NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA
U.S. DEPARTMENT OF ENERGY

May 6, 2010

Clearinghouse Coordinator
Nevada State Clearinghouse
Department of Administration
209 East Musser Street, Room 200
Carson City, NV 89701-4298

Re: Notice of Availability for Draft Environmental Assessment for Chemetall Foote Corporation, Electric Drive Vehicle Battery and Component Manufacturing Initiative Project in Kings Mountain, NC and Silver Peak, NV.

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) proposes to fund a project under the American Reinvestment and Recovery Act (ARRA). The project would involve building a 5,000 metric ton per year lithium hydroxide plant within an existing facility located within a 20-acre developed area in Kings Mountain, NC, and the expansion of lithium carbonate production by drilling new brine wells, expanding the solar evaporation system, and refurbishing parts of the existing lithium carbonate plant on property owned by Chemetall Foote Corporation in Silver Peak, NV. The overall purpose and need for the DOE action is to accelerate the development and production of various electric drive vehicle (EDV) and hybrid-electric drive vehicle (HEV) systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, their components, recycling facilities, and EDV and HEV components, in addition to stimulating the United States' economy.

The public hereby notified of the availability of the Draft Environmental Assessment (EA) for the Chemetall Foote Corporation, Electric Drive Vehicle Battery and Component Manufacturing Initiative Project, Kings Mountain, NC and Silver Peak, NV. The Draft EA will be available for 30 days beginning on May 9 2010 and ending on June 9, 2010. Copies are available for review at the Town of Silver Peak Library, 10 Monezuma Drive, Silver Peak, NV 89047 and the Goldfield Public Library, Corner of Crook and 4th Streets, Goldfield, NV, 89013. An electronic version is also be available for review and downloading from DOE's web page at the following URL address: http://www.netl.doe.gov/publications/others/nepa/ea.html.

Comments on the EA and requests for additional hard or electronic copies should be sent to: Mr. William Gwilliam, DOE NEPA Document Manager, DOE National Energy Technology Laboratory, 3610 Collins Ferry Road (P.O. Box 880), Morgantown, WV 26507; Email address: William.Gwilliam@netl.doe.gov.

Sincerely,

W. S. Gwilliam

William Gwilliam,
NEPA Document Manager

DOE/EA-1715D

Draft Environmental Assessment for Chemetall Foote Corporation Electric Drive Vehicle Battery and Component Manufacturing Initiative Kings Mountain, NC and Silver Peak, NV

May 2010

Prepared for:
Department of Energy
National Energy Technology Laboratory

National Environmental Policy Act (NEPA) Compliance
Cover Sheet

Proposed Action:
The U.S. Department of Energy (DOE) proposes, through a cooperative agreement with Chemetall Foote Corporation (Chemetall) to partially fund: (1) the establishment of a new 5,000 metric ton per year lithium hydroxide plant at an existing Chemetall facility in Kings Mountain, North Carolina and (2) the refurbishment and expansion of an existing lithium brine production facility and lithium carbonate plant in Silver Peak, Nevada. Both projects would support the anticipated growth in the electric drive vehicle (EDV) industry and hybrid-electric vehicle (HEV) industry. If approved, DOE would provide approximately 45 percent of the funding for the project.

Type of Statement: Draft Environmental Assessment

Lead Agency: U.S. Department of Energy; National Energy Technology Laboratory

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Abstract:
DOE prepared this Environmental Assessment (EA) to assess the potential for impacts to the human and natural environment of its Proposed Action to provide financial assistance to Chemetall under a cooperative agreement. DOE's objective is to support the development of the EDV industry in an effort to substantially reduce the United States' consumption of petroleum, in addition to stimulating the United States' economy. More specifically, DOE's objective is to accelerate the development and production of various EDV systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, their components, recycling facilities, and EDV components. This work will enable market introduction of various electric vehicle technologies by lowering the cost of battery packs, batteries, and electric propulsion systems for EDVs through high-volume manufacturing.

Under the terms of the cooperative agreement, DOE would provide approximately 45 percent of the funding for Chemetall to establish a new 5,000 metric tons per year lithium hydroxide plant at an existing Chemetall facility in Kings Mountain, North Carolina and to upgrade and expand an existing lithium brine production facility and an existing lithium carbonate plant in Silver Peak, Nevada.

The Kings Mountain site is located in an industrial area directly south of Kings Mountain, in Cleveland County, North Carolina, and serves as the headquarters for Chemetall. The site is located on 720 acres, with the operations concentrated within an approximately 20-acre developed area that is centrally located within the property. Production currently includes a specialty lithium manufacturing plant, which produces various lithium salt products by reacting lithium carbonate with different materials to produce lithium bromide, lithium chloride, and lithium aluminate. The Proposed Project would expand operations at the facility by adding a lithium hydroxide plant. The project at Kings Mountain would create approximately 25 permanent jobs.

The Silver Peak site is approximately 15,000 acres. Chemetall uses the Silver Peak site for the production of lithium carbonate, and to a lesser degree, lithium hydroxide from lithium-bearing brines that are pumped from a well field. Silver Peak is the only major source of lithium carbonate in the United States. The Proposed Project would rework the existing brine field's production system, rework and expand the existing brine evaporation pond system, and refurbish and expand the existing lithium carbonate plant. All the improvements would occur within Chemetall's patented mining claims. The project at Silver Peak would create approximately 10 permanent jobs.

Chemetall may also construct a geothermal power plant in the western portion of its Silver Peak unpatented mining claims. However, that action would be evaluated under one or more separate EAs prepared by the Bureau of Land Management and is not part of this EA.

The environmental analysis identified that the most notable changes, although minor, to result from Chemetall's Proposed Project would occur in the following areas: air quality, solid and hazardous waste, and human health and safety. No significant environmental effects were identified in analyzing the potential consequences of these changes.

Public Participation:
DOE encourages public participation in the NEPA process. This EA is being released for public review and comment. The public is invited to provide oral, written, or e-mail comments on this Draft EA to DOE by the close of the comment period on June 9, 2010. Copies of the Draft EA are also being distributed to cognizant Federal and State agencies. Comments received by the close of the comment period will be considered in preparing a Final EA for the proposed DOE action. The EA is also available on the DOE website at http://www.netl.doe.gov/publications/others/nepa/ea.html.

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Appendix A – Agency Consultation

ACRONYMS

Acronym	Definition
µg	Microgram
ACM	asbestos containing material
APE	Area of Potential Effect
AQRV	air quality related values
AST	aboveground storage tank
BMP	best management practices
BLM	Bureau of Land Management
CAA	Clean Air Act
CE	categorically excluded
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
Chemetall	Chemetall Foote Corporation
CO	carbon monoxide
CO_2	carbon dioxide
DAQ	Division of Air Quality
DOE	Department of Energy
EA	Environmental Assessment
EDV	electric drive vehicles
EERE	Energy Efficiency and Renewable Energy
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Rate Insurance Map
FONSI	Finding of No Significant Impact
GHG	greenhouse gases
I	Interstate
HAP	hazardous air pollutants
Li_2CO_3	lithium carbonate
LiOH	lithium hydroxide
mg	milligram
MMt	million metric tons
$MMtCO_2e$	million metric tons of carbon-dioxide equivalent
mtpy	metric tons per year
NAAQS	National Ambient Air Quality Standards

Acronym	Definition
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NDCNR	Nevada Department of Conservation and Natural Resources
NDEP	Nevada Department of Environmental Protection
NEPA	National Environmental Policy Act
NETL	National Energy Technology Laboratory
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPL	National Priorities List
NRS	Nevada Revised Statutes
O_3	ozone
PCS	petroleum contaminated soil
PM	particulate matter
PM_{10}	particulate matter 10 microns
$PM_{2.5}$	particulate matter 2.5 microns
ppm	parts per million
PSD	prevention of significant deterioration
Pw	Pits, quarry
RCRA	Resource Conservation and Recovery Act
Recovery Act	American Recovery and Reinvestment Act of 2009, Public Law 111-5
ROD	Record of Decision
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC	Spill Prevention Countermeasures and Control
TPH	total petroleum hydrocarbons
tpy	tons per year
TSD	treatment, storage and disposal
U.S.	United States
U.S.C.	United States Code
UdC	Udorthents, loamy
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VOCs	volatile organic compounds
VT	Vehicle Technologies

1.0 PURPOSE AND NEED

1.1 Background

The Department of Energy's (DOE's) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy (EERE). A key objective of the VT program is accelerating the development and production of electric drive vehicle (EDV) systems to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically to increase the use of EDVs.

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. DOE solicited applications for this funding by issuing a competitive Funding Opportunity Announcement (DE-FOA-0000026), Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative, on March 19, 2009. The announcement invited applications in seven areas of interest:

- Area of Interest 1 – Projects that would build or increase production capacity and validate production capability of advanced automotive battery manufacturing plants in the United States.
- Area of Interest 2 – Projects that would build or increase production capacity and validate production capability of anode and cathode active materials, components (e.g., separator, packaging material, electrolytes and salts), and processing equipment in domestic manufacturing plants.
- Area of Interest 3 – Projects that combine aspects of Areas of Interest 1 and 2.
- Area of Interest 4 – Projects that would build or increase production capacity and validate capability of domestic recycling or refurbishment plants for lithium ion batteries.
- Area of Interest 5 – Projects that would build or increase production capacity and validate production capability of advanced automotive electric drive components in domestic manufacturing plants.
- Area of Interest 6 – Projects that would build or increase production capacity and validate production capability of electric drive subcomponent suppliers in domestic manufacturing plants.
- Area of Interest 7 – Projects that combine aspects of Areas of Interest 5 and 6.

The application period closed on May 19, 2009, and DOE received 119 proposals across the seven areas of interest. DOE selected 30 projects based on the evaluation criteria set forth in the funding opportunity announcement; special consideration was given to projects that promoted the objectives of the Recovery Act – job preservation or creation and economic recovery – in an expeditious manner.

This project, proposed by Chemetall Foote Corporation (Chemetall), was one of the 30 projects that DOE selected for funding. DOE's Proposed Action is to provide $16.1 million in financial assistance in a cost-sharing arrangement with the project proponent, Chemetall. The total cost of the project is estimated at $35.6 million.

1.2 Purpose and Need for Department of Energy Action

The overall purpose and need for DOE action pursuant to the VT program and the funding opportunity under the Recovery Act is to accelerate the development and production of various EDV systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, recycling facilities, and EDV components, in addition to stimulating the United States' economy. This work will enable market introduction of various electric vehicle technologies by lowering the cost of battery packs, batteries, and electric propulsion systems for EDVs through high-volume manufacturing. DOE intends to further this purpose and satisfy this need by providing financial assistance under cost-sharing arrangements to this and the other 29 projects selected under this funding opportunity announcement.

This and the other selected projects are needed to reduce the United States' petroleum consumption by investing in alternative VTs. Successful commercialization of EDVs would support the DOE's Energy Strategic Goal of "protect[ing] our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy." This project will also meaningfully assist in the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act.

1.3 National Environmental Policy Act and Related Procedures

This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act (NEPA), as amended (42 U.S.C 4321), the President's Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR 1021). This statute and the implementing regulations require that DOE, as a Federal agency:

- Assess the environmental impacts of any Proposed Action;
- Identify adverse environmental effects that cannot be avoided, should the Proposed Action be implemented;
- Evaluate alternatives to the Proposed Action, including a No Action Alternative; and
- Describe the cumulative impacts of the Proposed Action together with other past, present, and reasonably foreseeable future actions.

These provisions must be addressed before a final decision is made to proceed with any proposed Federal action that has the potential to cause impacts to the human environment, including providing Federal funding to a project. This EA evaluates the potential individual and cumulative effects of the Proposed Project and the No Action Alternative on the physical, human, and natural environment. The EA is intended to meet DOE's regulatory requirements under NEPA and provide DOE with the information needed to make an informed decision about providing financial assistance.

NEPA requires Federal agencies to take into account the potential consequences of their actions on both the natural and human environments as part of their planning and decision-making processes. To facilitate these considerations, a number of typical actions that have been determined to have little or no potential for adverse impacts are "categorically excluded" (CE) from the detailed NEPA assessment process. Thus, the first step in determining if an action would have an adverse effect on the environment is to assess whether it fits into a defined category for which a CE is applicable. If a CE is applied, the agency prepares a Record of Categorical Exclusion to document the decision and proceeds with the action.

For actions that are not subject to a CE, the agency prepares an EA to determine the potential for significant impacts. If through the evaluation and analysis conducted for the EA process, it is determined that no significant impacts would occur as a result of the action, then the determination would result in a Finding of No Significant Impact (FONSI). The Federal agency would then publish an EA and the FONSI. The NEPA process is complete when the FONSI is executed.

If significant adverse impacts to the natural or human environment are indicated or other intervening circumstances either exist at the onset of a project or are determined through the EA process, an Environmental Impact Statement (EIS) may be prepared. An EIS is a more intensive study of the effects of the Proposed Action, and requires more rigorous public involvement. The agency formalizes its decisions relating to an action for which an EIS is prepared in a Record of Decision (ROD). Following a 30-day waiting period after publication of the Final EIS, the Agency may issue a ROD and then the NEPA process is complete.

1.4 Agency Consultation and Public Involvement

DOE conducted consultations with the local U.S. Fish and Wildlife Service (USFWS) office, the National Heritage Program office in each State, and the State Historic Preservation Office of each State per requirements of Section 7 of the Endangered Species Act, and Section 106 of the National Historic Preservation Act. Copies of the agency response letters are included in Appendix A of this EA.

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2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Department of Energy's Proposed Action

DOE proposes, through a cooperative agreement with Chemetall, to partially fund two projects that would produce or increase production of battery-grade lithium salts to be used in lithium-ion batteries. (1) A new plant would be established at an existing Chemetall building in Kings Mountain, North Carolina, and (2) an existing lithium carbonate plant, evaporation pond system, and lithium brine field would be refurbished and expanded in Silver Peak, Nevada. Both projects would support the anticipated growth in the EDV industry and HEV industry. If approved, DOE would provide approximately 45 percent of the funding for the two projects.

2.2 Chemetall's Proposed Project

Chemetall proposes (1) to establish and operate a new plant at an existing Chemetall facility in Kings Mountain, North Carolina and (2) to upgrade an existing brine field production system, brine evaporation pond system, and lithium carbonate plant in Silver Peak, Nevada.

The Kings Mountain Proposed Project would produce 5,000 metric tons per year of lithium hydroxide using conventional technology for reacting lithium carbonate with lime and purifying, drying and packaging the product for sale to the battery industry. This plant would be setup within an existing building owned by Chemetall and located within Chemetall's existing industrial complex. Currently, the existing building is approximately 58 feet in height and would be extended two floors (30 feet) with a final building height of approximately 88 feet. A new addition of 8,200 square feet would be connected to the existing building at grade level for a packaging room, and a 15-foot wide by 60-foot long covered aisle-way would be constructed between the new packaging room and the existing warehouse. As part of the project, a concrete walled tank farm containing six new aboveground storage tanks (ASTs) would be erected adjacent to the proposed plant building. Four ASTs would be 21 feet in height (two at 13,700 gallons and two at 18,900 gallons); the fifth would be 39 feet in height (32,600 gallons); and the sixth would be 18.5 feet in height (11,600 gallons). The evaporator feed tank and the evaporator, crystallizer boilout tank would both contain weak lithium hydroxide solution that would be stored in the 13,700-gallon ASTs. Process condensate water and the weak liquor tank liquids (weak lithium hydroxide solution) would be stored in the 18,900 gallon ASTs. The 36,200-gallon tank would serve as the strong liquor tank storing strong lithium hydroxide solution. Potentially acidic streams would be neutralized in the 11,600-gallon tank prior to release to the sewer or prior to transport off site to an approved liquid waste disposal facility. There would be minor demolition activities to make way for the new construction. All new construction would occur on previously disturbed land. Lithium carbonate feed stock would be imported from Chemetall's facility in La Negra, Chile and from Chemetall's facility in Silver Peak, Nevada. Lithium waste streams from the Kings Mountain operation would be concentrated and recycled internally at Kings Mountain, Silver Peak, or other Chemetall facilities.

The Silver Peak Proposed Project would expand Chemetall's current lithium brine production and processing by reworking some existing brine production wells, installing new production wells, dredging and expanding the current evaporation pond system, and refurbishing and expanding an existing lithium carbonate plant.

Rehabilitation of the existing ponds would involve dredging or plowing out deposits to increase depth and shoring up the earthen berm walls of the ponds. The proposed expansion of brine ponds would occur entirely on the site of old ponds within Chemetall's patented mining claims. The rehabilitation and expansion of the lithium carbonate plant would involve the minor renovations of the existing building. Existing equipment would be retained along with the installation of some new equipment

2.3 General Description and Location

2.3.1 Kings Mountain

The Kings Mountain site is located in an industrial area directly south of Kings Mountain, in Cleveland County, North Carolina (see Figure 2-1). The site serves as the headquarters for Chemetall and contains approximately 720 acres, which is divided by Interstate 85 (I-85). The Kings Mountain site has four primary functions: production, corporate offices, research and development, and chemical storage. Production currently includes a specialty lithium manufacturing plant, which produces various lithium salt products by reacting lithium carbonate with different raw materials to produce lithium bromide, lithium chloride, and lithium aluminate. Additional manufacturing activities at the site includes casting lithium metal ingots from bulk lithium metal and extrusion of lithium foils and other primary battery products for consumer, medical and military applications. The facility operates 24 hours per day, five to seven days per week.

