U.S. Department of the Interior
Bureau of Land Management

Final Environmental Assessment
DOI-BLM-NV-W010-2013-0046-EA
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Western Lithium Corporation
Kings Valley Clay Mine

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BLM

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amsl	above mean sea level
ARPA	Archaeological Resources Protection Act
ATR	automated traffic recorder
AUM	animal unit months
BAPC	Bureau of Air Pollution Control
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practices
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
Project Area	Kings Valley Clay Mine Project Area encompassing 796 acres
CO	carbon monoxide
CO_2	carbon dioxide
dBA	decibel
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act of 1976
gpm	gallons per minute
HAPs	hazardous air pollutants
IM	Instruction Memorandum
KVCM	Kings Valley Clay Mine
L50	the sound level exceeded 50 percent of the time during the one hour period
L90	the sound level exceeded 90 percent of the time during the one hour period
Ldn	day/night average sound level
Leq	equivalent or energy-averaged sound level
Lmax	the highest root-mean-square sound level over a given period of time

MBTA	Migratory Bird Treaty Act
MOU	memorandum of understanding
MSHA	Mine Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act
NESHAPS	National Emissions Standards for Air Pollutants
NHPA	National Historic Preservation Act
NNHP	Nevada Natural Heritage Program
NO_x	Nitrous Oxide
NO_2	nitrogen dioxide
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NTT	Greater Sage-grouse National Technical Team
OHV	off-highway-vehicle
PGH	Preliminary General Habitat
$PM_{2.5}$	2.5 microns in aerodynamic diameter
PM_{10}	10 microns in aerodynamic diameter
PMU	Population Management Unit
ppb	parts per billion
PPH	Preliminary Priority Habitat
ppm	parts per million

RFFA	reasonably foreseeable future actions
ROW	right-of-way
SAD	surface area disturbance
SO_2	sulfur dioxide
SR	State Route
T44N, R35E	Township 44 North, Range 35 East
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VRM	Visual Resource Management
WLC	Western Lithium Corporation
WRDA	waste rock disposal areas
$\mu g/m^3$	micrograms per cubic meter

1.0 Introduction

1.1 Identifying Information

1.1.1 Title, EA Number, and Project Type

Title: Western Lithium Corporation Kings Valley Clay Mine

NEPA Number: DOI-BLM-NV-W010-2013-0046-EA

Type of Project: Locatable Minerals Clay Mine

1.1.2 Location of the Proposed Action

The proposed Kings Valley Clay Mine (KVCM) is located at Thacker Pass between the Montana Mountains and the Double H Mountains in northern Humboldt County, Nevada. The KVCM is located approximately 62 miles north-northwest of Winnemucca, 20 miles west-northwest of Orovada, and adjacent to State Route (SR) 293. The general location of the KVCM is shown on Figure 1.

The approximately 796-acre KVCM Project Area (Project Area) is located on public lands administered by the Bureau of Land Management Winnemucca District, Humboldt River Field Office (BLM) and is located within portions of Township 44 North, Range 35 East (T44N R35E), sections 8, 9, and 17, Mount Diablo Base and Meridian.

The Project Area is currently accessed from SR 293. Improvements to the intersection with SR 293 were approved under the 2007 Notice for the Kings Valley Lithium Exploration Project (WLC 2007). The Project Area, land status, and access roads are shown on Figure 2.

1.1.3 Name and Location of Preparing Office

This Environmental Assessment (EA) is being prepared by the following BLM office:

Winnemucca District, Humboldt River Field Office
5100 E. Winnemucca Blvd.
Winnemucca, Nevada 89445

1.1.4 Project Serial Number

The Proposed Action presented in this EA is based on the recently submitted plan of operations, *Western Lithium Corporation Kings Valley Clay Mine Plan of Operations and Reclamation Permit Application* (WLC 2012) (Plan of Operations), BLM File Serial Number NVN-91547.

1.1.5 Applicant

Start-up and development of the KVCM as described under this EA is proposed by Western Lithium Corporation (WLC), a wholly-owned subsidiary of the Canadian-based Western Lithium USA Corporation.

1.2 Overview

1.2.1 Site History

The Project Area has historically been used for ranching, with little infrastructure existing on-site. Barbed-wire fences, cattle guards, watering troughs, one waterline, and scattered ranch roads exist on-site as shown on Figure 3.

Recent exploration activities have also occurred within the Project Area. WLC is presently conducting exploration activities under the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) (Kings Valley Lithium Exploration Project) which was submitted in May 2008 and last amended in October 2011. The base Plan of Operations was analyzed by the *Kings Valley Lithium Exploration Project Environmental Assessment DOI-BLM-NV-W010-2010-0001-EA* (BLM 2009) in December 2009 and a Finding of No Significant Impact was issued in 2010 (BLM 2010). The Kings Valley Lithium Exploration Project proposed mineral exploration activities including drilling, road building, monitoring well installation, trenching, bulk sampling, construction of a weather station, and other exploration-related disturbances. Up to 75 acres of disturbance resulting from exploration activities associated with and within the Kings Valley Lithium Exploration Project boundary has been authorized. About 32 acres have been disturbed to date (WLC 2013).

1.2.2 Proposed Action Summary

WLC proposes to start and develop the KVCM as an open pit clay mine. Clay would be selectively mined from two open pits and stockpiled on-site in a designated ore-grade stockpile area where stockpiled clay may be crushed. Crushed or raw ore-grade clay would be loaded into highway-legal trucks and sold to an end-user or hauled to a plant site located in Fernley, Nevada or to an international facility where it would be processed. The ore-grade material would be used to ultimately produce a specialized grade clay additive also known as a premium hectorite-based organo-clay.

The pits, waste rock disposal areas (WRDA), roads, and ancillary facilities would result in 109.9 acres of disturbance. Upon completion of mining, the operation would be closed and reclaimed with the post-mining land use goals being grazing, wildlife habitat, dispersed recreation, and continued mineral exploration. The projected mine life would be 20 years, with associated

construction, closure, reclamation, and monitoring periods extending the Project life to approximately 23 years.

The Proposed Action presented by WLC includes establishment of:

- A permit boundary;
- Two open pits;
- Two WRDAs;
- Ore-grade clay stockpile area with a mobile crusher;
- Four growth media stockpiles;
- An aggregate source (with associated aggregate stockpiles) and mobile aggregate screen;
- An exploration program utilizing drilling equipment, roads, and drill pads within Area C and Area D;
- Use of an on-site well as a non-potable water source for road watering, dust suppression, and exploration drilling with the potential for use of a second on-site well in the future;
- Ancillary facilities including stormwater controls, office/first-aid trailer, parking, ready line, and fencing; and
- Access improvements to SR 293.

1.3 Purpose and Need for Action

The purpose of the Federal Action is to respond to WLC's Plan of Operations. The purpose of the Plan of Operations is to allow WLC to conduct mining activities on public lands within the Project Area and to evaluate and characterize the mineral potential as provided under the General Mining Law of 1872 as amended.

The need for the action is established by the BLM's responsibility under Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA) and the BLM Surface Management Regulations found at 43 Code of Federal Regulations (CFR) §3809, to respond to a mining and exploration plan of operations and to take actions as necessary to prevent unnecessary or undue degradation of the public lands, as a result of actions taken to prospect, explore, assess, develop, and process locatable mineral resources on public lands.

1.3.1 Decision to be Made

The decision the BLM would make based on this EA includes the following: whether or not to approve the proposed Plan of Operations to authorize the mining and exploration activities without modifications or additional mitigation measures; approval of the Plan of Operations with additional mitigation measures that are deemed necessary by the BLM; approve the Plan of Operations under an alternative with timing restrictions and other mitigations deemed necessary by the BLM to protect sage grouse; or deny approval of the Plan of Operations and not authorize

the mining and exploration activities if it is found that the proposal does not comply with the 43 CFR §3809 regulations and the FLPMA mandate to prevent unnecessary or undue degradation.

1.4 Scoping, Public Involvement, and Issues

A scoping process was conducted in order to determine the scope of this environmental analysis. The BLM staff defined issues and made an initial determination of what needed to be analyzed in this EA (see Chapter 3, Description of the Affected Environment), data needs, possible alternatives, and public outreach needs.

This internal scoping was followed by external scoping where other agencies, organizations, tribes, local governments, and the public were provided the opportunity to provide feedback regarding issues, concerns, data needs, and such things as potential alternatives. This public scoping assists the BLM in refining issues and identifying new issues, coordination needs, possible alternatives, and so forth.

A letter and map were sent to a mailing list of potentially interested members of the public on April 18, 2013. The scoping letter and map were also posted on the BLM's Winnemucca District National Environmental Policy Act (NEPA) Web page.

The BLM received comments from the Nevada Department of Wildlife (NDOW), Nevada State Land Use Planning Agency, Nevada Division of Water Resources (NDWR), and three private individuals. Through internal and external scoping, the following issues were identified with regard to the Proposed Action:

- What potential effects on air quality could occur as a result of the Proposed Action?
- How could existing cultural resources, including archaeological sites, be affected by implementation of the Proposed Action?
- How could existing paleontological sites be affected by implementation of the Proposed Action?
- Would implementation of the Proposed Action affect the number of animal unit months (AUMs) available for grazing?
- Would clay mining activities within the Project Area affect use of the area by the grazing permittee?
- Would implementation of the Proposed Action dominate and be a major visual focus within the Class IV Visual Resource Management (VRM) area?
- Would the Project proponent utilize existing disturbance areas to avoid creating new disturbance areas?
- How would lighting be managed to minimize light pollution, and would measures be taken to blend structures into the surroundings?
- How would stormwater be managed for the site to minimize runoff?

- Would the transportation of clay from the Project Area contribute to particulate matter?
- How would hazardous materials be stored and managed on the site?
- Would the Proposed Action affect access of fire personnel to the site, would fuel breaks be constructed, and would the potential for fire ignitions increase within the area?
- Would the proposed seed mix meet the BLM management criteria for the area?
- How could the Proposed Action affect vegetation?
- What potential impacts to soil could occur as a result of the Proposed Action?
- How would transportation related to the Proposed Action impact pavement conditions, highway safety, and livestock collisions?
- How would the Project proponent obtain water for the Project, how would the water be used, and would the Proposed Action have an effect on water rights?
- How would the Proposed Action affect water quality and quantity, as well as water availability for wildlife and livestock?
- Would the Project proponent obtain the necessary water rights for water used as part of the Proposed Action?
- If perched water zones are encountered in the pits or if meteoric water collects in the pits, how would the excess water be managed?
- Would riparian or wetland vegetation be affected by implementation of the Proposed Action, and would the clay open pits provide a potential habitat for riparian or wetland vegetation?
- Would proposed production or monitoring wells and boreholes be closed in accordance with required codes?
- How could the Proposed Action affect the spread of invasive, non-native species?
- How may migratory birds be affected by implementation of the Proposed Action?
- What potential effects could occur to traditional Native American religious concerns and lifestyles, including potential effects on surface water resources of importance?
- What potential impacts could occur to wildlife resources and special status species such as the Greater Sage-grouse?
- Could wildlife and/or livestock become hindered in the open pits?
- Would the creation of additional roads in the area lead to unauthorized public use of these roads after reclamation?
- How would public access through the area be affected by the implementation of this proposal?

2.0 Proposed Action and Alternatives

2.1 Description of the Proposed Action

BLM must evaluate and approve, with or without mitigation, or reject the Plan of Operations submitted by WLC. WLC proposes to develop an open pit clay mine within the Project Area. Clay would be selectively mined from two open pits and stockpiled on-site in a designated ore-grade clay stockpile area as shown on Figure 4. Raw or crushed ore-grade clay would be loaded into highway-legal trucks and sold to an end-user or hauled to a plant site located in Fernley, Nevada or to an international facility where it would be processed as demand warrants. The ore-grade material would be used to ultimately produce a specialized grade clay additive also known as a premium hectorite-based organo-clay. This additive is used for high temperature and high pressure oilfield drilling applications.

2.1.1 Proposed Action

The proposed Project Area would encompass about 796 acres. The proposed facilities would result in 109.9 acres of disturbance of which approximately 10.9 acres would occur on previously disturbed areas. The total Project-related disturbance would equal 109.9 acres or 14.3 percent of the Project Area. The projected mine life would be 20 years, with associated construction, closure, reclamation, and monitoring periods extending the Project life to approximately 23 years.

WLC recently purchased a plant site in Fernley. The site is located approximately 200 miles from the Project Area on private land and does not require federal permitting. The Fernley plant would process clay from other clay mineral sources throughout Nevada and the United States and therefore, would not rely entirely on this action for its operation. The contribution of clay ore from the Project Area would not prompt the need for utility upgrades or other works which would require federal actions.

The location of the Proposed Action is described in Section 1.1.2.

2.1.1.1 *Proposed Disturbance*

The Proposed Action would result in 109.9 acres of disturbance associated with the development of:

- Two open pits;
- Two WRDAs;
- Ore-grade clay stockpile area with a mobile crusher;
- Four growth media stockpiles;
- An aggregate source (with associated aggregate stockpiles) and mobile aggregate screen;

- An exploration program utilizing drilling equipment, roads, and drill pads within Area C and Area D;
- Use of an on-site well as a non-potable water source for road watering, dust suppression, and exploration drilling with the potential for use of a second on-site well in the future;
- Ancillary facilities including stormwater controls, office/first-aid trailer, parking, ready line, and fencing; and
- Access improvements to SR 293.

Surface disturbance resulting from the Proposed Action within the Project Area is summarized in Table 2-1 and are shown on Figure 4. Figure 5 shows the Proposed Action disturbance in relation to existing disturbance including pre-WLC disturbance and disturbance associated with the permitted and bonded Kings Valley Lithium Exploration Project.

2.1.1.2 *Mining Activities*

Based on exploration estimates, approximately 375,000 tons of known clay ore are at the site. The clay ore is typically encountered at 15 to 60 feet below ground surface (bgs) in lenses or ore bodies ranging from two to ten feet in thickness, with three to four feet in thickness being typical. WLC proposes to develop two open pits, the WLT-01 Pit and the Central Pit, as shown on Figure 4. Stormwater diversion channels would be constructed around the pits to divert up-gradient run-on water from entering.

During the initial pit development, the areas would be cleared and stripped of approximately 15 inches of growth media (more or less depending on availability). This stripped growth media would be stockpiled in the growth media stockpiles shown on Figure 4.

Proposed clay mining has a stripping ratio (waste rock to clay ore) ranging from approximately 5.7:1 (WLT-01 Pit) to 7.6:1 (Central Pit). Tons of clay ore and waste rock anticipated from each pit over the 20-year mine life are summarized in Table 2-2.

Table 2-1: Disturbance within the Project Area (acres)

Component	Total Proposed Disturbance	Proposed Disturbance on Existing Disturbed Areas[1]	Proposed Disturbance on Undisturbed Areas[2,3]	Existing Disturbance not within Proposed Facility Footprints
WLT-01 Pit[2]	13.2	1.3	11.8	-
WLT-01 WRDA	14.0	0.4	13.6	-
Central Pit[2]	16.3	1.6	14.7	-
Central WRDA	19.3	1.5	17.9	-
Ore-grade Clay Stockpile Area	13.1	0.6	12.5	-
Office/First Aid/Parking/Ready Line	1.7	0.0	1.7	-

Component	Total Proposed Disturbance	Proposed Disturbance on Existing Disturbed Areas[1]	Proposed Disturbance on Undisturbed Areas[2,3]	Existing Disturbance not within Proposed Facility Footprints
Growth Media Stockpile East	2.8	0.0	2.8	-
Growth Media Stockpile West	2.1	0.1	2.0	-
Growth Media Stockpile Central	2.1	0.0	2.1	-
Growth Media Stockpile South	0.9	0.0	0.9	-
Internal Mine Road - 24 feet wide disturbance, Length = 9,200 feet	5.2	2.5	2.7	-
Internal Mine Road - 36 feet wide disturbance, Length = 4,050 feet	3.3	0.6	2.7	-
Internal Mine Road - 50 feet wide disturbance, Length = 3,696 feet	3.7	0.5	3.2	-
Area C Exploration Planned Drilling	3.3	0.2	3.2	-
Area D Exploration Planned Drilling	6.0	0.6	5.3	-
Aggregate Resource	2.9	1.0	1.9	-
Pre-WLC Disturbance within KVCM Boundary	-	-	-	7.4
WLC-Kings Valley Lithium Exploration Project Disturbance within KVCM Boundary	-	-	-	24.7
Totals	**109.9**	**10.9**	**99.0**	**32.1**
Percent of 796-acre Project Area	**14.3**	**1.4**	**12.4**	**4.0**

[1] Pre-Project Disturbance within the Project Area was calculated and based on a December 3, 2011 aerial survey.

[2] Acreage totals for pits include disturbance related to stormwater controls around each pit.

[3] The listed existing disturbance is within the Project Area.

Table 2-2: Anticipated Life-of-Mine Waste Rock and Clay Ore Amounts

Pit	Waste Rock (cubic yards)	Clay Ore (tons)
WLT-01	475,450	181,100
Central Pit	714,200	193,710

Clay would be selectively mined using an excavator to exclude most impurities. Ore-grade clay material would be controlled visually on the pit floor and would be confirmed by auger or core drilling on benches ahead of mining. Samples would be collected from the pit floor and analyzed. A small air-track drill would be used to drill each bench at a spacing dictated by the geology, ahead of the mining to obtain samples. Sampling would be supervised by a geologist and would be visual based on color and appearance. Some clay samples may also be inspected and further tested in an off-site lab.

Pits would be mined leaving an overall 40° pit slope. Technical criteria used to determine pit slope stability is presented in *Prefeasibility Level Geotechnical Study Report* (AMEC 2011) and

Supplemental Geotechnical Recommendations (AMEC 2013). Clay mining would be limited to a maximum of approximately 60 feet bgs. The clay ore would be hauled from the pit to the ore-grade clay stockpile area using scrapers or loaded into articulating end-dump trucks with an excavator. If hauled by truck the clay ore may also be ripped with a dozer and pushed into piles and loaded with a Cat 980-size loader or similar equipment. A dozer may also assist the scrapers by pushing to help excavate the clay. No drilling or blasting is anticipated in mining the clay or waste rock.

Earthen berms would be constructed around each pit to remain in place after reclamation and closure. Berms would be approximately three feet tall; final berm height would be determined by Mine Safety and Health Administration (MSHA) regulations. Berms would have 2H:1V slopes and would be constructed along each side of the pits except for where the haul roads enter and exit the pits. WLC would also install a three-strand barbed-wire fence around each pit area to exclude the public and livestock during operations.

2.1.1.3 *Ore-Grade Clay Stockpile Area*

The 13.1-acre ore-grade clay stockpile area footprint would be cleared and stripped of approximately 15 inches of growth media. The stripped growth media would be stockpiled in the growth media stockpiles. The ore-grade clay within the ore-grade clay stockpile area would be located on a pad comprised of low grade clay considered to be waste rock. A berm would be constructed around the perimeter of the ore-grade clay stockpile area, as necessary, to divert stormwater away from the stockpiles.

Clay ore would be hauled to the ore-grade clay stockpile area and segregated into three different grades: high (PLUS), medium (API), and low (MINUS). The clay ore stockpiles would be approximately 15 feet high and may be located anywhere within the ore-grade clay stockpile area, spaced wide enough to allow a scraper, haul trucks, and loader to maneuver between them. Clay ore stockpiles would be built in horizontal layers as clay ore is deposited.

A minimum of approximately 5,000 tons and a maximum of approximately 18,750 tons of clay ore may be mined in any given year, depending on market conditions and demand. As much as 18,750 tons of ore-grade clay may be stockpiled in the ore-grade clay stockpile area within any one year.

A crusher and a crushed clay ore stockpile would also be located within the ore-grade clay stockpile area. The diesel generator-powered mobile cone crusher system would be operated on an as-needed basis, for up to approximately 500 hours per year. The portable crusher may be contractor-supplied or WLC-owned and would be removed from the site when crushing operations are not occurring.

Stockpiled raw or crushed clay ore may be hauled off-site either immediately after mining from the pits or hauled from the ore-grade clay stockpiles intermittently throughout the year as market conditions and demand dictate. As the ore-grade clay stockpiles are hauled off-site to the clay process facility or end users, loaders would excavate vertical slices from the southern face of the stockpiles for maximum blending. Natural drying and periodic turning of the clay ore may be required to reduce the moisture content of the clay ore from generally 30 percent moisture to approximately 15 percent moisture. The ore-grade clay material would be used to ultimately produce a specialized grade clay additive (also known as a premium hectorite-based organo-clay).

2.1.1.4 *Mine Equipment*

Table 2-3 lists the general equipment types that may be used for the Proposed Action.

Table 2-3: KVCM Mobile Equipment

Equipment List	Number Needed for Clay Mining
Scraper	2
Articulating Truck	4
Excavator	1
Front End Loader	1
Dozer	1
Grader	1
Mobile Cone Crusher	1
Water Truck (4,000 gallon)	1
Portable Water Tank (4,000 gallon)	1
4x4 Pickup Truck	1
Service Truck	1
Fuel Truck	1
Air-track drill (with auger or split tube equipment for collecting grade control pit samples)	1
Core Drill Rigs (HQ)	2
Over-the-Road Haul Trucks[1]	10
Light Plants	9

[1] Quantity and type of 40-ton haul trucks determined by the contract off-site haul contractor.

2.1.1.5 *Waste Rock Disposal Areas*

Mining is anticipated to generate approximately 1,189,650 cubic yards of waste rock. Two WRDAs would be constructed over the life of the mine. The WLT-01 WRDA would be constructed immediately north of WLT-01 Pit, and the Central WRDA would be constructed northeast of the Central Pit. Waste rock from WLT-01 Pit would be hauled to WLT-01 WRDA, and waste rock from the Central Pit would be hauled to the Central WRDA. Haul roads would connect the open pits with the WRDAs by a series of haul road segments.

Prior to construction, vegetation would be cleared from the WRDA foundation areas, and growth media would be salvaged and placed in the growth media stockpiles.

Waste rock mined from the open pits would be a combination of waste rock and low-grade (un-economical) clay. Both the WLT-01 WRDA and Central WRDA would generally be constructed in several lifts with a maximum height of 60 feet, an average height of 40 feet, and a final reclaimed slope of 3H:1V or shallower. The WLT-01 WRDA would have a disturbance area of 14 acres while the Central WRDA would have a disturbance area of 19.3 acres. The thickness of the lifts to be constructed would be determined by the equipment selection. When scrapers are used the lifts would generally be less than one foot in thickness. When articulating dump trucks are used the lifts would generally be between three to five feet in thickness. A summary of basic design parameters and dimensions for the proposed WRDAs is shown in Table 2-4.

Table 2-4: WRDAs Design Parameters and Dimensions Summary

WRDA	As-built Slope	Reclaimed Slope	Maximum Height (feet)	Crest Elevation (feet above mean sea level)	Acres
Central WRDA	3H:1V	3H:1V	60	5,080	19.3
WLT-01 WRDA	3H:1V	3H:1V	60	5,080	14.0

2.1.1.6 *Equipment Fueling and Maintenance Activities*

Petroleum and equipment maintenance products would be transported to and used at the mine site by a contract mining company and located on contractor service vehicles. WLC would not store petroleum and equipment maintenance products on-site. Typical equipment maintenance products used in small quantities by the contract mining company include automatic transmission fluid, engine oil, hydraulic fluid, gear oil, and antifreeze. Typical quantities of engine, hydraulic, and transmission fluids on the service truck should not exceed 150 gallons. Quantities stored on the contract service vehicle may vary slightly depending on the contractor. A service truck would typically hold approximately 1,000 gallons of fuel and a small fuel truck approximately 3,000 gallons. Smaller quantities of petroleum and equipment maintenance products (e.g. antifreeze) would be kept in proper containment and located on the contractor's service vehicle.

Fuel (off-road diesel) would be delivered to the site via commercial fuel trucks and stored on the contractor's service and fuel trucks. The service and fuel trucks would be used to directly fuel on-site equipment. Whenever possible, equipment fueling would be performed at the ready line. Drivers off-loading fuel would be certified and trained.

2.1.1.7 *Schedule and Hours of Operation*

Once WLC has received the required authorizations and permits, mining operations would begin at the site. The frequency and duration of mining from the open pits would be based on market conditions and demand. Mining from open pits could occur 24 hours per day, at a duration identified by the mine contractor. The handling and management of the ore-grade clay and associated hauling from the site may occur at any time during a 24-hour day, 365 days per year.

The site would remain active for the duration of the mine life with personnel regularly present on site for mining, exploration, clay ore hauling, reclamation, monitoring, and maintenance.

2.1.1.8 *Workforce*

The estimated number of people employed during the mine construction and operation would be 14 including ten contract miners and four WLC employees. WLC anticipates that most employees would reside in Winnemucca with some employees living in Orovada and other nearby areas. The number of employees on-site during mining would vary, depending on the amount of material to be mined from the pit or extracted from the stockpiles at any one time. Table 2-5 summarizes the estimated Project workforce.

Table 2-5: Anticipated Workforce

Workforce	Number of Employees[1]
Mine Manager/Supervisor[1]	1
Geologist[1]	1
Quality Assurance/Quality Control[1]	2
Loader Operator[2]	1
Backhoe Operator[2]	1
Foreman[2]	1
Water Truck/ Grader Operator[2]	1
Service/Fuel Truck Operator[2]	1
Maintenance Technician[2]	2
Truck Driver[2]	3
Workforce Total	**14**

[1] WLC Employee

[2] Contract Employee/Miner

2.1.1.9 *Transportation*

Employees would commute to the site from Winnemucca or Orovada via SR 293 and U.S. Highway 95. WLC would encourage employees to carpool. Parking for private vehicles (employee and visitor) would be provided adjacent to the office/first-aid trailer as shown on Figure 4. Up to 14 personnel vehicles may travel to and from the site on a given day, assuming no car-pooling.

Raw or crushed ore-grade clay would be loaded into highway-legal trucks and sold to an end-user or hauled to a plant site located in Fernley, Nevada or to an international facility where it would be processed as demand warrants. The number of truck trips per month or quarter is dependent on market demand and how much clay would be mined at any one time. Approximately 18,750 tons of ore-grade clay would be mined annually, which could result in approximately 500 trucks per year or approximately 42 trucks per month (based on 40-ton loads).

Supplies would be transported to the site from Winnemucca, Nevada via U.S. Highway 95, SR 293, and the main mine access road. Service vehicles may access the site using this same route. One supply or service vehicle per day has been estimated for the purposes of this EA.

Upgrades involving the mine entrance road and the intersection of SR 293 would be undertaken in conjunction with the Nevada Department of Transportation (NDOT). WLC holds a temporary occupancy permit for this intersection and will apply for a permanent occupancy permit. The intersection would be moved slightly to the east, so the approach to SR 293 would be at a right angle. Depending on the need, portions of the main access road from SR 293 to the office/first aid, parking, and ready line area may be paved. At a minimum, the portion of road within the NDOT right-of-way (ROW) N-002773 would be paved to limit track-out a distance of approximately 180 feet. Other improvements would include installation of a culvert within the NDOT ROW to allow for continued drainage alongside SR 293 and the installation of four guideposts with reflectors located at each end of the approach and at the taper setbacks. Other improvements such as a sign and gate would be located outside of the NDOT ROW.

The construction of turn lanes and acceleration/deceleration lanes are not anticipated at this time. The NDOT may require the construction of additional improvements in the future based on need.

2.1.1.10 *Growth Media Salvage and Storage*

Growth media would be stripped using scrapers, a grader, a loader, and haul trucks and stockpiled separately at four locations as shown on Figure 4. Fine-grained alluvium is also considered to be suitable growth media; where the term “growth media” is used, it should be understood that fine-grained alluvium is included. While excavating overburden, areas of silt may be excavated separately and used to amend the growth media to increase its productivity and volume for use in reclamation.

The pit footprints, ore-grade clay stockpile area footprint, and the WRDA foundation areas would be cleared of roots and stumps, and growth media would be stripped. Approximately 130,000 cubic yards of growth media would be salvaged based on an average stripping depth of 15 inches. This volume could change based on actual field conditions encountered.

Salvageable growth media, including organic plant material, would be stockpiled as close to the place of use as possible. Growth media stockpiles, as shown on Figure 4, would be located such that mining operations would not disturb them. Topsoil from constructed roads, exploration areas, and the parking/ready line area would be pushed to the side of the road or designated area into a berm. Growth media stockpile management is discussed further in Chapter 2.1.3.9.

2.1.1.11 *Exploration*

Exploration for additional clay resources would consist of drill road and pad construction, surface sampling, trenching, bulk sampling, and drilling using core rigs. Exploration activities may also include geotechnical and groundwater investigations. WLC has identified two target areas, Area C and Area D, based on the most favorable geology for clay exploration drilling shown on Figure 4. Exploration drilling would occur only within these areas.

The entire area designated as Areas C and D would likely be disturbed by KVCM exploration activities. Drill pads would measure 30 feet by 60 feet, and drilling would occur on 50-foot spacings; drill pads would overlap. Up to 63 drill holes, with a maximum depth of approximately 60 feet, are planned in Area C. Up to 104 drill holes, with a maximum depth of approximately 60 feet, are planned in Area D. Up to four drill holes could be open at any one time.

2.1.1.12 *Ancillary Facilities*

Ancillary support facilities for mining operations at KVCM are shown on Figure 4 and would consist of:

- Mobile office/first-aid trailer;
- Ready line;
- Mine access and internal haul roads;
- Aggregate pit (and associated aggregate stockpiles) and mobile aggregate screen;
- Stormwater controls;
- Fencing; and
- Use of an existing on-site well (PH-1) as a non-potable water supply well with potential use of a second well (WSH-14) and a temporary/mobile water tank.

Mobile Office/First-aid Trailer and Parking

The only building proposed on-site would be a mobile office/first-aid trailer. The trailer would serve as an office, first-aid station, and an employee lunch or break room. WLC does not propose to have a full- or part-time on-site watchman or caretaker at the site. The trailer would be located within a six-foot chain-link fence with a locked gate constructed around the office/first-aid trailer, parking, and ready line area. It would be removed at the end of mining and exploration activities.

The office trailer would measure approximately 12 feet by 40 feet in size or smaller. The trailer would have electricity powered by a small generator but would not have plumbing or running water. Bottled water and porta-potties would be provided on-site. An area adjacent to the trailer would be designated for employee and visitor parking.

Occupancy

Pursuant to 43 CFR 3715.2, WLC would be engaged in reasonably incident activities and substantially regular work. Site activities would be on-the-ground and observable, utilizing appropriate and operable equipment. Equipment storage and safety and public safety, in accordance with 43 CFR 3715.2-1, are discussed under the Ready Line Area, Fencing, and Safety and Fire Protection sub-sections of this chapter.

Lighting

The active pit area, exploration areas, and the WRDAs may use mobile, diesel-powered light plants at night to allow WLC to conduct mining operations safely and efficiently and to comply with MSHA illumination requirements. Areas would be lit using light plants only when active mining or exploration is taking place. Light plants would be temporary and mobile; up to nine light plants may be used at a given time. Light plants would be powered by internal six kilowatt generators. Light plants would either be removed when not in use or stored within the office/first-aid trailer, parking, and ready line area. Artificial lighting would also be used to illuminate the office/first-aid trailer area when in use. Lighting practices are described further in Chapter 2.1.3.2.

Ready Line Area

When not in immediate use, haul trucks and other mobile mine equipment would be temporarily staged at the ready line located immediately adjacent to the office/first-aid trailer. The equipment would be parked at the ready line during shift changes and when required for light maintenance/repair. When not in use, vehicles and equipment would be either parked at the ready line behind the six-foot tall chain-link fence or removed from the site. During active mining, the area would be lit for safety and security as described in Chapter 2.1.3.15.

Laboratory Testing

Ore-grade clay on the pit floor would be visually inspected by a geologist based on color and appearance. Samples would be collected from the pit floor and further analyzed in an off-site laboratory. Some samples may be taken to WLC's core warehouse located in Orovada for further testing. Approximately 10 to 12 one-pound samples of clay material from either the Central Clay Pit or the WLT-01 Pit may be taken to WLC's core warehouse on a daily basis during mining operations. Additional and more extensive off-site testing may occur at a domestic or international laboratory.

Mine Roads

Mine roads would connect proposed facilities as shown on Figure 4. These roads would be designed to handle mine construction, maintenance, and operations vehicles. The main haul road disturbance width would be approximately 50 feet to accommodate haul trucks including running surfaces and berms/side ditches, as needed. The disturbance width for the road to water well PH-1 (that would accommodate the water truck) and secondary mine access roads would be approximately 24 feet wide including running surfaces and berms/side ditches as needed. The main access road from SR 293 to the office/first-aid trailer, parking, and ready line area disturbance width would be approximately 36 feet wide including running surfaces and berms/side ditches as needed. In some areas, the actual road disturbance width may be wider, depending on topography.

Mine haul roads would be bermed in accordance with MSHA regulations, and best management practices (BMPs) would be used where necessary to control erosion as described in Chapter 2.1.3.6. WLC would water roadways to control fugitive dust emissions as needed as described in Chapter 2.1.3.1. Following road construction, cut-and-fill slopes may be reclaimed on an interim basis.

Power Supply

Electrical power would be supplied to the site by two diesel generators. One would be located next to the office/first aid trailer and could operate up to 365 days per year. Another generator would be located next to the mobile cone crusher and could be operated up to 500 hours per year. Light plants would also be diesel operated.

Water Supply

Non-potable water would be obtained from the existing well PH-1 located north of Area D as shown on Figure 4. A 4,000-gallon portable water tank would be located at the PH-1 well site and filled as needed. Water would be pumped, stored in the portable water tank, and used as needed for road watering, dust control, and fire suppression. An estimated water supply of 16 acre-feet (10 gallons per minute [gpm]) per year would be needed for dust suppression, and approximately 0.5 acre-feet per year (0.3 gpm) would be needed for exploration drilling during the 20-year life of mine.

PH-1 has an estimated production of about 50 gpm. WLC has rights to 1,000 acre-feet of water in the Quinn River Valley some of which are being transferred to PH-1. WLC also anticipates using well WSH-14, located within the ore-grade clay stockpile area and shown on Figure 4, as a production well in the future if needed. Water rights would be transferred for WSH-14 prior to use. Use of the other existing wells within the Project Area (PH-2/WSH-17 and WSH-13) is not proposed.

Potable, bottled water would be supplied to employees on-site. Because mining would occur as market conditions demand, and an estimated 14 employees would be on-site during mining, a potable water system is not proposed at this time.

Waste Management

WLC does not propose to store used lubricants or solvents on-site. Equipment maintenance products would be managed and used by the contract mining company in conjunction with the company's service truck. The service truck is not anticipated to be on-site at all times and would travel to the Project Area as needed to service mine vehicles.

Used lubricants, solvents, oil, or coolant would be hauled off-site by the contractor, on a regular basis, and either recycled or disposed of per local, state, and federal regulations.

Industrial, non-hazardous solid waste would be generated during construction and operations. Solid waste generated by the mine would be collected in a dumpster located in the office-first-aid trailer, parking, and ready-line area and would be disposed of in the local permitted landfill in Orovada.

Porta-potties would be located on-site and would be serviced regularly by a contractor. Porta-potties would be removed from the site when not in use. A septic system and leach field is not proposed.

Communication Facilities

Communications would be provided through the use of cell phones or on-site radios. No new or permanent communication systems would be constructed.

Petroleum Contaminated Soil

Should a spill occur on-site, all petroleum contaminated soils would be immediately reported to the BLM and Nevada Division of Environmental Protection (NDEP) and handled and disposed of in accordance with NDEP guidelines and an approved *Spill Contingency and Emergency Response Plan* included in Appendix D of the Plan of Operations and as Appendix A of this EA.

Borrow/Aggregate Area

Up to approximately 7,000 cubic yards of gravel may be needed as base-material on road surfaces. WLC would develop an on-site aggregate pit approximately 0.5 acres in size, within a 2.88-acre disturbance area. The aggregate pit would have a depth of approximately 15 feet and final reclaimed slopes of 3H:1V. A mobile aggregate screen with a maximum capacity of approximately 300 tons per hour would be temporarily located within the aggregate area disturbance limits and would be used to sort material. Several small stockpiles of aggregate material would be stored within the aggregate area disturbance limits for use as needed. The location of the aggregate pit is shown on Figure 4. Use of other aggregate sources was not

considered due to their proximity, the existing disturbance at the proposed site, and the relative lack of non-native invasive species at the proposed aggregate site.

Fencing

Fencing separating grazing pastures exists in the vicinity of the Project Area. The existing fencing and cattle guards would remain on-site and undisturbed. WLC would install a three-strand barbed wire fence around each pit area to exclude the public and livestock. These fences would be removed during reclamation at the end of the mine life. An earthen berm would also be constructed around each pit to remain in place after reclamation and closure.

A six-foot chain-link fence with a lockable gate would be constructed around the office/first-aid trailer, parking, and ready line area for security purposes. This fence would be removed during reclamation at the end of the mine life. Three additional gates would be installed at the main site access locations as shown on Figure 4, and appropriate signage would be placed prohibiting access. Gates would consist of a post on either side of the road, with the road blocked by a three-strand barbed-wire fence or horizontal bar.

Safety and Fire Protection

The KVCM would operate in conformance with all MSHA safety regulations (30 CFR Parts 46, 47, 48, 56, 58, and 62). Site access to open pits would be restricted to WLC employees and contract mining company employees. Access to the fenced office/first-aid trailer, parking, and ready line area would be restricted to WLC employees, contract mining company employees, and approved visitors. The office/first-aid trailer would have hand-held fire extinguishers available in accordance with MSHA regulations and industry standards. Employees would be trained in the use of hand-held fire extinguishers.

The following requirements would be used to prevent fires:

- Personnel would be allowed to smoke only in designated areas and would be required to follow applicable BLM regulations regarding smoking;
- All vehicles would carry at a minimum a shovel and five gallons of water (preferably in a backpack pump), in addition to a conventional fire extinguisher;
- Adequate firefighting equipment (a shovel, a pulaski, standard fire extinguisher(s), and an ample water supply) would be kept readily available at each active drill site;
- Vehicle catalytic converters would be inspected often and cleaned of all flammable debris;
- All cutting/welding torch use, electric-arc welding, and grinding operations would be conducted in an area free, or mostly free, from vegetation. An ample water supply and shovel would be on hand to extinguish any fires created from sparks. At least one person

in addition to the cutter/welder/grinder would be at the work site to promptly detect fires created by sparks;

- Any fire restrictions or closures issued by the BLM Winnemucca District Office would be publicized in the local media, and notices would be posted at various sites throughout the district. The BLM does not individually contact operators. This plan of operations serves as an authorization that may exempt WLC's operations from certain restrictions in those orders. Personnel would be responsible for being aware of and complying with the requirements of those orders; and
- Any wildland fire observed would be reported immediately to the BLM Central Nevada Interagency Dispatch Center at (775) 623-3444.

Project vehicles would adhere to speed limits to avoid wildlife and livestock collisions as well as to maintain highway safety.

2.1.2 Site Reclamation

Major land uses occurring in the Project Area include continued mineral/clay exploration, livestock grazing, wildlife habitat, and dispersed recreation. The reclamation plan for the KVCM is designed to reestablish current land uses by employing reclamation techniques including:

- Reclamation concurrent with mining activities when practical and safe;
- Engineered diversion channels; and
- Application of seed mixtures.

Reclamation of disturbed areas resulting from the Proposed Action would be completed in accordance with the BLM and NDEP regulations including *Guidelines for Successful Revegetaton for the Nevada Division of Environmental Protection* (NDEP 1998).

WLC would provide the BLM and NDEP Bureau of Mining Regulation and Reclamation with annual documentation of surface disturbance locations for mining activities and any completed concurrent reclamation as required by Nevada Revised Statutes (NRS) 519A and Nevada Administrative Code (NAC) 519A.235 on or before April 15th of the following year.

As determined by the BLM, roads on public lands suitable for public access or which continue to provide public access consistent with pre-mining conditions may not be reclaimed at closure pending BLM guidance. Reclaimed roads which could receive unauthorized off-highway-vehicle (OHV) use would be signed and/or barricaded using berms or rocks to indicate the area is under reclamation. Pursuant to NAC 519A.250, reclamation of in-pit haul roads is not proposed. To provide for public safety, these roads would be blocked with rock or soil berms. WLC would continue to use existing pre-mining roads from SR 293 to access the site for monitoring and other purposes. Disturbance associated with the Kings Valley Lithium Exploration Project and

pre-Project disturbance that would not be reclaimed as part of the KVCM reclamation efforts are shown on Figure 5.

When mining activities have concluded in all or portions of a facility, reclamation activities would be scheduled to occur as soon as practical and safe. The concurrent reclamation schedule would depend on the mining schedule and therefore, may vary.

Concurrent reclamation would be carried out at the same time as continuing mining activities in other areas to the extent practicable and safe. This reclamation would be implemented in areas of the mine and exploration drill sites that would not be re-disturbed and are no longer needed for additional exploration, mining and clay ore processing. Concurrent reclamation of the WRDAs is anticipated to begin as soon as Project activities allow. Concurrent reclamation procedures are similar to final reclamation procedures.

Interim reclamation would be implemented on lands disturbed during the course of mining or waste rock placement which, although not at final reclamation contours or desired hydrologic isolation, would not be re-disturbed for a substantial period and, therefore, require interim stabilization. Soil would not be applied to these areas, the surface of the area would be roughened, and the seed mixture provided in Table 2-6 would be applied. Fertilizer and surface mulch would only be applied if necessary. Herbicide would be applied as necessary to areas that are reclaimed on an interim basis to control noxious weed species proliferation in accordance with the *Noxious and Invasive Species Management Plan* submitted as Appendix E of the Plan of Operations and as Appendix B of this EA.

The WRDAs would be reclaimed to meet certain general objectives including minimizing slope erosion, mass stability, rounded edges, and revegetated surfaces similar to surrounding topographic features. As areas of the WRDAs reach their ultimate configurations and become inactive, the inactive WRDA face would be regraded, covered with growth media, and seeded. Growth media would be placed to a depth of approximately 12 inches and seeded with the seed mixture shown in Table 2-6, or with a seed mix determined at the time of reclamation through consultation with the BLM.

The ore-grade clay stockpile area would be regraded for drainage, scarified, receive growth media placement to a depth of 12 inches, and seeded. Clay ore present in the ore-grade clay stockpile area at the time of closure would be covered with growth media and reclaimed in the same fashion as the WRDAs.

The aggregate pit slopes would be regraded and reclaimed to a slope of 3H:1V. Surfaces would be scarified, receive growth media placement to a depth of 12 inches, and seeded.

Roads and exploration areas to be reclaimed would be ripped to reduce compaction. Bermed growth media would be graded back over the ripped roads and exploration areas prior to seeding.

For paved roads (e.g., portions of the main access roads), asphalt would be removed and buried in place. Broken asphalt would be buried in the aggregate pit to a depth of three feet before the placement of growth media. Roads with cut or fill (if established) would be graded to blend into the surrounding topography and to generally reestablish the existing drainage patterns. This would be accomplished by a dozer on slopes flatter than 2.5H:1V, or excavators on slopes steeper than 2.5H:1V. Erosion control features would be implemented as appropriate. Reclaimed roads that could experience continued unauthorized use after reclamation would be blocked with earth or rock berms to eliminate vehicle access.

The office/first-aid trailer, parking, and ready line area would be graded to blend into the surrounding topography and to generally re-establish existing drainage patterns. Bermed growth media would be graded back onto the site. The office/first-aid trailer is a temporary structure and would not have a solid foundation. During closure, the trailer would be removed from the site. The fence around the administrative yard would also be removed. The area would be scarified and seeded with the seed mixture shown in Table 2-6, or with a seed mix determined at the time of reclamation through consultation with the BLM.

As part of the initial open pit developments, berms would be constructed around the perimeters. Stormwater diversion channels would also be constructed around the pits during initial mine development. These berms and stormwater diversion channels would remain in place during reclamation and would prevent vehicular access and deter livestock from entering the pits.

Reclamation exemptions would be sought under NAC 519A.250 for the two open pits. Pit benches may ravel over time which should effectively break up linear features and create naturally appearing scree and talus slopes. Mining would occur above the natural groundwater elevation. Water may pond at the bottom of the pits as a direct result of seasonal precipitation and is expected to evaporate. The development of pit lakes is not anticipated.

Temporary stormwater control structures would be constructed and installed, as needed, until perennial vegetation can be re-established.

Table 2-6: Reclamation Seed Mix for KVCM

Species/Variety	Scientific Name	Pure Live Seed (pounds/acre)	Bulk (pounds/acre)	Pure Live Seed Seed/Square Foot
Fourwing saltbush	*Atriplex canescens*	3.0	5.0	4.0
Wyoming big sagebrush	*Artemisia tridentate ssp. Wyomingensis*	0.1	1.0	5.0
Lewis Flax	*Linum lewisii*	0.5	0.75	4.0
Snake River wheatgrass/Secar[1]	*Elymus wawawaiensis*	2.5	3.0	12.0
Total		**6.1**	**9.75**	**25.0**

[1]If Snake River wheatgrass is not available, bluebunch wheatgrass, variety Wahluke, is an acceptable alternative.

2.1.2.1 *Reclamation Schedule*

The estimated schedule of Project-related disturbance and reclamation is shown on Table 2-7. Reclamation activities would be timed to take advantage of optimal climatic conditions. Final establishment of grades, drainage, and sediment controls would occur over the late spring and summer months. Seedbed preparation would occur in late summer or early fall immediately prior to seeding. Seeding would occur between the BLM-recommended dates of October 1 and March 15 of each year. If seeding is not completed prior to the onset of winter, surface erosion protection would be provided as needed and early spring seeding would occur at the earliest possible time.

Table 2-7: Tentative KVCM Reclamation Schedule[1]

Mine Component	Mining Operations (years)																				Reclamation & Closure		
	Site Preparation and Years 0-10										Years 11-20										Years 21-23		
Active Mining																							
Open Pits																							
Pit safety berm revegetation																							
WRDA																							
Growth media application																							
Revegetation																							
Clay Storage Area																							
Regrading																							
Growth media application																							
Revegetation																							
Haul & Access Roads																							
Earthwork/revegetation of SR 293 /main access road intersection																							
Remaining road earthwork/revegetation																							
Ancillary Facilities																							
Office trailer removal																							
Regrading of parking area																							
Regrading growth media stockpile areas																							
Aggregate pit regrading/revegetation																							
Fence removal																							
Exploration																							
Regrading/revegetation[1]																							
Reclamation Monitoring																							

[1]This schedule does not define interim reclamation which may occur throughout the life of the mine.

The estimated time to complete reclamation assumes average precipitation occurs during the years following reseeding. Periods of drought could delay revegetation, while excessive

precipitation could increase the potential for erosion. With the exception of monitoring, reclamation activities are expected to be completed within one year or less.

2.1.2.2 *Permits Required*

Anticipated permits and authorizations for the KVCM Project are presented in Table 2-8.

Table 2-8: Major Permits and Authorizations Required for KVCM

Permit/Approval	Regulating Agency	Permit Purpose
Federal Permits Approvals, and Authorizations		
Plan of Operations/NEPA Analysis/Decision Record	Bureau of Land Management	Prevent unnecessary or undue degradation associated with proposed Plan, NEPA analysis to disclose and evaluate environmental impacts and Project alternatives. Requires financial assurance.
Pesticide Use Permit	Bureau of Land Management	Authorization to treat noxious weeds on public BLM lands.
Notification of Commencement of Operations	Mine Safety and Health Administration	Mine safety issues, training plan, mine registration
State Permits		
Occupancy Permit	Nevada Department of Transportation	Authorization to make access improvements at intersection of SR 293 and main access road
Air Quality Operating Permit and Surface Area Disturbance	NDEP/Bureau of Air Pollution Control	Regulates Project sources of air emissions and surface disturbance
Reclamation Permit	NDEP/Bureau of Mining Regulation and Reclamation	Reclamation of surface disturbance due to mining, includes financial assurance requirements.
Industrial Stormwater Discharge Permit (non-metals)	NDEP/Bureau of Water Pollution Control	Management of site stormwater
Permit to Appropriate Water	NV Division of Water Resources	Water appropriation, change in manner of use, change in point of diversion
Local Permits		
Building Permit	Humboldt County Building Department	Ensure compliance with local building standards/requirements
Conditional/Special Use Permit	Humboldt County Planning Department	Provided as necessary under applicable zoning ordinances

2.1.3 Environmental Protection Measures

WLC has committed to the following environmental protection measures to prevent unnecessary and undue environmental degradation during construction, operation, and reclamation activities

of the Proposed Action. The measures are derived from the general requirements established in 43 CFR 3809, as well as other water, air quality, and environmental protection regulations.

2.1.3.1 *Air Emissions*

Appropriate air quality permits would be obtained from NDEP Bureau of Air Pollution Control (BAPC) for land disturbance, use of generators, and use of the aggregate screen and crusher. As per BAPC regulations, the Project air quality operating permit must be authorized by the BAPC prior to commissioning.

Committed air quality practices would include dust control for mine operations as described by the BAPC required *Fugitive Dust Control Plan* which would be included under the Surface Area Disturbance (SAD) permit. WLC will apply for the SAD permit closer to the Project start date, if approved. The *Fugitive Dust Control Plan* has been included as Appendix C of this EA. In general, the *Fugitive Dust Control Plan* would provide for speed limits, water application on haul roads and other disturbed areas, seeding growth media stockpiles, and other dust control measures as accepted and reasonable industry practice. Disturbed areas would be seeded with an interim seed mix to minimize fugitive dust emissions where appropriate. Also, trucks carrying crushed ore-grade clay from the site would be covered with a tarp to control dust.

2.1.3.2 *Lighting*

KVCM would reduce light pollution and impacts to visual resources to the extent practicable by screening light sources, directing light towards intended targets, and placing lights at the lowest practical height. Diesel-generator powered light plants would measure approximately 30 feet tall when in use. Lighting would only be used during active mining or exploration operations in accordance with MSHA regulations. Light plant masts would be lowered (to a horizontal position, if possible) daily when not in use. They may also be stored in a lowered position at the office/first-aid, parking, and ready line area or removed from the site when not in use.

2.1.3.3 *Cultural Resources*

WLC would avoid all contributing elements of the Double H/Whitehorse Obsidian Procurement Area National Register Eligible District and any other National Register of Historic Places (NRHP) eligible sites by a buffer zone of 100 feet.

Any cultural resource discovered by the permit holder, or any person working on their behalf, during the course of activities on federal land would be immediately reported to the authorized officer by telephone, with written confirmation. The permit holder would suspend all operations in the immediate area of such discovery and protect it until an evaluation of the discovery can be made by the authorized officer. This evaluation would determine the significance of the discovery and what mitigation measures are necessary to allow activities to proceed. The holder

would be responsible for the cost of evaluation and mitigation. Operations may resume only upon written authorization to proceed from the authorized officer.

2.1.3.4 *Native American Religious Concerns*

If traditional cultural objects, tribal resources, or sacred materials are identified within or in close proximity to the Project Area, WLC would contact the BLM. The BLM would conduct consultation with the affected Tribe(s) to determine if avoidance is possible or if other mitigation measures are required as appropriate. The BLM would advise WLC as to when they could proceed with work in the area.

2.1.3.5 *Paleontological Resources*

If paleontological resources are identified at the Project Area, activities would cease in the immediate vicinity of the find and notification would be made immediately to the BLM Authorized Officer. Actions by the BLM could include mitigating measures such as data recovery, restrictions on development, and deletion of some areas from development on a case by case basis. In accordance with 43 CFR §3809.420(8)(ii),"the authorized officer shall evaluate the discoveries brought to his/her attention, take action to protect or remove the resource, and allow operations to proceed within ten working days after notification to the authorized officer of such discovery."

2.1.3.6 *Erosion and Sediment Control*

WLC would construct stormwater structures to prevent run-on water from entering disturbed areas or areas otherwise in use for mining activities. Berms and/or stormwater diversion channels would be constructed around the pits, the ore-grade clay stockpile area, and around growth media stockpiles. Other temporary stormwater control structures and BMPs would be constructed and installed as needed to prevent degradation to identified surface water resources shown on Figure 6 from runoff water until perennial vegetation can be re-established.

BMPs would be used to limit erosion and reduce sediment in precipitation runoff from proposed Project facilities and disturbed areas during construction, operations, and initial stages of reclamation. BMPs used during construction and operation to minimize erosion and control sediment runoff may include:

- Surface stabilization measures – dust control, mulching, riprap, gravel on access roads, temporary and permanent revegetation/reclamation, and placing growth media;
- Runoff control and conveyance measures – hardened channels, runoff diversions; and
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention basins, sediment/silt and straw bale barriers, and sediment traps.

Stormwater diversion channels would be constructed around the open pits to divert up-gradient run-on water from entering. Although the proposed open pits are located above the water table, perched water zones could be intersected which may create temporary shallow ponds at the pit bottoms. Precipitation could also collect in the pits. In the event that incidental water does occur in the pit, it would collect within a constructed low zone and be left to evaporate naturally.

Revegetation of disturbed areas would reduce the potential for wind and water erosion. Following construction activities, areas such as cut-and-fill embankments and growth media stockpiles would be seeded as soon as practicable and safe. Concurrent reclamation would be maximized to the extent practicable to accelerate revegetation of disturbed areas. Sediment and erosion control measures would be inspected periodically, and repairs performed as needed.

Monitoring of stormwater structures and sediment control BMPS would occur periodically throughout the life of the mine and after precipitation events.

2.1.3.7 *Petroleum Products/Hazardous Materials/Solid and Liquid Waste*

Petroleum and equipment maintenance products would be transported and used by the contract mining company in accordance with federal, state, and local regulations. No hazardous materials as defined by the Comprehensive Environmental Response, Compensation, and Liability Act regulations (40 CFR 302.4) would be used on the site. WLC and contract mining employees would be trained in the proper transportation, use, and disposal. Wastes generated on-site would be managed by the contract mining service truck and disposed of in accordance with state and federal regulations.

The contract mining company would be responsible for the disposal of all waste materials including used hydrocarbons. Used solvents, hydrocarbons, and antifreeze would be accumulated, labeled, and disposed of in compliance with applicable state and federal regulations.

A *Spill Contingency and Emergency Response Plan*, describing the methods for spill prevention, cleanup, and abatement of petroleum hydrocarbon or other equipment maintenance material spill, is included as Appendix D of the Plan of Operations and as Appendix A of this EA. This plan would be made readily available on-site before operations begin. Spills would be immediately reported to both the BLM and the NDEP. All contaminated soil would be secured and disposed of according to state and federal regulations.

Common office wastes would be collected in an on-site covered trash dumpster, hauled off-site, and disposed of in an existing permitted landfill or transfer station (e.g., the landfill or transfer station located in Orovada).

2.1.3.8 *Monitoring*

During operations, annual qualitative monitoring of multiple key indicators of site stability of concurrently reclaimed areas would be conducted. These key stability indicators may include revegetation and presence of noxious/invasive weeds, surface erosion, sedimentation, slope stability, and wildlife parameters.

2.1.3.9 *Growth Media Storage and Stockpile Management*

Approximately 130,000 cubic yards of growth media would be salvaged and stockpiled during the development of mine facilities. Stripped growth media encountered would be stockpiled within designated areas as shown on Figure 4. Growth media stockpiles would be located such that mining operations would not disturb them.

The surfaces of the stockpiles would be shaped during construction to reduce erosion. To further minimize wind and water erosion, the growth media stockpiles would be seeded after shaping with a seed mix approved by the BLM. Diversion channels and/or berms would be constructed around the stockpiles as needed to prevent erosion from overland run-on or run-off. BMPs such as silt fences or certified weed-free straw bales would be used, as necessary, to contain sediment resulting from direct precipitation.

2.1.3.10 *Vegetation and Non-Native Invasive Species*

Areas of surface disturbance associated with the Proposed Action would be reclaimed pursuant to a reclamation plan approved by the BLM and the NDEP. Activities would include recontouring of disturbed areas and seeding with a BLM-approved seed mix.

A noxious weed monitoring and control plan would be implemented during construction and continue through operations. The *Noxious and Invasive Species Management Plan*, provided as Appendix E of the Plan of Operations and as Appendix B of this EA, contains management strategies, treatment, and treatment evaluation. The results from annual monitoring would be the basis for updating the *Noxious and Invasive Species Management Plan* and developing annual treatment programs.

Equipment would be washed by contractors prior to entering the site for the first time in order to remove noxious weed seeds carried from the last location.

2.1.3.11 *Migratory Birds*

Land clearing or other surface disturbances associated with the Proposed Action would be conducted outside of the migratory avian breeding season, whenever feasible, to avoid potential destruction of active bird nests. Nests are considered active if they contain eggs or young or if evidence of reproductive behavior (i.e. mated pairs, courtship displays, territorial defense, carrying nesting materials, transporting food, etc.) is observed [Migratory Bird Treaty Act

(MBTA) 1918]. When surface disturbance must be created during the migratory avian breeding season (March 1 through August 31) a survey performed by a qualified biologist following BLM survey protocols would be conducted for active nests. This survey would be conducted no more than ten days prior to and no less than three days prior to proposed disturbance activities. The results of the survey would be reported to the BLM biologist prior to any surface disturbance activity. If active nests are located or reproductive behaviors observed, disturbance activities may be postponed, a protective buffer may be established, or other appropriate protective measures would be instituted to avoid disturbance to the nest or reproductive behaviors until the nests are no longer active. The start and end dates of the seasonal restriction may be based upon site-specific information such as species affected, elevation, and weather patterns which may affect breeding chronology.

Barbed-wire fencing would be fitted with flagging/reflective flight diverters to prevent avian species collisions. They would be maintained per BLM specifications and would remain in place for the duration of the mine life. Light plants would be stored with the masts in a lowered position when not in use to reduce potential predatory bird perching sites.

2.1.3.12 *Special Status Species*

Barbed-wire fencing would be fitted with flagging/reflective flight diverters to deter Greater Sage-grouse and other avian species collisions. The flagging/reflective flight diverters would be maintained per BLM specifications and would remain in place for the duration of the mine life. Light plants would be stored with the masts in a lowered position when not in use to reduce potential predatory bird perching sites.

WLC is signatory to the *Memorandum of Understanding Regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse Habitat* (MOU) signed between the BLM, Humboldt-Toiyabe National Forest, the Nevada Department of Conservation and Natural Resources, and members of the Nevada Mining Association. WLC would follow the consultation process for proposed mining projects occurring in Greater Sage-grouse preliminary priority habitat (PPH) and preliminary general habitat (PGH) on federal lands as described in this document. This is discussed in greater detail in Chapter 3.15.

2.1.3.13 *Wildlife*

The mining plan has been developed with a minimal disturbance footprint. WLC would train operators to observe the Project Area for the presence of larger wildlife such as mule deer and pronghorn antelope as well as avian and other terrestrial wildlife. WLC would continue to operate in accordance with established WLC wildlife protection policies that prohibit feeding or harassment of wildlife.

Trash and other waste products would be properly managed, and WLC would control garbage that could attract wildlife. Common office trash would be collected in covered trash dumpsters. Dumpsters would be emptied on a regular basis and trash disposed of at an authorized off-site landfill. Appropriate speeds (25 miles per hour or less) would be maintained along access and service roads. These environmental protection measures are intended to reduce the immediate and long-term impacts that mining could potentially have on wildlife.

