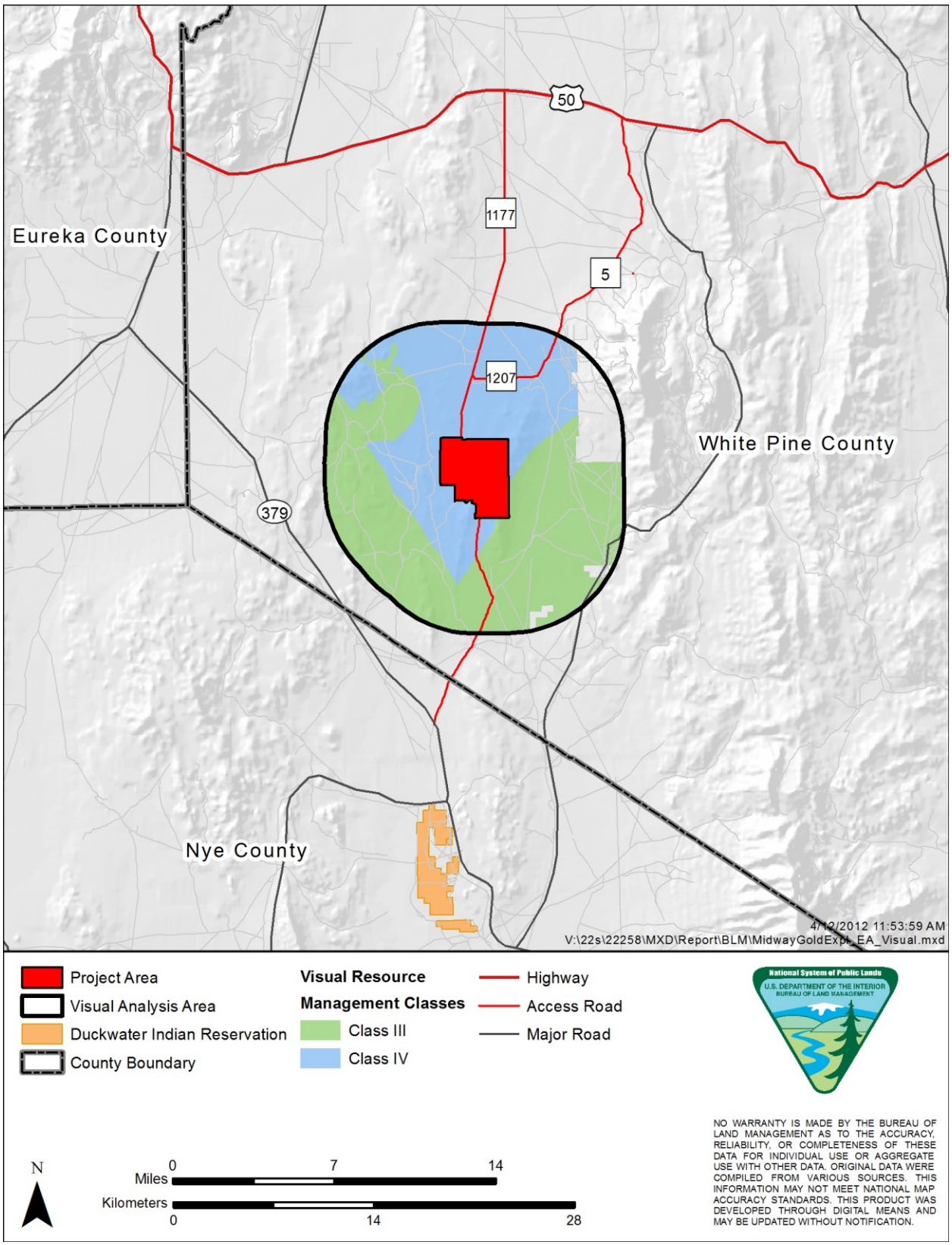

Figure 3-5. Visual resources analysis area.

A small portion of the project area in the southeast corner is within VRM Class III. The objective of this class is "to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape" (BLM 1980).

Existing or potential sources of artificial nighttime light in the area consist of traffic along U.S. Highway 50, residences at the Duckwater Indian Reservation, and the communities of Eureka and Ely. Because there are so few sources of artificial light, the night skies in the project area and the surrounding area are assumed to be some of the darkest skies in the continental United States.

3.2.8.2 **Environmental Consequences**

There are no private residences, major roadways, recreation sites, trails, scenic overlooks, or other destinations in and near the project area that would be considered a critical KOP; however, a single KOP was identified along the main project access road approximately 0.5 mile north of the project area as the primary public view of the Proposed Action (Figure 3-6).

Figure 3-6. View from KOP looking south.

The KOP is located on the main access road just north of the project area. From this location, the view is to the south and looks up into the open valley floor. Dark green junipers, low shrubs, and grasses cover the valley floor and surrounding ridges. This location represents the views of people traveling south from U.S. Highway 50. During the field visit, the limited visibility of the project area from surrounding lands was confirmed by driving existing roads to the north, east, south, and west of the project area.

3.2.8.2.1 Proposed Action

Under the Proposed Action, there would be mining exploration activities throughout the project area. During the field visit to discuss potential visual impacts, it was determined there would be weak to moderate contrasts to the existing topography and landform within the project area, and to the existing vegetation and soil surfaces. Weak contrasts can be seen, but do not attract the attention of viewers; moderate contrasts begin to attract the attention of viewers and may also begin to dominate the characteristic landscape. Although the proposed access roads, drill pads, sumps, pits, and trenches would contrast with the form, line, color, and texture of the existing natural vegetation and rolling topography throughout the area, they would repeat the basic elements of form, line, color, and texture associated with the existing historic mining disturbances found in the project area, and thus would not attract the attention of viewers travelling through Newark Valley. Although there would be apparent contrasts visible from the KOP identified in the field, because the project area is screened from view from the surrounding areas, the contrasts would not be visible from U. S. Highway 50 or State Highway 379.

Moderate contrasts in the elements of the environment are consistent with the objectives for VRM Classes III and IV. The planned reclamation and mitigation measures outlined in Section 3.3 would reduce the visible contrast in the long term by masking areas with moderate contrast during exploration activities and returning the area to its original condition.

The intermittent need for nighttime exploration activities would result in the presence of portable artificial lighting fixtures and would create short-term increases in artificial lighting. Because of the small amount of artificial lighting that may be used during exploration, and the intermittent and short-term need for artificial lighting, use of artificial light sources for drilling activities would not contribute to long-term increases in the existing skyglow of the area. Visible glare from direct lighting during nighttime exploration activities would occur intermittently and would be partially screened by the existing topography surrounding the project area.

3.2.8.2.2 No Action Alternative

Under the No Action Alternative, the area would remain available for other multiple-use activities, as approved by the BLM. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval. There would still be changes to form, line, color, and texture of the existing natural vegetation and rolling topography throughout the area, but impacts at any one time would be less due to the lower level of concurrent development.

3.2.9 ***Recreation Resources***

The analysis area for impacts to recreation is NDOW Hunt Unit 131, a 998,036-acre area of White Pine, Eureka, and Nye counties (Figure 3-7). Hunt Unit 131 was chosen because it encompasses the project area and all of the nearby environs, and is actively managed as a whole for hunting.

3.2.9.1 **Affected Environment**

Recreation in NDOW Hunt Unit 131 consists of a variety of activities primarily based on public lands. NDOW Hunt Unit 131 is open for elk, mule deer, and pronghorn antelope hunting. NDOW hunt information sheets for Hunt Unit 131 indicate that elk hunting is generally most

successful in the higher elevations in the summer and fall, with elk moving to the lower elevations above Jakes and Railroad valleys during winter. Deer are mostly found in the upper elevations of the White Pine Range but will migrate to lower areas in October. Pronghorn are generally found in Little Smokey Valley and Railroad Valley, although small herds may also be found in Jakes and Newark valleys (where the project area is located) (NDOW 2012).

There are no developed recreation facilities or sites within or adjacent to the project area. Access to and within the project area is currently open to the public. Based on available resources, topography, and information from the BLM and NDOW, recreation in the project area would likely comprise off-highway vehicle (OHV) travel, hunting (as part of Hunt Unit 131), camping, and wildlife and bird watching. BLM data indicate that OHV use has rapidly increased in the entire Ely district and has become a preferred mode of transportation for activities such as hunting, fishing, camping, ranching, mining, and wood cutting (BLM 2007).

There are currently 1,800 miles of road identified by GIS within Hunt Unit 131. Access for hunters within Hunt Unit 131 is good; there are no areas closed by private land, and the unit contains many maintained roads as well as smaller jeep trails requiring 4X4 vehicles. There is an active gold mine located on the portion of the unit east of the Pancake Mountains, approximately 10 miles from Ely. BLM records indicate surface disturbance of 5,000 acres; portions of that area may be unavailable for recreation due to safety concerns, or may be undesirable for hunting due to disturbance or noise.

3.2.9.2 **Environmental Consequences**

3.2.9.2.1 Proposed Action

Under the Proposed Action, access to and within the project area would remain open to the public. This would allow existing recreational uses to continue; however, the sump portion of each of the 165 drill sites would be fenced off and unavailable for recreation use while being actively used during Phase I exploration activities (approximately two years). Concurrent reclamation would take place where possible, which would reduce the total acreage impacted or unavailable for access at any one time to less than the sum of the acreage associated with all 165 sumps. The 12-acre laydown area would be unavailable for the life of the project (five years). Additionally, the presence of drill rigs, vehicles, and workers would likely deter recreation in areas that are unfenced but undergoing active construction exploration activities.

The noise and visual disturbance from construction activities would reduce the quality of the recreational experience for certain users within or near the 5,528-acre project area. The noise could also impact hunting by affecting the distribution or abundance of wildlife species available for hunting or viewing. Although there would be apparent contrasts visible within portions of the project area, the project area is screened from view from the surrounding areas, and contrasts would not attract the attention of viewers traveling through Newark Valley (see Section 3.2.13). Noise levels would average 88 dBA at 100 feet for the drilling activities, but would attenuate to background levels outside the project area (see Section 3.2.9). Project activities are likey to minimally impact tourism in Newark Valley because most of the recreation within the project area is done by residents, ranchers, and some dispersed recreationists.

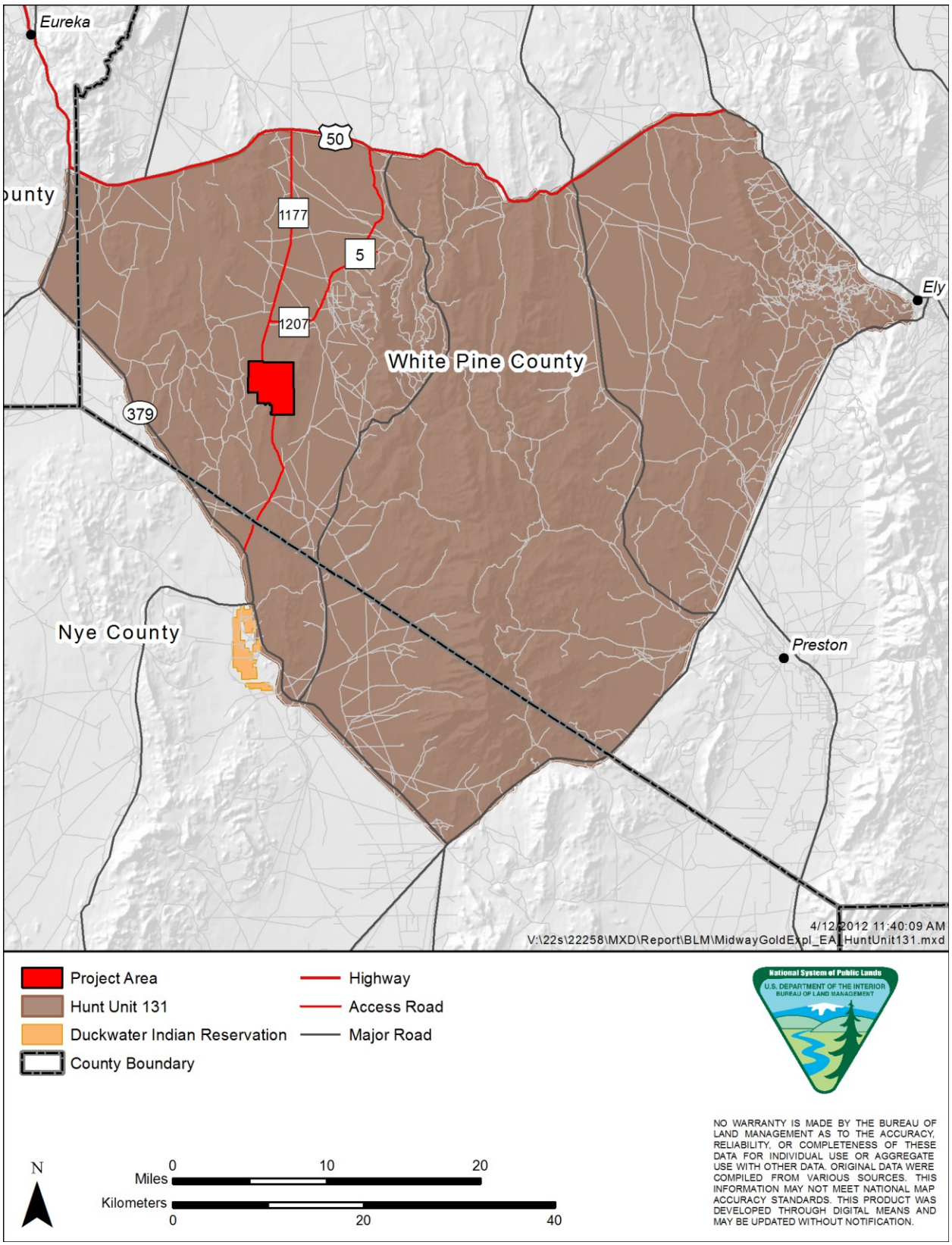

Figure 3-7. Hunt Unit 131.