In the early 1950s, Foote Minerals acquired the rights to mine (quarry) spodumene ore and began to produce lithium products from spodumene and invest in lithium research. During this period, two quarries were opened and remained active until the early 1990s when lower-cost production of lithium from brines at other locations in the world took the market from the more costly hard rock mining conducted at the Kings Mountain site. One of the two quarries was closed and reclaimed; the other quarry remains open for periodic sand extraction by external customers.

Currently, a majority of the approximate 720 acres remains undeveloped with some areas previously disturbed by past mining operations. Current operations are concentrated within an approximate 20-acre developed area that is centrally located within the property. As a result, the existing Chemetall landholdings surrounding the 20-acre developed area buffers Chemetall's current operations from surrounding land uses by a combination of distance, forested vegetation, and topography. Adjacent land uses and approximate distances from the 20-acre developed area include: I-85 is located approximately 1,000 feet to the southeast; the Martin Marietta Aggregates quarry is located approximately 1,000 feet to the northeast; and commercial and residential developments are located over 2,000 feet to the west and to the north.

The proposed lithium hydroxide plant would be sited within the 20-acre developed area and would be housed inside an existing building. The existing building is approximately 58 feet in height, and under the Proposed Project it would be heightened another two floors (additional 30 feet) for an approximate height of 88 feet. In addition to changing the existing building, Chemetall would construct a new 8,200 square foot packaging room connected to the existing building, a 15 feet wide by 60 feet long covered aisle-way located between the new addition and the existing warehouse, and a concrete-walled tank farm containing six new ASTs ranging in height from 18.5 feet to 39 feet. Land at the site for the Proposed Project is flat, heavily disturbed, and supports almost no vegetation. No additional land disturbance or acquisition of new land is required for this action.

2.3.2 Silver Peak

The Silver Peak site is located in a rural area approximately 30 miles southwest of Tonopah, in Esmeralda County, Nevada (see Figure 2-2). It is located in the Clayton Valley, an arid valley historically covered with dry lake beds (playas). The Silver Peak site borders the small unincorporated town of Silver Peak (see Figure 2-3); Chemetall uses the Silver Peak site for the production of lithium brines, which are used to make lithium carbonate and, to a lesser degree, lithium hydroxide. Chemetall's Silver Peak site occupies approximately 15,000 acres and is dominated by large evaporation ponds on the valley floor, some in use and filled with brine while others are dry and unused. The manufacturing and administrative activities are confined to an area approximately 20 acres in size, portions of which were previously used for silver mining through the early 20th century.

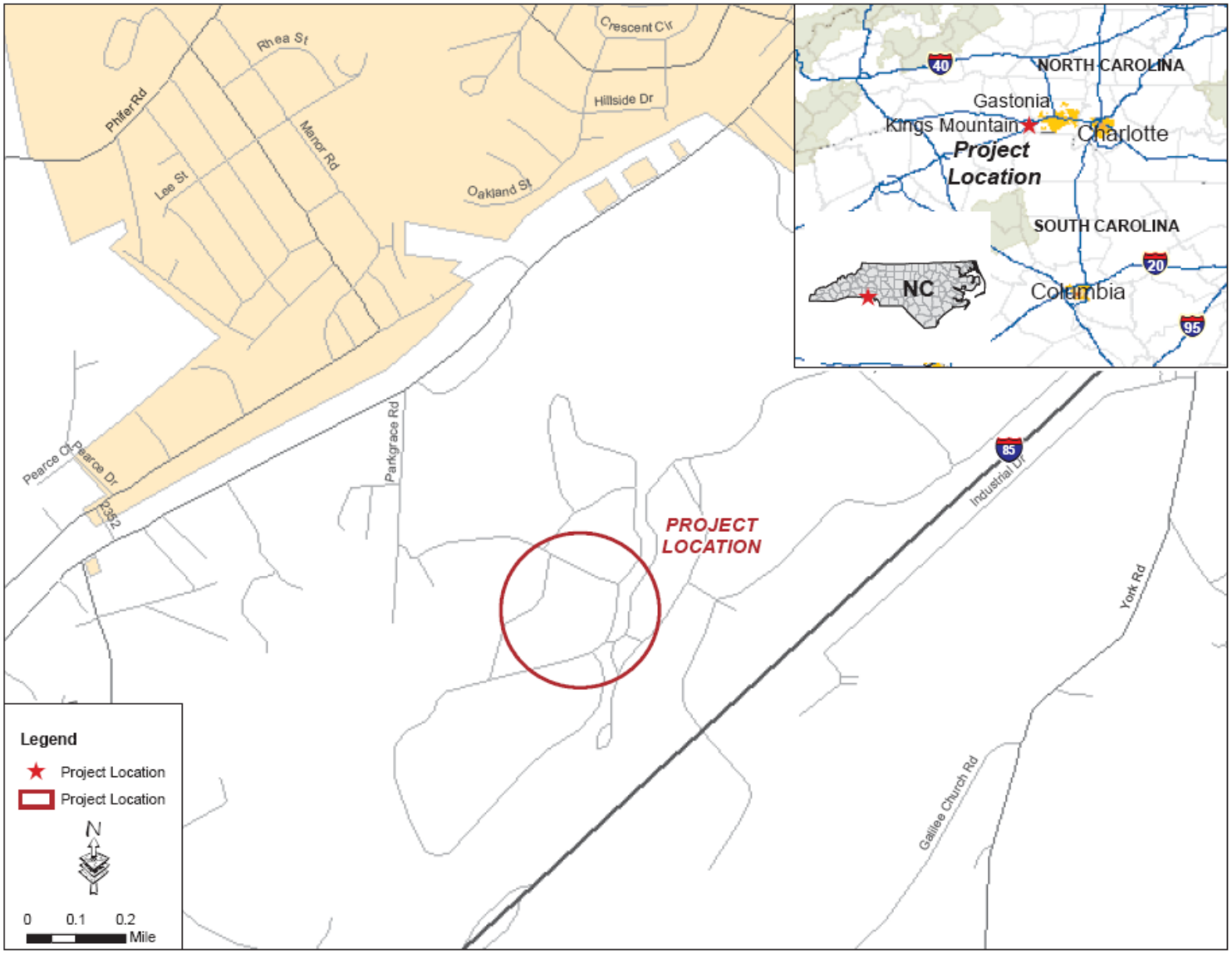

Figure 2-1. Regional Location Map – Kings Mountain, North Carolina

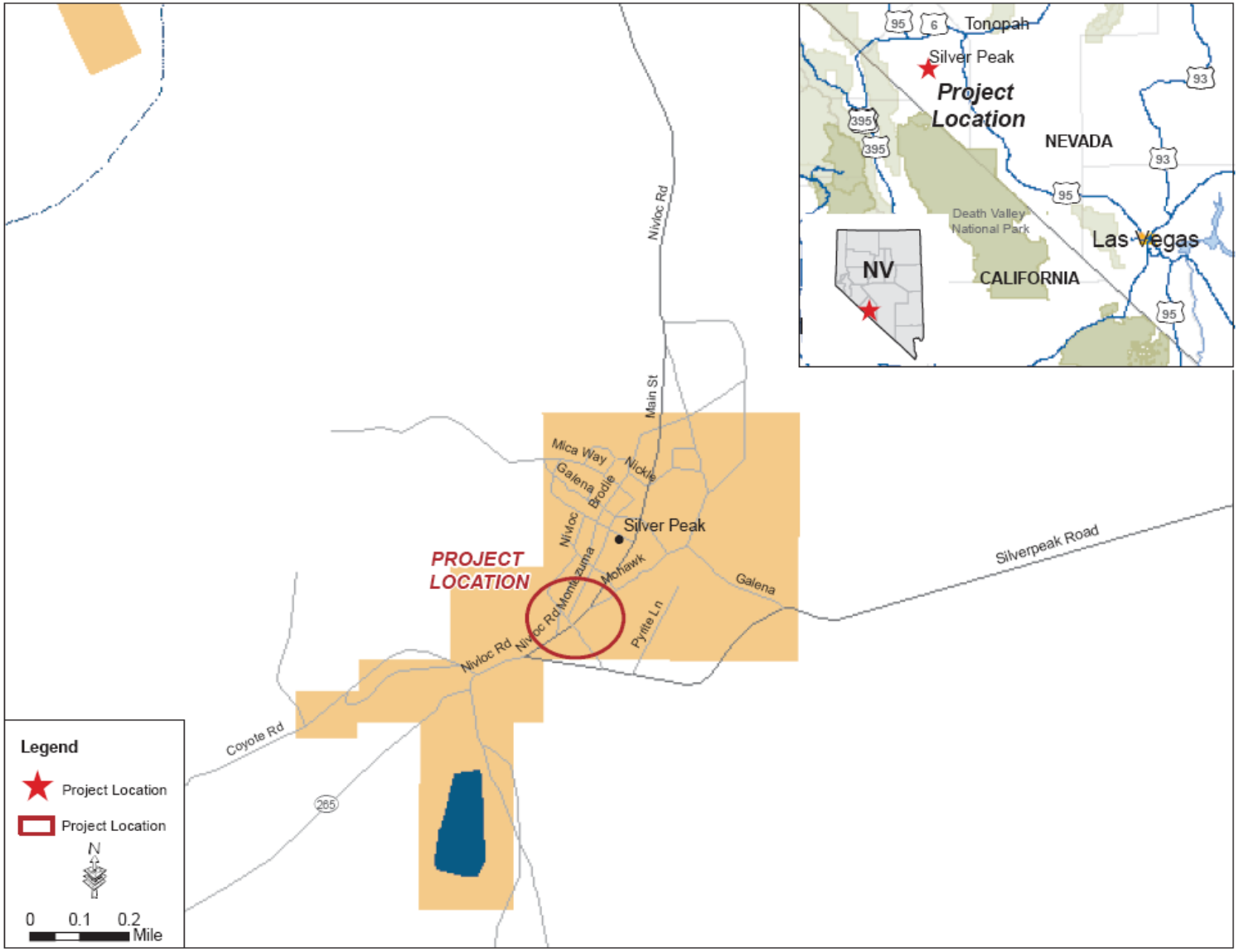

Figure 2-2. Regional Location Map – Silver Peak, Nevada

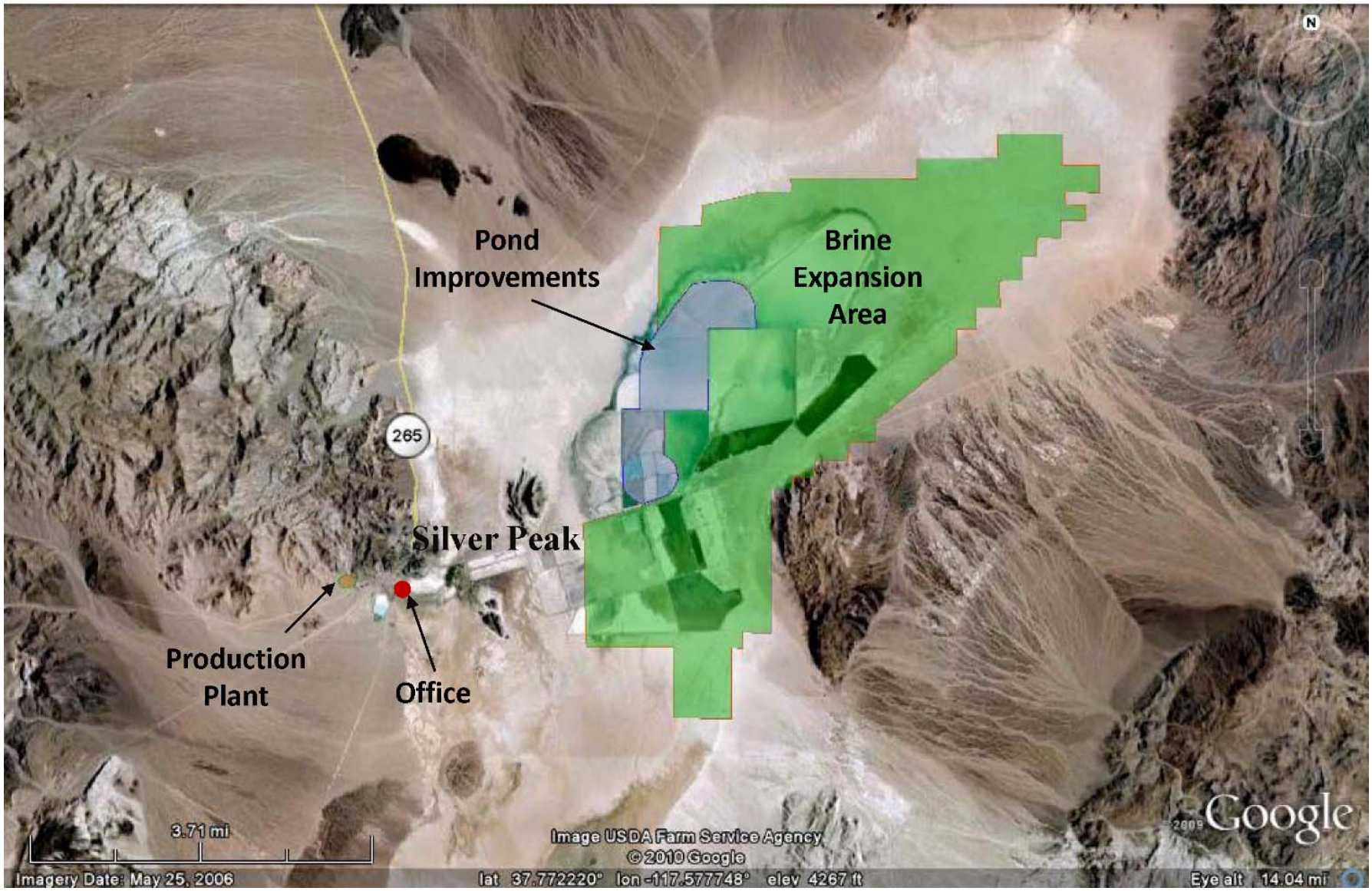

Figure 2-3. Site Location Map – Silver Peak, Nevada

The nearby town of Silver Peak contains private residences, a small school (eight enrolled students), a Post Office, a Fire/EMS Station, a small church, a park, and a tavern. In addition, many abandoned and partially destroyed structures, dating back to the peak of silver mining between approximately 1866 and 1913, are located in town. The closest occupied structures to Chemetall's Silver Peak facilities (as measured from the Administrative Office) are approximately 1,000 feet away. Immediately to the west, past the town of Silver Peak, is a rugged, undeveloped, mountainous area.

The majority of the Clayton Valley is undeveloped land consisting of patented and unpatented mining claims granted by the Bureau of Land Management (BLM), as well as a cattle grazing allotment (including a corral and stock water points) issued by the BLM. During the site visit conducted on October 29, 2009, Chemetall's personnel indicated that several geothermal exploration firms may be seeking future claims in this valley, but this was not verified.

At this time, Silver Peak is the only major supplier of lithium carbonate in the United States. Lithium is produced from brines located in several deep aquifers in the Clayton Valley. Brines are pumped to the surface and stored in a series of connected ponds where the lithium concentration is gradually increased through evaporation, and lime is used to remove magnesium. Strong lithium brines are then processed in an on-site plant to produce lithium carbonate, and subsequently lithium hydroxide, if desired.

Chemetall may also construct a geothermal power plant in the western portion of its Silver Peak unpatented mining claims. However, this activity will be evaluated under one or more separate EAs prepared by the BLM and is not part of this EA.

The proposed expansion of brine evaporation ponds would occur entirely on the site of old evaporation ponds within Chemetall's patented mining claims. There are several ponds currently overlaid by significant (up to 20 feet) deposits of salt and "muds" (sand mixed with magnesium and calcium sludges) that could be dredged (to increase storage depth) and used to further strengthen and increase the earthen berms that surround the ponds. Additional brine production wells would be activated in this area. Some formerly used but closed wells would be put into service again, and some new wells may be drilled. These activities are consistent with the facility's established mining claims and water appropriations. No additional land disturbance or acquisition of new land is required for this action.

2.4 Alternatives

DOE's alternatives to these projects consist of the 45 technically acceptable applications received in response to the Funding Opportunity Announcement, Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative. Prior to selection, DOE made preliminary determinations regarding the level of review required by NEPA based on potentially significant impacts identified in reviews of acceptable applications. A variance to certain requirements in 10 CFR 1021.216 was granted by the DOE's General Counsel. These preliminary NEPA determinations and reviews were provided to the selecting official, who considered them during the selection process.

Because DOE's Proposed Action is limited to providing financial assistance in cost-sharing arrangements to projects submitted by applicants in response to a competitive funding opportunity, DOE's decision is limited to either accepting or rejecting each project as proposed by the proponent, including its proposed technology and selected site(s). DOE's consideration of reasonable alternatives is therefore limited to the technically acceptable applications and a no-action alternative for each selected project.