Barbed-wire fencing placed around the open pits would have durable reflective flight diverters in place and would be maintained per BLM specifications, for the duration of the mine life. Light plants would be stored with the masts lowered when not in use to eliminate potential predatory bird perching sites.

2.1.3.14 *Protection of Survey Monuments*

To the extent practicable, WLC would protect all survey monuments, witness corners, reference monuments, bearing trees, and line trees against unnecessary or undue destruction or damage. If, in the course of operations, any monuments, corners, or accessories are destroyed, WLC would immediately report the matter to the BLM Authorized Officer. Prior to destruction or damage during surface disturbing activities, WLC would contact the BLM to develop a plan for necessary restoration or re-establishment activity of the affected monument in accordance with Nevada Instruction Memorandum (IM) No. NV-2007-003 and Nevada law. WLC would bear the cost for the restoration or re-establishment activities including the fees for a Nevada professional land surveyor.

2.1.3.15 *Public Safety, Access, and Signage*

Public safety would be maintained throughout the duration of the Project. Active mining areas (specifically the two open pits) would be fenced with three-strand barbed-wire located approximately 25 feet from the pit edge. Flagging/reflective flight diverters would be placed on the barbed-wire fences to deter Greater Sage-grouse and other wildlife. An earthen berm would be placed around the pits as well. The office/first-aid trailer, parking, ready line area would be fenced with a six-foot chain-link fence. WLC would install gates at three main Project site access locations, as shown on Figure 4. The gate would consist of a post on either side of the road, with the road blocked by a three-strand barbed-wire fence or horizontal bar. Appropriate signage would also be installed at these three locations, notifying the public of an active mining operation and access restrictions. Although the gates would not be locked, the general public would be restricted from accessing the mine site.

Approximately one mile of previously existing road would be restricted for general public access as shown on Figure 4. This road terminates at the northern end of the Project Area. Project-related roads would be signed and/or gated to limit public access. The local grazing permittee

would be allowed access to the trough and spring; WLC would communicate often with the existing grazing permittee to notify them when mining operations are active.

2.1.3.16 *Land Use Authorizations*

The Project design and activities would be carried out to avoid impacts to existing ROWs adjacent to the Project Area. These ROWs are N-60463 for a telephone facility and N-58382 for a power transmission line. WLC would obtain the necessary permits for access road improvements within the NDOT ROW N-002773 for SR 293.

2.1.3.17 *Prevention and Control of Fires*

WLC recognizes that the BLM maintains jurisdictional authority to suppress vegetation fires occurring on the BLM-administered land within the Project Area. Fires occurring within the active mine site would be coordinated with WLC for appropriate suppression response, though the BLM would respond to all reported fires occurring on the BLM-administered land within the Project Area.

WLC would take prudent measures to prevent and suppress fires occurring from their activities, and they would also report all fires as described below.

- Personnel would be allowed to smoke only in designated areas and would be required to follow applicable BLM regulations regarding smoking;
- All vehicles would carry at a minimum a shovel and five gallons of water (preferably in a backpack pump), in addition to a conventional fire extinguisher;
- Adequate firefighting equipment (a shovel, a pulaski, standard fire extinguisher(s), and an ample water supply) would be kept readily available at each active drill site;
- Vehicle catalytic converters would be inspected often and cleaned of all flammable debris;
- All cutting/welding torch use, electric-arc welding, and grinding operations would be conducted in an area free, or mostly free, from vegetation. An ample water supply and shovel would be on hand to extinguish any fires created from sparks. At least one person in addition to the cutter/welder/grinder would be at the work site to promptly detect fires created by sparks;
- Any fire restrictions or closures issued by the BLM Winnemucca District Office would be publicized in the local media, and notice would be posted at various sites throughout the district. The BLM does not individually contact operators. This plan of operations serves as an authorization that may exempt WLC's operations from certain restrictions in those orders. Personnel would be responsible for being aware of and complying with the requirements of those orders; and

- Any wildland fire observed would be reported immediately to the BLM Central Nevada Interagency Dispatch Center at (775) 623-3444.

2.1.3.18 *Measures to be Taken during Temporary, Interim, or Seasonal Closures*

WLC does not anticipate planned extended inactive periods. The rate of mining may vary depending on marketing conditions and contract agreements with the contract mining company. As little as 5,000 tons of clay ore and as much as 18,750 tons of clay ore may be mined from the pits in any given year, depending on demand. The handling and management of the ore-grade clay at the clay stockpile area and associated hauling from the site could occur at any time during a 24-hour day, 365 days per year. Site inspections for BMP maintenance and monitoring would occur regularly.

WLC has prepared an *Interim and Seasonal Closure Plan* in compliance with 43 CFR 3809.401(b)(2)(vi) and submitted it as Appendix H of the Plan of Operations.

Should a temporary, interim, or seasonal closure occur, the following measures would be implemented to maintain site safety and stability. These measures are discussed in greater detail in the *Interim and Seasonal Closure Plan*:

- Security: The Project Area would have appropriate signage at the intersection of SR 293, at the three main access points (as shown on Figure 4), at the fenced office/first-aid trailer, parking, ready line area, and at the two open pit areas;
- Supplies: Most supplies or equipment maintenance products would not remain on-site. Miscellaneous equipment, if remaining on-site, would be stored in the fenced and locked office/first-aid trailer, parking, and ready line area.;
- Contractor Equipment: Contractor equipment would be removed;
- Roads: The main access road would receive maintenance, as necessary;
- Mine Open Pits: Berms around the pits would remain in place, and public access would be restricted;
- Noxious Weed Control: WLC would continue to monitor and control noxious weeds and non-native invasive species in accordance with the *Noxious and Invasive Species Management Plan* included as Appendix B;
- Erosion Control Measures: Stormwater and erosion control structures would be regularly inspected and maintained;
- Buildings and Equipment: The office/first-aid trailer and WLC equipment or support facilities left on-site would be protected from public access, would be kept within the fenced parking and ready-line area, and maintained as necessary; and
- Monitoring and Maintenance: WLC personnel would staff the site as necessary and perform monitoring, security, and necessary maintenance.

No temporary, interim, or seasonal closures of the facility are planned. However, it is possible that, due to mechanical or technical difficulties, unfavorable economic conditions, litigation, or other unforeseen events, mining and/or hauling of clay ore may have to be temporarily closed. Under this scenario, the BLM and NDEP would be notified within 30 days of the temporary closure.

2.1.3.19 *Drill Hole Plugging and Water Well Abandonment*

Mineral exploration and development drill holes subject to NDWR regulations would be abandoned in accordance with applicable rules and regulations (NAC Chapter 534). Boreholes would be sealed to prevent cross contamination between aquifers, and the required shallow seal would be placed to prevent contamination by surface access.

Monitoring and production wells would be abandoned and reclaimed as required by NAC 534. Well abandonment methods would differ based on well hydrologic conditions (e.g. dry, standing water or artesian) and completion methods (e.g. type of casing- polyvinyl chloride or steel, perforated interval, unperforated, etc.).

2.1.3.20 *Post-Reclamation Monitoring and Maintenance*

Post-reclamation monitoring and maintenance would include qualitative monitoring of key stability indicators which may include vegetation, surface erosion, sedimentation, and slope stability parameters. Appropriate maintenance activities would be implemented as needed. Maintenance activities may include one or more of the following:

- Sediment removal from stormwater drainage channels and diversion as necessary to maintain their design capacity;
- The function of temporary erosion control BMPs such as silt fences and straw bales would be maintained. These BMPs would be removed when no longer essential for erosion control;
- Diverting surface water away from reclaimed areas where erosion jeopardizes attainment of reclamation standards;
- Stabilization of rills, gullies, other erosion features or slope failures through placement or riprap, mulch, diversions, and sediment control structures;
- Noxious weed control; and
- Reseeding or re-application of reclamation treatments would occur in areas where determined through monitoring and agency consultation that reclamation has not yet met reclamation standards.

Quantitative reclamation monitoring to measure compliance with the revegetation success criteria would begin during the first growing season after final reclamation has been completed and would continue for a minimum of three years or until the reclamation success criteria are

achieved. Qualitative monitoring of key indicators of site stability would continue, and the reclamation performance management guidelines would apply during this time. The bond release criteria would be applied to the data collected in the third year following reclamation. Revegetation success would be determined based on the BLM and NDEP Nevada guidelines for successful revegetation (NDEP 1998).

2.2 Greater Sage-grouse Protection Alternative

In light of the current efforts to prevent the listing of Greater Sage-grouse as a threatened or endangered species, BLM recognizes the need for an alternative that would incorporate timing restrictions to the Proposed Action. This alternative would be accomplished by modifying the Proposed Action to provide for protection of Greater Sage-grouse during critical periods of their life cycle. The Project Area is within 3.2 miles of five known leks (two active, one pending, one inactive, and one historic). This alternative is developed to reduce impacts to Greater Sage-grouse during the lekking, nesting, and brood rearing seasons resulting from the timing restriction. In a spatial analysis study quantifying sage-grouse seasonal use of habitats surrounding leks, it was found that "…nearly 90 percent of the total volume of utilization distribution (vUD) (all seasons combined) was contained within 5 km of leks" and "Five kilometers also represented the 95th percentile of the distribution of nesting distances". Diminishing gains of habitat usage (for all seasons) was not substantial until distances from the lek exceeded eight kilometers (five miles) (Coates, et. al. 2013).

Based upon the best currently available science, this alternative uses a 3.2-mile radius buffer around leks along with seasonal and daily timing restrictions of activities during the lekking season. The timing restrictions would only allow mining related activities between the hours of 10:00 a.m. and 4:00 p.m. daily, from March 1 through June 30 of each year, for the life of the mine. Implementation of the 3.2-mile buffer alternative would encompass most of the nesting/ brooding habitat that is within the Project Area.

Under this alternative, as many as 28 personnel may be at the site between the hours of 10:00 a.m. and 4:00 p.m. during the seasonal restriction to meet production goals and keep the site operating. Additional equipment would also be required on-site.

Resources outside of wildlife are not expected to be impacted differently than under the Proposed Action; therefore, only wildlife resources are analyzed under this alternative. Previously authorized operations [i.e. the approved *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255)] would be subject to the restrictions stated in that Decision Record and would not be affected by this alternative.

2.3 No Action Alternative

Under the No Action Alternative activities covering the WLC exploration programs authorized under the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur within the 1,490-acre Lithium Exploration Project boundary as shown on Figure 3. Exploration activities include road and drill pad construction, bulk sampling and/or trenching, drilling, and reclamation. Exploration activities are anticipated to occur over a five year period which started during the summer of 2011. Reclamation activities are anticipated to take an additional one year, and revegetation is anticipated to take an additional three years after the time of seeding to achieve success (WLC 2011). To date about 32 acres of the 75 authorized acres have been disturbed (WLC 2013).

2.4 Alternatives Considered But Not Analyzed in Detail

No other alternatives were considered.

2.5 Conformance

The Project Area is subject to the BLM, Winnemucca District Office *Paradise Denio Management Framework Plan*, dated July 9, 1982. Objective M 1.0 of the *Paradise Denio Management Framework Plan* states: "Provide the public the opportunity to acquire minerals from the public lands to meet market demands."

2.6 Relationship to Laws, Regulations, and Other Plans

This EA has been prepared in accordance with the following statutes and implementing regulations, policies, and procedures, and is consistent with other federal agency, state, and local plans to the maximum extent consistent with federal law and FLPMA provisions:

- The NEPA of 1969, as amended (Public Law 91-190, 42 United States Code §4321) (*et seq*.);
- 40 CFR §1500 (*et seq*.). Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act;
- The Council on Environmental Quality's *Considering Cumulative Effects under NEPA* (1997);
- 43 CFR Part 46, Implementation of the National Environmental Policy Act (NEPA of 1969); Final Rule, effective November 14, 2008;
- BLM NEPA Handbook (H-1790 1), as updated (BLM 2008);
- 43 CFR §3809: Surface Management; and
- Humboldt County Regional Master Plan (Humboldt County 2013).

3.0 The Affected Environment

The BLM is required to consider specific elements of the human environment that are subject to requirements specified in statute or regulation or by executive order. The following tables (Table 3-1 and Table 3-2) outline the elements that must be considered in all environmental analyses, as well as additional resources deemed necessary for evaluation by the BLM.

Table 3-1: Supplemental Authority Elements Considered for Analysis

Supplemental Authority Element	Not Present[1]	Present/Not Affected[1]	Present/May Be Affected[2]	Rationale
Air Quality			✓	See chapters 3.1, 4.1, and 4.20.1.
Area of Critical Environmental Concern (ACEC)	✓			The Project Area is not in a designated ACEC. The purpose and need of this EA is not to evaluate the Project Area's potential to be an ACEC. ACECs are nominated during the resource management planning process per 43 CFR 1610.7-2.
Cultural Resources			✓	See chapters 3.2, and 4.2.
Environmental Justice	✓			Based on results of a review of existing baseline data, Environmental Justice concerns were not identified in relation to the Project. Therefore, this element is not addressed further in this EA. The closest minority community is the Fort McDermitt Paiute and Shoshone Indian Reservation. The tribe's concerns are addressed in the Native American Religious Concerns in Chapters 3.5 and 4.5.
Farm Lands (Prime or Unique)	✓			Resource is not present.
Floodplains	✓			Resource is not present.
Invasive, Non-Native Species			✓	See chapters 3.3, 4.3, and 4.20.2.
Migratory Birds			✓	See chapters 3.4, 4.4, and 4.20.3.
Native American Religious Concerns			✓	See chapters 3.5, and 4.5.
Threatened, Endangered Species - Lahontan cutthroat trout		✓		See chapter 3.6 and 4.6.
Wastes, Hazardous and Solid		✓		This resource has been determined as present and unaffected by resource specialists.

Supplemental Authority Element	Not Present[1]	Present/Not Affected[1]	Present/May Be Affected[2]	Rationale
Water Quality (Surface/Ground)			✓	See chapters 3.7, 4.7, and 4.20.7.
Wetlands and Riparian Zones	✓			There is a spring in the Project Area, SP-001. This spring does not consistently support riparian vegetation due to intermittent water flows and other authorized uses.
Wild & Scenic Rivers	✓			Resource is not present.
Wilderness	✓			Resource is not present.

[1] A Supplemental Authority element determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the EA.

[2] A Supplemental Authority element determined to be Present/May Be Affected **must** be carried forward in the EA.

Other elements or resources of the human environment that have been considered for the EA are listed in Table 3-2. The rationale for each element that would not be affected by the Proposed Action or No Action Alternative is listed in the table.

Table 3-2: Additional Resources Considered for Analysis

Other Resources	Not Present[1]	Present/Not Affected[1]	Present/May Be Affected[2]	Rationale
Geology and Minerals			✓	See chapters 3.8 and 4.8.
Land Use Authorization			✓	See chapters 3.9 and 4.9.
Lands With Wilderness Characteristics	✓			The Project Area and its surroundings do not have the characteristics needed to be considered Lands with Wilderness Characteristics.
Noise			✓	See chapters 3.10, 4.10, and 4.20.4.
Paleontological Resources			✓	See chapters 3.11 and 4.11.
Rangeland Management		✓		See chapters 3.12.
Recreation			✓	See chapters 3.13 and 4.12.
Soils			✓	See chapters 3.14, 4.13, and 4.20.5.
Special Status Species			✓	See chapters 3.15, 4.14 and 4.20.3.
Transportation			✓	See chapter 3.16 and 4.15.
Vegetation			✓	See chapters 3.17, 4.16, and 4.20.6.
Visual Resources			✓	See chapters 3.18 and 4.17.

Other Resources	Not Present[1]	Present/Not Affected[1]	Present/May Be Affected[2]	Rationale
Wild Horses and Burros	✓			There are no wild horses, wild burros, or Herd Management Areas for either animal within the Project Area. Resource is not present.
Wildlife			✓	See chapters 3.19, 4.18, and 4.20.3.

[1] Resources or uses determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.

[2] Resources or uses determined to be Present/May Be Affected **must** be carried forward in the document.

The following chapters describe the affected environment for each resource that is present in Project Area and potentially affected by the Proposed Action. This information was derived from data gathered during a field investigation and from interviews and correspondence with the BLM and other federal, state, and local agency resource personnel.

The affected environment, also referred to as the assessment area, is described for each affected resource or element under its respective chapter.

Supplemental Authorities

3.1 Air Quality

3.1.1 Regulatory Framework

The U.S. Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards and the NDEP have set National Ambient Air Quality Standards (NAAQS) and Nevada ambient air quality standards for the following criteria pollutants: nitrogen dioxide, sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter smaller than 10 microns in aerodynamic diameter (PM_{10}), particulate matter smaller than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), ozone, and lead. In addition to the above-listed criteria pollutants, NDEP has established an ambient air quality standard of 0.08 parts per million or 112 micrograms per cubic meter for hydrogen sulfide. The minimum ambient air quality standards for Nevada are provided in NAC 445B.22097, as are the national standards. Table 3-3 presents a summary of the criteria pollutants for Nevada. Attainment is achieved when the existing background concentrations for criteria air pollutants are less than the minimum allowable ambient concentrations defined in the NAAQS. The attainment status, with respect to the NAAQS, of the airshed in which the Proposed Action is located precludes the requirement for an air quality conformity analysis.

Table 3-3: Summary of Criteria Pollutants

Pollutant		Averaging Time	Level[1]
Carbon Monoxide (CO)		8-hour	9 ppm
		1-hour	35 ppm
Lead		Rolling 3 month average	0.15 µg/m^3
Nitrogen Dioxide (NO_2)		1-hour	100 ppb
		Annual	53 ppb
Ozone (O_3)		8-hour	0.075 ppm
Particle Pollution	$PM_{2.5}$	Annual	12 µg/m^3
		Annual	15 µg/m^3
		24-hour	35 µg/m^3
	PM_{10}	24-hour	150 µg/m^3
Sulfur Dioxide (SO_2)		1-hour	75 ppb
		3-hour	0.5 ppm
Hydrogen Sulfide (H_2S)		1-hour	0.08 ppm

Source: EPA 2013a

[1] Levels include: parts per million (ppm); micrograms per cubic meter (µg/m^3); and parts per billion (ppb).

Major sources are defined as sources that emit 100 tons per year of any criteria pollutant, 10 tons per year of any of the toxic air pollutants, or 25 tons per year of a mixture of air toxics. Hazardous air pollutants (HAPs) are defined by the Clean Air Act Amendments of 1990. These pollutants are known or suspected to cause serious health effects. The EPA and BAPC regulate 187 HAPs from specific sources under the National Emissions Standards for Air Pollutants (NESHAPs) program.

Greenhouse gasses as defined by the EPA include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_x), and fluorinated gases (EPA 2013b). Combustion of fossil fuels results in emissions of greenhouse gases. The *Final Mandatory Reporting of Greenhouse Gases Rule* issued by the EPA, as signed on September 22, 2009, requires suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions to submit annual reports to the EPA.

3.1.2 Assessment Area

Activities associated with the Proposed Action would occur in the Quinn River Valley Hydrographic Basin, Orovada Subarea 33A with an area of 404,480 acres. In the state of Nevada, air sheds correspond to hydrographic areas; therefore, the Orovada Subarea 33A is the analysis area for air quality. Figure 6 presents the boundaries of the air shed used in this analysis.

3.1.3 Existing Environment

The Project Area is located in a rural area with minimal industrial sources or potential contribution of emissions to the air shed from vehicle traffic. The Orovada Subarea is in

attainment for all NAAQS and Nevada air quality standards. In addition, the area is not a maintenance area for criteria pollutants.

The Project is located in the north-central portion of the Great Basin, situated in the Basin and Range physiographic province northeast of Thacker Pass, and north of SR 293. Elevations in the Project Area range from approximately 4,830 feet to 5,275 feet above mean sea level (amsl) with an average elevation of approximately 5,040 amsl.

The terrain within the Project Area slopes upward toward the northwest as it approaches the Montana Mountains. The climate and vegetation in the Project Area are typical of the desert environment of the northern Basin and Range Province. The climate is arid with wide fluctuations in seasonal temperatures. Temperatures in the winter are cool with periods of cold weather and an average snowfall of 19.1 inches per year. Summer conditions are typically hot and dry. Average precipitation is approximately 8.42 inches per year, with monthly average precipitation ranging between 0.24 inch in July and 1.19 inches in December. The average maximum and minimum annual temperatures are 64.8 and 32.6 degrees Fahrenheit, respectively (WRCC 2013).

3.2 Cultural Resources

3.2.1 Regulatory Framework

The NHPA of 1966, as amended (NHPA) and the Archaeological Resources Protection Act of 1979 (ARPA) are the primary laws regulating preservation of cultural resources. Federal regulations obligate federal agencies to protect and manage cultural resource properties.

The NHPA sets forth procedures for considering effects to historic properties and supports and encourages the preservation of prehistoric and historic resources. It directs federal agencies to consider the impacts of their actions on historic properties. The NHPA established the Advisory Council on Historic Preservation (ACHP) and tasked the ACHP with administering and participating in the preservation review process established by Section 106. Section 106 of the NHPA, as amended, requires federal agencies to take into account any action that may adversely affect any structure or object that is, or can be, included in the National Register of Historic Places (NRHP). These regulations, codified at 36 CFR 60.4, provide criteria to determine if a site is eligible. Beyond that, the regulations define how those properties or sites are to be dealt with by federal agencies or other involved parties. These regulations apply to all federal undertakings and all cultural (archaeological, cultural, and historic) resources.

The purpose of ARPA is to secure the protection of archaeological resources and sites that are on public lands and Indian lands and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources.

3.2.2 Assessment Area

The assessment area for cultural resources is the Project Area.

3.2.3 Existing Environment

The entire Project Area has been inventoried for cultural resources. These surveys were documented in the following cultural resource reports: CR2-3003(P), CR2-2971(P), and CR2-3157(P). Forty-four recorded cultural resource sites fall partially or completely within the boundaries of the Project Area. Five of these sites, CrNV-02-8594, -02-8595, -02-8615, -02-8645, and -21-5412 (HU2935) have been determined to be contributing elements of the Double H/ Whitehorse Obsidian Procurement Area National Register Eligible District. All other sites within the Project Area have been determined to be non-contributing elements and ineligible for the NRHP.

3.3 Invasive, Non-Native Species

3.3.1 Regulatory Framework

An "invasive species" is defined as a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Invasive, non-native species include plants designated as "noxious" by federal or state law. Within Nevada, noxious weeds are defined in the NRS 555.005 as "any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate". The Nevada Department of Agriculture's Noxious Weed Web site provides a list of all noxious weeds listed for the State of Nevada as of 2013 (State of Nevada Department of Agriculture 2013).

3.3.2 Assessment Area

The assessment area for invasive, non-native species is the Project Area.

3.3.3 Existing Environment

A survey for noxious weeds and invasive, non-native species in the Project Area was performed on July 5 through July 8, 2011 by JBR Environmental Consultants Inc. (JBR). No noxious weeds were observed in the Project Area during the July 2011 survey. Ten invasive, non-native species were observed within the Project Area: hairy whitetop (*Cardaria pubescens*); cheatgrass (*bromus tectorum*); tansy mustard (*Descurainia sp.*); Russian thistle (*Salsola tragus*); dandelion (*Taraxacum officinale*); desert madwort (*Alyssum desertorum*); cross flower (*Chorispora tenella*); prickly lettuce (*Lactuca serriola*); bur buttercup (*Ranunculus testiculatus*); and rough cocklebur (*Xanthium strumarium*). Cheatgrass was the most extensively established invasive species within the survey area and occurred on all aspects of slopes ranging from gentle to steep.

All ten invasive, non-native species tended to occur most regularly in disturbed open areas, along roadsides and other clearings, near springs, and in other similar areas where native vegetation was sparse or previously removed (JBR 2012).

3.4 Migratory Birds

3.4.1 Regulatory Framework

Migratory birds are protected and managed under the MBTA of 1918, as amended (16 United States Code §703 et. seq.), and Executive Order 13186. The MBTA prohibits the killing or taking of migratory birds without a permit and extends protection to nests of migratory birds if the nest contains nesting birds or their eggs. Executive Order 13186 directs federal agencies to promote the conservation of migratory bird populations. Additional direction comes from the BLM Instruction Memorandum (IM) 2008-050 (Migratory Bird Treaty Act – Interim Management Guidance), dated December 18, 2007 (BLM 2007).

3.4.2 Assessment Area

The assessment area for migratory birds includes the Project Area plus a 10-mile radius shown as the "Wildlife Assessment Area" on Figure 7.

3.4.3 Existing Environment

Vegetation within the assessment area is primarily comprised of Inter-Mountain Basins Big Sagebrush Shrubland, Invasive Annual and Biennial Forbland, and Inter-Mountain Basins Cliff and Canyon plant communities and can support a variety of migratory birds. A representative, but not exclusive list of migratory birds which may utilize these habitats can be found in Table 3-4.

Table 3-4: Migratory Birds Which May Utilize Project Area

Common Name	Scientific Name	Common Name	Scientific Name
American Kestrel[1]	*Falco sparverius*	Killdeer	*Charadrius wilsonia*
American Robin	*Turdus migratorius*	Long-eared Owl[1]	*Asio otus*
Bank Swallow	*Riparia riparia*	Merlin	*Falco columbarius*
Barn Owl[1]	*Tito alba*	Northern Harrier[1]	*Circus cyaneus*
Barn Swallow	*Hirundo rustica*	Northern Shrike	*Lanius excubitor*
Black-throated Sparrow	*Amphispiza bileneata*	Prairie Falcon[1]	*Falco mexicanus*
Brewer's Blackbird	*Euphagus cyanocephalus*	Red-tailed hawk[1]	*Buteo jamaicensis*
Brewer's Sparrow[1]	*Spizella breweri*	Rock Wren	*Salpinctes obsoletus*
Canyon Wren	*Catherpes mexicanus*	Rough-legged Hawk[1]	*Buteo lagopus*
Chipping Sparrow	*Spizella passerina*	Ruby-crowned Kinglett	*Regulus calendula*
Cliff Swallow	*Petrochelidon pyrrhonota*	Sage Sparrow	*Amphispiza belli*
Common Nighthawk	*Chordeiles minor*	Sage Thrasher [1]	*Oreoscoptes montanus*

Common Name	Scientific Name	Common Name	Scientific Name
Common Poorwill	*Phalaenoptilus nuttallii*	Say's Phoebe	*Sayornis saya*
Common Raven	*Corvus corax*	Sharp-shinned Hawk[1]	*Accipiter striatus*
Cooper's Hawk[1]	*Accipiter cooperii*	Short-eared Owl[1]	*Asio flanneus*
Ferruginous Hawk[1]	*Buteo regalis*	Spotted Towhee	*Pipilo maculatus*
Golden Eagle[1]	*Aquila chrysaetos*	Swainson's Hawk[1]	*Buteo swainsoni*
Gray Flycatcher	*Epidonax wrightii*	Turkey Vulture	*Cathartes aura*
Green-tailed Towhee	*Pipilo chlorurus*	Vesper Sparrow	*Pooecetes gramineus*
Horned Lark	*Eremophilia alpestris*	Violet-green Swallow	*Tachycineta thalassina*
Lark Sparrow	*Chondestes grammacus*	Western Burrowing Owl[1]	*Athene cunicularia*
Mourning Dove	*Zenaida macroura*	Western Meadowlark	*Sturnella neglecta*
Northern Goshawk	*Accipiter gentilis*	Western Screech Owl[1]	*Megascops kennicottii*
Great Horned Owl	*Bubo virginianus*	Yellow-breasted Chat	*Icteria virens*
Loggerhead Shrike[1]	*Lanius ludovicianus*	Yellow Warbler	*Dendroica dominica*

[1] Special status species, also addressed in Chapter 3.15.
Sources: JBR 2012, NDOW 2011, and NDOW 2013a

Aerial nesting surveys of a four-mile radius around the Project Area were conducted on May 2 and 3, 2011 by the NDOW. These surveys identified a number of raptor nests, both active and inactive, near the Project Area. Raptors are discussed further in Chapter 3.15.

Field surveys for migratory birds were conducted on July 5 through the 8, 2011 within the Kings Valley Lithium Exploration Project boundary shown on Figure 3 (JBR 2012). This survey area encompasses the Project Area plus an additional 694 acres within the assessment area. Migratory birds observed within the Project Area or the assessment area during field surveys are listed in Table 3-5.

Table 3-5: Migratory Birds observed within the Assessment Area

Common Name	Scientific Name	Common Name	Scientific Name
Common Raven	*Corvus corax*	Common Nighthawk	*Chordeiles minor*
Horned Lark	*Eremophila alpestris*	Killdeer	*Charadrius vociferous*
Sage Thrasher[1]	*Oreoscoptes montanus*	Northern Harrier[1]	*Circus cyaneus*
Brewer's Sparrow[1]	*Spizella breweri*	Red-tailed Hawk[1]	*Buteo jamaicensis*
Western Meadowlark	*Sturnella neglecta*	Golden Eagle[1]	*Aquila chrysaetos*
Loggerhead Shrike[1]	*Lanius ludovicianus*	Swainson's Hawk[1]	*Buteo swainsoni*
Barn Swallow	*Hirundo rustica*	American Kestrel[1]	*Falco sparverius*
Cliff Swallow	*Petrochelidon pyrrhonota*	Short-eared Owl[1]	*Asio flammeus*
Vesper Sparrow	*Pooecetes gramineus*	Yellow-breasted Chat	*Icteria virens*
Short-eared Owl[1]	*Asio flammeus*	Turkey Vulture[1]	*Cathartes aura*
Rough-legged Hawk[1]	*Buteo lagopus*	Long-eared Owl[1]	*Asio otus*
Cooper's Hawk[1]	*Accipiter cooperii*	Prairie Falcon[1]	*Falco mexicanus*

[1] Special status species, also addressed in Chapter 3.15. Source: JBR 2012 and NDOW 2013a

The following migratory bird nests were observed during field surveys or were identified during agency consultation (JBR 2012):

- An active Red-tailed Hawk nest with young was observed to the northwest of the Project Area approximately one mile from the nearest Project Area boundary edge. An additional active Red-tailed Hawk located was observed approximately three-quarters of a mile from the southeast corner of the Project Area;
- Two active Golden Eagle nests were observed within the assessment area. One is located approximately three miles to the southwest of the Project Area's southwestern corner while the other is located approximately 1.5 miles to the northwest of the Project Area's northwestern corner;
- Two active Brewer's Sparrow nests were observed to the southeast of the Project Area, one located approximately one half mile from the Project Area's southeast corner and one approximately 1.5 miles away;
- An active Sage Thrasher nest was observed approximately one half mile from the Project Area's southeast corner;
- An active Horned Lark nest was observed to the east-northeast of the Project Area's northeastern corner;
- An active Mourning Dove nest is located approximately one-half mile to the north of the Project Area boundary;
- An active Western Burrowing Owl nest site was observed approximately one mile to the east of the Project Area's eastern edge while an additional inactive nest site was observed approximately three-quarters of a mile to the east of the Project Area's eastern edge;
- An active Prairie Falcon nests was observed approximately four miles to the northwest of the Project Area's northwestern corner; and
- An active Common Raven nest was observed just under one-half mile from the Project Area's southeastern corner. An additional active Common Raven nest was observed approximately four miles to the northwest of the Project Area's northwestern corner.

The Brewer's Sparrow, Sage Thrasher, Loggerhead Shrike, Golden Eagle, and Swainson's Hawk are BLM sensitive species. Additional discussion of these BLM sensitive species is provided below in Chapter 3.15. A separate discussion on raptors is also included in Chapter 3.15.

3.5 Native American Religious Concerns

3.5.1 Regulatory Framework

Numerous laws and regulations require the BLM to consider Native American Religious Concerns. These include the NHPA, the American Indian Religious Freedom Act of 1978, Executive Order 13007 (Indian Sacred Sites), Executive Order 13175 (Consultation and

Coordination with Tribal Governments), the Native American Graves Protection and Repatriation Act, the ARPA, as well as NEPA and the FLPMA. Secretarial Order No. 3317, issued in December 2011, updates, expands and clarifies the Department of Interior's policy on consultation with Native American tribes. The BLM also utilizes H-8120-1(General Procedural Guidance for Native American Consultation) and National Register Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties).

3.5.2 Assessment Area

The assessment area for Native American Religious Concerns is the Project Area.

3.5.3 Existing Environment

The goal of consultation is for the BLM to identify specific traditional/cultural/spiritual sites, activities, and resources important to Native Americans, and limit, reduce, or possibly eliminate any negative impacts. Letters requesting consultation on the Proposed Action were sent to the Fort McDermitt Paiute and Shoshone Tribe and the Summit Lake Paiute Tribe on April 10, 2013.

3.6 Threatened, Endangered Species – Lahontan Cutthroat Trout

3.6.1 Regulatory Framework

In accordance with the Endangered Species Act (ESA), as amended, the BLM in coordination with the United States Fish and Wildlife Service (USFWS) must ensure that any action that they authorize, fund, or carry out would not adversely affect a federally listed threatened or endangered species. In addition, as stated in Special Status Species Management Policy 6840 (6840 Policy) (Rel. 6-125), it also is the BLM's policy "to conserve and/or recover ESA-listed species and the ecosystems on which they depend, so that ESA provisions are no longer needed for these species, and to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA."

The following laws, regulations, guidelines, and/or procedures are applicable to management of the common wildlife resources potentially affected by the Project. The BLM MFPs provide management standards for wildlife habitat and wildlife. BLM field offices monitor habitat condition, and NDOW monitors wildlife populations. Although the *Paradise Denio Management Framework Plan* (BLM 1982) specifically discusses only big game and upland game birds, the BLM manages public land to supply forage, cover, and water for all wildlife species. Trend studies (BLM Manual Supplement-NSO-6630) allow the BLM to adjust and manage habitat toward a desired condition for multiple uses, including for wildlife.

NRS 501.181 directs NDOW and the Wildlife Commission in the protection, propagation, restoration, transplanting, introduction, and management of wildlife in the state.

NAC 504.520 requires NDOW's approval for any activity that may obstruct, damage, diminish, destroy, change, modify or vary the natural shape and form of a stream system or its banks by any type of construction or other activity that is detrimental to the wildlife habitat. Such activity includes channelization, thermal pollution, and diversion.

3.6.2 Assessment Area

The assessment area for threatened or endangered species includes the Project Area plus a 10-mile radius as shown on Figure 7 labeled as the "Wildlife Assessment Area".

3.6.3 Existing Environment

The BLM identified that Lahontan cutthroat trout occur in both Pole Creek and Crowley Creek (JBR 2012). Pole Creek is located approximately two miles outside of the northeast corner of the Project Area and flows west to east. Pole Creek is a tributary of Crowley Creek. In the report titled *Western Lithium Corporation Kings Valley Lithium Project Waters of the U.S. Jurisdictional Determination* (JBR 2011) only one drainage to the southeast of the Project Area was documented to have a surface water connection to Crowley Creek. There are no surface water connections from the Project Area to Pole Creek as shown on Figure 6.

Rock Creek is designated as a Lahontan cutthroat trout recovery stream in the USFWS *Recovery Plan for the Lahontan Cutthroat Trout* (USFWS 1995). It is located approximately four miles from the northeast corner of the Project Area and runs west to east. There are no surface water connections from the Project Area to Rock Creek shown on Figure 6. Other drainage channels that flow east across the Project Area toward Crowley Creek lacked indicators of surface flow including water-borne erosion and deposition (JBR 2011). The U.S. Army Corps of Engineers has approved the jurisdictional determination (USACE 2012).

The drainage with the tributary connection to Crowley Creek is located to the southeast of the Project Area. In years of extreme high flow, Lahontan cutthroat trout may be able to migrate down Pole Creek to Crowley Creek, and then migrate west upstream into this tributary, although this would be unlikely. Since the tributary channel is ephemeral, flowing only in response to precipitation events, the period in which Lahontan cutthroat trout could occupy the tributary is extremely brief, lasting no more than a few days. Lahontan cutthroat trout would likely not find suitable habitat within the tributary as they generally occur in streams with stable banks, perennial flow, rocky to gravelly substrate with riffle pool complexes, and riparian vegetation cover (USFWS 2012).

3.7 Water Quality (Surface/Ground)

3.7.1 Regulatory Framework

The administration, preservation, and appropriation of water resources in Nevada include both state and federal regulations. The NDEP defines waters of the state of Nevada as water courses, waterways, drainage systems, and groundwater. When a proposed project has the potential to directly or indirectly affect the waters of the state, then the State of Nevada is authorized to implement its own permit programs under the provisions of state law or the federal Clean Water Act. The NDEP requires compliance with National Pollution Discharge Elimination System (NPDES) permits related to discharge of wastewater to surface waters from discharge points.

The Nevada Water Pollution Control Law gives the State Environmental Commission authority to require controls on diffuse sources of pollutants, if these sources have the potential to degrade the quality of waters of the state. This same law also provides the state with authority to maintain water quality for public use, agriculture, existing industries, wildlife, and economic development. Nevada has been granted authority by the EPA to enforce drinking water standards established under the Clean Water Act.

The administration and adjudication of water rights within the state is the responsibility of the NDWR, State Engineer's Office. Water appropriations are also obtained through the Nevada State Engineer.

3.7.2 Assessment Area

The assessment area for water resources is the hydrologic study area within which seep and spring surveys have been carried out. The hydrologic study area is shown on Figure 6.

3.7.3 Existing Environment

The Project is located in the Quinn River Basin adjacent to the groundwater and surface water divide between the Kings River Valley and Quinn River Valley hydrographic basins as shown in Figure 6. Springs in and around the Project Area are seasonal and fed by a perched spring system which is directly supported by rainfall and snowmelt. According to recent on-site groundwater and surface water monitoring data, groundwater levels have stayed the same over the past year while spring flow has been seasonal, thus indicating that the springs and regional groundwater are not connected (SWS 2012a).

3.7.3.1 *Surface Water*

Twenty-six springs and seeps were located and documented within the seep and spring hydrologic study area, most recently surveyed on June 11, 2013. The springs, seeps, and hydrologic study area are shown on Figure 6. Surface water in the Project Area is very limited

and generally intermittent. One spring (T44N, R35E, Section 8) with an associated man-made pond is located in the northern portion of the Project Area. A trough is located closer to the highway with an associated pipeline as shown on Figure 8. During a site visit of the Project Area in November 2008, no water was present at either the spring or the trough below.

Three named streams occur near the Project Area: Thacker Creek; Pole Creek; and Crowley Creek. Thacker Creek is a small losing stream that is located approximately two miles to the west of the Project Area. Thacker Creek rapidly discharges into the Kings River Valley through infiltration (Malmberg 1966). Pole Creek is located approximately 1.75 miles to the northeast of the Project Area while Crowley Creek is located approximately 4.5 miles to the east of the Project Area. Pole Creek runs west to east and is a tributary to Crowley Creek. There are no surface water connections from the Project Area to Pole Creek or Crowley Creek. The closest surface connection to Crowley Creek would be a drainage located to the southeast of the Project Area.

Preliminary results from the technical memorandum titled *Preliminary Results for the Western Lithium Corporation Kings Valley Lithium Project Surface Water Evaluation* indicate that the months of January and February generally have the highest flows from run-off from accumulated precipitation. Additionally, data indicates that percolation is highest during these months, representing the highest potential for groundwater recharge (SWS 2011).

Flow measurements were measured at three locations: SP-012, SP-028, and SP-031. Flow measurements were also taken during the second quarter of 2012 at these locations. When comparing data from the same quarter, a year apart, flow drastically increased at SP-012 and SP-028. A slight decrease in flow was observed at SP-031.

One spring, SP-028, was sampled for water quality during the 2013 Survey. The water quality analyses for SP-028 met Nevada Profile II reference values with the exception of arsenic. The arsenic levels were recorded at 0.021 milligrams per liter with a reference value of 0.010 milligrams per liter (SRK 2013a).

3.7.3.2 *Groundwater*

Groundwater flow in the Project Area follows the topography to the south-southeast towards the Quinn River. Hydrologic investigations performed in 2012 identified the presence of perched portions of a bedrock aquifer supported by rainfall and snowmelt. These systems appear to feed seasonal springs which are not connected to the regional groundwater, as groundwater levels, as monitored by site wells, have remained steady (SWS 2012b).

A groundwater monitoring program for baseline conditions associated with the Kings Valley Lithium Exploration Project has been implemented. Six groundwater monitoring wells, WSH-3, WSH-11, WSH-13, WSH-14, PH-1 and PH-2 were installed in 2011 as shown on Figure 3.

These groundwater monitoring wells have static water levels between 31 feet and 345 feet bgs. The closest wells to the proposed pits have average static water levels of: 130 feet bgs for WSH-13; 135 feet bgs for WSH-14; and 172 feet bgs for PH-2 (WSH-17). Baseline groundwater quality results for monitoring wells in the immediate area indicate arsenic, antimony, and fluoride are naturally elevated in groundwater (SWS 2012a).

Additional Affected Resources

3.8 Geology and Minerals

3.8.1 Regulatory Framework

The US Congress established the right to access and develop mineral resources on open lands controlled by the federal government under the 1872 General Mining Law. This law has been amended many times since its passage; however, the underlying right to access and develop minerals has remained in the General Mining Law. Limitations on the development of minerals under the General Mining Law have been established by the US Congress in their passage of the various environmental (i.e. Clean Water Act, Clean Air Act, etc.) and land use (i.e. the FLPMA) laws. The BLM has been charged by the US Congress with the management of activities on public lands under the General Mining Law. The BLM implements this management through regulations at 43 CFR 3809.

The US Congress has passed two laws that established the policy for the development of mineral resources in the United States. These acts are the Mining and Mineral Policy Act of 1970 and the Materials and Minerals Policy Research and Development Act of 1980. Congress declared that the national mineral policy is "...to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, (2) the orderly and economic development of domestic resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security, and environmental needs ...". The 1980 act reiterates these statements from the 1970 act.

3.8.2 Assessment Area

The assessment area for geology and minerals is the Project Area.

3.8.3 Existing Environment

The Project Area is situated at Thacker Pass within the south end of the McDermitt caldera, a well-preserved volcanic feature located in north-central Nevada and southeast Oregon. The caldera stretches for approximately another 25 miles to the north of Thacker Pass, into Oregon and is approximately 15 miles wide. The geology of the lithium and clay deposit at WLC's Stage

1 Lens where the Proposed Action is proposed is dominated by volcanism. The surface area geology is shown on Figure 9.

Based on extensive past research by the U.S. Geological Survey (USGS), volcanic activity at McDermitt spanned the period between 27 and 16 million years ago. It culminated in a 450-square mile structural collapse resulting from a void beneath a large volume of erupted magma. The youngest period of volcanic activity within the McDermitt Caldera, from between 19 and 16 million years ago, generally consisted of explosive eruptions of rhyolitic material which was anomalously high in lithium compared to average rhyolites. Volcanic activity concluded by resurgence of the central part of the caldera, intrusion of rhyolite into the ring fracture zones around the caldera, and formation of a "moat" between the topographic wall of the caldera and the resurgent domes in the center of the caldera. Airborne ash components from these rhyolite eruptions locally accumulated in shallow lakes or swamps within the "moat" which was also concurrently receiving fine sediments derived from adjacent eroding outcrops. The lithium was believed to be introduced into the lake environment by hot springs or hydrothermal leaching of the nearby rhyolitic volcanic rocks. As these lithium enriched waters accumulated in shallow lakes the lithium was selectively bound into clay by cation exchange processes, eventually forming lithium-rich smectite and hectorite clay. Subsequent basin and range faulting and mountain building over the past few million years has uplifted these buried sediments and exposed them at the surface.

The Stage 1 Lens is the southernmost of five district lenses of lithium mineralization within the moat sediments. The surface is gently sloping to the southeast and consists of a thin veneer, 10 to 30 feet thick, of gravelly to cobbly alluvium overlying the lithium-rich moat sediments. Exposures of the moat sedimentary rocks are limited to a few drainages and isolated road cuts; therefore, the stratigraphic sequence in the Project Area is primarily derived from core drilling.

The underlying moat sediments consist of relatively flat lying to gently southerly dipping alternating claystone and ash units. The moat sedimentary section, which has a maximum drilled thickness of about 525 feet, consists of alternating layers of interbedded hectorite claystone and volcanic ash.

Of the rock types cataloged at the site, the variable-colored hectorite clays have been identified as having the best potential for drilling fluid applications and are generally found within 60 feet from surface in the oxidized zone. Clay mining would be limited to the upper oxidized zone at a depth of approximately 60 feet or less.

Exploration drilling has identified structural disturbance common with small- to large-scale normal faulting, some with offsets of as much as 200 vertical feet. The faulting is observed to have cut through both the volcanic basement rocks and the overlying moat sediments.

3.9 Land Use Authorization

3.9.1 Regulatory Framework

Public lands under BLM administration are managed for multiple use under the FLPMA of 1976. The *Paradise Denio Management Framework Plan*, dated July 9, 1982, provides for mineral exploration and development within the Project Area. The BLM surface management regulations, 43 CFR Subpart 3715 – *Use and Occupancy Under the Mining Laws*, address the unlawful use and occupancy of unpatented mining claims for non-mining purposes. The regulation limits such use or occupancy to that which is reasonably incident.

In accordance with FLPMA section 501(a), the BLM is authorized to grant, issue, or renew rights-of-way over, upon, under or through public lands.

The Project Area is zoned M-3 (Open Land Use District) by Humboldt County for open space and provides a wide array of rural land uses, including mineral extraction, under this land use classification. Mining is a principal permitted use within this zoning district. Mining operations must comply with the Humboldt County Zoning Ordinance and obtain a Special Use Permit.

3.9.2 Assessment Area

The assessment area for land use authorization is the Project Area.

3.9.3 Existing Environment

Two ROWs have been granted on public lands that are adjacent to the Project Area. A telephone ROW has been granted to Oregon-Idaho Utilities, Inc. (N-60463) within T44N, R35E sections 8 and 17. A ROW for a power transmission line (N-58382) has been granted to Harney Electric Coop in T44N, R35E Section 17. The only ROW present within the assessment area is N-002773 held by NDOT for SR 293.

3.10 Noise

3.10.1 Regulatory Framework

In response to the Federal Noise Control Act of 1972, the EPA has identified noise levels requisite to protect public health and welfare against hearing loss, annoyance, and activity interference (EPA 1974). The document identifies a 24-hour exposure level of 70 dBA as the level of environmental noise which would prevent measurable hearing loss over a lifetime.

Likewise, levels of 55 dBA outdoors and 45 dBA indoors are identified as preventing activity interference and annoyance. These levels of noise are considered those which will permit spoken conversation and other activities such as sleeping, working and recreation, which are part of the daily human condition. The levels are not single event, or "peak" levels. Instead, they represent

averages of acoustic energy over periods of time such as eight or 24 hours, and over even longer periods (e.g., years). These criteria are for human health and not for wildlife.

The Federal Highway Administration establishes an exterior noise level standard for residential uses of 67 dBA equivalent or energy-averaged sound level (Leq) during peak hours. There are no standards for open or vacant property.

3.10.2 Assessment Area

The assessment area for noise includes the Project Area, the noise modeling sites, and the nearest identified sensitive receptors which include Greater Sage-grouse leks located north of the Project Area, the Youngberg Ranch which is the nearest human-inhabited site located to the northeast, and bighorn sheep habitat areas to the west. The bighorn sheep habitat receptors were chosen in coordination with NDOW (Pirkle 2011). This assessment area covers approximately 8,150 acres as shown on Figure 10.

3.10.3 Existing Environment

The rate at which noise attenuates, or decreases, in outdoor settings is dependent on several factors, including atmospheric conditions, terrain, and the physical distance separating the noise source from the noise receptor. The distance separating a noise source and noise receptor alone would result in some degree of noise attenuation. Generally when noise is emitted from a point source, the noise is attenuated an average of six decibels (dB) each time the separating distance is doubled. Widely distributed noise, such as the proposed mining and exploration operation, would be expected to attenuate at a lower rate (J.C. Brennan & Associates 2012).

Existing noise emissions in the general vicinity of the Project Area include general environmental noises resulting from wildlife and weather as well as noises associated with the approved Lithium Exploration Project. Existing noise emissions also include vehicular traffic in the vicinity of the Project Area and agricultural activity in Kings Valley.

There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the dBA sound level has become the standard tool of environmental noise assessment. To quantify the existing ambient noise environment in the Project vicinity, five continuous hourly noise level monitoring sites were identified as shown on Figure 10. The continuous hourly noise measurements were conducted for a period of five days during November, 2011 by J.C. Brennan & Associates. The results of the noise level monitoring are presented in Table 3-6 and examples of everyday types of noise at various A-weighted sound levels are presented in Table 3-7 for comparison (J.C. Brennan & Associates 2012).

Table 3-6: Ambient Noise Level Monitoring Results

Monitoring Site	Range of Ldn dBA[1]	Daytime			Nighttime		
		Range of Leq dBA[2]	Range of L50 dBA[3]	Range of Lmax dBA[4]	Range of Leq dBA[2]	Range of L50 dBA[3]	Range of Lmax dBA[4]
1	31.7-53.9	29-50	24-38	42-61	24-47	23-38	35-62
2	32.7-47.5	30-37	19-29	46-52	23-42	20-28	32-51
3	41.6-56.8	35-43	29-39	45-55	35-51	29-45	45-63
4	34.3-57.5	29-49	23-41	39-57	28-52	22-47	36-65
5	31.2-40.8	31-39	23-27	46-51	22-33	19-22	38-47

[1]day/night average sound level

[2]Equivalent or energy-averaged sound level

[3]The sound level exceeded 50 percent of the time during the one hour period

[4]The highest root-mean-square sound level over a given period of time

Source: J.C. Brennan & Associates 2012

Table 3-7: Noise Comparison Values

Component	Decibel Level (dBA)
Rock Band	110
Jet Fly-over at 300 meters (1,000 feet)	100
Gas Lawn Mower at 30 meters (100 feet), Vacuum Cleaner at three meters (10 feet)	70
Commercial Area, Heavy Traffic at 90 meters (300 feet)	60
Quiet Urban Daytime, Large Business Office, Dishwasher in Next Room	50
Quiet Urban Nighttime, Theater, Large Conference Room (Background)	40
Quiet Suburban Nighttime, Library	30
Quiet Rural Nighttime, Bedroom at Night	20
Lowest Threshold of Human Hearing	0

Source: J.C. Brennan & Associates 2012

3.11 Paleontological Resources

3.11.1 Regulatory Framework

The BLM manages paleontological resources under a number of federal laws including: FLPMA Sections 310 and 302(b), which direct the BLM to manage public lands to protect the quality of scientific and other values; 43 CFR 8365.1-5, which prohibits the willful disturbance, removal, and destruction of scientific resources or natural objects; 43 CFR 3622, which regulates the amount of petrified wood that can be collected for personal, noncommercial purposes without a permit; and 43 CFR 3809.420 (b)(8), which stipulates that a mining operator "shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on Federal lands." Informational Memorandum (IM) No. 2008-009, effective October 15, 2007, defines the BLM

classification system for paleontological resources on public lands. The descriptions for the classes used in the Potential Fossil Yield Classification (PFYC) system are intended to serve as guidelines rather than strict definitions. Knowledge of the geology and the paleontological potential for individual units or preservational conditions should be considered when determining the appropriate class assignment. In addition, IM No. 2009-011, effective October 10, 2008, provides guidelines for assessing potential impacts to paleontological resources in order to determine mitigation steps for federal actions on public lands under the FLPMA and the NEPA. Together, these two IMs, with the PFYC system, provide guidance for the assessment of potential impacts to paleontological resources, field survey and monitoring procedures, and recommended mitigation measures that protect paleontological resources impacted by federal actions.

3.11.2 Assessment Area

The assessment area for paleontological resources is the Project Area.

3.11.3 Existing Environment

Utilizing the BLM Winnemucca District Office paleontological data base and the Potential Fossil Yield Classification (PFYC) System, the BLM has determined that the project is located in alluvial deposits and falls within a Class 3 area with "Moderate or Unknown" potential. There are no known vertebrate fossils in or near the Project Area.

3.12 Rangeland Management

3.12.1 Regulatory Framework

The BLM is committed by policy and directed by law (the Taylor Grazing Act of 1934, as amended and supplemented, the FLPMA, and the Public Rangeland Improvement Act of 1978) to manage forage on a sustained yield basis and to improve the condition of the public rangelands.

Regulations (43 CFR 1601.05(b) and CFR 4100.08) require the BLM manage livestock grazing on public lands under the principles of multiple use and sustained yield. To accomplish these goals, livestock grazing is permitted on public rangelands within specific administrative areas called allotments. The grazing permits have specific terms and conditions, including livestock numbers and seasons of use, that are managed to attain allotment specific objectives and the Standards for Rangeland Health. Permits are evaluated periodically by the BLM to determine whether management goals are being met.

3.12.2 Assessment Area

The assessment area for rangeland management is the Project Area.

3.12.3 Existing Environment

The BLM manages livestock grazing on over nine million acres of public lands in the Winnemucca District. Today the BLM manages livestock grazing in a manner aimed at achieving and maintaining public land health. To achieve desired conditions, the agency uses rangeland health standards and guidelines that the BLM developed in the 1990's with input from citizen-based Resource Advisory Councils.

The BLM manages livestock grazing in over a hundred allotments throughout the District. An allotment generally consists of public lands, administered by the BLM, but may also include parcels of private lands. These allotments consist of an area of land designated and managed by the BLM where one or more livestock operators are authorized to graze their livestock. The Project Area is located within the Pole Creek Allotment (overlapping approximately 788 acres of the Project Area) and the Kings River Allotment (overlapping approximately eight acres of the Project Area) as shown on Figure 8. The Pole Creek Allotment acreages and AUMs are listed in Table 3-8.

Table 3-8: Allotment Areas and AUMs

Allotment	Pole Creek Allotment	Kings River Allotment
Actual Active AUMS	2,988	12,192
Actual Suspended AUMS	105	0
Public Land (Acres)	34,348	76,969
Private Land (Acres)	154	2,263
Fort McDermitt Reservation (Acres)	0	9
Total Acres	34,502	79,241

Rangeland improvements within the Project Area include a trough and 1,803 feet of pipeline utilized to transfer water to the trough from a spring located south of the Project Area. The trough is located near well WSH-14 in the proposed ore-grade clay stockpile area. The trough is accessed via a dirt road from the south. This trough has not been used for many years. Mitigation measures for rangeland improvements approved based on the *Finding of No Significant Impact, Kings Valley Lithium Exploration Project Environmental Assessment* included avoidance of these rangeland improvements during phased drilling (BLM 2010).

The Proposed Action would not incur changes to rangeland management. This resource has not been carried forward for analysis in this EA.

3.13 Recreation

3.13.1 Regulatory Framework

The BLM manages recreation and travel on public lands in accordance with existing laws, regulations, and policies. Program policy guidance is developed at the national, state and district

office level, and includes regulations, manuals, handbooks, strategic action plans, instruction memorandums, and information bulletins. Public lands under BLM administration are managed for multiple use, including recreation, under the guidance of the *Paradise Denio Management Framework Plan*, dated July 9, 1982.

The FLPMA is the organic act that provides overall legislative direction to the BLM for all its management activities and responsibilities. Title 43 U.S.C. §§1701 (a)(8) (§102(a)(8)): "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use."

The Nevada Statewide Comprehensive Outdoor Recreation Plan defines outdoor recreation, conservation, and open space needs for the state and provides a comprehensive description of statewide recreational issues and strategies to guide federal, local, and private recreation suppliers.

The Board of Wildlife Commissioners has the authority under NRS 501.181 to establish hunting seasons and quotas for big game animals such as mule deer, antelope, and bighorn sheep as well as game birds such as chuckar and Greater Sage-grouse.

3.13.2 Assessment Area

The assessment area for recreation is the Project Area.

3.13.3 Existing Environment

Recreational use in the Project Area is relatively low compared with other areas in the Winnemucca District, with the majority of visitors likely being residents of Humboldt and Pershing counties. While OHV use is permissible in some areas, recreation is generally limited to dispersed recreation activities or organized commercial events.

Dispersed recreation activities in the Project Area may include but are not limited to OHV use, camping, hunting, sightseeing, pleasure driving, rock and mineral collecting, photography, and hiking. No special recreation permits are known to occur within the Project Area.

3.14 Soils

3.14.1 Regulatory Framework

BLM regulations for surface management of public lands mined under the General Mining Law of 1872 (30 USC §22 et seq.) are provided in 43 CFR 3809. Specifically, 43 CFR 3809.1-3(d)

requires mining-related activities to minimize impacts to soil resources. Guidance for reclamation is provided in BLM Handbook H-3042-1 (1992).

NAC 445A.350 - NAC 445A.447 (Mining Facilities) and NAC 519A.010 - NAC 519A.415 (Regulation of Mining Operations) were developed to implement the requirements of the NRS 445A.300 - NRS 445A.730 (Water Pollution Control) and NRS 519A.010 - NRS 519A.290 (Reclamation of Land Subject to Mining Operations). The purpose of these statutes are in part to ensure that the lands disturbed by mining operations are reclaimed to safe and stable conditions, which includes soil conservation through erosion control.

A Stormwater Pollution Prevention Plan (SWPPP) is required for Project development and is implemented by the NDEP through the Nevada storm water National Pollution Discharge Elimination System (NPDES) permit program with appropriate erosion control features designed to meet BMPs)and Natural Resource Conservation Service (NRCS) performance standards (NRCS 1992).

3.14.2 Assessment Area

The assessment area for soils is the Project Area.

3.14.3 Existing Environment

Soils in the Project Area have been mapped by the NRCS (NRCS 2002). According to the NRCS, the Dewar-Dacker association (soil map unit 1312) is the only soil association occurring within the Project Area as shown on Figure 11.

Soil associations typically consist of up to three major soils and some minor soils or miscellaneous areas. Each major soil type (soil series) present in the soil map unit listed above is described in detail below.

Dacker Series

The Dacker series consists of well-drained, very fine sandy loam and clay loam over gravelly loam, with an indurated layer that occurs at approximately 14 to 20 inches bgs. The Dacker soils formed in alluvium derived from mixed rocks, loess, and volcanic ash. Dacker soils occur on the backslopes of fan remnants in the Project Area. Slopes range from four to 15 percent.

Dewar Series

The Dewar series consists of well-drained, very fine sandy loam and gravelly clay loam over an indurated layer at about 14 to 20 inches. These soils formed in mixed alluvium. Dewar soils occur on the summits of fan remnants in the Project Area. Slopes range from zero to two percent.

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that considerably impede the movement of water and air through the soil or

restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The NRCS web soil survey provides depth ratings for each map unit and lists the Dewar-Dacker soil association restrictive layer as 1.3 feet bgs (NRCS 2011).

3.15 Special Status Species

3.15.1 Regulatory Framework

Special status species include species listed or proposed for listing under the ESA as threatened or endangered, proposed species, candidate species, and species included on the BLM's sensitive species list for Nevada (NV-2003-097). Candidate species are those species or subspecies (i.e., taxa) that may warrant listing as threatened or endangered; there is sufficient information on biological vulnerability and threat(s) to support a rule to list these species as threatened or endangered, but the issuance of a proposed rule to list is precluded by higher listing priorities. Proposed species are taxa for which a proposal to list the species as threatened or endangered has been published in the Federal Register.