Indirect impacts include increased access for recreation activities on newly constructed drill roads and/or potential for unauthorized off-road travel on overland travel routes. Phase I activities would include the construction of 13.4 miles of new road and 2.0 miles of overland travel. This is an increase of less than 1% to the existing roads within the hunt unit. A similar amount of road construction and overland travel is expected in Phase II activities. The potential for these impacts would be further limited because exploration roads and overland travel routes would be reclaimed and revegetated to approximate their original topography as soon as they are no longer needed, which before the end of the life of the project . However, if any roads and routes remain visible after reclamation, they could still be accessed by recreational users.

Project traffic may impact recreational users by causing delays, increasing the risk of traffic accidents, and accelerating road degradation. Midway has committed to using employee carpools to the project area to reduce traffic impacts, and would maintain county roads per maintenance agreements with White Pine and Nye counties. Transportation impacts are discussed in Section 3.2.13.

3.2.9.2.2 No Action Alternative

Under the No Action Alternative, the area would remain available for other multiple use activities, as approved by the BLM. Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. As a result, Midway would be able to create sequential acreage of disturbance with BLM approval. There would still be changes to recreational opportunities throughout the area, but impacts would be less due to the lower level of concurrent development.

3.2.10 ***Socioeconomics***

The area used for analysis of socioeconomics impacts comprises White Pine and Eureka counties and the Duckwater Reservation, located on Duckwater Road (Nevada State Highway 379) about 12 miles to the south of the project area, in Nye County. This area was chosen because it incorporates the towns of Eureka and Ely, the two main areas where project employees or contractors would reside or take temporary accommodations and because the Duckwater Reservation qualifies as an environmental justice community, under Executive Order 12898.

3.2.10.1 **Affected Environment**

At the 2010 census, the population of White Pine County was 10,030 (U.S. Census 2011a). Mining is the second largest employment sector in the county after government. In 2009, the sector employed 20% of the total workforce (760 out of 4,630); experienced mining-related personnel include mechanics, electricians, drillers, blasters, welders, heavy equipment operators, truck drivers, lab personnel, security personnel, and general laborers (White Pine County 2012).

At the 2010 census, the population of Eureka County was 1,987 (U. S. Census 2011b). Mining is the largest employment sector of the county, comprising 84% of all available jobs in 1999. It should be noted that many of those jobs are not necessarily held by local residents; in 2001, the mining industry employed 3,560 individuals, well in excess of the number the local labor force (850). Top employers in the county include mining companies, a mine service supply company, and a drilling service company. The town of Eureka contains a variety of mining-related supply companies as well as a water trucking company (Eureka County 2012).

Most gold development communities have housing shortages due to the influx of mining workers from other areas (Harding 2011). A housing gap analysis study prepared for White Pine County in 2008 projected a housing deficit of 780 homes; however, the study also concluded that the "boom and bust" cycle of mining development results in population instability that limits the building of local housing stock. The report concluded that White Pine and Eureka counties had the highest levels of population instability within Nevada (Harris and Bonnenfant 2008). In 2010, a housing impact summary was prepared for Eureka County to provide an overview of housing issues. The summary reported the shortage of quality housing was affecting turnover of mining staff as well as other industries. The memo noted that many employees had to obtain housing in Ely or even Elko (Johnson 2010). Eureka County is currently partnering with the Nevada Rural Housing Authority to develop subdivisions that would ultimately provide 110 rental units and 112 single family homes, with land reserved for temporary construction worker housing. Approximately 80 rental units will be ready for occupancy in mid-2012 (Eureka County 2012). No data were available regarding development plans in White Pine County or Ely.

There are currently several moderately sized hotels in Eureka. Rooms are booked quickly and reservations are often not available (TripAdvisor 2012). As of 2011, White Pine County contained 24 motels with 671 rooms, which include several casinos. Most of these hotels are in Ely. Midway established an office in Ely in July of 2010 to oversee exploration activities in Nevada and currently has 12 employees in Ely working on three projects including Gold Rock. Midway employees currently reside in Ely or nearby (Snell 2012).

Duckwater Shoshone Tribe has a 3,815-acre federal reservation, the Duckwater Reservation, located to the south of the project, in Nye County (see Figure 1). At the 2010 census, the population of the reservation was 156 (US Census 2011c). The tribe owns two greenhouses as part of the Duckwater Falls Nursery where they raise seedlings of native plant species, which are used by large mining operations in land reclamation programs (Great Basin Heritage 2012). In 2000, the reported per capita income for the reservation was $13,110. The 2006-2010 American Community Survey 5-year estimate of reservation per capita income is $26,452 (US Census 2010). Employment by industry data within the same time period indicate that employment is primarily within public administration (34.6%); agriculture, forestry, fishing and mining industries (25%); and educational services, healh care and social assistance professions (17.3%) (US Census 2010).

3.2.10.2 **Environment Consequences**

3.2.10.2.1 Proposed Action

Under the Proposed Action, Midway will contract up to 10 rigs, as available, to complete Phase I of the PoO. Assuming 24 hour operations, each rig would require up to six contract operators for a maximum of 60 full-time jobs (30 per shift) for about 9 months of each year for about two years. This represents an increase of about 500% over the levels of employment provided by Midway's current Notice-level activities (i.e., under the No Action Alternative). Most of these jobs would be for drillers or heavy equipment operators, who would be brought in from exploration sites as far as Montana as well as all of Nevada (Snell 2012). The rest of the jobs (geologists, project managers, etc) would likely be held by existing Midway personnel; however, Midway would hire temporary employees as necessary to provide one extra geologist per rig when multiple rigs are in place.

Because most of these jobs would be short-term jobs involving contractors from outside the community, the addition of these jobs would not necessarily change the employment rate within White Pine or Eureka counties. However, they would provide indirect beneficial impacts to the local economy though purchase and use of goods and services. According to research conducted at the University of Nevada at Reno, the mining industry directly employed 12,198 people in Nevada in 2008 and was responsible for another 52,000 jobs related to providing the goods and services needed by the industry and its employees within the state (Driesner and Coyner 2008). Although this may not directly translate to a definite number of indirect jobs per mining job and may vary with respect to White Pine and Eureka counties, it does provide some indication of how the addition of jobs in the mining industry would indirectly contribute to other employment sectors and therefore, communities in which those opportunities exist.

The addition of these 60 full-time jobs would result in additional demands on short-term housing in Eureka and Ely. Depending on timing of this project with other ongoing mining projects, as well as the availability of the proposed rental units, it is likely that there would not be enough accommodations in Eureka for all new employees and that many of the employees would need to secure accommodations in Ely. This would increase contract employee commute by about 25 miles each way for those employees. Impacts to transportation due to employee commute from Ely are discussed in Section 3.2.13. There would be no change to commuting patterns for Midway employees due to short-term housing shortages in Eureka because the Midway office is located in Ely and employees would be more likely to choose accommodations close to that city. Employment levels for Phase II have not been fully defined but are anticipated to be similar and would provide employment for an additional three years. The Proposed Action is not expected to provide direct employment for Duckwater reservation residents (since most jobs would be short-term jobs involving outside contractors), but could provide indirect beneficial impacts if native plant species used for reclamation are purchased from the reservation. As discussed in Table 3-1, there are no adverse impacts that would disproportionally affect the reservation.

3.2.10.2.2 No Action Alternative

Under the No Action Alternative, Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres at any one time. Midway's contribution to area employment opportunities within the mining industry and associated indirect impact to the local economy would remain at current levels, as would demands on short-term housing.

3.2.11 ***Transportation***

The area used for analysis of transportation impacts comprises the project area drill roads, access routes, U. S. Highway 50 to Eureka and Ely, and State Highway 379 from the intersection with the southern access route to Eureka. This area was chosen because it incorporates the routes on which employees, contractors, and suppliers would most likely travel on a regular basis (see Figure 1-1).

3.2.11.1 **Affected Environment**

U.S. Highway 50 is the primary east-west highway in White Pine County and the only major highway near the project area. In 2010, the annual average daily traffic (AADT; defined as the total volume of vehicle traffic on a road for a year, divided by 365 days) reported on the portion of U.S. Highway 50 just east of Duckwater Road was 570 vehicle trips per day (NDOT 2010).

This portion of U.S. Highway 50 closest to Duckwater Road would be used under the following circumstances:

- If supplies or employees were travelling to and from the town of Eureka to the project area (using proposed northern access roads)
- If the southern access road were to be used for project area access and traffic was originating from Ely)

On the portion of U.S. Highway 50 located just west of Mill Street in Ely, the AADT was 3,500 vehicle trips per day (NDOT 2010). Project traffic would affect this portion of U.S. Highway 50 if employees and supplies were originating from the town of Ely.

U.S. Highway 50 is classified by NDOT as a principal artery, meaning it has the ability to serve corridor movements having trip length and travel density characteristics of substantial statewide or interstate travel. U.S. Highway 50 is maintained by NDOT. In 2008, NDOT's interstates, urban freeways, principal arterials, and rural minor arterials were rated the smoothest roads in the United States by the Federal Highway Administration (NDOT 2008).

White Pine County Road 5 (Green Springs Road) and White Pine County Road 1177 (Easy Junior Road) are unpaved county roads that originate at U.S. Highway 50 and provide project area access from the north. The distance on White Pine County Road 5 from U.S. Highway 50 to the project area boundary is approximately 16.1 miles. From U.S. Highway 50 to the project area boundary, the distance on White Pine County Road 1177 is 15.3 miles. No traffic counts or measurements were found for White Pine County Road 5, White Pine County Road 1177 or the unmarked county road that joins Duckwater Road; however, traffic on these routes would include vehicles associated with Midway's current exploration activities in the project area, as well as other users, including recreationists. Midway estimates that project-related vehicular traffic has averaged approximately 9–10 vehicles per day during previous exploration periods. Other vehicle traffic observed by Midway field staff includes that associated with other exploration companies and claim holders, hunters, recreationists, ranchers, and pine nut gatherers. Observed travel was estimated at approximately 30 vehicles per day (Williams 2012). Road maintenance on White Pine County Road 5 and 1177 is currently provided by White Pine County.

Project area access from the south would be provided by an unmarked county road that joins Duckwater Road (Nevada State Highway 379). From this junction, Duckwater Road extends north into Eureka County to U.S. Highway 50 and south to the Duckwater Indian Reservation, located in Nye County. The distance on the unmarked county road branching from Duckwater Road to the project area boundary is 10.6 miles. Road maintenance is currently provided by Nye County. No traffic counts or measurements were found for the unmarked county road, or Duckwater Road.

In 2009, Nevada had a total of 20,454 million annual miles driven and 243 motor vehicle–related fatalities. This translates into a fatality rate of 1.19 per 100 million vehicle miles traveled (USDOT 2009).

The BLM is in the process of conducting its travel inventory and has not yet determined travel designations for OHV use in or near the project area. Until the travel inventory is completed, the area is being managed as "open" to OHV use (Rajala 2012).

3.2.11.2 **Environmental Consequences**

3.2.11.2.1 Proposed Action

Under the Proposed Action, vehicular travel would result from employee/contractor commute and equipment supply delivery. The project would employ up to 10 drill rigs and associated support vehicles. Water trucks would make at least one trip to the project area per day; the water source would be located within 10 miles of the project area. Drilling mud, fuel, and other supplies would be delivered no more frequently than weekly. Crew vehicles would travel to and from the site daily. There would be two shifts per day; shifts would typically be 12 hours beginning at 6 a.m. and 6 p.m. One or more Midway geologists would travel to the project each day to supervise operations via a separate vehicle.

Midway has committed to having each drill crew carpool to the project area. Assuming this is the case, there would be a total of 10–15 employee vehicles commuting to and from the project area at the beginning and end of each shift (20–30 vehicles total). There would also be up to 10 water trucks per day (although not necessarily scheduled at the same time of day as employee commuting traffic), as well as the potential for up to five deliveries per week of other supplies. Defining a vehicle trip per day as one trip either to or from the project area, up to 60 vehicle trips per day would occur on U.S. Highway 50 and county roads for employee commuting, plus a maximum of 30 truck trips for water and other supplies (assuming all other deliveries occurred on the same day). If carpooling did not occur and each person drove separately, there would be approximately 35–40 vehicles commuting to and from the project area each shift (70–80 vehicles total, plus a maximum of 30 truck trips for water and other supplies [assuming all deliveries occurred on the same day]). This would equate to 190 vehicle trips per day on U.S. Highway 50 and county roads. Table 3-12 shows the potential traffic increase on U.S. Highway 50 compared with current AADT. Traffic volume increases would occur in the spring, summer, and fall seasons, during 2012 and 2013.