2.5 No Action Alternative

Under the No Action Alternative, DOE would not provide funds to these Proposed Projects. As a result, these projects would be delayed while the applicant seeks other funding sources. Alternatively, the applicant would

abandon these projects if other funding sources are not obtained. Furthermore, acceleration of the development and production of various EDV systems would not occur or would be delayed. DOE's ability to achieve its objectives under the VT program and the Recovery Act would be reduced.

Although these and other selected projects might proceed if DOE decided not to provide financial assistance, DOE assumes for purposes of this environmental analysis that these projects would not proceed without DOE assistance. If these projects did proceed without DOE's financial assistance, the potential impacts would be essentially identical to those under DOE's action alternative (i.e., providing financial assistance that allows these projects to proceed). In order to allow a comparison between the potential impacts of these projects as implemented and the impacts of not proceeding with these projects, DOE assumes that if it were to decide to withhold assistance from these projects, the projects would not proceed.

2.6 Alternatives Considered by Chemetall

The Proposed Project alternatives discussed in Section 2.1 involving Kings Mountain and Silver Peak were the only alternatives identified, no other alternatives were considered.

2.7 Summary of Environmental Consequences

Table 2.6-1 provides a summary of the environmental, cultural, and socioeconomic impacts of the No Action Alternative and the Proposed Projects.

Table 2.6-1. Summary of Environmental, Cultural, and Socioeconomic Impacts

Impact Area	No Action Alternative		Proposed Projects			
	Construction	Operations	Construction		Operations	
	Kings Mountain/ Silver Peak	Kings Mountain/ Silver Peak	Kings Mountain	Silver Peak	Kings Mountain	Silver Peak
Land Use	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Noise	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Geology and Soils	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Socioeconomics (Population and Housing)	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Socioeconomics (Taxes, Revenue, Economy, Employment)	Negligible	Negligible	Minor Beneficial	Negligible	Minor Beneficial	Minor Beneficial
Environmental Justice	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Visual Resources	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Meteorology	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Surface Water	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Groundwater	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Wetlands and Floodplains	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Vegetation and Wildlife	Negligible	Negligible	Negligible	Negligible	Negligible	Minor
Cultural Resources	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Utilities and Energy Use	Negligible	Negligible	Negligible	Negligible	Negligible /Minor	Negligible
Transportation and Traffic	Negligible	Negligible	Negligible	Negligible	Minor	Negligible
Air Quality	Negligible	Negligible	Minor	Minor	Minor	Minor
Greenhouse Gases	Negligible	Moderate	Minor	Minor	Beneficial	Beneficial
Solid and Hazardous Waste	Negligible	Negligible	Minor	Negligible	Minor	Negligible
Human Health and Safety	Negligible	Negligible	Negligible	Negligible	Minor	Minor

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Chapter 3 provides a description of the affected environment (existing conditions) at each project site and a discussion of the environmental consequences of the No Action Alternative and each Proposed Project. Additionally, cumulative impacts and mitigation measures are discussed where appropriate. The methodology used to identify existing conditions and to evaluate potential impacts on the physical and human environment involved the following: review of the Environmental Questionnaires and the Project Narrative prepared by Chemetall for DOE, review of documentation provided by Chemetall, various environmental database searches, agency consultations, and site visits conducted at the Silver Peak and Kings Mountain sites on October 29, and November 5, 2009, respectively.

3.1 Resource Areas Dismissed from Further Consideration

DOE has determined that various resources would either not be affected or would sustain negligible impacts from Chemetall's Proposed Projects and do not require further evaluation. For both the Kings Mountain and Silver Peak facilities: land use, noise, geology and soils, socioeconomics, environmental justice, visual resources, meteorology, surface water and groundwater, wetlands and floodplains, vegetation and wildlife, cultural resources, utilities and energy use, and transportation and traffic, have been dismissed. Therefore, these resource areas are briefly discussed in this section of the EA and will not be carried through for further consideration.

3.1.1 Kings Mountain

Land Use: At the Kings Mountain site, the Proposed Project would not likely result in direct impacts to land use and zoning. According to the Cleveland County, North Carolina GIS Department, the site is zoned as heavy industrial (Cleveland County, 2009). No change in zoning would be required under the Proposed Project, and therefore there would be a negligible direct impact to land use.

However, there is a chance for indirect and cumulative impacts. With a growing demand for lithium products, with lithium supplies still available at the Kings Mountain quarry (and probably at some nearby prospects), and with a lithium hydroxide processing plant to be established, this area would be more attractive for lithium mining, lithium battery manufacturers, and battery component manufacturers. Therefore, the Proposed Project could indirectly promote cumulative development of these particular industries in the Carolinas. If lithium mining resumes at or near Kings Mountain, given the potential for future local development (commercial, industrial, residential) in the Kings Mountain area, this project could promote local cumulative impacts of industrial, commercial and residential growth, thus affecting land use in Cleveland County.

Noise: The site is located in an industrial area south of the Town of Kings Mountain. The site is bordered by I-85 to the southeast, and Highway 216 and a railroad to the northwest. The adjacent areas to the south and north are predominantly open space with quarry-type activities. The nearest sensitive noise receptors to the site are residences located approximately 0.4 mile to the west and approximately 0.6 mile to the northwest, which are screened from the facility by a hill and vegetation. The closest churches are located approximately 0.5 mile northwest and 0.8 mile southeast of the site. The property is located within the vicinity of various existing noise sources that contribute to the baseline noise level. There is a railroad located approximately 0.5 mile away and an active quarry approximately 0.3 mile to the north that uses explosives.

The construction phase would involve possible demolition and reconfiguration of the interior features of an existing building, in addition to adding two floors (30 feet) to increase the height from 58 feet to 88 feet, as well as construction of an 8,200 square foot addition that would be connected to the existing building. Some existing equipment would be used, along with the installation of new equipment, to accommodate the expanded manufacturing processes. Six new ASTs would be erected near the proposed plant. During the construction phase, noise levels would be localized, intermittent, and temporary. Construction is expected to last for a duration of approximately 12 to 18 months. Increases in noise levels during construction would mainly result from the use

of heavy construction equipment and delivery trucks. Typical noise levels at construction sites would be expected to be within the range of 75 to 90 dBA in the immediate vicinity of the project site. Because there is currently industrial truck traffic in the vicinity, there would be a negligible impact to noise affecting the surrounding the community.

The existing facility operates 24 hours per day, five to seven days a week, and would continue to do so under the Proposed Project. To date, the facility has never received noise complaints from the surrounding community.

The main sources of noise during operations would be from the new mechanical equipment, which would be located indoors, and from any increase in truck or employee-vehicle traffic. Currently, truck traffic consists of approximately 10 trucks per day. The Proposed Project expects to increase the truck traffic by two additional trucks per day, totaling 12 trucks per day. Because this is an addition to an existing industrial facility that currently operates production equipment and has truck and personal-vehicle traffic, any increase in ambient noise levels resulting from operations of the Proposed Project would be negligible from the perspective of any sensitive receptors in the surrounding community. Furthermore, there are other existing comparable and much louder noise sources in the vicinity (e.g., operating quarry, highways, railroad, and industries), and the sensitive receptors are screened by hills and vegetation.

Geology and Soils: The predominant geological landform within the study area is hillslopes on ridges. The Cleveland County Soil Survey (NRCS, 2007) indicates two soil types within proximity to the study area. These include pits, quarry (Pw); and udorthents, loamy (UdC). Table 3.1.1-1 contains the properties of each soil unit and their respective geological landform.

Table 3.1.1-1. Study Area Soils at Kings Mountain

Soil Unit	Geologic Landform	Slope (percent)	Flooding Frequency	Hydric Rating	Commercial Building Construction
Pw	Not rated	Not rated	Not rated	Not hydric	Not Rated
UdC	Hillslopes on Ridges	0-15	None	Not hydric	Very Limited

As shown in Table 3.1.1-1, soils within the study area are not prone to flooding. A “none” frequency rating means that flooding is not probable; the chance of flooding is nearly 0 percent in any year and flooding occurs less than once in 500 years. In addition, none of the soils are recognized as hydric.

UdC soils within the study area are very limited (primarily due to sloping conditions) for commercial building construction (e.g., structures typically less than three stories high and lacking basements). The construction ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs (i.e., depth to a water table, ponding, flooding, subsidence, shrink-swell potential, and compressibility). “Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

During the November 5th, 2009, site visit and interviews conducted on site, Chemetall staff revealed the study area has been heavily disturbed since the 1970s. The study area for soils includes the existing facility and existing and compacted soils directly adjacent to the facility. No natural/undisturbed soils occur within the study area.

Under Chemetall’s Proposed Project, establishment of the proposed facility would occur within an existing building on site or on previously disturbed land; therefore, negligible adverse impacts would occur to geology or

soils. Potential staging areas directly outside of the facility for construction equipment and materials would not likely cause adverse impacts to soils as the entire site is characterized by urban/previously disturbed soils. In addition, placement of ASTs and containment adjacent to the facility would not likely impact soils, as the ASTs would be sited in an area of previously disturbed soils. Operations of the site would have no impacts to either geology or soil resources. Manufacturing would occur within the facility and the product would be transferred off site using existing road infrastructure.

Socioeconomics: Approximately 25 permanent employees are expected to be hired at Kings Mountain as a result of the Proposed Project. It is assumed that the majority of the workforce would be drawn from local candidates; therefore, no increase in population or need for housing is anticipated.

Under Chemetall's Proposed Project, taxes would continue to be paid on the property and no adverse impacts would occur. Construction workers employed for the construction period are assumed to be currently employed, and residing and paying taxes in the Cleveland County area. Increased sales transactions for the purchase of materials and supplies would generate some additional revenues for local and State governments, which would have a minor beneficial impact on taxes and revenue.

Secondary jobs related to the increased economic activity stimulated by the Proposed Project may be created. Additional retail services and business employment may result from the Proposed Project through a multiplier effect, yielding additional sales and income tax revenues for local and State governments, thus having a minor beneficial impact.

Construction or operation of the project would not result in direct impacts to community facilities and services, school systems or emergency services of Cleveland County because significant numbers of employees are not anticipated to relocate as a result of the Proposed Project.

Additionally, there is a substantial ongoing development (industrial, commercial and residential) in the Kings Mountain area and in the nearby Charlotte area. The Proposed Project would be one small part of that ongoing development. More importantly, DOE received proposals for several Electric Drive Vehicle Battery and Component Manufacturing Initiative projects that would be located in the Carolinas. It is clear that this high-tech region aims to be a key player in the U.S. EDV industry. With lithium supplies still available at the Kings Mountain quarry (and probably at some nearby prospects) and with a lithium hydroxide processing plant proposed to be created, this area would be more attractive to lithium battery manufacturers and battery component manufacturers. Therefore, this project could indirectly promote cumulative development of these particular industries in the Carolinas.

Environmental Justice: The Proposed Project was evaluated in accordance with EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. While there are minority and low-income populations in the study area, the Proposed Project would not have a disproportionately adverse impact on these groups; the impact would be negligible.

Visual Resources: Renovations would occur inside an existing structure and a new addition to the existing building would be constructed. A new concrete walled tank farm containing six new ASTs would be erected adjacent to the proposed plant building. Four ASTs would be 21 feet in height; a fifth tank would be 39 feet in height; and the sixth tank would be 18.5 feet in height. Because the height of the ASTs would not exceed the height of the existing structure (58 feet) and due to the industrial setting of the facility, negligible impacts to visual resources would occur.

Meteorology: Cleveland County is characterized by a mild temperate climate. Average annual temperature ranges from lows of about 47 degrees Fahrenheit (°F) to highs of approximately 71°F. Winter months (December through February) are the coolest with average monthly low temperatures ranging from 29° to 31°F and high

temperatures ranging from 52° to 55°F. The warmest months are the summer months of June through August. During those months average monthly low temperatures range from 63° to 66°F and high temperatures range from 87° to 89°F. Average annual precipitation is approximately 48 inches. November is typically the driest month with average rainfall of 3.3 inches. July is typically the wettest month with an average of 4.7 inches of precipitation (SERCC, 2009).

Cleveland County has a high incidence of tornadoes, which is 2.1 times greater than the national average (City-Data.com, 2009). Since 1958, there have been 106 high winds events in Cleveland County, ranging from 86 to 120 miles per hour (NCSU, 2009). In the Atlantic Ocean, hurricane season storms rarely form outside the June 1st to November 30th season. However, North Carolina's proximity to the Gulf Stream and its protruding coastline make it a likely location to receive an early season (May) spike in tropical activity. There have been two severe tropical storms reported in North Carolina; however, historical record shows that there has never been a hurricane in Cleveland County. Because Cleveland County is over 300 miles west of the North Carolina coast, it is unlikely to experience a direct hit from a hurricane. South Atlantic hurricanes usually travel north and they are extremely unlikely to travel west (NCSU, 2009). The Proposed Project would have a negligible impact on climate; and climate would have a negligible impact on the Proposed Project.

Surface Water and Groundwater: The Kings Mountain facility is located in the Buffalo Creek subbasin (03-08-05) of the Broad River Basin. The receiving stream for stormwater runoff from the property is Kings Creek. The facility is subject to stormwater permit NCS000096 issued by the North Carolina Department of Environment and Natural Resources (NCDENR) (NCDENR, 2009a) under the National Pollutant Discharge Elimination System and effective from November 1, 2009 through October 31, 2014. The facility does not discharge process or sanitary wastewater to surface waters.

The Proposed Project would include the addition of a lithium hydroxide process within an existing plant building. Renovation of the existing building would involve adding two new floors. Additionally, six new ASTs would be erected near the existing plant building the on previously distributed land. Potential impacts on surface water during construction would be temporary and minor. As stated in the November 18, 2009, letter from the USFWS regarding the Proposed Project, the treatment of stormwater leaving the project area, creation of impervious surfaces, and impacts to stream buffers would be of concern to surface waters (see Appendix A); however, construction of the Proposed Project would involve negligible ground disturbance and would not involve the generation of additional impervious surfaces. Due to the distance of the project site to the nearest receiving water body, impacts to receiving waters resulting from stormwater runoff during construction would not be anticipated. The facility would remain subject to stormwater permit NCS000096 issued by the NCDENR. Furthermore, the project would not affect any stream buffers as the proposed facility is sited in an existing developed area, away from water resources. Overall, the Proposed Project would have a negligible impact to surface waters during both construction and operations.

The Kings Mountain facility does not use groundwater for any process.

Wetlands and Floodplains: No wetlands were observed within proximity to the study area during the November 5th, 2009, site visit. In addition, National Wetland Inventory mapping does not indicate the presence of vegetated wetlands within the study area (EPA, 2009a).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Map Number 3710257200J does not indicate the presence of floodplains within the study area (FEMA, 2009). Therefore, negligible impacts would occur to wetlands and floodplains.

Vegetation and Wildlife: During the November 5th, 2009, site visit, it was determined that no vegetation resources and little wildlife habitat existed within or directly adjacent to the study area; the study area is already developed. Informal coordination letters were sent to both the USFWS and the North Carolina Natural Heritage Program to

verify the project would have no impact on any Federally- or State-listed threatened, endangered, or candidate species, or critical habitat within the vicinity of the Proposed Project (see Appendix A). In a letter dated November 18th, 2009, the USFWS stated that, no Federally-listed species or their habitats occur on the subject site. In addition, the North Carolina Natural Heritage Program has no records of protected species or critical habitat within the study area (see letter dated November 16, 2009, Appendix A). The North Carolina Natural Heritage Program letter also states that the use of their data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat. As the Proposed Project involves upgrades to an existing facility, construction of a new addition to the existing building, and construction of a contained tank farm on previously disturbed land in an existing industrial area, no suitable habitat exists; therefore, surveys for rare, threatened, or endangered species are not warranted. The Proposed Project would have a negligible impact on vegetation and wildlife during both construction and operation.

Cultural Resources: The Area of Potential Effect (APE) for archaeological resources is defined as the construction impact area. It is unlikely that archaeological resources are present within the APE since the area has been previously disturbed. The APE for architectural resources is also defined as the construction impact area since no changes are being made outside the walls of the existing building. The facility was built in 1986. Because the building is not more than 50 years old and is being retrofitted, no adverse effect to historic resources would take place. The North Carolina Department of Cultural Resources agreed with DOE's findings in a December 10, 2009 letter (Appendix A).

Utilities and Energy Use: The Kings Mountain facility receives potable water from the Kings Mountain municipal water system for process use and general consumption. The potable water demand for 2008 ranged from 110,000 to 417,000 gallons per month for an annual use of 2.8 million gallons and a daily average of 7,600 gallons. The facility was recently connected to the municipal sewer system for treatment of sanitary wastewater. The facility disposes of process wastewater by contract with two private companies that collect the process wastewater in 5,000-gallon tank trucks for off-site treatment and disposal. Approximately 215,000 gallons of process wastewater were disposed in 2008. Chemetall plans to discuss the prospect of disposing of process wastewater to the municipal sewage treatment plant, provided that the processes could meet pretreatment requirements (Chemetall, 2009a). The facility receives electric power from Duke Energy. During 2008, the facility recorded an average demand of 1 megawatt. The total annual energy usage was 8,830 megawatt-hours (Chemetall, 2009a).

The increase in potable water demand by workers during construction would have a negligible short-term impact on the municipal supply. Sanitary wastes during construction would be disposed in portable or existing on-site toilets with negligible temporary effects.