Sensitive species are taxa that are not already included as BLM special status species under (1) federally listed, proposed, or candidate species or (2) State of Nevada listed species. The BLM policy in the BLM manual 6840.06 states, "Actions authorized by the BLM shall further the conservation and/or recovery of federally listed species and conservation of Bureau sensitive species. Bureau sensitive species would be managed consistent with species and habitat management objective in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the Endangered Species Act of 1971, as amended under the ESA."

The BLM affords these species the same level of protection as federal candidate species. The BLM's policy for sensitive species is to avoid authorizing actions that would contribute to listing a species as threatened or endangered.

Raptor species are protected by state and federal laws. In addition, Bald Eagle, Western Burrowing Owl, California Spotted Owl, Ferruginous Hawk, Flammulated Owl, Golden Eagle, Northern Goshawk, Peregrine Falcon, Prairie Falcon, and Short-eared Owl are NDOW species of special concern and are target species for conservation as outlined by the Nevada Wildlife Action Plan (NDOW 2013a).

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-688d). The Bald and Golden Eagle Protection Act prohibits the taking or possession of and commerce in Bald and Golden Eagles, parts, feathers, nests, or eggs with limited exceptions. The definition of "take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. "Disturb" means to agitate or bother a Bald or Golden

Eagle to a degree that causes, or is likely to cause, based on the best scientific information available:

- Injury to an eagle;
- A decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or
- Nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

This definition also covers impacts that may result due to human activities to or around a nesting site during times when eagles are not present, if when the eagles return, the alterations or activities interrupt their normal breeding, feeding, sheltering, or cause death, or nest abandonment (USFWS 2010).

3.15.1.1 *Greater Sage-Grouse Regulatory Framework*

Sagebrush landscapes have changed dramatically over the last two centuries leading to lost, fragmented, or altered Greater Sage-grouse habitat and a reduction in Greater Sage-grouse populations of approximately one-half of their pre-European settlement distribution (Schroeder et al. 2004). In 2010 the USFWS found that listing of the Greater Sage-grouse under the ESA was warranted but precluded by higher priority listing actions (75 FR 13909). A litigation settlement requires that a listing decision be made by the USFWS by September, 2015 (NTT 2011).

A notice of intent was filed with the Federal Register in December of 2011 to prepare an EIS to incorporate Greater Sage-grouse conservation measures into land use plans and land management plans. Preparation of these plans and associated EIS are currently ongoing under two regions; the Proposed Action would fall under the Great Basin Region. The approved objectives and conservation measures are anticipated to be incorporated into applicable resource management plans by the end of 2014 (BLM 2013a).

Federal agencies have responded to these events by publishing a series of studies, strategies, and guidance documents to support the process and decisions to be made. In 2011, the BLM published the *National Greater Sage-grouse Planning Strategy*. This report represents a planning framework and process to incorporate Greater Sage-grouse conservation measures into land use plans, and specifically for the BLM, into resource management plans. In addition, the report sets goals and objectives, assembles guidance and resource materials, and provides comprehensive management direction for BLM contributions to the ongoing multi-state Greater Sage-grouse conservation effort. The following principles are incorporated for protecting and managing Greater Sage-grouse habitat (BLM 2011a):

- Protection of unfragmented habitats;

- Minimization of habitat loss and fragmentation; and
- Management of habitats to maintain, enhance, or restore conditions that meet Greater Sage-grouse life history needs.

To provide guidance to field offices about how to promote the *National Greater Sage-grouse Planning Strategy* principles, the BLM prepared IM 2012-043 which outlines interim conservation policies and procedures to be implemented while long-term conservation measures are being developed. IM 2012-043 outlines separate interim conservation policies and procedures for the different habitat categorization. IM NV-2012-058 incorporates the mapping of PPH and PGH as mapped in the Greater Sage-grouse Preliminary Habitat Map for PPH and PGH delineations (BLM 2012a and 2012b). Because the Proposed Action falls entirely within PGH, the following policies and procedures would be applicable according to IM 2012-043 to reduce direct, indirect, and cumulative adverse effects on Greater Sage-grouse and its habitat (BLM 2011c):

- When approving uses and authorizations consider and analyze management measures that would reduce direct, indirect, and cumulative adverse effects on Greater Sage-grouse and its habitat. For example, consider alternatives that would increase buffer distances around active leks and timing restrictions to further reduce adverse effects on Greater Sage-grouse and its habitat;
- Consider deferring authorizations in PGH where appropriate, depending on local characteristics, new science and/or data [e.g., migratory corridors or habitat between PPH], and relative habitat importance if authorizations could result in Greater Sage-grouse population loss in PPH;
- Consider offsite mitigation measures in collaboration with state wildlife agencies and project proponents when authorizing activities; and
- Evaluate and address anticipated fence collision risks within 1.25 miles of leks and other seasonal habitats. Where NEPA analysis suggests that a deviation from this distance is warranted, modifications of this distance are acceptable.

In 2011, the BLM also convened the Greater Sage-grouse National Technical Team (NTT) which brought together resource specialists and scientists from the BLM, State Fish and Wildlife Agencies, the USFWS, the NRCS, and the USGS. The NTT developed a series of science-based conservation measures to be considered and analyzed through the land use planning process. They are presented in *A Report on National Greater Sage-grouse Conservation Measures* (NTT 2011). The BLM then prepared IM 2012-044 to provide direction on how to consider these conservation measures in the land use planning process (BLM 2011c).

In response to publishing of the *National Greater Sage-grouse Planning Strategy* and *A Report on National Greater Sage-grouse Conservation Measures*, the USGS prepared their own report,

Summary of Science, Activities, Programs, and Policies That Influence the Rangewide Conservation of Greater Sage-grouse (Centrocercus urophasianus): Open-File Report 2013-1098. This report is designed to inform and advance large-area, regional conservation efforts by consolidating information about Greater Sage-grouse populations and habitats at the rangewide and regional scales. This document is meant to bridge between large-area efforts and regional and local management efforts by providing spatial and information context (USGS 2013).

The USFWS also convened a conservation objective team and prepared a recommendation regarding threats to be reduced or ameliorated including objectives to this end. Their report, *Greater Sage-grouse (Centrocercus urophasianus) Conservation Objectives: Final Report* delineates conservation objectives based on scientific and commercial data available at the time. The report is to be used to guide other federal agencies in their creation of regional and local management efforts (USFWS 2013).

The NDOW and BLM define PGH as areas of relatively intact sagebrush communities which provide certain habitat requirements for Greater Sage-grouse. PGH comprises areas of occupied seasonal or year-round habitat outside of priority habitat. PPH are areas offering the highest quality Greater Sage-grouse habitat based on bird density, lek location, community composition, intactness or other variables. PPH comprises areas that have been identified as having the highest conservation value to maintain sustainable Greater Sage-grouse populations (BLM 2011b).

In the context of the NDOW Greater Sage-grouse Habitat Categorization Map, PPH consists of a combination of essential and irreplaceable (Category 1) and important (Category 2) habitats while PGH consists of habitats of moderate importance (Category 3) as well as areas which lack sufficient bird and inventory data to support habitat ranking. The Project Area falls completely within PGH habitat while PPH habitat occurs to the north as shown on Figure 7 (BLM 2012b).

In March 2012, Nevada Governor Sandoval issued Executive Order 2012-09, which established the Governor's Greater Sage-grouse Advisory Committee with a directive to provide an updated strategy and recommend an approach for Greater Sage-grouse conservation in Nevada. The recommendations by the Governor's Greater Sage-grouse Advisory Committee are intended to both guide state level action as well as serve as the basis for the BLM to develop an alternative in the resource management planning process for Nevada that would ensure the conservation of Greater Sage-grouse and avoid the need to list the species. According to the Governor's Greater Sage-grouse Advisory Committee's *Strategic Plan for Conservation of Greater Sage-grouse in Nevada*, dated July 31, 2012, the report does not identify or designate the Project Area as a Nevada Sage-Grouse Management Area (Governor Sandoval's Greater Sage-grouse Advisory Committee 2012).

On August 21, 2013 *Memorandum of Understanding Regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse Habitat* was signed

between the BLM, Humboldt-Toiyabe National Forest, the Nevada Department of Conservation and Natural Resources, and members of the Nevada Mining Association to provide a consultation process for proposed mining projects occurring in Greater Sage-grouse PPH and PGH habitats on federal lands. WLC is signatory to this MOU (BLM 2013b).

Under the MOU the parties have agreed to support and implement appropriate monitoring and mitigation for mining related activities in PPH and PGH habitats on federal lands, with goals for project development including (BLM 2013b):

- Avoidance and minimization of Greater Sage-grouse habitat disturbance where practicable, recognizing existing mineral rights and authorizations;
- Offsetting, or mitigation where avoidance is not practicable; and
- Establishment of Greater Sage-grouse mitigation banks(s).

The MOU states that the determination of effects requiring restoration, mitigation, and offsetting shall be accomplished through site specific analysis and/or addressed in a NEPA compliant document (BLM 2013b). In determining these requirements the agencies shall consider recommendations of an evaluation committee consisting of representatives of the project, the concerned agency, and the State Sage-Grouse Technical Team.

3.15.2 Assessment Area

The assessment area for special status species includes the Project Area plus a 10-mile radius as shown on Figure 12. This area encompasses approximately 231,000 acres and is labeled the "Wildlife Assessment Area".

3.15.3 Existing Environment

3.15.3.1 *Special Status Plant Species*

The Nevada Natural Heritage Program (NNHP) did not identify known occurrences of special status plant species in the Project Area (NNHP 2011 and 2013). Likewise, the USFWS identified no known occurrences or potential habitat within the Project Area for any special status plant species (USFWS 2011). Agency response letters are included in Appendix D of this EA.

During field surveys performed on the Project Area from July 5 through July 8, 2011, no special status species, including BLM special status plant species or state-protected cacti, were observed (JBR 2012 and SRK 2013b).

3.15.3.2 *Special Status Wildlife Species*

The BLM's 2011 Winnemucca District sensitive species list was used to identify sensitive wildlife species potentially occurring in the Project Area. NDOW, NNHP, and USFWS were also queried to assist in the identification of special status species potentially occurring in the

Project Area (NNHP 2011, NNHP 2013, USFWS 2011, NDOW 2011, and NDOW 2013a). Agency query responses are included as Appendix D. Special status species with the potential to occur in the Project Area are listed in Table 3-9.

Table 3-9: Special Status Species with the Potential to Occur in the Project Area

Common Name	Scientific Name	Common Name	Scientific Name
big brown bat	*Eptesicus fuscus*	long-legged myotis	*Myotis volans*
bighorn sheep	*Ovis canadensis*	Long-eared Owl	*Asio otus*
Brazailian (Mexican) free-tailed bat	*Tadarida braziliensis*	Prairie Falcon	*Falco mexicanus*
Brewer's Sparrow	*Spizella breweri*	Red-tailed Hawk	*Buteo jamaicensis*
California myotis	*Myotis californicus*	Rough-legged Hawk	*Buteo lagopus*
Cooper's Hawk	*Accipiter cooperii*	pallid bat	*Antrozous pallidus*
Ferruginous Hawk	*Buteo regalis*	pygmy rabbit	*Brachylagus idahoensis*
fringed myotis	*Myotis thysanodes*	Sage Thrasher	*Oreoscoptes montanus*
Golden Eagle	*Aquila chrysaetos*	Short-eared Owl	*Asio flammeus*
Greater Sage-grouse	*Centrocercus urophasianus*	silver-haired bat	*Lasionycteris noctivagans*
hoary bat	*Lasiurus cinereus*	spotted bat	*Euderma maculatum*
little brown myotis	*Myotis lucifugus*	Swainson's Hawk	*Buteo swainsoni*
Loggerhead Shrike	*Lanius ludovicianus*	Townsend's big-eared bat	*Corynorhinus townsendii*
long-eared myotis	*Myotis evotis*	Turkey Vulture	*Cathartes aura*
Northern Harrier	*Circus cyaneus*	Western Burrowing Owl	*Athene cunicularia*
American Kestrel	*Falco sparverius*	western pipistrelle	*Parastrellus* (formerly *Pipistrellus*) *hesperus*
Yuma myotis	*Myotis yumanensis*	western small-footed myotis	*Myotis ciliolabrum*
Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*		

An insect species appearing on the BLM's sensitive species list occurs in dune and deep sand habitats near the Project Area. The bleached sandhill skipper (*Polites sabuleti sinemaculata*) has been found in saltgrass near Denio. Habitat for this species was not found in the Project Area (JBR 2012).

Field surveys for special status species were conducted on July 5 through the 8, 2011 within the Kings Valley Lithium Exploration Project boundary shown on Figure 3 (JBR 2012). This survey area encompasses the Project Area plus an additional 694 acres within the 10-mile assessment area. Special status species observed within the Project Area or the surveyed portions of the assessment area during field surveys or as noted during agency consultation are listed in Table 3-10.

Table 3-10: Special Status Species Observed During Project Area Surveys or Noted in Agency Consultation

Common Name	Scientific Name	Common Name	Scientific Name
Brewer's Sparrow[1]	*Spizella breweri*	Prairie Falcon	*Falco mexicanus*
Cooper's Hawk	*Accipiter cooperii*	Red-tailed Hawk	*Buteo jamaicensis*
Golden Eagle	*Aquila chrysaetos*	Rough-legged Hawk	*Buteo lagopus*
Greater Sage-grouse	*Centrocercus urophasianus*	Sage Thrasher[1]	*Oreoscoptes montanus*
hoary bat	*Lasiurus cinereus*	Short-eared Owl	*Asio flammeus*
little brown myotis	*Myotis lucifugus*	Swainson's Hawk	*Buteo swainsoni*
Loggerhead Shrike[1]	*Lanius ludovicianus*	Townsend's big-eared bat	*Corynorhinus townsendii*
long-eared myotis	*Myotis evotis*	Turkey Vulture	*Cathartes aura*
Northern Harrier	*Circus cyaneus*	Western Burrowing Owl	*Athene cunicularia*
long-eared myotis	*Myotis evotis*	western small-footed myotis	*Myotis ciliolabrum*
Long-eared Owl	*Asio otus*		

[1] Species observed within the Project Area.

Source: JBR 2012 and NDOW 2013a

Surveys were performed in July, 2011 for wildlife and no threatened or endangered species were observed in the Project Area (JBR 2012). Potential habitat for the Lahontan cutthroat trout is located within the assessment area. This species is discussed in greater detail in Section 3.6.

Greater Sage-Grouse

Greater Sage-grouse are wide-ranging and occupy upland, meadows, and riparian habitats. This species is highly dependent on the presence of big sagebrush and low sagebrush (*Artemisia arbuscula*). Greater Sage-grouse nest at mid-elevation habitats that support adequate shrubby and herbaceous plant cover. Nesting habitats are typically associated with big sagebrush and low sagebrush habitat complexes. During the winter months, Greater Sage-grouse forage almost exclusively on either big sagebrush or low sagebrush, depending on severity of snowfall and on the migratory habits of populations (Connelly et al. 2000).

The BLM manages Greater Sage-grouse habitats in discreet areas called population management units (PMUs). The Project Area is within the Lone Willow PMU, which encompasses approximately 480,107 acres within northern Nevada.

Greater Sage-Grouse Habitat Within and Near the Project Area

In a letter dated December 6, 2011, the NDOW indicated Greater Sage-grouse seasonal distributions occurring within the Project Area (see Appendix D). Greater Sage-grouse summer distribution exists outside of the Project Area in the Montana Mountains to the north and Double H Mountains to the south. Winter distribution exists throughout the entire Project Area. The NDOW identified Greater Sage-grouse nesting/brooding habitat in the northern one-third of the

Project Area and in the Montana Mountains to the north as well as the Double H Mountains to the south on the south side of Thacker Pass. The NDOW maps also identified core breeding habitat in sagebrush communities throughout the Project Area (NDOW 2011) and to the north and south of the Project Area. According to the NDOW Greater Sage-grouse Habitat Categorization Map, the Project Area is within Category 3 habitat – Habitat of Moderate Importance, as shown on Figure 7. Category 3 habitats are those that are not meeting their full potential due to any number of factors but which serve some benefit to Greater Sage-grouse populations. These habitats can serve as nesting, brood rearing, winter or transitional habitat, but are marginal. For the short term, these habitats may only be of limited value on a seasonal basis but could serve additional long-term values if certain habitat components (most importantly sagebrush) return to the site. Lands to the north of the Project Area, within the Montana Mountains, are designated as Category 1 Habitat – Essential/Irreplaceable Habitat and Category 2 Habitat – Important Habitat. Lands to the south of the Project Area, in the Double H Mountains, are designated as Category 5 Habitat – Unsuitable (NDOW 2012).

The area north of the Project Area is classified as PPH. The Project Area (796 acres) and land east, west, and a portion of the land south of the Project Area are classified as PGH. Although not classified as PPH or PGH, the land further south of the Project Area provides winter and nesting/brooding habitat. Habitat categories occurring throughout the assessment area are summarized in Table 3-11 and BLM habitat categories area shown on Figure 7.

Table 3-11: Greater Sage-grouse Habitat within the 10-Mile Assessment Area

NDOW Habitat Category	Acres	BLM Habitat Category	Acres
Category 1	39,177	PPH	63,410
Category 2	24,233		
Category 3	16,152	PGH	16,152
Category 4	7,317	-	-
Category 5	22,920	-	-
N/A	124	-	-

The NDOW data indicates that the Project Area is within 3.2 miles of five known leks (two active, one pending, one inactive, and one historic), and within four miles of eight leks (three active, three pending, one inactive, and one historic) (NDOW 2013a). Of the 93 known leks within the PMU, 34 known leks are within the 10-mile assessment area.

The entire Project Area lies within the Lone Willow Greater Sage-grouse PMU. During the late summer of 2012, the Holloway wildfire consumed approximately 183,000 acres of PPH and PGH in the Lone Willow PMU. This fire included approximately 950 acres of PPH and PGH within the 10-mile assessment area. Whereas the Holloway Fire consumed sage-grouse habitat north and west of the Project Area, approximately 5,950 additional acres of PPH and PGH were

burned in the Long Canyon fire to the northeast. These fires have fragmented contiguous, intact habitat. The vastness of the fragmentation creates an impediment for Greater Sage-grouse to migrate into other areas where suitable habitat may be available.

Due primarily to the fire and drought conditions, estimated lek attendance in the Lone Willow PMU has decreased 83 percent since 2012 (NDOW 2013c). The five-year population trend for the Lone Willow PMU has shown a decrease of approximately 75 percent. The importance of the sagebrush habitat surrounding the boundaries of these fires is markedly increased; protection of this remaining habitat is of critical importance to Greater Sage-grouse. Loss of prime habitat from these fires has resulted in increased competition for limited resources for those Greater Sage-grouse that survived.

Greater Sage-Grouse Surveys Within and Near the Project Area

WLC commissioned Greater Sage-grouse surveys in the area beginning in 2008. Results of these surveys are documented in the following reports and are summarized below:

- Enviroscientists. 2010. *Memorandum Results for the Kings Valley Lithium Amended Plan of Operations Biological Survey, Humboldt County, Nevada*. Prepared for the BLM. November 16, 2010; and
- JBR. 2012. *Baseline Biological Survey Report, Western Lithium Corporation, Kings Valley Lithium Project, Humboldt County, Nevada.* July 9, 2012.

Recent studies have addressed Greater Sage-grouse and Gunnison Sage-grouse lek minimum habitat requirements and distances from anthropogenic stimuli and disturbance in which Greater Sage-grouse breeding and nesting activities occur (NTT 2011, Coates, et. al., 2013, and Aldridge et al. 2000). These studies can be used to establish a buffer area around Greater Sage-grouse leks for management and decision purposes. In a recent study comparing active and historic lek sites, sagebrush and anthropogenic features within 3.1 miles (five kilometers) of a lek were the primary variables affecting lek activity. The study found that 99 percent of active leks are located in landscapes that were less than three percent developed, and no active leks included in their study occurred in areas where more than 14 percent of the surrounding area within a 3.1-mile radius (five kilometers) was developed (Knick et al. 2013). Another study concluded that 90 percent of Greater Sage-grouse surface use designations fall within a minimum area of 3.1 miles (five kilometers) to active leks for non-migratory populations (Coates et al. 2013).

The NDOW biologist identified the presence of 19 Greater Sage-grouse at one of the leks located north of the Project Area on April 13, 2013 (NDOW 2013b).

Raptors

The Project Area provides foraging habitat for a variety of raptor species. Due to the lack of trees in the immediate Project Area, nesting habitat for some raptor species is limited. However, areas

to the north and north-west of the Project Area provide cliffs, rocky outcrops, and other geological features that are conducive to nesting. Table 3-9 lists special status species including raptor species having the potential to occur in the assessment area and Table 3-10 lists special status species including raptor species observed within the Project Area or assessment area.

The Project Area and a four-mile buffer around the area were searched for raptor nests during a May 2011 aerial survey performed by the NDOW and during the July, 2011 field survey performed by JBR. The Project Area was searched for nesting Western Burrowing Owls by walking multiple transects across potential habitat (JBR 2012). The following raptor nests were observed during field surveys or were identified during agency consultation (JBR 2012):

- An active Red-tailed Hawk nest with young was observed to the northwest of the Project Area approximately one mile from the nearest Project Area boundary edge. An additional active Red-tailed Hawk located was observed approximately three-quarters of a mile from the southeast corner of the Project Area;
- Two active golden Eagle nests were observed within the assessment area. One is located approximately three miles to the southwest of the Project Area's southwestern corner while the other is located approximately 1.5 miles to the northwest of the Project Area's northwestern corner;
- An active Western Burrowing Owl nest site was observed approximately one mile to the east of the Project Area's eastern edge while an additional inactive nest site was observed approximately three-quarters of a mile to the east of the Project Area's eastern edge; and
- An active Prairie Falcon nests was observed approximately four miles to the northwest of the Project Area's northwestern corner.

In addition to these nests, whitewash, potentially indicative of a raptor nesting territory, was noted on cliffs in upper Rock Creek, approximately 4.2 miles north of the Project Area's northern boundary. An adult eagle was observed flying over Crowley Creek, approximately four miles northeast of the Project Area. Areas of whitewash were also noted at four locations in an area of steep, rocky canyons on the eastern flank of the Double H Mountains, approximately four miles south of the Project Area (JBR 2012). The NDOW indicates there are 13 known raptor nests within a 10-mile radius of the project area (NDOW 2013a).

Special Status Passerines

Several Loggerhead Shrikes, a BLM sensitive species, were observed in the Project Area. Loggerhead Shrikes typically nest in large shrubs or small trees. The BLM sensitive species, Sage Thrashers and Brewer's Sparrows, were also observed in the Project Area. The Sage Thrashers were frequently observed in sagebrush habitat, and the Brewer's Sparrows were recorded with some frequency in taller shrubs in the Project Area. The following passerine nests were observed during field surveys (JBR 2012):

- Two active Brewer's Sparrow nests were observed to the southeast of the Project Area, one located approximately one half mile from the Project Area's southeast corner and one approximately 1.5 miles away;
- An active Sage Thrasher nest was observed approximately one half mile from the Project Area's southeast corner; and

Bats

The Project Area and surrounding landscape provide foraging habitat and possibly temporary resting/roosting habitat for bats. There are numerous outcrops, fissures, and other rock features which could potentially provide seasonal roosting, hibernation, or maternity colony habitat close to the northern and western boundaries of the Project Area. There is also one adit believed to be located close to the Project Area; however, its existence has not been identified in the baseline surveys or during record searches and its exact location is not known.

Limited acoustic bat surveys were conducted at three stock ponds and one other location around the Project Area to assess foraging activity of bats at these sites. One of these survey sites was located within the Project Area. Surveys were conducted for two nights at each of these four locations. The rock features, canyons, and adit to the west and northwest boundaries of the Project Area were not surveyed. Three BLM sensitive bat species were detected. Because of the brevity of the survey effort, more individuals and species other than those identified likely utilize the survey area for foraging and potentially resting/roosting.

Bighorn Sheep

The NDOW identifies bighorn sheep year-round habitat to the north, south, and west of the Project Area as shown on Figure 18. Additionally, there is a bighorn sheep migration corridor near the Project Area. No bighorn sheep were observed in or near the Project Area during the July surveys (JBR 2012). Approximately 58,570 acres of year-round bighorn sheep habitat exists within the assessment area as shown on Figure 18.

Pygmy Rabbit

Potential pygmy rabbit habitat occurs in a drainage to the southeast of the Project Area; no potential pygmy rabbit habitat occurs within the Project Area. During surveys performed in July, 2011, areas of potential pygmy rabbit habitat to the southeast of the Project Area were walked in a series of closely spaced transects and searched for evidence of pygmy rabbit occupancy (e.g., burrows, small pellets, tracks, runways, the rabbits themselves). One older (gray-colored) group of small pellets was found. Additional searching of the area did not locate additional potential pygmy rabbit pellets. No burrows were found, and no pygmy rabbits were observed (JBR 2012).

Springsnails

Many Great Basin populations of springsnails have become isolated with the drying conditions that followed the close of the Pleistocene. Some of these isolated populations have differentiated to form endemic species.

The NNHP identified two springs west of the Project Area as sites where the Kings River pyrg (*Pyrgulopsis imperialis*) are known to occur. While not on the 2011 BLM sensitive species list, this springsnail has only been reported from the two spring sites by the NNHP (Hershler 1998). These two springs, including the spring in the Project Area, were surveyed in July, 2011 for the presence of springsnails. No springsnails and little potential springsnail habitat were found at the spring and stock ponds in the Project Area. Water supplying most of these sites is piped from off-site water sources. Springsnails were not found at any of the off-site sources surveyed, including the two identified by the NNHP as sites of documented springsnails occurrence (JBR 2012).

3.16 Transportation

3.16.1 Regulatory Framework

The NDOT is responsible for the planning, construction, operation and maintenance of highways and bridges which make up the state highway system. In fulfilling these responsibilities, NDOT has in place a resource document entitled *Access Management System and Standards*. It states, "The purpose of these standards is to regulate access onto state highways in order to protect the health, safety and welfare of the public, to maintain the highway rights-of-way, and to preserve the functional level of state highways while meeting the needs of the motoring public" (NDOT 1999). A Permit for Occupancy of NDOT ROWs is required for access onto any street, road or highway that is in the state highway system, whether for a temporary event, permanent utility, or other development work. An encroachment permit must be approved by and obtained from NDOT prior to the commencement of any type of work within a state ROW.

3.16.2 Assessment Area

The assessment area for transportation includes the Project Area, the length of SR 293 between the mine access road intersection and the intersection with US Highway 95, and US Highway 95 between automated traffic recorder (ATR) stations 0132120 to the north and 0130194 to the south as shown on Figure 13.

3.16.3 Existing Environment

The majority of the traffic on SR-293 is associated with agriculture. Between 2002 and 2012, annual average daily traffic for US Highway 95, at a location that is 0.2 miles north of the SR-

293 intersection (ATR station 0132120), ranged from 1,400 to 1,600 vehicles per day. In 2012, July and August had the highest traffic volumes, with the maximum average daily traffic in July being 1,858 vehicles per day (NDOT 2012a). A summary of annual average traffic from ATR stations within the transportation assessment area are shown in Table 3-12.

Table 3-12: Annual Average Daily Traffic

ATR Station	Location Description	Vehicles Per Day (2012)
0132120[1]	US Highway 95 0.2 miles north of SR-293 intersection	1,400
0130194[2]	US Highway 95 1.5 miles north of SR-140 intersection	1,700
0130111[2]	SR 293 0.1 miles west of US Highway 95 intersection	400
0130118[2]	SR 293 four miles west of the US Highway 95 intersection	200

[1]Source: NDOT 2012a

[2]Source: NDOT 2012b

3.17 Vegetation

3.17.1 Regulatory Framework

The FLPMA, Public Rangelands Improvement Act of 1978 (PRIA), 43 CFR 4180, and the NDEP BMRR revegetation standards provide the direction, goals, and objectives for vegetation management and reclamation success in the Project Area.

Attachment B - Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest Service presents the requirements for successful revegetation for public and private land.

3.17.2 Assessment Area

The assessment area for vegetation is the Project Area.

3.17.3 Existing Environment

The Project Area is located within the Intermountain Region, Great Basin Division, Lake Section floristic zone (Cronquist et. al. 1972). Portions of the Project Area have been affected by a wildland fire which burned the Project Area and surrounding areas as shown on Figure 14. In the fall of 1963, the Project Area was part of the Thacker Pass seeding project (BLM Project No. N2-R-235); the Thacker Pass seeding project used a combination of crested wheatgrass (*Agropyron cristatum*) and yellow sweetclover (*Melilotus officinalis*) and covered an extensive area including all of T44N, R35E, sections 9 to 11 and 14 to 17, and portions of sections 2, 3, 8, 13, and 20 to 24.

Vegetation within the Project Area has been categorized into two primary vegetation communities: Inter-Mountain Basins Big Sagebrush Steppe and Invasive Annual Grassland

(USGS 2007; NDOW 2006). Of these vegetation communities, Inter-Mountain Basins Big Sagebrush Steppe habitat dominates the assessment area for vegetation resources. A small area of the Cold Perennial Springs/Springbrooks vegetation was also identified within the Project Area shown on Figure 15. Vegetation surveys were performed from July 5 through July 8, 2011. During these surveys no special status plant species, including BLM special status plant species, were observed. Additionally, no potential habitat was found for special status species that are known to occur in the region (JBR 2012).

The Inter-Mountain Basins Big Sagebrush Steppe vegetation community is comprised primarily of Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*) on the fan remnants, hills, and summits. Scattered yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and rubber rabbitbrush (*Ericameria nauseosa*) occur throughout this vegetation community and dominate the drainages. Scattered shrubs including shadscale (*Atriplex confertifolia*), spiny hopsage (*Grayia spinosa*), big greasewood (*Sarcobatus vermiculatus*), and littleleaf horsebrush (*Tetradymia glabrata*) occur throughout this community. The understory of this vegetation community is comprised of several perennial grasses and forbs. Sandberg bluegrass (*Poa secunda*) is the dominant perennial grass throughout this community, and the steeper slopes are dominated by bluebunch wheatgrass (*Pseudoroegneria spicata ssp. spicata*). Dominant forbs within this community include silvery lupine (*Lupinus argenteus*), spreading phlox (*Phlox diffusa*), royal penstemon (*Penstemon speciosus*), and milkvetch (*Astragalus sp.*). Total average perennial vegetation cover throughout this community is approximately 25 percent (JBR 2012).

The Project Area contains a key habitat as described in the Nevada Wildlife Action Plan as exotic grasslands and forblands. Three non-native ecological systems are included in this key habitat: range seedings predominantly consisting of crested wheatgrass or intermediate wheatgrass (*Thinopyrum intermedium*) (Invasive Perennial Grassland); cheatgrass (*Bromus tectorum*)-dominated sites (Invasive Annual Grassland); and lowland burned sites dominated by Russian thistle (*Salsola tragus*), halogeton (*Halogeton glomeratus*), and tansy mustard (Invasive Annual and Biennial Forbland) (NDOW 2006). Conditions in some of the Project Area resemble the Invasive Annual Grassland non-native ecological system. Total average perennial vegetation cover throughout this community is approximately 8.8 percent (JBR 2012).

The Cold Perennial Springs/Springbrooks vegetation community is comprised of less than 0.5 acre within the Project Area and is associated with water sources as shown on Figure 15. Vegetation within the Cold Perennial Springs/Springbrook areas includes shrubs such as coyote willow (*Salix exigua*). Grasses observed within this vegetation community include shortawn foxtail (*Alopecurus aequalis*), rye brome (*Bromus secalinus*), annual hairgrass (*Deschampsia danthonioides*), pale spikerush (*Eleocharis macrostachya*), foxtail barley (*Hordeum jubatum*), Baltic rush (*Juncus balticus*), toad rush (*Juncus bufonius*), awl-leaf lilaea (*Lilaea scilloides*), and tall fescue (*Schedonorus phoenix*). Forbs observed in this community include western marsh

cudweed (*Gnaphalium palustre*), vernal water sandwort (*Callitriche palustris*), water mudwort (*Limosella aquatica*), common monkeyflower (*Mimulus guttatus*), stalked popcornflower (*Plagiobothrys stipitatus*), white water crowfoot (*Ranunculus aquatilis*), cursed buttercup (*Ranunculus sceleratus*), water speedwell (*Veronica anagallis-aquatica*), and hairy pursland speedwell (*Veronica peregrina* var. *xalapensis*) (JBR 2012).

3.18 Visual Resources

3.18.1 Regulatory Framework

Scenic quality is a measure of the visual appeal of a parcel of land. Section 102(a)(8) of FLPMA placed an emphasis on the protection of the quality of scenic resources on public lands. Section 101(b) of the NEPA of 1969 required that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans.

To ensure that these objectives are met, the BLM devised the VRM System. The VRM system provides a means to identify visual values, establish objectives for managing these values, and provide information to evaluate the visual effects of proposed projects. The inventory of visual values combines evaluations of scenic quality, sensitivity levels, and distance zones to establish visual resource inventory classes, which are "informational in nature and provide the basis for considering visual values in the land use planning process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities" (BLM 1986).

VRM classes are typically assigned to public land units through the use of the visual resource inventory classes in the BLM's land use planning process. One of four VRM classes is assigned to each unit of public land.

The National Park Service (NPS) defines a dark night sky as an "environment that is undisturbed by light and air pollution" with "natural, cultural, and scenic importance" (NPS 2009). Wildlife species depend on dark skies for hunting, protection, navigation, and reproduction. Plants rely on dark skies to maintain a natural life cycle. Dark skies are also scenic resources, providing a natural lightscape experience for public viewing. Light pollution, primarily caused by artificial light sources, can negatively impact resources (NPS 2009).There are no federal or State of Nevada regulations or guidelines concerning the management of dark skies.

3.18.2 Assessment Area

The assessment area for visual resources is the Project Area.

3.18.3 Existing Environment

The Project Area is located in the northern Great Basin section of the Basin and Range physiographic province. The Great Basin is defined by a rhythmic pattern of isolated mountain ranges and broad basins. Clear skies and broad, open vistas characterize this landscape. Locally, the Project Area is characterized by the gently sloping highlands of Thacker Pass sweeping up to the north toward the Montana Mountains. The Double H Mountains extend south from the Project Area, which looks east over the Quinn River Valley. Looking west, through Thacker Pass, the Project Area also provides glimpses of the Kings River Valley.

The Project Area is located within a BLM VRM Class IV VRM category. The objective for this class is to provide for management activities that allow major modifications to the existing character of the landscape. The level of change to the landscape characteristics can be high. Activities in a Class IV category 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 landscape elements.

The Project Area is located on Thacker Pass between Kings River Valley and Quinn River Valley. Lights from surrounding ranches in both valleys are visible from the Project Area (Clark, 2013).

3.19 Wildlife

3.19.1 Regulatory Framework

Section 102.8 of the FLPMA states that the policy of the United States is to manage public land in a manner that protects the quality of multiple resources and provides food and habitat for fish, wildlife, and domestic animals. The Public Rangelands Improvement Act of 1978 directs the BLM to improve rangeland conditions with due consideration given the needs of wildlife and their habitats. Wildlife must also have a reasonable amount of protection from adverse impacts associated with human disturbances and most human activities. This is especially true during breeding seasons and when wildlife use winter ranges.

Wildlife and fish resources and their habitat on public lands are managed cooperatively by the BLM and NDOW under an MOU as established in 1971. The MOU describes the BLM's commitment to manage wildlife and fisheries resource habitat, and NDOW's role in managing populations. The BLM meets its obligations by managing public lands to protect and enhance food, shelter, and breeding areas for wild animals. The NDOW assures healthy wildlife numbers through a variety of management tools including wildlife and fisheries stocking programs, hunting and fishing regulations, land purchases for wildlife management, cooperative enhancement projects, and other activities.

The NDOW administers state wildlife management and protection programs as set forth in NRS Chapter 501, Wildlife Administration and Enforcement, and NAC Chapter 503, Hunting, Fishing and Trapping; Miscellaneous Protective Measures. NRS 501.110 defines the various categories of wildlife in Nevada, including protected categories. NAC 503.010, 503.080, 503.110, and 503.140 list the wildlife species currently placed in the state's various legal categories, including protected species, game species, and pest species.

3.19.2 Assessment Area

The assessment area for wildlife includes the Project Area plus a 10-mile radius labeled on Figure 12 as "Wildlife Assessment Area". This area encompasses approximately 231,000 acres.

3.19.3 Existing Environment

The habitats within the assessment area can support numerous wildlife species. No formal surveys for mammals, insects, and reptiles were conducted. Due to the brevity of other surveys conducted, the opportunity to observe other wildlife species was minimal.

Mammals detected in the Project Area during a survey performed in July, 2011 included black-tailed jackrabbits (*Lepus californicus*) and a single golden-mantled ground squirrel (*Spermophilus lateralis*). An apparently active coyote (*Canis latrans*) den and two kit fox (*Vulpes macrotis*) dens were also identified (JBR 2012).

Birds observed in the vicinity of the Project Area but not addressed in previous chapters are California quail (*Calipepla californica*) and chukar (*Alectoris chukar*). Reptiles observed in the area included western fence lizards (*Sceloporus occidentalis*) and a gopher snake (*Pituophis melanoleucus*) found near Thacker Creek, west of the Project Area. Amphibians found during the survey included an adult Pacific chorus frog (*Pseudacris regilla*) found on Thacker Creek. Pacific chorus frog tadpoles were found in stock ponds to the northeast of the Project Area (JBR 2012).

The NDOW identifies the entire Project Area as being within occupied pronghorn antelope winter habitat, with the southern half of the Project Area as being within a pronghorn antelope movement corridor as shown on Figure 16. Pronghorn habitats within the assessment area are summarized in Table 3-13. During a survey performed in July, 2011, no pronghorn antelope were observed in the Project Area. A doe mule deer was observed in buffaloberry (*Shepherdia sp.*) and willow (*Salix sp.*) habitat west of the Project Area near springs in Thacker Canyon, and several old mule deer pellet groups were found in the rocky hills east of Thacker Creek (JBR 2012).

Table 3-13: Pronghorn Habitat within the Assessment Area

Pronghorn Habitat Category	Acres
Low-density	57,956
Summer	53,007
Winter	71,988
Year-round	17,820
Migration Corridors	24,931
Agricultural	32,153

The NDOW maps year-round mule deer habitat as occurring in the Montana Mountains and Double H Mountains north and south of the Project Area. Additionally, the NDOW area biologist has identified the Project Area as being within winter habitat (NDOW 2013b). Mule deer habitat categories within the assessment area are summarized in Table 3-14 and are shown on Figure 17.

Table 3-14: Mule Deer Habitat within Assessment Area

Mule Deer Habitat Category	Acres
Agricultural	22,541
Crucial Winter	6,789
Summer Range	7,032
Year-round	123,880

4.0 Direct and Indirect Impacts

The following sections describe the direct and indirect environmental consequences which would result from implementation of the Proposed Action, the Greater Sage-grouse Protection Alternative, and the No Action Alternative. The existing conditions for each resource below can be found in Chapter 3.

4.1 Air Quality

4.1.1 Proposed Action

Criteria Pollutants

The Proposed Action has the potential to disturb approximately 99 acres of undisturbed land (approximately 12.4 percent of the Project Area). The total Project-related disturbance would be 109.9 acres. Surface disturbances would increase fugitive particulate dust entrainment in the vicinity of the Project for the duration of the Project. The construction of the proposed roads, pits, WRDAs, stockpiles, and other disturbance would create fugitive dust emissions in the form of PM_{10} and $PM_{2.5}$ that would have a potential impact on air quality. Additionally, fugitive dust in the form of PM_{10} and $PM_{2.5}$ would be caused by the operation of equipment listed in Table 2-

3. Appendix E presents the calculations used to determine fugitive emissions. Table 4-1 summarizes the emissions in tons per year that would result from the Proposed Action.

Table 4-1: Summary of Total Estimated Fugitive and Combustion Emissions Per Year

Equipment	Total Tons/Year of Pollutant				
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO
Cone Crusher and Screen	0.12	0.02	-	-	-
Crusher Generator	0.09	0.09	0.001	1.61	1.99
Diesel Generator First Aid Trailer	0.12	0.12	0.001	1.37	0.79
Mobile Machinery - Diesel	4.87	4.87	0.06	81.83	98.46
Mobile Machinery - Gasoline	0.007	0.007	0.001	0.06	0.45
Total	5.20	5.10	0.06	84.87	101.70

Source: Air Sciences 2013

In order to minimize the potential air quality impacts resulting from fugitive dust emissions, WLC would implement the environmental protection measures described in Chapter 2.1.3.1. These protection measures include dust abatement initiatives such as watering access roads to minimize localized increases in particulate matter concentrations and limiting vehicle and equipment speeds on Project roads. The proposed access road would have an asphalt apron to reduce fugitive dust emissions and trackout caused by travel on unpaved roads. Additionally, because the total disturbance area would exceed five acres, WLC would be required to obtain a Surface Area Disturbance Permit from the BAPC.

The permit would require WLC to follow the *Fugitive Dust Control Plan* included, as Appendix C, that lists best practical methods for control of fugitive emissions. The *Fugitive Dust Control Plan* in combination with environmental protection measures would reduce air quality impacts resulting from fugitive dust emissions. Reclamation of proposed surface disturbance would gradually eliminate fugitive dust from wind erosion. Approximately 29.5 acres of open pit would remain unreclaimed and a potential source for airborne dust. However, due to the high moisture content of the clay ore, dust from these locations would be minimal.

With consideration for the proposed environmental protection measures including implementation of the Dust Control Plan, the 20-year mine life, reclamation, and the relatively small size of the Project with an otherwise mostly vegetated landscape, impacts from dust are considered to be negligible. Dust emissions which are not controlled on-site through road watering and other dust abatement techniques, would not be of sufficient quantity to measurably alter airshed quality.

Greenhouse Gases and Combustion Emissions

Combustion emissions would result from operation of internal combustion engines that power equipment and vehicles used to construct and operate the Proposed Action. Vehicle emissions in

the form of nitrous oxides (NO_x), SO_2, and CO would occur any time the internal combustion engines are operating. However, vehicle emissions are regulated by the EPA and are controlled by specific design requirements when the vehicle is manufactured. The primary emission sources during construction of Project facilities would be from operation of mobile equipment described in Table 2-3 and stationery generators. Diesel generators would be used through construction and operation of the Proposed Action. These pieces of equipment would also generate combustion emissions that would have a potential impact on air quality. Exploration and mining under the Proposed Action would be implemented over the next 20 years; therefore, emissions could occur for the duration of this period when the mine is active. Table 4-1 summarizes the NO_x, SO_2, and CO emissions that would result from operation of Project-related equipment powered by internal combustion engines. Appendix E presents the calculations used to determine combustion emissions.

Combustion emissions are anticipated to be dispersed within close proximity to the Project Area due to wind and relatively minimal concentrations of pollutants as demonstrated in Table 4-1. Additionally, vehicles would be operated along various roadways within the Project Area and varying operational times through any period; thus concentrated emissions are not likely. Along with natural wind dispersion, the environmental protection measures described in Chapter 2.1.3.1 would be implemented to minimize the effects of combustion emissions on existing air quality. These measures would require idling of engines be limited to 15 minutes; equipment idling for periods longer than 15 minutes would be turned off. This practice would reduce the overall time that NO_x, SO_2, and CO are produced by combustive processes. Given the low background concentrations of criteria pollutants in the Project Area and the limited emissions from combustion associated with the proposed equipment and vehicles, implementation of the Proposed Action is not anticipated to result in emissions in excess of any of the federal or state air quality standards. Combustion emissions resulting from implementation of the Proposed Action would be anticipated to be minimal over the life of the Project as demonstrated in Table 4-1.

Hazardous Air Pollutants

An analysis was performed to determine potential impacts to downwind areas from wind-blown stockpiled clay product and waste rock by comparing the multi-element analyses of clay and waste rock to the native soils and average elemental crustal abundance. Samples were sent to a Nevada-certified laboratory for multi-element analysis using the ME-MS61m procedure (four-acid digest with analysis by mass spectrometry) to determine total metal, metalloid and cation chemistry for 48 elements. This method involves the near-complete digestion of a solid sample into solution using multiple strong acids. The solution is then analyzed for chemical composition using inductively-coupled plasma/mass spectrometry. This analysis includes determination of

major elements (e.g. calcium, magnesium, sodium, potassium, iron, sulfur) as well as trace elements (e.g. zinc, copper, cadmium, and lead).

In addition to the samples of clay product and soils collected above, multi-element data from waste rock associated with the Kings Valley Clay Project was included in the evaluation. Multi-element data is available for waste rock as summarized in the report prepared by SRK Consulting (U.S.), Inc. (SRK 2013c) that describes the Kings Valley Clay Pit Project waste rock characterization program.

The results from the multi-element analysis were compared to the geochemical signatures of the clay and waste rock to the nearby soils to determine the relative differences in elemental composition. The multi-element analysis results were also sent to Air Sciences Inc. to estimate the potential hazardous particulate emissions from the stockpiles and the WRDAs. Air Sciences Inc. estimated the total particulate emissions from the clay product and waste rock material unloading at the ore-grade clay stockpiles and WRDAs as well as total particulate emissions from wind erosion of the ore-grade clay stockpiles and WRDAs using AP-42 emission factors. Once the total particulate emissions were estimated, hazardous air emissions were calculated (in terms of pounds per year) as a percent of the particulate emissions using the elemental concentrations for the clay and waste rock samples.

Table 4-2 shows the comparison of concentrations of HAPs, as defined by the Clean Air Act Amendments of 1990, in nearby soils, clay ore samples, and waste rock samples. The difference between the results is minor, and since WLC would control fugitive dust per the described environmental protection measures, impacts are not expected.

Table 4-2: Comparison of Hazardous Air Pollutants in Soils, Clay Ore, and Waste Rock

Element	HAP Concentration in Local Soils[1] (ppm)	Standard Deviation for Local Soils (ppm)	HAP Concentration in Clay Ore[2] (ppm)	Standard Deviation for Clay Ore (ppm)	HAP Concentration in Waste Rock[2] (ppm)	Standard Deviation for Waste Rock (ppm)	Emissions from Storage Piles (pound/year)
Arsenic	12.12	4.55	7.53	2.84	67.48	101.27	0.17
Beryllium	2.31	0.14	8.35	0.83	4.74	3.15	0.01
Cadmium	0.34	0.07	0.27	0.11	0.38	0.19	0.001
Cobalt	11.13	1.81	3.83	0.95	11.00	10.51	0.03
Chromium	35.50	2.32	5.33	1.86	11.92	11.69	0.03
Mercury	0.05	0.02	0.21	0.12	0.05[3]	0.02	0.0002
Manganese	710.90	176.26	420.83	104.24	664.17	173.18	1.78
Nickel	18.67	1.64	3.68	1.06	20.55	26.21	0.05
Phosphorus	730.00	212.76	283.33	153.97	730.00[3]	212.76	1.89
Lead	19.97	1.93	7.65	1.99	11.95	5.24	0.03
Antimony	2.78	0.72	3.99	1.51	14.56	9.43	0.04
Selenium	1.00	0.00	1.00	0.00	1.97	0.55	0.01

Source: Air Sciences 2013

[1] Weight fractions determined from the average of 10 soil samples taken in the Project Area.

[2] Weight fractions determined from six clay ore samples and six waste rock samples.

[3] Information not available from waste rock samples; the concentration was determined from nearby soil samples.

The clay and waste rock multi-element results were compared with the soil multi-element results to assess whether or not the windblown material would result in potential impacts to downwind resources. In general, the elemental soils concentrations were similar to or greater than the concentration of elements found in the clay ore and waste rock. The calculated particulate emissions from the storage piles were under one pound per year with the exception of manganese which was 1.78 pounds per year.

Because the difference in the elemental concentrations of the clay ore, waste rock, and surrounding soils are so similar, the Project would have minimal projected emissions, and with the distance to most surface water resources, impacts to water from windblown material are expected to be minimal.

4.1.2 Greater Sage-grouse Protection Alternative

Impacts to air quality under this alternative would be the same as under the Proposed Action. The proposed activities would still take place but would occur within certain seasonal and diurnal time frames. Since the workforce and equipment would be doubled to maintain production rates, the impacts would remain the same.

4.1.3 No Action Alternative

Under the No Action alternative impacts to air resources related to exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255), ranching, and other land uses in the area would continue to occur together with natural events such as fire. The Kings Valley Lithium Exploration Project is authorized to disturb up to 75 acres within its Project boundary and approximately 32 acres are disturbed. Exploration activities would continue until approximately 2016. Travel on dirt access roads and drilling within the Kings Valley Lithium Exploration Project boundary would create fugitive dust and vehicle emissions which have an impact on PM_{10}, SO_2, NO_X, CO, and volatile organic compound air quality standards. Fugitive dust is caused by the operation of the following equipment: two drill rigs; one water truck; mud mixing pump; one booster truck; one pipe truck; one auxiliary air compressor; and all terrain pick-up trucks. Vehicle emissions can occur anytime the internal combustion engines on the vehicles are operating (BLM 2010).

4.2 Cultural Resources

4.2.1 Proposed Action

Under the Proposed Action, WLC would avoid contributing elements of the NRHP-eligible Double H/Whitehorse Obsidian Procurement District. All identified contributing elements would be avoided utilizing a buffer zone of 100 feet. If unidentified cultural resources are encountered

they would be avoided as described in Chapter 2.1.3.3. As there would be no disturbance of cultural resource sites, no impacts to cultural resources are anticipated.

4.2.2 Greater Sage-grouse Protection Alternative

Impacts to cultural resources under this alternative would be the same as under the Proposed Action.

4.2.3 No Action Alternative

No impacts to cultural resources are anticipated under the No Action Alternative. Currently, about 32 acres are disturbed and 75 acres are authorized within the Kings Valley Lithium Exploration Project boundary. Potential impacts to contributing elements of the NRHP-eligible Double H/Whitehorse Obsidian Procurement District and other NRHP-eligible sites would be handled according to environmental protection measures authorized for the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255). *Kings Valley Lithium Exploration Project Plan of Operations* requires that contributing elements to the Double H/Whitehorse Obsidian Procurement District be avoided by a buffer zone of 100 feet unless mitigated through a data recovery plan approved by the BLM in consultation with the SHPO (BLM 2010).

4.3 Invasive, Non-Native Species

4.3.1 Proposed Action

Land clearing and the removal of native established vegetation creates opportunities for the establishment of pioneering invasive, non-native, and noxious weed species if the seeds of those species are allowed to spread onto the disturbed land. The Proposed Action involves the removal of approximately 99 acres of undisturbed vegetation and has the potential to increase the spread of invasive, non-native species that are known to occur in disturbed open areas, along roadsides, and near a spring within the Project Area. Noxious weeds and additional invasive non-native species could also be introduced to disturbed areas within the Project Area by un-cleaned construction equipment brought to the Project Area from infested areas or by the use of seed mixtures or mulching materials containing weed seeds.

WLC would implement the environmental protection measures described in Chapter 2.1.3.10, which includes monitoring for and control of species listed on the Nevada Designated Noxious Weeds List (NRS 555.010) according to the site *Noxious and Invasive Species Management Plan* included as Appendix B of this EA. With implementation of these measures and reclamation of disturbances as described in Chapter 2.1.3.10, it is anticipated that the transportation of weed seeds to the site from implementation of the Proposed Action would be limited and that the establishment of weeds on disturbed areas would be minimized and controlled. Although

noxious species may temporarily become established on disturbed areas, the potential for establishment would be diminished through reclamation and an intensive weed control program.

4.3.2 Greater Sage-grouse Protection Alternative

Impacts to invasive and non-native species under this alternative would be the same as under the Proposed Action. The proposed land disturbances would still take place but would occur within certain seasonal and diurnal time frames.

4.3.3 No Action Alternative

Existing roads would remain open to public travel, and exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue. New surface disturbance from the Kings Valley Lithium Exploration Project would increase the potential for the spread and establishment of noxious weeds, invasive, and non-native species (BLM 2010). The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and has the potential to disturb 75 acres within its boundary.

Travel and exploration activities may create potential for vehicles to disperse noxious weeds and invasive, non-native species. Impacts from invasive and non-native species as a result of the No Action Alternative would be similar to, but proportionally less than the Proposed Action.

4.4 Migratory Birds

4.4.1 Proposed Action

In addition to the 10.9 previously disturbed acres, 99 acres of migratory bird habitat would be lost as a result of the Proposed Action. Approximately 29.5 acres of habitat would be permanently lost due to the pits being un-reclaimed.

Habitat loss, increased human presence, artificial lighting, and noise due to immediate mining activities could displace migratory birds or affect their stress levels and behavior (Kempenaers et. al. 2010 and Schroeder, Nakagawa, Cleasby, and Burke 2012). Although several species of migratory birds can adapt somewhat to human disturbances, it is probable, due to the predicted noise levels and duration (which could occur at any hour of the day or night and for all days of each year), that utilization of the nesting and foraging resources in the entire Project Area and beyond could be prohibitive to the majority of migratory bird species typically found in this habitat.

4.4.1.1 *Noise*

Impacts of anthropogenic noise on migratory birds (particularly passerines) can subject birds to physiological stress and cause behavioral changes resulting in decreased fitness of individuals and decreased populations of a species. Vocalization is an extremely important component of

avian biology and ecology (Schroeder, Nakagawa, Cleasby, and Burke 2012 and Blickley and Patricelli 2010). Because the predicted noise levels (J.C. Brennen & Associates 2013) could mask or alter vocalizations (communication) of migratory birds in and beyond the Project Area, any of the following impacts, either singly or in combination, could be expected.

- Abandonment of portions of the Project Area and an undetermined area outside of the Project Area;
- Decreased mate selection and breeding opportunities;
- Decreased foraging/hunting success;
- Decreased reproductive success and chick health; and
- Increased predation risks.

4.4.1.2 *Artificial Lighting*

Artificial lighting would only be used during activities conducted at night. Environmental protection measures to reduce impacts related to lighting would be taken by WLC as described in Section 2.1.3.2.

Artificial lighting during natural periods of darkness could also alter migratory bird behavior. During breeding season, courtship vocalizations begin earlier than pre-dawn. The implications of this are not fully understood at this time. Lighting could also deter birds from nesting in the area even if resources are available. Artificial lighting itself contributes to an increase in predation risks from terrestrial species, and light plants create perches for diurnal and nocturnal predatory avian species.

4.4.1.3 *Fencing*

Barbed-wire fences installed around the pits would be fitted with flagging to deter avian species collisions as described in Section 2.1.3.12. Collisions may still occur. Fencing of the facilities and pit area could be both beneficial and detrimental by providing perching opportunities for both migratory birds and avian predators.

4.4.1.4 *Ground Clearing*

The environmental protection measures outlined in Chapter 2.1.3.11 would lessen impacts from ground clearing to migratory bird nests, eggs, and young during the designated breeding season of March 1 through August 31. Increased disturbance from human activity and noise could make vegetated areas within the Project Area and beyond unsuitable for nesting and foraging for the duration of the mine life. Removal of vegetation would result in nesting and foraging habitat loss, thus decreased reproductive success and increasing competition for these resources in the areas birds are displaced to. Decreased fitness and increased mortality of individuals could result

in avian population declines as a whole, with less competitive species being particularly impacted.

Long-term impacts from lost nesting and foraging habitat could contribute to decreased populations of migratory birds in this area. Post-reclamation surface contouring and successful establishment of vegetation to the applicable standards would eventually restore suitable migratory bird foraging and nesting habitat, but due to the longevity of the mine life, it is uncertain if successful reclamation would be timely enough to avert the declining population trends and changes in species competition in this area.

4.4.2 Greater Sage-grouse Protection Alternative

Implementation of the Greater Sage-grouse Protection Alternative would restrict all operations from occurring between the hours of 4:00 p.m. and 10:00 a.m., March 1 through June 30 of each year, for the life of the mine. Because the seasonal restrictions in this alternative overlap a portion of the migratory nesting season (March 1 through August 30) in this area, impacts due to noise disturbance and human presence to migratory bird reproduction could be lessened. The reduction in mining activity disturbances may be beneficial to migratory birds by allowing early season nesting opportunities and better communication (vocalizations) between breeding pairs and nestlings and parents. Impacts from noise, human presence, and mining activities would still occur between the hours of 10:00 a.m. and 4:00 p.m. when mining activities are allowed, but not to the extent that would be created by the Proposed Action. The full scope of impacts disclosed under the Proposed Action would be in effect after June 30th, but the Greater Sage-grouse Protection Alternative may allow at least some nesting success. Impacts to migratory birds due to ground-clearing activities under this alternative would be the same as those disclosed under the Proposed Action.

4.4.3 No Action Alternative

Under the No Action Alternative, permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur, which would result in the loss of migratory bird habitat and disturbance to these species resulting from increased human presence and noise. The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and has the potential to temporarily disturb up to 75 acres within its project area. Migratory birds foraging in the Kings Valley Lithium Exploration project boundary during exploration activities likely leave the immediate area, resulting in a temporary spatial redistribution of individuals or habitat-use patterns. Such redistribution would not have a long-term effect because undisturbed and suitable habitat exists around the area. No long-term impacts are likely to occur because reclamation and reestablishment of vegetation would take place within three years of the Kings Valley Lithium Exploration completion which is anticipated to occur in 2016 (BLM 2010). Impacts to migratory

birds as a result of the No Action Alternative would be temporary in nature and less detrimental than the Proposed Action.

4.5 Native American Religious Concerns

4.5.1 Proposed Action

Consultation meetings on the Proposed Action were held with the Ft. McDermitt Paiute and Shoshone tribe on April 15, 2013 and the Summit Lake Paiute Tribe on April 20 and May 18, 2013. The Fort McDermitt tribe asked: 1) why the monitoring wells are in the area, and how often they are monitored; 2) would there be any impact to the springs and 3) would the project go below the water table? The Summit Lake Paiute Tribe felt the project was outside their immediate area of interest and wanted to use their time and resources to comment on projects closer to their reservation.

Responses to Fort McDermitt Tribe questions are as follows:

1. The existing monitoring wells were installed as part of the Kings Valley Lithium Exploration Project. They have been monitored quarterly for water quality and have data loggers installed to daily record water levels. Monitoring at these wells is not required under permits but is undertaken by WLC as part of their ongoing on-site data-collection program.
2. Impacts to springs are not anticipated. As described in Chapter 4.7 the springs in the area are believed to be fed by perched aquifers. Pumping from PH-1 is not anticipated to create changes to these perched aquifers.
3. The proposed pits would be excavated to a depth of 60 feet bgs. As described in chapter 3.7, groundwater levels recorded in the monitoring wells closest to the proposed pits measured: 130 feet bgs for WSH-13; 135 feet bgs for WSH-14; and 172 feet bgs for PH-2 (WSH-17). The proposed pits are not anticipated to intersect the water table.

4.5.2 Greater Sage-grouse Protection Alternative

Impacts to Native American Religious concerns under this alternative would be the same as under the Proposed Action.

4.5.3 No Action Alternative

Under the No Action Alternative there would be no changes to existing and authorized activities in the area. No additional impacts to Native American Religious Concerns are anticipated. The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and has the authorization to disturb up to 75 acres within its project boundary. No impacts to Native American Religions Concerns were identified (BLM 2010).

4.6 Threatened, Endangered Species – Lahontan Cutthroat Trout

4.6.1 Proposed Action

Lahontan cutthroat trout, an ESA threatened species, are known to occur in both Pole Creek and Crowley Creek, which are both outside of the Project Area but within the assessment area for wildlife. One drainage to the southeast of the Project Area was documented to have a surface water connection to Crowley Creek.