The relative increase in daily vehicle trips from project activities would be greatest on the portions of U.S. Highway 50 closer to Duckwater Road (a 11.6% increase would occur with carpooling and a 33.3% increase would occur without carpooling), which is the portion of U.S. Highway 50 that would be used if traffic were to originate from Eureka or if the southern access routes would be used. Near Ely, there would be a 2.6% increase in daily vehicle trips from project activities with carpooling and a 5.4% increase without carpooling.

Table 3-12. Increase in Daily Vehicle Trips on U.S. Highway 50

Location	2010 AADT	2010 AADT and Maximum Daily Vehicle Trips with Carpool (% increase)	2010 AADT and Maximum Daily Vehicle Trips without Carpool (% increase)
U.S. Highway 50 just east of Duckwater Road	570	660 (11.6%)	760 (33.3%)
U.S. Highway 50 west of Mill Street in Ely	3,500	3,590 (2.6%)	3,690 (5.4%)

As a principal artery, these types of traffic increases on U.S. Highway 50 are unlikely to affect level of service or maintenance requirements for these roads because the highway is designed to accommodate high levels of traffic.

Based on observed current traffic, it is likely that traffic would at least triple on the three proposed access roads (from the observed minimum of 40 vehicles per day to over 130 vehicles per day). Vehicular use for project activities on county road systems could degrade these roads (e.g., create rutting, etc.). Road use agreements with White Pine and Nye counties would allow Midway to perform road maintenance and snow removal for year-round access to the project area on White Pine County Road 5, White Pine County Road 1177, and the unmarked county road. Access road maintenance would be done in accordance with the road use agreements and could include grading and watering. Where appropriate and necessary, road base or gravel would be placed on the road to reduce rutting. These maintenance activities would likely minimize degradation of the county roads.

Increased traffic from project construction also presents an increased risk of accidents and fatalities. Assuming the northern access routes would be the primary access to the project area due to their connection with U.S. Highway 50, the longest potential daily commuting distance would be approximately 67 miles; 52 miles along the U.S. Highway 50 (Ely to White Pine County Road 1177) and 15 miles along White Pine County Road 5. Under the carpooling scenario (90 daily vehicle trips), a maximum of 6,120 vehicle miles would be travelled per day. Assuming a work schedule of seven days a week over three seasons (approximately 274 days), a maximum of 1,676,880 vehicle miles would be traveled per year. If carpooling were not employed, approximately 12,920 vehicle miles would be travelled per day and a maximum of 3,540,080 vehicle miles would be traveled per year. Assuming the ratio of fatalities to vehicles miles travelled for the Proposed Action is the same as the ratio for the state of Nevada, project activities under either scenario would not result in additional annual fatalities (less than one fatality per 100 million vehicle miles).

3.2.11.2.2 No Action Alternative

Under the No Action Alternative, Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. There would still be changes to transportation resources (traffic volume, road conditions, access changes, and accident risk), but impacts would be less due to the lower level of development.

3.2.12 ***Hazardous Materials and Fire and Fuels Management***

The analysis area for impacts to hazardous materials and fire and fuels management is the project area, its access routes, U.S. Highway 50 to Eureka and Ely, and State Highway 379 from its intersection with southern access route to Eureka (see Figure 1-1). This area was chosen because it incorporates the areas in which there could be a hazardous materials spills or human-caused fire, or where workers could encounter existing environmental hazards.

3.2.12.1 **Affected Environment**

3.2.12.1.1 Hazardous Materials

Recognized environmental conditions, for the purpose of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act of 1986 are defined by the American Society for Testing and Materials (ASTM) as “the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or

into the ground, ground water, or surface water of the property" (ASTM 2005). The project area and transportation routes do not include any current recognized environmental conditions. The project area has been used for previous mining operations; reclamation was considered complete in 2006 (Midway 2011). Midway has not conducted a formal Phase I environmental site assessment but has completed a very thorough internal site assessment for hazardous materials and health and safety risks.

3.2.12.1.2 Fires and Fuels Management

The BLM Ely District currently manages planned and unplanned ignitions according to the 2004 Ely Fire Management Plan, which incorporates the Ely Managed Natural and Prescribed Fire Plan (BLM 2000). Memoranda of understanding between the Ely FO and surrounding public land management agencies (e.g., Humboldt-Toiyabe National Forest, Elko FO) have been established and identify responsible parties for initial attack of fires on public lands. The project area and access roads are located in fire management units that allow (to the extent practical for resource benefit) the managed use of wildland fire to improve ecological system function, and to allow fire to function as a natural part of the ecological system.

According to the Nevada Community Wildfire Hazard Assessment Project (RCI 2005), ignition risks for wildfires generally fall into two categories: lightning and human caused. Human-caused ignitions can come from a variety of sources such as burning material thrown out of vehicle windows, sparks from auto accidents, off-road vehicles, railroads, arcing power lines, agricultural fires, campfires, debris burning in piles or burn barrels, and fireworks. In White Pine County, 1,765 fire incidents were recorded between 1980 and 2003; 1,548 were lightning caused and 217 were human caused. The cause of the remaining 135 fires was not reported (RCI 2005). According to the Nevada Division of Forestry, there were four wildland fires near the project area in 2011, all occurring around the same day (July 26, 2011). Three fires were contained to less than 1 acre; one fire was contained at approximately 1 acre (Division of Forestry 2011). The cause of these fires was not reported.

The timing and the frequency of wildland fires can be affected by the presence of invasive weeds. Annual bromes such as cheatgrass are prolific seeders that can form a continuous bed of highly flammable fine fuels at a time of year that fires did not historically burn. Cheatgrass presence in western ecological systems has affected both the timing and the frequency of wildland fires (BLM 2007). Site-specific surveys of the project area and the BLM Risk Assessment notes that there is currently cheatgrass scattered throughout the project area, mainly along roads in and to the project area.

3.2.12.2 **Environmental Consequences**

3.2.12.2.1 Proposed Action

<u>Hazardous Materials</u>

The generation of waste and the use of hazardous materials to implement the Proposed Action could result in the accidental release of these wastes or materials during transportation, transfer, or use. The risk of contamination would be minimized through the application of the ACEPMs in Section 2.2.13.

Under the Proposed Action, the following hazardous materials would be delivered and used in the project area:

- Approximately 625 gallons of diesel fuel to be stored in vehicle and drill rig fuel delivery systems
- Approximately 125 gallons of gasoline to be stored in fuel delivery systems for light vehicles
- An aboveground diesel fuel tank of approximately 15,000 gallons, provided with its own double containment system, located at the laydown area
- Approximately 125 pounds of lubricating grease, stored on the drill rigs or transported by drill trucks

Standard, nontoxic drilling muds and additives such as Floc 360™, Abandonite™, Alcomer 120L™, bentonite, EZ-mud™, Polyplus™, and Super Plug™ would be used for drilling activities and stored on-site. All containers of hazardous substances would be labeled and handled in accordance with NDOT and MSHA regulations. No chemicals subject to the Superfund Amendments and Reauthorization Act and no extremely hazardous substances, as defined in 40 CFR 355, in threshold-planning quantities would be used in the project area or transported along the transportation routes.

The truck routes for delivery of hazardous materials to the project area and removal of trash and other wastes from the project area would be along one or more of the routes described above. Deliveries are expected to occur no more than once per week, and assuming that the northern access roads are used, and that supplies come from Ely, the transportation route would be a maximum of 68 miles each way. The transfer of fuel from the tank to trucks would occur primarily within the laydown area; minor amounts of fuel transfer could also occur at each drill pad location. Maintenance of equipment would occur mainly in the laydown area but could occur at any of the drill pad locations.

Self-contained, portable, chemical toilets supplied and serviced by a contractor would be used for human waste. All other refuse generated by the Proposed Action would be transported off-site and disposed of at an authorized landfill facility, consistent with applicable regulations. All human waste would be hauled off-site and disposed of in a sewage treatment facility. No refuse, human waste, or toilet chemicals would be buried on-site.

In the event hazardous or regulated materials were spilled, measures would be taken to control the spill and the BLM, NDEP, and/or the Emergency Response Hotline would be notified, as required. If any oil, hazardous material, or chemicals are spilled during operations, they would be cleaned up as soon as Midway becomes aware that a spill has occurred. After clean up, the oil, hazardous material, or chemicals and any contaminated material would be removed from the site and disposed of at an approved disposal facility. Any hazardous materials uncovered during construction or exploration activities would be immediately reported to the AO.

<u>Fires and Fuel Management</u>

Under the Proposed Action, there would be a risk of accidental ignition from the following:

- Improper storage or handling of highly flammable materials: During the life of the project, there would be one 15,000-gallon aboveground diesel fuel tank located in the laydown area; trucks and equipment together would carry an additional 750 gallons of diesel fuel or gasoline.

- Sparks from overland travel by ATVs or pickup trucks: There would be a total of 10,760 linear feet of overland travel by ATV during Phase I. A similar amount is expected during Phase II.
- Personnel activities such as smoking: There could be up to approximately 60 crew members on the project area daily during both phases of the project.

These risks would be minimized by the ACEPMs outlined in Section 2.2.13. Mobile equipment would be properly muffled and equipped with suitable fire suppression equipment, such as fire extinguishers, hand tools, and portable water pumps. All applicable state and federal fire laws and regulations would be complied with, and all reasonable measures would be taken to prevent and suppress fires in the project area. During business hours, Midway would report any uncontrolled fires immediately to the BLM Ely District Manager or AO; after hours, any uncontrolled fires would be reported to 911 emergency services or the sheriff's office. There is also potential for an increased risk of wildfire due to the introduction of invasive weed species, which increase the risk and intensity of wildfire. The BLM Risk Assessment (Appendix B) rates the project activities as "moderate" in their potential for introducing or spreading noxious weeds, and "high" for the consequences of those noxious weed establishment, because the area currently has very few weeds, and any new infestations would impact nearby native plant communities and could alter the fire regime in the area. The area of risk would include all areas of surface disturbance (a total of 137 acres) plus all areas within 200 feet from the proposed roads and overland travel areas (an additional 830 acres). The ACEPMs presented in Section 2.2.13 and in the BLM Risk Assessment (Appendix B), regarding reclamation and reseeding, would minimize these risks. There would be also more personnel onsite to report any wildfires occurring on or near the project area and some firefighting equipment in vehicles and trucks onsite to provide potential initial control to any fires directly threatening Midway facilities or personnel.

3.2.12.2.2 No Action Alternative

Under the No Action Alternative, Midway would continue to explore the project area under the approved Notice, which limits surface disturbance to a maximum of 5 acres. Solid and hazardous wastes would be present during those activities but would be in smaller qualities. Risk of wildfire ignition would also be present, but would be less due to the smaller amounts of flammable materials on-site and reduced numbers of employees and overland travel trips.

3.3 MITIGATION

The following section contains specific mitigation measures that could be implemented to further reduce impacts to wildlife/special status species and visual resources. The ACEPMs described in the Proposed Action (Section 2.2.13) are sufficient to reduce impacts for all other resources. Monitoring throughout the life of the project will continue as stated with regards to invasive species management, road maintenance, dust reduction efforts, and seeding activities during reclamation.

Wildlife/Special Status Species

The following mitigation measure could be used to reduce impacts to sage-grouse leks during strutting season. The mitigation measure below is listed in the 2008 Ely District Approved Resource Management Plan as a Parameter in the Management Actions under Special Status Species.

- Where appropriate, restrict permitted activities from March 1 through May 15 within 2 miles of an active greater sage-grouse lek.

The following additional mitigation measure could be used to further reduce the noise at the leks located near the access roads.

- Reduce vehicle speed to 15 mph within 0.5 miles of the lek. This would reduce the dBA approximately 3 dBA, which would mean that noise levels at lek 6 would be reduced to ambient noise levels under all scenarios. Noise levels at lek 8 would be reduced to ambient noise levels in cases 1 through 5; case 6 noise levels would be 36 dBA. Noise levels at lek 11 would be reduced to between 51 and 53 dBA.

Visual Resources

The planned reclamation and mitigation measures outlined below would reduce the visible contrast in the long term by masking areas with moderate contrast during exploration activities and returning the area to its original condition.

- Construction Drill Roads and Drill Sites: Any removed vegetation from road creation would be saved and used at access entrance. All drilling sites, including turnouts, would be visually masked by spreading the cut and downed brush and trees scattered across each site. This method would be most suitable to assist with blending disturbances into the surrounding characteristic landscape while vegetation is re-established from re-seeding, and to prevent continued use by the general public. Areas adjacent to and accessible by the main access roads should be a priority when using removed vegetation. Removed vegetation from sump sites would be saved, lopped, and scattered after access is ripped and re-seeded.
- Overland Travel: No ripping would be necessary. Any removed vegetation would be saved from sump sites and used at access entrance by lopping and scattering up to 50 feet, to avoid continued access on two-tracks.
- Reclamation: Once completed, trenches and pits would be backfilled and recontoured to near original contour. The top 1 foot of surface soil and plant material would be spread back over the area, and the area would be seeded with a BLM-approved seed mix.

4.0CUMULATIVE IMPACTS ANALYSIS

As defined in 40 CFR 1508.7 (Council on Environmental Quality [CEQ] regulations for implementing the NEPA) a cumulative impact is an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such other actions.

4.1 ANALYSIS AREAS

The geographic extent of cumulative impacts varies by the type of resource and impact. The timeframes, or temporal boundaries, for those impacts may also vary by resource. Five different spatial and temporal cumulative impact analysis areas (CIAAs) have been developed and are listed with their total acreage in Table 4-1.