The addition of a lithium hydroxide process at the Kings Mountain facility would result in a small increase in operational staff, which would have a negligible impact on potable water demand and sanitary wastewater disposal. The additional process would cause a negligible to minor relative increase in process water demand, process wastewater, and energy demand.

Transportation and Traffic: Construction traffic would primarily be limited to the immediate vicinity of the project site that would last for a duration of approximately 12 to 18 months. During construction, the additional traffic from truck and construction worker trips to the site would be short term and easily accommodated within existing roadway and intersection capacity, such that negligible impacts would occur.

The existing facility operates 24 hours per day, five to seven days per week, and would continue to do so under the Proposed Project. The site currently experiences a low volume of truck traffic related to deliveries and shipments (estimated at ten trucks per day) and the local roadway network can easily accommodate this volume. The Proposed Project would be expected to result in additional deliveries of approximately two truck visits per day that would use established truck routes currently in place by Chemetall. The additional truck trips to the site

would be easily accommodated within existing roadway and intersection capacity, and negligible impacts would occur. The Proposed Project would generate a minor long-term increase in personal vehicle traffic due to the hiring of approximately 25 permanent employees. However, the number of personal vehicles accessing the site during any one period would be reduced as these employees would likely be employed on shift rotations. Because this Proposed Project is an addition to an existing industrial facility that currently operates production equipment and has existing truck and personal-vehicle traffic, this small increase in vehicle traffic would have only a minor impact to the surrounding community.

3.1.2 Silver Peak

Land Use: There is no land use plan or zoning in Silver Peak or Esmeralda County. Therefore, no change in zoning or land use would be required. Over 98 percent of the land area in Esmeralda County is administered by the Federal government. Chemetall already holds established mining claims (both patented and unpatented) for its brine production activities. In addition, land use associated with the Proposed Project would be consistent with current land uses as the project site is already used for these same purposes. Therefore, there would be a negligible impact to land use.

Noise: The existing plant site is adjacent to Silver Peak, which contains the nearest sensitive receptors including residences between a quarter and one mile away, and the Silver Peak Elementary School, which currently has eight students enrolled. There are no other schools, churches, or hospitals for over 20 miles. The town has a population of less than 300 people and experiences very little traffic. The surrounding area is very sparsely populated with between 0 to 40 people per square mile, within at least an 80-mile radius. Chemetall's operations are the only major industrial presence near Silver Peak. Current noise sources that contribute to the area's baseline noise level include the Chemetall's industrial plant and outdoor pond equipment operations, minimal truck and car traffic (including a maximum of two daily truck trips for the Chemetall plant), and infrequent noise bursts from the propane-powered air canon used to deter birds from landing in the brine ponds.

The construction phase would involve the repairing of the existing lithium brine ponds, rebuilding the dikes, drilling new wells, and refurbishing parts of the existing carbonate plant. The rehabilitation of the existing ponds would involve dredging or plowing out deposits to increase depth, shoring up the earthen berm walls, and activating additional brine pumping wells. During the construction phase, noise levels would be localized, intermittent, and temporary. Increases in noise levels during construction would mainly result from the use of heavy construction equipment and trucks. The typical noise levels on site would be expected to remain within the range of 75 to 90 dBA. Construction noise levels on site would be short term and primarily be limited to the immediate vicinity of the project site. Construction would have a negligible impact on noise to sensitive receptors since the pond expansion area is over 2 miles from the residences and town, and the work on the carbonate plant would be predominantly indoors.

During operations, the main sources and levels of noise would be similar to existing sources and levels of noise at the plant, well field, and evaporation ponds. There would be no change from the current maximum of two truck trips per day off site. Any long-term increases in ambient noise levels during operations would be minimal.

Geology and Soils: The predominant geological landform within the study area is a playa, characterized by a generally dry and nearly level lake plain that occupies the lowest parts of closed depressions on the floor of this intermontane basin. Temporary flooding within playas occurs primarily in response to desert precipitation and runoff events. Playa deposits are fine grained, and may or may not have a high water table and saline conditions (NRCS, 2007). The Esmeralda County Soil Survey (NRCS, 2007) indicates two soil types within proximity to the study area. These include playas (900) and miscellaneous water (1220). Table 3.1.2-1 contains the properties of each soil unit and their respective geological landform

As shown in Table 3.1.2-1, soils within the study area are frequently prone to flooding. A "frequent" rating means that ponding occurs, on the average, more than once in 2 years and the chance of ponding is more than 50

percent in any year. Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part, and under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Hydric soils can pose limitations to construction; however, they can also be indicative of wetlands.

Table 3.1.2-1. Study Area Soils at Silver Peak

Soil Unit	Geologic Landform	Slope (percent)	Ponding Frequency	Hydric Rating	Commercial Building Construction
900	Playas	0-1	Frequent	All hydric	Very limited
1220	Not rated	Not rated	Not rated	Not hydric	Not rated

Source: NRCS, 2007

Soil Unit 900 soils are very limited (primarily due to shrink-swell potential and ponding) for commercial building construction (e.g., structures typically less than three stories high and lacking basements). The construction ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs (i.e., depth to a water table, ponding, flooding, subsidence, shrink-swell potential, and compressibility). "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

The 1220 unit soil overlaps with the existing industrial ponds, which are manmade features. Information within the soil survey regarding the soil properties of this unit is therefore limited as the natural soil properties within these areas have been disturbed/altered from the previous establishment of industrial ponds.

The October 29th, 2009, site visit of the study area identified the area as heavily disturbed. Interviews with on-site Chemetall staff revealed the majority of the project site has been heavily disturbed since the late 1960s. Most of the Chemetall property on the valley floor within the natural playa areas is currently or has been used for brine ponds for existing industrial processes. In some areas, ponds have accumulated over 15 feet of salt and “muds” (sand mixed with magnesium and calcium salts), which are periodically removed. In addition, large (over 20 feet tall) salt and mud mounds are present on the valley floor, the results of years of moving and stockpiling.

Under Chemetall’s Proposed Project, modifications to the existing Chemetall operations would result in negligible impacts to geology or soils. Upgrades to the outdoor facilities would include the re-deployment of some older wells; and at least one new pond is under consideration. Depending upon the rate of brine withdrawal, minor land surface subsidence could occur around the new or re-deployed wells. The overall extent of subsidence would be greatest where the brine wells are most productive, which would occur in the location of the brine ponds. Increased subsidence in this area would not result in a significant impact to geology as the predominant landform is playa, which is characterized by a closed depression. Additionally, drainage into these areas would not be anticipated to be affected by the Proposed Project, and the overall system would remain a closed depression. A portion of the potential subsidence would furthermore be offset by the aggrading or filling with sludge, and therefore, water elevations would likely remain the same. Chemetall would monitor the aquifers to minimize depletion as brine withdrawal may result in some compaction of aquifer strata.

Additional minor amounts of earth-moving activities (i.e., compaction, leveling, installation of foundation drainage) may be necessary to restore and improve dikes of existing brine ponds using dried sludge. Potential staging areas would be located directly outside of the existing facility and ponds, causing minor adverse impacts to soils through soil compaction and disturbance of the upper soil horizons. Manufacturing would occur within

the facility and the product would be transferred off site using existing road infrastructure. Overall, impacts to soils would be negligible as the site has been previously disturbed.

Socioeconomics: Approximately 10 permanent employees are expected to be hired as a result of the Proposed Project. It is assumed that the majority of the workforce would be drawn from local candidates in Esmeralda County; therefore, no increase in population or need for housing is anticipated.

Under Chemetall's Proposed Project, taxes would continue to be paid on the property and no adverse impacts would occur. Construction workers employed for the construction period are assumed to be currently employed, and residing and paying taxes in the Esmeralda County area. Increased sales transactions for the purchase of materials and supplies would generate some additional revenues for local and State governments, which would have a minor beneficial impact on taxes and revenue.

Construction of the project would not result in direct impacts to community facilities and services, school systems, or emergency services of Esmeralda County because significant numbers of employees are not anticipated to relocate as a result of the Proposed Project.

Environmental Justice: The Proposed Project was evaluated in accordance with EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. While there are minority and low-income populations in the study area, the Proposed Project would not have a disproportionately adverse impact on these groups.

Visual Resources: The Silver Peak site is located in a rural area of an arid valley historically covered with dry lake beds (playas). Silver Peak is located west of the site, is comprised of private residences, a small school, a Post Office, a Fire/EMS Station, a small church, a park, and a tavern. In addition, many abandoned and partially destroyed structures, dating back to the peak of silver mining from approximately 1866 to 1913, are located in town. Further to the west, past the town of Silver Peak, is a rugged, undeveloped, mountainous area.

The proposed expansion of brine ponds would occur entirely on the site of old ponds within Chemetall's patented mining claims. There are several ponds currently overlaid by significant (up to 20 feet) deposits of salt and "muds" (sand mixed with magnesium and calcium salts). When mining is terminated then reclamation would be conducted. The muds would be recontoured to match the contour of the land as required by the State of Nevada. Chemetall maintains a reclamation plan, as required by the State of Nevada, which would specify the remediation of impacts on the site.

Impacts to identified views and vistas were determined based on an analysis of the existing quality of the landscape views, the sensitivity of the view, and the anticipated relationship of the proposed action to the existing visual environment. The new brine wells, solar evaporation system expansion and changes to the existing lithium carbonate plant would be consistent with the existing landscape. Any potential removal of salts and muds or regrading and recontouring performed as a result of the project would have a negligible impact on visual resources.

Meteorology: Nevada has great climatic diversity, ranging from scorching lowland desert in the south to cool mountain forests in the north. Esmeralda County is characterized by a mild temperate climate. Average annual temperature ranges from lows of about 39°F to highs of approximately 72°F. Winter months (December through February) are the coolest with average monthly low temperatures ranging from 17° to 25°F and high temperatures range from 46° to 54°F. The warmest months are the summer months of June through August. During those months, average monthly low temperatures range from 57° to 60°F and high temperatures range from 90° to 95°F. Average annual precipitation is approximately 4.3 inches. December is typically the driest month with average rainfall of 0.2 inch. February is typically the wettest month with an average of 1.3 inches of precipitation (WRCC, 2009).

In Nevada, thunderstorms in most areas are infrequent. Tornadoes are rare, but have occurred in all months from April through September. Winds are generally light. Storms with high winds rarely occur and seldom cause appreciable damage, except locally along the east slope of the Sierras. The prevailing wind direction is west; at a few stations, it is south or southwest because of local topography. In the valleys, winds are light in the morning and stronger in the afternoon. Dust or sand storms occur occasionally, particularly in the south during the spring, when storms move through the region more frequently than at other seasons. The Proposed Project would have a negligible impact on climate, and climate would have a negligible impact on the project.

Surface Water: The Nevada Division of Environmental Protection stated in a stormwater permit waiver letter (NDCNR, 1992) that the Silver Peak facility discharges to a dry playa in a closed hydrologic basin. Therefore, no regulated waters of the United States are associated with the facility.

Chemetall possesses an Industrial Artificial Pond Permit from the Nevada Department of Wildlife (NDW, 2007) to operate an impoundment within the State of Nevada containing materials or chemicals that cause or would cause the death of wildlife (refer to Biological Resources). The permit was issued April 2, 2007, and is valid until December 14, 2010.

The Nevada Department of Conservation and Natural Resources (NDCNR) (NDCNR, 2007) renewed Chemetall's Water Pollution Control Permit NEV0070005 effective March 23, 2007, which remains in effect until March 23, 2012. The permit authorizes the corporation to construct, operate, and close the Silver Peak Lithium Project in accordance with limitations and requirements, including the authorization to process up to 6,000 tons of ore (contained in pumped groundwater) annually. The permit requires Chemetall to contain all process fluids, including runoff from a 25-year, 24-hour storm event within the fluid management system and not release or discharge any process or non-process contaminants from the fluid management system. The permit specifies monitoring requirements for wells, process influents, and waste streams. The expansion of the evaporative pond system, which is part of Chemetall's fluid management system, would be conducted in compliance with the permit, which would not require modification, and would have a negligible impact on surface water resources.

Groundwater: The Silver Peak facility is located within the Clayton Valley Hydrographic Area (#143) of the Central Region Hydrographic Basin (#10) in Esmeralda County. The Clayton Valley Hydrographic Area covers 555 square miles and is underlain by a complex of interbedded alluvial sand and gravel, and playa clay and silt deposits containing fresh to highly brackish water. The NDCNR, Division of Water Resources has not designated the hydrographic area as one in which permitted water rights approach or exceed the estimated annual recharge (NDCNR, 2009).

Chemetall possesses 25 water appropriation permits from the Division of Water Resources that collectively allow more than 21,000 acre-feet annually of groundwater use at a combined rate of 32 cubic feet per second (NDCNR, 1999). In 2008, production from brine-producing wells averaged 71,000 parts per million total dissolved solids (Chemetall, 2009b). Water withdrawals between 1999 and 2008 ranged from 8,905 to 11,116 acre-feet annually, including approximately 373 to 643 acre-feet annually of fresh water from alluvial deposits that are recharged from the nearby mountain areas.

As part of the Proposed Project, Chemetall would develop additional production wells for lithium brine extraction and expand the evaporative pond system. The Nevada Division of Environmental Protection renewed Chemetall's Water Pollution Control Permit NEV0070005 after determining that the groundwater quality would not be degraded by operation of the facility, and that public safety and health would be protected (NDCNR, 2007). The Proposed Project would be conducted in compliance with the permit and would have a negligible impact on groundwater resources, including water levels of producing aquifers.

Wetlands and Floodplains: National Wetlands Inventory maps indicate the presence of a lake (littoral environment with unconsolidated shoreline [L2US] according to the Cowardin wetland classification) within the study area. The overall feature of the lake extends beyond the study area and overall size of the feature is approximately 4,300 acres (USFWS, 2009). This feature is part of the natural playa landform within the study area and surrounding region, which has been since modified into a series of brine ponds utilized by Chemetall for industrial processes. During previous permitting activity, the United States Army Corps of Engineers (USACE) in 1992 determined that the Silver Peak facility discharges industrial stormwater into a dry playa, which is a closed hydrological basin and is not regulated waters of the U.S. (NDCNR, 1992). Although the USACE determination is over 17 years old, no changes have occurred that would alter either the applicable law or the closed nature of the dry playa's hydrological basins, and therefore, these ponds would remain non-jurisdictional.

During the Proposed Project, the existing playa would be minimally impacted from improvements to and restoration of the existing industrial brine ponds to accommodate additional proposed brine processing. The modifications to the existing ponds, however, would not change the existing industrial use of the playa and would occur in areas that have been previously disturbed. Because the existing playa within the study area is considered non-jurisdictional and the study area is located within a closed drainage basin, no impacts would occur to wetland resources protected under Section 404 of the Clean Water Act.

According to the FIRM, FEMA classifies the study area as unmapped (FEMA, 2009). No river floodplains exist on the site; therefore, no adverse impacts would occur to river floodplains.

Vegetation and Wildlife: The study area is located within an arid desert environment, which predominantly lacks vegetative cover. During the October 29, 2009 site visit, it was verified that most of the valley floor (especially old and current pond areas) are largely devoid of vegetation and there was little to no habitat for terrestrial animals. In addition, a majority of the study area is heavily disturbed by roadways, graded lay-down yards, berm systems, active ponds, and old ponds overlaid with considerable deposits (up to 20 feet) of muds and salt.

On-site staff indicated that primary ponds (where brine is first pumped into) can support populations of brine shrimp and brine flies, which can present an attractive food source for migratory waterfowl and other birds. Ducks, teals, grebes, geese, herons, loons, gulls and other birds are attracted to the ponds; however, many of the ponds with stronger brine concentrations pose a mortality risk to birds, primarily due to salt encrustation on their feathers. Chemetall has been issued a permit by the Nevada Department of Wildlife (to operate artificial ponds) that requires active hazing of ponds to deter use by these bird species and requires quarterly reports of bird mortality. One of the prominent hazing methods used is a propane-powered air cannon to generate loud noises. As the Proposed Action involves rehabilitation of some existing ponds (dredging or plowing out deposits to increase depth and shore up earthen berm walls), and activation of additional brine pumping wells (some new, some previously closed), the potential exists for increasing attraction of migratory waterfowl species and subsequent mortality. These impacts, however, would be minimized through continued adherence to the Nevada Department of Wildlife permit.

The study area provides little to no terrestrial habitat, therefore negligible impacts would be anticipated to terrestrial species from either construction or operations. In addition, the USFWS expressed concern regarding the potential for project construction activities to impact migratory birds, which are protected under the Migratory Bird Treaty Act (MBTA) (see USFWS letter, Appendix A). Based on the characteristics of the study area, including the hazing activities currently conducted at the existing ponds, it is unlikely that construction activities would disrupt migratory bird nests.