Impacts to Lahontan cutthroat trout from the sedimentation of surface flows to Crowley Creek would be unlikely due to the lack of precipitation and lack of surface flows from disturbance areas to the drainage. The potential for sediments to reach the drainage and Crowley Creek would also be minimized through the implementation of sediment control BMP's by WLC.

Pumping from PH-1 is not anticipated to affect water levels in Pole Creek, and the proposed pits are not anticipated to intersect the groundwater table, although they may intersect perched aquifers. Since changes to water levels in Pole Creek or Crowley Creek are not anticipated from the Proposed Action, Lahontan cutthroat trout would not be affected.

4.6.2 Greater Sage-grouse Protection Alternative

The Greater Sage-grouse Protection Alternative involves the same disturbance activities as the Proposed Action, but restricted to certain seasons and times of day. No impacts to Lahontan cutthroat trout are expected to occur under the Proposed Action, and since this alternative would involve the same disturbance activities in the same locations, no impacts are expected to occur under this alternative either.

4.6.3 No Action Alternative

Under the No action Alternative the proposed activities would not occur. There would be no potential for impacts to occur to the Lahontan cutthroat trout or its habitat. No impacts to the Lahontan cutthroat trout were identified under the Kings Valley Lithium Exploration project EA (BLM 2010).

4.7 Water Quality (Surface/Ground)

4.7.1 Proposed Action

Environmental protection measures for water resources related to erosion and sedimentation are described in Chapter 2.1.3.6 and include such measures as the construction of stormwater structures, diversion channels, and other BMPS to limit erosion and reduce sediment in precipitation runoff. Revegetation is also described as an environmental protection measure used to reduce erosion and sedimentation. Environmental protection measures related to the prevention and handling of spills is described in Chapter 2.1.3.7.

The assessment area for potential impacts to water resources is the hydrologic study area illustrated on Figure 6. The nearest perennial water feature to the Project Area is Pole Creek, located approximately two miles to the northeast.

In accordance with the BLM and NDEP guidelines, a characterization program was performed to investigate the potential for development of acid rock drainage and metal leaching from the WRDAs associated with the Proposed Action. Details of this program and analytical results have been compiled into a report titled *Revised Waste Rock Characterization Report for the Kings Valley Clay Mine – Final* (SRK 2013c).

The majority of the KVCM deposit consists of oxidized claystone (i.e., tan claystone and green/blue claystone) and intermixed ash and clay. Based on the results of the waste rock characterization program, the host rocks of the Kings Valley deposit contain substantial neutralization capacity. Data indicates that material types associated with the KVCM demonstrate a low potential to generate acid or leach metals and are not highly reactive, even for samples that showed an uncertain potential for acid generation. The waste rock material associated with the Project presents a low risk for acid rock drainage and metal leaching (SRK SRK 2013c).

Based on these results, segregated waste rock management for the Project is not needed to prevent degradation of downgradient surface water and groundwater. Although the excess of neutralizing capacity means that net acid conditions are unlikely to develop for the WRDAs, there is still a potential for the main material types to leach arsenic and antimony in the long term under the neutral to alkaline pH conditions. Baseline groundwater quality results for monitoring wells in the immediate area indicate arsenic, antimony, and fluoride are naturally elevated in groundwater at concentrations that are comparable to those measured during the waste rock characterization program. Therefore, leaching of these constituents from WRDAs is not likely to result in degradation of existing groundwater quality (SRK 2013c).

Non-potable water for the Project would be obtained from well PH-1. Up to approximately 15.5 acre feet would be used each year for dust control, fire suppression, and exploration. WLC has applied to transfer 20 acre feet of water from the Quinn River Valley to PH-1. The application has been approved by NDWR. No changes in groundwater quantity within the Quinn River Valley Hydrographic Basin would occur although the mode of use would be altered as would the point of diversion.

On-site groundwater and surface monitoring data have indicated steady groundwater levels while spring flows have fluctuated seasonally, indicating that the springs and regional groundwater table are not connected (SWS 2012a). The proposed use of PH-1 is not anticipated to affect groundwater levels outside of the assessment area (including water levels in Pole Creek), or to affect springs in the vicinity (SWS 2013).

Erosion and sedimentation would occur under the Proposed Action but would be limited by the described environmental protection measures. Due to their proximity in relation to proposed disturbance areas, it is unlikely that project-related sediment would impact surface water features within the assessment area.

The Proposed Action could result in impacts to surface and ground water quality resulting from fuel and equipment maintenance product spills although these would be minimized through implementation of the *Spill Contingency and Emergency Response Plan* included as Appendix A.

4.7.2 Greater Sage-grouse Protection Alternative

Impacts to water quality under this alternative would be the same as under the Proposed Action. The proposed activities would still occur but would take place within certain seasonal and diurnal time frames.

4.7.3 No Action Alternative

Under the No Action Alternative only exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would occur. The Kings Valley Lithium Exploration Project has the potential to disturb 75 acres within its project area and has disturbed approximately 32 acres. The Kings Valley Lithium Exploration project may result in impacts to surface water quality as a result of spills and sedimentation from surface disturbance. The potential impacts to surface water quality from spilled petroleum products and drilling fluids would be minimized by the implementation of the Spill Prevention Plan. Potential impacts to surface water quality from sedimentation would be minimized by the implementation of environmental protection measures including but not limited to BMPs for road and drill pad construction. Residual impacts would be temporary, lasting until exploration roads and drill pads are successfully reclaimed and revegetated (BLM 2010). Impacts to water quality as a result of the No Action Alternative would be similar to, but proportionally less than the Proposed Action.

Additional Affected Resources

4.8 Geology and Minerals

4.8.1 Proposed Action

Direct impacts to geologic and mineral resources from the Proposed Action would occur from the removal of clay ore from the open pits and placing remaining material within the WRDAs. The re-handling of material from the WRDAs may be required by future operations if valuable deposits are identified beneath their proposed locations. Besides potential re-handling of waste material, the Proposed Action would not adversely affect future resource extraction in the Project

Area. Exploration occurring as part of the Proposed Action would help to further define mineral resources extents and grade.

4.8.2 Greater Sage-grouse Protection Alternative

Impacts to geology and minerals under this alternative would be the same as under the Proposed Action.

4.8.3 No Action Alternative

Under the No Action Alternative, permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. Geology and minerals were determined to be present and not affected under the Kings Valley Lithium Exploration Project EA (BLM 2010). Impacts to geologic resources as a result of the No Action Alternative would be minimal.

4.9 Land Use Authorization

4.9.1 Proposed Action

The Proposed Action would occur adjacent to and north of existing ROWs for an overhead transmission line and a telephone line as shown on Figure 19. The ROW for the overhead transmission line includes unpaved roads underneath and roughly aligned with the overhead transmission lines. No impact to the transmission line or telephone line ROWs or rights granted within them would occur. The only ROW located within the assessment area would be crossed by the mine access road as described in Chapter 2.1.1.9. Activities occurring with this ROW would be conducted under an NDOT permanent occupancy permit.

Public access through the Project Area on the main access road and back out to the north-northwest would not be restricted. Approximately one mile of dirt road would be restricted to public access through installation of a gate and a sign at the edge of the ore-grade clay stockpile area as shown on Figure 4. The grazing permittee would continue to have access to trough within the ore-grade clay stockpile area, although the trough has not been used for several years.

4.9.2 Greater Sage-grouse Protection Alternative

Impacts to land use authorization under this alternative would be the same as under the Proposed Action.

4.9.3 No Action Alternative

Under the No Action Alternative, currently permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. Impacts to land use were not analyzed under the Kings Valley Lithium

Exploration Project EA (BLM 2010). Impacts to land use as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action.

4.10 Noise

4.10.1 Proposed Action

Few residential dwellings, places of public assembly, or other noise receptors are located within the vicinity of the Project Area. The nearest noise receptors are the Greater Sage-grouse leks located within 3.2 miles of the Project Area, the Youngberg Ranch (nearest human dwelling site) located to the northeast of the Project Area, and bighorn sheep habitat located to the west of the Project Area (Pirkle 2011). Sensitive receptors and noise modeling sites are illustrated on Figure 10.

In order to predict noise levels created by the Proposed Action at the nearest noise-sensitive receptors, J.C. Brennan & Associates, Inc. utilized the CadnaA Noise Prediction Model. Inputs to the CadnaA model included ground topography and type, noise source locations, noise source heights, receiver locations, noise source sound power levels, and meteorological data (J.C. Brennan & Associates 2013). Results of this modeling are shown on Figure 10. In summary, the modeled noise contours would affect the acreages listed in Table 4-3.

Table 4-3: Modeled Noise Contour Areas

Modeled Noise Contour Leq	Modeled Noise Contour L50[1]	Modeled Noise Contour L90[2,3]	Area Within Contour (acres)[4]
50 dBA	45 dBA	40-42 dBA	570
45 dBA	40 dBA	35-37 dBA	1,220
40 dBA	35 dBA	30-32 dBA	2,620
35 dBA	30 dBA	25-27 dBA	5,080

[1]Median (L50) noise levels associated with mining activities would typically be five dB less than Leq levels

[2]L90 noise levels associated with mining activities would typically be eight to ten dB less than Leq levels

[3] The sound level exceeded 90 percent of the time during the one hour period

[4]Area covered is generally centered over the Project Area

Source: J.C. Brennan & Associates 2013

The noise modeling indicates that the predicted Proposed Action noise levels at the nearest sensitive receptors are expected to be at 37 dBA Leq or less. Measured background noise levels indicate that existing ambient noise levels exceed the predicted noise levels at times when human activity occurs in the area, or when weather conditions result in higher ambient noise (J.C. Brennan & Associates 2013).

The predicted mining noise levels comply with the typical noise level standards recommended by the EPA for residential areas. Predicted noise levels are far less than those associated with aircraft overflights or helicopter passbys. In comparison, the predicted Project noise levels

associated with the mining operations at the nearest sensitive receptor to the north (up to 37dBA Leq) are similar to those associated with a rural roadway which has less than five cars per hour at a distance of 100 feet from the roadway (J.C. Brennan & Associates 2013).

4.10.2 Greater Sage-grouse Protection Alternative

Implementation of the Greater Sage-grouse Protection Alternative would restrict mining activities and noise creation between March 1 and June 30 of each year to the hours between 10:00 a.m. and 4:00 p.m. for the life of the mine. Receptors would not be impacted by noise during these restricted hours.

4.10.3 No Action Alternative

Only noise producing activities that are authorized under the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. The Kings Valley Exploration Project consists of noise associated with exploration; however, noise was not analyzed under the Kings Valley Exploration Project EA (BLM 2010). Impacts to land use as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action.

4.11 Paleontological Resources

4.11.1 Proposed Action

Since the potential for significant vertebrate paleontological resources in the Project Area ranges from moderate to unknown, and there are no known paleontological sites within the assessment area, potential for impacts to paleontological resources from the Proposed Action is minimal. If paleontological resources are found during operations, impacts would be mitigated through avoidance and/or data recovery, as discussed in Chapter 2.1.3.5.

4.11.2 Greater Sage-grouse Protection Alternative

Impacts to paleontological resources under this alternative would be the same as under the Proposed Action.

4.11.3 No Action Alternative

Under the No Action Alternative only subsurface ground disturbance associated with the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. The Kings Valley Lithium Exploration Project is expected to construct approximately 500 drill sites. The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and is authorized to disturb up to 75 acres. Impacts to paleontological

resources as a result of the No Action Alternative would be similar to, but proportionally less than the Proposed Action.

4.12 Recreation

4.12.1 Proposed Action

While there would be the occasional inconvenience of increased Project-related traffic on existing roads used for access to other areas, implementation of the Proposed Action would not prevent or prohibit use of these roads. Access to public lands via project-related roads within the Project Area would be restricted during the life of the mine by the establishment of gates and signs for safety reasons as shown on Figure 4. The public would be able to enter into the Project Area from the site access intersection with SR 293. From this point, public access to the north north-west (back outside of the Project Area) would not be restricted, allowing access north of the Project Area as shown on Figure 4.

Approximately one mile of dirt road would be restricted from public access through installation of a gate and a sign at the edge of the ore-grade clay stockpile area as shown on Figure 4. This dirt road terminates near the northern border of the Project Area and had historically provided access to the trough and the spring. The grazing permittee would be given access to the trough and spring although the trough has not been used for several years.

The open pits would be left as unreclaimed features in the landscape (measuring 29.5 acres) but would be bermed and signed as described in Chapter 2.1.3.15 for public safety. These unreclaimed features would constitute a long-term loss to recreational use.

4.12.2 Greater Sage-grouse Protection Alternative

Impacts to recreation under this alternative would be the same as under the Proposed Action.

4.12.3 No Action Alternative

Under the No Action Alternative noise from nearby roads and other ongoing activities such as the permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. Impacts to recreation were not analyzed under the Kings Valley Exploration Project EA (BLM 2010). Impacts to recreation as a result of the No Action Alternative would be similar to, but proportionally less than the Proposed Action.

4.13 Soils

4.13.1 Proposed Action

In order to ensure erosion and soil loss are minimized, WLC would implement the environmental protection measures described in Chapter 2.1.3. Protection measures include BMPs that prevent erosion and capture mobilized soil particles (sediment). Disturbances would be reclaimed as described in Chapter 2.1.2. The reclaimed areas would be planted with the seed mix presented in Table 2-6. Once established, the vegetation would hold surface soils intact and would decrease the likelihood of erosion. WLC would also implement environmental protection measures specified in Chapter 2.1.3 specific to waste spill prevention and cleanup.

The Proposed Action includes removal of up to 99 acres of vegetative cover (12.4 percent of the Project Area) through earth-moving activities such as grading and excavation. The Proposed Action would also involve the use of an additional 10.9 acres of previously disturbed land (1.4 percent of the Project Area). Vegetation removal and ground disturbance would leave soils exposed to wind and water, two key components of erosion. The potential for erosion is somewhat reduced by the naturally occurring site topography; the gentle slopes typical of the Project Area make movement of soil particles less likely to occur as compared to steep topography.

Impacts to soils related to erosion would occur under the Proposed Action. These impacts would last until reclamation and revegetation are complete. Approximately 29.5 acres of open pit would not be reclaimed and would remain as open pit features. Wind and water erosion could continue to occur within these areas although most sediment would remain trapped in the feature and would not migrate to adjacent areas. The naturally high moisture content of the clay would also reduce the effects of wind erosion on the pit walls and floor.

The accidental release of petroleum products and equipment maintenance products onto the ground surface could affect soil resources. Impacts to soils related to waste spills would be unlikely. If a spill did occur the impact would be small in scope and would be handled according to approved plans.

4.13.2 Greater Sage-grouse Protection Alternative

Impacts to soils under this alternative would be the same as under the Proposed Action.

4.13.3 No Action Alternative

Under the No Action Alternative, permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur, which would expose soils and could increase the potential for erosion. The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and has the

potential to disturb 75 acres of soils. Disturbance could occur in any of the three soil series: Dewar-Dacker; Trunk-Burrita; or Zevandez-Vanwyper. It is expected that most of the surface disturbance associated with the Kings Valley Lithium Project would occur on the Dewar-Dacker series since it occupies 90 percent of the Kings Valley Lithium Project Area. Exploration activities on the soil series with a moderate erosion hazard for wind and water (i.e., Dewar-Dacker or Zevandez-Vanwyper) would result in greater impacts from erosion compared to disturbance on the Trunk-Burrita soil series. Following successful reclamation, which would include regrading, ripping, and revegetation of disturbed areas, soil loss resulting from the Kings Valley Lithium Exploration Project EA would be temporary and minimal (BLM 2010). Impacts to soils as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action.

4.14 Special Status Species

4.14.1 Proposed Action

Environmental protection measures for special status species and wildlife in general are discussed in Chapters 2.1.3. They include such measure as breeding bird surveys prior to ground clearing activities during the breeding bird season, installation of flagging on barbed-wire fences around the pits, lowering light plant masts when not use, proper handling of trash, and adherence to appropriate speed limits.

No BLM special status plant species are known to occur within the Project Area. Additionally, no threatened or endangered wildlife species are known to occur or have been identified in the Project Area. Due to their lack of occurrence, the Proposed Action is not expected to impact special status plant species or threatened or endangered wildlife species. Lahontan cutthroat trout, identified as occurring within the threatened and endangered species assessment area, is discussed in Chapter 4.6.

Sensitive wildlife species and their habitat have been documented as occurring or potentially occurring within the Project Area and within the assessment area. Table 4-4 lists sensitive species which could potentially occur within and which thus be potentially impacted by the Proposed Action.

Table 4-4: Sensitive Species Potentially Impacted by the Proposed Action

Common Name	Scientific Name	Common Name	Scientific Name
big brown bat	*Eptesicus fuscus*	long-legged myotis	*Myotis volans*
bighorn sheep	*Ovis canadensis*	Long-eared Owl	*Asio otus*
Brazailian (Mexican) free-tailed bat	*Tadarida braziliensis*	Prairie Falcon	*Falco mexicanus*
Brewer's Sparrow	*Spizella breweri*	Red-tailed Hawk	*Buteo jamaicensis*

Common Name	Scientific Name	Common Name	Scientific Name
California myotis	*Myotis californicus*	Rough-legged Hawk	*Buteo lagopus*
Cooper's Hawk	*Accipiter cooperii*	pallid bat	*Antrozous pallidus*
Ferruginous Hawk	*Buteo regalis*	pygmy rabbit	*Brachylagus idahoensis*
fringed myotis	*Myotis thysanodes*	Sage Thrasher	*Oreoscoptes montanus*
Golden Eagle	*Aquila chrysaetos*	Short-eared Owl	*Asio flammeus*
Greater Sage-grouse	*Centrocercus urophasianus*	silver-haired bat	*Lasionycteris noctivagans*
hoary bat	*Lasiurus cinereus*	spotted bat	*Euderma maculatum*
little brown myotis	*Myotis lucifugus*	Swainson's Hawk	*Buteo swainsoni*
Loggerhead Shrike	*Lanius ludovicianus*	Townsend's big-eared bat	*Corynorhinus townsendii*
long-eared myotis	*Myotis evotis*	Turkey Vulture	*Cathartes aura*
Northern Harrier	*Circus cyaneus*	Western Burrowing Owl	*Athene cunicularia*
American Kestrel	*Falco sparverius*	western pipistrelle	*Parastrellus* (formerly *Pipistrellus*) *hesperus*
Yuma myotis	*Myotis yumanensis*	western small-footed myotis	*Myotis ciliolabrum*

Greater Sage-Grouse

Under the Proposed Action, approximately 99 acres of Greater Sage-grouse habitat would undergo ground disturbance for a total Project-related disturbance of 109.9 acres when combined with 10.9 acres of previously disturbed land. This disturbance constitutes a loss of 109.9 acres of Greater Sage-grouse PGH which has been defined as habitat of relatively intact sagebrush communities which provide certain habitat requirements for Greater Sage-grouse. PGH is also described as comprising areas of occupied seasonal or year-round habitat outside of PGH (BLM 2011b).

The Greater Sage-grouse population of the Lone Willow PMU has been steadily decreasing over the past two to three years, and the loss of PPH and PGH habitat resulting from the Holloway Fire has greatly increased the value of PGH to Greater Sage-grouse in the Project Area. A loss of PGH under these circumstances would have a greater impact than if the PGH habitat were being removed from an area supplying ample quantities of good quality Greater Sage-grouse habitat. The noise model analyzing expected noise created by the Proposed Action is described in detail in Chapter 4.10. The model indicates that Project-related noise levels near the active leks to the north would be approximately 37 dBA Leq. Measurements indicate that existing ambient noise levels may exceed the predicted noise levels at times when human activity occurs in the area, or when weather conditions result in higher ambient noise (J.C. Brennan & Associates 2013).

Noise-level modeling indicates that approximately 569 acres of Greater Sage-grouse PGH would be subjected to a Project-related noise level of 50 or more dBA Leq. Table 4-5 lists the Greater Sage-grouse habitat types potentially affected by the predicted Project-related noise levels.

Table 4-5: Greater Sage-grouse Habitat Categories Within Modeled Noise Contours

Habitat Category	Area Within Modeled Noise Contours (acres)			
	50 dBA Leq[1,2]	45 dBA Leq[1,2]	40 dBA Leq[1,2]	35 dBA Leq[1,2]
PPH	0	5.5	242	746
PGH	569	1,205	2,083	3,521

[1]Median (L50) noise levels associated with mining activities would typically be five dB less than Leq levels.
[2]L90 noise levels associated with mining activities would typically be eight to ten dB less than Leq levels
Source: J.C. Brennan & Associates 2013

Impacts resulting from noise to wildlife and Greater Sage-grouse in particular are not well understood. At present there is no scientific consensus on the level of noise that could negatively impact Greater Sage-grouse (Blickley, Blackwood, and Patricelli 2011; Ambrose and Florian 2013; Patricelli, Blickley, and Hooper 2013). However, various studies indicate that anthropogenic noise can have acute (i.e. physiological damage, communication masking, behavior disruption, and startling) and chronic (i.e. elevated stress and physiological responses) impacts to wildlife (Blickley and Patricelli 2010). Greater Sage-grouse have been found to experience increased stress levels when exposed to chronic noise such as road activity and drilling (Blickley et. al. 2012), and male lek attendance has been observed to decrease over years at sites experiencing anthropogenic noise (Blickley, Blackwood, and Patricelli 2011). Based on this information, noise created by the Proposed Action could be assumed to cause stress responses and behavioral changes in Greater Sage-grouse utilizing areas within the modeled noise contours. Approximately 1,200 acres, including the entire Project Area, could be exposed to noise levels in excess of 45 dBA Leq, which represent an increase of approximately 20 dBA above the average measured L50 dBA noise level. These 1,200 acres would be approximately six percent of the available nesting and brood rearing habitat for the nearest lek. These 1,200 acres would potentially not be available for utilization by Greater Sage-grouse (see Patricelli, Blickley, and Hooper 2013, p.120).

SRK conducted a viewshed analysis to assess if the Project Area would be visible from the two closest active lek sites; the Montana 10 lek and the Pole Creek lek. Viewshed analysis mapping results are provided in Appendix F and are summarized on Figure 20. The analysis was conducted using Geographical Information System technology for three different vertical offsets: three feet, 20 feet, and 50 feet. The three-foot offset was used to simulate what a Greater Sage-grouse individual may be able to see from the lek site giving some lenience for topographical variations. The 20- and 50-foot vertical offsets were used to simulate vertical extents above the Project Area which may be visible from the leks to account for visual stimuli resulting from trucks, dust, drill rigs, lights, etc. The viewshed analysis results indicate that the Project Area and

the space above it up to 50 vertical feet would not be visible from the Montana 10 lek but would be visible from the Pole Creek lek as shown on Figure 20.

Impacts from lighting on Greater Sage-grouse are not well understood, but studies have indicated that anthropogenic lighting can affect bird breeding and nesting behaviors (Kempenaers et. al. 2010). An undetermined number of acres could potentially not be available for nesting and brood rearing due to visual impacts from the Proposed Action. Furthermore, light plants used in the area could create perches for predatory birds. Because of the location of the mining activities within Greater Sage-grouse PGH, Greater Sage-grouse chicks could be particularly susceptible to predation.

In 2014, the Greater Sage-grouse EIS will be finalized by the BLM and the US Forest Service. Based on the above-mentioned studies, and the forthcoming Record of Decision for the Greater Sage-grouse EIS, the Project Area may be reclassified in terms of Greater Sage-grouse habitat.

Raptors

The Project Area and surrounding acreage provides foraging habitat for raptors. Loss of habitat either by direct vegetation removal or because of unfavorable conditions (noise, light, etc.) could reduce or eliminate the prey base for raptor species.

According to the 2012 baseline surveys, two Golden Eagle nests are located within three miles of the Project Area (JBR 2012). Eagles show site fidelity and are known to repeatedly use the same nests. Depending upon the sensitivity or adaptability of the eagles, the proposed mining activities could potentially cause these nest sites to be abandoned. The intolerance of the other hawks to human encroachment may also decrease the use of preferred nesting sites in the assessment area.

Western Burrowing Owls seem to tolerate and at times benefit from human alterations of the landscape. Loosened soil such as that found along new roadways and berms, often provide nesting burrows. Due to those locations, fatal collisions between owls and vehicles could occur.

Passerines

The Baseline Biological Survey Report (JBR 2012) notes that the Project Area provides suitable habitat for four BLM sensitive passerine species. Due to the nature of sensitive passerine species, impacts would be similar to those discussed for migratory birds (Section 4.4), although intensified.

Bats

Removal of vegetation would result in lost habitat for some species of insects bats prey upon. Noise from mining activities would most likely interfere with bats' feeding activities and success. Artificial nighttime lighting would most-likely draw insects which could provide a concentrated food source for bats. However, utilization of this food source is questionable due to

the noise factor. Additionally, light plants would provide perching opportunities for owls which prey upon bats.

Bighorn Sheep

Land to the north, west, and south of the Project Area has been classified as year-round bighorn sheep habitat. Additionally, there is a bighorn sheep migration corridor near the Project Area. Because these areas are classified as year-round habitat, bighorn sheep could be subjected to auditory and visual impacts at any time. Bighorns are intolerant of human presence, and these impacts could be manifested in the form of lost foraging opportunities, loss of traditional lambing areas, and disuse of the established migration corridor.

The proposed fence design does not meet the specifications that allow passage for antelope, mule deer, or bighorn sheep as outlined in BLM Manual Handbook H-1741-1. The proposed fence creates an entanglement hazard to bighorn sheep which could result in mortality.

The potential exists for water to collect in the pit when clay ore extraction is not occurring. This could provide a lure for bighorn sheep and other wildlife to enter the pit and become entrapped.

Other Special Status Species

Although the water source in the Project Area would remain physically accessible to special status species, mining activities and associated infrastructure may inhibit the use of those sources.

4.14.1.1 Recommended Mitigation

Basis and Rationale for Recommendations

Direct impacts to Greater Sage-grouse from habitat loss associated with the Proposed Action could be offset by habitat restoration. The Winnemucca District BLM is currently treating the landscape burned during the Holloway Fire for emergency stabilization and rehabilitation of vegetation and wildlife habitats. BLM would like to monitor areas for success and failure before determining any locations for potential habitat restoration. Therefore, two to five years of monitoring data would be required before appropriate location(s) for additional restoration could be identified.

Impacts to Greater Sage-grouse from noise are not well understood. Recent publications have suggested that a human-related increase in noise of 10dB above ambient could have negative effects on Greater Sage-grouse populations (Patricelli, Blickley, and Hooper 2013). This publication also states that "This [10 dB] threshold is based on a small number of songbird studies, and there is no scientific basis for assuming that sage-grouse will respond to noise in a manner similar to songbirds" (references omitted). The publication adds that "Further studies are needed on sage-grouse to determine whether the 10-dB threshold is insufficient, sufficient, or

even too conservative" (emphasis added). Understanding that there is disclosed uncertainty (see also Ambrose and Florian 2013) regarding the level of noise that negatively affects Greater Sage-grouse, a threshold of 20dB above ambient is used in the recommended mitigation.

Greater Sage-Grouse

Per the MOU, impacts to Greater Sage-grouse habitat should be mitigated at a ratio of two to one for PGH. The Proposed Action would result in approximately 110 acres of PGH being physically disturbed. Therefore, 220 acres should be revegetated at one or more offsite locations in the Montana Mountains burned during the Holloway Fire. These locations would be determined in coordination with BLM, NDOW, and WLC. Evaluation under NEPA would be necessary once specific sites are identified. Offsite mitigation would begin in the appropriate season two to five years after initiation of mining activities. Successful revegetation would be determined based on the standards provided in Appendix G.

To verify that there is no adverse impact to the Greater Sage-grouse lek from noise, WLC should conduct active monitoring at the nearest active Greater Sage-grouse lek to determine the noise levels associated with the Proposed Action at the lek. This one-time monitoring should be conducted according to BLM protocols shown in Appendix H. If the noise level at the lek during mining operations exceeds a 20dB increase above ambient during the lekking season (March 1 through June 30), WLC would be required to modify the operations to reduce noise levels.

Raptors

Personnel should be briefed of the possibility of Western Burrowing Owls utilizing disturbed areas of loosened soil. In the event that owls burrow in a working area (i.e. ore-grade clay stockpile), the burrow should be avoided by a distance determined in consultation with the BLM Authorized Officer, until the owlets have fledged and the nest is no longer active.

Bighorn Sheep

During final reclamation, the entire pit floors and haul roads within the pit should be graveled in a manner that would provide a hard, compact surface that can support the weight of bighorn sheep and other wildlife, and ensure no clay soil is exposed to create an entrapment hazard.

4.14.2 Greater Sage-grouse Protection Alternative

Implementation of the Greater Sage-grouse Protection Alternative uses the best available science to minimize impacts to lekking activities at known leks within 3.2 miles of the Project Area. The timing restrictions (not allowing activity on the site between the hours of 4:00 p.m. and 10:00 a.m. March 1 through June 30 of each year, for the life of the mine) would reduce the potential for impacts to Greater Sage-grouse lekking activities during these times. Birds nesting near or within the Project Area could be impacted from noise occurring between 10:00 a.m. and 4:00 p.m. during which activities would be allowed. The number of nesting birds impacted by this

noise would be unknown, and would vary from year to year. As described for the Proposed Action, approximately 1,200 acres of Greater Sage-grouse nesting and brood rearing habitat could be lost due to intermittent noise.

Implementation of the 3.2-mile buffer and activity timing restrictions as recommended for Greater Sage-grouse would also benefit the special status passerine's use of the area during a portion of their breeding and nesting season. Additionally, implementation of this alternative would benefit bighorn use of the area, particularly during lambing season, May1 through June 30.

Outside of the seasonal restrictions proposed in this alternative, impacts to special status wildlife and their habitat would be the same as those disclosed under the Proposed Action.

4.14.2.1 Recommended Mitigation

Basis and Rationale for Recommendations

Section 4.14.1.1 describes the rationale for habitat restoration and why BLM would wait two to five years for implementation. Under the Greater Sage-grouse Protection Alternative, lekking activities would be protected by seasonal restrictions. The MOU provides for reduced offsite mitigation where the reclamation plan would restore the habitat. BLM believes that seasonal restrictions, in conjunction with the reclamation plan, would ultimately restore all affected habitat except approximately 30 acres of open-pit disturbance.

Recommended mitigation under this alternative would include the following (some of which are also recommended mitigation measures under the Proposed Action):

Greater Sage-Grouse

Although implementation of the Greater Sage-grouse Protection Alternative would reduce potential impacts to Greater Sage-grouse lekking behaviors, there would be a permanent loss of approximately 30 acres of PGH. Per the MOU, impacts to Greater Sage-grouse habitat should be mitigated at a ratio of two to one for PGH. Therefore, 60 acres should be revegetated at one or more offsite locations in the Montana Mountains burned during the Holloway Fire. These locations would be determined in coordination with BLM, NDOW, and WLC. Evaluation under NEPA would be necessary once specific sites are identified. Offsite mitigation would begin in the appropriate season two to five years after initiation of mining activities. Successful revegetation would be determined based on the standards provided in Appendix G.

Raptors

Personnel should be briefed of the possibility of Western Burrowing Owls utilizing disturbed areas of loosened soil. In the event that owls burrow in a working area (i.e. ore-grade clay

stockpile), the burrow should be avoided by a distance determined in consultation with the BLM Authorized Officer, until the owlets have fledged and the nest is no longer active.

Bighorn Sheep

During final reclamation, the entire pit floors and haul roads within the pit should be graveled in a manner that would provide a hard, compact surface that can support the weight of bighorn sheep and other wildlife and ensure no clay soil is exposed to create an entrapment hazard.

4.14.3 No Action Alternative

Under the No Action Alternative, currently permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and has the potential to disturb 75 acres of wildlife habitat within its boundary. Potential impacts to foraging Greater Sage-grouse could occur as a result of habitat removal and activities associated with the project. These impacts could result in the redistribution of Greater Sage-grouse outside the Kings Valley Lithium Exploration Project boundary and vicinity. WLC would implement an environmental protection measure to avoid drilling between March 15th and May 15th to reduce potential impacts to lekking and breeding Greater Sage-grouse (BLM 2010).

Potential indirect impacts may also occur to foraging sensitive migratory bird species (Prairie Falcon, Golden Eagle, Short-eared Owl, and Vesper Sparrow) as a result of vegetation removal and activities associated with the Kings Valley Lithium Exploration Project. These species would likely leave the immediate area, resulting in a temporary spatial redistribution of individuals or habitat-use patterns. Such redistribution would not have a long-term effect because undisturbed and suitable habitat exists in the area. No long-term impacts are likely to occur because reclamation and reestablishment of vegetation would take place within three years of the Kings Valley Lithium Exploration Project completion which is anticipated to occur in 2016 (BLM 2010).

4.15 Transportation

4.15.1 Proposed Action

The Proposed Action would create additional traffic on U.S. Highway 95 and SR 293. When the mine is actively operating, up to 14 employees would commute to the site from Winnemucca or Orovada via SR 293 and U.S. Highway 95. Carpooling would be encouraged. Additionally, the mined clay product would be trucked from the site. The number of truck trips per month or quarter is dependent on market demand and how much clay would be mined at any one time. A maximum of approximately 18,750 tons of ore-grade clay would be mined annually, which could result in a maximum of approximately 42 trucks per month, or 1.4 trucks per day (based on 40-

ton loads). In addition, supplies would also be transported to the site from Winnemucca, Nevada via U.S. Highway 95, SR 293, and the main mine access road. Supply and service vehicles have been estimated at one vehicle per day for purposes of this analysis. As stated in Chapter 2.1.3.13, Project-related vehicles would adhere to speed limits to prevent collisions with livestock, wildlife, and to maintain highway safety. General highway traffic, accidents could still occur to Project-related vehicles involving livestock, wildlife, and the public.

The Proposed Action would result in an increase in road traffic by an average of 1.4 trucks per day, one service or supply vehicle per day, and a maximum of 14 personal vehicles per day (assuming no car-pooling) travelling to and from the site. This would result in an increase of traffic on US Highway 95 by approximately two percent. Traffic at ATR station 0130111 located on SR 293 near the intersection with US Highway 95 would increase by up to eight percent, and traffic at ATR station 0130118 located four miles west of the intersection with US Highway 95 would increase by up to 15 percent. The additional traffic is not anticipated to cause measurable degradation to existing roadways or a measurable decrease in highway safety.

4.15.2 Greater Sage-grouse Protection Alternative

Under the Greater Sage-grouse Protection Alternative the number of employees would likely double during the timing restriction (March 1- June 30 of each year) in order to maintain the same level of production. Outside of the timing restriction, impacts to transportation would be expected to be the same as under the Proposed Action.

4.15.3 No Action Alternative

Public travel and travel authorized under the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. Transportation was not analyzed as part of the Kings Valley Lithium Exploration Project (BLM 2010). Impacts to transportation resources as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action.

4.16 Vegetation

4.16.1 Proposed Action

WLC would implement environmental protection measures as outlined in Chapter 2.1.3.10 which include the implementation of the *Noxious and Invasive Species Management Plan* submitted as Appendix E of the Plan of Operations and as Appendix B of this EA and the reclamation of disturbed sites using certified weed-free seed mixes. These measures would help reduce loss of existing vegetation and competition from other undesirable plant species. Reclamation would serve to restore a desirable vegetation community after Project activities have ceased.

Implementation of the Proposed Action would result in the removal of approximately 99 acres of vegetation within the 796-acre Project Area or approximately 12.4 percent of the Project Area. Most of this disturbance would occur within the Inter-Mountain Basins Big Sagebrush Steppe vegetation type. The total project disturbance, including disturbance on approximately 10.9 previously disturbed areas, would equal 109.9 acres or 13.8 percent of the Project Area.

Direct impacts to vegetation would result from land clearing and grubbing associated with facility construction and development. Additionally, vegetation could be indirectly affected by soil compaction resulting from ground disturbing activities, and cleared areas could become susceptible to the establishment of invasive vegetation which could potentially out-compete native vegetation.

The post-reclamation vegetation community would be different than the pre-mining community but is anticipated to meet post-mining land use goals. Approximately 29.5 acres of open pit would remain unreclaimed, resulting in a permanent loss of vegetation to approximately 3.7 percent of the Project Area. Most impacts would last until revegetation efforts are successful.

4.16.2 Greater Sage-grouse Protection Alternative

Impacts to vegetation under this alternative would be the same as under the Proposed Action. The proposed activities and disturbances would still occur but would take place within certain seasonal and diurnal time frames.

4.16.3 No Action Alternative

Under the No Action Alternative, currently permitted surface disturbance associated with the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur, which would result in the temporary loss of vegetation. Reclamation of surface disturbance including reseeding would minimize impacts to vegetation. The Kings Valley Lithium Exploration Project has disturbed about 32 acres and has the potential to disturb 75 acres of vegetation within its project area, including Wyoming big sagebrush, rubber rabbitbrush, yellow rabbitbrush, and crested wheatgrass. The disturbance would be created incrementally and dispersed throughout the big sagebrush vegetation community in the area (BLM 2010). Impacts to vegetation as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action.

4.17 Visual Resources

4.17.1 Proposed Action

WLC would implement the environmental protection measures described in Chapter 2.1.3 to reduce impacts to vegetation which in turn influences visual resources. Lighting impacts would also be minimized through the implementation of the environmental protection measures listed in

Chapter 2.1.3.2. These measures include limiting lighting to where needed for safe operations and shielding or directing lights to the immediate work area.

Impacts to visual resources would occur during land clearing and facility construction, as well as from the presence of the WRDAs, the open pits, stockpiles, equipment, the first-aid trailer, and lighting. Proposed access roads would contribute similar elements to the existing landscape since there are numerous roads in existence within the Project Area and vicinity. Visual impacts resulting from implementation of the Proposed Action are anticipated to be minimal and are in conformance with the objectives of VRM Class IV objectives.

4.17.2 Greater Sage-grouse Protection Alternative

Impacts to visual resources from lighting under the Greater Sage-grouse Protection Alternative would not occur between the hours of 4:00 p.m. and 10:00 a.m., March 1 through June 30 of each year, for the life of the mine. In other aspects, impacts to visual resources would be the same as under the Proposed Action.

4.17.3 No Action Alternative

Under the No Action Alternative, permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. The Kings Valley Lithium Exploration Project has disturbed about 32 acres and is authorized to disturb 75 acres of public lands. The Kings Valley Lithium Exploration Project would result in short-term visual impacts principally affecting the visual elements of line and color. Horizontal and shallow diagonal lines from drill roads would cause moderate, temporary line contrasts with the natural landscape. Disturbance of vegetation would cause moderate, temporary color contrasts. With successful reclamation of exploration roads and revegetation, long-term visual impacts would be minimized. The effects would be consistent with BLM prescribed Class IV VRM objectives (BLM 2010). Impacts to visual resources as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action.

4.18 Wildlife

4.18.1 Proposed Action

WLC would comply with the environmental protection measures described in Chapter 2.1.3 regarding resource protection. Specifically, environmental protection measures outlined in Chapter 2.1.3 would help reduce impacts to wildlife.

Approximately 110 acres of wildlife habitat within the 796-acre Project Area would be disturbed as a result of the Proposed Action. In addition, 29.5 acres of wildlife habitat would be permanently lost due to the open pits being un-reclaimed. Impacts to general wildlife species

would be similar to those discussed in the migratory bird and special status species sections. Loss of breeding, nesting, and foraging habitat could impact general wildlife species as a result of mining activities. Ground-clearing activities would likely result in the mortality of smaller, less mobile wildlife individuals. Small mammal and reptile mortality can be expected due to mining activities throughout the mine life.

The proposed fence design does not meet the specifications that allow passage for antelope, mule deer, or bighorn sheep as outlined in BLM Manual Handbook H-1741-1. The proposed fence creates an entanglement hazard to mule deer, pronghorn, and other wildlife, which could result in mortality.

Impacts due to habitat loss are not limited to vegetation removal and ground disturbance in the immediate footprint of the proposed project. Based on noise modeling by J.C. Brennan & Associates approximately 1,200 acres would be subjected to 45 dBA Leq levels, or higher, during mining activities (2013). This noise level could preclude wildlife from utilizing the habitat within that 1,200 acres. Increased human activity from the Proposed Action would likely displace wildlife. Displacement of wildlife from the Project Area could result in increased competition in other areas. If competition for resources occurs, decreased population and vitality of wildlife species at various trophic levels would be expected.

Springs and water features are present throughout the wildlife assessment area as shown on Figure 6. Although the water source in the Project Area would remain physically accessible to wildlife, mining activities would be expected to inhibit the use of those sources.

Pole Creek is the nearest perennial water source to the Project Area and is located approximately two miles away. The Proposed Action would not affect water quantity or quality or wildlife habitats associated with Pole Creek.

Reclamation would restore disturbed wildlife habitat; most impacts from habitat loss would last until revegetation efforts are successful. The post-reclamation vegetation community would be different from the pre-mining vegetation community. However, the chosen reclamation seed mix is anticipated to create favorable habitats for species in the area. Features that may remain disturbed (i.e. un-reclaimed) and which would constitute a permanent loss of wildlife habitat would include the open pits measuring approximately 29.5 acres or 3.7 percent of the Project Area. The open pits would not be back-filled, and wildlife may be able to access the bottom of the pits.

Stormwater diversion channels would be constructed around the open pits to divert up-gradient run-on water from entering. Although the proposed open pits are located above the water table, perched water zones could be intersected which may create temporary shallow ponds at the pit bottoms. In the event that incidental water does occur in the pit, it would collect within a constructed low zone and be left to evaporate naturally. A three-strand barbed-wire fence and

earthen berms would be constructed around the open pits to exclude livestock and larger wildlife. The fencing would be removed during reclamation; however, the earthen berms would remain in place.

4.18.1.1 Recommended Mitigation

Recommended mitigations for special status species under the Proposed Action are also recommended for the benefit of general wildlife.

4.18.2 Greater Sage-grouse Protection Alternative

Implementation of the Greater Sage-grouse Protection Alternative would involve timing restrictions (not allowing activity on the site between the hours of 4:00 p.m. and 10:00 a.m. March 1 through June 30 of each year, for the life of the mine) to reduce impacts to Greater Sage-grouse lekking activities during these times. Several wildlife species would benefit from this alternative because the seasonal timing restriction coincides/overlaps with their breeding season. It is possible that nest/dens/burrows and young would be abandoned if wildlife were not able to adapt to the noise and human activity that would resume after June 30.

4.18.2.1 Recommended Mitigation

Recommended mitigations under this alternative would be the same as those under the Greater sage-grouse Protection Alternative presented in the Special Status Species section.

4.18.3 No Action Alternative

Under the No Action Alternative, currently permitted exploration activities outlined in the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) would continue to occur. The Kings Valley Lithium Exploration Project has disturbed approximately 32 acres and has the potential to disturb 75 acres of wildlife habitat within its project boundary.

Direct impacts to wildlife as a result of human activity and noise would include temporary habitat (cover, foraging, breeding) loss, displacement, avoidance, and mortality. Although minimal impacts are expected, wildlife, especially individual small mammals displaced by project-related disturbance might perish. Construction of roads and drill pads and the operation of drilling equipment could disturb wildlife due to the presence of humans and by creating noise and dust. Wildlife foraging activities within the boundary could continue to be dispersed because two drill rigs and their associated support equipment would be operating at one time, allowing wildlife to move around and between activities. Reclamation and reestablishment of vegetation would take place within one to three years of Project completion which would occur in approximately 2016. Therefore, no long-term impacts to wildlife habitat are likely to occur. Indirect impacts to wildlife would occur as a result of short-term temporary loss of vegetation (BLM 2010).

Disturbance to mule deer, pronghorn antelope, and bighorn sheep would likely be limited to temporary auditory and/or visual perturbation of individuals in or near the boundary. Individual mule deer, pronghorn antelope, and bighorn sheep foraging in the Kings Valley Lithium Exploration boundary during exploration activities would likely leave the immediate area, resulting in a temporary spatial redistribution of individuals or habitat-use patterns during the project. Such redistribution would not have a long-term effect because undisturbed and suitable habitat exists in the area. Potential impacts to bighorn sheep movement between the Montana Mountains the Double H Mountains could occur as a result of the Proposed Action, resulting in disruption or alteration of bighorn sheep movement. The likelihood of deer/antelope/sheep-vehicle collision is considered low (BLM 2010).

4.19 Cumulative Impact Analysis

Cumulative impacts have been defined under 40 CFR §1508.7 as:

"The impact which results from the incremental impact of the action, decision, or Project when added to the other past, present, and reasonably foreseeable future actions (RFFAs), regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

4.19.1 Assumptions for Cumulative Analysis

Direct and indirect consequences of the Proposed Action were evaluated previously in Chapter 4. Analyzed in this chapter are those resources that have the potential to be incrementally impacted by the Proposed Action within the identified cumulative impacts assessment areas described below and shown on Figure 21. Based on the preceding analysis in Chapter 4, no cumulative impacts are expected for the following resources:

- Cultural Resources;
- Native American Religious Concerns;
- Paleontological Resources;
- Geology and Minerals;
- Rangeland Management;
- Recreation;
- Visual Resources;
- Land Use Authorization;
- Transportation; and
- Noise.

4.19.2 Description of Cumulative Effects Study Area Boundaries

The geographical areas considered for the analysis of cumulative effects vary in size and shape to reflect each evaluated environmental resource and the potential area of impact.

The Biology cumulative effects study area (CESA) (504,498 acres) was developed to assess potential cumulative impacts to special status species, migratory birds, and wildlife. The Biology CESA was developed based on the Lone Willow PMU which includes the Double H Mountains, the Montana Mountains and the Bilk Creek Mountains as shown in Figure 21.

The Hydrology CESA is identified as the sub-watersheds that overlap the Project Area and encompasses 26,275 acres as shown in Figure 21. The Hydrology CESA was developed to address potential cumulative impacts to soils, vegetation, water quality, air quality, and noxious weeds. Table 4-6 outlines the CESA area by each resource.

Table 4-6: Cumulative Effects Study Areas

Resource	CESA Name	CESA Size (acres)
Migratory Birds, Special Status Species, Wildlife	Biology CESA	504,498
Soils, Vegetation, Water Quality, Air Quality, Invasive, Nonnative Species	Hydrology CESA	26,275

4.19.3 Past and Present Actions

Past and present actions in the Biology and Hydrology CESAs include the following: exploration and mining (including approximately 75 acres of mineral exploration surface disturbance authorized under the Kings Valley Lithium Exploration Project); livestock grazing; rangeland improvements; ROWs; land exchanges; fuels treatments; wildland fire; transportation networks; and dispersed recreation.

Minerals and Sand & Gravel

Previous mineral exploration for lithium was conducted by Chevron in the Project Area from 1979 until 1987. This exploration included approximately 25 acres of surface disturbance for exploration drill holes and access roads.

Recent exploration activities have also occurred under the *Kings Valley Lithium Exploration Project Plan of Operations* (BLM casefile number N-085255) and based on the Finding of No Significant Impact*, Kings Valley Lithium Exploration Project Environmental Assessment* DOI-BLM-NV-WO10-2010-0001-EA (BLM 2010). The *Kings Valley Lithium Exploration Project Plan of Operations* proposed mineral exploration activities including drilling, road building, monitoring well installation, trenching, bulk sampling, construction of a weather station, and other exploration-related disturbances. Up to 75 acres of disturbance resulting from exploration

activities associated with and within the Kings Valley Lithium Exploration Project boundary have been authorized.

Of the authorized 75 acres of disturbance, approximately 32 acres within the Kings Valley Lithium Exploration Project boundary have been disturbed (WLC 2013). Of this amount, approximately 24.68 acres of this disturbance occurs within the Project Area as shown on Figure 3.

Other mineral exploration, mining, stone, and sand and gravel operations have occurred or are occurring within the Hydrology and Biology CESAs. They are summarized in Table 4-7 and Table 4-8 by case type and disposition. The total authorized project acres as well as the reported acres disturbed and acres reclaimed are also shown.

Table 4-7: Biology CESA Past and Present Mineral Actions

Case Type	Disposition	Total Acres	Acres Disturbed	Acres Reclaimed
Sand and Gravel	Authorized	160	0	0
Sand and Gravel	Authorized	45	0	0
Lithium Surface Management Plan	Authorized	80	21	0
Uranium Surface Management Plan	Authorized	250	36	0
Gold Surface Management Plan	Expired	15	12	2
Clay Surface Management Plan	Expired	2	2	0
Uranium Surface Management Plan	Expired	10	4	0
Total		**562**	**75**	**2**
Percentage of Biology CESA		**< 1 percent**	**< 1 percent**	**< 1 percent**

Source: Land & Mineral Legacy Rehost 2000 System (LR2000 2013)

Table 4-8: Hydrology CESA Past and Present Mineral Actions

Case Type	Disposition	Total Acres	Acres Disturbed	Acres Reclaimed
Lithium Surface Management Plan	Authorized	5	0	0
Gold Surface Management Plan	Expired	15	12	2
Clay Surface Management Plan	Expired	2	2	0
Uranium Surface Management Plan	Expired	10	4	0
Total		**32**	**18**	**2**
Percentage of Hydrology CESA		**< 1 percent**	**< 1 percent**	**< 1 percent**

Source: Land & Mineral Legacy Rehost 2000 System (LR2000 2013)

Oil and Gas Leases

No authorized oil and gas leases are located within the Biology or Hydrology CESAs. Seven closed oil and gas leases are located in the vicinity; no disturbance areas have been associated with these leases.

Livestock Grazing and Rangeland Improvements

Grazing allotments occurring within the Biology and Hydrology CESAs administered by the BLM are summarized in Table 4-9 including the number of active AUMs within each allotment.

Table 4-9: Allotments Located within the Biology CESA

Allotment Name	Active AUMs	Acreage within Biology CESA	Acreage within Hydrology CESA
Jordan Meadow	11,720	43,458	0
Horse Creek	3,521	35,189	0
Little Horse Creek	524	3,842	0
Sod House	304	756	0
Pole Creek	2,988	30,169	17,866
Crowley Creek	3,303	37,791	44
Kings River	12,192	29,212	8,405
Double H	1,687	22,952	0
Bilk Creek	3,030	44,767	-
Coyote Hills	2,633	15,775	-
Grassy Basin	942	4,196	-
Happy Creek	3,724	3,340	-
McDermitt Creek	173	2,440	-
Sand Hills	2,294	4,541	-
Washburn	1,465	30,437	-
Zimmerman	7,342	21,377	-
Total	**57,842**	**330,242**	**26,315**

Source: BLM 2013c

The Project Area has historically been used for ranching. Barbed-wire fences, cattle guards, watering troughs, one waterline, and scattered ranch roads exist on-site as shown on Figure 3.

Rangeland improvements in the Hydrology CESA include fencing, exclosures, culverts and head gates, and pipelines. Rangeland improvements in the Biology CESA include fencing, exclosures, stream improvements, culverts and head gates, and pipelines.

Wildland Fires

Four unnamed wildland fires burned approximately 19,489 acres within the Hydrology CESA during 1985 and 2000 accounting for overlaps. This equals approximately 74 percent of the Hydrology CESA. Approximately 331,927 acres were burned due to 22 wildland fires within the Biology CESA between 1985 and 2012. This equals approximately 66 percent of the Biology CESA. A summary of wildland fire history within the CESAs is shown in Table 4-10.

Table 4-10: Wildland Fire Summary

Fire Name	Fire Year	Acreage within Biology CESA	Acreage within Hydrology CESA	Acreage within Project Area
Holloway	2012	182,577	0	0
Long Canyon	2012	29,725	0	0
Moonlight	2006	765	0	0
River	2006	31	0	0
Covert	2006	1,999	0	0
Horse Creek	2001	965	0	0
Horse Canyon	2001	5	0	0
Sentinel Peak	2001	20	0	0
Unnamed	2000	25	0	0
Unnamed	2000	48,128	10,323	0
Unnamed	1995	678	0	0
Unnamed	1995	1,536	0	0
Unnamed	1996	166	0	0
Unnamed	1997	210	0	0
Unnamed	1997	6,304	0	0
Unnamed	1998	417	0	0
Unnamed	1987	3,133	0	0
Unnamed	1985	12,776	7,010	549
Unnamed	1985	18,263	66	0
Unnamed	1985	12,980	9,545	0
Unnamed	1985	1,572	0	0
Unnamed	1985	9,652	0	0

Source: public spatial data accessed August 2013

Seeding and Fuel Treatments

The Thacker Pass seeding project covered an extensive area including T44N, R35E, sections 9 through 11 and 14 through 17, and portions of sections 2, 3, 8, 13, and 20 through 24. The area was plowed and then seeded with a combination of crested wheatgrass and yellow sweetclover. A 1,000-acre area in the northeast portion of the plow zone (located outside of the Project Area) was seeded with Russian wildrye (ASM 2008).

Fuels treatments within the Hydrology CESA include 176 acres associated with the Montana and Thacker mowings. Fuels treatments within the Biology CESA include the following: the Lone Willow Spike treatments; the Long Canyon, Middle, and Montana mowings; the Double H herbicide treatment; and the Double H sagebrush plantings. Not all of these treatments are located entirely within the given CESAs.

A recent vegetation management plan, the Montana Mountains Cooperative Fuels Treatment Project (DOI-BLM-NV-WO10-2011-0005-EA) (BLM 2012d), was recently approved which

includes vegetation treatments located partially within the Biology CESA. The treatments create fuel breaks and improve or rehabilitate habitat within the Montana Mountains. Treatment techniques including mechanical, herbicide, seeding, prescribed fire, and hand thinning will be used individually or collectively to achieve desired status for sagebrush habitat. Most of the disturbance created under this project would be temporary as vegetation restoration and improvement is achieved.

Transportation Networks and ROWs

Approximately 46,500 linear feet SR 293 is located within both the Hydrology and Biology CESAs along with other existing smaller roads. These roads are primarily located within the Kings River Valley and the Quinn River Valley. Road maintenance, including grading, graveling, and paving occurs on all of these roads.

Multiple ROWs exist within the CESAs for the following activities: telephone lines, power transmission lines, communication sites, roads, and a federal highway. Most of these ROWs are linear features crossing portions of the landscape. Disturbances associated with ROWS are limited. Acreages associated with authorized ROWS are listed in Table 4-11 along with SR 293. Note that where linear features cross through each CESA, only those acres falling within the CESAs have been included.

Table 4-11: SR 293 and Authorized ROWs

Case Type	Acres within Biology CESA	Acres within Hydrology CESA
Federal Aid Highway (SR 293)	184	184
Communication Site ROWs	20	0
Telephone ROWs	60	16
Powerline ROWs	30	0

Source: LR2000 2013

Land Exchange, Acquisition, Land Sales, and Withdrawals

One land exchange, consisting of 5,725 acres, is located in the Hydrology and Biology CESAs. Ten land acquisition totaling approximately 22 acres and one land sale of 10 acres have occurred within the Biology CESA. Several public water reserve withdrawals have taken place within both CESAs. Lands sold or exchanged leave BLM administration and are no longer managed according to BLM land use management plans.

Recreation

Dispersed recreation occurs throughout the CESAs; however, there are no data on the level of use.

4.19.4 Reasonably Foreseeable Activities

Activities/events that would likely occur or continue to occur in the Biology and Hydrology CESAs include the following: mineral exploration; livestock grazing and grazing permit renewals; fuels treatments; wildland fires; transportation networks; ROWs; and dispersed recreation.

RFFAs in the Hydrology CESA include two cases for potassium/potash prospecting. RFFAs in the Biology CESA include potassium/potash prospecting, a land acquisition, and rangeland improvements. Registered RFFAs and their associated acreages, as applicable, and the CESA(s) in which they occur are listed in Table 4-12. Other RFFAs which may occur within the CESAS include aspects of the Montana Mountains cooperative Fuels Treatment Project (BLM 2012d) and offsite mitigation measures carried out to offset impacts from the Ruby Pipeline project. Specifics of these RFFAs remain undefined at this time.

Table 4-12: RFFAs

Case Type	Acres[1]	Occurring in Biology CESA	Occurring in Hydrology CESA
Potassium Prospecting	1,950	yes	yes
Potassium Prospecting	2,145	yes	yes
Potassium Prospecting	1,950	yes	no
FLPMA Road Acquisition	15	yes	no
Water Facility ROW	2.42	yes	no

Source: LR2000 2013

[1]Not all listed acreages may occur within the given CESAs

Mineral Exploration

Mineral exploration and aggregate activities are expected to continue based on current supply and demand of minerals and commodities. Data for the acres of RFFA surface disturbance associated with mineral exploration in the CESAs are based on the LR2000 database. In both the Biology CESA and the Hydrology CESA, applications for potassium/potash prospecting permits are pending for 1,950 and 2,145 acres. An exploration plan for approximately four acres of surface disturbance has been submitted and is also pending.

In the Biology CESA, six additional potassium/potash prospecting permits, totaling approximately 11,930 acres are pending. No surface disturbance associated with these permit applications have been submitted to date.

Road Acquisition

A road acquisition for the Crowley-Jordan road is pending within the Biology CESA with a related 15 acres.

Continuation of Past and Present Actions

Livestock grazing, grazing permit renewals, and road maintenance are expected to continue although grazing permits may be reduced due to drought conditions. Recreation in the planning area is expected to increase an average of five percent per year (BLM 2005).

4.20 Cumulative Impacts to Affected Resources

4.20.1 Air Quality

Relevant CESA

The CESA for air quality is the Hydrology CESA, which covers 26,275 acres.

Impacts From Past and Present Actions

Present actions within the Hydrology CESA that are likely to be contributing to air quality impacts include wildland fire, dispersed recreation, minerals exploration, mining, and transportation networks. These activities are principally contributing point source particulate matter emissions and fugitive dust to the air quality impacts; however, products of combustion are also emitted.

Impacts From RFFAs

RFFAs within the Hydrology CESA that may contribute to impacts to air quality include dispersed recreation, mining, transportation, and wildland fires. These impacts result in impacts to air quality from the emissions of point source particulate matter, fugitive dust, and the products of combustion.

Cumulative Impacts

Proposed Action

Cumulative impacts to air quality within the Hydrology CESA would result from the past and present actions and RFFAs when combined with the Proposed Action. The incremental contribution of the Proposed Action's particulate and combustion emissions and fugitive dust would be relatively small, and the cumulative emissions are generally dispersed. Stationary sources would be regulated by the BAPC under individual permits to ensure that impacts would be reduced to levels that are consistent with the air quality standards. The Dust Control Plan for the Project and speed limits are measures that would minimize the potential effects of fugitive dust on air quality. Reclamation of Project-related proposed surface disturbance would gradually eliminate most sources of fugitive dust from wind erosion.

Greater Sage-grouse Protection Alternative

Cumulative impacts to air quality would be the same as under the Proposed Action.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

4.20.2 Invasive, Nonnative Species

Relevant CESA

The CESA for invasive, nonnative species is the Hydrology CESA, which covers 26,275 acres.

Impacts From Past and Present Actions

Past and present actions with impacts created by invasive, nonnative species (noxious weeds) have included livestock grazing, rangeland improvements, ROWs, land exchanges, fuels treatments, wildland fires, transportation networks, exploration, mining, and dispersed recreation. Invasive, nonnative species (i.e., cheatgrass and clasping pepperweed) are present in the Hydrology CESA; their presence may be due to or exasperated by past and present actions although federally approved actions require management for such impacts.