Table 4-1. Cumulative Impact Analysis Areas by Resource

Resource	Cumulative Impact Analysis Area (CIAA)	Total CIAA Acreage	Temporal Boundary
Air, Soils, Water. Vegetation, and Paleontology Resources	Headwaters Duckwater Creek, Upper Bull Creek, Middle Bull Creek, and Hoppe Spring Duckwater Creek HUC 12 subwatersheds. This area was chosen because it is an area with clear topographical boundaries against which to measure impacts to air quality and visibility and has vegetative connectivity, similar soil types, and hydrological functionality of this area. **See Figure 3-1.**	113,516	Soils, Water and Vegetation: 8 years (5-year life of project plus 3 years for vegetation reclamation) Air: Life of project (5 years) Paleontology: 8 years (5-year life of project plus 3 years for reclamation activities
Cultural	Prehistoric: Lower Newark/Upper Railroad Valley plus the Pancake/White Pine Range Historic Mining: the White Pine and Pancake Mining Districts Historic Transportation: Lower Newark/Upper Railroad Valley These areas were chosen because of local lifeway-ecological associations or historic activities, as identified through previous discoveries	277,632 166,127 154,527	8 years (5-year life of project plus 3 years for reclamation activities
Wildlife/SSS, Recreation Resources, Transportation	NDOW Hunt Unit 131. This area was chosen due to the continuity of big game habitat and recreational uses such as hunting and because it encompasses the transportation routes. **See Figure 3-7.**	998,036	8 years (5-year life of project plus 3 years for vegetation reclamation
Socioeconomics	White Pine and Eureka counties and the Duckwater reservation. This area was chosen because it incorporates the towns of Eureka and Ely, the two main areas where project employees or contractors would reside or take temporary accommodations.	NA	5-year life of project
Visual Resources	5-Mile viewshed from project area. This area was chosen because it encompasses the entire project area viewshed as seen by travelers on nearby roads. **See Figure 3-6.**	94,366	8 years (5-year life of project plus 3 years for vegetation reclamation

4.2 PAST, PRESENT AND REASONABLY FORESEEABLE FUTURE ACTIONS

The primary past and present actions that would affect the resources analyzed in this EA are historic exploration and mining operations, numbers and scattered transmission lines, livestock grazing, a wild horse gather, and road development. The BLM LR2000 database was used to query the past and present mineral exploration or mining activities (authorized Notices, expired Notices, closed Notices) that have been approved in the CIAA. This includes areas of existing surface disturbance from mining operations associated with the Easy Junior Mine within the Gold Rock project area, as well as surface disturbance exploration activities associated with Midways' Pan project, located approximately 10 miles northwest of the Gold Rock project area. Road disturbance was identified through GIS road layers for each of the analysis area. Past and present actions are summarized by CIAA in Table 4-2 below.

The Pancake Complex Wild Horse Gather was conducted from January 12 to February 12 of 2012 and removed 819 horses within the Pancake Complex. It is estimated that there are 1000 horses remaining in the Pancake HMA.

Within the Humboldt-Toiyabe National Forest (USFS) Ely Ranger District, there is an abandoned and partially reclaimed 500-acre mine, as well as a 3-acre geothermal project within the White Pine Mountains east of the project area. This project would fall into the Wildlife/SSS/Recreation CIAA (Hunt Unit 131) and are included in Table 4-2 below. No data are available on the acreage of impacts of past and present livestock grazing.

Reasonably foreseeable future actions (RFFAs) are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends. The BLM has identified two primary reasonably foreseeable mining actions occurring within the CIAAs identified above.

- The Pan Mine, proposed by Midway, is located approximately 10 miles northwest of the Gold Rock project area. The mine proposes approximately 3,238 acres of surface disturbance, including two open rock disposal areas, one heap leach facility, and other mining related facilities, including transmission lines. This project falls into the Wildlife/SSS/Recreation, Socioeconomic, and the Pancake Wild Horse CIAAs.
- The Gold Rock Mine, also proposed by Midway, is a mine proposed within the project area. The timing, exact location and extent of facilities is to be determined but could include shafts, open pits, rock disposal areas, heap leach processing facilities, roads, and other ancillary facilities, at least some of which would be located in the same areas of surface disturbance as the Gold Rock exploration project. The project is estimated to impact a maximum of approximately 2,000 acres, but would not occur for at least three years, so would be removed temporally from some or all of the resource impacts associated with the Gold Rock exploration project. This project would fall within all of the CIAAs.

The Humboldt-Toiyabe National Forest (USFS) Ely Ranger District has several geothermal and mining projects planned within the White Pine Mountains east of the project area. These projects would fall into the Wildlife/SSS/Recreation CIAA (Hunt Unit 131).

- Centennial Exploration Project: exploration drilling, 1.2 acres of proposed disturbed disturbance expected to occur in summer 2012.

- Wheeler Ridge Phased Exploration Project: exploration drilling, 50 acres of proposed disturbance, expected to occur summer 2013.
- Centennial Mine Plan: The timing, exact location and extent of facilities is to be determined but is estimated to impact approximately 320 acres and would not occur for at least three years.

The BLM 2008 RMP has also identified a proposed corridor for the Southwest Intertie Project (SWIP), a proposed 500 kV transmission line that when completed, will extend more than 500 miles from Jerome County, Idaho to Clark County, Nevada. A portion of the SWIP corridor lies within the easternmost portion of the Wildlife/SSS/Recreation CIAA (Hunt Unit 131) and is currently being constructed.

Table 4-2 summarizes all known past, present, and reasonably foreseeable disturbance impacts by CIAA. Because the SWIP project is well removed the project area and its associated recreation and wildlife uses and impacts, it is not included in the RFFA acreages in Table 4-2 but is discussed qualitatively in the wildlife/species-status species and recreation analyses.

Table 4-2. Past, Present and Reasonably Foreseeable Disturbance Impacts by CIAA

Cumulative Impact Analysis Area (CIAA)	Past Development Activity (Acres)[1]	Present Development Activities (total acres, including roads)	Past or Current Road Disturbance (Miles/Acres)	Reasonably Foreseeable Future Actions (RFFAs)
Air/ Soils/ Water/Vegetation and Paleontology	157	10.1	60 (2.0)	2,000
Cultural: prehistoric historic mining historic transportation	195 189 160	110 110 9	191	5,238
Wildlife/SSS/Recreation /Transportation	739	5,110	1,800 (1,785)	5,609
Visual Resources	156	10.1	191 (20)	2,000
Wild Horses	216	116	1,175 (761)	5,238
Socioeconomics	739	5,110	1,800 (1,785)	5,609

[1] Road acreage assumes an average road width of 24 feet .

The CIAAs also contain reasonably foreseeable future actions that would have countervailing cumulative impacts for some resources. Within the Wildlife/SSS/Recreation CIAA, the Ely Ranger District is proposing a variety of vegetation restoration projects over the next several years, focused on areas of pinyon-juniper encroachment. These projects would be scattered throughout USFS lands within the CIAA, and are estimated to treat 1,000 – 2,000 acres of pinyon juniper per year (Rozich 2012).

4.3 CUMULATIVE IMPACTS BY RESOURCE

4.3.1 *Air Quality*

Impacts from past and present actions within the within the 113,516-acre CIAA include fugitive dust and any emissions associated with 169 acres of surface disturbance activities, which includes construction of 60 miles of road. This is less than 0.2% of the CIAA. Reclamation has reduced the potential for fugitive dust and visibility impacts from some of these disturbances.

RFFAs would result in an additional 2,000 acres of surface disturbance from the proposed Gold Rock Mine, with corresponding increases in fugitive dust and vehicle emissions. This is approximately 1.8% of the CIAA. There are no specific data on when project activities are scheduled to begin, the proposed amount /types of equipment vehicles, or proposed miles of roads; however it is expected that these activities would begin largely after completion of the Proposed Action and would therefore be partially or wholly out of the temporal boundaries of the analysis for air quality (5-year life of project). ACEPMs associated with these projects would include plans to reduce emissions and minimize the potential effects of fugitive dust on air quality; reclamation of project-related proposed surface disturbance would gradually eliminate fugitive dust from wind erosion. Together, past, present, and reasonable surface disturbance would total 2,169 acres (approximately 1.9% of the CIAA).

The Proposed Action would disturb an additional 137 acres of soils (approximately 0.1% of the CIAA) over the next five years, a 6% addition to the past, present, and reasonable foreseeable surface disturbances identified above. However, as noted above, the contribution of the Proposed Action's particulate and combustion emissions and fugitive dust would be at least partially temporally removed from RFFAs, further reducing impacts to air quality in terms of total cumulative acres of disturbance at one time.

Under the No Action alternative, surface disturbances would be limited to five acres at any one time, which would reduce particulate and combustion emissions and fugitive dust. The No Action would also be partially or wholly temporally removed from the RFFA, resulting in little or no cumulative impact.

4.3.2 *Cultural Resources*

Cultural resources tend to degrade over time due to natural forces; however, many survive for hundreds or thousands of years. Any land-disturbing activity can disturb or damage cultural resources. Activities such as grazing, mining, exploration, and road construction all have the potential to disturb, damage, or cause changes to the setting of cultural resources. Impacts would depend on the amount, placement, and type of surface disturbance. Past and present development activities have led to collection of information about previous cultures, but also to the loss of sites. Identification and avoidance of NRPH-eligible sites through cultural surveys have reduced these disturbances but there may still be losses of cultural resources important to understanding the past. Recreation activities and wildfires may also cause damage or discovery of cultural resources. Cultural resources of concern within the CIAA consist of prehistoric, historic mining, and historic transportation resources. CIAAs have been established for each of these resource types, based upon lifeway-ecological associations or historic activities, as identified through previous discoveries.

Impacts from past and present actions within the 277,632-acre Prehistoric CIAA include 195 acres of surface disturbance activities, which include construction of 528 miles of road. This is less than 0.07% of the CIAA. Impacts from past and present actions within the 166,127-acre Historic Mining CIAA include 189 acres of surface disturbance activities, which include construction of 306 miles of road. This is less than 0.11% of the CIAA. Impacts from past and present actions within the 154,527-acre Historic Transportation CIAA include 160 acres of surface disturbance activities, which include construction of 314 miles of road. This is less than 0.10% of the CIAA.

Reasonably foreseeable future actions (RFFAs) would result in an additional 5,238 acres of surface disturbance (from the proposed Pan and Gold Rock mines). This is approximately 1.9% of the Prehistoric CIAA, 3% of the Mining CIAA, and 4% of the transportation CIAA. Areas of surface disturbance have not yet been identified. Within the Pan project area there are Carbonari sites, a potential section of an alternative route of the Lincoln Highway used from 1913 to 1926, five non-eligible historic trash dumps as well as other isolated historic artifacts, and eight eligible prehistoric rock rings. Within the Gold Rock project area are there are eight NRHP-eligible sites (one prehistoric projectile point accumulation, two prehistoric habitation sites, two prehistoric antelope traps, one prehistoric rockshelter, one prehistoric lithic scatter, and one historic habitation site that is likely associated with charcoal production). Both of these RFFAs would occur in areas that have been subject to previous mining activities, so it is possible that past or present actions have already disturbed or damaged previously unidentified cultural resources. RFFAs would require BMPs or other ACEPMs to mitigate impacts to cultural resources.

Sites would be avoided whenever possible; mitigation of impacts would occur through archaeological data recovery investigations. Livestock grazing, wild horse foraging, and wildfires are also likely to continue within the CIAA, which would continue to disturb or damage cultural resources. The removal of 800-1,000 excess wild horses over the next 6 to 10 years would have some countervailing cumulative impacts to cultural resources by reducing destruction of any cultural resources located on or near the surface. Development from the Pan Mine could impact the integrity of a short section of a potential alternative route of the Lincoln Highway; however the NRHP-eligibility of the potentially affected sections has not yet been fully determined. Development of the Gold Rock Mine would not affect the setting of historical transportation routes because they are not visible from the project area, and to date, there are no identified cultural resources related to the establishment of these transportation routes. Together, past, present, and reasonable surface disturbance would total 5427 acres (approximately 2.0%) of the Prehistoric CIAA; 5,398 acres (3.2%) of the Mining CIAA; and 5,552 (3.6% of the Historic Transportation CIAA).

The Proposed Action would disturb an additional 137 acres, which is approximately 0.05% of the Prehistoric CIAA, 0.08% of the Mining CIAA, and 0.09% of the transportation CIAA. This comprises a 2.5% addition to the past, present, and reasonably foreseeable surface disturbance identified above. This contribution would be minimized due to implementation of ACEPMs and BMPs.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts of surface disturbance as the Proposed Action and with similar impacts. This contribution would be also minimized due to implementation of ACEPMs and BMPs.

4.3.3 *Paleontological Resources*

Any land-disturbing activity (such as grazing, mining exploration, road construction) can cause surface and subsurface physical disturbance that could result in the destruction or discovery/recovery of paleontological resources. Impacts would depend on the amount, placement, and type of surface disturbance. Recreation and wildfires can also result in damage or discovery of paleontological resources. Impacts from past and present actions within the 113,516-acre CIAA include 169 acres of surface disturbance activities, which includes construction of 30 miles of road. This is less than 0.2% of the CIAA.