Informal coordination letters were sent to both the USFWS and the Nevada Natural Heritage Program to verify the project would have no impact on any Federally- or State-listed threatened, endangered, or candidate species, or critical habitat within the vicinity of the Proposed Project (see Appendix A). In a letter dated November 19, 2009, the USFWS stated that to the best of their knowledge, no listed, proposed, or candidate species occur in the

study area (see Appendix A). The USFWS also stated that they are adopting the Natural Heritage Program's sensitive species list and partnering with them to provide distribution data and information on the conservation needs for sensitive species to agencies or project proponents. In a letter dated February 22, 2010, the Nevada Natural Heritage Program stated there are no Federally- or State-listed threatened, endangered, or candidate species, or critical habitat within the vicinity of the Proposed Project. In addition, the Nevada Natural Heritage Program stated that all cacti, yuccas, and Christmas trees are protected by Nevada State Law (NRS 527.060-.120). The October 29, 2009, site visit confirmed, however, the site location for the Proposed Project is heavily disturbed (mostly overlain by silt and sludge deposits) and is generally devoid of all vegetation, with the exception of a few tumbleweeds and other small weeds. No cacti or Joshua Trees were observed, and their presence within the project site is highly unlikely.

Cultural Resources: The majority of the project site has been heavily disturbed since the late 1960s. Most of the property on the valley floor is or has been used for brine ponds since that time. In some areas, ponds have accumulated over 15 feet of metals sludges and salt deposits (periodically removed). Large (over 20 feet tall) salt and sludge mounds are present on the valley floor, the results of years of moving and stockpiling. The uphill areas near the plants and administrative office have been developed for decades. When mining is terminated, then reclamation would be conducted. The sludge would be spread, graded and recontoured to match the original contour of the land (which was flat) as required by the State of Nevada. The lithium plants were converted from a 19th century silver mill.

The APE for archaeological resources is defined as the construction impact area. It is unlikely archaeological resources are present within the APE since the area has been previously disturbed.

The character of the project area is industrial. The APE for architectural resources is defined as being approximately a 0.25-mile perimeter beyond the project limits. Although the majority of the Proposed Project is limited to re-use of existing ponds and construction of unobtrusive pumps, this APE takes into account the sight distances in parts of the project area that are relatively unobstructed due to the flat terrain. The total area of the APE is expected to decrease as the project plans are refined. Project plans are not yet available for this undertaking.

In the general vicinity of the project area, the only structure over 50 years of age with National Register potential is the old Silver Peak Post Office. This building is not within the APE for architectural resources. It sits between 0.5 and 1-mile west of the APE for architectural resources. This is a long side-gabled building constructed of un-coursed stone. It currently abuts a steep bank on its rear façade (northwest). The production plant for the present facility is also located to the northwest of this resource.

The front façade, which faces southeast, has three door openings and no windows. Each door opening is topped with a rough timber lintel. The roof is of frame construction with wide clapboard covered gables. The gables have a single opening covered by a vertical boarded door. The roof is clad with corrugated terne roofing.

Since there are no historic resources within the APE for either archeological or architectural resources, DOE has made a finding of No Historic Properties Affected for this undertaking. The State of Nevada Department of Cultural Affairs concurred with this finding in a letter dated December 10, 2009 (Appendix A). The Proposed Project would have a negligible adverse impact on cultural resources.

Utilities and Energy Use: The Silver Peak facility receives potable water from the Esmeralda County water system serving the community of Silver Peak. The potable water demand is primarily for consumption by operational staff. Non-potable freshwater is drawn from wells on site for process uses. All process wastewater is recycled within the fluid management system of the Silver Peak facility. Sanitary wastewater from the facility is disposed in on-site septic systems under Large Capacity Septic System Permit GNEV9201-40018 from the Nevada Division of Environmental Protection (Chemetall, 2009a).

The facility receives electric power from Nevada Energy. During 2008, the facility recorded a maximum demand of 2.54 megawatts and an average demand of 1.89 megawatts. The total annual energy usage was 16,640 megawatt-hours (NV Energy, 2009).

The increase in potable water demand by workers during construction of additional facilities would have a negligible short-term impact on the municipal supply. Sanitary wastes during construction would be disposed in portable toilets or on-site septic systems with negligible temporary effects. The expansion of operations at the Silver Peak facility would result in a small increase in operational staff, which would have a negligible impact on potable water demand and sanitary wastewater disposal.

Transportation and Traffic: The main arterials near the Silver Peak site are US Highways 95 and 6 to the east and north, and Nevada State Routes 264 and 266 to the west and south, respectively. Silver Peak is approximately 20 miles away from each. Nevada State Route 265 connects Silver Peak to US Highways 95 and 6. The town has a population of less than 300 people, and experiences little traffic. The surrounding area is very sparsely populated with between 0 to 40 people per square mile, within at least an 80-mile radius. The Chemetall plant is the only major industrial presence near the town of Silver Peak.

Traffic impacts from the construction trucks and worker vehicles would be short term and easily accommodated within existing roadway and intersection capacity. Construction would have a negligible adverse impact on transportation and traffic.

The project is not expected to require any change from the current maximum of two truck trips per day off site. The Proposed Project would generate a minor long-term increase in personal vehicle traffic due to the hiring of approximately 10 permanent employees. The additional vehicle trips to the site would be easily accommodated within existing roadway and intersection capacity, and have a negligible impact on transportation and traffic.

3.2 Resource Areas Considered Further

Environmental resource areas carried through for further consideration of the potential impact of Chemetall's Proposed Project include air quality and GHG, solid and hazardous waste, and human health and safety.

3.2.1 Air Quality and Greenhouse Gas

Air Quality Management

The purpose of the air quality analysis is to determine whether emissions from a proposed new or modified source of air pollution, in conjunction with emissions from existing sources, would cause or contribute to the deterioration of the air quality in the area. The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS include two types of air quality standards (40 CFR 50.1(e)). Primary standards protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. EPA has established NAAQS for six principal pollutants, which are called "criteria pollutants": ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM), particulate matter 10 microns or less (PM_{10}), particulate matter 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2) and lead. A state's air quality regulations may further regulate concentrations of the criteria pollutants. Table 3.2.1-1 lists the NAAQS and North Carolina and Nevada AAQS.

Table 3.2.1-1. National, North Carolina, and Nevada Ambient Air Quality Standards

Pollutant	Standard	Averaging Time	Standard Type
Carbon Monoxide	35 ppm (40 mg/m^3)	1-hour	Primary
	9 ppm (10 mg/m^3)	8-hour(1a)	
	6 ppm (7 mg/m^3)	8-hour(1b)	
Lead	0.15 µg/m^3	Rolling 3-Month Average(2)	Primary and Secondary
	1.5 µg/m^3	Quarterly Average	
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Primary and Secondary
PM_{10}	150 µg/m^3	24-hour	Primary and Secondary
	50 µg/m^3	Annual (Arithmetic Mean)(3)	
$PM_{2.5}$(4)	35 µg/m^3	24-hour	Primary and Secondary
	15.0 µg/m^3	Annual (Arithmetic Mean)	
Ozone(4)	0.10 ppm	1-hour(5)	None
	0.12 ppm	1-hour(6)	Primary and Secondary
	0.075 ppm (2008 std)	8-hour	
	0.08 ppm (1997 std)	8-hour(7)	
Sulfur Dioxide	0.5 ppm (1300 µg/m^3)	3-hour	Secondary
	0.14 ppm	24-hour	Primary
	0.03 ppm	Annual (Arithmetic Mean)	
Total Suspended Particulates(8)	75 µg/m^3	Annual (Arithmetic Mean)	Primary and Secondary
	150 µg/m^3	24-hour	
Hydrogen Sulfide(9)	0.08 ppm (112 µg/m^3)	1-hr	None

(1) In Nevada: (a) 8-hr CO standard at less than 5,000 ft above mean sea level; (b) 8-hr CO standard at or greater than 5,000 ft above mean sea level.
(2) Final rule signed October 15, 2008. Nevada regulations does not have a Rolling 3-Month Average Lead standard
(3) This is a Nevada standard.
(4) The Nevada air regulations do not have AAQS for PM2.5 and 8-hr O_3.
(5) In Nevada, 1-hour O_3 standard for Lake Tahoe Basin, #90.
(6) As of June 15, 2005. 1-hour O_3 was revoked in all areas except 14 8-hr O_3 nonattainment early action compact areas. Cleveland County, North Carolina and Esmeralda County, Nevada are not early action compact areas.
(7) The 1997 standard and its implementation rules would remain in place as EPA undertakes rulemaking to address the transition to the 2008 standard.
(8) North Carolina AAQS
(9) Nevada AAQS
µg – microgram; m – meters; mg – milligrams; ppm – parts per million
Source: EPA, 2009b; NCDENR, 2009b; and NDEP, 2009

To determine compliance with the NAAQS, emissions of criteria pollutants from a new or modified source(s) are modeled to determine their air dispersion concentrations. In addition to the six criteria pollutants outlined in the CAA, several other substances raise concerns with regard to air quality and are regulated through the CAA Amendments of 1990. These substances include hazardous air pollutants (HAPs), and toxic air pollutants such as metals, nitrogen oxides (NO_X), and volatile organic compounds (VOCs). NO_X and VOCs are precursors for O_3.

Areas that meet the air quality standard for the criteria pollutants are designated as being in attainment. Areas that do not meet the air quality standard for one or more of the criteria pollutants are designated as being in nonattainment for that standard. The CAA requires nonattainment states to submit to the EPA a State Implementation Plan (SIP) for attainment of the NAAQS (40 CFR 51.166,40 CFR 93). Maintenance areas are those that at one point had not met the NAAQS but are currently maintaining the standards through the requirements in the SIP.

The 1990 Amendments to the CAA require Federal actions to show conformance with the SIP. Federal actions are those projects that are funded by Federal agencies and include the review and approval of a Proposed Action through the NEPA process. Conformance with the SIP means conformity to the approved SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS, and achieving expeditious attainment of such standards (40 CFR, 51 and 93). The need to demonstrate conformity is applicable only to nonattainment and maintenance areas.

Class I Areas and Sensitive Receptors

For areas that are already in compliance with the NAAQS, the Prevention of Significant Deterioration (PSD) requirements provide maximum allowable increases in concentrations of pollutants, which are expressed as increments (40 CFR 52.21). Allowable PSD increments currently exist for three pollutants: SO_2, NO_2, and PM_{10} (Table 3.2.1-2).

Table 3.2.1-2. Allowable PSD Increments (μg/m^3)

Pollutant--Averaging Period	Class I Area	Class II Area
SO_2--3-Hour	25	512
--24-Hour	5	91
--Annual	2	20
NO_2--Annual	2.5	25
PM_{10}--24-Hour	8	30
--Annual	4	17

Source: 40 CFR 52.21(c)

One set of allowable increments exists for Class II areas, which covers most of the United States and another set of more stringent allowable increments exists for Class I areas. Because of their pristine environment, Class I areas require more rigorous safeguards to prevent deterioration of their air quality. For the purposes of PSD review, the Federal government has identified mandatory Class I areas, which as defined in the CAA, are the following that were in existence as of August 7, 1977: national parks over 6,000 acres, national wilderness areas and national memorial parks over 5,000 acres, and international parks (NPS, 2009a). In general, proposed projects that are within 62 miles (100 kilometers) of Class I areas must evaluate impacts of the project on air quality related values (AQRVs) such as visibility, flora/fauna, water quality, soils, odor, and any other resources specified by the Federal Land Manager (NPS, 2009b).

Overall, for the purposes of air quality analysis, any area to which the general public has access is considered a sensitive receptor site, and includes residences, day care centers, educational and health facilities, places of worship, parks, and playgrounds. Health and safety risks associated with the Proposed Project are discussed in Section 3.2.3 (Human Health and Safety).

Greenhouse Gases

Greenhouse gases (GHGs) are pollutants of concern for air quality and climate change. GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), NO_X, O_3, and several chlorofluorocarbons. Water vapor is a naturally occurring GHG and accounts for the largest percentage of the greenhouse effect. Next to water vapor, CO_2 is the second-most abundant GHG and is typically produced from human-related activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. Additionally, a number of specialized industrial production processes and product uses such as mineral production, metal production and the use of petroleum-based products can also lead to CO_2 emissions. The manufacturing of lithium carbonate (Li_2CO_3) and lithium hydroxide (LiOH) could produce CO_2 emissions.

Although regulatory agencies are taking actions to address GHG effects, there are currently no State or Federal standards or regulations limiting CO_2 emissions and concentrations in the ambient air. In response to the *FY2008 Consolidated Appropriations Act* (H.R. 2764; Public Law 110–161), EPA issued the *Final Mandatory Reporting of Greenhouse Gases Rule (*GHG Reporting Rule), which became effective on December 29, 2009. The GHG Reporting Rule requires annual reporting of GHG emissions to EPA from large sources and suppliers in the United States, including suppliers of fossil fuels or industrial GHG; manufacturers of vehicles and engines; and facilities that emit greater than 25,000 metric tons per year (mtpy) (27,558 tons per year [tpy]) each of CO_2 and other GHGs. The intent of the rule is to collect accurate and timely emissions data to inform future policy decisions and programs to reduce emissions, as well as fight against the effects of climate change.

Additionally, on September 30, 2009, EPA proposed, under the CAA New Source Review and Title V operating permit programs, new GHG thresholds that would trigger review and permitting. This proposed requirement would cover nearly 70 percent of the nation's largest stationary source GHG emitters (including power plants, refineries, and cement production facilities), while shielding small businesses and farms from permitting requirements. The proposed thresholds and requirements are currently being reviewed by Congress.

3.2.1.1 Affected Environment

3.2.1.1.1 Kings Mountain

Air Quality

The NCDENR, Division of Air Quality (DAQ), which is responsible for monitoring air quality for each of the criteria pollutants and assessing compliance, has also promulgated rules governing ambient air quality in the State of North Carolina. These rules are codified in North Carolina Air Quality Rules, 15A NCAC 2D.0400. Cleveland County is in attainment for all criteria air pollutants, including the new 8-hour ozone standard (EPA, 2009c); therefore, DOE does not need to demonstrate conformity with the State's SIP for this project.

There are eight Federal mandatory Class I areas within North Carolina and surrounding states for which the NCDENR requires a PSD review to determine potential impact; however, none of these areas are within 62 miles (100 kilometers) of the Proposed Project site. Therefore, a PSD increment and AQRV analysis for Class I area would not be required. All other areas within North Carolina's border are designated as Class II. Sensitive receptors within one mile of the Kings Mountain facility include a school and several churches.

Current and Projected Emissions

Currently, the Kings Mountain site produces lithium salts. The Kings Mountain facility operates via a Title V Major Source Permit issued by the NCDENR DAQ: Permit No. 2894T28. This permit applies to most of the equipment used and material handling process activities in the facility's manufacturing process. A Title V Major Source Permit is granted to a facility that has the potential to emit more than 100 tpy of any of the six criteria pollutants, or more than 10 tpy of any single HAP or more than 25 tpy of any combination of HAPs. The Kings Mountain facility is a Title V facility because of its potential emissions of hexane, a HAP. The facility has conducted an air toxics modeling demonstration for hexane and has determined that it could potentially emit up to 36.5 tpy of hexane without causing deterioration to the air quality; therefore, this emissions rate was set as the facility-wide limit of hexane emissions in the Title V permit. Criteria air pollutants from the facility are well below major source emissions rates. Table 3.2.1-3 below provides the actual and potential air emissions from the current operations of the lithium salt manufacturing plant. Additionally, the potential emissions from the operation of the Proposed Project are also provided.

The Kings Mountain facility currently and historically has been in full compliance with its air quality operating permits and has had no reported violations. The current site permit for the plant is valid through September 30, 2012.

In 2008, Kings Mountain facility produced 892 mtpy (982 tpy) of CO_2 from energy use and processes. Energy use accounted for 88 percent. The process of manufacturing lithium salt only produced 101 mtpy (112 tpy) CO_2. Chemetall conservatively projected that an additional 17,061 tpy of CO_2 would be emitted from the Kings Mountain facility as a result of the Proposed Project (Chemetall, 2009a). Exact emissions are not known at this time as the final technologies to be used for the process have not been finalized. Further discussions of impacts from the emissions of pollutants from the Proposed Project are in Section 3.2.1.2.

Table 3.2.1-3. Actual and Potential Emissions (tpy) from Kings Mountain

Pollutant	Actual Emissions Rate	Current Operations Potential Emissions Rate	Proposed Operations Potential Emissions Rate
CO	0.412	7.59	11.94
NO_X	0.491	9.03	4.55
SO_2	0.0029	0.054	NR(2)
VOC	4.36	54.35	0.78
PM2.5	0.084	0.65	NR(2)
PM10	0.084	17.38(1)	21.21
TSP	0.084	17.38	NR(2)
TSP as Li_2CO_3	0.046	12.37	NR(2)
Hexane	4.33	36.50	NR(2)
Total HAPs	8.83	41.07	NR(2)
Total Organic Carbon	--	--	1.56

(1) PM rates for current operations are actual and potential controlled rates. Potential uncontrolled rate for PM for current operations is 60 tpy
(2) Projected TSP, hexane, and Total HAPs are not reported in the Environmental Questionnaire. Exact emissions are not known at this time as the final technologies to be used for the process have not been finalized. The estimates for other pollutants are controlled emissions, after the scrubbers have been installed.
NR – Not Reported
Source: NCDENR, 2007b; ERM, 2009; Chemetall, 2009a; and Chemetall, 2009c.

3.2.1.1.2 Silver Peak

Air Quality

The NDEP Bureau of Air Quality Planning (BAQP), which is responsible for monitoring air quality for each of the criteria pollutants and assessing compliance, has also promulgated rules governing ambient air quality in the State of Nevada. These rules are codified in Nevada Administrative Code, Chapters 445B.001 to 445B.395. Esmeralda County is in attainment for all criteria air pollutants, including the new 8-hour ozone standard (EPA, 2009c); therefore, DOE is not required to demonstrate conformity with the State's SIP for this project.