Impacts From RFFAs

Potential impacts from noxious, invasive, non-native species as a result of mining, mineral exploration, livestock grazing, fuels treatments, transportation networks, ROWs, dispersed recreation, or loss of vegetation associated with wildland fires could occur, and result in continued potential of noxious, invasive, non-native species infestations.

Cumulative Impacts

Proposed Action

Cumulatively, the past, present, and RFFAs in combination with the Proposed Action would result in potential impacts from invasive, nonnative species that would be limited to infestations following removal or disturbance of vegetation. Wildland fires have impacted a large portion of the Hydrology CESA. The Proposed Action (109.9 acres) would impact less than one percent of the CESA. The past and present actions and RFFAs would impact an undetermined percentage of the Hydrology CESA that is not readily quantifiable. The potential impacts from the Proposed Action would be minimized due to the implementation of environmental protection measures outlined in Chapter 2.1.3 including the following BMPs: concurrent reclamation efforts; operator control; removal of invasive, non-native species, and noxious weeds on reclaimed areas; and washing of vehicles prior to entering the Project Area. As a result, a minimal incremental impact from invasive, non-native species in the Hydrology CESA is expected.

Greater Sage-grouse Protection Alternative

Cumulative impacts to non-native and invasive species would be the same as under the Proposed Action.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

4.20.3 Migratory Birds, Special Status Species, and Wildlife

Relevant CESA

The CESA for migratory birds, special status species, and general wildlife is the Biology CESA, which includes 148,459 acres.

Impacts From Past and Present Actions

Past and present actions that are likely to have impacts to wildlife, special status species, and migratory bird habitats include mineral exploration, mining, livestock grazing, ROWs, land exchanges, fuels treatments, wildland fires, transportation networks, and dispersed recreation. Approximately 331,927 acres within the Biology CESA have been disturbed by wildland fires between 1985 and 2012, which is approximately 66 percent of the CESA.

The entire Project Area and approximately 480,116 acres within the CESA lie within the Lone Willow Greater Sage-grouse PMU. During the late summer of 2012, 182,577 acres of PGH and PPH were burned in the Holloway Fire. This fire resulted in a decrease of the estimated population of Greater Sage-grouse in the PMU. The importance of the remaining, unburned, habitat has increased since wildlife has limited resources. Intact areas of sagebrush, such as that in the Project Area, are believed to be an important habitat to sustain the Lone Willow Greater Sage-grouse population during the revegetation process. Revegetation of sagebrush steppe habitat can take up to 50 years.

According to the Lone Willow PMU Risk Factor Assessment and Proposed Action Plan, the most important risk factor to Greater Sage-grouse located in the PMU is the large acreage of sagebrush habitat lost to wildland fire and converted to invasive species communities such as cheatgrass. The most immediate threat to this population is the loss of sagebrush habitat comprising the bulk of the remaining winter habitat for greater sage-grouse. The most heavily impacted sites have been the winter, nesting, and early brood use areas. Post fire rehabilitation success, in low elevation Wyoming sagebrush community types, has been very low (NDOW 2004).

ROWs, infrastructure developments, and other linear projects and disturbances can cause habitat fragmentation which has been identified as a threat to Greater Sage-grouse populations. Infrastructure in particular can pose threats related to vehicles, noise, flight obstructions, and predatory bird perching locations (USGS 2013).

Impacts to the Greater Sage-grouse related to fuels treatments have generally lessened as fuel treatment plans more often incorporate Greater Sage-grouse management objectives and Greater

Sage-grouse habitat improvements into their results. Recreation can have a definite but difficult to measure impact to Greater Sage-grouse resulting primarily from human presence and noise, the establishment of invasive and non-native species, and the creation of fugitive dust (USGS 2013).

Past and present minerals surface disturbance in the Biology CESA have likely been or are require to be reclaimed for post-activity land uses including wildlife, special status species, and migratory bird habitat. It is reasonable to assume that some areas have been reclaimed and some areas have become naturally stabilized, and/or naturally revegetated over time. Improvements to habitat associated with exclosures have also occurred in the Biology CESA.

Livestock grazing is one land use that has contributed to modifications in the natural vegetation composition. Livestock grazing has been described as a diffuse form of biotic disturbance that exerts repeated pressure over many years on a system. Effects from grazing are most often observed as differences in the processes and functioning of the sagebrush system and are not often evenly distributed across a landscape (USGS 2013).

Impacts From RFFAs

Potential impacts to migratory birds, special status species, and wildlife from mining, prospecting, mineral exploration, livestock grazing, fuels treatments, transportation networks, ROWs, dispersed recreation, or loss of habitat associated with potential wildland fires and fuels treatments could occur. In addition, noise could affect migratory birds, special status species, and wildlife. Improvements to habitat are expected on approximately 160 acres as a result of the BLM exclosure planned at the Fourth of July Meadow.

Grazing uses within the Biology CESA would have varying effects on migratory birds, special status species, and wildlife habitats based on the grazing system in each allotment.

Cumulative Impacts

Proposed Action

Because of the declining population of Greater Sage-grouse in the Lone Willow PMU, loss of the utilization of this habitat from the Proposed Action could impact the Greater Sage-grouse population. RFFAs have a similar potential. The greatest threat to the remaining Greater Sage-grouse habitat in the CESA is fire (USFWS 2013: 10; USGS 2013: 79-81).

Greater Sage-grouse Protection Alternative

Under this alternative the greatest threat to the Greater Sage-grouse is still fire. Although impacts to the species resulting from this alternative would be reduced as compared to the Proposed Action, the difference in relation to cumulative impacts would be small and have not been quantified.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

4.20.4 Noise

Relevant CESA

The CESA for noise is the Hydrology CESA, which covers 26,275 acres.

Impacts From Past and Present Actions

Past and present actions likely to have impacts to noise include mineral exploration, mining, transportation networks, and dispersed recreation. Areas experiencing the greatest impact to noise would be areas located alongside transportation corridors which experience noise created by traffic which may vary by season and time of day. Noise impacts to wildlife are discussed in Chapter 4.20.3.

Past and present minerals actions within the hydrology CESA would not exist as a source of noise beyond their economically viable lifetime. Transportation corridors are expected to remain as permanent noise sources.

Impacts From RFFAs

Potential impacts to noise from mining, prospecting, mineral exploration, transportation networks, and dispersed recreation could occur. Again, some activities such as mining and exploration would be expected to cease at some point in time while noise related to transportation corridors would be permanent.

Cumulative Impacts

Proposed Action

Noise impacts from the Proposed Action would generally occur within a one-mile radius of the Project Area. Cumulative noise impacts would occur along SR 293 where it parallels the southern side of the Project Area. Noise impacts from SR 293 have not been modeled; cumulative noise levels have not been determined.

Greater Sage-grouse Protection Alternative

Under this alternative noise impacts would still occur but would not occur within the suggested daytime and seasonal restriction.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

4.20.5 Soils

Relevant CESA

The CESA for soils is the Hydrology CESA (26,275 acres).

Impacts From Past and Present Actions

Past actions that could have impacted soils would have included livestock grazing, rangeland improvements, ROWs, land exchange, fuels treatments, wildland fires, transportation networks, exploration, mining, and dispersed recreation that disturbed or impacted soils, or that increased erosion or sedimentation. There are no specific data that quantify soil loss in the Hydrology CESA.

Impacts From RFFAs

Potential impacts to soils associated with ground clearing and vegetation removal activities resulting from mining, prospecting, exploration, livestock grazing, fuels treatments, transportation networks, ROWs, dispersed recreation, or loss of vegetative cover associated with potential wildland fires could occur.

Cumulative Impacts

Proposed Action

The Proposed Action (109.9 acres) would impact less than one percent of the CESA. The potential impacts from the Proposed Action would be minimized due to the implementation of environmental protection measures outlined in Chapter 2.1.3 and concurrent reclamation. As a result, a minimal incremental impact to soils in the Hydrology CESA is expected.

Greater Sage-grouse Protection Alternative

Cumulative impacts to soils would be no different under this alternative than under the Proposed Action.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

4.20.6 Vegetation

Relevant CESA

The CESA for vegetation is the Hydrology CESA (26,275 acres).

Impacts From Past and Present Actions

Past and present actions that could impact vegetation would include livestock grazing, rangeland improvements, ROWs, transportation networks, exploration, mining, and dispersed recreation that utilized, impacted or reduced vegetation. Vegetation loss was also associated with wildland fire and fuels treatments.

Within the Hydrology CESA there are portions of three grazing allotments. The level of use in these allotments has resulted is an ongoing change or shift in vegetation communities throughout the CESA.

Impacts From RFFAs

Potential impacts from mining, mineral exploration, prospecting, livestock grazing, fuels treatments, transportation networks, ROWs, dispersed recreation, or loss of vegetation associated with wildland fires could occur.

Cumulative Impacts

Proposed Action

The Proposed Action (109.9 acres) would impact less than one percent of the CESA (26,275 acres). The potential impacts to vegetation from the Proposed Action would be minimized due to reclamation although the post-reclamation vegetation community may differ from the existing community but is designed to meet post-mining land use goals. Approximately 29.5 acres would remain unreclaimed as open pit. Considering the relatively small disturbance area in relation to the Project Area and CESA, and the surrounding intact vegetation communities, impacts to vegetation are considered to be minimal and mostly temporary in duration. As a result, a minimal incremental impact to vegetation in the Hydrology CESA is expected.

Greater Sage-grouse Protection Alternative

Cumulative impacts to soils would be no different under this alternative than under the Proposed Action.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

4.20.7 Water Quality

Relevant CESA

The CESA for water is the Hydrology CESA (26,275 acres).

Impacts From Past and Present Actions

Past actions that are likely to have impacted surface water would have included livestock grazing, rangeland improvements, ROWs, land exchange, fuels treatments, wildland fire, transportation networks, exploration, mining, and dispersed recreation. Although a large portion of the Hydrology CESA has burned, there are no specific data that quantify the amount of sedimentation and potential impacts to surface water quality. Vegetation removed by wildland fires would no longer function to stabilize topsoil and reduce sedimentation caused by runoff during storm events. Disturbances are approved for mineral activities in the Hydrology CESA. Reclamation would be required when these disturbances are completed, thereby limiting the amount of sedimentation generated by these disturbances.

Impacts From RFFAs

Potential impacts to surface water quality could result from mineral exploration, mining, prospecting, livestock grazing, fuels treatments, wildland fire, transportation networks, ROWs, and dispersed recreation. There are no specific data on the amount of sedimentation that could result from these activities. However, the mining activities would be required to have spill prevention plans, handle hazardous substances in accordance with NDOT and MSHA, adhere to NAC 534.4369 and 534.4371, and utilize BMPs, thus minimizing impacts to water quality. BMPs would include the use of one or all of the following: sediment traps or sumps; straw bales (certified weed-free); silt fences; the distribution of clarified water from sediment traps through perforated pipes in order to minimize erosion from channeling; and the use of common, centrally located sediment sumps.

Cumulative Impacts

Proposed Action

The Proposed Action (109.9 acres) would impact less than one percent of the CESA (26,260 acres). Surface disturbance would increase the potential for erosion and sedimentation in the surface water system. As a result, a minimal incremental impact to surface water quality in the Hydrology CESA is expected.

Greater Sage-grouse Protection Alternative

Cumulative impacts to water quality would be no different under this alternative than under the Proposed Action.

No Action Alternative

No additional cumulative impacts would result from the No Action Alternative.

5.0 Recommended Mitigation

The following mitigation measures have been proposed for both the Proposed Action and the Greater Sage-grouse Protection Alternative.

5.1 Recommended Mitigation under the Proposed Action

Greater Sage-grouse

Per the MOU, impacts to Greater Sage-grouse habitat should be mitigated at a ratio of two to one for PGH. The Proposed Action would result in approximately 110 acres of PGH being physically disturbed. Therefore, 220 acres should be revegetated at one or more offsite locations in the Montana Mountains burned during the Holloway Fire. These locations would be determined in coordination with BLM, NDOW, and WLC. Evaluation under NEPA would be necessary once specific sites are identified. Offsite mitigation would begin in the appropriate season two to five years after initiation of mining activities. Successful revegetation would be determined based on the standards provided in Appendix G.

To verify that there is no adverse impact to the Greater Sage-grouse lek from noise, WLC should conduct active monitoring at the nearest active Greater Sage-grouse lek to determine the noise levels associated with the Proposed Action at the lek. This one-time monitoring should be conducted according to BLM protocols shown in Appendix H. If the noise level at the lek during mining operations exceeds a 20dB increase above ambient during the lekking season (March 1 through June 30), WLC would be required to modify the operations to reduce noise levels.

Raptors

Personnel should be briefed of the possibility of Western Burrowing Owls utilizing disturbed areas of loosened soil. In the event that owls burrow in a working area (i.e. ore-grade clay stockpile), the burrow should be avoided by a distance determined in consultation with the BLM Authorized Officer, until the owlets have fledged and the nest is no longer active.

Bighorn Sheep and General Wildlife

During final reclamation, the entire pit floors and haul roads within the pit should be graveled in a manner that would provide a hard, compact surface that can support the weight of bighorn sheep and other wildlife, and ensure no clay soil is exposed to create an entrapment hazard.

5.2 Recommended Mitigation under the Greater Sage-grouse Protection Alternative

Greater Sage-grouse

Although implementation of the Greater Sage-grouse Protection Alternative would reduce potential impacts to Greater Sage-grouse lekking behaviors, there would be a permanent loss of

approximately 30 acres of PGH. Per the MOU, impacts to Greater Sage-grouse habitat should be mitigated at a ratio of two to one for PGH. Therefore, 60 acres should be revegetated at one or more offsite locations in the Montana Mountains burned during the Holloway Fire. These locations would be determined in coordination with BLM, NDOW, and WLC. Evaluation under NEPA would be necessary once specific sites are identified.

Raptors

Personnel should be briefed of the possibility of Western Burrowing Owls utilizing disturbed areas of loosened soil. In the event that owls burrow in an active working area (i.e. ore-grade clay stockpile), the burrow should be avoided by a distance determined in consultation with the BLM Authorized Officer, until the owlets have fledged and the nest is no longer active.

Bighorn Sheep and General Wildlife

During final reclamation, the entire pit floors and haul roads within the pit should be graveled in a manner that would provide a hard, compact surface that can support the weight of bighorn sheep and other wildlife, and ensure no clay soil is exposed to create an entrapment hazard.

5.3 Irreversible and Irretrievable Commitment of Resources

No irreversible and irretrievable commitment of resources is expected as a result of the Proposed Action.

6.0 Tribes, Individuals, Organizations, or Agencies Consulted

6.1 Native American Consultation

The following Tribes were consulted as part of the Public Scoping process: the Fort McDermitt Paiute and Shoshone Tribe and the Summit Lake Paiute Tribe.

6.2 Agency Coordination and/or Consultation (Agencies)

Agency consultation was used for the preparation of supporting baseline reports and for the preparation of this EA. Agency consultation response references are listed below.

NDOW. 2013a. Letter to Carrie Schultz (SRK) from Timothy Herrick (NDOW). *Re: Kings Valley Clay EA*. October 11, 2013.

NDOW. 2013b. Letter from Kenny Pirkle (NDOW) to Mark Hall (BLM). *Re: WLC Kings Valley Clay Mine*. May 2, 2013.

NDOW. 2011. Letter to Dave Worley (JBR) from Timothy Herrick (NDOW). *Re: Western Lithium Mining Project*. December 6, 2011.

NNHP. 2013. Letter to Carrie Schultz (SRK) from Eric Miskow (NNHP). *Re: Data request received 03 October2013.* October 2013.

NNHP. 2011. Letter to David Worley (JBR) from Eric Miskow (NNHP). *Re: Data request received 15 November 2011.* December 2011.

6.3 Individuals and/or Organizations Consulted

USFWS. 2011. Species list request for the Kings Valley Lithium Project, Humboldt County, Nevada. November 17, 2011.

No additional individuals or organizations were consulted for the preparation of this EA.

6.4 Public Outreach/Involvement

A letter and map were sent to a mailing list of potentially interested members of the public on April 18, 2013. Comments were received from the NDOW, Nevada State Land Use Planning Agency, NDWR, and three private individuals. Concerns centered on air quality, cultural and paleontological resources, livestock grazing, surface and ground water quality and quantity, visual resources and night sky, special status species such as Greater Sage-grouse, migratory birds, and transportation. This assisted the BLM in refining issues and in identifying new issues, coordination needs, and possible alternatives.

On December 20, 2013, the Preliminary Environmental Assessment was made available for a 30-day public review period. Comments were received from one member of the public, the Nevada Division of State Lands, the NDEP – Bureau of Safe Drinking Water, and the NDOW. Based on a thorough review of public comments received during the 30-day review, minor changes were made to the EA. These changes primarily provided clarification where the analysis was not sufficiently clear.

7.0 List of Preparers

7.1 BLM

Name	Area of Responsibility
Mark Hall	NEPA Compliance and Native American Religious Concerns
Daniel Atkinson	Project Lead and Geology
Eric Baxter	Invasive, Non-Native Species
Jeanette Black	Hydrology
Robert Burton	Air, Soil, and Vegetation
John Callan	Hazardous Materials
Joey Carmosino	Recreation and Visual Resources
Morgan Lawson	Range Resources
Greg Lynch	Threatened and Endangered Species, Aquatic Species, and Fisheries
John McCann	Water Resources and Wetland/Riparian Zones
Peggy McGuckian	Cultural Resources and Paleontological Resources
Julie McKinnon	Land Use Authorizations
Nancy Spencer-Morris	Wildlife, Migratory Birds, and Special Status Species
Zwaantje Rorex	Wilderness, Wilderness Study Areas, and Lands with Wilderness Characteristics
Mark Williams	Fire Management

7.2 BLM Contractors

Jerry Moritz	Administrative Assistant

7.3 Cooperating Agencies

Nevada Department of Wildlife – Kenny Pirkle

Nevada Department of Transportation – Steve M. Cooke, PE

Humboldt County – Bill Deist

7.4 Third Party Consultant

SRK Consulting (U.S.) Inc. was the third-party consultant retained to assist with the preparation of this EA. The following individuals were involved:

Name	Position
Val Sawyer	Project Principal
Carrie Schultz	Project Manager and Senior Environmental Consultant
Katie Dean	Environmental Consultant
Sierra Harmening	Staff Consultant
Dave Dixon	Geographic Information System Consultant

Also involved in preparation of the EA was:

Name	Position
Elizabeth Huelson	Consultant with Air Sciences, Inc.

8.0 References

Air Sciences, Inc. 2013. *Kings Valley Clay Mine Emissions Inventory.* April 2013.

Aldridge, C. L., Saher, D. J., Childers, T. M., Stahlnecker, K. E., and Bowen, Z. H. 2012. *Crucial Nesting Habitat for Gunnison Sage-Grouse: A Spatially Explicit Hierarchical Approach.* Journal of Wildlife Management 76 (2). February 2012.

Ambrose, Skip and Florian, Chris. 2013. *Sound Levels of Gas Field Activities at Greater Sage-grouse Leks, Pinedale Anticline Project Area, Wyoming, April 2013.* September 22, 2013.

AMEC. 2011. *Prefeasibility Level Geotechnical Study Report, Kings Valley Lithium Project, Humboldt County, Nevada*. Prepared by AMEC Earth & Environmental, Inc. AMEC Project No. 10-417-00961. March 2011.

AMEC. 2013. *Supplemental Geotechnical Recommendations, Kings Valley Clay Mine Project, Humboldt County, Nevada*. Prepared by AMEC Earth & Environmental, Inc. AMEC Project No. 10-417-00961. June 2013.

ASM Affiliates, Inc. (ASM). 2008. *A Class III Cultural Resources Inventory of 1230 Acres for the Western Energy Development Corporation Thacker Pass Lithium Exploration Project Humboldt County, Nevada*. November, 2008.

Automated Traffic Recorder (ATR). 2013. *ATR 0132120, US-95 0.2Mi N. of SR-293 (Kings River Valley Rd)*

Blickley, Jessica L., Blackwood, Diane, and Patricelli, Gail L. 2011. *Experimental Evidence of the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks*. Conservation Biology. Vol. 26, No. 3. P 461-471.

Blickley, Jessica L. and Patricelli, Gail L. 2010. *Impacts of Anthropogenic Noise on Wildlife: Research Priorities for the Development of Standards and Mitigation*. Journal of International Wildlife Law and Policy. 13:4, p. 274-292.

Blickley, JL., Word, KR., Krakauer, AH., Phillips, JL., Sells, SN., Taff, CC., Wingfield, JC., and Patricelli, GL. 2012. *Experimental Chronic Noise Is Related to Elevated Fecal Corticosteroid Metabolites in Lekking Male Greater Sage-Grouse (Centrocercus urophasianus)*. PLoS ONE 7(11): e50462. doi:10.1371/journal.pone.0050462

Bureau of Land Management (BLM). 2013a. *Great Basin Region – National Greater Sage-grouse Planning Strategy.* http://www.blm.gov/wo/st/en/prog/more/sagegrouse/western.html. Accessed August 2013.

BLM. 2013b. *Memorandum of Understanding Regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse Habitat.* August 21, 2013.

BLM. 2013c. *Bureau of Land Management Rangeland Administration System (RAS)*. http://www.blm.gov/ras/. Accessed August 2013.

BLM. 2012a. *BLM NV and USFWS Greater Sage-Grouse Preliminary Habitat Map.* May 15, 2012.

BLM. 2012b. *Revised direction for Proposed Activities within Greater Sage-Grouse Habitat.* Instruction Memorandum NV-2012-058. August 10, 2012.

BLM. 2012c. *White Paper on BLM and U.S. Forest Service Preliminary Habitat Map.* http://www.blm.gov/nv/st/en/prog/wildlife/greater_sage-grouse/preliminary_habitat.html. Last updated March 15, 2012.

BLM. 2012d. *Montana Mountains Cooperative Fuels Treatment Project*. DOI-BLM-NV-WO10-2011-005-EA. July 2012.

BLM. 2011a. *Bureau of Land Management National Greater Sage-Grouse Planning Strategy.* August 22, 2011.

BLM. 2011b. *Greater Sage-Grouse Interim Management Policies and Procedures.* Instruction Memorandum No. 2012-043. December 22, 2011.

BLM. 2011c. *BLM National Greater Sage-Grouse Land Use Planning Strategy*. Instruction Memorandum No. 2012-044. December 27, 2011.

BLM. 2010. *Finding of No Significant Impact, Kings Valley Lithium Exploration Project Environmental Assessment DOI-BLM-NV-WO10-2010-0001-EA.* Winnemucca District Office. December 2010.

BLM. 2009. *Kings Valley Lithium Exploration Project Environmental Assessment DOI-BLM-NV-W010-2010-0001-EA*. Winnemucca District Office. December 2009.

BLM. 2008. *BLM NEPA Handbook.*

BLM. 2007. *Instruction Memorandum 2008-050: Migratory Bird Treaty Act – Interim Management Guidance*. December 18, 2007.

BLM. 2005. *Analysis of the Management Situation (AMS) for the Winnemucca Field Office, Northern Nevada.* March 2005.

BLM. 1998a. *8270 – Paleontological Resource Management.* BLM Manual 8270. July 13, 1998.

BLM. 1998b. *H-8270-1 – General Procedural Guidance for Paleontological Resource Management.* BLM Manual H-8270-1. July 13, 1998.

BLM. 1986. *Visual Resource Inventory*. BLM Manual Handbook 8410-1

Clark, C. 2013, July 29. Personal Communication. (V. Sawyer, Interviewer)

Coates, P. et al. 2013. *Evaluating Greater Sage-Grouse seasonal Space Use Relative to Leks: Implications for Surface Use Designations in Sagebrush Ecosystems.* Anticipated publication date of October 2013 in Journal of Wildlife Management.

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. *Guidelines to manage sage grouse populations and their habitats*. Wildlife Society Bulletin 28:967-985. Council on Environmental Quality 1997. *Considering Cumulative Effects under NEPA.*

Cronquist, A., A. H. Holmgren, N. H., & Reveal, J. L. 1972. *Intermountain Flora*. New York Botanical Garden, 1, 270.

Environmental Protection Agency (EPA). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety*. March 1974.

EPA. 2013a. Accessed webpage National Ambient Air Quality Standards (NAAQS), (http://www.epa.gov/air/criteria.html), Accessed August and November 2013.

EPA. 2013b. Accessed webpage Overview of Greenhouse Gases (http://www.epa.gov/climatechange/ghgemissions/gases.html), November 19, 2013.

EPA. 1974. Office of Noise Abatement and Control. *Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety*. March 1974.

Enviroscientists Inc.. 2010. *Memorandum Results for the Kings Valley Lithium Amended Plan of Operations Biological Survey, Humboldt County, Nevada*. Prepared for the BLM. November 16, 2010.

Governor Sandoval's Greater Sage-grouse Advisory Committee. 2012. *Strategic Plan for Conservation of Greater Sage-Grouse in Nevada*. July 31, 2012.

Greater Sage-grouse National Technical Team (NTT). 2011. *A Report on National Greater Sage-Grouse Conservation Measures.* Produced by the Sage-grouse National Technical Team. December 2011.

Hershler, R. 1998. *A systematic review of the hydrobiid snails (Gastropoda: Rissooidea) of the Great Basin, western United States*. Part I. Genus Pyrgulopsis. Veliger. 132pp.

Humboldt County. 2013. *Humboldt County Master Plan.* http://www.hcnv.us/planning/docs/master_plan/Complete_Master_Plan_Maps.pdf. Accessed August 2013.

JBR Environmental Consultants Inc. (JBR). 2012a. *Baseline Biological Survey Report, Western Lithium Corporation, Kings Valley Lithium Project, Humboldt County, Nevada.* July 9, 2012.

JBR. 2011. *Western Lithium Corporation Kings Valley Lithium Project Waters of the U.S. Jurisdictional Determination*. December, 2011.

J.C. Brennan & Associates, Inc. 2012. *Environmental Noise Assessment, Kings Valley Lithium Project.*

J.C. Brennan & Associates, Inc. 2013. *Noise Contour Modeling – Kings Valley Clay Mine Project*. November 26, 2013.

Kempenaers, B., Borgstrom, P., Loes, P., Schlicht, E., and Valcu, M. 2010. *Artificial Night Lighting Affects Dawn Song, Extra-Pair Siring Suceess, and Lay Date in Songbirds.* Current Biology. September 16, 2010.

Knick, S. T., Hansen, S. E., and Preston, K.L. 2013. *Modeling ecological minimum requirements for distribuion of greater sage-grouse leks: implications for population connectivity across their western range, U.S.A.* Ecology and Evolution 2013; 3(6): 1539-1551. March 13, 2013.

Legacy Rehost System (LR2000). 2013. *Land & Mineral Legacy Rehost 2000 System.* http://www.blm.gov/lr2000/. Accessed August 2013.

Malmberg, G. T., Worts, G. F. 1966. *Water Resources Bulletin No. 31. The Effects of Pumping on the Hydrology of Kings River Valley, Humboldt County, Nevada*, 1957-64.

National Park Service. 2009. *Dark Night Sky*. Available online at: http://www.nps.gov/yose/naturescience/dark-night-sky.htm

Natural Resource Conservation Service (NRCS). 2011. *Web Soil Survey Soil Survey of Humboldt County, Nevada East Part*. Accessed on-line December 15, 2011, at: http://websoilsurvey.nrcs.usda.gov/app/WebSoil Survey.aspx

NRCS. 2002. Soil Data Explorer.

Nevada Department of Transportation (NDOT). 2012a. *Annual Traffic Report Results*. http://www.nevadadot.com/uploadedFiles/NDOT/About_NDOT/NDOT_Divisions/Planning/Traffic/2012ATRs.pdf.

NDOT. 2012b. *Humboldt County 2012 Annual Ttraffic Report*. http://www.nevadadot.com/uploadedFiles/NDOT/About_NDOT/NDOT_Divisions/Planning/Traffic/2012Humboldt.pdf.

NDOT. 1999. *Access Management System and Standards*. Traffic Engineering. July 1999.

Nevada Department of Wildlife (NDOW). 2013a. Letter to Carrie Schultz (SRK) from Timothy Herrick (NDOW). *Re: Kings Valley Clay EA*. October 11, 2013.

NDOW. 2013b. Letter from Kenny Pirkle (NDOW) to Mark Hall (BLM). *Re: WLC Kings Valley Clay Mine*. May 2, 2013.

NDOW. 2013c. *Nevada Sage-grouse Conservation Project; Final Performance Report*. FBMS Grant No. : F11AF00994. December, 2013.

NDOW. 2012. *Nevada Department of Wildlife Greater Sage-Grouse Habitat Categorization Map*. December 2012.

NDOW. 2011. Letter to Dave Worley (JBR) from Timothy Herrick (NDOW). *Re: Western Lithium Mining Project*. December 6, 2011.

NDOW. 2010. *Bighorn Sheep Radio Collar Tracking Data*. Printed 5/20/2010.

NDOW. 2006. *Nevada Wildlife Action Plan*. Nevada Department of Wildlife, Reno.

NDOW. 2004. *Sage Grouse Conservation Plan for Nevada and Portion of Eastern California, June 30, 2004*. Appendix N, North Central Local Area Conservation Plan and Population Management Unit Plans Completed to Date. Lone Willow Population Management Unit Plan.

Nevada Division of Environmental Protection (NDEP). 1998. *Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest Service: Attachment B.*

Nevada Natural Heritage Program (NNHP). 2013. Letter to Carrie Schultz (SRK) from Eric Miskow (NNHP). *Re: Data request received 03 October2013.* October 2013.

NNHP. 2011. Letter to David Worley (JBR) from Eric Miskow (NNHP). *Re: Data request received 15 November 2011.* December 2011.

Patricelli, Gail L., Blickley, Jessica L., and Hooper, Stacie L. 2013. *Recommended Management Strategies to Limit Anthropogenic Noise Impacts on Greater Sage-Grouse in Wyoming*. Human-Wildlife Interactions 7(2):230-249, Fall 2013.

Pirkle, Kenny. 2011. Email conversations between Kenny Pirkle (NDOW) and Catherine Clark (WLC). *Re: WLC Proposed Noise Assessment.* October 2011.

Schlumberger Water Services (SWS). 2013. *Technical Memorandum: Kings Valley Springs Impact and Monitoring Analysis.* July 19, 2013.

Schroeder J, Nakagawa S, Cleasby IR, Burke T. 2012. *Passerine Birds Breeding under Chronic Noise Experience Reduced Fitness*. PLoS ONE 7(7): e39200.doi:10.1371/journal.pone. 0039200

Schroeder, M.A., C.L. Aldridge, A.D. Apa, J.R. Bohne, C.E. Braun, S.D. Bunnell, J.W. Connelly, P.A. Deibert, S.C. Gardner, M.A. Hilliard, G.D. Kobriger, S.M. McAdam,

C.W. McCarthy, J.J. McCarthy, D.L. Mitchell, E.V. Rickerson, and S. J. Stiver. 2004. *Distribution of sage-grouse in North America*. Condor 106:363-376.

SRK Consulting (U.S.), Inc. (SRK). 2013a. *Kings Valley Clay Mine Spring and Seep Survey June 2013.* July, 2013.

SRK. 2013b. *Supplemental Baseline Biological Survey Report*. June 2013

SRK. 2013c. *Revised Waste Rock Characterization Report for the Kings Valley Clay Mine -Final* Report prepared for Western Lithium Corp. August 2013.

State of Nevada Department of Agriculture. 2013. *Noxious Weed Species List*. http://agri.nv.gov/Plant/Noxious_Weeds/Noxious_Weed_List/. Accessed May 17, 2013.

SWS. 2012a. *Groundwater Occurrence at the Western Lithium Kings Valley Clay Mine Project.* September 26, 2012.

SWS. 2012b. *Western Lithium Corporation Kings Valley Lithium Project Groundwater Quantity and Quality Impact Analysis Report - Draft*. January 2012.

SWS. 2011. *Preliminary Results for the Western Lithium Corporation Kings Valley Lithium Project Surface Water Evaluation.* October 20, 2011.

United States Army Corps of Engineers (USACE). 2012. Letter to Ms. Catherine Clark (WLC) from Jason Gibson (USACE). *Regulatory Division SPK-2011-01263-NO.* October 11, 2012.

United States Fish and Wildlife Service (USFWS). 2012. *Nevada Fish and Wildlife Office Lahontan Cutthroat Trout Species Profile*. http://www.fws.gov/nevada/protected_ species/fish/species/lct.html. Accessed May 26, 2013.

USFWS. 2010. *Bald Eagle Management Guidelines and Conservation Measures*. http://www. fws. gov/midwest/eagle/guidelines/bgepa.html. Accessed July 2010.

USFWS. 2011. *Species list request for the Kings Valley Lithium Project, Humboldt County, Nevada*. November 17, 2011.

USFWS. 1995. *Recovery Plan for the Lahontan cutthroat trout. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon.*.

USFWS. 2013. *Greater Sage-grouse (Centrocercus urophasianus) Conservation Objectives: Final Report*. U.S. Fish and Wildlife Service, Denver, CO. February 2013.

United States Geological Survey (USGS). 2013. *Summary of Science, Activities, Programs, and Policies That Influence the Rangewide Conservation of Greater Sage-Grouse (Centrocercus urophasianus).* Prepared in cooperation with the Bureau of Land Management. Open-File Report 2013-1098.

USGS. 2007. *National Gap Analysis Program. Southwest Regional GAP Analysis Project—Land Cover Descriptions*. RS/GIS Laboratory, College of Natural Resources, Utah State University. http://gapanalysis.usgs.gov/. Accessed June 6, 2011.

Western Lithium Corporation (WLC). 2012. Western Lithium Corporation *Kings Valley Clay Mine Plan of Operations and Reclamation Permit Application*. Reno. October 2012.

WLC. 2013. Letter to NDEP Bureau of Mining Regulation and Reclamation. *Re: Kings Valley Lithium Exploration Project Reclamation Permit #0301, BLM Case Number N85255*.

WLC. 2011. *Western Lithium Corporation Kings Valley Lithium Exploration Project, Humboldt County, Nevada: Amendment #1 Plan of Operations N85255 and Nevada Reclamation Permit No. 0301.* May 2011.

WLC. 2007. *Notice for Lithium Exploration Activities.* May 29, 2007.

Western Regional Climate Center (WRCC). 2013. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?nv4236. Period of Record Monthly Climate Summary from November 1, 1956 to September 29, 2012. Accessed on March 6, 2013.

FIGURES

APPENDIX A

Spill Contingency and Emergency Response Plan

Kings Valley Clay Mine
Spill Contingency and
Emergency Response Plan

BLM File Serial Number NVN-91547
Reclamation Permit Number (____)

Prepared by:
Western Lithium Corporation
3685 Lakeside Drive
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February 2014

DISTRIBUTION LIST

Assigned to	Responsible Party	Area of Responsibility
Senior Vice President Development	Dennis Bryan	Management
Mine Operations	Bo Elgby	Mine Manager
Geologist	Bo Elgby	Mine Operations
Administration Office	Catherine Clark	Environmental Manager
U.S. Bureau of Land Management	Daniel Atkinson	Potential Responding Agency
Humboldt County Sheriff's Department	To be determined	Emergency Services Coordinator
Orovada Volunteer Fire Department	To be determined	Potential Responding Agency
Nevada Highway Patrol	To be determined	Potential Responding Agency

DOCUMENT RECORD OF CHANGES

Rev. No.	Date	Section	Page	Approved By
1.	2/11/2014	-	-	C.Clark; WLC
2.				
3.				
4.				
5.				
6.				
7.				

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1 Introduction

This Spill Contingency/Emergency Response Plan (SC/ERP) for the Kings Valley Clay Mine (KVCM) is submitted by Western Lithium Corporation (WLC) to the U.S. Bureau of Land Management (BLM) and the Nevada Division of Environmental Protection (NDEP). WLC is submitting a Plan of Operations and Reclamation Permit Application for the operation. The KVCM is located on public land administered by the BLM. The KVCM is situated near Thacker Pass between the Montana Mountains and Double H Mountains in Humboldt County, Nevada, about 62 miles north-northwest of Winnemucca, Nevada (Figure E-1) 41°42'20.48" N, 118°03'24.31" W.

1.1 Purpose

The purpose of this SC/ERP is to establish responsibilities and guidelines for actions to be taken by mine personnel in the event of a spill at the site. These guidelines are intended to assist personnel and responsible parties in making timely decisions and taking positive actions toward a successful resolution of the problem.

This SC/ERP identifies potential sources of spills, establishes measures of prevention, and defines control, cleanup, and reporting procedures, including instructions on what to do in the event of a spill, petroleum release, or natural disaster.

Specifically, the objectives of the SC/ERP are to:

- Reduce the potential for accidental spills and environmental degradation by taking precautionary measures and being prepared for potential emergencies;
- Provide the operating facility with the necessary information to properly respond to an emergency situation involving a spill;
- Define personnel roles for emergencies involving hazardous conditions; and
- Include a self-audit program to ensure that the plan and related response activities meet environmental protection objectives.

This SC/ERP has been prepared as an appendix to the Plan of Operations and Reclamation Permit Application but is also maintained as a stand-alone document assigned to personnel and to individuals on the distribution list provided above.

This SC/ERP has been prepared in compliance with 43 CFR 3809.401(b)(2)(vi).

1.2 Spill Contingency Plan Review

This SC/ERP will be reviewed and updated on a regular basis during operations to ensure it remains applicable to the hazards associated with the operation. Modifications or changes will be made if conditions pertaining to this SC/ERP change at the site. Modifications will be issued to all SC/ERP-holders as recorded in the revision table.

2 Facility and Operations Overview

2.1 Facilities

WLC proposes to develop an open-pit clay mine at the KVCM site. Clay will be selectively mined from 2 open pits and stockpiled on-site in a designated ore-grade stockpile area. Ore-grade raw or crushed clay will be loaded into highway-legal trucks and sold to an end-user or hauled to a clay processing facility located in the United States or to an international facility where it will be processed.

The pits, waste rock disposal areas (WRDA), roads, and ancillary facilities will result in approximately 109.9 acres of total disturbance. Upon completion of mining, the operation will be closed and reclaimed with the land being returned to the pre-mining uses of grazing, wildlife habitat, dispersed recreation, and continued mineral exploration. The projected mine life is 20 years, with associated construction, closure, reclamation, and monitoring periods extending the Project life to approximately 23 years.

As part of mining operations, the mine contractor will transport petroleum and equipment maintenance products via the service truck to be used at the mine site.

The proposed project developments are shown on Figure E-2 and will consist of:

- 2 open pits;
- 2 waste rock disposal areas (WRDA);
- 4 growth media stockpiles;
- An ore-grade stockpile area (including a crusher) where clay ore will be separated into 3 separate grades;
- An ongoing exploration program utilizing drilling equipment, roads, pads, and sumps;
- Two existing wells as a non-potable water supply source (for dust control);
- Aggregate source (and associated aggregate stockpiles) and mobile screen;
- Ancillary facilities including: stormwater controls, office/first-aid trailer and parking, temporary mobile water tank, ready line, and fencing; and
- Access improvements to SR 293.

2.2 Chemical Use

A mine contractor, hired by WLC will transport petroleum and equipment maintenance products to the KVCM site. All petroleum and equipment maintenance products will be transported and stored in the mine contractor's service truck. WLC will not store petroleum or equipment maintenance products on-site. Typical equipment maintenance products used in small quantities by the contract mining company include automatic transmission fluid, engine oil, hydraulic fluid, gear oil, and antifreeze. Typical quantities of engine, hydraulic and transmission fluids on the service truck should not exceed 150 gallons. Quantities stored on the contract service vehicle may vary slightly depending on the contractor. A service truck will typically hold approximately 1,000 gallons of fuel and a small fuel truck approximately 3,000 gallons.

Fuel (off-road diesel) will be delivered to the site via commercial fuel trucks and stored on the contractor's service and fuel trucks. The service and fuel struck will be used to directly fuel on-site equipment. Whenever possible, fueling of equipment will be performed at the ready line. Drivers off-

loading fuel will be certified and trained. Smaller quantities of hydrocarbons and regulated materials (e.g. anti-freeze) will be kept in proper containment and located on the contractor's service vehicle.

The mining contractor's service truck is not anticipated to be on-site at all times, and will travel to the KVCM site as needed to service mine vehicles.

All fuel and equipment maintenance products will be transported, used, and stored in accordance with applicable federal, state, and local regulations and guidelines overseen and/or enforced by U.S. Department of Transportation (DOT), Nevada Department of Transportation, Bureau of Alcohol, Tobacco and Firearms, Department of Homeland Security, and Mine Safety and Health Administration (MSHA).

No hazardous materials, as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at 40 Code of Federal Regulations (CFR) 302.4, would be stored or used at the KVCM site in sufficient quantity as to result in a spill of reportable quantity.

2.3 Organization and Personnel

The Project is operated by WLC. Key site personnel and their respective classifications are summarized in Table 2-1 below. The primary contact for the Project is the Mine Manager/Supervisor.

Table 2-1: Facility Personnel Summary

Personnel Classification	Name
Mine Manager/Supervisor	Bo Elgby
Geologist	Bo Elgby
QA/QC	To be determined
Environmental Manager	Catherine Clark

The estimated number of people employed during clay mine construction and operation will be 14; 10 will be contract miners and 4 will be WLC employees.

3 Spill Prevention

3.1 Inspections

All mine equipment and the mining contractor's service vehicle will be inspected for leaks and/or damage on a routine basis. Employees and contractors on-site will be directed to immediately report leaks and damage to the working Mine Manager/Supervisor and the Environmental Manager for assessment. The Mine Manager/Supervisor will be responsible for scheduling and implementing necessary repairs as soon as possible. If discharge has occurred or will occur, the Mine Manager/Supervisor is required to inform the Environmental Manager in writing, of the intended schedule and manner of repair.

3.2 Transfer of Petroleum Products

Mine contractors responsible for transfer of petroleum products will remain at the fill point until fill procedures are completed and the transfer line is placed back in the proper storage location. Spills will be reported to the Mine Manager/Supervisor and Environmental Manger, and cleanup will be planned and scheduled. WLC policy will be to start remediation of spills as soon as possible and within 24 hours.

3.3 Preventive Maintenance

Preventive maintenance will be performed to maintain the integrity of vehicles and equipment.

3.4 Spill Containment Structures

All fueling of vehicles, when possible, will be performed within the parking/ready-line area. Should a spill occur, it would be confined within the parking/ready-line area.

4 Emergency Preparedness

4.1 Personal Protective Equipment

Mine personnel will be required to wear personal protective equipment, including hardhats, steel-toed boots, eye protection, safety vests, and hearing protection (where necessary) as required by MSHA.

4.2 First Aid

First aid kits will be maintained in the office/first-aid trailer in addition to vehicles and heavy equipment as required by MSHA. Key personnel will be trained and certified in CPR and basic first aid on an annual basis during MSHA refresher classes.

4.3 Fire Extinguishers

Fire extinguishers will be placed in the office/first-aid trailer, in vehicles, and in heavy equipment as required by MSHA. Fire extinguishers will be of the type required to address the reasonably anticipated class of fire at a given location. Fire extinguishers will be serviced regularly to ensure their proper functioning.

Location and proper use of fire extinguishers will be reviewed with personnel on an annual basis, at a minimum, and upon assignment for new personnel.

4.4 Additional Fire Suppression Measures

A non-potable water tank and/or portable fire suppression backpack units will be maintained on-site (during non-freezing weather) and will be available for use in fire suppression. Employees will also be trained in the use of hand-held fire extinguishers.

Light vehicles will carry a small water supply, a fire extinguisher, shovel and/or pulaski in order to control fires generated by exhaust or catalytic converters.

Vehicle catalytic converters would be inspected often and cleaned of all flammable debris.

4.5 Material Identification

A variety of petroleum and equipment maintenance products will be used (but not stored) at the KVCM site. The DOT regulations found at 49 CFR 172 designate most petroleum and equipment maintenance products as hazardous materials (for the purpose of transporting those materials), especially, those that exhibit the following physical health hazards:

- Toxicity;
- Explosive properties;
- Corrosiveness;
- Flammability;
- Oxidizing properties; and
- Potential for violent or other chemical reaction when mixed.

Material safety data sheets (MSDS) for all materials on-site will be maintained at either the first-aid trailer (if present/on-site) or within the mine manager's vehicle. The MSDS provides relevant information on physical characteristics; hazardous reactivity; fire and explosion data; and health hazard information including safety precautions and first aid/medical treatment. Containers on the mine contractor's service truck will be clearly labeled as to contents.

As previously stated, no hazardous materials, as defined by the CERCLA at 40 CFR 302.4, would be stored or used at the KVCM site in sufficient quantity as to result in a spill of reportable quantity.

4.6 Spill Prevention and Countermeasures

A variety of equipment maintenance products will be used at the parking/ready-line area. These materials will be stored on the mine contractor's service truck.

Spill containment and cleanup equipment will be maintained at the parking/ready-line including:

- Oil absorbent rolls and pads;
- Spill kits;
- Front-end loader;
- Excavator;
- Grader; and
- Dozer.

If the spill is of significant size and/or duration, special cleanup efforts such as those provided by environmental contractors may be deemed necessary.

4.7 Communication Systems

Communications will be provided through the use of cell phones or on-site radios. No new or permanent communication systems will be constructed. Currently, WLC is proposing to use cell phones at the mine site. On-site radios are not currently proposed for use; however, they could be used at some time in the future. In the event of an emergency (and if the mine site is using on-site radios), "Emergency – Request for Radio Silence" will be announced on all channels of the radio system. When the request for radio silence is announced, ALL radio traffic, except necessary emergency communications, will cease. If the incident is in the pit, all vehicles will pull over and stop until notified otherwise. External communications regarding emergency situations will be conducted whenever possible by telephone.

5 Spill Response Activities

5.1 Emergency Response Procedures

The following is the procedure to be used in the event of a spill or release:

1. First responder reports incident and notifies the Mine Manager/Supervisor;
2. Mine Manager/Supervisor notifies the Environmental Manager and (if necessary) the Emergency Response Team;
3. Environmental Manager will be responsible for contacting offsite emergency response teams;
4. Gather information about the incident;
5. Complete preliminary information on incident report form;
6. Contact and transmit information to emergency response team;
7. Emergency response team dispatched to incident;
8. Contact additional emergency units if necessary;
9. Contain spill material and control release;
10. Contact offsite specialists/contractors as required by the circumstances;
11. Remove and secure contaminated material;
12. Arrange for proper disposal of contaminated material;
13. Mine Manager/Supervisor completes incident report form;
14. Verbally notify agencies of spill if amount is greater than or equal to the reportable quantity;
15. Follow incident up with a debriefing; and
16. Evaluate emergency response procedures and modify as necessary.

5.2 Duties of Mine Personnel

Mine Manager/Supervisor

The Mine Manager/Supervisor will be notified as soon as possible when a reportable spill or release occurs. The Mine Manager/Supervisor will direct all public statements to the media, if required. The Mine Manager/Supervisor is responsible for coordinating the initial containment. The Mine Manager/Supervisor is responsible for determining if the spill will require the Emergency Response Team. Once the spill or release is controlled, the Mine Manager/Supervisor must verify if the spill is or is not a reportable spill and notify the Environmental Manager.

Emergency Response Team

The Emergency Response Team includes employees who have been specially trained to work with hazardous materials in a safe and orderly manner. The team is trained in the use of all safety gear and will promote and demonstrate safe remediation practices. The prime responsibility of the team is to assess a scene for hazards, act professionally, and conduct cleanup procedures as outlined in the previous section. The Emergency Response Team could be represented by either a consultant who is also a Nevada Certified Environmental Manager or a firm such as "Clean Harbors Environmental Services" www.cleanharbors.com; located in both Sparks, Nevada and Carlin, Nevada.

Environmental Manager

The Environmental Manager will determine or verify pertinent facts about the incident, including the amount and location of the spill or release, probable direction and time of travel of the spill, resources required at the scene, and the property that may be affected. The Environmental Manager may advise, instruct, and/or direct containment, countermeasures, and cleanup of the release. The Environmental Manager will assess the area to determine the effect and extent of the spill or release and report the information to the Mine Manager/Supervisor.

5.3 Emergency Response for Chemical Spills

WLC's mine contractor will use and transport equipment maintenance products at the mine. All products will be stored on the mine contractor's service vehicle. The service vehicle is not anticipated to be on-site at all times and will travel to the KVCM site as needed to service mine vehicles. No chemicals or equipment maintenance products will be stored at the mine site. These products will be handled according to standard industry practices which will include the use of personal protection equipment, task training, and preventive maintenance. In spite of the training and precautions, unplanned events may occur that require rapid response to protect worker health, prevent or reduce releases to the environment, and reduce damage to equipment.

5.3.1 Gasoline and Diesel Fuel

Specifications

Gasoline and diesel fuel are shipped to the site either on the service vehicle or in 1,000 gallon to 3,000 gallon sized tanker trucks.

Personal Safety

1. Stay upwind, out of fumes, and keep out of low areas.
2. Wear rubber gloves and boots.
3. No smoking or open flames near gasoline or diesel fuel.

Immediate Response

1. Notify the Environmental Manager of the spill and request special instructions for personnel safety during cleanup.
2. Follow the SOPs as outlined in Section 5.1 above.
3. Remove all sources of ignition.
4. Evacuate and isolate the immediate area to avoid personnel exposure.
5. Stop the leak without personal safety risks.
6. Dike the area to contain the spill.

Containment, Countermeasures, and Cleanup

1. Remove all diesel-contaminated soil and place in a designated area for removal and disposal.
2. Gasoline-contaminated soil will be temporarily stored on a synthetic liner and will be covered to prevent volatilization. Contact the Environmental Manager for appropriate disposal options.
3. All diesel or gasoline liquids recovered from a spill will be placed in 55-gallon drums for proper disposal.

5.3.2 Automatic Transmission Fluid

Specifications

Automatic transmission fluid (ATF) is transported to the site in containers, as needed, on the mine contractor's service vehicle. ATF is a red, transparent-colored liquid.

Personal Safety

1. Provide adequate ventilation.
2. Wear rubber gloves, goggles, boots, and an approved respirator when necessary.
3. No smoking or open flames near ATF.

Immediate Response

1. Notify the Environmental Manager of the spill and request special instructions for personnel safety during cleanup.
2. Follow the SOPs as outlined in Section 5.1 above.
3. Remove all sources of ignition.
4. Isolate the spill area and stop the leak without personal safety risks.
5. For a pipeline leak, adjust appropriate valves to isolate the system and stop the leak.

Containment, Countermeasures, and Cleanup

1. Recover free product for recycling or disposal.
2. Use sand, earth, or absorbent material to absorb from spill area.
3. Remove contaminated soil and place in designated area for removal and disposal.

5.3.3 Engine or Gear Oils

Specifications

Engine and gear oils would be stored on the mine contractor's service truck in 150 gallon (or smaller) containers.

Personal Safety

1. Wear rubber gloves and boots.

Immediate Response

1. Notify the Environmental Manager of the spill and request special instructions for personnel safety during cleanup.
2. Follow the SOPs as outlined in Section 5.1 above.
3. Remove all sources of ignition.
4. Stop the leak.
5. Dike the area if the spill is large.

Containment, Countermeasures, and Cleanup

1. Pump pooled oil into 55-gallon drums or similar container. Contact the Environmental Manager for additional instruction.
2. Remove contaminated soil and place in a designated area for removal and disposal.

5.3.4 Hydraulic Fluid

Specifications

Hydraulic fluid is a blend of ingredients which may vary slightly by manufacturer. It is a clear fluid with a slight odor. Product will be transported to the site, as-needed, in containers located on the mine contractor's service vehicle.

Personal Safety

1. No particular safety equipment is required, although gloves are recommended.

Immediate Response

1. Notify the Environmental Manager of the spill and request special instructions for personnel safety during cleanup.
2. Follow the SOPs as outlined in Section 5.1 above.
3. Use appropriate tools to put the spilled solid in a waste disposal container.
4. Excavate the contaminated soil. Contact the Environmental Manager for disposal options.

Containment, Countermeasures, and Cleanup

1. Dike area if needed.
2. Remove contaminated soils and use dry materials to soak up spills.

5.3.5 Ethylene Glycol (Antifreeze)

Specifications

Stored on the mine contractor's service vehicle at 50 percent ethylene glycol, the material has a distinctive green color and a pH of 9.

Personal Safety

1. Wear rubber gloves, eye protection, and self-contained breathing apparatus.
2. In the event of fire, avoid contact with strong acids, bases, and oxidizers.
3. Thoroughly wash contacted skin and clothing.

Immediate Response

1. Notify the Environmental Manager of the spill and request special instructions for personnel safety during cleanup.
2. Follow the SOPs as outlined in Section 5.1 above.
3. Safely stop the source of a leak or spill and contain.
4. Properly flag and mark the spill area. Isolate the spill from exposure to wildlife.

Containment, Countermeasures, and Cleanup

1. Reclaim free solution.
2. Excavate contaminated soils and place on a synthetic liner. Contact the Environmental Manager for appropriate disposal options. Do not mix hydrocarbon and ethylene glycol contaminated soils.

6 Emergency Services and Contact Information

Depending on the nature of the emergency, mine personnel responding will first contact emergency services via cell phones or two-way radios installed in vehicles and heavy equipment. Once the immediate threat has been stabilized, the Humboldt County Sheriff's Office and additional regulatory agencies (as required) will be contacted.

The KVCM is not in close proximity to any urban areas, so the first responder to any fire emergency is likely to be on-site personnel. The closest dispatch center is provided by the Orovada Volunteer Fire Department, located approximately 21 miles from the site.

The closest major medical center to the mine is the Humboldt General Hospital (HGH) in Winnemucca, Nevada, approximately 65 road miles from the KVCM. This facility has an emergency room and other facilities adequate to handle emergencies that may occur. If immediate care is necessary, the Care-Flight Air Ambulance program from Reno, Nevada is equipped to provide rapid air transportation of critically injured/ill persons. Note: should an air ambulance be required from Reno, round-trip flight time is approximately 3 hours, with one refueling stop in Winnemucca required (based on 2 miles per minute flight time).

Emergency response vehicles and a trained mine rescue team will respond to fire and medical emergencies at the site. Mine rescue and fire response teams may be available to assist with off-site response if requested by agency personnel or others. However, WLC anticipates that local and regional agencies will maintain sole responsibility for response to incidents outside of the immediate Project area.

Table 6-1: Emergency Contact Information

Location	Position/Agency	Contact	Location	Phone Number(s)	Radio/Cell Phone Number
WLC Emergency Contacts	Mine Manager/Supervisor	Bo Elgby	WLC Office Reno & Orovada	775-827-3318	775-233-2651
	Environmental Manager	Catherine Clark	WLC Office Reno	775-827-3318	775-997-9640
Offsite Emergency Contacts	Central Nevada Interagency Dispatch	On Duty Personnel	5330 Jay's Road Winnemucca, NV 89445	775-623-1555	--
	BLM Humboldt River Field Office	On Duty Personnel	5100 East Winnemucca Blvd. Winnemucca, NV 89445	775-623-1500	--
	Nevada Division of Environmental Protection	Spill Reporting Hotline	901 S. Stewart St. Ste 4001 Carson City, NV 89701	888-331-6337	-
	Humboldt County Sheriff's Office	On Duty Personnel	50 W. Fifth Street Winnemucca, NV 89445	775-623-6419	--
	Orovada Volunteer Fire Department	On Duty Personnel	1 Fire House Rd Orovada, NV 89425	775-272-3367	--
	Humboldt General Hospital - EMS Ambulance	On Duty Personnel	118 E. Haskell Street Winnemucca, NV 89445	911-emergency 775.623.6429 (non-emergency)	--
	Humboldt General Hospital	On Duty Personnel	118 E. Haskell Street Winnemucca, NV 89445	775-623-5222	--
	Care Flight Air Ambulance	On Duty Personnel	450 Edison Way Reno, Nevada 89502	800-648-4888	--
	Clean Harbors Environmental Services	On Duty Personnel	55 Silicon Drive McCarran (Sparks), NV 89434	800-645-8265	--
	Nevada Certified Environmental Manager	Joe McGinley Principal	McGinley & Associates 815 Maestro Drive Reno, Nevada 89511	775-829-2245	775.750.1543
	Nevada Certified Environmental Manager	George Hagan Lead Field Technician	McGinley & Associates 815 Maestro Drive, Reno 24-hour on-call	775-829-2245	775.530.9804
Project Site Longitude and Latitude			**41°42'20.48" N 118°03'24.31" W**		

7 Reporting and Notification

Reportable environmental incidents will be conveyed to the appropriate agencies by WLC within 24 hours of incident stabilization. WLC's environmental manager or designee will be responsible for incident reporting. If the release is determined to be a reportable quantity, the incident will be reported by telephone not later than 5 p.m. of the next regular work day from the time of the incident to:

- NDEP's 24-hr. emergency notification number at 1.888.331.6337 (in-state) or 1.775.687.9485 (out of state)
- National Response Center (NRC) at 1.800.424.8802
- BLM- Humboldt River Field Office at 775.623.6419
- Transportation incidents should be reported to 911

Reporting is required within 24 hours, or the next business day, if the release occurs on a weekend.

WLC will also be responsible for obtaining special authority for emergency operations where equipment, personnel, or materials are required for the containment of spills or removal of hazardous material.