Reasonably foreseeable future actions (RFFAs) would result in an additional 2,000 acres of surface disturbance (from the proposed Gold Rock Mine). This is approximately 1.8% of the CIAA. Areas of surface disturbance have not yet been identified; however, over 75% of the Gold Rock project area consists of geologic units that are not likely to contain recognizable fossil remains, vertebrate fossils, or scientifically significant nonvertebrate fossils (PFYC 1 or 2). The remaining 25% of the CIAA consists of geologic units where fossil content varies in significance, abundance, and predictable occurrence, or geologic units of unknown fossil potential (PFYC 3b). Assuming a random distribution that results in 25% of this surface disturbance located in PFYC 3b areas, the RFFA would result in approximately 500 acres of surface disturbance within geologic units that could contain recognizable fossil remains, vertebrate fossils, or scientifically significant nonvertebrate fossils. This contribution would be minimized due to implementation of ACEPMs and BMPs. Together, past, present, and reasonable surface disturbance would total 2,169 acres (approximately 1.9% of the CIAA).

The Proposed Action would disturb an additional 137 acres, approximately 0.1% of the CIAA and a 6% addition to past, present, and reasonably foreseeable surface disturbance. Implementation of ACEPMs and BMPs would be used to minimize impacts.

Total surface disturbance under the No Action Alternative would be limited to five acres at one time, but could ultimately disturb the same amount of surface disturbance as the Proposed Action and with similar impacts and distribution in geologic units that could contain recognizable fossil remains, vertebrate fossils, or scientifically significant nonvertebrate fossils. This contribution would be also minimized through implementation of ACEPMs and BMPs.

4.3.4 *Soil Resources*

Any land-disturbing activity that removes native vegetation and topsoil would adversely affect soil. Impacts would depend on the amount, placement, and type of surface disturbance, the type of soil and its characteristics. Specific impacts to soils include removal of vegetation, exposure of soil, mixing of soil horizons (layers), soil compaction, loss of productivity, and increased susceptibility to wind and water erosion. Impacts from past and present actions within the 113,516-acre CIAA include 169 acres of surface disturbance activities, which includes construction of 60 miles of road, with resulting changes in soil physical properties, soil movement in response to water and wind erosion, and compaction. This is less than 0.2% of the CIAA. Reclamation of past mining and exploration disturbance has reduced erosion potential from some of these disturbances.

RFFAs would result in an additional 2,000 acres of surface disturbance (from the proposed Gold Rock Mine). This is approximately 1.8% of the CIAA. There are no specific data on when project activities are scheduled to begin and areas of surface disturbance have not yet been

identified but the majority of the soils types identified in the CIAA and within the project area have characteristics that could limit reclamation. RFFAs would require BMPs or other ACEPMs to mitigate soil movement and productivity loss. The removal of 800-1,000 excess wild horses over the next 6 to 10 years would have countervailing cumulative impacts to soil resources by reducing compaction and destruction of fragile soils throughout the CIAA. Together, past, present, and reasonable surface disturbance would total 2,169 acres (approximately 1.9% of the CIAA).

The Proposed Action would disturb an additional 137 acres of soils, which is approximately 0.1% of the CIAA. This comprises a 6% addition to the past, present, and reasonable foreseeable surface disturbance identified above. This contribution would be localized and minimized due to implementation of environmental protection measures and BMPs. Soil salvaged and used in reclamation would become viable and would be expected to return to pre-disturbance productivity once vegetation was established. Because earlier disturbances would undergo reclamation concurrent with later disturbances, it is expected that at least portions of the total 137 acres of disturbance would be temporally removed from the RFFAs, further reducing impacts to soils in terms of total cumulative acres of disturbance at one time.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts of soils as the Proposed Action and with similar impacts. The No Action would also be partially or wholly temporally removed from the RFFAs.

4.3.5 *Water Resources*

Impacts from past and present actions within the 113,516-acre CIAA include 169 acres of surface disturbance (including 60 miles of road), with resulting erosion and sedimentation. This is less than 0.2% of the CIAA. Reclamation of past mining and exploration disturbance has reduced the potential for sedimentation.

RFFAs would result in an additional 2,000 acres of surface disturbance (from the proposed Gold Rock Mine). This is approximately 1.8% of the CIAA. Impacts to surface water resources would depend on the placement, and type of surface disturbance, the type of soil, and the surface hydrology. There are no data regarding proposed surface disturbance locations as related to ephemeral tributary locations, which typically run for a few days after heavy storm events. The project would require BMPs or other mitigation to reduce erosion and sedimentation. Together, past, present, and reasonable surface disturbance would total 2,169 acres (approximately 1.9% of the CIAA).

The Proposed Action would disturb up to 137 acres of vegetation, approximately 0.1% of the CIAA and a 6% addition to past, present, and reasonable foreseeable surface disturbance. BMPs and ACEPMs would be used to minimize erosion and sedimentation. Because earlier disturbances would undergo reclamation concurrent with later disturbances, it is expected that at least portions of the total 137 acres of disturbance would be temporally removed from the RFFAs, further reducing impacts to water resources in terms of total cumulative acres of disturbance at one time. No groundwater impacts are expected from the Proposed Action; therefore, this resource is not included in the cumulative impact analysis.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts as the Proposed Action. Similar BMPs and

ACEPMs would be used to minimize erosion and sedimentation. The No Action would also be partially or wholly temporally removed from the RFFAs.

4.3.6 *Vegetation Resources*

Impacts from past and present actions within the 113,516-acre CIAA include 169 acres of surface disturbance, including construction of 60 miles of road, with resulting losses in vegetation, and potential for spread of noxious and invasive weeds. This is less than 0.2% of the CIAA. Many of these areas have been reclaimed, however reclamation may also result in some alterations to the plant communities within the CIAA, including the introduction of noxious or invasive weeds.

RFFAs would result in an additional 2,000 acres of surface disturbance from the proposed Gold Rock Mine (approximately 1.8% of the CIAA). The area of surface disturbance has not yet been identified but would be expected to occur primarily in the Great Basin Pinyon-Juniper Woodland ecological system and the Shrub/Scrub land cover class. Vegetation impacts from reclamation of exploration roads and drill pads would initially alter these two land cover classes, which would be converted to native grass and forb species found in the existing plant communities. In time, the reclaimed and seeded areas would result in stable plant communities with densities that are similar to the pre-disturbance plant densities. However, disturbed sites and recently seeded areas would be candidates for invasion by undesirable species such as noxious weeds and cheatgrass. Areas at risk would include the entire 2,000 acres of proposed disturbance plus all acreage within 200 feet of roads. Together, past, present, and reasonably foreseeable future surface disturbance would total 2,169 acres (approximately 1.9% of the CIAA). The removal of 800-1,000 excess wild horses over the next 6 to 10 years would have some countervailing cumulative impacts to vegetation resources by reducing vegetation use from foraging.

The Proposed Action would disturb an additional 137 acres of vegetation (approximately 0.1% of the CIAA), primarily within the Great Basin Pinyon-Juniper Woodland ecological system and the Shrub/Scrub land cover class. This comprises a 6% addition to past, present, and reasonable foreseeable surface disturbance. Because earlier disturbances would undergo reclamation concurrent with later disturbances, it is expected that at least portions of the total 137 acres of disturbance would be temporally removed from the RFFAs, further reducing impacts to vegetation resources in terms of total cumulative acres of disturbance at one time.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts and types of vegetation as the Proposed Action, and with similar risks of limited reclamation. The No Action would also be partially or wholly temporally removed from the RFFAs.

4.3.7 *Wildlife Resources*

4.3.7.1 **Big Game, Small Mammals, and Reptiles**

Land-disturbing activities would adversely affect big game, small mammals, and reptiles by decreasing foraging habitat or prey base. Impacts to wildlife from past and present actions within this 998,036-acre CIAA include 7,634 acres of surface disturbance (including 1,800 miles of road), with corresponding removal or alteration of wildlife habitat and temporary (or, in the case of some roads, permanent) noise and disturbance to wildlife species, or direct impacts to individuals from vehicular collisions. There is also potential for increased predation from the

raptors on transmission lines. This is less than 0.8% of the CIAA. Habitat loss from past disturbance would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species; current disturbance areas would be likewise reclaimed.

RFFAs would result in an additional 5,609 acres of surface disturbance in areas that are potentially used by one or more big-game species or are home to a variety of small mammals and reptiles (from the proposed Pan and Gold Rock mines, as well as from proposed mining and exploration activities on USFS lands). This is approximately 0.6% of the CIAA. These projects would result in modification to wildlife habitat through habitat loss, and displacement from noise or human activity, but are likely to incorporate wildlife protection measures and habitat restoration measures during and following construction and operation to reduce impacts to wildlife. There are no specific data on the miles of new road and changes in road density that could result from these activities. Together, past, present, and reasonably foreseeable future surface disturbance would total 13,243 acres (approximately 1.3% of the CIAA). The removal of 800-1,000 excess wild horses over the next 6 to 10 years would have some countervailing cumulative impacts to wildlife by reducing competition for forage.

Impacts to wildlife from the Proposed Action consist of temporary impacts to 137 acres of existing wildlife habitat over a five-year period. This is approximately 0.01% of the CIAA and comprises a 1% addition to the total past, present, and reasonable foreseeable surface disturbance identified above. However, the Proposed Action would be at least partially temporally removed from some or all of the RFFAs (particularly the 2,000-acre Gold Rock Mine), thus the overall cumulative impact to wildlife would be reduced in terms of total acres of disturbance at one time.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts and types of habitat as the Proposed Action. Implementation of the No Action alternative would likely delay development of the Gold Rock Mine. This delay could temporally remove this mine's impacts from some or all of the other RFFAs, but would extend the impacts of the Gold Rock Mine further into the future.

4.3.7.2 **Migratory Birds and Raptors**

Impacts to migratory birds and raptors from past and present actions within this 998,036-acre CIAA include 7,634 acres of surface disturbance (including 1,800 miles of road), with corresponding removal or alteration of nesting or foraging habitat, displacement from noise and disturbance, or direct impacts to individuals from vehicular collisions. This is less than 0.8% of the CIAA. Habitat loss from past disturbance would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species; some current disturbance areas would be likewise reclaimed. The development of multiple transmission lines in the area have likely resulted in both adverse (injury or electrocution) and beneficial (nesting platforms and perching areas for hunting) impacts for these species.

RFFAs would result in an additional 5,609 acres of nesting or foraging habitat loss used by a variety of migratory birds and raptors (from the proposed Pan and Gold Rock mines, as well as from proposed mining and exploration activities on USFS lands). This is approximately 0.6% of the CIAA. Together, past, present, and reasonably foreseeable future surface disturbance would total 13,243 acres (approximately 1.3% of the CIAA). The proposed activities may also result in direct impacts to nests or individuals from development activities, or direct impacts to individuals from vehicular collisions, or indirect impacts from noise. Vegetation restoration projects throughout the USFS lands within the CIAA would have some countervailing

cumulative impacts to some migratory birds and raptors by increasing habitat for species that use Shrub/Scrub land cover classes for nesting or foraging but would affect available habitat for species relying on pinyon-juniper habitats. The development of the SWIP could also result in direct impacts to individuals through injury or electrocution, but could also provide stable nesting platforms and high perching roosts for hunting.

Impacts to migratory birds and their habitat from the Proposed Action would be limited to up to 137 acres removal of habitat, and noise associated with exploration. The Proposed Action would affect approximately 0.01% of the CIAA. This comprises a 1% addition to the total past, present, and reasonably foreseeable future surface disturbance identified above. These impacts would be further localized and minimized due to implementation of environmental protection measures and mitigation measures required by the BLM (e.g., migratory bird nest surveys during the nesting season to comply with the MBTA; BMPs to reduce equipment noise emissions). In addition, the Proposed Action would be at least partially temporally removed from some or all of the RFFAs (particularly the 2,000-acre Gold Rock Mine), thus the overall cumulative impact to migratory birds and raptors would be further reduced in terms of total cumulative acres of disturbance at one time.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts and types of habitat as the Proposed Action. Implementation of the No Action alternative would likely delay development of the Gold Rock Mine. This delay could temporally remove this mine's impacts from some or all of the other RFFAs, but would extend the impacts of the Gold Rock Mine further into the future.

4.3.7.3 **Special-status Species**

Impacts to special-status species from past and present actions within this 998,036-acre CIAA include 7,634 acres of surface disturbance (including 1,800 miles of road), with corresponding removal or alteration of nesting or foraging habitat, displacement from noise and disturbance, or direct impacts to individuals from vehicular collisions. This is less than 0.8% of the CIAA. Habitat loss from past disturbance would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species; current disturbance areas would be likewise reclaimed. Development of past and present actions may also result in increased predation from raptors perching on transmission lines. The presence of avian predators in close proximity to sage grouse leks or nesting areas could directly influence survival or nest success of sage grouse. Alternatively, sage grouse may avoid areas where they are exposed to perching avian predators.