There is one Federally-mandated Class I area in Nevada: Jarbidge Wilderness Area. The Class I area is located within the Humboldt National Forest in the northeastern portion of Nevada (NPS 2009a). This Class I area and the Class I areas in California are more than 62 miles (100 km) away from the Proposed Project site; therefore, a PSD increment and AQRV analysis would not be required. All other areas to which the PSD provisions apply are designated as Class II. Immediately bordering the Silver Peak facility to the north and west is the town of Silver Peak, which contains private residences, a small school (8 enrolled students), a Post Office, a Fire/EMS Station, a small church, a park, and a tavern. The closest occupied structures to the Silver Peak site (measured from the Administrative Office) are approximately 1,000 feet away.

Current and Projected Emissions

Currently, the Silver Peak site produces Li_2CO_3 and LiOH. The Silver Peak facility operates via a Class II Air Quality Operating Permit issued by the NDEP Bureau of Air Pollution Control: Permit No. AP1479-0050.02. This permit applies to most of the equipment used and materials handling activities in the facility's manufacturing

process. In Nevada, a Class II operating permit is typically required for facilities that have the potential to emit less than 100 tpy of any one regulated pollutant, less than 25 tpy total HAPs, or less than 10 tpy of any one HAP. Therefore, the Silver Peak facility is a minor source of air pollution. For its operating permit, the facility requested and demonstrated that it could meet the Federally-enforceable emissions cap, thereby ensuring that the facility would comply with all applicable requirements and not cause deterioration to the area's air quality.

The Silver Peak facility currently and historically has been in full compliance with their air quality operating permits and has had no reported violations. The current site permit for the plant is valid through November 13, 2011. Table 3.2.1-4 provides the actual emissions and the Federally-enforceable emissions caps from the current operations at the Silver Peak manufacturing plant. Additionally, the potential emissions from the Proposed Project are also provided.

Table 3.2.1-4. Actual and Potential Emissions (tpy) from Silver Peak

Pollutant	Actual Emissions Rate	Class II Permit Emissions Caps	Proposed Operations Potential Emissions Rate
CO	2.53	5.41	NR(3)
NO_X	27.41	59.50	NR(3)
SO_2	38.39	84.93	NR(3)
VOC	0.79	1.74	NR(3)
$PM_{2.5}$(1)	NA	NA	10
PM_{10}	6.24	10.82	10
PM	6.27	10.82	NR(3)
HAPs (Li_2CO_3)(2)	0.42	10	NR(3)

(1) PM2.5 rates are not available.
(2) Based on Toxic Release Inventory for 2008, Li_2CO_3 is the only HAP released at the site. There is no emissions cap for HAPs in the Class II operating permit. Number presented is the threshold for major source of HAPs.
(3) These emissions are not projected but are not expected to exceed the facility's emissions caps.
NR – Not Reported
Source: NDEP, 2008a; EPA, 2009d; and Chemetall, 2009a

The CO_2 emissions data is not available from the Silver Peak facility. However, based on the processes currently ongoing, it is likely that CO_2 emissions are generated from energy usage and not from the manufacturing process.

3.2.1.2 Environmental Consequences

3.2.1.2.1 No Action Alternative

The No-Action Alternative is treated in this EA as the "No-Build" Alternative. That is, under the No-Action Alternative, Chemetall would neither expand its lithium carbonate production capabilities in Silver Peak nor expand its lithium hydroxide production in Kings Mountain, because of the absence of DOE funding assistance. However, the facilities at Silver Peak and Kings Mountain would continue to emit air pollutants as described in the Section 3.2.1.1.

With the No Action Alternative, DOE would not fully meet its goal for supporting United States based manufacturing to produce advanced EDV batteries and components. With reduced DOE funding, industries may be less willing to invest in the advanced technology that would help increase production of these batteries, especially the lithium ion batteries and their components. Because of the greater energy density and lighter weight than other batteries, lithium batteries are proving to be the most promising for the commercial viability of electric vehicles (DOE, 2001). Without alternative fuel sources for automobiles, the United States will continue its dependence on and consumption of petroleum and other fossil fuels, consequentially, the current trends of increased CO_2 concentrations in the Earth's atmosphere will continue; therefore, the No Action Alternative would have a moderate adverse cumulative impact on climate change.

3.2.1.2.2 Proposed Project

At the Kings Mountain facility, only 20 acres of the existing facility's 720 acres are currently being used. The new LiOH plant would be located within an existing building, within the present acreage of the Kings Mountain facility. Construction activities would be limited to the addition of two floors onto the proposed plant building, and the addition of an 8,200 square feet packaging room to the existing building at grade level, a 15 feet wide by 60 feet long covered aisle way between the new packaging room and the existing warehouse, minor demolition activities, and the installation of a concrete walled tank farm containing six ASTs. There would be no other disturbance of land.

The Silver Peak facility site is approximately 15,000 acres in size, with the manufacturing operations located on approximately 20 acres. No new building facilities would be needed to expand production of Li_2CO_3 at the Silver Peak facility.

During the actual construction process at either facility, the equipment used to construct the Proposed Projects would intermittently emit quantities of five criteria air pollutants: CO, NO_X, SO_2, PM_{10}, and VOCs. In addition to tailpipe emissions from heavy equipment, ground surface disturbances during excavation and grading activities could potentially generate fugitive dust. Fugitive dust, such as dirt stirred up from construction sites, can affect both environmental quality and public health. The type and severity of the effects depend in large part on the size and nature of the dust particles. The types of effects that can occur to humans include inhalation of fine particles that can then accumulate in the respiratory system causing various respiratory problems including persistent coughs, wheezing, eye irritations, and physical discomfort. DOE expects the overall impacts from fugitive dust emissions would be temporary in duration and of minor intensity.

Exhaust emissions from equipment used in construction, coupled with likely fugitive dust emissions, could cause minor, short-term degradation of local air quality. DOE expects the construction of the proposed facilities at Kings Mountain, North Carolina, and Silver Peak, Nevada, would have overall short-term and minor impacts to air quality.

The Kings Mountain facility proposes to produce LiOH by using Li_2CO_3 from Chemetall's facility in La Negra, Chile or from Chemetall's facility in Silver Peak, Nevada. The Li_2CO_3 would be reacted with lime to produce LiOH. The recycled streams from the Kings Mountain operation would be concentrated and recycled internally or sent to the Silver Peak facility or other Chemetall operations to minimize waste. Current actual and projected emissions of criteria pollutants and HAPs from both facilities are well below their permitted limits. Emissions from the Kings Mountain facility would be minimized through implementation of state-of-the-art technology. Both facilities have always complied with their air operating permits, and there are no barriers to impede future compliance.

In accordance with their air operating permits, both facilities meet all ambient air quality standards. There are no Class I areas nearby either facility and because the facilities would emit less than 100 tpy of PSD-regulated pollutants (i.e., the threshold for a major source [40 CFR Part 52.21]), they would have a negligible impact to Class I and II areas. Although there are sensitive receptors nearby both facilities, the manufacturing process at both facilities is enclosed. Chemetall has demonstrated through its applications for air operating permits that dispersion of air pollutants would be limited and would not appreciably deteriorate surrounding air quality. Overall, only minor adverse impacts to air quality are expected to occur at either of the Chemetall facilities as a result of the Proposed Projects.

3.2.1.2.3 Cumulative Impacts

Other than the Proposed Projects at Kings Mountain and Silver Peak, no other projects are planned. Therefore, no reasonably foreseeable actions have been identified that would interact with the Proposed Projects to generate cumulative adverse impacts.

3.2.1.2.4 Proposed Mitigation Measures

Kings Mountain

During construction, typical mitigation measures to minimize air quality issues caused by fugitive dust and tailpipe emissions would include the following:

- Require all construction crews and contractors to comply with the State regulations for fugitive dust control during construction.
- Maintain the engines of construction equipment according to manufacturers' specifications.
- Minimize the idling of equipment while the equipment is not in use.
- Implement reasonable measures, such as applying water to exposed surfaces or stockpiles of dirt, when windy or dry conditions promote problematic fugitive dust emissions. Adhering to these best management practices (BMPs) would minimize any fugitive dust emissions. Adhering to mitigation measures and BMPs would reduce the adverse impacts from fugitive dust emissions.

During operations at the Chemetall facility, actions would be taken to ensure that the facility meets the requirements of its Title V permit. Because of the control devices used on the equipment and BMPs employed at the facility, the Kings Mountain facility currently and historically has been in full compliance with its air quality operating permits.

Silver Peak

During construction, typical mitigation measures to minimize air quality issues caused by fugitive dust and tailpipe emissions would include the following:

- Require all construction crews and contractors to comply with the State regulations for fugitive dust control during construction.
- Maintain the engines of construction equipment according to manufacturers' specifications.
- Minimize the idling of equipment while the equipment is not in use.
- Implement reasonable measures, such as applying water to exposed surfaces or stockpiles of dirt, when windy or dry conditions promote problematic fugitive dust emissions. Adhering to these BMPs would minimize any fugitive dust emissions. Adhering to mitigation measures and BMPs would reduce the adverse impacts from fugitive dust emissions.

During operations at the Chemetall facility, actions would be taken to ensure that the facility meets the requirements of its air operating permit. Because of the control devices used on the equipment and BMPs employed at the facility, historical data show actual emissions are below permitted limits. For its operating permit, the facility requested and demonstrated that it could meet the Federally-enforceable emissions cap, thereby ensuring that the facility would comply with all applicable requirements and not cause deterioration to the area's air quality.

Carbon Footprint

Both North Carolina and Nevada continue to experience increases in GHG emissions at a rate faster than the nation as a whole. In 2000, on a gross emissions consumption basis (i.e., excluding carbon sinks), North Carolina accounted for approximately 180 million metric tons (MMt) of CO_2 emissions, an amount equal to 2.5 percent of total United States GHG emissions. From 1990 to 2000, North Carolina's gross GHG emissions were up 33 percent, while national gross emissions rose by 17 percent, during this period. While North Carolina forests are a net carbon sink, the principal sources of North Carolina's GHG emissions are electricity use (including electricity imports) and transportation, accounting for 42 percent and 29 percent of North Carolina's gross GHG emissions in 2000, respectively (CCS, 2007).

Analysis of Nevada's GHG emissions indicates that for 2005 Nevada's statewide emissions totaled approximately 56.3 million metric tons of carbon-dioxide equivalents ($MMtCO_2e$), an amount approximately equal to 0.8 percent of total U.S. GHG emissions in that year. CO_2 represented approximately 91 percent of Nevada's GHG emissions, with the rest of the GHGs representing approximately 9 percent (NDEP, 2008b). Together, the combustion of fossil fuels for electricity and transportation accounted for approximately 78 percent of Nevada's gross GHG emissions. Emissions in the residential, commercial, and industrial sectors, most of which are associated with space and process heating, constituted approximately 12 percent of total emissions. Industrial process emissions (derived from non-combustion based emissions) comprised another 5 percent of emissions, and the emissions associated with agriculture, landfills and wastewater management facilities along with emissions from the fossil fuel industry together accounted for the remaining 6 percent (NDEP, 2008b). Between 1990-2005, Nevada's emissions grew from 34.1 MMtCO2e to 56.3 MMtCO2e, for an increase of approximately 65 percent, as compared to 16.3 percent growth in U.S. GHG emissions during the same period.

During construction, both Chemetall facilities would generate a minor contribution to GHGs due to the CO_2 emissions from construction equipment. During operations, the Kings Mountain facility estimates an increase of CO_2 emissions over current rates as a result of combustion of natural gas for the generation of steam for the usage in the new LiOH facility. Steam is the main heating medium for the production of the LiOH. The new *Final Mandatory Reporting of Greenhouse Gases Rule*, which became effective in December 2009, would not be applicable to either of the Chemetall facilities because neither facility would emit 25,000 mtpy or greater.

The transportation sector's primary carbon footprint continues to increase. The manufacture of EDV batteries and components would potentially increase production of electric vehicles in the United States. Electric vehicles emit no tailpipe pollutants; therefore, they can provide significant air-quality benefits to targeted regions (DOE, 1999). Overall, there would be beneficial cumulative impacts on climate change as the Proposed Projects would help the viability of the commercial market for electric vehicles; thereby reducing the carbon footprint of the transportation sector.

3.2.2 Solid and Hazardous Wastes

3.2.2.1 Affected Environment

3.2.2.1.1 Kings Mountain

The major materials used at the site include sand tailings, lithium carbonate, various salts, and acids (Table 3.2.2-1).

Table 3.2.2-1. Quantities of Materials Stored on Site – Kings Mountain Facility

Chemical	Maximum Quantity [1,2] On site (pounds)
Tailings Sand	1 billion – >1billion
Lithium carbonate	1,000,000 – 9,999,999
Lithium chloride, lithium hydroxide monohydrate, lithium bromide, hydrobromic acid, hydrochloric acid solution	100,000 – 999,999
Argon, carbon dioxide, tetrahydrofuran, lithium, lithium molybdate, manganese t-butoxide, sabalith, tetrohydrofuran &methyl magnesium chloride	10,000 – 99,999
n-Hexane, sulfuric acid	1,000 – 9,999

1. EPA, 2009e
2. Chemetall, 2009d. SARA Title II report. (Note: Submission of Tier II forms is required by Title III of the 1986, Section 312. The purpose of the Tier II form is to provide State and local officials and the public with specific information on hazardous chemicals present at the facility during the past year.)

Onsite, there is a fueling station that has two, 1,000-gallon ASTs that store diesel and gasoline. There is also a 550-gallon AST that stores used oil (Chemetall, 2007a). These tanks are covered with a roof. The facility has three acid bulk ASTs. The tanks contain hydrochloric acid (35 percent), hydrobromic acid (63 percent), and sulfuric acid (93 percent); in addition, there is a 500-gallon propane tank and a 1,000-gallon propane tank. The acid tanks have secondary containment that can hold the entire contents of the tanks (Chemetall, 2007a). Other materials are stored in ASTs, 55-gallon drums, gas cylinders, or other containers inside the facility. The facility has a Spill Prevention Countermeasures and Control (SPCC) Plan that was approved in September 2008 (Chemetall, 2007a). Due to the quantity of argon stored at the facility, the facility must comply with Emergency Planning and Community Right-to-Know Act (EPCRA) requirements and submit an Emergency and Hazardous Chemical Inventory Form (Tier II form) to the Local Emergency Planning Committee (LEPC), the State Emergency Response Commission (SERC) and the local fire department annually. The facility's most recent Tier II form for reporting year 2009 was submitted to LEPC, SERC and local fire departments on February 10, 2010.

The NCDENR, Division of Waste Management, implements North Carolina's hazardous waste and solid waste management programs and enforces the hazardous and non-hazardous waste management rules. Hazardous waste must be handled in accordance with North Carolina Administrative Code (NCAC) Chapter 13 – Solid Waste Management Subchapter 13A – Hazardous Waste Management Section 0.1000, as well as all applicable Federal regulations under 40 CFR 260-268, 273, and 279 and 29 CFR 1910.

The facility is located in EPA Region 4 and is regulated as a small quantity generator of hazardous waste (which means the facility generates more than 220 pounds, but less than 2205 pounds, of hazardous waste per month) (EPA Identification number NCD003915741) under Resource Conservation and Recovery Act (RCRA) regulations. Table 3.2.2-2 lists wastes currently generated at the site. Wastes are collected and hauled off site by licensed contractors for off-site treatment, disposal, or recycling. The primary solid waste generated is calcium carbonate (5,685.5 tpy). The facility is researching alternatives for commercial use of calcium carbonate rather than disposal. Approximately 24 tpy of solid waste generated is not recycled.

Table 3.2.2-2. Wastes Generated at Kings Mountain Facility [1,2]

Waste	Disposal Method
Various solvents (not otherwise specified)	Off-site disposal
Used Oil	Recycled off site
Scrap lithium	Recycled off site
Copper	Recycled off site; sold as scrap metal
Hexane	Recycled within process
Misc. trash /solid waste (not otherwise defined)	Off-site landfill or sold to cement factory

1. Chemetall, 2007b
2. Chemetall, 2009a

An asbestos survey performed in 1993, identified asbestos containing material (ACM) in floor tile in the Main Office and Battery Building, as well as in the transite table tops (laboratory benches) in the organic laboratories. One transite hood and a bench top were removed in 2001. Piping between the Stokes Rotary Dryer and the Vacuum Jets on the roof are assumed by the facility to contain asbestos due to the age of the piping (installed originally pre-1970). According to facility records, the ACM is in good condition and is nonfriable (Chemetall, 2007a).

No known site investigations have been performed at the property. The site is not listed on the EPA's National Priority List (NPL), which designates high-priority cleanup sites under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), more commonly known as the Superfund Program. There

are no known areas of contamination or Superfund sites within the immediate vicinity of the facility (EPA, 2009f,g,h).