7.1 Incident Reporting Forms

The following is a list of incident reporting forms and checklists that will be developed prior to initiation of operations and made available to personnel:

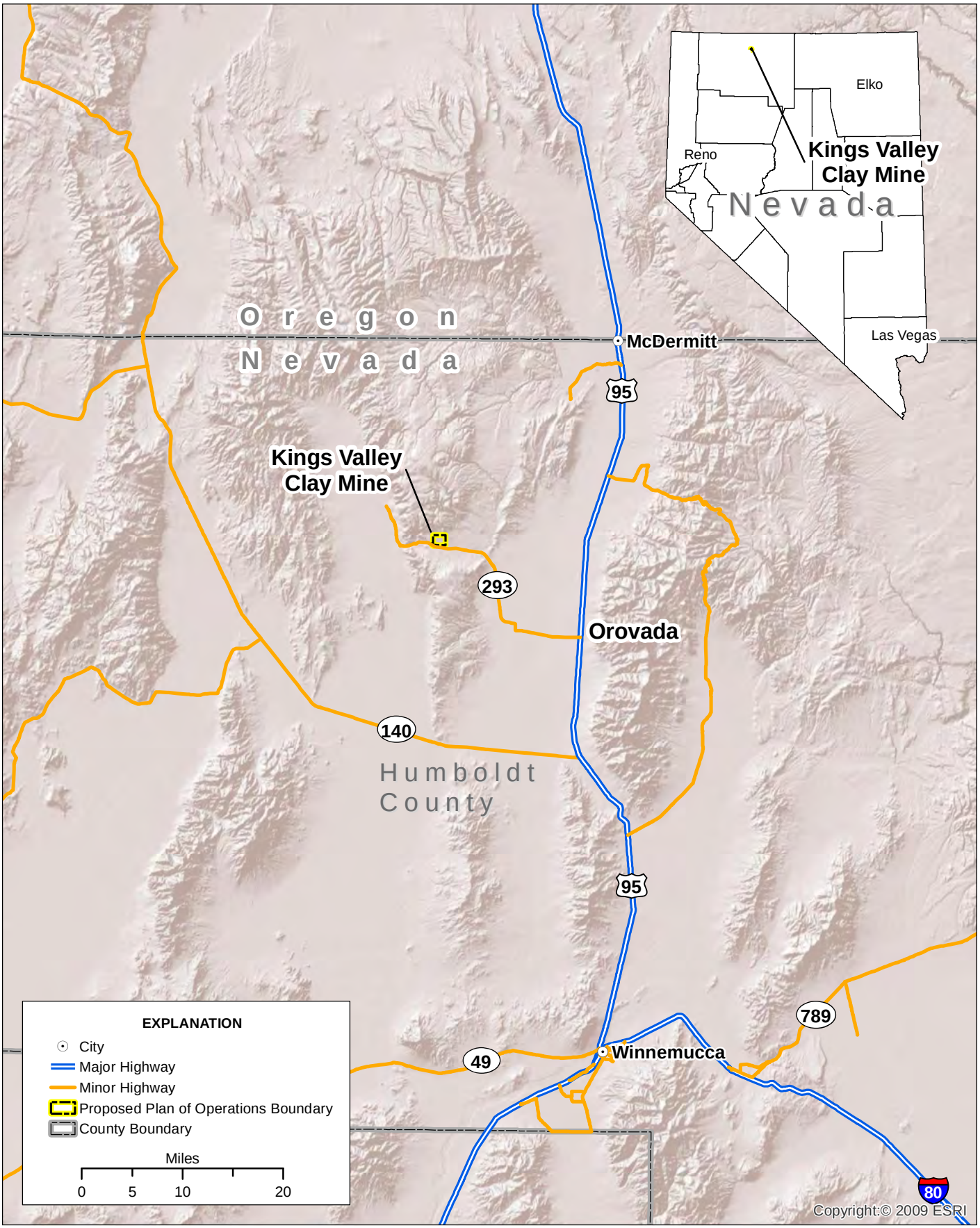
- Site Safety Plan;
- Checklist for Person Identifying Emergency/Incident Scene Checklist;
- Petroleum and Equipment Maintenance Product Checklist.

These forms will be used to document incidents that occur as well as assist mine personnel during an emergency.

8 Training

Employees will be trained annually in the details of this SC/ERP prepared for WLC. Training records will be retained in employee personnel files and in the facility operating record.

FIGURES



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WESTERN LITHIUM WLC

KINGS VALLEY CLAY PROJECT

DRAWING TITLE:

LOCATION MAP

PROJECT: SPILL CONTINGENCY AND EMERGENCY RESPONSE PLAN

DATE: 10/3/2012	DRAWING NO.	REV. NO.
SRK JOB #: 357800.060	D-1	A

H:\Western Lithium Corporation\357800.060 - Kings Valley Clay Project\040_Drafting\Task_1000_Clay_Mine\PoO_Clay_Fig_01_20120813.mxd

Disclaimer:
The data within this figure was gathered from the Client, PLSS, and the USGS.
The accuracy of this information cannot be guaranteed.
Please consult the primary sources to verify information contained herein. 2011 Aerial Imagery

PH-1
WSH-17 (PH-2)
Area D Planned Drilling 5.96 ac
Area C Planned Drilling 3.32 ac
Central Growth Media 2.10 ac
WLT-01 WRDA 13.96 ac
Central WRDA 19.32 ac
WLT-01 Pit 13.16 ac
Central Clay Pit 16.26 ac
Growth Media West 2.08 ac
Clay Ore Stock Pile 13.10 ac
WSH-14
Growth Media East 2.75 ac
Ready Line
Office, First-Aid, Parking 1.73 ac
Growth Media South 0.92 ac
Aggregate Resource 2.88 ac
WSH-13
Road to remain open. Grazing permittee access to spring site retained.
44N 35E
293

EXPLANATION

- Existing Gate
- Proposed Gate
- Proposed Signage
- Meteorological Station
- Existing Monitoring Well
- Existing Fence Line
- Existing Power Line
- SR 293
- Proposed Plan of Operations Boundary
- Section Line
- 25' Contour Interval
- 5' Contour Interval
- Aggregate Resource
- Clay Ore Stock Pile
- Exploration
- Growth Media
- Office, First-Aid, Parking
- Pit
- Road
- WRDA

0 350 700 1,400 Feet

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REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: PoO_Clay_Fig_05_20120822.mxd

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WESTERN LITHIUM WLC
KINGS VALLEY CLAY PROJECT

DRAWING TITLE: PROPOSED PROJECT

PROJECT: SPILL CONTINGENCY AND EMERGENCY RESPONSE PLAN
DRAWING NO.: D-2
REV. NO.: A
DATE: 10/3/2012
SRK JOB #: 357800.060

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APPENDIX A

SPILL REPORT FORM

NDEP # 0 _____

Report Date: _____ Report Time: _____

Incident Date: _____ Incident Time: _____

Do You Want to Remain Anonymous? ☐

Complaint/Spill Report Form

State of Nevada

Telephone: (888) 331-6337

Fax: (775) 687-8335

Reporting Person/Agency _____

Address: _____ Phone: _____

City: _____ State: _____ Zip: _____

Discharger/Owner/Operator of Facility: _____

Address: _____ DOT#: _____

City: _____ State: _____ Zip: _____

Contact Person: _____ Phone: _____

Location of Complaint/Spill:

APN#: _____

City: _____ State: _____ County: _____

Township: _____ Range: _____ Section: _____ Q,Q2: _____ Mile Marker: _____

Type of Material Discovered: _____

Concentration (%, ppm, ppb): _____

Quantity Found: _____ Media Affected: _____

Cause of Complaint/Spill:

Remedial Action Taken:

Oversight/Enforcement: _____

cc: _____

cc: _____

Comments:

Report Taken By: _____

APPENDIX B

Noxious and Invasive Species Management Plan

Kings Valley Clay Mine
Noxious and Invasive Species Management Plan

BLM File Serial Number NVN-91547
Reclamation Permit Number (____)

Prepared by:
Western Lithium Corporation
3685 Lakeside Drive
Reno, Nevada 89509

February 2014

Table of Contents

Figures

Appendices

1. Introduction

An invasive species is defined as a species whose introduction would, or is likely to, cause economic, environmental harm or harm to human health. A plant species is considered invasive only when it occurs on the federal or state-specific noxious weed list or is listed by the state-specific Department of Agriculture which prohibits or cautions its use due to its invasive qualities. Management of these species may be legally mandated by state, federal, or other laws and regulations. There are no invasive non-native animals that are mandated for control in the Western Lithium Corporation (WLC) King's Valley Clay Mine (Project Area). Figure E-1 shows the general local, and Figure E-2 shows the Project Area. This plan focuses on invasive non-native plants of concern in the Project Area, namely invasive weeds.

The Nevada Administrative Code (NAC) 555 defines a noxious weed as *any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate*. Generally, noxious weeds will possess one or more of the characteristics of being: aggressive and difficult to manage, parasitic, a carrier or host of deleterious insects or disease, and being non-native, new to, or not common to the U.S. or parts thereof. "Noxious weed" means any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate.

Listed noxious and invasive non-native weeds are typically species that can still be effectively controlled or eradicated. They are generally not weeds that have become too extensive and widely distributed to effectively control or eradicate. The noxious and invasive weeds discussed in this plan are either:

- Plant species listed or considered federal noxious weeds by the U.S. Department of Agriculture (USDA).
- Plant species listed as noxious weeds by the State of Nevada Department of Agriculture (Nevada Revised Statutes 555); and/or Invasive or noxious weeds of concern to the United States Bureau of Land Management (BLM).

1.1 Goals and Objectives

WLC proposes to construct, operate, and close the Kings Valley Clay Mine, a clay mine located near Thacker Pass, Nevada. Thacker Pass is located between the Montana Mountains and the Double H Mountains in Humboldt County, Nevada. The Project Area is located approximately 62 miles north-northwest of Winnemucca, 21 miles west of Orovada, and adjacent to State Highway 293.

The goal of this Invasive Non-Native Species Management Plan for the Project Area is to avoid or limit increases in noxious or invasive weed distribution. To achieve this goal; project construction, operation, maintenance, and reclamation activities will be conducted in a manner that will:

- Avoid or minimize the introduction or spread of noxious and invasive weeds into previously uninfested areas or beyond an existing infestation zone. An infestation zone is defined as an area containing a single large infestation or several separate infestations after which none occur for several miles;
- Avoid or minimize substantial increases in noxious and invasive weed population or extent within an existing infestation zone;
- Avoid or minimize invasive non-native or noxious species from moving into areas susceptible to invasion; and

- Avoid or minimize direct or indirect adverse effects on threatened and endangered, and special status plant or wildlife species by invasive and noxious weeds.

To achieve these goals, this Invasive Non-Native Species Management Plan outlines methods to be applied during the construction, operation, and reclamation phases of the project and provides guidance on monitoring and reporting the success of the management measures.

2. Regulatory Requirements

Regulatory requirements for the management of noxious and invasive weeds in the Project Area include the following:

2.1 Federal - Executive Order 11312: Invasive Species

Executive Order 11312 (February 3, 1999) directs all federal agencies to prevent and control introductions of invasive non-native species in a cost-effective and environmentally sound manner, and to minimize their economic, ecological, and human health impacts. Executive Order 11312 established a National Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and Advisory Committee oversee and facilitate implementation of the Executive Order, including preparation of a National Invasive Species Management Plan.

2.2 Federal Noxious And Invasive Weed Laws

A number of federal laws pertain to noxious and invasive weeds, including the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 as amended (16 U.S.C. 4701 et seq.), Lacey Act as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa et seq.), Federal Noxious Weed Act of 1974 as amended by the Food, Agriculture, Conservation and Trade Act of 1990 (Section 1453 "Management of Undesirable Plants on Federal Lands;" U.S.C. 2801 et seq.), the Carlson-Fogey Act of 1968 (Public Law 90-583), and the Federal Executive Order 11312 noted above. The BLM and other federal agencies are also concerned with the invasive weed infestation and dispersal on private and public lands. The BLM and U.S. Department of Agriculture maintain lists of pest plants of economic or ecological concern.

2.3 Nevada Noxious Weed Management

Chapter 555 of the Nevada Revised Statutes pertains to noxious weeds. The Nevada Department of Agriculture (NDOA) has responsibility for the management and enforcement of the state's noxious weed laws. Plants on Nevada's noxious weed list are to be controlled on private and public land. The law calls for the establishment of county Weed Control Districts with the responsibility to control and eradicate noxious weeds. The Nevada Cooperative Extension maintains lists of state-listed noxious and invasive weeds of economic or ecological concern.

3. Overview of Existing Conditions

Information on noxious and invasive weeds known, or with the potential, to occur in the Project Area was obtained from the BLM, Winnemucca Field Office, and the Nevada Cooperative Extension. Noxious and invasive weeds in the Project Area were characterized and mapped during the July 2011 field surveys and are described in the Baseline Biological Survey Report prepared by JBR Environmental Consultants, Inc. (JBR, 2012).

3.1 Noxious And Invasive Weed Inventory

A survey was performed by JBR for noxious weeds and invasive non-native species in the Project Area. The Project Area was visually searched for the presence of these plant species. The survey was intensified in areas which appeared to have a high potential for noxious weed infestations, such as previously disturbed areas and exposed soils.

No noxious weeds were observed in the Project Area. Ten invasive non-native species were observed in the Project Area:

- Hairy whitetop (*Cardaria pubescens*)
- Cheatgrass (*Bromus tectorum*)
- Tansy mustard (*Descurainia pinnata*)
- Russian thistle (*Salsola tragus*)
- Dandelion (*Taraxacum officinale*)
- Desert madwort (*Alyssum desertorum*)
- Cross flower (*Chorispora tenella*)
- Prickly lettuce (*Lactuca serriola*)
- Bur buttercup (*Ranunculus testiculatus*)
- Rough cocklebur (*Xanthium strumarium*)

A follow up survey was performed in June 2013 by WLC. No changes from the 2011 survey results were identified.

4. Methods

This section identifies management measures to limit the spread of invasive weeds in the Project Area. It also provides guidance on specific weed abatement techniques used to control weeds within the Project Area. These measures may be adapted over time as site specific data is collected so that a more targeted approach could be developed.

Ideally, the spread of invasive non-native weeds within the Project Area can be minimized by restricting access into infested areas. In several instances, however, access cannot be avoided. The following management measures and construction methods will be implemented to control the spread of invasive weeds in disturbed areas.

4.1 Responsible Parties

WLC will be responsible for implementing the management measures as appropriate during construction, operation, as well as during the post-construction reclamation phase. WLC will not be responsible for existing weed infestations, weeds introduced by other activities (e.g., ranching, hunting, etc.), natural occurrence (e.g., fire); or weeds found beyond the Plan of Operations Boundary.

4.2 Management Measures

This section lists the specific management measures to minimize the spread of invasive non-native weeds due to project activities. The management measures have been grouped into three categories: preventative measures, treatment measures, and education measures.

4.2.1 Preventative Management Measures

Control of Unavoidable Noxious and Invasive Non-Native Weeds During Construction: To limit the spread of noxious and invasive weeds from previously infested zones into previously uninfested areas, the following measures will be implemented:

- **Pre-Cleaning Equipment.** WLC will require all equipment previously used at another site to be power-washed prior to entry into the Project Area. New equipment will not be power washed prior to entry into the Project Area.
- **Weed-Free Materials.** Use certified noxious and invasive weed-free materials (e.g., straw bales, erosion control seed) when and where needed during construction, operation, reclamation, and maintenance.
- **Cheatgrass.** Cheatgrass infestations occur throughout the Project Area and vicinity. The focus on cheatgrass is to limit its spread into highly susceptible areas. Highly susceptible areas include largely uninfested sites located near dense cheatgrass infestations, especially those that were recently burned or are on soil types that are frequently dominated by cheatgrass. Areas infested with cheatgrass will be avoided whenever possible.

Operation and Maintenance Measures: To avoid or limit the introduction and spread of noxious and invasive non-native weeds into previously uninfested areas during project operation and maintenance activities, WLC will implement the following measures:

- **Cleaning Equipment and Vehicles.** WLC staff will regularly clean equipment and vehicles prior to and after use in the Project Area as part of operations and maintenance protocols, especially after leaving unavoidable infestation zones.

- **Coordination with Agencies and Other Groups on Noxious and Invasive Weed Management.** WLC will continue to coordinate with land management agencies to ensure that the appropriate Best Management Practices are implemented to minimize noxious and invasive non-native weeds introductions and dispersal. WLC will participate in weed management programs and meetings, in coordination with land management agencies and weed management groups such as the BLM, the Nevada Cooperative Extension, Nevada Division of Agriculture, Bureau of Plant Industry, weed management districts, and the Nevada Weed Management Association.

4.2.2 Treatment Management Measures

This section summarizes the suggested treatment methods for invasive weeds found in the Project Area during surveys. All treatments must be approved for use by the BLM and be conducted in compliance with all federal, state, and local weed control regulations. Should herbicides be used, all herbicide use will be prior approved by the BLM through the use of a Pesticide Use Proposal (PUP). Herbicides must be applied by qualified and/or licensed personnel and used in accordance with label directions. To minimize further disturbance, treatments should be conducted in conjunction with invasive weed surveys to the extent possible.

- **Construction Period Weed Control.**
  Noxious and invasive non-native weed weeds (prior to going to seed) may be cut and disposed of in designated areas (e.g., in the waste rock dump) or destroyed in a manner acceptable to the Nevada Department of Agriculture Plant Industry Division and Nevada Cooperative Extension. One, or both, of the following methods will be implemented to minimize the spread of noxious and invasive non-native weed seeds and plant materials by equipment and vehicles during construction: 1) weed-infested topsoil will be excavated, stored on-site, monitored, and treated during storage, if necessary, to limit new infestations and seed bank, and spread, monitored, and treated following construction; and 2) layer(s) of mulch, degradable geotextiles, or similar materials will be placed over the infestation area and secured in a manner so they will not be washed away.
- **Post-Reclamation Surveys and Weed Control Treatments.**
  WLC will conduct follow-up noxious and invasive non-native weed surveys and weed control treatments during the growing season, following all reclamation activities. The surveys may be conducted concurrently with reclamation monitoring activities. Controls will be considered successful when the extent and density of the infestations in the construction disturbance areas, by species, are not greater than the baseline conditions measured during surveys prior to project construction.
- **Ongoing Weed Abatement and Habitat Maintenance.** To discourage infestation by invasive species WLC will seed/revegetate all areas of disturbance which are not in an active state of use/disturbance and are not proposed to be under active mining operations in the near future. If necessary, WLC will treat these areas exhibiting noxious and invasive non-native weeds with the application of a BLM approved herbicide.
- **Pesticide Use Proposal**
  All pesticide application will be documented on a Pesticide Application Report (PAR), copies of which would be sent to the

Invasive Species Coordinator at the BLM, Winnemucca District Office.

4.2.3 Education Management Measures

- **Construction and Operations Training.** WLC will educate key employees (e.g. mine manager, environmental support staff) on weed identification and the importance, per legal mandate, of controlling and limiting the spread of noxious and invasive weed infestations, including discussion of management measures required with this project.

4.3 Cheatgrass Management

Cheatgrass management will focus on limiting its spread into previously uninfested yet highly susceptible disturbance areas and minimizing its effects on re-establishing vegetation during the reclamation of native plant communities disturbed by project activities.

4.3.1 Highly Susceptible Areas

- Highly susceptible areas include largely uninfested sites located near dense cheatgrass infestations, especially those that were recently burned. Cheatgrass management is the focus for highly-susceptible areas, through implementation of the management measures and reclamation protocols listed above. If monitoring of reclamation areas indicates that cheatgrass has invaded areas greater than 0.5 acres, WLC will conduct treatment efforts. Reseeding will be implemented, if necessary.

4.3.2 Reclaimed Areas

- Reclaimed areas will generally not be treated for cheatgrass except as indicated above. However, if monitoring of reclaimed areas indicates that cheatgrass is likely hindering the re-establishment of native plant communities, cheatgrass treatment will be conducted in those areas.

4.4 Additional Sources Of Information

The University of Nevada Cooperative Extension (http://www.unce.unr.edu), the California Department of Food and Agriculture Plan Health and Pest Prevention Branch (http://www.cdfa.ca.gov/plant), and the Nature Conservancy's Wildland Invasive Species Program (http://tncinvasives.ucdavis.edu) publish up-to-date information on the identification and control of weeds, including accepted treatment protocols.

4.5 BLM Reporting

All inventory, monitoring, abatement and control efforts will be documented in a summary report. The summary report will be submitted to the Invasive Species Coordinator, BLM Winnemucca District Office, as inventories and abatement activities occur. Monitoring will occur regularly and continuously. The reporting to the BLM will occur on an annual basis.

5. Reclamation

Areas that have been treated to control noxious and invasive non-native weed species will be seeded with native species, and if necessary, non-native non-invasive species, to compete with noxious and invasive non-native weed species. Use of non-native species is subject to BLM review and approval. In general, the seed mixes developed for specific plant communities as part of the reclamation plan will be used for the management activities. The density of seeding will be doubled in weed-infested areas to increase the cover of desirable vegetation to compete with the noxious and invasive non-native weeds.

5.1 Control of Weeds Hindering Plant Community Restoration

Noxious and invasive non-native weeds can hinder the reestablishment of desired plants during the early phases of revegetation. If monitoring indicates that revegetation success criteria are not being met due to competition with noxious and invasive non-native weeds, treatment of weeds may be opted for as part of remediation.

6. Success Criteria, Monitoring, and Remediation

The following success criteria can be used to help evaluate WLC's success in achieving the goals and objectives of this Invasive Non-Native Species Management Plan. Invasive weed management will be considered successful if invasive weed infestations in areas disturbed by construction are no greater in density and extent one year following construction than they were three plus years prior to construction, and when revegetation criteria are met.

In areas where cheatgrass control is required, successful control will be evaluated in conjunction with revegetation success. Control will be considered successful when cheatgrass cover in control areas are within the range of cheatgrass cover in reference sites and revegetation criteria are met.

If extreme weather conditions lead to invasive weed abatement and reclamation failures, WLC will implement remedial measures with terms to be discussed in coordination with BLM resource staff. The yearly weather pattern is unpredictable and conditions are often poor for germination. It may take as many as three years of seeding to ensure successful germination.

WLC will not be responsible for new or recurring infestations caused by the spread of invasive weeds from surrounding and adjacent lands.

6.1 Monitoring

Invasive weed abatement monitoring will consist of both qualitative and quantitative analyses. Monitoring began with surveys conducted in the summer of 2011 to establish baseline infestation conditions. The mine site will be informally inspected by mine environmental staff throughout the life of the mine. Post-reclamation monitoring will continue on an annual basis, for a period of three years after mine closure or until the site has met revegetation reclamation success. If active weed control is occurring, monitoring on an annual basis will be performed as long as control efforts continue, regardless of trending success. If passive management is occurring and if monitoring indicates that disturbed areas are trending toward successfully meeting noxious and invasive weed abatement and revegetation criteria, invasive weed abatement monitoring may be conducted less frequently in those areas (e.g., every two years) subsequently. Objectives of monitoring include the following:

- Qualitatively and quantitatively assess and describe the status of revegetation and invasive weed abatement in areas disturbed by the project;
- Qualitatively survey areas disturbed to identify and remedy areas exhibiting revegetation and noxious and invasive weed abatement failure; and
- Document and map areas where revegetation and invasive weed abatement is not progressing, assess the severity of the problem, and determine whether remedial measures are necessary.

Invasive weed abatement monitoring will be conducted during the growing season; for most invasive weeds between late May and mid-July. Additional information on noxious and invasive weed species' habitat requirements, blooming periods, and field identifying characteristics may be obtained from the Nevada Cooperative Extension, Integrated Pest Management Office, and other references, including Invasive Plants in Nevada: An

Identification Handbook (Stoddard et al. 1992), Weeds of the West (Whitson 1992). Weed Identification and Control Guide (Donaldson and Bowers 1998), Noxious Weeds of Central Nevada (BLM 1999), The Grower's Weed Identification Handbook (University of California Undated), and The Jepson Manual (Hickman 1993).

Monitoring will be conducted by vehicle and/or on foot throughout the Project Area, focusing on areas of disturbance. Species names and locations of invasive weed infestations will be mapped (e.g., on USGS 7.5-minute quadrangle maps, or aerial photographs), and/or using a global positioning system (GPS) and transferred to an updateable GIS database. Photographs will be taken of treated populations prior to treatments and one year following treatments.

6.2 Remediation and Adaptive Management Process

If monitoring indicates that sites disturbed by project activities have not met or are not trending toward meeting success criteria, the invasive weed abatement methods may need to be adjusted. Remedial measures will be implemented as soon as practicable in problem areas, selected on a case-by-case basis, and subject to BLM approval.

WLC alone will not be able to control the spread of invasive weeds (especially cheatgrass) within the Project Area. Invasive weed distributions within the Project Area are also influenced by activities of property owners, authorized users (e.g., cattle ranchers and recreational users) and managing agencies of public lands, such as the BLM. To be truly successful, these property owners and managing agencies will also need to initiate invasive weed abatement controls in the local area and surrounding region. Furthermore, revegetation and invasive weed abatement can be very difficult in arid areas, especially during drought years and given the ubiquitous nature of cheatgrass and other invasive weeds.

If revegetation and/or noxious and invasive weed abatement criteria are not met within 5 years following reclamation, WLC may negotiate with the BLM to fund further efforts to comply with the management requirements.

7. References

California Department of Food and Agriculture Plan Health and Pest Prevention Branch. Internet. 01/19/2012 http://www.cdfa.ca.gov/plant

Bureau of Land Management 1999. *Noxious Weeds of Central Nevada*. 1999.

Donaldson and Bowers 1998. *Weed Identification and Control Guide*. 1998.

Hickman. 1993. *The Jepson Manual*. 1993.

JBR Environmental Consultants, Inc., 2011. *Baseline Vegetation Transect Survey Report, Western Lithium Corporation, Kings Valley Lithium Project, Humboldt County, Nevada (Draft)*. December 16, 2011.

JBR Environmental Consultants, Inc., 2012. *Baseline Biological Survey Report, Western Lithium Corporation, Kings Valley Lithium Project, Humboldt County, Nevada.* July 9, 2012.

Nature Conservancy's *Wildland Invasive Species Program*. Internet. 01/12/12 http://tncinvasives.ucdavis.edu

Nevada Division of Environmental Protection (NDEP). 1998. *Attachment B, Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest Service*. September 3, 1998.

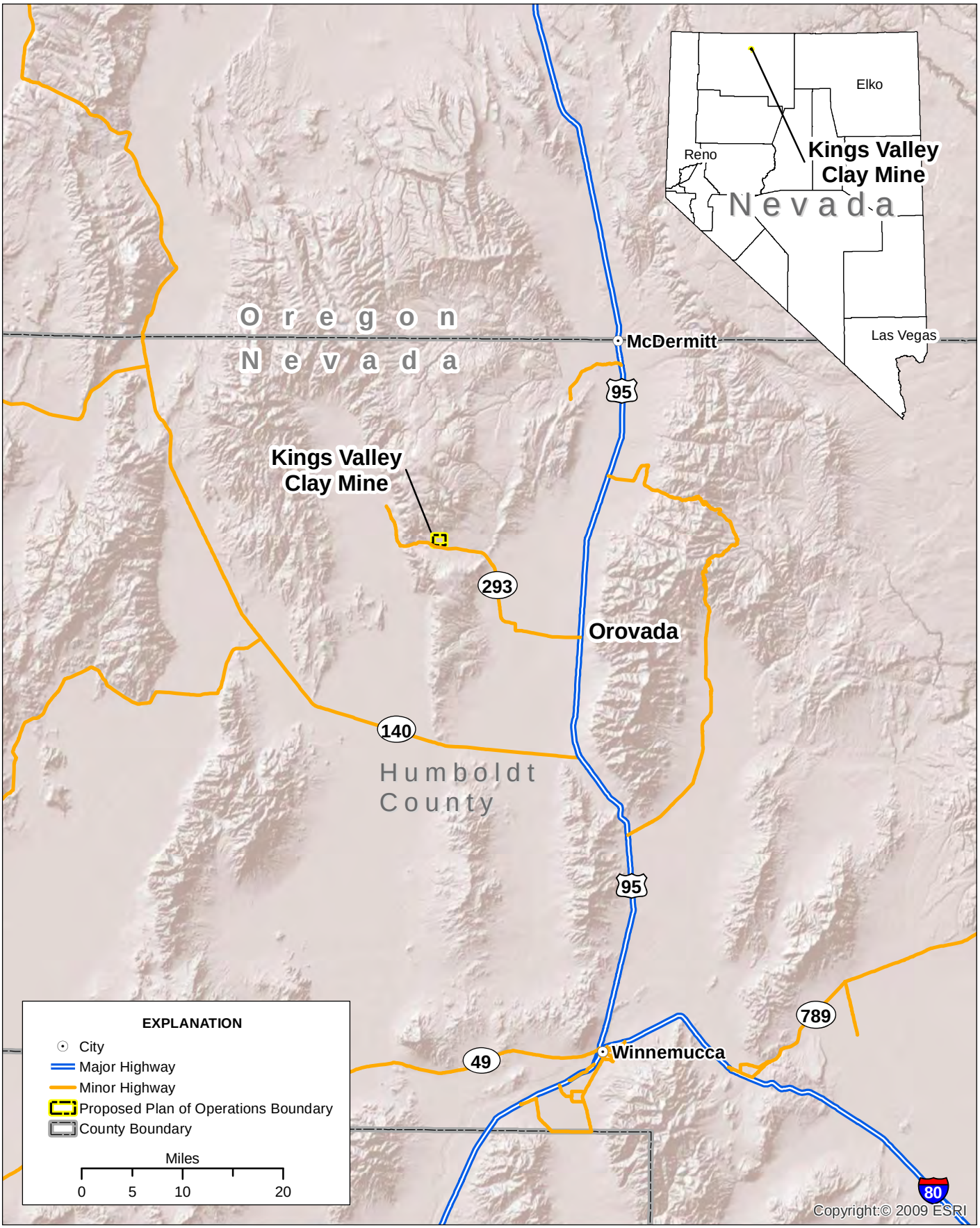
Stoddard et al. 1992. *Invasive Plants in Nevada: An Identification Handbook*. 1992.

University of California. Undated. *The Grower's Weed Identification Handbook*. Undated.

University of Nevada – Reno (UNR) Cooperative Extension. Internet 01/19/12 http://www.unce.unr.edu

Whitson, Tom D., et al. *Weeds of the West*. Western Society of Weed Science in cooperation with the Western United States Land Grant Universities Cooperative Extension Services, 1996.

FIGURES



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WESTERN LITHIUM WLC

KINGS VALLEY CLAY PROJECT

DRAWING TITLE:

LOCATION MAP

PROJECT: NOXIOUS AND INVASIVE SPECIES MANAGMENT PLAN

DATE: 10/3/2012	DRAWING NO.	REV. NO.
SRK JOB #: 357800.060	E-1	A

H:\Western Lithium Corporation\357800.060 - Kings Valley Clay Project\040_Drafting\Task_1000_Clay_Mine\PoO_Clay_Fig_01_20120813.mxd

Disclaimer:
The data within this figure was gathered from the Client, PLSS, and the USGS.
The accuracy of this information cannot be guaranteed.
Please consult the primary sources to verify information contained herein. 2011 Aerial Imagery

PH-1

WSH-17 (PH-2)

Area D Planned Drilling 5.96 ac

Area C Planned Drilling 3.32 ac

Central Growth Media 2.10 ac

WLT-01 WRDA 13.96 ac

Central WRDA 19.32 ac

WLT-01 Pit 13.16 ac

Central Clay Pit 16.26 ac

Growth Media West 2.08 ac

Clay Ore Stock Pile 13.10 ac

WSH-14

Growth Media East 2.75 ac

Ready Line

Office, First-Aid, Parking 1.73 ac

Growth Media South 0.92 ac

Aggregate Resource 2.88 ac

WSH-13

Road to remain open. Grazing permittee access to spring site retained.

44N 35E

WRDA

0 350 700 1,400 Feet

410,500 411,000 411,500 412,000 412,500 413,000

4,618,500 4,618,000 4,617,500 4,617,000

REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: PoO_Clay_Fig_05_20120822.mxd

N

DESIGN: - REVIEWED: -
DRAWN: BCH CHECKED: -
SCALE: 1 inch = 700 feet
COORDINATE SYSTEM: NAD 1983 UTM Zone 11N

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

WESTERN LITHIUM WLC

KINGS VALLEY CLAY PROJECT

DRAWING TITLE: PROPOSED PROJECT

PROJECT: NOXIOUS AND INVASIVE SPECIES MANAGMENT PLAN

DATE: 10/3/2012 DRAWING NO: E-2 REV. NO. A

SRK JOB #: 357800.060

H:\Western Lithium Corporation\357800.060 - Kings Valley Clay Project\040_Drafting\Task_1000_Clay_Mine\PoO_Clay_Fig_05_20120822.mxd

APPENDIX A
KINGS VALLEY CLAY MINE
RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

The objective of the risk assessment is to provide a short and long-term planning tool to direct weed management programs. Risk assessment results will allow WLC to determine the appropriate levels and techniques needed to control potential inroads of noxious weeds and invasive non-native plant species.

The first factor that will be considered in a noxious weed risk assessment will be the likelihood of noxious weed species spreading. The following table shows the rating system used for this factor.

Rating for Invasive Weed Species Spreading (Risk Factor 1)

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

The second factor that will be considered in an invasive weed risk assessment will be the consequences of invasive weed establishment in the subject area. The following table shows the rating system for this factor.

Rating for Consequences of Invasive Weed Establishment (Risk Factor 2)

Rating	Description
Low (1-3)	No effects expected outside of subject area.
Moderate (4-7)	Possible undesirable effects on site and possible expansion of infestation within the subject area. Effects on native plant communities adjacent to the infestation are likely, but limited.
High (8-10)	Obvious undesirable effects within the subject area and probable expansion of invasive weed infestations to areas outside the subject area. Undesirable effects on native plant communities are possible.

The risk rating for the subject area is obtained by multiplying the values assigned for each factor. The following table provides the actions required based on Project risk ratings.

Actions Required for Risk Ratings (Risk Rating)

Rating	Description
None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate treatment on invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the location to reduce the risk of introduction or spread of invasive weeds into the area. The subject area will be monitored and control provided for newly established populations of invasive weeds. Appropriate follow-up treatment for previously treated infestations will be identified.
High (50-100)	Activities must be modified to reduce risk level through preventative management measures. Activities must provide for control of newly established populations of invasive weeds and provide for monitoring and follow-up weed treatment for previously treated infestations.

The likelihood of establishment for each of the weed species is given a moderate rating due to the current distribution of weeds throughout the Project area and the length of time ground-disturbing activities have occurred in the area (currently only limited disturbance associated with exploration activities occurs on-site).

Only one species, Cheatgrass, was rated as high for risk factor due to being extensively established in and around the Project Area.

For the Kings Valley Clay Mine, the risk rating of 45 for Cheatgrass indicates a need for an invasive weed control plan that includes treatment and monitoring over an extended period of time.

The risk rating of 25 for the remaining invasive weed species indicates the need for development of preventative management measures to reduce the risk of introduction or spread into the area.

Kings Valley Clay Mine Risk Assessment Calculations for Invasive Weed Species

Common Name	Species name	Risk Factor 1	Risk Factor 2	Risk Rating
Hairy whitetop	*Cardaria pubescens*	5	5	25
Cheatgrass	*Bromus tectorum*	9	5	45
Tansy mustard	*Descurainia pinnata*	5	5	25
Russian thistle	*Salsola tragus*	5	5	25
Dandelion	*Taraxacum officinale*	5	5	25
Desert madwort	*Alyssum desertorum*	5	5	25
Cross flower	*Chorispora tenella*	5	5	25
Prickly lettuce	*Lactuca serriola*	5	5	25
Bur buttercup	*Ranunculus testiculatus*	5	5	25
Rough cocklebur	*Xanthium strumarium*	5	5	25

If subsequent site monitoring or weed inventories indicate that the weed inventory or disturbance areas have substantially changed from the weed inventory previously discussed, a new risk assessment will be conducted. If a risk assessment indicates a moderate or high rating, one or more of the management measures discussed will be implemented as appropriate for the weed species and weed location(s) identified in the weed inventory or weed monitoring.

APPENDIX C
Fugitive Dust Control Plan

WESTERN LITHIUM CORPORATION
KINGS VALLEY LITHIUM EXPLORATION PROJECT
SECTION 10/THACKER PASS NOTICE OF INTENT
KINGS VALLEY CLAY MINE PROJECT

FUGITIVE DUST CONTROL PLAN

Submitted to:

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
Bureau of Air Pollution Control
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701-5249

Applicant/Responsible Party:

WESTERN LITHIUM CORPORATION
3685 Lakeside Drive
Reno, Nevada 89509

Contact: Ms. Catherine Clark
775.827-3318

November 20, 2013

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SECTION 10/THACKER PASS NOTICE OF INTENT
KINGS VALLEY CLAY MINE PROJECT
HUMBOLDT COUNTY, NEVADA

FUGITIVE DUST CONTROL PLAN

1.0 APPLICANT/RESPONSIBLE PARTY

Western Lithium Corporation
3685 Lakeside Drive
Reno, Nevada 89509
Dennis Bryan, Senior Vice President Development
Catherine Clark, Environmental Director
775.827.3318 office

2.0 ONSITE PROJECT MANAGER

Bo Elgby, Manager Mine Development
Western Lithium Corporation
775.233.2651 cell

Catherine Clark, Environmental Director
Western Lithium Corporation
775.997.9640 cell

3.0 PHYSICAL ADDRESS OF THE PROJECT

Project is located within portions of Sections 4, 5, 6, 7, 8, 9, 10, 16, 17, 18; Township 44 North, Range 35 East. Located at Thacker Pass, Nevada; immediately north of State Route 293; as shown on Figure 1. The Project's UTM coordinates are 41°41'19.12°N, 118°5'39.01°W.

4.0 DESCRIPTION OF THE PROJECT

Western Lithium Corporation (WLC) is proposing to perform activities associated with the Kings Valley Lithium Exploration Project (active; BLM case file number N85255), Section 10/Thacker Pass Notice of Intent (active; BLM case file number N89233), and the Kings Valley Clay Mine Project (proposed; BLM case file number N91547). All projects are in the same immediate vicinity, as shown on Figure 1.

Activities associated with the Kings Valley Lithium Exploration Project include the continuation of exploration activities. Specifically activities include the construction of exploration drill pads and sumps, test pit construction, exploration drilling, water monitor well development, one water extraction well (for pump testing), installation and operation of a meteorological station, construction of associated access roads, and ultimately reclamation. Activities were initiated in July 2011 and will occur over the next five + years. A maximum of 75 acres of disturbance is proposed, and actual disturbance will likely be less. Disturbance would occur within the 1,490 acre Kings Valley Lithium Exploration Project area.

Activities associated with the Section 10/Thacker Pass Notice of Intent include approximately 4.97 acres of disturbance and continued mineral exploration activities (exploration drilling and exploration road development). The Notice of Intent also includes the establishment/occupancy of one monitoring well (WSH-03).

Activities associated with the proposed 109.9 acre Kings Valley Clay Mine Project includes the development an open-pit clay mine and associated facilities. WLC proposes to establish:

- a permit boundary;
- 2 open pits;
- 2 waste rock disposal areas (WRDA);
- Ore-grade clay stockpile area;
- 4 growth media stockpiles;
- An aggregate source (with associated aggregate stockpiles) and mobile aggregate screen;
- An ongoing exploration program utilizing drilling equipment, roads, and drill pads;
- Use of 2 on-site wells as a non-potable water source for road watering and dust suppression;
- Ancillary facilities including stormwater controls, office/first-aid trailer, parking, ready line, growth media stockpiles, and fencing; and
- Access improvements to State Route (SR) 293.

The Project site (for all 3 projects) is located at Thacker Pass along State Route 293, approximately 45 miles north of Winnemucca, Humboldt County, Nevada (Figure 1).

This Fugitive Dust Control Plan (FDCP) was originally prepared for WLC's Kings Valley Lithium Exploration Project, and is now being expanded and updated to also include the Kings Valley Clay Mine Project and the Section 10/Thacker Pass Notice of Intent. The intent of this FDCP is to comply with rules and regulations in the Nevada Administrative Code (NAC). NAC 445B.365 requires fugitive dust to be controlled (regardless of the size or amount of acreage disturbed), and requires an ongoing program, using best practical methods, to prevent particulate matter from becoming airborne. This plan encompasses all sources that have the potential to produce fugitive dust and that are affected by WLC's operations for these projects.

The fugitive dust will be controlled for the following potential sources:

- Access Road Development and Usage
- Construction Site Grading and Preparation
- Mine site operation
- Equipment mobilization and Vehicle ingress/egress

5.0 PROJECT SCHEDULE

Exploration operations associated with the Kings Valley Lithium Exploration Project and the Section 10/Thacker Pass Notice of Intent were initiated in 2011 and will continue for at least the next five years. Activities associated with the Kings Valley Clay Mine Project are proposed to be initiated as soon as all appropriate permits are received, anticipated in Spring 2014. The Kings Valley Clay Mine is anticipated to be in operation for 20 years.

6.0 FUGITIVE DUST CONTROL PLAN

6.1 EXPLORATION AND MINE PROJECT ACTIVITY AREAS

Project components associated with the Kings Valley Lithium Exploration Project, Section 10/Thacker Pass Notice of Intent, and Kings Valley Clay Mine Project are summarized in Table 1.

Table 1
Project-Related Surface Disturbance

Activity	Total Disturbance (acres)
Kings Valley Lithium Exploration Project	
Constructed Roads	41.0
Constructed Drill Sites (includes sumps)	23.0
Bulk Sample excavations and Test Pits	9.0
Water Monitoring Well Sites	1.1
Water Extraction Well Site	0.9
Meteorological Station	0.04
Subtotal: 75 Acres	
Section 10/Thacker Pass Notice of Intent	
Exploration Roads and Drill Pads	4.97
Kings Valley Clay Mine Project	
Clay Open Pits	29.5
Waste Rock Disposal Areas	33.3
Ore-Grade Clay Stockpile	13.1
Growth Media Stockpiles	7.9
Internal Mine Roads	12.2
Mineral Exploration Activities	9.3
Parking/Ready Line	1.7
Aggregate Resource	2.9
Subtotal: 109.9 Acres	
Fugitive Dust Control Plan – Total Disturbance:	**189.87 (~189.9)**

Note: WLC recognizes that a portion (approximately 11 acres) of the Kings Valley Clay Mine Project disturbance will occur in previously disturbed areas of the Kings Valley Lithium Exploration Project.

Figure 1 shows the locations of proposed activities.

Project personnel will access the project area in four-wheel drive vehicles. Disturbance associated with the Kings Valley Lithium Exploration Project Drilling will be conducted with two truck-mounted reverse circulation and two tracked core drill rigs or equivalent. The following support vehicles could be used in conjunction with each of the four operating drilling rigs:

- One water truck (5,000 gallon);
- Mud mixing tank and pump;
- Circulation tank;
- All-terrain vehicle;
- One pipe truck;
- One booster truck;
- One auxiliary air compressor; and
- One portable light plant/generator.

Generally, a Cat D7 bulldozer or equivalent will be used to construct roads and drill sites where needed. A Cat 325 excavator, backhoe, or equivalent will be used to construct test pits. Roads, test pits, and drill sites will be reclaimed using an excavator and an all-terrain vehicle with a seed broadcaster, or comparable method. WLC will take steps to prevent fires by ensuring that each field vehicle carries hand tools and a fire extinguisher. Water trucks at the project site will be used in the event of a fire. All portable equipment, including the drill rig, support vehicles and drilling supplies, will be removed from the project area during extended periods of non-operation.

Disturbance associated with the Kings Valley Clay Mine Project will be associated with the development of the Clay Mine. Clay will be selectively mined from 2 open pits and stockpiled on-site in a designated ore-grade stockpile area. Based on exploration estimates, there is approximately 375,000 tons of known clay ore at the Kings Valley Clay Mine site. The clay ore will be hauled from the pit to the ore-grade clay stockpile area using scrapers and loaded into articulating end-dump trucks with an excavator. If hauled by truck the ore may also be ripped with a dozer and pushed into piles and loaded with a Cat 980-size loader. A dozer may also assist the scrapers by pushing to help excavate the clay. Up to approximately 18, 750 tons of ore will be mined on an annual basis. No drilling and blasting is anticipated in mining the clay or waste rock. Ore-grade clay will be loaded into highway-legal trucks and sold to an end-user or hauled to a clay facility located in the United States or to an international facility where it will be processed. Additional Class III/Class II air quality permits issued by the State of Nevada Bureau of Air Pollution Control would be applied for and obtained prior to using any on-site temporary generators or portable crushers.

All disturbances will be temporary (for the life of the mining or exploration activity) and will be reclaimed at the cessation of drilling.

6.2 BEST MANAGEMENT PRACTICES

The following best practical methods will be implemented during construction:

- **Limit the Amount of Disturbed Soil:** WLC will make every effort to reduce the amount of soil that is disturbed and removed (e.g., the size of drill pads, associated roads, and mining-related disturbance will be kept to the absolute minimum).

- **Water Spraying for Disturbed Areas:** Water from trucks would be applied as needed to minimize soil loss to wind and water erosion and to control dust within disturbed areas during construction.

  - **Pre-Disturbance Watering:** Watering will be applied to areas to be disturbed prior to time of disturbance so that approximately 0.5 inch of soil is moist at the time disturbance begins. No disturbance will occur if soil becomes dry. Flooding of the site by water application will not occur.

  - **Water Trucks, Water Location, and Travel Time:** Water trucks will be used for dust control watering. One water truck will be available for use, as needed. Water for the proposed project will be supplied by either a nearby pond located in Kings Valley or from an on-site production well. Travel time between the water supply and project site is approximately 15 minutes.

  - **Contingency Plan:** In the event that the water truck breaks down or that the available water truck is insufficient to control fugitive dust, WLC will immediately cease operations causing disturbance until a water truck can be on site.

- **Weather Conditions:** If high wind conditions exist, or are predicted, construction activities will cease or will be reduced to only activities that do not generate fugitive dust. Water-based fugitive dust control methods will not be used in freezing temperatures because of safety and operational concerns. If naturally occurring moisture in the form of precipitation or snow cover is already present on the site and associated roads, or if soils have high clay content, water application to control fugitive dust may be deemed unnecessary.

- **Topography:** WLC will maintain the natural topography to the extent possible during grading and other earth movement.

- **Site Restoration:** WLC or contractor crews will restore overland travel routes. In addition, other disturbed areas (structure erection sites and staging areas) will also be restored. A BLM-approved, certified weed-free, revegetation seed mix will be used to reseed disturbed construction areas.

- **Operations Log:** An operations log will be maintained for each day of operations. The daily log will include the following:

  - operational hours of equipment (including the water truck),

  - the volume of water used each day,

  - the start and finish time of operations each day,

  - when operations ceased because of wind or other meteorological conditions, and

- documentation of training in fugitive dust control techniques described in this FDCP.

- **Authorized Operators to Cease Operations:** WLC fully authorizes the on-site project manager to cease operations when wind or meteorological conditions prevent control of fugitive dust when employing the best practical methods specified in the plan.

6.3 CONTROL STRATEGIES FOR PAVED PUBLIC ROADWAYS

The following methods will be used to control track-out (i.e., deposition of mud, dirt, or similar debris onto the surface of a paved public roadway (State Route 293) from the tires and/or undercarriage of any vehicle associated with this project):

- Prompt removal of mud, dirt, or similar debris from the affected surface of a paved public roadway by street sweeping.

- Gravel track-out pads will be installed to the surface of the adjacent unpaved access road to control track-out. Within the NDOT ROW, the area will likely ultimately be paved, per the Encroachment Permit conditions issued by NDOT.

6.4 CONTROL STRATEGIES FOR UNPAVED ACCESS ROADS

WLC will utilize existing roads and develop new roads for access to the project site. Typical road width will vary depending on its intended use (e.g. exploration road or mine haul road) and will be bladed to approximately 12 to 36 feet.

The following methods will be used to control fugitive dust emissions from unpaved access roads during construction activities:

- Vehicle traffic on unpaved access roads will be limited as much as possible by eliminating unnecessary vehicles or trips during construction and operation.

- Vehicle speeds on unpaved access roads will not exceed 25 mph. If high wind conditions exist or if dust is visible, speeds will be less.

- Water will be applied to the surface of unpaved access roads when necessary. Runoff will be controlled so it does not saturate the surface of the unpaved access road and cause additional track-out problems.

- Portions of some access roads will be graveled, as needed.

7.0 NOTIFICATION TO SUBCONTRACTORS AND DISTURBANCE TO ADJACENT PROPERTIES

WLC will provide subcontractors (if any) a copy of this fugitive dust plan and require that they review the contents of the plan. WLC will document that the plan has been reviewed by subcontractor managers and supervisors. Subcontractors will be required at all times to observe vehicle speed limits and control track out as prescribed under Section 6.3 and 6.4. Subcontractors will be required to keep equipment

off reclaimed and stabilized areas. Adjacent properties not covered by the project and subsequent air quality permit may not be disturbed.

8.0 UPDATING THE WLC FUGITIVE DUST CONTROL PLAN

The Nevada Division of Environmental Protection (NDEP) requires that the FDCP be updated and resubmitted to NDEP for evaluation in the event material changes are made to the project. WLC will notify the NDEP Compliance Branch at 775.687.9343 as soon as practical of any plans to materially change the Project. The updated plan will include any changes to fugitive dust control measures and a new site map showing the changes in the project area. WLC will update the plan as necessary and submit to NDEP as quickly as possible for evaluation. WLC will obtain approval from NDEP before initiating any disturbance based on a project change.

9.0 RESPONSIBLE OFFICIAL

WLC's Responsible Official has read the provisions of the Nevada Administrative Code (NAC) Section 445B.22037 "Emissions of Particulate Matter; Fugitive Dust" and is aware that the project is responsible for preventing controllable fugitive dust from the project's disturbed areas to become airborne on a 7-days per week, 24-hour per day basis.

Disclaimer:
The data within this figure was gathered from the Client, PLSS, and the USGS.
The accuracy of this information cannot be guaranteed.
Please consult the primary sources to verify information contained herein. 2011 Aerial Imagery

409,500 411,000 412,500 414,000

4,618,500

4,617,000

6 5 4 3 2

7 8 9 10 11

17 16 15 14

EXPLANATION

- WLC Authorized Disturbance
- Kings Valley Clay Mine POO Boundary (Proposed)
- Kings Valley Lithium Exploration POO Boundary (Active)
- Section 10/Thacker Pass Notice of Intent Boundary
- WLC Proposed Disturbance
- Pre-WLC Existing Disturbance
- WLC Kings Valley Lithium Exploration Project Existing Disturbance

0 700 1,400 2,800 Feet

REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: All_Boundaries_20131021.mxd

N

DESIGN: - REVIEWED: -
DRAWN: BCH CHECKED: -
SCALE: 1 inch = 1,400 feet
COORDINATE SYSTEM: NAD 1983 UTM Zone 11N

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

WESTERN LITHIUM WLC

KINGS VALLEY CLAY PROJECT

DRAWING TITLE: EXISTING/PROPOSED PROJECT DISTURBANCE

PROJECT: DUST CONTROL PERMIT

DRAWING NO. FIGURE 1

REV. NO. A

DATE: 10/28/2013

SRK JOB #: 357800.060

H:\Western Lithium Corporation\357800.060 - Kings Valley Clay Project\040_Drafting\Task_1000_Clay_Mine\All_Boundaries_20131021.mxd

APPENDIX D
Agency Consultation Letters

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Nevada Fish and Wildlife Office
1340 Financial Blvd., Suite 234
Reno, Nevada 89502
Ph: (775) 861-6300 ~ Fax: (775) 861-6301

November 17, 2011
File No. 2012-SL-0044

David Worley
Senior Biologist
JBR Environmental Consultants, Incorporated
595 Double Eagle Court, Suite 2000
Reno, Nevada 89521

Dear Mr. Worley:

Subject: Species List Request for the Western Lithium Kings Valley Project, Humboldt County, Nevada

This responds to your letter received on November 9, 2011, requesting a species list for the Kings Valley Lithium Exploration Project, Humboldt County, Nevada. The following federally-listed and candidate species may occur in the subject project area:

- Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*), threatened
- Greater sage-grouse (*Centrocercus urophasianus*), candidate

This list fulfills the requirement of the Fish and Wildlife Service (Service) to provide information on listed species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended (ESA), for projects that are authorized, funded, or carried out by a Federal agency. Candidate species receive no legal protection under the ESA, but could be proposed for listing in the near future. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions.

Enclosure A provides a discussion of the responsibilities Federal agencies have under section 7 of the ESA and the conditions under which a biological assessment (BA) must be prepared by the lead Federal agency or its designated non-Federal representative. If it is determined by the responsible Federal agency that a listed or proposed species may be affected by the proposed project, then consultation should be initiated pursuant to 50 CFR § 402.14. Informal

consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to listed species. If a BA is required and it is not initiated within 90 days of the receipt of this letter, you should informally verify the accuracy of this list with our office. If, through informal consultation or development of a BA, it is determined that a proposed action is not likely to adversely affect the listed species, and the Service concurs in writing, then the consultation process is terminated and formal consultation is not required.

Your proposed project is located within a potential metapopulation for Lahontan cutthroat trout (LCT), and as such, the area may be necessary for the species' recovery. The Northwestern Geographic Management Unit (GMU) Team has been formed to facilitate the restoration and recovery of LCT populations in this area. The Northwestern GMU Team is evaluating areas within this basin which could support LCT. Although a self-sustaining population of LCT may not currently be present in the project area, under the ESA, completed projects should not preclude future recovery and survival of this species. We recommend that projects be reviewed for all direct and indirect impacts that they may have on riparian and aquatic habitats as they relate to LCT, and that you consult with the Service accordingly under section 7 of the ESA.

The Nevada Fish and Wildlife Office no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (http://heritage.nv.gov). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (http://heritage.nv.gov/forms.htm) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (http://www.leg.state.nv.us/NAC/NAC-503.html). You must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (NDOW) to take, or possess any parts of protected wildlife species. Please visit http://www.ndow.org or contact NDOW at (775) 688-1500.

Greater sage-grouse are known to occur within and/or near the project area; therefore, we recommend that you analyze potential impacts from this project on the species to ensure that the proposed action does not exacerbate further decline of the species. On March 23, 2010, the Service's 12-month status review finding for the species was published in the Federal Register (75 FR 13910). We determined that the greater sage-grouse warrant the protection of the ESA but that listing the species at this time is precluded by the need to address higher priority species first. The greater sage-grouse have been placed on the candidate list for future action, meaning the species does not receive statutory protection under the ESA, and States will continue to be responsible for managing the species. The Western States Sage and Columbian Sharp-tailed Grouse Technical Committee, under direction of the Western Association of Fish and Wildlife Agencies, has developed and published guidelines to manage and protect greater sage-grouse and their habitats in the Wildlife Society Bulletin (Connelly *et al.* 2000). We ask that you consider incorporating these guidelines (http://www.ndow.org/wild/conservation/sg/resources/guidelines.pdf) into the proposed project.

On September 30, 2010, the Service published the 12-month finding for the pygmy rabbit in the Federal Register (75 FR 60516) announcing that the species did not warrant protection under the ESA. We request that you submit any new information concerning threats to the species or its habitat to the Nevada Fish and Wildlife Office. This information will help us monitor the pygmy rabbit and encourage its conservation.

Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918 (MBTA), as amended (16 U.S.C. 703 *et seq.*), we are concerned about potential impacts the proposed project may have on migratory birds in the area. Given these concerns, we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

If bald eagles (*Haliaeetus leucocephalus*) and/or golden eagles (*Aquila chrysaetos*) occur in the project area or within 10 miles of the proposed project area boundary, we recommend you analyze project impacts to the affected individuals, their habitats, and regional populations. While the bald eagle has been removed from the Federal list of threatened and endangered species (August 8, 2007; 72 FR 37346), it remains classified as endangered by the States of Nevada and California. Further, the bald eagle along with the golden eagle continues to be protected under the Bald and Golden Eagle Protection Act of 1940 (BGEPA), as amended (16 U.S.C. 668-668d) and the MBTA. Both the BGEPA and the MBTA prohibit take as defined as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or

otherwise harm eagles, their nests, or their eggs. Under the BGEPA, "disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: 1) injury to an eagle, 2) decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. On September 11, 2009 (74 FR 46836), the Service set in place rules establishing two new permit types: 1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and 2) purposeful take of eagle nests that pose a threat to human or eagle safety. We recommend you coordinate with State and Federal wildlife officials early in the planning process to ensure compliance with State and Federal regulations and to develop a survey protocol to evaluate the potential risk and the likelihood of take of eagles. If take is reasonably anticipated to occur, we recommend you develop a Bird Conservation Strategy (BCS) in coordination with State wildlife agencies and the Service. A BCS is intended to avoid, minimize, or mitigate impacts to these species.

Please reference File No. 2012-SL-0044 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact me or Chad Mellison at (775) 861-6300.

Sincerely,

Edward D. Koch
State Supervisor

Enclosure

ENCLOSURE A

FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7 (a) AND (c)
OF THE ENDANGERED SPECIES ACT

SECTION 7 (a): Consultation/Conference
Requires:

1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;

2) Consultation with the Fish and Wildlife Service (Service) when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the Federal agency after determining the action may affect a listed species or critical habitat;

3) Conference with the Service when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat.

SECTION 7 (c): Biological Assessment - Major Construction Activity 1/
Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for major construction activities. The BA analyzes the effects of the action on listed and proposed species. The process begins with a Federal agency requesting from the Service a list of proposed and listed threatened and endangered species. The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the list, the accuracy of the species list should be informally verified with the Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may proceed; however, no construction may begin.

We recommend the following for inclusion in the BA:

1. An onsite inspection of the area affected by the proposal which may include a detailed survey of the area to determine if the species or suitable habitat are present.

2. A review of literature and scientific data to determine species distribution, habitat needs, and other biological requirements.

3. Interviews with experts, including those within the Service, State conservation departments, universities, and others who may have data not yet published in scientific literature.

4. An analysis of the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat.

5. An analysis of alternative actions considered.

6. Documentation of study results, including a discussion of study methods used, any problems encountered, and other relevant information.

7. Conclusion as to whether or not a listed or proposed species will be affected.

Upon completion, the BA should be forwarded to our office with a request for consultation, if required.

1/ A construction project (or other major undertaking having similar physical impacts) is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332 (2) C).

BRIAN SANDOVAL
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

KENNETH E. MAYER
Director
RICHARD L. HASKINS, II
Deputy Director
PATRICK O. CATES
Deputy Director

GIS DATA REQUEST FORM

In order to refine our database queries and provide the most detailed information available in response to wildlife resources data requests, the Nevada Department of Wildlife (NDOW) requires project description information that details the need for NDOW data and how it would be used. To this effect, the NDOW requires information regarding the location and scope of the project that calls for NDOW data. This information will allow the NDOW to better anticipate resource management needs, as well as provide the information necessary for appropriate staff review and approval of this request.

DATA REQUEST CONTACT INFORMATION:

Name:	David Worley	**Title:**	Senior Biologist
Organization:	JBR Environmental Consultants, Inc.		
Address:	595 Double Eagle Ct., Ste. 2000 Reno, NV 89521		
Phone Number:	775-474-5777	**Email:**	sthorne@jbrenv.com

PROPOSED PROJECT INFORMATION [ATTACH ADDITIONAL PAGES AS NEEDED]:

Project Name:	Western Lithium Kings Valley Project	**Project Type[1]:**	Mining
***Approximate Size (acres):**	3,350 acres	***Construction Start Date:**	unknown
***Schedule of Surface Disturbance:**	unknown		
Permitting Authority:	BLM	**Project Status[2]:**	Expansion/amendment
Project Scope[3]:	The project is located approximately 50 miles north of Winnemucca, on the southern flanks of the Montana Mountains in Humboldt County, Nevada. The project area is located in all or parts of Sections 3, 4, 5, 6, 7, 8, 9, 10, 15, 16 and 17, Township 44 North, Range 35 East (T44N, R35E), Mount Diablo Base & Meridian (Figure attached)		

* If applicable.
1. E.g. Solar/wind/geothermal (renewable) energy development; Fossil fuel energy development; Mining; Urban development; Energy transmission line; Pipeline; Communication line; Recreation; Restoration; Research or modeling (no surface disturbance); Other.
2. New; Expansion/amendment to existing project; Restoration/reclamation.
3. Description of the scope of area affected by the project. For targeted project locations, minimum requirements are: Public Land Survey System (PLSS) location information [Township/Range/Sections]; GIS data layers (e.g. shapefiles); or map documents.

TYPE OF DATA ANALYSIS REQUESTED (CHECK ONE):

Wildlife Resource Data Analysis ☒	***GIS Data Request*** ☒
(typical data request)	(Non-typical request - Data Sharing Agreement required)

The completion of this form will ensure that you receive the most accurate information available. No warranty is made by the NDOW as to the accuracy, reliability, or completeness of the data provided for individual use or aggregate use with other data. Information received may be considered **sensitive** and may contain information regarding the location of sensitive wildlife species. All appropriate measures should be taken to ensure the use of any data received is strictly limited to serve the needs of the project

described above. Abuse of NDOW information has the potential to adversely affect the existing ecological status of Nevada's wildlife resources and could be cause for the denial of future data requests.