RFFAs would result in an additional 5,609 acres of surface disturbance in areas that are potentially used by one or more special-status species (from the proposed Pan and Gold Rock mines, as well as from proposed mining and exploration activities on USFS lands). Loss of acres of the Shrub/Scrub land cover class would affect several avian species, including the greater sage-grouse, as well as pygmy rabbit and a variety of bat species. Loss of areas within the Great Basin Pinyon-Juniper Woodland ecological system would affect the pinyon jay and several identified bat species. Vegetation impacts from reclamation of exploration roads and drill pads would initially alter both the Great Basin Pinyon-Juniper Woodland ecological system and the Shrub/Scrub land cover class, which would be converted to native grass and forb species found in the existing plant communities. In time, the reclaimed and seeded areas would result in stable plant communities with densities that are similar to the pre-disturbance plant densities. Portions

of the proposed 3,238 Pan Mine would be located near sage-grouse summer habitat and areas along the access roads contain summer and nesting/breeding habitat. Portions of the 2,000-acre Midway Gold Rock mine would be located within three miles of sage-grouse summer and core breeding habitat, and the northernmost portion of the project area contains sage-grouse winter distribution and nesting habitat. However, biological surveys indicate that the sagebrush habitat that is present within the Gold Rock project area is almost exclusively dominated by black sagebrush and not suitable habitat for sage-grouse. Traffic along the Gold Rock mine's access roads could affect sage grouse breeding areas. There are also at least two leks located near current and proposed Pan Mine access roads; no traffic levels have been identified with either project. Portions of the Pan mine project area would also be located within pygmy rabbit habitat; the Gold Rock mine would not be in habitat suitable for pygmy rabbit. The specific ecological systems that would be affected by the USFS mining and exploration projects are unknown. Together, past, present, and reasonable surface disturbance would total 13,243 acres (approximately 1.3% of the CIAA). Development of the SWIP corridor could result in additional displacement of species-status species from noise and visual disturbance. The presence of the transmission towers would increase the potential for long-tenn predation of sage grouse by golden eagles on adult and immature birds. Adding towers also would provide roost/hunting sites for ravens and magpies, thus increasing the long-term potential for predation on grouse nests (SWIP FEIS 1993) Vegetation restoration projects throughout the USFS lands within the CIAA would have countervailing cumulative impacts to some special-status species by increasing increase habitat for species that use Shrub/Scrub land cover class for nesting or foraging but would affect available habitat for species relying on pinyon-juniper habitats.

Impacts to special-status species from the Proposed Action would consist of the loss of up to 137 acres, primarily in the Great Basin Pinyon-Juniper Woodland ecological system and the Shrub/Scrub land cover class. The Proposed Action would affect approximately 0.01% of the CIAA. This comprises a 1% addition to the total past, present, and reasonable foreseeable surface disturbance. None of the surface disturbance is considered to be suitable for sage grouse or pygmy rabbit. Noise or visual disturbance to sage grouse leks would be limited primarily to access road traffic. In addition, the Proposed Action would be at least partially temporally removed from some or all of the RFFAs (particularly the 2,000 acre Gold Rock Mine), further reducing the cumulative impacts to special-status species in terms of total cumulative acres of disturbance at one time.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, but could ultimately disturb the same amounts and types of habitat as the Proposed Action. Implementation of the No Action alternative would likely delay development of the Gold Rock Mine. This delay could temporally remove this mine's impacts from some or all of the other RFFAs, but would extend the impacts of the Gold Rock Mine further into the future.

4.3.8 *Visual Resources*

Impacts from past and present actions within the 94,366- acre Visual CIAA include 186 acres of surface disturbance (including 191 miles of road), with resulting contrast with the form, line, color, and texture of the existing natural vegetation and topography throughout the area. This is less than 0.2% of the CIAA. The reclamation of some past mining and exploration disturbance areas has reduced some of these contrasts.

RFFAs would result in an additional 2,000 acres of surface disturbance (from the proposed Gold Rock mine) that would be seen in the foreground of the CIAA from the KOP identified in Chapter 3. This is approximately 2.1% of the CIAA. Together, past, present, and reasonable surface disturbance would total 2,186 acres (2.3% of the CIAA).

The Proposed Action would disturb up to 137 acres of vegetation, with resulting contrast with the form, line, color, and texture of the existing natural vegetation and topography throughout the area. This is approximately 0.15% of the CIAA, and comprises a 6% addition to the total past, present, and reasonable foreseeable surface disturbances identified above. The Proposed Action would be consistent with the BLM Class III and IV objectives. Visual impacts in the Project Area would be minimized to the extent possible; long-term visual impacts would be minimized upon completion of rehabilitation and reclamation. Because earlier disturbances would undergo reclamation concurrent with later disturbances, it is expected that at least portions of the total 137 acres of disturbance would be temporally removed from the RFFA, further reducing impacts to visual resources in terms of total cumulative acres of disturbance at one time.

Total surface disturbance under the No Action alternative would be limited to five acres at one time, resulting in similar types but lower amounts of visual impacts as the Proposed Action. Development occurring under the No Action alternative would also be partially or wholly temporally removed from the RFFA.

4.3.9 *Recreation*

Impacts to recreation from past and present actions within this 998,036-acre CIAA include surface disturbance and road construction. The construction of 1,800 miles of road throughout the CIAA, while resulting in approximately 1,785 acres of surface disturbance, has also resulted in increased access for recreation activities. Other past and current surface disturbance of 5,849 acres potentially have made some areas of the CIAA less desirable for certain types of recreation activity until the activities cease and the areas are reclaimed. Total disturbance from past and present actions is 7,634 acres. This is less than 0.8% of the CIAA.

RFFAs would result in an additional 5,609 acres of surface disturbance in areas that potentially used by recreationists (from the proposed Pan and Gold Rock mines, as well as from proposed mining and exploration activities on USFS lands). This is approximately 0.6% of the CIAA. Noise, visual and surface disturbances from these activities could reduce the quality of the recreational experience for certain users within or near the mining and exploration areas and could also affect the distribution or abundance of wildlife species available for hunting or viewing. Impacts are expected to last the life of the project, which would be about 10 years. Together, past, present, and reasonable surface disturbance would total 13,243 acres (approximately 1.3% of the CIAA).

The RFFA mine projects would also result in increased truck and commuter traffic. There are no specific data on the amount of traffic on newly constructed drill roads, access routes, or employee or supply delivery routes; however, it is expected that workers and supplies would come from Eureka or Ely via U. S Highway 50. It is currently unknown if traffic level would affect level of service or maintenance requirements for these roads or if additional traffic would impact recreational access or enjoyment of certain areas. If drill roads remain visible after reclamation, they could still be accessed by recreational users. Development of the SWIP corridor could also displace or alter the experience of certain recreational activities.

Impacts to recreation from the Proposed Action would consist of the loss of recreational access for portions of the 137-acres of proposed surface disturbance, as well as associated noise and visual disturbances. The Proposed Action would affect approximately 0.01% of the CIAA. This comprises a 1% addition to the total past, present, and reasonable foreseeable surface disturbance. Traffic from the Proposed Action would result in a 3 to 12% increase along portions of U. S. Highway 50 and would triple existing traffic along access roads. However, the Proposed Action would be at least partially temporally removed from some or all of the RFFAs (particularly the 2,000-acre Gold Rock Mine), further reducing the cumulative impacts to recreation in terms of total cumulative acres of disturbance and total vehicle trips at one time.

Impacts to recreation from the No Action alternative would be similar in type to the Proposed Action but recreational access loss and impacts from noise or visual disturbances would be limited to five acres of development at one time. Implementation of the No Action alternative would likely delay development of the Gold Rock Mine. This delay could temporally remove this mine's impacts from the other RFFA (the Pan mine), but would extend impacts of the Gold Rock Mine further into the future.

4.3.10 ***Socioeconomics***

Impacts to socioeconomics from past and present actions within this CIAA (which comprises Eureka and White Pine counties and the Duckwater Reservation) include projects that provide temporary employment and demands on short-term and long-term housing, such as mining and road construction projects. This growth has led to a housing shortage and increased personnel demand (Johnson 2010). Eureka County is currently partnering with the Nevada Rural Housing Authority to develop a subdivision that would ultimately provide 110 rental units, 112 single family homes, with additional land reserved for temporary construction worker housing (Eureka County 2012).

RFFAs in the area include mining activities that would generate employment for drillers, blasters, welders, heavy equipment operators, truck drivers, geologists, lab personnel, security personnel, and general laborers. Employment from the Pan Mine project is anticipated to require 160 construction employees and 150 long-term operations staff. Employment from the Gold Rock Mine is not currently known, but estimated to be similar to the Pan mine. Employment from the mining projects proposed on USFS is also not known. Assuming that employment for these mining projects is proportional to employment for the Pan Mine project, they would employ about 18 construction workers and 17 long-term operations staff. Together, these projects would total 338 jobs during construction phases and about 317 long-term operations jobs and would provide continued opportunities for employment within the mining industry for the next 10 to 15 years. Assuming that all RFFAs begin at roughly the same time and have roughly the same life span, the sequential construction and operations phases of the RFFAs would provide an increase of approximately 7.5% over the most recent figures for combined White Pine and Eureka county mining employment (a total of 4,320 jobs) for about 10 to 15 years. The addition of these jobs would also provide indirect beneficial impacts to the local economy though purchase and use of goods and services. These projects may also provide beneficial economic impacts to the Duckwater Reservation through additional job opportunities in the mining sector as well as through purchases of native plant species from the tribal-owned Duckwater Falls Nursery for reclamation activities.

The RFFA mine projects would also result in increased demand on short-term and long-term housing because of associated increases in construction- and operations-related employment. It is currently unknown how many of the jobs employ local residents versus outside contractors, but given the current shortage of housing as described above, it is unlikely that current housing can meet the future needs of mineworkers. As discussed in the Affected Environment section, current housing shortages in Eureka County require some workers to commute from Ely or even Elko (about 120 miles away). Full build-out of Eureka County's planned subdivisions would help to reduce this shortage, providing at least 222 housing units (rental units and single-family homes) plus an undetermined amount of temporary construction worker housing. It could also increase demands on government services and school districts, particularly if workers moved to the area with their families.

The Proposed Action would result in the creation of about 60 mining exploration jobs for approximately five years. This is 48 more jobs than currently supplied by Midway (a 500% increase), and contribution of approximately 1% to all past, present and reasonably foreseeable mining employment (4,855 jobs total). The employment created under the Proposed Action would also place corresponding demands on short-term housing. However, the Proposed Action would be at least partially temporally removed from the construction phase of some or all of the RFFAs (particularly the 2,000-acre Gold Rock Mine), and almost certainly removed from the operational phases of all projects; therefore the contribution of this action to the RFFAs would be not truly additive. Rather, the Proposed Action represents the addition of a five-year opportunity for continued employment within the mining industry, continued contributions to the local economy, and continued housing demand, potentially assisting in "smoothing out" the boom-bust cycle of mining development within White Pine and Eureka counties.

Under the No Action Alternative, Midway's contribution to employment, local economy, and housing demand would continue at existing levels (12 employees). The extended duration of the No Action Alternative could also postpone the development of the Gold Rock Mine, which could postpone the creation of approximately 200 jobs and corresponding indirect contributions to income; however, it would also postpone the corresponding demand on housing, school districts and government services.

4.3.11 ***Transportation***

Impacts to transportation from past and present actions consist of local, regional, or cross country traffic on the highways bordering the 998,036-acre CIAA (U. S. Highway 50, State Highway 379, and U.S. Highway 6), as well as development of use of approximately 1,800 miles of roads within the CIAA,

RFFAs in the area include mining activities that would require increased supply delivery, as well as commuter traffic. There are no specific data on the amount of traffic on newly constructed drill roads, access routes, or employee or supply delivery routes; however, it is expected that workers and supplies would come from Eureka or Ely via U.S. Highway 50. Using the employment figures cited above in Section 4.3.9, and assuming no ride sharing, there would be a maximum of 675 vehicle trips per day during construction and a maximum of 634 trips during operations (Table 4-3). The RFFA mine projects would also result in increased truck traffic from delivery of supplies. Midway estimates that there would be about 114 supply delivery per month, or an average of four deliveries per day (8 vehicle trips total) per project. No information is available regarding supply delivery for the USFS mining projects. Assuming that supply use is

dependent upon mine size, the 300+-acre USFS mining project would require roughly a tenth of the supplies proposed for the Pan mine, or less than 1 delivery trip every three days. Table 4-3 shows the potential traffic increase on U.S. Highway 50 compared with current AADT.

Table 4-3. Maximum Increase in Daily Vehicle Trips on U.S. Highway 50

Location	2010 AADT	Max RFFA Daily Commute	Average RFFA Daily Supply Delivery	AADT Increase (percent)
U.S. Highway 50 just east of Duckwater Road	570	675	16	120%
U.S. Highway 50 west of Mill Street in Ely	3,500	675	16	20%

Traffic increases on U.S. Highway 50 would increase between 20% (near Ely) to 120% (near Eureka). This is unlikely to affect maintenance requirements U.S. Highway because the highway is designed to accommodate much higher levels of traffic. Vehicular use for project activities on county road systems could degrade these roads (e.g., create rutting, etc.). Road use agreements with counties would allow Midway to perform road maintenance and snow removal for the Pan and Gold Rock mine access roads.

Increased traffic from project construction also presents an increased risk of accidents and fatalities. Assuming an average daily commuting/supply delivery distance of 60 miles one way and no carpooling, a maximum of 41,520 vehicle miles would be travelled per day for commute and supply delivery. Assuming a year-round work schedule of seven days a week, a maximum of 14,781,120 vehicle miles would be traveled per year. Using the 2009 Nevada fatality rate of 1.19 per 100 million vehicle miles traveled (USDOT 2009), the RFFAs commute and supply deliveries would result in no fatalities.

Traffic from the Proposed Action would result in an additional 3 to 12% increase along portions of U. S. Highway 50 and would triple existing traffic along access roads. However, the Proposed Action would be at least partially temporally removed from some or all of the RFFAs (particularly the 2,000-acre Gold Rock Mine), reducing the cumulative impacts to transportation in terms of total cumulative acres of disturbance and total vehicle trips at one time.