3.2.2.1.2 Silver Peak

The major materials used at the site include lithium carbonate, various salts, and acids in quantities listed in Table 3.2.2-3. Materials are primarily stored in process tanks that contain lithium compounds in various strengths. There is a diesel fueling station onsite, as well as several water tanks and a hydrochloric acid tank system. The facility has a Hazardous Material Storage Permit (Permit no. 1144-2278) issued by the Nevada Fire Marshall. The facility also holds a Class 5 license (No. 5-4371-0) from the Nevada Board for the Regulation of Liquefied Petroleum Gas for its storage of liquefied petroleum gas (propane).

The site is located in EPA Region 9 and operates as a conditionally exempt small quantity generator (generates 22 pounds or less per month of hazardous waste, or 2 pounds or less per month of acutely hazardous waste) under RCRA regulations. The facility's EPA Identification Number is NVD045989902. The NDEP implements Nevada's hazardous waste and solid waste management programs and enforces the hazardous and non-hazardous waste management rules. Hazardous waste must be handled in accordance with NRS 459, as well as all applicable Federal regulations under 40 CFR 260-268, 273, and 279 and 29 CFR 1910.

The facility typically generates little or no hazardous waste. According to facility personnel the only recent generation of hazardous waste was for three mercury-contaminated charcoal filters. In the late 1990s, the facility purchased mercury laden government surplus lithium hydroxide monohydrate product to reprocess at the plant. In order to remove the mercury, the facility purchased charcoal filter canisters and installed them on several processing tank inlets. The surplus material was dissolved and passed through the liquor system, with the charcoal collecting the mercury as the fluid was processed (Chemetall, 2009e).

Table 3.2.2-3. Quantities of Materials Stored on Site – Silver Peak Facility

Chemical	Quantity (average daily amount onsite unless otherwise noted) (pounds) [1,2]
Lithium carbonate	25,000 (per year)
Lithium hydroxide solution	3,898,440
Lithium metal	140,000
Propane	59,999
Hydrochloric acid	51,460
Gasoline	23,324
Diesel fuel	10,500
Solvent (140-66/Safety Solvent)	800
Various paints and thinners	800
Mineral spirits	706
Acetylene	300
Ethylene glycol (used antifreeze)	300
Oxygen	275
Acetone	66

1. EPA, 2009e
2. Chemetall, 2008

The management of some hazardous waste at the facility is exempt from full regulation as hazardous waste if it is managed in accordance with 40 CFR Part 273, Standards for Universal Waste Management. Universal wastes generated at the facility include used oil, batteries, and fluorescent light bulbs.

All non-hazardous solid waste generated at the plant is disposed of in an on-site landfill. The landfill is permitted by the NDEP as a Solid Waste Mining Class 3 Waiver (Permit No. SWMI-06-05) that permits the facility to landfill 25,000 cubic feet per year (approximately 50,000 pounds). The facility currently has one active landfill cell that is 30 feet by 8 feet. Hazardous wastes and universal wastes are collected and transported off site for disposal or recycling in accordance with Federal, State, and local regulations.

No Phase I/II Environment Site Assessments have been performed at the facility; however, the facility is conducting on-site remediation for petroleum contaminated soil. Petroleum contaminated soil at the site resulted from spills, leaks, and drips of various petroleum hydrocarbon products used at the site. The facility prepared a Petroleum Contaminated Soil (PCS) Management Plan (June 2009) that documents spills at the site from 1997 to 2006. The largest spill was in 1997 for 2,400 gallons of No. 4 fuel oil that resulted from a valve failure. The spill occurred in January and due to weather conditions, fortunately, 1,600 gallons were recovered and reused at the facility and 800 gallons were recycled off site by a recycler. A 200-gallon spill of diesel fuel occurred in 2001. Seven other spills at the site were documented to be less than 20 gallons of gasoline, oil, or diesel fuel (Chemetall, 2009b).

The facility currently operates two bioremediation cells for the treatment of hydrocarbon contaminated soil under General Permit No. GNV041995, HGP20, issued in 1995. The facility conducts bi-annual sampling of its bio-remediation facility. The most recent soil samples were collected from two individual cells in December 2008. Composite soil samples were analyzed for total petroleum hydrocarbons (TPH). The sampling results indicate concentrations of 494 ppm in C10-C22 and 500 ppm in C22-C36 in the sample from the SR Biopad. The second analysis indicates concentrations of 1,920 ppm in C10-C22 and 5,380 ppm in C22-C36 in the sample from the CFC Biopad (Chemetall, 2009d). Sampling results since 1997, show a trend of decreasing concentrations of diesel and oil in the CFC Biopad until December 2007 (257 ppm (diesel) and 279 ppm (oil)) but then increasing in samples collected in June 2008 (3,270 ppm (diesel) and 2,600 ppm (oil)) and in December 2008 (composite total TPHs ranging from 1,920 ppm to 5,380 ppm). In the SR Biopad, concentrations of diesel showed a decreasing trend since 1997. Oil concentrations in the SR Biopad generally decreased until 2004, but showed an upward trend from 2005 to 2007, with concentrations ranging from 1,050 ppm to 3,560 ppm during this time (Chemetall, 2009f).

In correspondence with the NDEP in June 2009, Chemetall Corporation submitted its PCS Management Plan to replace their existing permit (No. GNV041995). The facility has been in correspondence with the NDEP since June 2009, regarding their PCS Management Plan and permit renewal.

The site is not listed on the EPA's NPL, which designates high-priority cleanup sites under CERCLA, more commonly known as the Superfund Program. There are no known off-site properties with areas of contamination or Superfund sites within the immediate vicinity of the facility (EPA, 2009i,j,k)

3.2.2.2 Environmental Consequences

3.2.2.2.1 No Action Alternative

Kings Mountain

Under the No Action Alternative, the facility would continue its current operations and would generate the same types and quantities of hazardous and non-hazardous wastes. Wastes would continue to be collected and transported for off-site disposal or recycling in accordance with Federal, State, and local regulations.

Silver Peak

Under the No Action Alternative, the facility would continue its current operations and would generate the same types and quantities of hazardous and non-hazardous wastes. Hazardous waste and universal wastes would continue to be collected and transported for off-site disposal or recycling in accordance with Federal, State, and local regulations. Non-hazardous waste would continue to be placed in the on-site landfill. The facility would continue to conduct bi-annual sampling of its bio-remediation facility and coordinate with the NDEP regarding its PCS Management Plan and permit renewal.

3.2.2.2.2 Proposed Project

Kings Mountain

Construction

Under Chemetall's Proposed Project, the existing facility would be renovated and extended two floors in height. New construction would include an 8,200 square foot addition that would be connected to the existing building at grade level for a packaging room, and a 15 feet wide by 60 feet long covered aisle-way that would be constructed between the new packaging room and the existing warehouse. There would be minor demolition activities to prepare for the new construction. All new construction would occur on previously disturbed land. If renovation is required of areas where ACM is present, the renovation would be completed in accordance with Federal and State regulations by a contractor certified to handle ACM. Minor amounts of solid waste and sanitary waste would be generated from the renovations and would be common construction-related waste streams. In-state or out-of-state landfills or recycling facilities would have the capability and capacity to accept these wastes. Proposed operations at the new facility would require additional materials from what the facility is currently using. A concrete walled tank farm containing six new ASTs would be erected adjacent to the proposed plant on previously disturbed land. Two ASTs would have a capacity of 13,700 gallons and would store weak lithium hydroxide solution. An additional two 18,900-gallon ASTs would store process condensate water and weak lithium hydroxide solution (weak liquor solution). The fifth AST (36,200 gallons) would serve as a strong liquor tank storing strong lithium hydroxide solution. The sixth AST (11,600 gallons) would store a neutralized waste water stream prior to disposal or recycling. The six ASTs would be sited adjacent to the existing building where the lithium hydroxide plant would be established within the processing plant boundaries. Tanks that are external to the building would be located in a contained (110 percent of largest volume) diked area. Any potential overfills would be conducted to a drain and sump via an overflow line sized for potential overfill rate. These systems would be monitored and an alarm sounded and equipment shut down in order to mitigate these potentials hazards as well as to alert operations to non-normal situations. The addition of the six ASTs would require the facility to update its SPCC Plan to include the capacity and location of each AST, the potential for a release from one of the ASTs, and measures to be taken to avoid a release to the environment and to respond if a release should occur. If any of these materials would be stored in excess of 10,000 pounds, the facility would be required to submit a Tier II form to the LEPC, SERC and local fire departments in accordance with EPCRA regulations. Underground storage tanks would not be constructed for the Proposed Project. Construction of the Proposed Project would have a minor impact on solid and hazardous waste.

Operations

Once operational, the quantity of hazardous and non-hazardous waste generated at Chemetall's Kings Mountain facilities would increase, but the types of wastes would be similar to the wastestreams currently generated there. Lithium carbonate feed stock would be imported from Chemetall's facility in La Negra, Chile and from Chemetall's facility in Silver Peak, Nevada. Lithium waste streams from the Kings Mountain operation would be concentrated and recycled internally, or it would be recycled at Silver Peak or another Chemetall facility. Potentially acidic streams of process wastewater would be neutralized in the 11,600 gallon AST prior to release to the sewer or prior to transport off site to an approved liquid waste disposal facility. Other wastes generated would be common industrial wastes that would be accepted by treatment, storage, and disposal (TSD) facilities. Although specific TSD facilities have not been identified, it is likely that Chemetall would use TSD vendors currently accepting waste from the facility. RCRA waste would not be treated or disposed of onsite. The facility

currently operates as a small quantity generator of hazardous waste regulated by Federal and State regulations. An increase of hazardous waste generated could be managed with adequate accumulation area(s) and collection for off-site transport, storage, and disposal. If new operations cause the facility to generate more than 2,200 pounds (1,000 kilograms) of hazardous waste or more than 2.2 pounds (1 kilogram) of acute hazardous waste per calendar month, the facility would be regulated as a large quantity generator of hazardous waste and must comply with applicable Federal and State regulations.

Non-hazardous waste would be generated in quantities above those currently generated. Chemetall estimates that 50 tpy of non-hazardous waste would be generated. The handling and storage of non-hazardous waste would be similar to current operations, namely, the waste would be collected in containers, dumpsters, or large cloth bags for off-site disposal or for recycling. Operations of the Proposed Project would have a minor impact on non-hazardous and hazardous wastes generation rates and management.

Silver Peak

Construction

Under Chemetall's Proposed Project, existing lithium brine ponds would be expanded through recovering old ponds and rebuilding the dikes (earth work). The expansion and recovering of the ponds would require the dredging of deposits of salt and "muds" (sand mixed with magnesium and calcium sludges). The dredged material would be placed onsite in the Lime Solids Pond. Construction of new brine production wells would require soil placement for drill pads. Dikes would be built from on-site materials; therefore, no additional land disturbance or acquisition of new land is required for this action (Chemetall, 2009a). Modifications to the existing carbonate plant would generate non-hazardous waste that would be placed in the on-site landfill. Construction of the Proposed Project would have a negligible impact on non-hazardous and hazardous wastes.

Operations

Once operational, the quantities of hazardous and non-hazardous wastes generated could increase, but these waste streams would be similar to those currently generated. Wastes that would be generated would be common industrial wastes. The facility has a permit to operate an on-site landfill for the non-hazardous wastes. Chemetall estimates that 5 tpy of additional non-hazardous waste would be generated (Chemetall, 2009a), and the on-site landfill has the capacity to accept this waste. The quantity and type of any additional hazardous waste that would be generated during operations of the Proposed Project would be acceptable to TSD facilities. Although specific TSD facilities have not been identified, it is likely that Chemetall would use TSD vendors currently accepting waste from the facility. RCRA waste would not be treated or disposed of onsite. The plant currently operates as a Conditionally Exempt Small Quantity Generator of hazardous waste regulated by Federal and State regulations; therefore, an increase of hazardous waste generated could be managed with adequate accumulation area(s) and collection for off-site TSDs. If new operations cause the facility to significantly increase the amount of hazardous waste generated, the facility's regulatory status could change to either a Small Quantity Generator or a Large Quantity Generator of hazardous waste. If their generator status changes, the facility would have to comply with applicable Federal and State regulations.

3.2.2.3 Cumulative Impacts

Other than the Proposed Projects at the Chemetall facilities in Kings Mountain and Silver Peak, no other projects are planned. Therefore, no reasonably foreseeable actions have been identified that would interact with the Proposed Project to generate cumulative adverse impacts.

3.2.2.4 Proposed Mitigation Measures

Kings Mountain

Construction

During construction, preventative measures such as fencing around the construction site, establishing contained storage areas, and controlling the flow of construction equipment and personnel would reduce the potential for a release of a hazardous substance. In the event that a release occurs, immediate action would be taken to contain and clean up the released material in accordance with Federal, state, and local regulations.

Measures would be taken to ensure worker safety with regards to exposure to ACM during renovations. If renovation occurs in areas where ACM is present, the facility would ensure that ACM removal or repair is conducted by a contractor certified in the handling of ACM.

Operations

Hazardous waste materials would be sent off site for recycling, or treated and disposed of at a hazardous waste disposal facility or landfill. As a Small Quantity Generator of hazardous waste, the facility must adhere to Federal and State regulations for the safe handling and disposal of hazardous and non-hazardous waste generated at the facility. An updated SPCC Plan would address the potential for a release from one of the five new ASTs proposed and would include appropriate procedures to follow in the event of a release to the environment.

Silver Peak

Construction

During construction, preventative measures such as fencing around the construction site, establishing contained storage areas, and controlling the flow of construction equipment and personnel would reduce the potential for a release of a hazardous substance. In the event that a release occurs, immediate action would be taken to contain and clean up the released material in accordance with Federal, State, and local regulations.

Operations

Any hazardous waste generated at the facility would be sent off site for recycling, or treated and disposed of at a hazardous waste disposal facility or landfill. As a Conditionally Exempt Small Quantity Generator of hazardous waste, the facility must adhere to Federal and State regulations for the safe handling and disposal of hazardous and non-hazardous waste generated at the facility. All non-hazardous solid waste generated at the plant would be disposed of in an on-site permitted landfill.

Site remediation for petroleum contaminated soil is ongoing at the facility. Chemetall has a PCS Management Plan (June 2009) and operates two bioremediation cells for the treatment of hydrocarbon contaminated soil.

3.2.3 Human Health and Safety

3.2.3.1 Affected Environment

3.2.3.1.1 Kings Mountain

The principal hazards associated with Chemetall's existing plant operations are contained within buildings and secure areas of the property. The Casting Facility Hazard Assessment was updated September 22, 2008 and outlines potential hazards associated with the melt area, dry rooms, and other areas of the facility, as well as safety procedures and personal protective equipment to be used. The greatest sources of hazard associated with the facility include the high temperatures (482 °F) required to maintain lithium in a molten state, as well as the potential for chemical burns from sulfamic acid and lithium hydroxide. The Hazard Assessment also notes that lithium presents a potential fire, thermal (when heated), and chemical hazard when not contained within the drums, tanks, and lines of the system. Furthermore, the reactive nature of lithium mandates that no water be permitted in the work areas other than under controlled conditions. Some additional hazards associated with the

current production of lithium chloride and lithium bromide, include chemical burns from hydrochloric and hydrobromic acids. Emergency Control Plans are in place, and all employees are trained to respond appropriately in the event an accidental spill of either acid were to occur.

Chemetall maintains a Safety Plan for the Kings Mountain facility (Chemetall, 2009a).

3.2.3.1.2 Silver Peak

Chemetall prepared a Safety Manual that includes an Emergency Response Plan for the Silver Peak facility in June 1999, which was last revised in August 2007 (Chemetall, 2007b). The plan provides a risk and vulnerability assessment that rates hazards from low to high for probability and severity. The greatest hazards would be associated with a propane tank failure or a boiler explosion, which were both rated high for severity but low for probability. Hazards rated as having both moderate probability and moderate severity include the potential for a propane line failure, a hydrochloric acid spill, and a hydroxide spill (either solution or powder). The area has a low probability for earthquake hazards. The plan outlines safety procedures, communications, and response procedures, including evacuation procedures, to protect workers from hazardous conditions. The facility's Safety Manual addresses the safe handling of materials, including hydrochloric acid, lithium carbonate, lithium hydroxide monohydrate, and lithium hydroxide anhydrous. The Safety Manual describes potential hazards associated with handling these and other materials as well as the personal protective equipment necessary when handling the materials, emergency response actions to be followed in the event of a release, and spill containment and control if a spill of a liquid material should occur. The Safety Manual also includes a Site Security Plan that outlines procedures to follow to prevent unauthorized access to the property.

The facility is located in an unoccupied area separated from residential communities. Evaporation ponds and process facilities are surrounded by security fencing to restrict public access to pond materials. The facility is below regulatory thresholds for an Air Risk Management Plan.

3.2.3.2 Environmental Consequences

3.2.3.2.1 No Action Alternative

Under the No Action Alternative, plant construction and operations would not occur; therefore, there would be no change to the potential for impacts on human health and safety at the Kings Mountain or Silver Peak sites.

3.2.3.2.2 Proposed Project

Kings Mountain

The Proposed Project would add a process to convert lithium carbonate to lithium hydroxide comparable to processes already existing at the Kings Mountain facility and addressed in the Safety Plan. Any new safety issues would be addressed in the Safety Plan and in a Hazard Assessment to ensure that appropriate procedures and equipment would be provided to protect workers. In comparison to the risks associated with existing processes as described in Section 3.2.3.1.1 above and already addressed in the Safety Plan, the additional processes and facilities would cause a minor relative increase in risks to human health and safety, primarily affecting plant employees.