Please submit form to: Chet Van Dellen – GIS Coordinator – cvandellen@ndow.org – 775.688.1565

STATE OF NEVADA

DEPARTMENT OF WILDLIFE

1100 Valley Road

Reno, Nevada 89512

(775) 688-1500 • Fax (775) 688-1595

BRIAN SANDOVAL
Governor

KENNETH E. MAYER
Director

RICHARD L. HASKINS, II
Deputy Director

PATRICK O. CATES
Deputy Director

December 6, 2011

Dave Worley
Senior Biologist
JBR Environmental Consultants, Inc.
595 Double Eagle Court, Suite 2000
Reno, Nevada 89521

Re: Western Lithium Mining Project

Dear Mr. Worley:

I am responding to your request for information from the Nevada Department of Wildlife (NDOW) on the known or potential occurrence of wildlife resources in the vicinity of the Western Lithium Mining project located in Humboldt County, Nevada. In order to fulfill your request an analysis was performed using the 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. No warranty is made by the NDOW as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data. These data should be considered **sensitive** and may contain information regarding the location of sensitive wildlife species or resources. All appropriate measures should be taken to ensure that the use of this data is strictly limited to serve the needs of the project described on your GIS Data Request Form. Abuse of this information has the potential to adversely affect the existing ecological status of Nevada's wildlife resources and could be cause for the denial of future data requests.

To adequately provide wildlife resource information in the vicinity of the proposed project the NDOW delineated an area of interest that included a three-mile buffer around the project area provided by you via email (November 15, 2011). Wildlife resource data was queried from the NDOW databases based on this area of interest. The results of this analysis are summarized below.

Big Game – Occupied pronghorn antelope distribution exists throughout the entire project area and three-mile buffer area. Bighorn sheep distribution exists in the Montana and Double H Mountains in northern and western portions of the project area and three-mile buffer area. Mule deer distribution also exists in the Montana Mountains in the northern portion of the project area and three-mile buffer area, as well as the eastern portion of the three-mile buffer area. Please refer to the attached maps for details regarding these big game species distributions relative to the proposed project area. No known elk distributions exist in the vicinity of the project area.

Greater Sage-Grouse – Greater sage-grouse summer distribution exists outside of the project area in the Montana and Double H Mountains in the northern and southern portions of the three-mile buffer area. Winter distribution exists throughout the entire project area and all but the western portion of the three-mile buffer area. Sage-grouse nesting habitat exists in the Montana Mountains in the northern portion of the project area and three-mile buffer area, as well as the Double H Mountains in the southern portion of the three-mile buffer area. Core breeding habitat exists in sagebrush communities throughout the entire project area and the northern portion of the three-mile buffer area. Please refer to the attached maps for details regarding sage-grouse distributions relative to the proposed project area.

There are six known greater sage-grouse leks in the vicinity of the project area:

Lek Name	Last Survey	Lek Status	Township/Range/Section
Disaster Peak 08	2009	Inactive	21 0450N 0340E 025
Little Riser Creek	2009	Historic	21 0440N 0350E 018
Montana 10	2010	Active	21 0450N 0350E 032
Pole Creek	2009	Active	21 0450N 0350E 032
Sentinal Rock	2004	Unknown	21 0440N 0360E 018
Thacker Creek	2009	Historic	21 0450N 0340E 025

Raptors – Various species of raptors, which use diverse habitat types, are known to reside in the vicinity of the project area. American kestrel, barn owl, burrowing owl, Cooper's hawk, ferruginous hawk, golden eagle, great horned owl, long-eared owl, merlin, northern goshawk, northern harrier, northern saw-whet owl, osprey, peregrine falcon, prairie flacon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture, and western screech owl have distribution ranges that include the project area and three-mile buffer area. Furthermore, burrowing owl, Cooper's hawk, long-eared owl, prairie falcon, red-tailed hawk, and short-eared owl have been directly observed in the vicinity of the project area.

Raptor species are protected by State and Federal laws. In addition, burrowing owl, ferruginous hawk, northern goshawk, peregrine falcon, short-eared owl, and Swainson's hawk are NDOW species of special concern and are target species for conservation as outlined by the Nevada Wildlife Action Plan.

No raptor nest sites have been identified by the NDOW in the vicinity of the project area.

Per the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (United States Fish and Wildlife Service 2010) we have extended our raptor nest database analysis for bald and golden eagle nest site locations to within ten miles of the proposed project area. Two additional golden eagle nests and no bald eagle nests are known to exist within ten miles of the project area. The golden eagle nests are located in Township 44 North, Range 34 East, Section 25 and Township 44 North, Range 36 East, Section 17.

Other Wildlife Resources

The following species have also been observed in the vicinity of the project area:

American robin	gray-headed junco	spotted towhee
bank swallow	Great Basin rattlesnake	terrestrial gartersnake
California quail	Lahontan cutthroat trout	turkey vulture
chipping sparrow	mourning dove	violet-green swallow
chukar	northern shrike	western meadowlark
common raven	pygmy rabbit	western rattlesnake
cottontail (unknown)	ruby-crowned kinglet	yellow warbler

The above information is based on data stored at our Reno Headquarters Office, and does not necessarily incorporate the most up to date wildlife resource information collected in the field. Please contact the Habitat Division Supervising Biologist at our Western Region Reno Office (775.688.1500) to discuss the current environmental conditions for your project area and the interpretation of our analysis. Furthermore, it should be noted that the information detailed above is preliminary in nature and not necessarily an identification of every wildlife resource concern associated with the proposed project. Consultation with the Supervising Habitat biologist as the project progresses will facilitate the development of avoidance or mitigation measures that will decrease or eliminate impacts to the wildlife resources in the vicinity of the project area.

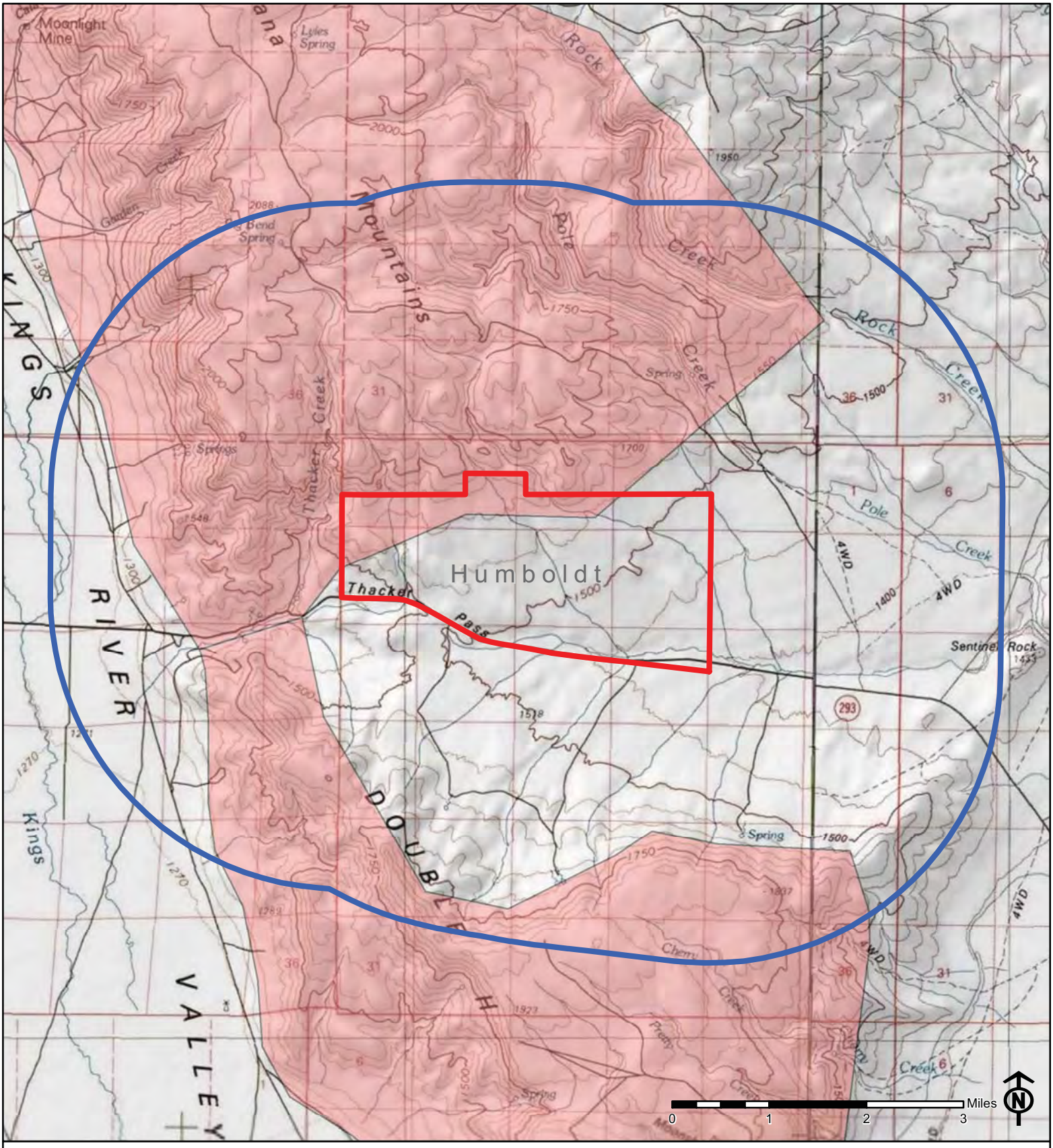
Mark Freese – Western Region Supervising Habitat Biologist (775.688.1145)

Federally listed Threatened and Endangered species are also under the jurisdiction of the United States Fish and Wildlife Service. Please contact them for more information regarding these species.

If you have any questions regarding the results or methodology of this analysis please do not hesitate to contact our GIS office at (775) 688-1565.

Sincerely,

Timothy Herrick
Conservation Aide III
Wildlife Diversity Division



Legend

- Project Area Boundary
- Three-mile Buffer Area Boundary
- Bighorn Distribution
- County Boundary

Western Lithium
Bighorn Sheep Distribution

December 05, 2011

Projection: UTM Zone 11 North, NAD83

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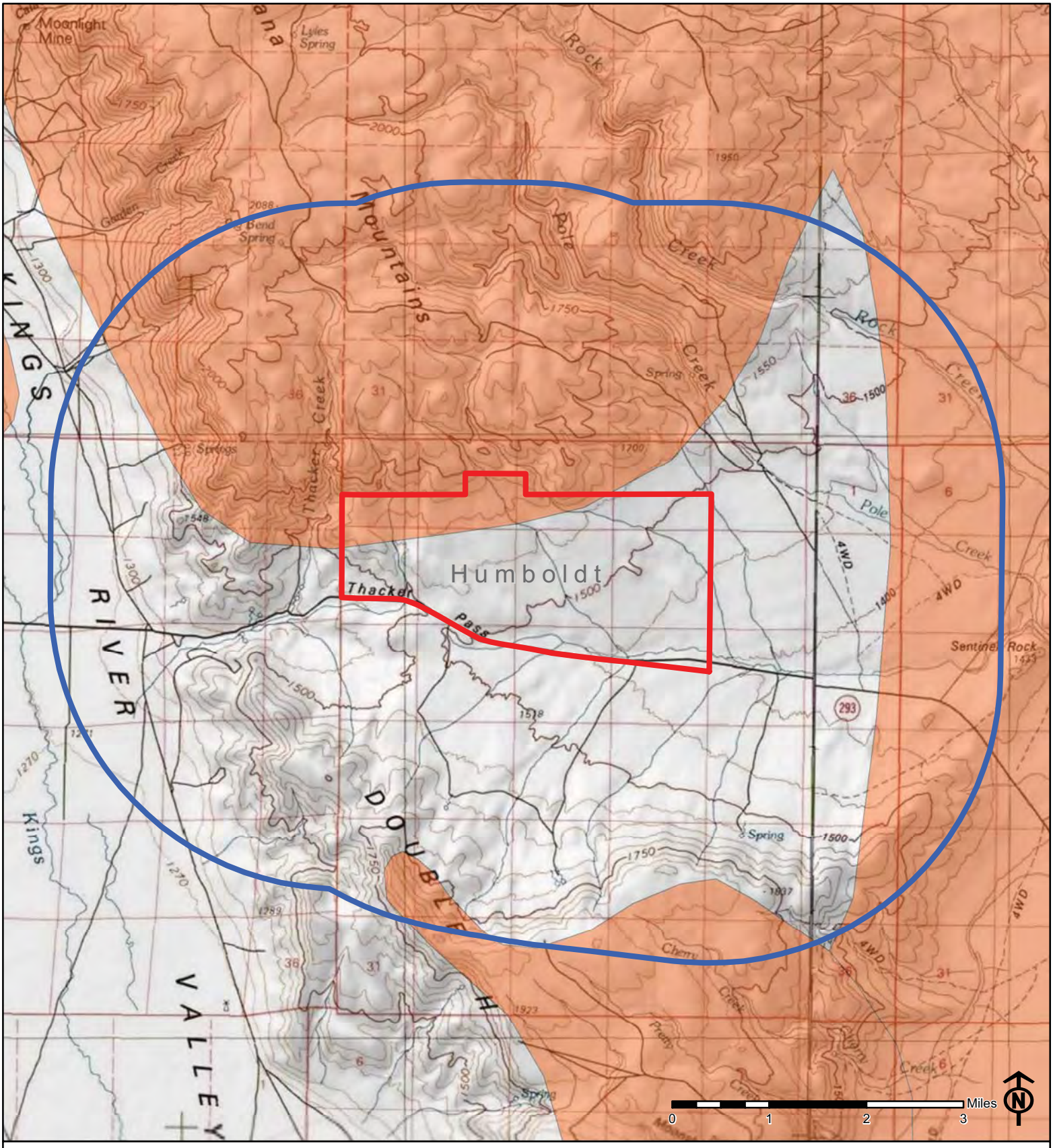

Legend

- Project Area Boundary
- Three-mile Buffer Area Boundary
- Mule Deer Distribution
- County Boundary

Western Lithium
Mule Deer Distribution

December 05, 2011

Projection: UTM Zone 11 North, NAD83

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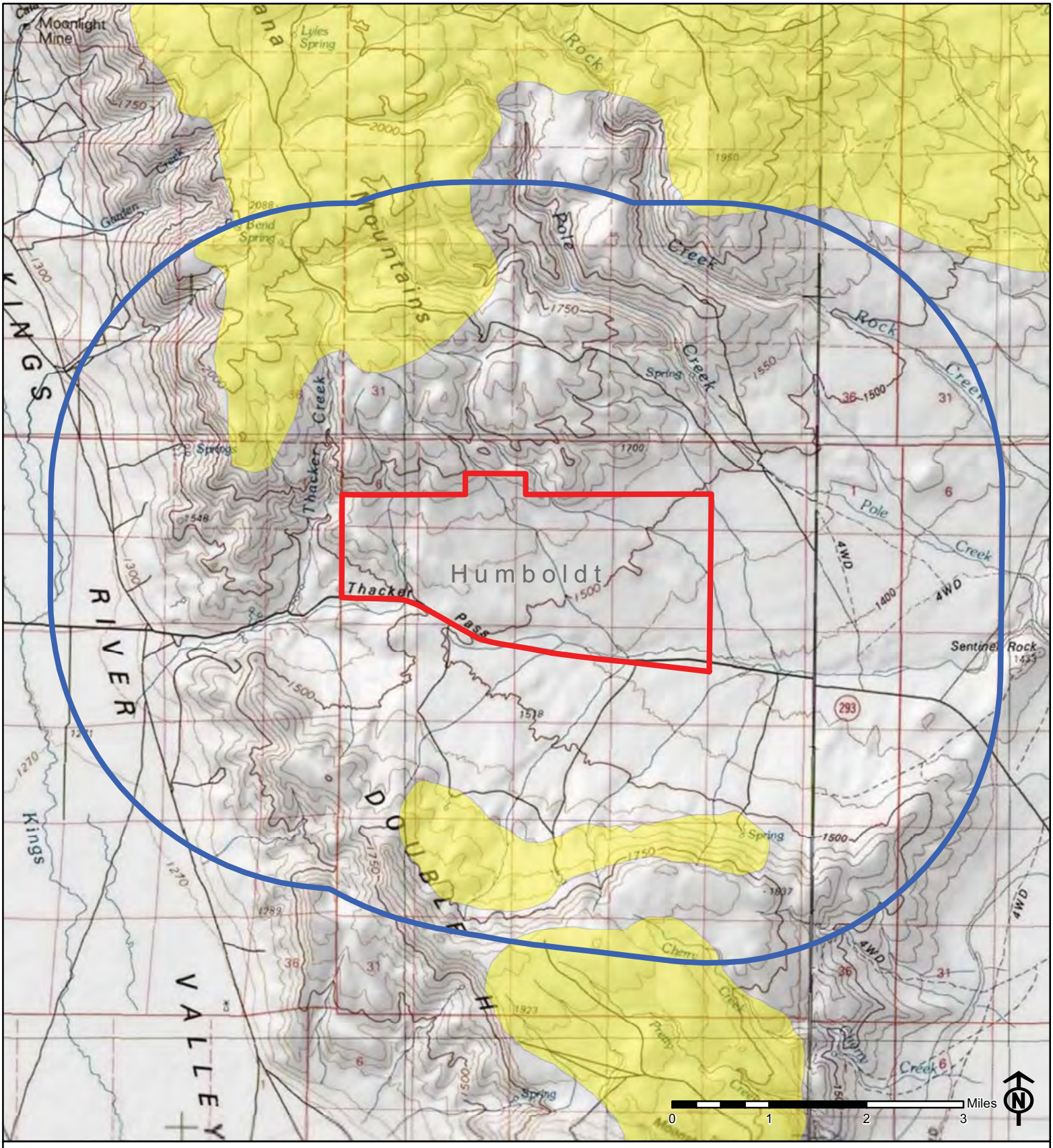

Legend

- Project Area Boundary
- Three-mile Buffer Area Boundary
- Sage-grouse Summer Distribution
- County Boundary

Western Lithium
Sage-grouse Summer Distribution

December 05, 2011

Projection: UTM Zone 11 North, NAD83

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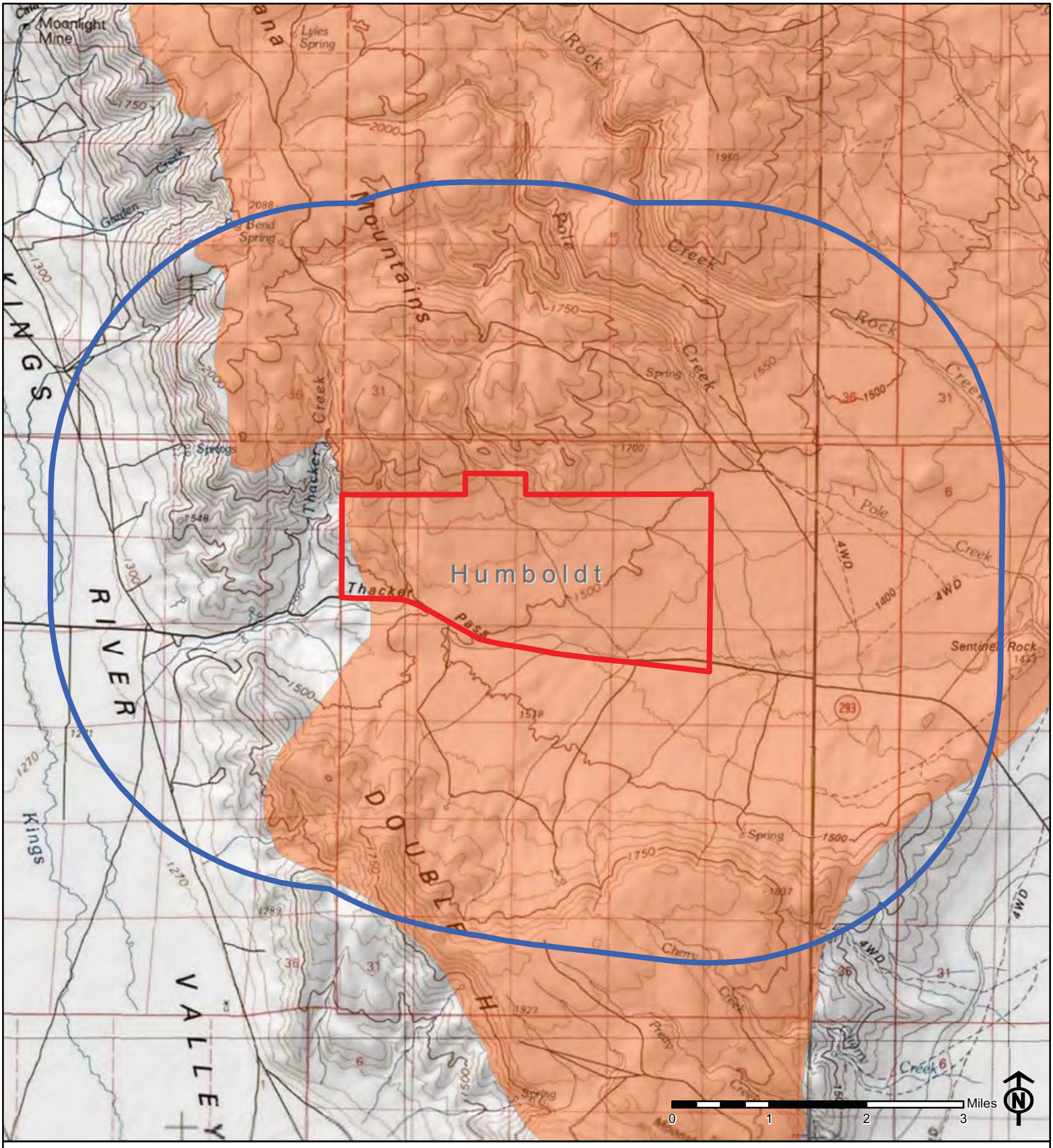

Legend

- Project Area Boundary
- Three-mile Buffer Area Boundary
- Sage-grouse Winter Distribution
- County Boundary

Western Lithium
Sage-grouse Winter Distribution

December 05, 2011

Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.

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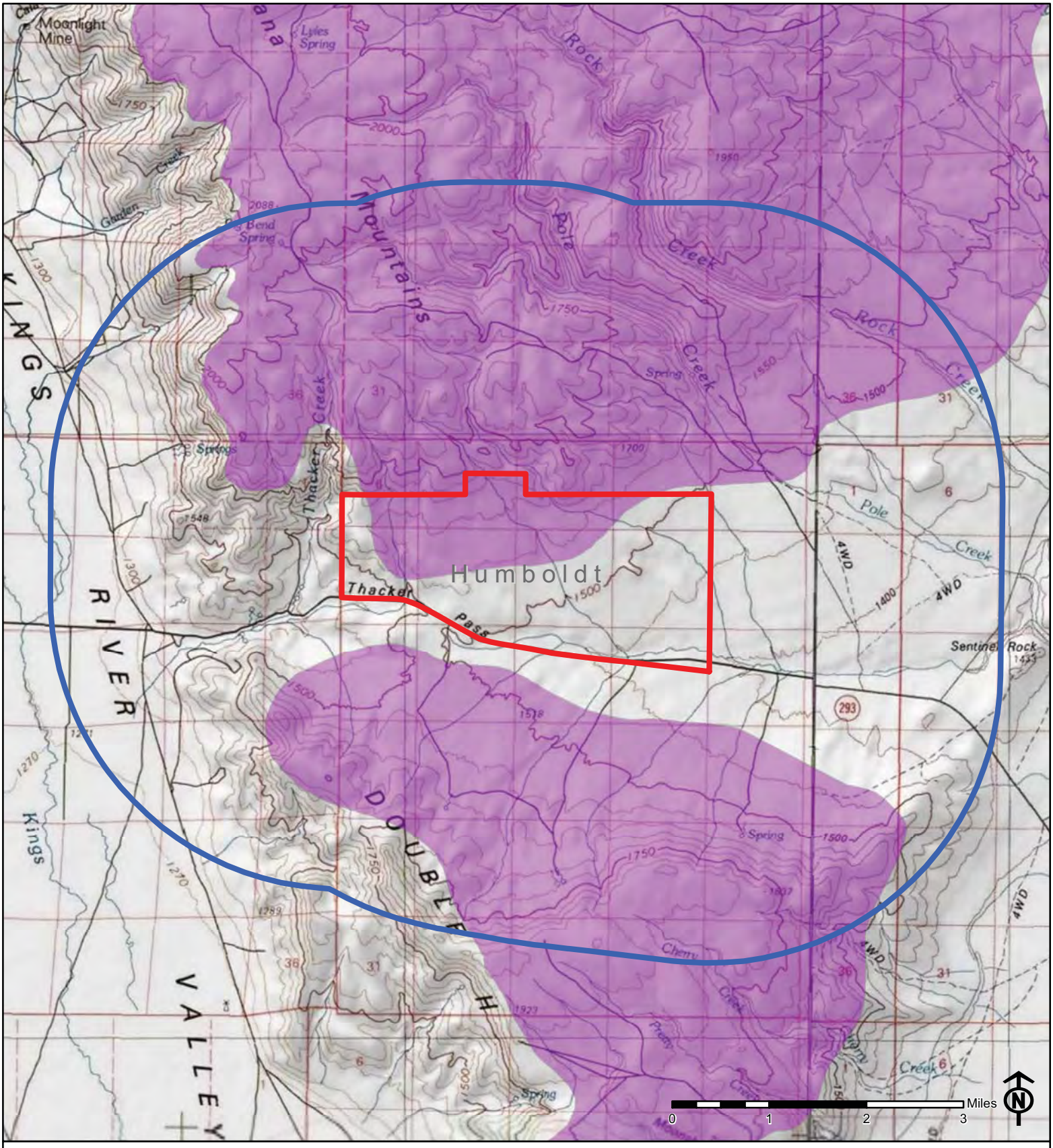

Legend

- Project Area Boundary
- Three-mile Buffer Area Boundary
- Sage-grouse Nesting Habitat
- County Boundary

Western Lithium
Sage-grouse Nesting Habitat

December 05, 2011

Projection: UTM Zone 11 North, NAD83

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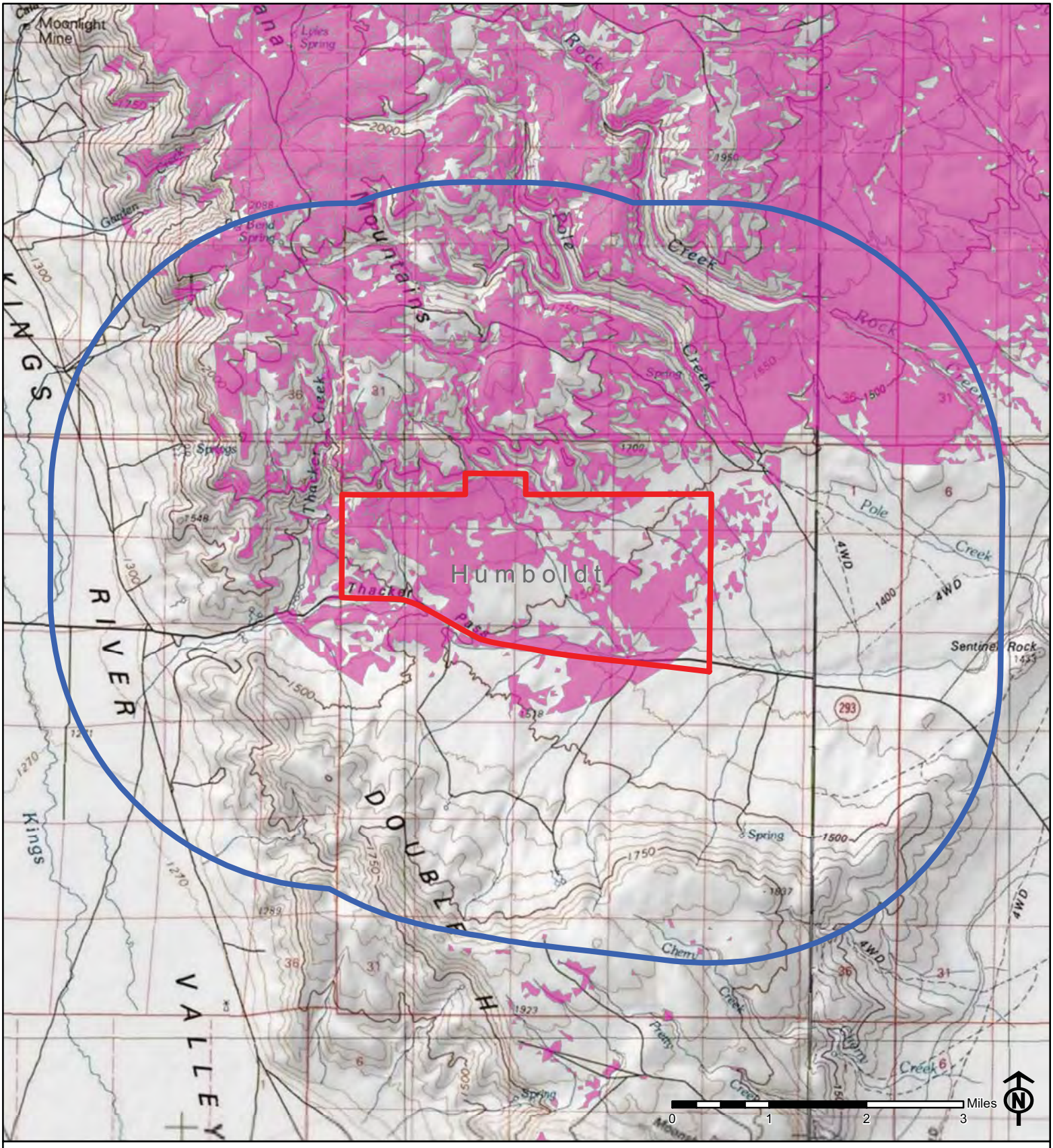

Legend

- Project Area Boundary
- Three-mile Buffer Area Boundary
- Sage-grouse Core Breeding Habitat
- County Boundary

Western Lithium
Sage-grouse Core Breeding Habitat

December 05, 2011

Projection: UTM Zone 11 North, NAD83

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LEO DROZDOFF
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

BRIAN SANDOVAL
Governor

Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, suite 5002
Carson City, Nevada 89701-5245
U.S.A.

tel: (775) 684-2900
fax: (775) 684-2909

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Nevada Natural Heritage Program

http://heritage.nv.gov

05 December 2011

David Worley
JBR Environmental Consultants, Inc.
595 Double Eagle Ct., Ste. 2000
Reno, NV 89521

RE: Data request received 15 November 2011

Dear Mr. Worley:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or At Risk plant and animal taxa recorded within or near the Western Lithium Kings Valley Project area (JBR Project # B.A11279.00). We searched our database and maps for the following, a five kilometer radius around:

Township 44N Range 35E Sections 03-10 and 15-17

There are no at risk taxa recorded within the given area. However, habitat may be available for, the Kings River pyrg, *Pyrgulopsis imperialis*, a Taxon determined to be Critically Imperiled by the Nevada Natural Heritage Program, and the Lahontan cutthroat trout, *Oncorhynchus clarkii henshawi*, a Federally Threatened Taxon. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada's wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NAC 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist /Data Manager

LEO DROZDOFF
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

BRIAN SANDOVAL
Governor

Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, suite 5002
Carson City, Nevada 89701-5245
U.S.A.

tel: (775) 684-2900
fax: (775) 684-2909

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Nevada Natural Heritage Program

http://heritage.nv.gov

14 October 2013

Carrie Schultz
SRK Consulting, Inc.
1250 Lamoille Hwy, Suite 520
Elko, NV 89801

RE: Data request received 03 October 2013

Dear Ms. Schultz:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or At Risk plant and animal taxa recorded within or near the Kings Valley Clay Project area in Humboldt County. We searched our database and maps for the following, a five kilometer radius around:

Township 44N Range 35E Sections 08, 09, and 17

There are no at risk taxa recorded within the given area. However, habitat may be available for: the Kings River pyrg, *Pyrgulopsis imperialis*, a Taxon determined to be Critically Imperiled by the Nevada Natural Heritage Program; the Golden Eagle, *Aquila chrysaetos*, a Nevada Bureau of Land Management Sensitive Species; and the Lahontan cutthroat trout, *Oncorhynchus clarkii henshawi*, a Federally Threatened Taxon. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada's wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NAC 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist /Data Manager

STATE OF NEVADA

DEPARTMENT OF WILDLIFE

1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

BRIAN SANDOVAL
Governor

TONY WASLEY
Director

RICHARD L. HASKINS, II
Deputy Director

PATRICK O. CATES
Deputy Director

Carrie Schultz
Environmental Consultant
SRK Consulting
1250 Lamoille Hwy, Suite 520
Elko, Nevada 89509

October 11, 2013

Re: Kings Valley Clay EA

Dear Ms. Schultz:

I am responding to your request for information from the Nevada Department of Wildlife (NDOW) on the known or potential occurrence of wildlife resources in the vicinity of the Kings Valley Clay EA located in Humboldt County, Nevada. In order to fulfill your request an analysis was performed using the best available data from the NDOW's wildlife occurrences, raptor nest sites and ranges, greater sage-grouse leks and habitat, and big game distributions databases. No warranty is made by the NDOW as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data. These data should be considered **sensitive** and may contain information regarding the location of sensitive wildlife species or resources. All appropriate measures should be taken to ensure that the use of this data is strictly limited to serve the needs of the project described on your GIS Data Request Form. Abuse of this information has the potential to adversely affect the existing ecological status of Nevada's wildlife resources and could be cause for the denial of future data requests.

To adequately provide wildlife resource information in the vicinity of the proposed project the NDOW delineated an area of interest that included a four-mile buffer around the project area provided by you (email, October 03, 2013). Wildlife resource data was queried from the NDOW databases based on this area of interest. The results of this analysis are summarized below.

Big Game – Occupied pronghorn antelope distribution exists throughout the entire project area and four-mile buffer area. Occupied mule deer distribution exists within portions of the project area and four-mile buffer area. Occupied bighorn sheep distribution exists outside of the project area within portions of the four-mile buffer area. No known occupied elk distribution exists in the vicinity of the project area. Please refer to the attached maps for details regarding big game distributions relative to the proposed project area.

Greater Sage-Grouse – Greater sage-grouse habitat in the vicinity of the project area is primarily categorized as Habitat of Moderate Importance. Essential/Irreplaceable Habitat, Important Habitat, Low Value Habitat/Transitional Range, and Unsuitable Habitat also exist in the vicinity of the project area. Please refer to the attached maps for details regarding greater sage-grouse habitat relative to the proposed project area. There are eight known greater sage-grouse lek sites in the vicinity of the project area:

Disaster Peak 04	21 0450N 0350E 020	2013	Active
Little Riser Creek	21 0440N 0350E 018	2013	Historic
Pole Creek	21 0450N 0350E 032	2013	Active

Pole Creek 01			
Thacker Creek	21 0450N 0340E 025	2013	Pending

Raptors – Various species of raptors, which use diverse habitat types, may reside in the vicinity of the project area. American kestrel, bald eagle, barn owl, burrowing owl, Cooper's hawk, ferruginous hawk, flammulated owl, golden eagle, great horned owl, long-eared owl, merlin, northern goshawk, northern harrier, northern saw-whet owl, osprey, peregrine falcon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture, and western screech owl have distribution ranges that include the project area and four-mile buffer area. Furthermore, burrowing owl, Cooper's hawk, long-eared owl, prairie falcon, red-tailed hawk, rough-legged hawk, short-eared owl, and turkey vulture have been directly observed in the vicinity of the project area.

Raptor species are protected by State and Federal laws. In addition, bald eagle, burrowing owl, California spotted owl, ferruginous hawk, flammulated owl, golden eagle, northern goshawk, peregrine falcon, prairie falcon, and short-eared owl are NDOW species of special concern and are target species for conservation as outlined by the Nevada Wildlife Action Plan. Per the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (United States Fish and Wildlife Service 2010) we have queried our raptor nest database to include raptor nest sites within ten miles of the proposed project area. There are 13 known raptor nest sites within ten miles of the project area:

Buteo	5/3/2011	5/3/2011	21 0440N 0350E 005
Buteo/Corvid	5/3/2011	5/3/2011	21 0450N 0340E 004
Buteo/Corvid	5/3/2011	5/3/2011	21 0460N 0340E 034
Eagle	4/29/1976		21 0440N 0340E 025
Eagle	5/3/2011	5/3/2011	21 0440N 0340E 001
Eagle	9/7/2011		21 0430N 0340E 008
Falcon	5/3/2011	5/3/2011	21 0450N 0340E 023

Other Wildlife Resources

The following species have also been identified in the vicinity of the project area:

American robin
belted kingfisher
chipping sparrow
common raven
golden-mantled ground squirrel

gray-headed junco		
Great Basin rattlesnake		
mourning dove		
pygmy rabbit		Yes
spotted towhee		
violet-green swallow		
western rattlesnake		

ESA: Endangered Species Act Status
State: State of Nevada Special Status
SWAP_SoCP: Nevada State Wildlife Action Plan (2012) Species of Conservation Priority

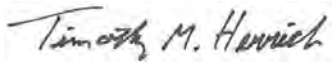
The above information is based on data stored at our Reno Headquarters Office, and does not necessarily incorporate the most up to date wildlife resource information collected in the field. Please contact the Habitat Division Supervising Biologist at our Western Region Reno Office (775.688.1500) to discuss the current environmental conditions for your project area and the interpretation of our analysis. Furthermore, it should be noted that the information detailed above is preliminary in nature and not necessarily an identification of every wildlife resource concern associated with the proposed project. Consultation with the Supervising Habitat biologist will facilitate the development of appropriate survey protocols and avoidance or mitigation measures that may be required to address potential impacts to wildlife resources.

Mark Freese - Western Region Supervising Habitat Biologist (775.688.1145)

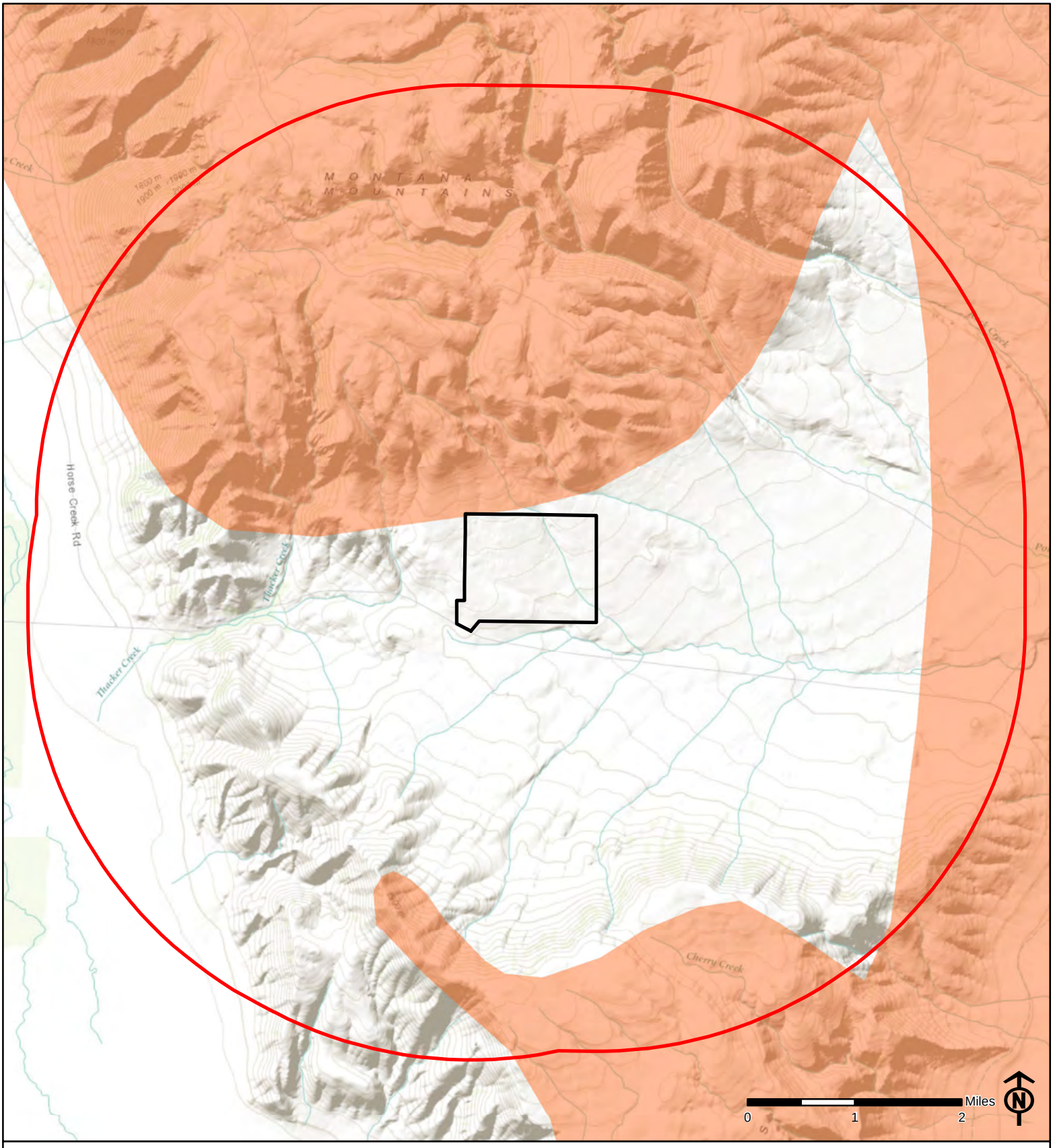
Federally listed Threatened and Endangered species are also under the jurisdiction of the United States Fish and Wildlife Service. Please contact them for more information regarding these species.

If you have any questions regarding the results or methodology of this analysis please do not hesitate to contact our GIS office at (775) 688-1565.

Sincerely,



Timothy M. Herrick
Conservation Aide III



Project Area

Four Mile Buffer Area Boundary

Mule Deer Distribution

Kings Valley Clay EA
Mule Deer Distribution

October 07, 2013

Projection: UTM Zone 11 North, NAD83

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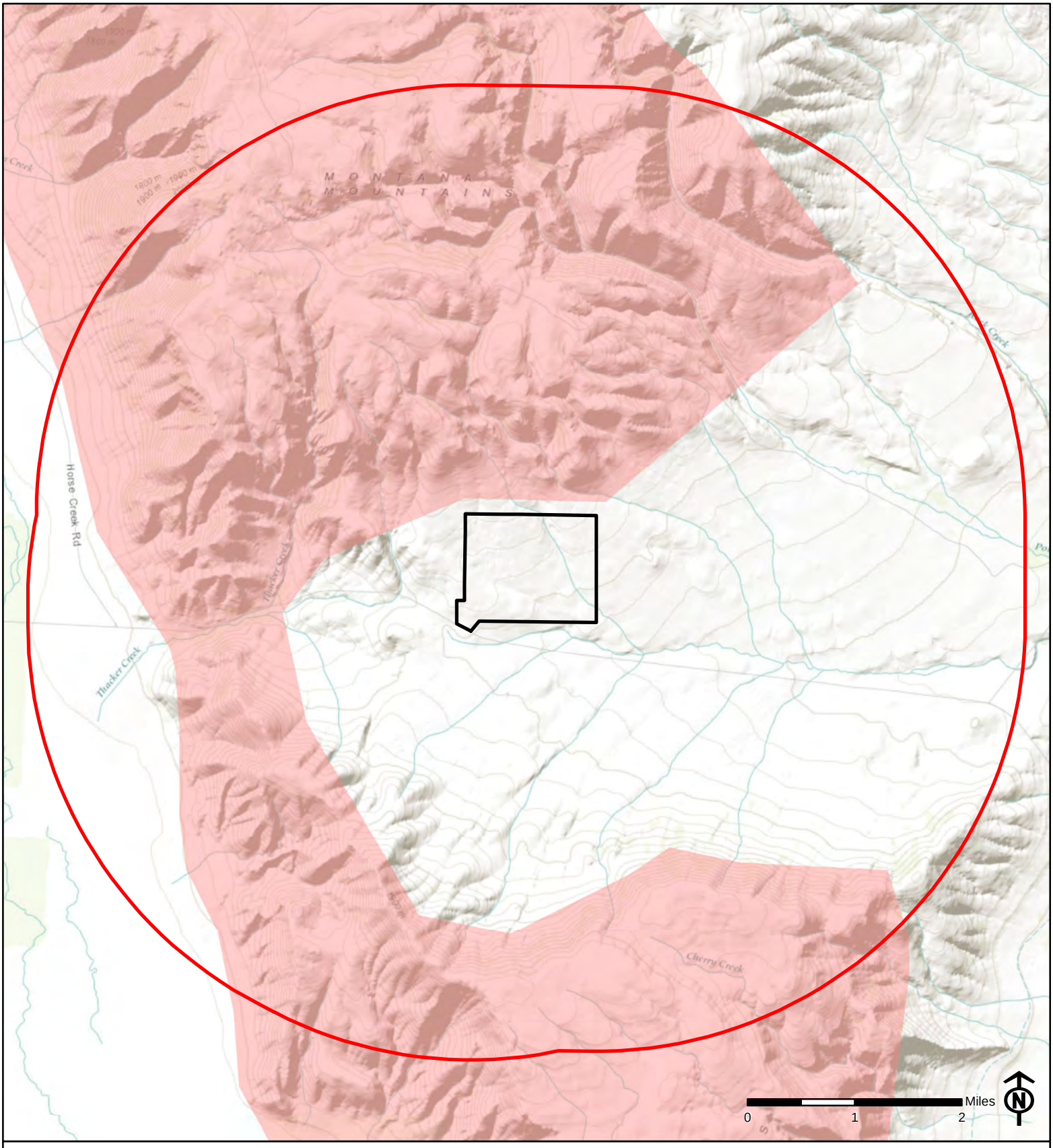

Project Area

Four Mile Buffer Area Boundary

Bighorn Sheep Distribution

Kings Valley Clay EA
Bighorn Sheep Distribution

October 07, 2013

Projection: UTM Zone 11 North, NAD83

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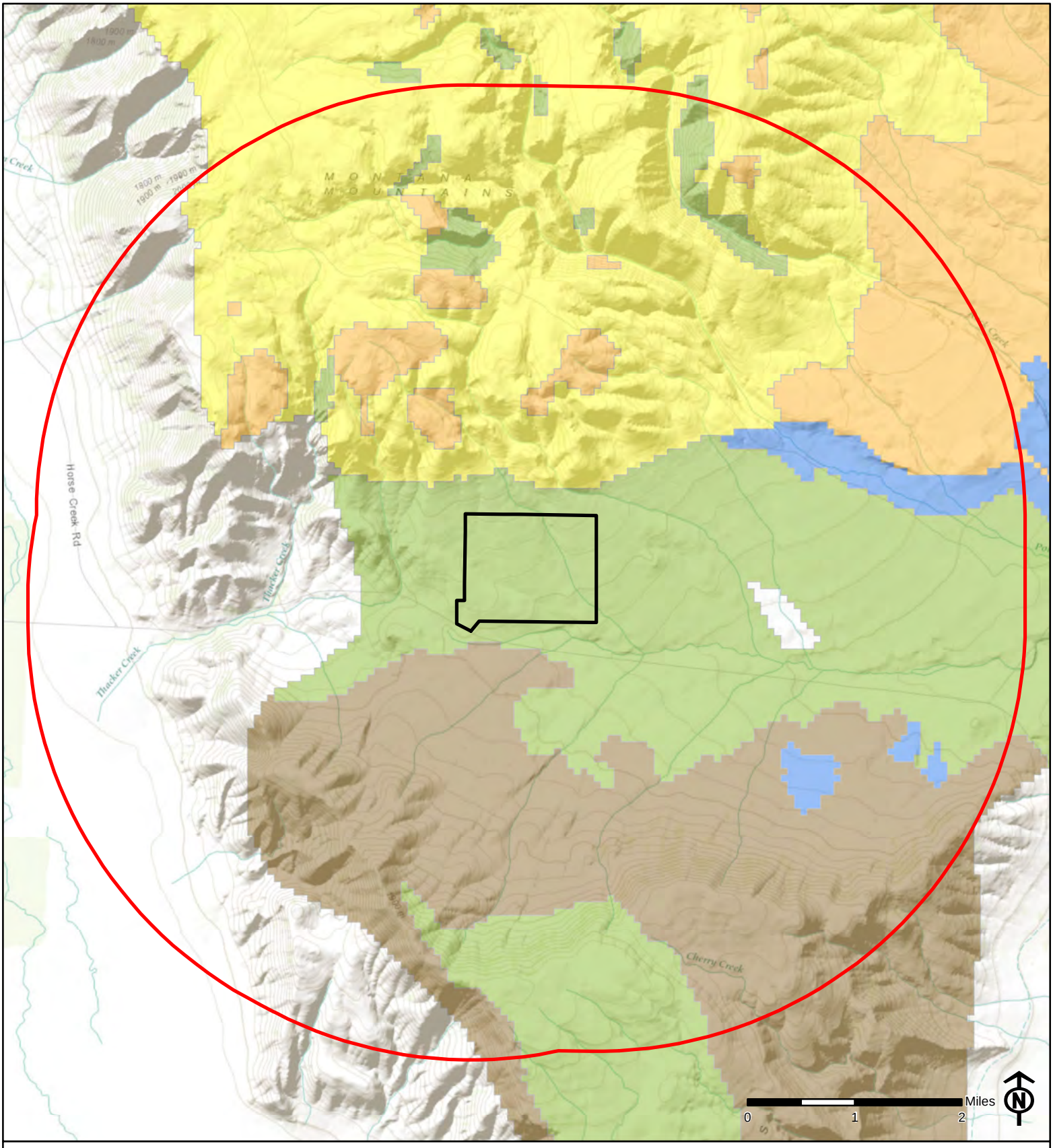

Project Area

Four Mile Buffer Area Boundary

Kings Valley Clay EA
Greater Sage-Grouse Habitat

Greater Sage-Grouse Habitat

- 1 - Essential/Irreplaceable Habitat
- 2 - Important Habitat
- 3 - Habitat of Moderate Importance
- 4 - Low Value Habitat/Transisitional Range
- 5 - Unsuitable Habitat
- Pending Completion

October 07, 2013

Projection: UTM Zone 11 North, NAD83

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APPENDIX E
Air Sciences Inc. Engineering Calculations

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: A. Maynes		
	PROJECT NO: 270-7-1	PAGE: 1	OF: 1	SHEET: Summary
ENGINEERING CALCULATIONS	SUBJECT: Summary	DATE: April 12, 2013		

STATIONARY AND MOBILE SOURCE EMISSION SUMMARY

	Potential Emissions *(ton/yr)*						
	PM2.5	**PM10**	**PM**	**CO**	**NOX**	**SO2**	**VOC**
Stationary Sources							
Aggregate Cone Crusher and Screen	0.02	0.12	0.32	-	-	-	-
Cone Crusher Diesel Generator	0.09	0.09	0.09	1.99	1.61	0.001	0.23
Diesel Generator - First Aid Trailer	0.17	0.17	0.17	1.19	2.05	0.002	0.41
Subtotal	*0.28*	*0.38*	*0.59*	*3.18*	*3.66*	*0.003*	*0.64*
Mobile Sources							
Mobile Machinery - Diesel	5.31	5.31	5.31	108.08	89.00	0.06	15.44
Mobile Machinery - Gasoline	0.007	0.007	0.007	0.45	0.06	0.001	0.02
Subtotal	*5.32*	*5.32*	*5.32*	*108.53*	*89.05*	*0.06*	*15.46*
Facility-Wide Total	**5.60**	**5.70**	**5.90**	**111.71**	**92.71**	**0.07**	**16.10**

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: A. Maynes		
	PROJECT NO: 270-7-1	PAGE: 1	OF: 3	SHEET: Stationary
ENGINEERING CALCULATIONS	SUBJECT: Stationary Source Emissions	DATE: April 12, 2013		

CONE CRUSHER AND SCREEN (AGGREGATE)

Maximum potential throughput

300	*ton/hr*	*Per B. Elgby, conference call, 4/4/2013*
7,000	*yd^3/yr*	*Per B. Elgby, conference call, 4/4/2013*
15,000	*ton/yr*	*Conservative estimate*

Aggregate Cone Crusher and Screen	Throughput (ton/hr)	Throughput (ton/yr)	Emission Factors PM2.5*	PM10	PM	Units	Emission Factor Reference
Hopper loading	300	15,000	0.0002	0.0011	0.003	*lb/ton*	*AP-42, Table 11.19.2-2 - Conveyor Transfer Point*
Hopper transfer to Cone Crusher	300	15,000	0.0002	0.0011	0.003	*lb/ton*	*AP-42, Table 11.19.2-2 - Conveyor Transfer Point*
Cone Crusher and discharge to Conveyor	300	15,000	0.0004	0.0024	0.0054	*lb/ton*	*AP-42, Table 11.19.2-2 - Tertiary Crushing*
Conveyor transfer to Screen	300	15,000	0.0002	0.0011	0.003	*lb/ton*	*AP-42, Table 11.19.2-2 - Conveyor Transfer Point*
Screen and discharge to Stacker Conveyor	300	15,000	0.0013	0.0087	0.025	*lb/ton*	*AP-42, Table 11.19.2-2 - Screening*
Stacker Conveyor discharge	300	15,000	0.0002	0.0011	0.003	*lb/ton*	*AP-42, Table 11.19.2-2 - Conveyor Transfer Point*

* *PM2.5 multiplier from AP-42, Sec. 13.2.4 (11/06)*

EMISSIONS

Source Description	PM2.5 (lb/hr)	PM2.5 (ton/yr)	PM10 (lb/hr)	PM10 (ton/yr)	PM (lb/hr)	PM (ton/yr)
Hopper loading	0.05	0.001	0.33	0.008	0.90	0.023
Hopper transfer to Cone Crusher	0.05	0.001	0.33	0.008	0.90	0.023
Cone Crusher and discharge to Conveyor	0.11	0.003	0.72	0.018	1.62	0.041
Conveyor transfer to Screen	0.05	0.001	0.33	0.008	0.90	0.023
Screen and discharge to Stacker Conveyor	0.40	0.010	2.61	0.065	7.50	0.188
Stacker Conveyor discharge	0.05	0.001	0.33	0.008	0.90	0.023
Total	**0.70**	**0.018**	**4.65**	**0.116**	**12.72**	**0.318**

CONVERSION FACTORS

453.59	*g/lb*
2,000	*lb/ton*
8,760	*hr/yr*

CONE CRUSHER DIESEL GENERATOR

Source Description	Year Manufactured	Operation (hr/yr)	Power Rating (kW)	Power Rating (HP)	Throughput (MMBtu/hr)	Throughput (MMBtu/yr)	Throughput (gal/hr)
Cone Crusher Diesel Generator	Pre-2001*	500	317	425	3.83	1,913	27.92

** As a worst-case analysis, the engine is assumed to be Tier 1.*

EMISSION CALCULATIONS

Pollutant	(g/kW-hr)	Potential to Emit (lb/hr)	Potential to Emit (ton/yr)	Emission Factor Reference
NO_x	9.2	6.43	1.61	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
CO	11.4	7.97	1.99	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
PM	0.54	0.38	0.094	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
VOC	1.3	0.91	0.23	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
SO_2		5.9E-03	1.5E-03	*Mass balance based on 15 ppm sulfur (see below)*

SO_2 Emission Calculation:

$$\frac{27.92\ \text{~~gal~~}}{\text{hr}} \times \frac{7.10\ \text{lb}}{\text{~~gal diesel~~}} \times \frac{15\ \text{~~parts sulfur*~~}}{1000000\ \text{~~parts~~}} \times \frac{64.06\ SO_2}{32.07\ \text{~~sulfur~~}} = \frac{5.9\text{E-}03\ SO_2\ \text{lb}}{\text{hr}}$$

** Per 40 CFR § 80.510 ~~(b)~~*

CONVERSION FACTORS		Reference
1.341	*HP/kW*	*AP 42, Appendix A.*
7.10	*lb/gal, diesel*	*AP 42, Table 3.4-1, Footnote A (rev 10/96), Diesel Fuel*
137,000	*Btu/gal, diesel*	*AP 42, Appendix A.*
0.009	*MMBtu/HP-hr (assumed worst-case efficiency)*	

DIESEL GENERATOR - FIRST AID TRAILER

Source Description	Year Manufactured	Operation (hr/yr)	Power Rating (kW)	Power Rating (HP)	Throughput (MMBtu/hr)	Throughput (MMBtu/yr)	Throughput (gal/hr)
Diesel Generator - First Aid Trailer	Pre-2004*	8,760	22	30	0.27	2,365	1.97

** As a worst-case analysis, the engine is assumed to be Tier 1.*

EMISSION CALCULATIONS

Pollutant	Emission Factor	Units	Potential to Emit (lb/hr)	Potential to Emit (ton/yr)	Emission Factor Reference
NO_x	9.5	*g/kW-hr*	0.47	2.05	*40 CFR Part § 89.112, Table 1, 19≤kW<37, Tier 1*
CO	5.5	*g/kW-hr*	0.27	1.19	*40 CFR Part § 89.112, Table 1, 19≤kW<37, Tier 1*
PM	0.8	*g/kW-hr*	0.04	0.17	*40 CFR Part § 89.112, Table 1, 19≤kW<37, Tier 1*
VOC	0.35	*lb/MMBtu*	0.09	0.41	*AP-42, Table 3.3-1, Diesel Industrial Engines*
SO_2			4.2E-04	1.8E-03	*Mass balance based on 15 ppm sulfur (see below)*

SO_2 Emission Calculation:

$$\frac{1.97\ \text{~~gal~~}}{\text{hr}} \times \frac{7.10\ \text{lb}}{\text{~~gal diesel~~}} \times \frac{15\ \text{~~parts sulfur~~*}}{1000000\ \text{~~parts~~}} \times \frac{64.06\ SO_2}{32.07\ \text{~~sulfur~~}} = \frac{4.2\text{E-}04\ SO_2\ \text{lb}}{\text{hr}}$$

** Per 40 CFR § 80.510 (b)*

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: A. Maynes		
	PROJECT NO: 270-7-1	PAGE: 1	OF: 3	SHEET: Mobile
ENGINEERING CALCULATIONS	SUBJECT: Mobile Source Emissions	DATE: April 12, 2013		

MOBILE MACHINERY - DIESEL

Equipment	Tier	Rating (hp)	Daily Operation (hr/day)	Utilization (%)	Annual Operation (hr/yr)	Number of Units	Power Output (hp-hr/yr)	Diesel Use (gal/yr)	
Cat 615 Scraper	1	265	24	85%	2,790	2	739,350	37,777	6T1
Articulating Truck	1	489	24	85%	2,790	4	2,728,620	139,419	7T1
Cat 330D Excavator	1	270	24	85%	2,790	1	376,650	19,245	6T1
Cat 980 Frontend Loader	1	406	24	85%	2,790	1	566,370	28,939	7T1
Cat D9 Dozer	1	410	24	85%	2,790	1	571,950	29,224	7T1
Cat 14G Grader	1	180	24	85%	2,790	1	251,100	12,830	6T1
Water Truck (4,000 gal.)	1	300	24	50%	1,860	1	279,000	14,255	6T1
Water Tank (4,000 gal.)	1	300	24	50%	1,860	1	279,000	14,255	6T1
Service Truck	1	400	24	50%	1,860	1	372,000	19,007	7T1
Fuel Truck	1	400	24	50%	1,860	1	372,000	19,007	7T1
Haul Trucks (40-ton)	1	489	24	85%	2,790	5	3,410,775	174,273	7T1
Air-track Drill	1	385	24	50%	1,860	1	358,050	18,295	7T1
Drill Rigs	1	550	24	50%	1,860	2	1,023,000	52,270	7T1
Light Plants	1	34	12	100%	2,790	9	426,870	21,811	3T1