Impacts to transportation from the No Action Alternative would be similar in type to the Proposed Action but transportation increases would be reduced due to the lower levels of concurrent development. Implementation of the No Action alternative would likely delay development of the Gold Rock Mine. This delay could temporally remove this mine's impacts from the other RFFA (the Pan mine), but would extend impacts of the Gold Rock Mine further into the future.

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5.0CONSULTATION AND COORDINATION AND LIST OF PREPARER

5.1 PERSONS, GROUPS, AND AGENCIES CONSULTED

The following table provides a summary of those persons, groups, or agencies consulted during preparation of this EA.

Table 5-1. Persons, Groups or Agencies Consulted During Preparation of the EA

Name	Purpose for Consultation or Coordination
Katie Miller, NDOW (Cooperating Agency)	Greater Sage-grouse lek viewshed modeling
Timothy Herrick, NDOW (Cooperating Agency)	Known or potential occurrence of wildlife resources in the vicinity of the Gold Rock Project
Justin Rozich, USFS	Reasonably foreseeable projects on USFS lands
Deanna Sever, USFS	Regarding reasonably foreseeable projects on USFS lands

The BLM Ely District Office sent formal consultation letters on Dec. 2, 2011, to the following tribes and tribal councils informing them of the proposed project and EA and inviting comments and concerns:

- Duckwater Shoshone Tribe
- Ely Shoshone Tribe
- Te-Moak Tribe of the Western Shoshone Indians of Nevada
- South Fork Band Council
- Elko Band Council
- Yomba Shoshone Tribe

No comments were received.

5.2 SUMMARY OF PUBLIC PARTICIPATION

As required under NEPA, the BLM solicited public comments on the Proposed Action. The BLM used comments received during the scoping period to determine the following:

- important issues to be addressed,
- possible data needs and sources,
- alternatives to be assessed, and
- potential effects of the alternatives on the human environment.

A public scoping letter was sent out on December 2, 2011, and comments were requested within 30 days of receipt of that letter. The mailing list can be found in the administrative record. No comments were received.

The preliminary EA was available on the NEPA Register webpage at https://www.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do from April 16th to May 16th. A public comment letter was sent out on April 16th requesting public comments on the preliminary EA. The mailing list can also be found in the administrative record. No comments were received.

5.3 LIST OF PREPARERS

The following tables identify BLM staff and consultants used in the preparation of the EA.

Table 5-2. BLM Staff Used in the Preparation of this EA

Name	Purpose for Consultation or Coordination	
Miles Kreidler	Project Lead/Mining Engineer	All Sections
Mindy Seal	NEPA, Social economics, Environmental Justice	All Section.
Kenneth Humphrey	Project Archaeologist	Cultural/Paleo
Leslie Riley	Archaeologist	Cultural
Marian Lichtler	Wildlife Biologist	Wildlife, Migratory Birds, Special Status Species
Mark D'Aversa	Hydrologist	Soil, Air, Water
		Paleo
		Transportation
Ruth Thompson	Wild Horse Specialist	Wild Horses
Stephanie Trujillo	Realty Specialist	Lands and Realty
Amanda Anderson	Vegetation, Rangeland Resources	Vegetation, grazing
TJ Mabey	Natural Resource Specialist	Weeds
Erin Rajala	Outdoor Recreation Planner	Recreation, Visual Resources

Table 5-3. SWCA Staff Used in the Preparation of this EA

Name	Purpose for Consultation or Coordination	
Janet Guinn, B.S.	Project Manager, SWCA	Review of all sections; Vegetation; Wildlife; Cumulative Impacts, Hazardous Materials
Ben Gaddis, M.E.M.	NEPA Oversight, SWCA	Review of all sections
Mike Cannon, Ph.D.	Principal Investigator, SWCA	Cultural Resources
Gretchen Semerad, M.S.	Environmental Specialist, SWCA	Air Quality, Paleontology, Soils, Water Resources, Transportation. Wildlife
Allen Stutz, B.S.	GIS Manager, SWCA	GIS, mapping
Stephen Leslie, B.S.	Environmental Specialist, SWCA	Visual Resources
Jessica DeBusk, B.S.	Paleontology Specialist, SWCA	Paleontology
Linda Burfitt, B. A.	Technical Editor, SWCA	Technical Editing
Howard McGregor, P.E.	Professional Engineer, EDI	Noise modeling

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6.2 LIST OF ACRONYMS AND ABBREVIATIONS

AADT: annual average daily traffic

amsl: above mean sea level

ACEPM: applicant-committed environmental protection measure

ASTM: American Society for Testing and Materials

AO: authorized officer

ATV: all-terrain vehicle

BLM: Bureau of Land Management

BMP: best management practice

CIAA: cumulative impact analysis areas

CO: carbon monoxide

CO_2: carbon dioxide

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act

CEQ: Council on Environmental Quality

CFR: Code of Federal Regulations

dBA: A-weighted decibels

EA: environmental assessment

EIS: environmental impact statement

EPA: Environmental Protection Agency

ESA: Endangered Species Act

FLPMA: Federal Land Policy and Management Act

FO: field office

FONSI: Finding of No Significant Impact

HMA: herd management areas

HU: hydrologic unit code

ID: interdisciplinary

IM: instruction memorandum

MBTA: Migratory Bird Treaty Act

Midway: Midway Gold US Inc.

MSDS: material safety data sheet

MSHA: Mine Safety and Health Administration

NAAQS: National Ambient Air Quality Standards

NAC: Nevada Administrative Code

NDEP: Nevada Department of Environmental Protection

NDOT: Nevada Department of Transportation

NDOW: Nevada Department of Wildlife

NDRP: Nevada Department of Environmental Protection

NDWR: Nevada Division of Water Resources

NEPA: National Environmental Policy Act

NFPA: National Fire Protection Association

Notice: Notice of Intent

NRCS: Natural Resources Conservation Service

NRS: Nevada Revised Statutes

NHRP: National Register of Historic Places

OHV: off-highway vehicle

PM_{10}: particulate matter with aerodynamic diameter equal to or less than 10 micrometers

PFYC: Potential Fossil Yield Classification

PoO: plan of operations

RC: reverse circulation

RCI: Resource Concepts, Inc

RFFA: reasonably foreseeable future actions

RMP: resource management plan

ROD: record of decision

ROW: right-of-way

SARA: Superfund Amendments and Reauthorization Act of 1986

SHPO: State Historic Preservation Officer

SOP: standard operating procedure

SSURGO: Soil Survey Geographic

SWReGAP: Southwest Regional Landcover Data

USC: United States Code

USFS: U.S. Forest Service

USGS: U.S. Geological Survey

USFWS: U.S. Fish and Wildlife Service

VRI: Visual Resource Inventory

VRM: Visual Resource Management

WPCPLUAC: White Pine County Public Land Users Advisory Committee

WRC: Wildlife Resource Consultants

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Appendix A:
Reclamation Plan

MEASURES TO BE TAKEN TO PREVENT UNNECESSARY AND UNDUE DEGRADATION

Measures that will be taken to prevent unnecessary and undue degradation are derived from the general requirements established by the BLM surface management regulations (43 CFR 3809) and NDEP mining, reclamation, water quality, and air quality regulations, as listed below. The following measures will be undertaken during the design, construction, operation, and closure of the proposed operation:

- Mineral exploration drill holes will be properly plugged and abandoned per NAC 534 to prevent contamination of water resources.
- Regulated wastes will be managed according to relevant regulations.
- Surface disturbance will be minimized.
- Fugitive dust emissions from disturbed surfaces will be controlled using BMPs. Construction of the new access road will help minimize fugitive dust emissions.
- Where suitable as a growth medium, surficial soils and alluvial material will be salvaged and managed as a topsoil resource, and replaced during reclamation.
- A reclamation plan will be implemented which addresses earthwork and recontouring, revegetation and stabilization, disposal, and monitoring operations necessary to satisfactorily reclaim the proposed disturbance.
- Reclamation activities will be conducted concurrently with mineral exploration activities when disturbance is no longer needed. Reclamation will begin within exploration areas considered inactive, without potential, or completed, at the earliest practicable time.
- The primary method of addressing weedy species invasion will be to quickly reclaim and seed disturbed areas at the first opportunity. Disturbed areas will be reclaimed at the earliest, practicable time.
- At the latest, disturbed areas would generally be graded and seeded in the 3rd or 4th quarter of each year. Areas graded earlier in the year or after the fall seeding period, will be sown with the preliminary seed mixture to control erosion and weed invasion. These areas will be reseeded in the following 3rd or 4th quarter if vegetation has not established.
- Surficial soils will be windrowed to the sides of the roads and drill pad locations. These soils will be spread back over the disturbance when grading is completed.
- Reclamation activities will be coordinated with the BLM and NDEP/BMRR, to meet regulatory requirements.

POST-MINING LAND USE AND RECLAMATION GOALS

Major land uses occurring in the project area include mineral exploration and development, wild horse habitat, livestock grazing, wildlife habitat, and dispersed recreation. Following closure, the project area will support the same multiple land uses. Post-closure land uses are in conformance with the 2008 Ely Resource Management Plan (BLM 2008).

The objectives of the reclamation program are as follows:

- To minimize erosion damage and protect water resources through careful control of water runoff.

- To establish surface growth medium conditions conducive to the regeneration of a stable plant community through managing growth medium.
- To revegetate disturbed areas with a diverse mixture of plant species in order to establish long-term productive plant communities compatible with existing land uses and wildlife habitat.
- To employ existing site-specific resources that will enhance wildlife habitat and encourage invasion by desirable plant species.

DESCRIPTION OF OTHER RECLAMATION ACTIVITIES SUCH AS HISTORIC DISTURBANCES

Not applicable.

MEASURES TO MINIMIZE LOADING TO SURFACE WATERS

When drainages must be crossed with a road, best management practices (BMPs) will be followed to minimize the surface disturbance and erosion potential. BMPs such as silt fences and weed-free straw bales will be used when necessary for erosion and sediment control. It is currently anticipated that temporary culverts may need to be installed within the project area. Maintenance of the exploration roads includes minor seasonal regrading when necessary. Erosion controls will be monitored in the spring and fall.

SCHEDULE FOR THE PROJECT AND RECLAMATION

Exploration activities will continue until the exploration and mine development potential of the project has been fully evaluated. To a major extent, drilling success will determine the duration of project activities and the initiation of reclamation. If reserves that can be economically developed are located, disturbances will remain pending mine permitting. If the company determines that the deposit is not economically feasible to develop, reclamation will commence within two years after the cessation of drilling activities.

When reclamation occurs, re-contouring will be completed at the earliest opportunity following completion of the exploration work, seeding will typically be conducted in the 3rd or 4th quarter of the year. Monitoring will be conducted for three consecutive years in the 3rd quarter of the year. A schematic representation of the proposed schedule is presented in Table 3-2.

PROPOSED DISPOSITION OF BUILDINGS, EQUIPMENT, PIPING, SCRAP, REAGENTS AND OTHER MATERIALS

At the end of Project activities, the fuel tank and all temporary buildings will be removed from the laydown area, along with the microwave tower, and associated fencing.

DRILL HOLE PLUGGING PROCEDURES

Except for the reverse-circulation (RC) rotary holes that may be drilled as pre-collars for some of the core holes, all drill holes will be plugged prior to the drill rig moving from the site in accordance with NRS 534 and NAC 534.4369 and NAC 534.4371. All core holes will be plugged prior to the core rig moving from the drill site. If any drill hole produces artesian flow, the drill hole will be contained pursuant to Nevada Revised Statutes (NRS 534.060) and NAC 534.378 and will be sealed by the method described in Subsection 2 of NAC 534.4371. If the

casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420 or the casings will be completely removed from the drill hole and then be plugged according to NAC 534.4369 and NAC 534.4371.

Any installed project groundwater monitoring wells will be plugged and abandoned according to Nevada Division of Water Resources (NDWR) requirements when they are no longer needed for environmental baseline data collection. Midway anticipates that monitoring and data collection will continue for a minimum of four years following completion of the monitoring wells. All of the project monitoring wells will be plugged and abandoned at the same time. Thus, the RCE included in Appendix C includes costs for one mobilization–demobilization event as well as the other costs associated with plugging and abandoning the wells in the future.

CONCURRENT RECLAMATION

Concurrent reclamation will take place to the degree possible by backfilling sumps, recontouring, scarifying and seeding drill sites when the sumps become dry enough to backfill without causing a spill of drilling fluids, following the reclamation schedule described above. As described above, final reclamation will take place if and when drilling results indicate that no resource is present, following the reclamation schedule described above.

MEASURES TO BE TAKEN DURING EXTENDED PERIODS OF NON-OPERATION

Only those access roads and drill pads needed for future exploration will remain open. Interim stabilization measures would be taken as necessary at these sites.

REGRADING AND RESHAPING

Regrading and reshaping of all constructed drill sites and exploration roads will be completed to approximate the original topography. Fill material, enhanced with growth medium, will be pulled onto the roadbeds to fill the road cuts and restore the slope to natural contours. Roads and drill sites will be regraded and reshaped with a front-end loader, excavator or bulldozer. For overland travel roads, upgraded roads or pads that do not require replacement of sidecast material, reclamation will be accomplished with an excavator bucket, ripper or a dozer to knock down and smooth any berms and relieve road compaction. Tire tracks (trails created by overland travel) will be lightly scarified and left in a rough state as necessary to relieve compaction, inhibit soil loss from runoff, and prepare the seed bed.