**A Power Factor of 50% is assumed for all engines based on typical engine load.*

SO_2 Emissions:

$$\frac{37{,}777\ \text{gal}}{\text{yr}} \left| \frac{7.1\ \text{lb}}{\text{gal}} \right| \frac{0.0015\%\ \text{S}}{} \left| \frac{64.06\ \text{lb SO}_2}{32.07\ \text{lb S}} \right| = \frac{8.04\ \text{lb SO}_2}{\text{yr}}$$

$$\frac{8.04\ \text{lb SO2}}{\text{yr}} \left| \frac{\text{ton}}{2{,}000\ \text{lb}} \right| = \frac{0.0040\ \text{ton SO2}}{\text{yr}}$$

CONVERSION FACTORS		Reference
	2,000 *lb/ton*	
	453.592 *g/lb*	
	1.34102 *hp/kW*	
Diesel Sulfur Content	0.0015%	*40 CFR 80.510 sulfur content of non-road diesel*
Diesel Heat Value	137,000 *Btu/gal*	*AP-42, App. A (Typical parameters for various fuels)*
Brake-Specific Fuel Consumption	7,000 *Btu/hp-hr*	*AP-42, Table 3.4-1 (10/96), Footnote e*
Diesel Density	7.1 *lb/gal*	*AP-42, Table 3.4-1 (10/96), Footnote a*
Gasoline Sulfur Content	0.003%	*EPA Tier 2 Gasoline Sulfur program (http://www.epa.gov/otaq/fuels/gasolinefuels/index.htm)*
Gasoline Density	6.17 *lb/gal*	*AP-42, App. A (Densities of selected substances)*

MOBILE MACHINERY - DIESEL - CONTINUED

Diesel Emission Factors (*g/hp-hr*)[a]

Equipment	PM	CO	NOX	VOC
Cat 615 Scraper	0.40	8.50	6.86	0.97
Articulating Truck	0.40	8.50	6.86	0.97
Cat 330D Excavator	0.40	8.50	6.86	0.97
Cat 980 Frontend Loader	0.40	8.50	6.86	0.97
Cat D9 Dozer	0.40	8.50	6.86	0.97
Cat 14G Grader	0.40	8.50	6.86	0.97
Water Truck (4,000 gal.)	0.40	8.50	6.86	0.97
Water Tank (4,000 gal.)	0.40	8.50	6.86	0.97
Service Truck	0.40	8.50	6.86	0.97
Fuel Truck	0.40	8.50	6.86	0.97
Haul Trucks (40-ton)	0.40	8.50	6.86	0.97
Air-track Drill	0.40	8.50	6.86	0.97
Drill Rigs	0.40	8.50	6.86	0.97
Light Plants	0.60	4.10	7.08	7.08

[a] *As a worst-case analysis, where specific data is not provided, NO_X and VOC emissions are assumed equal to the NMHC + NO_X standard.*

Diesel Mobile Machinery Tailpipe Emissions (*ton/yr*)

Equipment	PM2.5	PM10	PM	CO	NOX	VOC	SO2	
Cat 615 Scraper	0.33	0.33	0.33	6.93	5.59	0.79	0.004	*ton/yr*
Articulating Truck	1.21	1.21	1.21	25.57	20.63	2.92	0.015	*ton/yr*
Cat 330D Excavator	0.17	0.17	0.17	3.53	2.85	0.40	0.002	*ton/yr*
Cat 980 Frontend Loader	0.25	0.25	0.25	5.31	4.28	0.61	0.003	*ton/yr*
Cat D9 Dozer	0.25	0.25	0.25	5.36	4.33	0.61	0.003	*ton/yr*
Cat 14G Grader	0.11	0.11	0.11	2.35	1.90	0.27	0.001	*ton/yr*
Water Truck (4,000 gal.)	0.12	0.12	0.12	2.61	2.11	0.30	0.002	*ton/yr*
Water Tank (4,000 gal.)	0.12	0.12	0.12	2.61	2.11	0.30	0.002	*ton/yr*
Service Truck	0.17	0.17	0.17	3.49	2.81	0.40	0.002	*ton/yr*
Fuel Truck	0.17	0.17	0.17	3.49	2.81	0.40	0.002	*ton/yr*
Haul Trucks (40-ton)	1.51	1.51	1.51	31.96	25.79	3.64	0.019	*ton/yr*
Air-track Drill	0.16	0.16	0.16	3.36	2.71	0.38	0.002	*ton/yr*
Drill Rigs	0.45	0.45	0.45	9.59	7.74	1.09	0.006	*ton/yr*
Light Plants	0.28	0.28	0.28	1.93	3.33	3.33	0.002	*ton/yr*
Total	**5.31**	**5.31**	**5.31**	**108.08**	**89.00**	**15.44**	**0.064**	***ton/yr***

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: A. Maynes		
	PROJECT NO: 270-7-1	PAGE: 3	OF: 3	SHEET: Mobile
ENGINEERING CALCULATIONS	SUBJECT: Mobile Source Emissions	DATE: April 12, 2013		

MOBILE MACHINERY - GASOLINE

Gasoline Emission Factors

Make and Model	Model Year	EPA Fuel Economy [a] *(mi/gal)*	Annual Operation *(hr/yr)*	Average Speed *(mph)*	Distance Traveled *(VMT/yr)*	Emission Factors [b] PM *(g/mi)*	CO *(g/mi)*	NOX *(g/mi)*	VOC *(g/mi)*
Ford F250 Pickup Truck	2003	12	2,790	20	55,800	0.12	7.3	0.9	0.28

[a] *Fuel Economy based on F150 Pickup*

[b] *EPA Green Vehicle Database (http://www.epa.gov/greenvehicles/Index.do)*

Gasoline Mobile Machinery Tailpipe Emissions (*ton/yr*)

Equipment	PM2.5	PM10	PM	CO	NOX	VOC	SO2
Ford F250 Pickup Truck	0.0074	0.0074	0.0074	0.45	0.055	0.017	0.0009
Total	**0.0074**	**0.0074**	**0.0074**	**0.45**	**0.055**	**0.017**	**0.0009**

Pickup Truck Fuel Use 4,650 *gal/yr*

SO_2 Emissions:

$$\frac{4{,}650\ \text{gal}}{\text{yr}} \times \frac{6.17\ \text{lb}}{\text{gal gasoline}} \times 0.0030\%\ \text{S} \times \frac{64.06\ \text{lb SO}_2}{32.07\ \text{lb S}} = \frac{1.72\ \text{lb SO}_2}{\text{yr}}$$

$$\frac{1.72\ \text{lb SO2}}{\text{yr}} \times \frac{\text{ton}}{2{,}000\ \text{lb}} = \frac{0.0009\ \text{ton SO2}}{\text{yr}}$$

SUMMARY OF HAP EMISSIONS FROM STORAGE PILES

	Emissions	
Pollutant	*(ton/yr)*	*(lb/yr)*
Arsenic	8.4E-05	0.17
Beryllium	7.3E-06	0.01
Cadmium	5.1E-07	0.001
Cobalt	1.4E-05	0.03
Chromium	1.6E-05	0.03
Mercury	9.5E-08	0.0002
Manganese	8.9E-04	1.78
Nickel	2.6E-05	0.05
Phosphorus	9.4E-04	1.89
Lead	1.6E-05	0.03
Antimony	1.9E-05	0.04
Selenium	2.6E-06	0.01

HAP CONCENTRATIONS IN ORE AND WASTE

Pollutant		Weight Fraction Ore (%)	Weight Fraction Waste (%)	
Arsenic	As	0.0008%	0.0067%	
Beryllium	Be	0.0008%	0.0005%	
Cadmium	Cd	0.00003%	0.00004%	
Cobalt	Co	0.0004%	0.0011%	
Chromium	Cr	0.0005%	0.0012%	
Mercury	Hg	0.00002%	0.000005%	[a]
Manganese	Mn	0.0421%	0.0664%	
Nickel	Ni	0.0004%	0.0021%	
Phosphorus	P	0.0283%	0.0730%	[a]
Lead	Pb	0.0008%	0.0012%	
Antimony	Sb	0.0004%	0.0015%	
Selenium	Se	0.0001%	0.0002%	

[a] *Information not available from waste samples, concentration determined from samples of surrounding soil.*

HAP CONCENTRATIONS IN LOCAL SOILS

Pollutant		Weight Fraction Soil (%)
Arsenic	As	0.0012%
Beryllium	Be	0.0002%
Cadmium	Cd	0.0000%
Cobalt	Co	0.0011%
Chromium	Cr	0.0036%
Mercury	Hg	0.0000%
Manganese	Mn	0.0711%
Nickel	Ni	0.0019%
Phosphorus	P	0.0730%
Lead	Pb	0.0020%
Antimony	Sb	0.0003%
Selenium	Se	0.0001%

CONVERSION FACTORS

453.59	*g/lb*
2,000	*lb/ton*
8,760	*hr/yr*
43,560	ft^2/acre
4,047	m^2/acre
5,280	*ft/mi*

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: E. Huelson		
ENGINEERING CALCULATIONS	PROJECT NO: 270-7-1	PAGE: 3	OF: 5	SHEET: Stockpiles
	SUBJECT: Storage Pile Fugitive Emissions	DATE: April 23, 2013		

MATERIAL UNLOADING AT STORAGE PILES

Mean wind speed (U)	8.63	*mile/hr*	*King Valley onsite wind data*
Ore moisture content (M)	5.0	*%*	*Per B. Elgby, conference call, 4/4/2013*
Waste rock moisture content (M)	5.0	*%*	*Per B. Elgby, conference call, 4/4/2013*
Ore unloading at Stockpile	18,750	*ton/yr*	*2012 Kings Valley Clay Mine PoO*
Waste unloading at WRDA	130,000	*ton/yr*	*Based on strip ratio of 6.51, per B. Elgby, conference call, 4/4/2013*

TSP emission factor eq. $0.0032k(U/5)^{1.3}/(M/2)^{1.4}$ *lb/ton* *AP-42, Sec. 13.2.4, Eq. 1 (11/06)*

Particle size	PM2.5	PM10	PM	
Size-specific PM scaling factors (k)	0.053	0.35	0.74	*AP-42, Sec. 13.2.4, (11/06)*
Size-specific PM emission factor - Ore	0.0001	0.0006	0.0013	*lb/ton*
Size-specific PM emission factor - Waste	0.0001	0.0006	0.0013	*lb/ton*

Material Loading and Unloading Emissions (*ton/yr*)

Activity	PM2.5	PM10	PM	
Ore unloading at Stockpile	0.001	0.006	0.013	*ton/yr*
Waste unloading at WRDA	0.006	0.041	0.087	*ton/yr*
Total	**0.007**	**0.047**	**0.099**	***ton/yr***

HAP Emissions from Material Unloading *(ton/yr)*

Pollutant	Ore Unloading	Waste Unloading	**Total**	
Arsenic	9.4E-08	5.9E-06	**5.9E-06**	*ton/yr*
Beryllium	1.0E-07	4.1E-07	**5.2E-07**	*ton/yr*
Cadmium	3.4E-09	3.3E-08	**3.6E-08**	*ton/yr*
Cobalt	4.8E-08	9.5E-07	**1.0E-06**	*ton/yr*
Chromium	6.7E-08	1.0E-06	**1.1E-06**	*ton/yr*
Mercury	2.6E-09	4.1E-09	**6.7E-09**	*ton/yr*
Manganese	5.3E-06	5.8E-05	**6.3E-05**	*ton/yr*
Nickel	4.6E-08	1.8E-06	**1.8E-06**	*ton/yr*
Phosphorus	3.5E-06	6.3E-05	**6.7E-05**	*ton/yr*
Lead	9.6E-08	1.0E-06	**1.1E-06**	*ton/yr*
Antimony	5.0E-08	1.3E-06	**1.3E-06**	*ton/yr*
Selenium	1.3E-08	1.7E-07	**1.8E-07**	*ton/yr*

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: E. Huelson		
ENGINEERING CALCULATIONS	PROJECT NO: 270-7-1	PAGE: 4	OF: 5	SHEET: Stockpiles
	SUBJECT: Storage Pile Fugitive Emissions	DATE: April 23, 2013		

WIND EROSION

Flat Areas

$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$ — *Erosion Potential (g/m2), AP-42, Page 13.2.5-3, Eq. 3 (11/06)*

$u^* = 0.053 \, u_{10}^+$ — *Friction Velocity (m/s), AP-42, Page 13.2.5-5, Eq. 4 (11/06)*

$u_{10}^+ = 1.2 * u_{10}$ — *Fastest mile wind speed at 10m (m/s), The 1.2 factor is taken from "Erosion Potential Tests in the Vicinity of East Helena Using a Portable Wind Tunnel. Chester Wisner, Ronald R. Petersen, Larry Cottone, May 1, 1991."*

u_{10} = *Hourly average wind speeds at 10m (m/s)*

u_t^* = 1.02 *m/s* — *Threshold Friction Vel. (m/s), AP-42, Table 13.2.5-2 (11/06) (overburden)*

Storage Piles

$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$ — *Erosion Potential (g/m2), AP-42, Page 13.2.5-3, Eq. 3 (11/06)*

$u^* = k * 0.1 * u_{10}^+$ — *AP-42, Page 13.2.5-6 and 8, Eq. 6 and 7 (11/06)*

k =	0.9 Pile Area ID A	12% of surface area	*AP-42, Figure 13.2.5-3 (11/06)*
	0.6 Pile Area ID B	48% of surface area	*AP-42, Figure 13.2.5-3 (11/06)*
	0.2 Pile Area ID C	40% of surface area	*AP-42, Figure 13.2.5-3 (11/06)*

$u_{10}^+ = 1.2 * u_{10}$ — *Erosion Potential Tests in the Vicinity of East Helena Using a Portable Wind Tunnel. Chester Wisner, Ronald R. Petersen, Larry Cottone, May 1, 1991.*

u_{10} = *hourly average wind speeds at 10m.*

u_t^* = 1.02 *m/s* — *Threshold Friction Vel. (m/s), AP-42, Table 13.2.5-2 (11/06) (overburden)*

Threshold Wind Speeds

Flat:

$u^* => 1.02 = 0.053 * 1.2 * u_{10}$ — u_{10} = 16.04 *m/s* — Flat Areas

Pile:

$u^* => 1.02 = k * 0.1 * 1.2 * u_{10}$

u_{10} =	9.44 *m/s*	Pile Area ID A
	14.17 *m/s*	Pile Area ID B
	42.50 *m/s*	Pile Area ID C

Kings Valley Storage Pile Erosion Potential

	Max u_{10}	u_{10}^+	u^*	u_t^*	P		P/area
	(m/s)	*(m/s)*	*(m/s)*	*(m/s)*	*(g/m2)*	**% of area**	*(g/m2)*
Pile Area ID A	16.8	20.2	1.81	1.02	56.5	12%	6.8
Pile Area ID B	16.8	20.2	1.21	1.02	6.8	48%	3.3
Pile Area ID C	16.8	20.2	0.40	1.02	0.0	40%	0.0
Total Pile							10.1

Erosion potential determined using the maximum hourly average wind speed from 2012 on-site wind data

Erosion Potential for Flat Areas

	Max u_{10}	u_{10}^+	u^*	u_t^*	P	
	(m/s)	*(m/s)*	*(m/s)*	*(m/s)*	*(g/m2)*	*(lb/acre)*
Flat Area	16.8	20.2	1.07	1.02	1.3	12.0

WIND EROSION - CONTINUED

Particle size	PM2.5	PM10	PM	
Size-specific PM scaling factors (k)	0.075	0.50	1.00	*AP-42, Sec. 13.2.5 (11/06)*

Surface Area and Volume

Conical surface area (SA) $\Pi \times r \times \text{sqrt}(h^2 + r^2)$ *r = conical base radius, h = conical height*

Conical volume (V) $1/3 \times \Pi \times h \times r^2$ *Assuming a conical dump*

pi (Π) 3.14

Surface Area Calculations [a]

		Stockpile	WRDA
Pile base radius	*ft*	9.3	9.3
Pile height	*ft*	7.0	7.0
Pile surface area	*acre*	0.008	0.008
Load mass	*ton*	40	40
Surface area/ton of material loaded	*acre/ton*	1.95E-04	1.95E-04

[a] *Calculated based on 37° slope*

Storage Pile Erosion Potential (P) 10.1 *g/m2*

89.7 *lb/acre*

Wind Erosion Emissions *(ton/yr)*

	Material Dumped *(ton/yr)*	Area Created *(acre/yr)*	PM2.5 *(ton/yr)*	PM10 *(ton/yr)*	PM *(ton/yr)*
Stockpile	18,750	3.66	0.01	0.08	0.16
WRDA	130,000	25.38	0.09	0.57	1.14
Total			**0.10**	**0.65**	**1.30**

HAP Emissions from Wind Erosion of Storage Piles *(ton/yr)*

Pollutant	Stockpile	WRDA	**Total**
Arsenic	1.2E-06	7.7E-05	**7.8E-05**
Beryllium	1.4E-06	5.4E-06	**6.8E-06**
Cadmium	4.4E-08	4.3E-07	**4.7E-07**
Cobalt	6.3E-07	1.3E-05	**1.3E-05**
Chromium	8.8E-07	1.4E-05	**1.4E-05**
Mercury	3.5E-08	5.4E-08	**8.8E-08**
Manganese	6.9E-05	7.6E-04	**8.3E-04**
Nickel	6.0E-07	2.3E-05	**2.4E-05**
Phosphorus	4.7E-05	8.3E-04	**8.8E-04**
Lead	1.3E-06	1.4E-05	**1.5E-05**
Antimony	6.5E-07	1.7E-05	**1.7E-05**
Selenium	1.6E-07	2.2E-06	**2.4E-06**

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: A. Maynes		
	PROJECT NO: 270-7-1	PAGE: 1	OF: 2	SHEET: Clay Crusher
ENGINEERING CALCULATIONS	SUBJECT: Clay Crushing Emissions	DATE: April 12, 2013		

CONE CRUSHER AND SCREEN (CLAY)

Maximum potential throughput

300	*ton/hr*	*Per B. Elgby, conference call, 4/4/2013*
18,750	*ton/yr*	*Per B. Elgby, conference call, 4/4/2013*
5%	*min. moisture content*	*Per B. Elgby, conference call, 4/4/2013*

	Throughput		Emission Factors				
	(ton/hr)	*(ton/yr)*	PM2.5	PM10	PM	Units	Emission Factor Reference*
Hopper loading	300	18,750	1.3E-05	4.6E-05	0.00014	*lb/ton*	*AP-42, Sec. 11.19.2-2 - Conv. Transfer (ctrl)*
Hopper transfer to Cone Crusher	300	18,750	1.3E-05	4.6E-05	0.00014	*lb/ton*	*AP-42, Sec. 11.19.2-2 - Conv. Transfer (ctrl)*
Cone Crusher and discharge to Conveyor	300	18,750	3.6E-04	0.0024	0.0054	*lb/ton*	*AP-42, Sec. 11.19.2-2 - Tertiary Crushing***
Conveyor transfer to Screen	300	18,750	1.3E-05	4.6E-05	0.00014	*lb/ton*	*AP-42, Sec. 11.19.2-2 - Conv. Transfer (ctrl)*
Screen and discharge to Stacker Conveyor	300	18,750	5.0E-05	0.00074	0.0022	*lb/ton*	*AP-42, Sec. 11.19.2-2 - Screening (controlled)*
Stacker Conveyor discharge	300	18,750	1.3E-05	4.6E-05	0.00014	*lb/ton*	*AP-42, Sec. 11.19.2-2 - Conv. Transfer (ctrl)*

* *Per AP-42 Table 11.19.2-2, Footnote b, controlled sources are sources using wet suppression, however, "due to carry over of the small amount of moisture required, it has been shown shown that each source, with the exception of crushers, does not need to employ direct water sprays." The controlled emission factors were developed from material with 0.55% to 2.88% moisture. The clay is expected to have a moisture content of at least 5%, and therefore, the controlled emission factors are used for all sources except the crusher.*

** *PM2.5 multiplier from AP-42, Sec. 13.2.4 (11/06)*

EMISSIONS

	PM2.5		PM10		PM	
Source Description	*(lb/hr)*	*(ton/yr)*	*(lb/hr)*	*(ton/yr)*	*(lb/hr)*	*(ton/yr)*
Hopper loading	0.004	0.0001	0.014	0.0004	0.042	0.001
Hopper transfer to Cone Crusher	0.004	0.0001	0.014	0.0004	0.042	0.001
Cone Crusher and discharge to Conveyor	0.109	0.0034	0.720	0.0225	1.620	0.051
Conveyor transfer to Screen	0.004	0.0001	0.014	0.0004	0.042	0.001
Screen and discharge to Stacker Conveyor	0.015	0.0005	0.222	0.0069	0.660	0.021
Stacker Conveyor discharge	0.004	0.0001	0.014	0.0004	0.042	0.001
Total	**0.14**	**0.004**	**1.00**	**0.031**	**2.45**	**0.077**

CONVERSION FACTORS

453.59	*g/lb*
2,000	*lb/ton*
8,760	*hr/yr*

Air Sciences Inc.	PROJECT TITLE: Kings Valley Clay Mine	BY: A. Maynes		
	PROJECT NO: 270-7-1	PAGE: 2	OF: 2	SHEET: Clay Crusher
ENGINEERING CALCULATIONS	SUBJECT: Clay Crushing Emissions	DATE: April 12, 2013		

CLAY CONE CRUSHER DIESEL GENERATOR

Source Description	Year Manufactured	Operation (hr/yr)	Power Rating (kW)	Power Rating (HP)	Throughput (MMBtu/hr)	Throughput (MMBtu/yr)	Throughput (gal/hr)
Clay Cone Crusher Diesel Generator	Pre-2001*	500	317	425	3.83	1,913	27.92

** As a worst-case analysis, the engine is assumed to be Tier 1.*

EMISSION CALCULATIONS

Pollutant	(g/kW-hr)	Potential to Emit (lb/hr)	Potential to Emit (ton/yr)	Emission Factor Reference
NO_x	9.2	6.43	1.61	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
CO	11.4	7.97	1.99	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
PM	0.54	0.38	0.094	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
VOC	1.3	0.91	0.23	*40 CFR Part § 89.112, Table 1, 225≤kW<450, Tier 1*
SO_2		5.9E-03	1.5E-03	*Mass balance based on 15 ppm sulfur (see below)*

SO_2 Emission Calculation:

$$\frac{27.92\ \text{~~gal~~}}{\text{hr}} \times \frac{7.10\ \text{lb}}{\text{~~gal~~}} \times \frac{15\ \text{~~parts sulfur~~*}}{1000000\ \text{~~parts~~}} \times \frac{64.06\ SO_2}{32.07\ \text{~~sulfur~~}} = \frac{5.9\text{E-}03\ SO_2\ \text{lb}}{\text{hr}}$$

** Per 40 CFR § 80.510 (b)*

CONVERSION FACTORS		Reference
1.34102	*HP/kW*	*AP 42, Appendix A.*
7.10	*lb/gal, diesel*	*AP 42, Table 3.4-1, Footnote A (rev 10/96), Diesel Fuel*
137,000	*Btu/gal, diesel*	*AP 42, Appendix A.*
0.009	*MMBtu/HP-hr (assumed worst-case efficiency)*	

ALS USA Inc.
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Phone: 775 356 5395 Fax: 775 355 0179 www.alsglobal.com

To: WESTERN LITHIUM CORPORATION
3685 LAKESIDE DRIVE
RENO NV 89509

Finalized Date: 10- APR- 2013
Account: LIWECO

CERTIFICATE RE13060255

Project:
P.O. No.: 1126
This report is for 16 Soil samples submitted to our lab in Reno, NV, USA on 3- APR- 2013.
The following have access to data associated with this certificate:

VAL SAWYER		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
SPL- 21	Split sample - riffle splitter
PUL- QC	Pulverizing QC Test
BAG- 01	Bulk Master for Storage
PUL- 32m	Pulverize 500g - 85%< 75um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Hg- CV41	Trace Hg - cold vapor/AAS	FIMS
ME- MS61	48 element four acid ICP- MS	

The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim 'or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him/her and based on an evaluation of all engineering data which is available concerning any proposed project. Statement required by Nevada State Law NRS 519

To: WESTERN LITHIUM CORPORATION
ATTN: VAL SAWYER
3685 LAKESIDE DRIVE
RENO NV 89509

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Colin Ramshaw, Vancouver Laboratory Manager

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To: WESTERN LITHIUM CORPORATION
3685 LAKESIDE DRIVE
RENO NV 89509

Finalized Date: 10- APR- 2013
Account: LIWECO

CERTIFICATE OF ANALYSIS RE13060255

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
Clay #1		0.58	0.02	2.14	8.9	230	9.50	0.27	5.75	0.30	20.6	3.1	3	92.4	12.1	1.15
Clay #2		0.65	0.02	2.37	11.3	180	9.17	0.23	4.18	0.12	21.8	3.0	3	74.5	10.4	1.26
Clay #3		0.65	0.03	2.37	9.4	190	7.87	0.26	5.26	0.20	24.0	4.1	6	151.0	10.4	1.36
Clay #4		0.59	0.06	2.92	5.8	560	7.33	0.23	4.33	0.42	32.9	3.7	7	87.1	14.7	1.62
Clay #5		0.61	0.05	3.46	3.5	400	8.19	0.55	3.81	0.23	30.4	3.5	6	82.0	17.9	1.64
Clay #6		0.51	0.05	3.53	6.3	690	8.01	0.55	3.83	0.34	36.5	5.6	7	87.8	18.1	1.99
Dirt #1		0.56	0.12	7.55	15.1	890	2.44	0.25	1.82	0.36	75.6	11.0	35	10.20	31.9	3.18
Dirt #2		0.65	0.14	6.56	14.1	910	2.04	0.19	3.65	0.22	64.3	10.3	32	10.30	21.5	2.40
Dirt #3		0.57	0.15	7.56	4.7	930	2.33	0.21	1.82	0.24	73.2	9.4	39	12.65	21.9	2.70
Dirt #4		0.64	0.15	7.44	8.7	1000	2.27	0.25	1.67	0.42	110.0	15.8	37	7.36	32.0	2.75
Dirt #5		0.51	0.17	7.39	9.0	900	2.26	0.25	1.61	0.39	85.2	11.4	38	7.30	31.6	2.80
Dirt #6		0.66	0.13	6.21	18.1	870	2.35	0.25	1.44	0.28	83.8	9.7	34	6.87	26.5	2.65
Dirt #7		0.57	0.17	7.10	14.2	900	2.58	0.25	1.59	0.39	92.1	10.9	32	6.29	26.5	2.59
Dirt #8		0.49	0.16	7.00	15.8	920	2.35	0.24	1.51	0.35	94.4	10.8	36	7.20	27.9	2.68
Dirt #9		0.56	0.16	6.78	15.2	930	2.34	0.24	3.62	0.36	76.5	10.1	36	10.30	32.5	2.87
Dirt #10		0.66	0.12	7.13	6.3	850	2.18	0.24	1.64	0.38	75.8	11.9	36	7.09	31.8	2.79

***** See Appendix Page for comments regarding this certificate *****

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To: WESTERN LITHIUM CORPORATION
3685 LAKESIDE DRIVE
RENO NV 89509

Finalized Date: 10- APR- 2013
Account: LIWECO

CERTIFICATE OF ANALYSIS RE13060255

Sample Description	Method Analyte Units LOR	ME- MS61 Ga ppm 0.05	ME- MS61 Ge ppm 0.05	ME- MS61 Hf ppm 0.1	Hg- CV41 Hg ppm 0.01	ME- MS61 In ppm 0.005	ME- MS61 K % 0.01	ME- MS61 La ppm 0.5	ME- MS61 Li ppm 0.2	ME- MS61 Mg % 0.01	ME- MS61 Mn ppm 5	ME- MS61 Mo ppm 0.05	ME- MS61 Na % 0.01	ME- MS61 Nb ppm 0.1	ME- MS61 Ni ppm 0.2	ME- MS61 P ppm 10
Clay #1		7.29	0.15	2.2	0.23	0.057	1.09	9.3	2970	10.65	391	7.06	0.37	7.1	3.1	340
Clay #2		7.41	0.20	2.8	0.35	0.058	1.44	9.2	2540	10.35	352	4.40	0.47	6.2	2.5	80
Clay #3		7.64	0.22	2.3	0.36	0.047	1.41	9.7	3580	10.85	345	7.43	0.51	6.4	2.9	180
Clay #4		9.17	0.18	3.6	0.08	0.052	2.01	15.7	3440	7.40	617	2.61	0.34	5.9	4.9	530
Clay #5		10.85	0.23	5.1	0.14	0.100	2.17	11.7	3360	7.43	364	1.22	0.32	6.4	3.7	250
Clay #6		10.55	0.17	4.8	0.11	0.078	2.17	13.5	3310	7.42	456	3.35	0.37	6.7	5.0	320
Dirt #1		20.4	0.26	5.1	0.05	0.059	2.67	34.6	94.1	0.93	813	3.18	1.65	11.7	19.4	1010
Dirt #2		17.60	0.23	3.4	0.1	0.044	2.15	29.7	106.0	0.77	655	2.67	1.58	11.8	18.2	540
Dirt #3		19.95	0.23	3.9	0.03	0.051	2.31	35.0	63.1	0.84	362	1.06	1.54	12.6	17.1	560
Dirt #4		20.2	0.24	4.4	<0.1	0.053	2.39	46.9	39.4	0.67	1060	1.24	1.65	12.9	20.9	610
Dirt #5		21.0	0.28	4.5	<0.1	0.052	2.28	40.6	40.1	0.71	732	1.22	1.58	12.9	19.6	620
Dirt #6		20.4	0.40	5.2	<0.1	0.056	2.56	39.9	39.2	0.56	602	1.45	1.58	13.7	17.2	740
Dirt #7		20.4	0.29	4.8	0.04	0.053	2.52	46.6	35.5	0.59	767	1.59	1.68	12.6	15.8	720
Dirt #8		19.85	0.25	4.8	0.04	0.051	2.62	44.6	37.5	0.62	753	1.44	1.54	12.8	18.2	740
Dirt #9		19.50	0.28	4.4	0.03	0.056	2.39	38.5	82.7	1.24	640	1.42	1.39	12.0	20.4	1190
Dirt #10		19.80	0.24	4.1	0.04	0.049	2.04	34.5	42.2	0.73	725	1.14	1.61	11.5	19.9	570

***** See Appendix Page for comments regarding this certificate *****

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To: WESTERN LITHIUM CORPORATION
3685 LAKESIDE DRIVE
RENO NV 89509

Finalized Date: 10- APR- 2013
Account: LIWECO

CERTIFICATE OF ANALYSIS RE13060255

Sample Description	Method	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61
	Analyte	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1
Clay #1		7.0	186.0	0.004	<0.01	2.52	2.7	<1	1.1	546	0.40	<0.05	1.4	0.121	0.26	1.0
Clay #2		4.8	165.0	0.006	<0.01	2.75	3.7	1	1.0	395	0.36	<0.05	1.2	0.131	0.31	0.7
Clay #3		6.6	268	0.006	<0.01	2.88	2.2	<1	1.2	428	0.45	<0.05	2.2	0.126	0.41	1.2
Clay #4		7.8	188.5	0.003	0.01	4.43	3.9	<1	1.2	350	0.41	<0.05	5.6	0.167	0.48	3.3
Clay #5		9.4	207	0.003	<0.01	5.14	5.1	1	1.6	355	0.53	<0.05	5.7	0.186	0.29	2.4
Clay #6		10.3	200	0.005	0.01	6.20	4.5	1	1.6	353	0.51	0.05	6.0	0.184	0.51	2.8
Dirt #1		18.1	107.5	0.005	0.02	3.11	10.1	1	2.0	282	0.84	<0.05	10.1	0.385	0.63	3.3
Dirt #2		17.9	75.1	0.005	0.02	2.35	8.0	<1	1.8	386	0.84	<0.05	9.2	0.350	0.62	2.3
Dirt #3		18.0	97.7	0.004	0.02	2.52	10.0	1	2.0	338	0.96	<0.05	11.4	0.389	0.61	2.4
Dirt #4		22.1	99.6	0.005	0.02	2.49	9.5	1	2.0	327	0.96	0.06	13.5	0.394	0.68	3.2
Dirt #5		20.7	101.0	0.005	0.02	2.25	10.1	1	2.2	314	1.02	<0.05	12.9	0.388	0.68	3.1
Dirt #6		19.8	102.5	0.004	0.01	3.06	10.2	1	2.1	270	1.01	<0.05	13.1	0.370	0.72	3.4
Dirt #7		21.3	105.5	0.007	0.02	2.89	8.9	1	2.0	304	0.94	0.05	12.3	0.371	0.70	3.5
Dirt #8		23.6	111.0	0.006	0.03	3.48	8.8	1	2.0	282	0.94	<0.05	13.2	0.376	0.72	3.7
Dirt #9		18.8	101.0	0.005	0.03	4.11	9.5	<1	2.0	352	0.90	<0.05	12.2	0.347	0.70	3.8
Dirt #10		19.4	88.6	0.005	0.02	1.54	10.7	1	1.9	300	0.85	<0.05	11.6	0.371	0.58	2.6

***** See Appendix Page for comments regarding this certificate *****

ALS USA Inc.
4977 Energy Way
Reno NV 89502
Phone: 775 356 5395 Fax: 775 355 0179 www.alsglobal.com

To: WESTERN LITHIUM CORPORATION
3685 LAKESIDE DRIVE
RENO NV 89509

Finalized Date: 10- APR- 2013
Account: LIWECO

CERTIFICATE OF ANALYSIS RE13060255

Sample Description	Method Analyte Units LOR	ME- MS61 V ppm 1	ME- MS61 W ppm 0.1	ME- MS61 Y ppm 0.1	ME- MS61 Zn ppm 2	ME- MS61 Zr ppm 0.5
Clay #1		43	2.0	12.9	39	36.4
Clay #2		47	2.3	9.3	37	50.7
Clay #3		39	1.8	14.9	39	50.3
Clay #4		49	2.4	19.7	53	84.2
Clay #5		64	2.3	16.9	62	130.5
Clay #6		62	2.5	18.5	67	125.5
Dirt #1		81	3.8	29.7	96	169.5
Dirt #2		73	3.1	19.9	65	110.5
Dirt #3		75	3.3	22.7	79	127.0
Dirt #4		75	4.1	29.4	73	138.5
Dirt #5		74	3.8	26.9	79	142.5
Dirt #6		69	4.0	32.2	76	158.0
Dirt #7		69	4.2	32.4	75	150.0
Dirt #8		69	4.5	32.0	79	151.5
Dirt #9		70	3.8	28.9	87	138.5
Dirt #10		78	3.2	22.4	74	137.5

***** See Appendix Page for comments regarding this certificate *****

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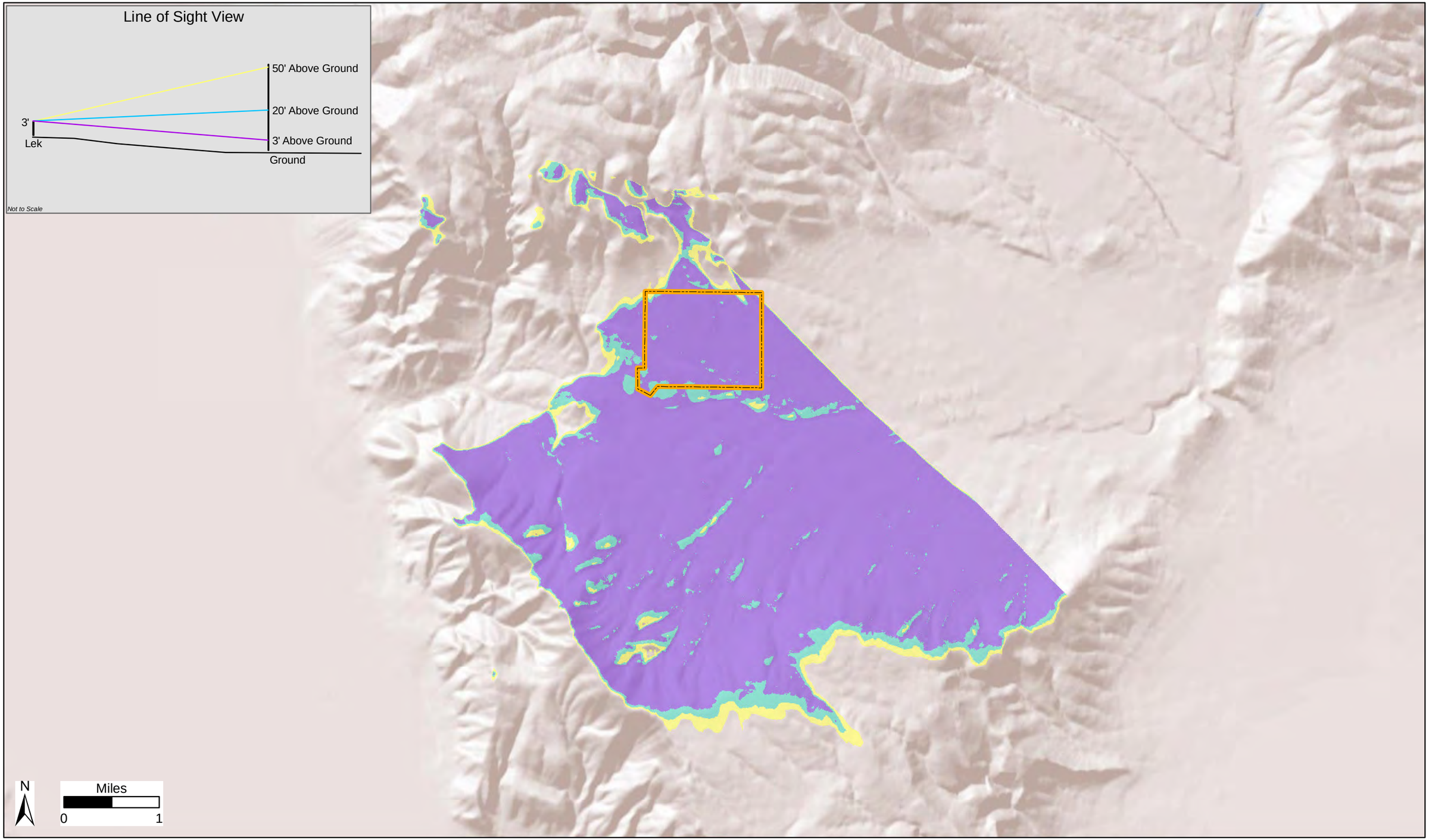
Method	CERTIFICATE COMMENTS
ME- MS61	REE's may not be totally soluble in this method.
Hg- CV41	Detection limits on samples requiring dilutions due to interferences or high concentration levels have been increased according to the dilution factor.

Appendix F:
Greater Sage-grouse Viewshed Analysis



EXPLANATION

Project Area

Line of Sight From Pole Creek Lek (Active)

View to 3 feet above ground

View to 20 feet above ground

View to 50 feet above ground

srk consulting

NAD 1983 UTM Zone 11 N Feet

DESIGN:	ABR	DRAWN:	ABR	REVIEWED:	VS
SCALE:	1 inch = 1 miles			DATE:	11/26/2013
FILE:	Fig1_LEK_LineofSight_ABR_20130813				

WESTERN LITHIUM WLC

KINGS VALLEY CLAY PROJECT

DRAWING TITLE:
SAGE GROUSE LEK VISIBILITY POLE CREEK LEK

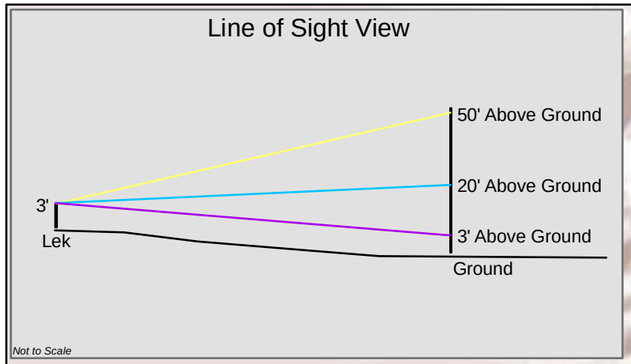
VIEWSHED ANALYSIS

DRAWING NO. **FIGURE 1**

REVISION **A**

JOB NO. **357800.070**

Path: G:\Sites\Kings_Valley\Western_Lithium\357800_070_ClayProject_EA\Revision_A\Fig1_LEK_LineofSight_ABR_20130813.mxd



N

Miles
0 1

EXPLANATION

Project Area

Line of Sight From Montana 10 Lek (Active)

View to 3 feet above ground

View to 20 feet above ground

View to 50 feet above ground

srk consulting

NAD 1983 UTM Zone 11 N Feet

DESIGN:	ABR	DRAWN:	ABR	REVIEWED:	VS
SCALE:	1 inch = 1 miles			DATE:	11/26/2013
FILE:	Fig2_LEK_LineofSight_ABR_20130813				

WESTERN LITHIUM WLC

KINGS VALLEY CLAY PROJECT

DRAWING TITLE:
SAGE GROUSE LEK VISIBILITY MONTANA 10 LEK

VIEWSHED ANALYSIS

DRAWING NO. **FIGURE 2**

REVISION **A**

JOB NO. **357800.070**

Path: G:\Sites\Kings_Valley\Western_Lithium\357800_070_ClayProject_EA\Revision_A\Fig2_LEK_LineofSight_ABR_20130813.mxd

Appendix G
Revegetation Monitoring Plan and Standards

Revegetation Monitoring Plan and Standards: To Improve, Enhance or Restore Greater Sage-Grouse Habitat

Purpose:

Western Lithium Corporation (WLC) has proposed to conduct mining activities in an area designated by the Bureau of Land Management as Preliminary General Habitat for Greater Sage-grouse. To offset impacts to Greater Sage-grouse from the proposed operations, offsite mitigation at a ratio of 2:1 is recommended. As a result, approximately 220 acres of Greater Sage-grouse habitat within the Montana Mountains would be revegetated according to the standards provided in this plan. This plan provides the performance criteria by which successful vegetation establishment and soil-surface stability can be determined. Since a specific location (or multiple locations) has not been identified for revegetation, the performance criteria provided in this plan allow treatment of different plant communities throughout the Montana Mountains.

Goals:

The short-term goal is to identify habitat types that lend themselves to improvement, enhancement or restoration of Greater Sage-grouse current or former habitat and establish performance criteria for revegetation success.

The long-term restoration goal is to establish resilient native vegetation communities with cover, density and composition on identified lands in line with accepted Greater Sage-grouse habitat values.

Revegetation:

Vegetation improvement, enhancement or restoration will vary according to soil types, topography, climatic conditions, existing site conditions and land management practices. Several seed mixes and seedling selections may be necessary to accommodate the range of variability in soils, elevation, terrain, and annual precipitation (Sheley et al. 2008). Plants may be re-established by seeding and by planting container-grown seedlings. Seeds must be planted at the correct time. The seeding window is from September 15 to January 31; with the exception of sagebrush which is September 15 to December 31. Fall or early winter seeding is necessary to provide seed stratification for many species (Monsen et. al. 2004). Sagebrush establishment decreases if planted in January. Container-grown seedlings should be transplanted during March 15 to April 30. The different mixes of species for seeding and seedling transplanting will be developed with input from BLM. Analysis of ecological sites will inform the

development of seeding mixes and appropriate locations for their application. The same will hold true for container-grown seedlings. Seeds for the seed mixes may be purchased from commercial vendors or collected by professional seed collectors following BLM guidance and seed collecting policy. Seeds may be sourced, immediately adjacent to the identified mitigation area, or from similar ecological sites, where possible. Ecotypic variation within species is important for successful plant establishment (Plummer 1977; Institute for Land Rehabilitation 1978). Commercially purchased seed should be sourced from ecological sites similar to the identified mitigation area. The BLM will be informed of commercially available seed sources and any major changes to proposed seed mixes prior to the purchasing and planting of seed.

Seeding Methods

The NRCS guidelines for seeding native plants in arid and semi-arid rangelands should be followed. These guidelines call for at least 20-40 pure live seeds per square foot for drilled seed. Seeding rates should be doubled for broadcast seedings. Also reference Monsen et al., 2004, for methods.

The main purpose of seeding methods is to place the seed in direct contact with the soil, cover the seed with soil, and firm the soil around the seed to eliminate air pockets (Sheley et al. 2008). Drill and broadcasting seeding techniques will likely be used. Most species can be successfully drill seeded into the soil. Seeding depth in the soil depends on seed size. Grass and forb seed will be planted at a soil depth greater than 0.5 and 0.25 inch, respectively. Sagebrush seed is best planted on the soil surface because it usually germinates better from broadcast seeding.

Direct (drill) seeding is one commonly used method for seeding within rangelands. Direct seeding uses specialized equipment such as a rangeland seeder. The advantages of direct seeding with a rangeland seeder are efficiency at placing seed at the proper soil depth and economy of bulk seed. Its disadvantages are terrain limitations such as slopes greater than 15 percent and rocky soils. However, broadcast seeding followed with harrowing or raking to cover seeds with soil is effective and is not as terrain limited as a rangeland seeder.

Broadcast seeding distributes the seed on top of the soil surface using a hand-held or all-terrain vehicle-mounted cyclone-type seed spreader, seed blower, hydroseeding, and/or aerial application. Broadcast seed is not as efficient as direct seeding for most seeds in this environment (except sagebrush) because in this method seeds are not buried in the soil, and it requires approximately twice the bulk seed unless harrowing or raking occurs after seeding to cover seed with soil.

The location(s) of offsite mitigation will be selected through coordination with WLC, BLM and the Nevada Department of Wildlife (NDOW). Site-specific seed mixes will be developed prior to implementation.

Expected Performance Criteria:

Table 1 - Desired Plant Community Criteria Minimums
(Mature perennial plants fifth year criteria)

Vegetation type based on seeding mix	Min.% cover (basal & crown)	Min. % cover (canopy)	Min. Plants per meter	Min. Plant life forms types required	Min. Desirable plant species	Max. annuals % cover (canopy) allowed
1 - Low ppt. Wy.	15	20	5	2	4	15
2 - High ppt. Wy.	20	25	7	3	6	10
3 – Basin big Sage	20	25	7	3	6	10

Planting Seedlings

There may be areas in the Montana Mountains where the grasses and forbs recover well, but the shrubs (sagebrush) are having difficulty retuning to the site. In these instances, sagebrush seedlings would be recommended to add the missing component. If a location with this general condition is identified between WLC, BLM and NDOW for revegetation, the following recommendations could be expected:

Sagebrush Container-Grown Seedlings

Sagebrush seedlings, per BLM recommendation, could be planted in potential Greater Sage-grouse habitat. Density of seedlings should be 0.2 plants per meter square or 800 sagebrush seedlings per acre. To approximate natural islands that would help reseed adjacent sites, WLC could plant small blocks of no more than 200 sagebrush seedlings at 328 foot (100 m) intervals in sagebrush vegetation types. WLC could broadcast sagebrush seed at a higher rate of 0.50 PLS lb/acre between seedling blocks with a mix of grass and forbs appropriate for each range site. The taxon of the transplanted sagebrush seedlings will correspond to the sagebrush vegetation type.

Restoration Monitoring and Maintenance:

The purpose of restoration monitoring is to evaluate the short- and long-term, plant cover and density, habitat quality, and levels of noxious and invasive weeds. The proponent will ensure that the BLM and NDOW have the opportunity to participate in designing and carrying out post-restoration monitoring. Monitoring would be required on the first, third and fifth years after revegetation efforts. Additional monitoring may be performed at WLC's discretion.

Vegetation monitoring goals are (1) to ensure that germination was successful and revegetation is moving towards the permanent establishment objectives; and (2) to monitor for invasive and noxious weeds and implement control treatments as needed. Revegetation objectives are described in Table 1.

The primary objectives of monitoring are:

- Monitor and assess, through quantitative analysis, the success of the reseeding and transplanting efforts for years 1, 3 and 5. Additional monitoring beyond year 5 may be necessary as agreed upon by the proponent and the BLM. Monitor the survival of special plantings for visual restoration, if applicable for Greater Sage-grouse habitat values. Monitor and assess for noxious and invasive weeds. Newly established weed colonies will be reported to the appropriate BLM office immediately. Identify places where other vegetation control may be needed.
- Monitor and identify other disturbances that may hinder revegetation success, such as excessive livestock grazing or unauthorized OHV travel. Determine ways to take corrective actions in consultation with the BLM and NDOW.

The first year, the proponent will monitor the presence of germination of seeded species and noxious weeds. The second through fifth years will focus on seeding and seedling success, as described in Table 1. Vegetation monitoring will also focus on seedling mortality (if appropriate) and the need, when necessary for replacements to reach fifth year objectives. Additional monitoring will occur as necessary. If revegetation criteria are not met by the fifth year, revegetation efforts and monitoring will continue.

Initial seeding and reclamation efforts may not be successful in some areas. Seeding establishment may not be able to be determined until the third year or later. The initial seeding is the best opportunity for establishment of plants. Seedbed conditions deteriorate as annual weeds and pioneer plant species establish and compete with seeded species.

Monitoring Approach

Upland revegetation will be accomplished by seeding the selected areas with ecological site-specific seed mixes. Shrub and trees seedlings may also be planted in high-quality wildlife habitat areas previously identified and agreed upon by WLC, BLM and NDOW. Both the seeding and seedling revegetation efforts will be monitored.

Seeded Areas

A long-term, quantitatively based monitoring program will document vegetation establishment and trend. If vegetation establishment in a monitoring plot is not making progress towards the objectives, then the representative restoration area will also be inspected to document the extent of the problem and identify possible causes.

The proponent will randomly select permanent monitoring sites. We anticipate monitoring at a minimum of three randomly selected monitoring plots sites within dominant Ecological Site Descriptions (ESDs) and within those, each of the different seed mix areas (which may be the same areas). Seedling area performance will also be monitored according to appropriate protocols defined below. The monitoring approaches will follow the protocols and data forms, developed by Herrick, et al. (2009).

Monitoring site selection will occur on a randomized basis within treated areas utilizing GIS applications (Random point generators). However, some sites may prove not to be suitable because of such things as livestock grazing fences and watering structures, roads, two tracks and inaccessibility. The proponent will obtain range infrastructure shapefiles from BLM. Access roads would be existing state or county roads. Grazing infrastructure and access road shapefiles would then be used to filter the selected sites. New monitoring sites may have to be re-selected.

The randomly selected plots would be verified in the field. If a plot is not acceptable because of unforeseen disturbances, the original site would be rejected and another location selected. It is suggested that a small pool of candidate sites be generated and randomly numbered when the original sites are created to produce a viable population of objective alternatives to select in case of site unacceptability.

Upland Seedling Planting Area Monitoring (Modified from Ruby Pipeline project, Long-Term Monitoring Plan, June 2010)

Training

The stems on live plants will be flexible and be green in color under the bark. If there is a question on the plant's status, slightly test each stem to see if it is flexible. Make a small finger nail impression under the bark to determine color. The stems of dead plants will be dry throughout and break easily between the fingers. Color under the bark will be brownish gray. Leaves will be lacking or dried. All stems on the plant must be dead for the plant to be recorded as dead. A missing plant is dead.

Approach

Plot setup will occur by setting out one or more 30m X 30m monitoring plots randomly located within the off-site mitigation area(s). Plot designs will need to be reviewed and approved by BLM specialist(s). Record the four corners of the plot(s), using GPS. Record on the data sheet whether each seedling is alive or dead. If mortality occurred through herbivory, please record. Record responsible agent (wildlife/wild horse & burro, domestic animals, etc.) if known (scat, foot/hoof prints, etc.). Record weed cover within the plot by species. Record a **digital photo** of the planting area from each plot corner. The following data sheet should be used during monitoring:

Data Sheet – Upland Seedling Survival Monitoring Date_____

Location_____ Crew No._____

Sagebrush Seedling Survival			% Survival
Species Symbol	Alive	Dead	

The survival rate of seedlings must be greater than or equal to 50 percent after the fifth year.

Noxious and Invasive Weed Monitoring

Approach
Listing for Nevada Noxious Weed List: http://agri.nv.gov/Plant/Noxious_Weeds/Noxious_Weed_List/
Weed area - List the noxious and invasive plants in the area of investigation. Assign a cover class to each species based on the definitions in Table below. Record a **digital photo.** GPS the photo location. More than one photo may be taken if necessary.

Noxious Weed Cover Class

Weed Species Code	Cover Class	Weed Species Code	Cover Class

Cover Class (%) 1 = 0-5, 2 = 2-25, 3 = 25-50, 4 = 50-75, 5 = 75-100

Reporting

The proponent will document observations of revegetation success and presence of noxious and invasive weeds, if any, following the field inspections and provide summary reports to the BLM. Areas that need remedial action will also be identified and will include a description of additional revegetation work as anticipated. Reports, including a summary of corrective actions proposed, will be submitted within three months of identifying these conditions. Areas where control applications for noxious and invasive weeds are needed will also be reported.

Off-Highway Vehicle Control

To minimize OHV access on the mitigation site(s), the proponent may be required to install OHV barriers and or signage at appropriate locations in coordination with BLM or landowner. The proponent will submit to BLM for review and approval of site-specific designs for OHV barriers and signs. All designs will meet agency standards and may include dirt/rock berms, log barriers, vegetation screens, signs, fencing, and locked gates. The proposed OHV barriers will be constructed in a manner that attempts to prevent unauthorized motor vehicle/OHV use within the mitigation site(s). BLM understands that unauthorized OHV trespass can be difficult to control in remote, heavy OHV use areas. Efforts to control unauthorized OHV use will be monitored throughout the life of the mitigation project(s) and additional measures implemented as necessary to control OHV use.

Livestock Grazing Control

The mitigation site(s) may be nested in livestock grazing allotments on BLM land. Succulent grass and forb growth may attract livestock. Excessive grazing may cause plant establishment efforts to fail. The following management practices for livestock grazing may be implemented as options to limit grazing where necessary. Actions will be in consultation with BLM:

- Leave the surface in a roughened condition;
- Include low palatable plant species in the seeding mix such as sagebrush and western yarrow;
- Negotiate with allotment permittees to limit livestock activity by using one or more of the following options: herding or placing salt licks and/or protein blocks one-mile distance from the mitigation site(s), fencing crucial habitat areas, or other alternatives.

References

Institute for Land Rehabilitation, 1978. Rehabilitation of Western Wildlife Habitat: A Review. FWS/OBS-78/86. U.S. Department of the Interior, Fish and Wildlife Service, Western Energy and Land Use Team, Fort Collins, Colorado.

Herrick, Jeffrey E, et al. 2009. Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, Vol. I and II. USDA - ARS Jornada Experimental Range, Las Cruces, New Mexico. http://jornada.nmsu.edu/monit-assess/manuals/monitoring

Monsen, Stephen B., Stevens Richard and Shaw, Nancy L., comps. 2004. Restoring Western Ranges and Wildlands. Gen. Tech. Rep. RMRS-GTR-vol-1. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Page 1-294 plus index.

Nevada Noxious Weed List, Nevada Department of Agriculture, Sparks, NV. http://agri.nv.gov/Plant/Noxious_Weeds/Noxious_Weed_List/

Plummer, A.P., 1977. Revegetation of disturbed Intermountain area sites. In Thames, J.L., ed. Reclamation of disturbed land in the southwest. Tucson, Arizona: University Arizona Press; Pgs 302-339.

Ruby Pipeline Project, Plan of Development, June 2010. Appendix E., Restoration and Revegetation Plans.SagebrushContainer-GrownSeedlings. http://www.blm.gov/style/medialib/blm/nv/nepa/ruby_pipeline_project/decision_to_amend0/attachment_5.Par.63775.File.dat/Appendix%20E%20%20Restoration%20Plans.pdf

Ruby Pipeline Project, Lon-Term Monitoring Plan, June 2010. Appendix W., Standard Operating Procedures for ROW Upland Seedling Planting Area Monitoring. http://www.blm.gov/style/medialib/blm/nv/nepa/ruby_pipeline_project/decision_to_amend0/attachment_5.Par.99951.File.dat/Appendix%20W%20Long-Term%20Monitoring%20Plan.pdf

Sheley, R., J. Mangold, K. Goodwin, and J. Marks. 2008. Revegetation Guidelines for the Great Basin: Considering Invasive Weeds. ARS-168. U.S. Department of Agriculture, Agricultural Research Service, Washington, D.C.

Appendix H
Noise Monitoring Protocol

Guidelines for Noise Studies for Western Lithium Project

Prior to starting the studies, the proponent will present their plan for accomplishing noise studies following the guidelines provided here. BLM will review that proposal for adequacy and conformance, and approve the plan. After the field studies are completed, a report will be prepared which will document the test location, the general conditions (wind and weather, in particular) during the studies, the procedures followed in accomplishing the studies, and present the data collected and the values calculated.

The plan for doing the noise studies will be submitted to the BLM for approval by June 30, 2014. The noise studies will be completed, and the final report submitted, by June 30, 2015. Noise studies will not be conducted during the months of July, August and September to eliminate heat effects.

Most noise studies are measured using the A weighted decibel scale (dBA). This scale is what humans are most sensitive too; wildlife can also be sensitive to higher and lower sound frequencies which the dBA scale does not measure. The sound meters used in the noise studies should be capable of measuring noise in the dBA scale and the un-weighted decibel scale to account for the lower and higher frequencies, and must have a sensitivity of 3 decibels or less. The meters must be calibrated before use. The noise meters should be capable of recording continuously for 24 hours or longer. The meters should measure the noise so that L_{10}, L_{50}, L_{90}, L_{eq}, L_{dn}, and L_{max} can be calculated.

The ambient baseline sound data shall be collected at the active lek site closest to the Western Lithium Plan boundary. A minimum of 72 hours of continuous data shall be collected to determine the ambient levels. The acquired data, in table or graph form, shall be provided in the study report. Weather conditions and wind speed will also be recorded for the lek. This ambient noise will be measured as close to the lekking season as possible and no operations will be occurring at the Western Lithium mine site.

Sound data shall be collected at the active lek site closest to the Western Lithium Plan boundary when the mine is in operation. Noise studies must be done under conditions representative of full-scale mining. The equipment in operation and its times of operation, and the number of workers on site shall be noted in the report. A minimum of 72 hours of continuous data should be collected to determine the noise levels at the lek when the mine is in operation.

A copy of all raw data should be submitted with the final report as well, providing that it can be processed with commonly available software. The BLM will review the report and determine if the noise levels at the lek exceed 20 dBA above the ambient measurements. If the noise level at the lek during mining operations exceeds a 20 dBA increase above ambient during the lekking season (March 1 through June 30), WLC would be required to modify the operations to reduce noise levels. Additional noise monitoring would be required to ensure that the modified operations do not exceed a 20 dBA increase.