Should any drainages be disturbed, any temporary culverts will be removed and the drainages will be reshaped to approach the pre-construction contours. The resulting channels will be of the same capacity as up- and downstream reaches and will be made non-erosive by use of surface stabilization techniques (rip-rap) where necessary, and ultimately revegetated. Following completion of earthwork, all disturbed areas will be broadcast seeded.

MINE RECLAMATION

Not applicable, this 2011 Plan does not include mining activities.

RIPARIAN MITIGATION

Not applicable. There are no riparian areas in the Gold Rock Project area.

WILDLIFE AND FISHERIES HABITAT REHABILITATION

No fisheries habitat exists within the Gold Rock Project area.

The Gold Rock Project area is habitat for a variety of game and non-game wildlife. Re-establishing a primarily grassland community for erosion control will rehabilitate damage to the existing and previously disturbed habitat types.

THREATENED, ENDANGERED AND SPECIAL STATUS SPECIES

In the event that Threatened, Endangered or Special Status Species are identified within the 2011 Plan boundary, Midway will work with the BLM and NDOW to develop plans to avoid disturbance to the maximum extent possible.

HANDLING AND APPLICATION OF TOPSOIL

The depth of the cut for newly constructed exploration roads will be minimal. Topsoil will be bladed or dozed to the side as the road is built and then bladed or dozed back in place to recontour. For the drill pads, topsoil will be bladed or dozed to one side and returned during reclamation Amendments are not considered necessary in those areas where sufficient growth medium is available.

REVEGETATION

Reclaimed surfaces will be revegetated to control runoff, reduce erosion, provide forage for wildlife, wild horses, and livestock, and reduce visual impacts. Seedbed preparation and seeding will take place in the fall or spring after grading and replacing growth medium on reclaimed areas.

The preliminary reclamation seed mixture and application rate is shown in Table 4-1. This mixture is intended to provide forage and cover species similar to the pre-disturbance conditions, facilitating the post-mining land uses for wildlife habitat. In addition, the seed mix has been determined based on the species' effectiveness in providing erosion protection, the ability to grow within the constraints of the low annual precipitation experienced in the region, its suitability for site aspect, and the elevation and soil type. The seeding rate will be 11.75 pounds (lbs) bulk seed/acre for drill seeding, which will be doubled for broadcast seeding to 23.4 lbs. The seed rate will also be adjusted for pure live seed (PLS) per the equation in Table 4-1.

Table A-1. Preliminary Seed Mixture

Species (Common Name)	Seeds/lb	lbs Seed	Seeds/ sq ft
Agropyron dasystachyum (Thickspike wheatgrass)	154,000	2.0	7
Poa Sandbergii (Sandberg's bluegrass)	925,000	0.5	10
Pseudorogneria Spicata spp. Spicata (Bluebunch wheatgrass)	140,000	3.0	10
Oryzopsis hymenoides (Indian ricegrass)	141,000	2.0	6

***Species* (Common Name)**	**Seeds/lb**	**lbs Seed**	**Seeds/ sq ft**
Sitanion hystrix (Squirrel tail)	192,000	1.0	4
Penstemon Palmeri (Palmer penstemon)	610,000	0.25	3
Linum Lewisii spp. Appar (Blue flax)	293,000	0.5	3
Artemisia tridentata ssp Wyomingesis (Wyoming big sagebrush)	2,500,000	0.5	3
Atriplex confertifolia (Shadscale)	64,900	2.0	2
Total	11.75 lbs/ac	48 seeds/sq ft*	

Seed will be sown in the 3rd or 4th quarter of each year

Substitutions will be made depending on seed price and availability.

The BLM will be contacted prior to any substitutions.

*= Seed rate will be adjusted for pure live seed rate using the following formula:

Pure Live Seed = Seed rate (Listed above) lbs/ac
(% germination)(% purity)

The preliminary seed mixture and application rates are subject to modification. The actual seed mixture and application rates will be determined prior to reseeding based on seed availability and consultation with the BLM.

Generally, seedbed preparation and seeding will take place in the fall after regrading of disturbed areas. All reclaimed areas will be broadcast seeded with a cyclone-type bucket spreader. Broadcast seed will be covered by harrowing, raking, or other site-specific appropriate methods as necessary to provide seed cover and enhance germination. If straw is blown on and crimped in, this process will suffice for burying the seed. Reclaimed surfaces will be left in a textured or rough condition (small humps, pits, etc.) to enhance moisture retention and revegetative success while minimizing erosion potential.

Timing of revegetation activities is critically important to the overall success of the program. Seeding activities will be timed to take advantage of optimal climatic windows and will be coordinated with other reclamation activities. In general, earthwork and drainage control will be completed in the summer or early fall. In general, seedbed preparation will be completed in the fall, either concurrent with or immediately prior to seeding. Seed will be sown in late fall to take advantage of winter and spring precipitation and optimum spring germination. Early spring seeding may be utilized for areas not seeded in the fall. In either case, seeding will not be done when the ground is frozen or snow covered, unless sagebrush is added to the mixture. If this occurs, seeding over snow may be considered to enhance sagebrush establishment.

ISOLATION, REMOVAL, AND/OR CONTROL OF ACID-FORMING, TOXIC, OR DELETERIOUS MATERIALS

Not applicable; no excavations of large amounts of rock are proposed under this 2011 Plan.

REMOVAL OR STABILIZATION OF BUILDING, STRUCTURES, AND SUPPORT FACILITIES

No permanent buildings or structures will be built. Any trailers and storage containers that may be placed on the laydown areas will be removed when the exploration activities have been completed. All equipment and supplies will be removed following completion of the project. Other materials, including scrap, trash, and unusable equipment will be removed on a weekly basis and disposed of in accordance with federal and state regulations and laws.

POST-CLOSURE MANAGEMENT

Post-closure management will commence on any reclaimed area following completion of the reclamation work for the area. Post-closure management will extend until the reclamation of the site or component has been accepted by the BLM and NDEP. For bonding purposes, a three-year, post-closure management period is assumed following completion of reclamation construction on any site. For sites reclaimed early in the operations, management of the reclaimed sites will occur concurrently with operational site management. Annual reports showing reclamation progress will be submitted to the BLM and NDEP by April 15th of each year.

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Appendix B:
Weed Risk Assessment

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS MIDWAY GOLD (GOLD ROCK) EXPLORATION PROJECT

Midway Gold proposes to conduct site-specific mineral exploration activities that would include existing access road travel and maintenance, road building including water bars, drill pad construction, exploration drilling, mineral resource sampling, and reclamation within the 4,303 acre 2011 Plan boundary indicated in the EA.

The disturbance for phase 1 of the drilling plan would include approximately 75,083 feet (34.4 acres) of new road construction, 14,412 feet (3.4 acres) of overland travel, and 199 drill pads and sumps which would disturb approximately 18 acres, 20 auger/trench sites which would disturb approximately 2 acres and a 12 acre laydown area. Total acreage of disturbance for this exploration project would be 142 acres.

Based on the Ely District Weed Inventory the following weeds are documented in the project area:

Lepidium draba	Hoary cress

Based on the Ely District Weed Inventory the following weeds are documented along roads and drainages leading to the project area:

Lepidium draba	Hoary cress
Acroptilon repens	Russian Knapweed

There is also cheatgrass (*Bromus tectorum*) and halogeton (*Halogeton glomeratus)* scattered throughout the project area, but mainly along roads in and to the project area. The project area was last inventoried for noxious weeds in 2008.

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the Factor 1 rates as Moderate (5) at the present time. With the equipment being used and the types of disturbance activities for this project and the weed species in the area, particularly cheatgrass, it is likely that part of the project area could become infested.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as High (8) at the present time. Currently, the project area has very few weeds so any new infestations would have adverse cumulative effects on the nearby native plant community. Also, an increase of cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (40). This indicates that the project can proceed as planned as long as the following measures are followed:

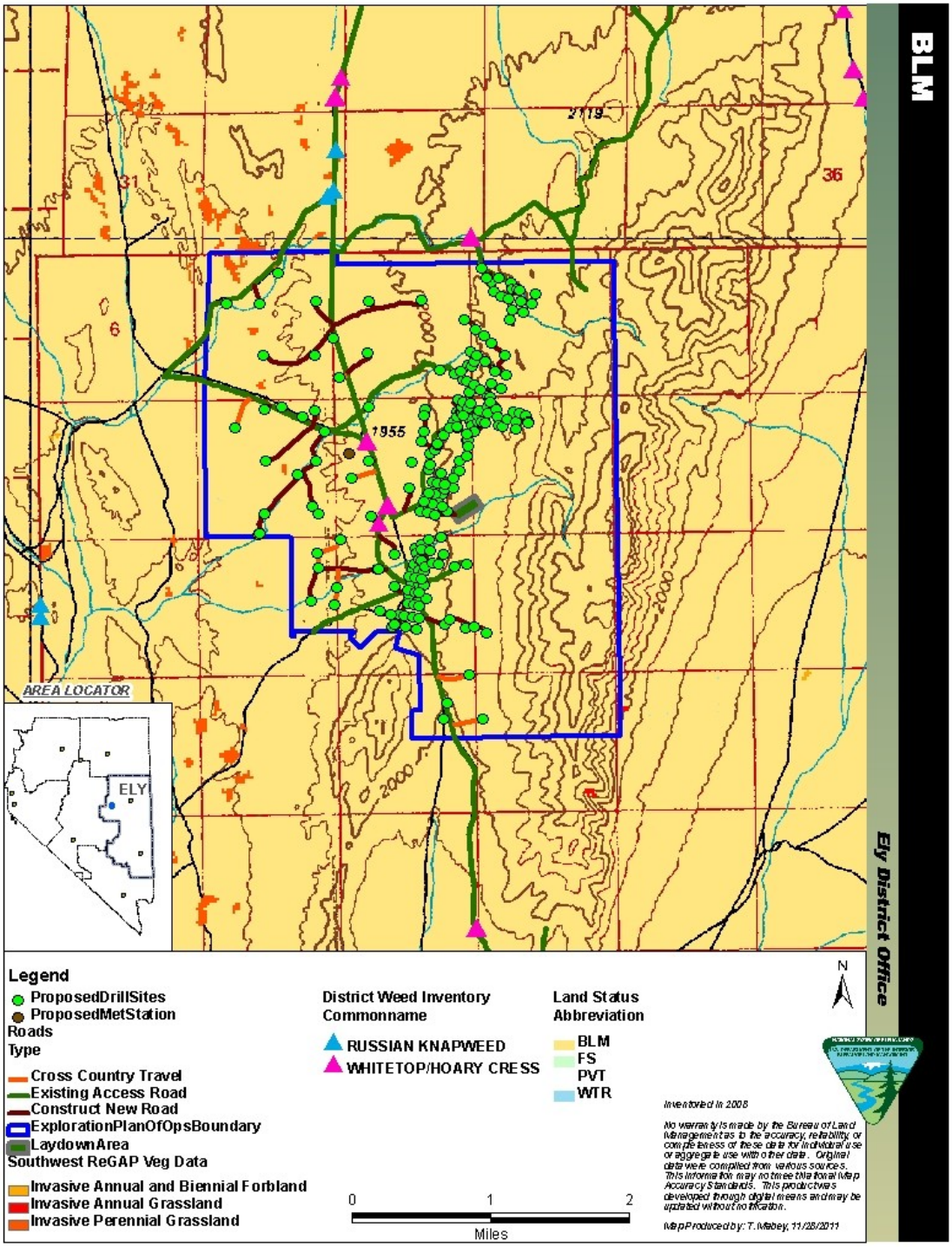
- Prior to entering public lands, the contractor, operator, or permit holder will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- Monitoring will be conducted for a period no shorter than the life of the permit or until bond release and monitoring reports will be provided to the Ely District Office. If the presence and/or spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with Ely District Office personnel and will be in compliance with the appropriate BLM Handbook sections and applicable laws and regulations. All weed control efforts on BLM-administered lands will be in compliance with BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. Submission of Pesticide Use Proposals and Pesticide Application Records will be required.
- To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of

ground disturbing activities or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the District Weed Coordinator or designated contact person.

- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for reclamation or stabilization activities, feed, bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.
- Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)
- Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected nonnative species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable. In all cases, seed mixes would be approves by the BLM Authorized Officer prior to planting.
- No noxious weeds will be allowed on the site at the time of reclamation release. Any noxious weeds that become established will be controlled.

Reviewed by: /s/TJ Mabey 11/28/2011

TJ Mabey Date
Natural Resource Specialist


BLM
Ely District Office
AREA LOCATOR
ELY
Legend
ProposedDrillSites
ProposedMetStation
Roads
Type
Cross Country Travel
Existing Access Road
Construct New Road
ExplorationPlanOfOpsBoundary
LaydownArea
Southwest ReGAP Veg Data
Invasive Annual and Biennial Forbland
Invasive Annual Grassland
Invasive Perennial Grassland
District Weed Inventory
Commonname
RUSSIAN KNAPWEED
WHITETOP/HOARY CRESS
Land Status
Abbreviation
BLM
FS
PVT
WTR
0
1
2
Miles
N
Inventoried in 2008
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Map Produced by: T. Mabey, 11/28/2011

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