Lithium hydroxide monohydrate is caustic and can cause severe irritation and corrosive damage to the skin, eyes, and tissues of the respiratory system. Care must be taken to avoid contact with skin, eyes, and the body in general. Hazards include chemical burns in the solid form and both chemical and thermal burns in the solution phase (processing is mostly done at temperatures above 140 °F). Inhalation of airborne lithium hydroxide monohydrate dust may severely irritate or damage the tissues of the eyes, nose, and respiratory system. Symptoms of such overexposure can include excessive coughing (potentially to the point of vomiting), sneezing, and a sore throat. Inhalation of relatively large quantities of lithium hydroxide monohydrate may damage the tissues of the respiratory system, which can lead to the development of breathing difficulty, chemical pneumonia, and pulmonary edema (a potentially life-threatening accumulation of fluid in the lungs). Severe inhalation

overexposure may be fatal. In comparison, lithium carbonate is a minor irritant to mucus membranes for some individuals. Repeated exposure to the skin can also lead to drying of the skin and contact dermatitis. Prior to start-up of the facility, Chemetall would perform a Hazard Assessment that would identify the appropriate PPE to protect employees in the work environment. Chemetall would acquire the PPE and train employees in its proper use, care, and limitations.

The packaging of the lithium hydroxide monohydrate product would be highly automated and utilize good manufacturing practices with respect to dust collection and handling. Material bins and hoppers would have their own dust collection systems to mitigate fugitive dust exposure. Additionally, definition of required PPE would be based on current experience at the existing Chemetall operation in Silver Peak. In addition to the required PPE for general and specific tasks, the plant is being designed to minimize the potential operator contact with hazardous materials (i.e., automatic sampling of materials and on-line analysis of solutions). Additionally, a collection system for vapors from the hotter processing vessels would be installed to remove potentially irritating vapors from the building. Some operators on each shift would be additionally trained so that they can respond safely to any releases of the chemicals in the process, using preplanned procedures and the appropriate PPE. Personnel on each shift also would be trained in first aid, including cardio-pulmonary resuscitation.

Based on experiences at other facilities producing lithium hydroxide monohydrate, potential accidents include the following:

- Overfilling of vessels - Addressed in this facility by degree of automation, system interlocks, and alarms.
- Thermal and Chemical burns - Addressed via automated system design, operator training, required PPE and pre-startup Hazard Assessment and review.
- Lifting injuries (especially back strain) - Addressed via automated material handling systems and installation of assisted lifting equipment for maintenance requirements (i.e. monorails with hoists over heavy equipment, fork truck accessibility for moving materials and finished product, etc.).

Materials (lithium carbonate and slaked lime) are supplied in super sacks (also called maxisacks). Slaked lime is also supplied via pneumatic tanker trucks. The finished product is a dry powder stored in bags. Based on experience with existing lithium hydroxide monohydrate facilities, the most likely transport hazard is the puncture of a bag or several bags in a fork truck accident. Operator training and experience would help to minimize the potential for accidents. The facility has an existing forklift operator training and qualification program, providing qualified trainers for forklift operations. Additionally, the planned stretch-wrapping of the bagged materials would help to contain the potentially leaking material. Planned inspection of product prior to loading on trucks for shipment to customers would help avoid general public exposure to the product. Finished product would be shipped via truck in the following containers:

- 20-kilogram (kg) heat sealed, stretch-wrapped paper sacks; 1,000 kg per wooden pallet.
- 25-kg heat sealed, stretch-wrapped paper sacks; 1,000 kg per wooden pallet.
- 50-lb heat sealed, stretch-wrapped paper sacks; 2,000 lbs per wooden pallet.
- 100-kg plastic-lined fiber drums with sealed top.
- Various sized super sacks (340-kg to 1,000-kg) on wooden pallets

Because critical hourly or daily functions of strategic importance to the national economy are not reliant on plant operations, the King's Mountain facility is not considered a potential target for intentional destructive acts. Although the supply of lithium (hydroxide) compounds could be interrupted temporarily by a destructive act, the interruption would be relatively brief and would not be expected to have lasting effects on the economy. The plant is secured against public access and buffered by distance from residential areas. The potential for impacts of an intentional destructive act on human health and safety would be reduced through implementation of procedures in the Safety Plan.

Silver Peak

The Proposed Project would expand processes and facilities comparable to those existing at the Silver Peak location that are addressed in the Emergency Response Plan. The facility's Safety Plan addresses the safe handling of on-site materials and the appropriate procedures to follow in the event of an accidental release. Lithium carbonate, a material that would be used as part of the Proposed Project, is a slightly caustic material that can cause irritation to the skin and eyes. The Silver Peak facility would incorporate lithium carbonate in to its Safety Plan. The potential for impacts would be limited to on-site employees who are trained in the proper handling and response procedures to follow; further, exposure would be avoided by the use of the personal protective equipment (e.g., gloves and goggles). Therefore, there would only be a low potential for impacts from exposure to materials handled at the Silver Peak facility would be expected.

Because of its remote location isolated from centers of population and because critical hourly or daily functions of strategic importance to the national economy are not reliant on plant operations, the Silver Peak facility is not considered a potential target for intentional destructive acts. Although the supply of lithium carbonate could be interrupted temporarily by a destructive act, the interruption would be relatively brief and would not be expected to have lasting effects on the economy. The potential for impacts of an intentional destructive act on human health and safety would be reduced through implementation of procedures in the Emergency Response Plan.

3.2.3.3 Cumulative Impacts

Other than the Proposed Projects at the Chemetall facilities in Kings Mountain and Silver Peak, no other projects are planned. Therefore, no reasonably foreseeable actions have been identified that would interact with the Proposed Project to generate cumulative adverse impacts.

3.2.3.4 Proposed Mitigation Measures

During construction at both the Kings Mountain and Silver Peak facilities, safety measures such as fencing around the construction site, establishing contained storage areas, and controlling the movement of construction equipment and personnel would reduce the potential for an accident to occur.

Both facilities would incorporate new operations into their Emergency and Safety Response Plan that would be implemented in the event of an emergency, including an unintentional release of materials to the environment.

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Appendix A

Agency Consultation

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
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November 18, 2009

Ms. Pierina N. Fayish
DOE Project Manager
National Energy Technology Laboratory
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Pittsburg, PA 15236

Dear Ms. Fayish:

Subject: Proposed Electric Drive Vehicle Battery and Component Manufacturing Facility, Kings Mountain, Cleveland County, North Carolina

In your letter of November 3, 2009, you requested our comments about the subject project. The following comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C.§4321 et seq.) and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

According to your letter, the Department of Energy's National Energy Technology Laboratory is proposing to fund the subject project under the American Reinvestment and Recovery Act. The proposed project is located in Cleveland County, North Carolina, south of Kings Mountain within the existing Chemtall Foote Corporation industrial park. The proposed project involves the construction of a manufacturing facility on about 20 acres within an existing manufacturing area. A draft environmental assessment is being prepared.

Endangered Species. According to our records and a review of the information you provided, no federally listed species or their habitats occur on the subject site. Therefore, we believe the requirements under section 7 of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of these identified actions that may affect listed species or critical habitat in a manner not previously considered, (2) these actions are subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified actions.

Erosion Control and Wetland/Stream Protection. The treatment of stormwater leaving the project area is a concern. We recommend installing and maintaining stringent measures to control erosion and sediment in order to prevent unnecessary impacts to aquatic resources downstream of the project site. Perimeter erosion-control devices should be installed prior to any on-the-ground activities. Frequent maintenance of these devices is critical to their proper function in order to minimize sediment discharge from the project site.

Impervious Surfaces/Low-Impact-Development (LID) Techniques. The expansion of urban/suburban/industrial areas creates impervious surfaces (such as roofs, roads, and parking lots) that collect pathogens, metals, sediment, and chemical pollutants and quickly transmit them (via stormwater runoff) to receiving waters. According to the Environmental Protection Agency, this nonpoint-source pollution is one of the major threats to water quality in the United States, posing one of the greatest threats to aquatic life, and is linked to chronic and acute illnesses in human populations from exposure through drinking water and contact recreation. Increased stormwater runoff also directly damages aquatic and riparian habitat, causing stream-bank and stream-channel scouring. In addition, impervious surfaces reduce groundwater recharge, resulting in even lower than expected stream flows during drought periods that can induce potentially catastrophic effects for fish, mussels, and other aquatic life. Accordingly, we recommend that all new developments, regardless of the percentage of impervious surface area they will create, implement stormwater retention and treatment measures designed to replicate and maintain the hydrograph at the preconstruction condition in order to avoid any additional impacts to habitat quality within the watershed.

We recommend the use of LID techniques, such as reduced road widths, grassed swales in place of curb and gutter, rain gardens, and wetland retention areas, for retaining and treating stormwater runoff rather than the more traditional measures, such as large retention ponds, etc. These designs often cost less to install and significantly reduce environmental impacts from residential development.

Where detention ponds are used, stormwater outlets should drain through a vegetated area prior to reaching any natural stream or wetland area. Detention structures should be designed to allow for the slow discharge of stormwater, attenuating the potential adverse effects of stormwater surges; thermal spikes; and sediment, nutrient, and chemical discharges. Also, because the purpose of stormwater control measures is to protect streams and wetlands, no stormwater control measures or best management practices should be installed within any stream (perennial or intermittent), wetland, or (when practicable) riparian area.

We also recommend that consideration be given to the use of pervious materials (i.e., pervious concrete, interlocking/open paving blocks, etc.) for the construction of roads, driveways, sidewalks, etc. Pervious surfaces minimize changes to the hydrology of the watershed and can be used to facilitate groundwater recharge. Pervious materials are also less likely to absorb and store heat and allow the cooler soil below to cool the pavement (thus preventing heated water from entering adjacent waterways). Additionally, pervious concrete requires less maintenance and is less susceptible to freeze/thaw cracking due to large voids within the concrete.

Stream Buffers

Natural, forested riparian buffers are critical to the health of aquatic ecosystems. They accomplish the following:

1. catch and filter runoff, thereby preventing nonpoint-source pollutants from reaching streams;
2. enhance the in-stream processing of both point- and nonpoint-source pollutants;
3. act as "sponges" by absorbing runoff (which reduces the severity of floods) and by allowing runoff to infiltrate and recharge groundwater levels (which maintains stream flows during dry periods);
4. catch and help prevent excess woody debris from entering the stream and creating logjams;
5. stabilize stream banks and maintain natural channel morphology;
6. provide coarse woody debris for habitat structure and most of the dissolved organic carbon and other nutrients necessary for the aquatic food web; and
7. maintain air and water temperatures around the stream.

Forested riparian buffers (a minimum 50 feet wide along intermittent streams and wetlands and 100 feet wide along perennial streams [or the full extent of the 100-year floodplain, whichever is greater]) should be created and/or maintained along all aquatic areas. Impervious surfaces, ditches, pipes, roads, utility lines (sewer, water, gas, transmission, etc.), and other infrastructures that require maintained, cleared rights-of-way and/or compromise the functions and values of the forested buffers should not, if at all possible, occur within these riparian areas.

Thank you for allowing us to comment on this project. Please contact Mr. Allen Ratzlaff of our staff at 828/258-3939, Ext. 229, if you have any questions. In any future correspondence concerning this project, please reference our Log Number 4-2-10-022.

cc:
Mr. Ron Linville, Western Piedmont Region Reviewer, North Carolina Wildlife Resources Commission, 3855 Idlewild Road, Kernersville, NC 27284-9180
Ms. Robin Griffin, Potomac-Hudson Engineering, 7830 Old Georgetown Road, Suite 200, Bethesda, MD, 20814

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Natural Resources Planning and Conservation

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November 16, 2009

Robin Griffin
Potomac-Hudson Engineering
7830 Old Georgetown Road, Suite 220
Bethesda, MD 20814

Subject: Request for Informal Consultation under Section 7 of the Endangered Species Act

Dear Robin Griffin:

The only NC Natural Heritage Program records of rare species, significant natural communities, significant natural heritage areas, or managed areas within two miles of the project area are associated with Crowders Mountain State Park. The record of Bear Oak (Quercus ilicifolia) referenced in your letter of 3 November 2009 is based on observations of this species at Crowders Mountain State Park, which is approximately 2 miles to the east of the American Reinvestment and Recovery Act Electric Drive Vehicle Battery and Component Manufacturing Facility project area.

Although no rare species have been reported from the immediate project area, the use of Natural Heritage Program data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species, significant natural communities, or priority natural areas.

We appreciate your interest in Natural Heritage Program data. If you have any questions or need additional information, please contact me at (919) 715-8700.

Sincerely,

Misty Buchanan

Misty Buchanan, Botanist
Natural Heritage Program

cc: Pierina Fayish, DOE Project Manager

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Natural Resources Planning and Conservation

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 19, 2009
File No. 2010-SL-0055

Ms. Robin Griffin
Potomac-Hudson Engineering
7830 Old Georgetown Road, Suite 220
Bethesda, Maryland 20814

Dear Ms. Griffin:

Subject: Species List Request for Electric Drive Vehicle Battery and Component Manufacturing Facility, Esmeralda County, Nevada

This responds to your letter received on November 9, 2009, requesting a species list for the Electric Drive Vehicle Battery and Component Manufacturing Facility in Esmeralda County, Nevada. To the best of our knowledge, no listed, proposed, or candidate species occur in the subject project area. This response fulfills the requirements of the Fish and Wildlife Service (Service) to provide a list of species pursuant to section 7(c) of the Endangered Species Act of 1973 (Act), as amended, for projects that are authorized, funded, or carried out by a Federal agency.

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 sensitive species list for Nevada maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we are adopting Heritage's sensitive species list and partnering with them to provide distribution data and information on the conservation needs for sensitive 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. Consideration of these sensitive species and exploring management alternatives early in the planning process can provide long-term conservation benefits and avoid future conflicts.

TAKE PRIDE IN AMERICA

For a list of sensitive species by county, visit Heritage's website at www.heritage.nv.gov. For a specific list of sensitive species that may occur in the project area, you can obtain a data request form from the website or by contacting 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 Act. 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 (see http://www.leg.state.nv.us/NAC/NAC-503.html). Before a person can hunt, take, or possess any parts of wildlife species classified as protected, they must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (visit http://www.ndow.org or call 702-486-5127).

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.

Please reference File No. 2010-SL-0055 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact me or James Harter at (775) 861-6300.

Sincerely,

Marcy Haworth

for Robert D. Williams
State Supervisor

cc:
DOE Project Manager, National Energy Technology Laboratory, Pittsburgh, Pennsylvania

JIM GIBBONS
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
Reno, Nevada 89512
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KENNETH E. MAYER
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SOUTHERN REGION OFFICE
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(702) 486-5127 · Fax (702) 486-5133

March 17, 2010

NDOW-SR #: 10-270
LVO-10-055

Robert Naumann, Project Manager
Potomac-Hudson Engineering, Inc.
7830 Old Georgetown Road, Suite 220
Bethesda, MD 20814

Re: Request for Sensitive Species Information for a Department of Energy Project near Silver Peak, Nevada Located in All Sections of Township 2 South, Range 39 East

Dear Mr. Naumann:

The Nevada Department of Wildlife (Department) did not identify any wildlife occurring in the project area which are protected under the federal Endangered Species Act of 1973 (ESA), as amended, or classified by the State of Nevada as protected and further classified as sensitive, threatened, or endangered. Of note, our records search for birds protected under the Migratory Bird Treaty Act was limited to raptors, but a variety of other species (e.g. passerines) are expected to occur in the project area. The nearest raptor nests occur outside of the project area in Sections 25 and 34 of T2S, R38E. Further, the project overlaps with the distributional range of mule deer and desert bighorn sheep in Sections 3-10, 15-22 and 28-31 of T2S, R39E.

Because the federal Endangered Species Act includes species beyond the mandate of the Department, the U.S. Fish and Wildlife Service should be contacted for a complete list of animal and plant species which potentially occur in the project area. The nearest office can be contacted at:

U.S. Fish and Wildlife Service
Nevada Ecological services
4701 N. Torrey Pines Drive
Las Vegas, NV 89130
(702) 515-5230

Thank you again for this input opportunity. Should there be any question please contact Biologist Tracy Kipke at (702) 486-5127 x3612 or by e-mail at tkipke@ndow.org.

Sincerely,

D. Bradford Hardenbrook
Supervisory Habitat Biologist

TK/DBH
Cc: NDOW, Files

ALLEN BIAGGI
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

JIM GIBBONS
Governor

Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, Suite 5002
Carson City, Nevada 89701-5245
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tel: (775) 684-2900
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Nevada Natural Heritage Program

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Nevada Natural Heritage Program

http://heritage.nv.gov

22 February 2010

Pierina N. Fayish
U.S. Department of Energy
National Energy Technology Laboratory
PO Box 10940
Mailstop B922/M218
Pittsburgh, PA 15236

RE: Data request received 22 February 2010

Dear Mr. Fayish:

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 Chemetall Foot, Silver Peak Project. We searched our database and maps for the following, a five kilometer radius around:

Township 02S Range 39E Sections All

There are no at risk taxa recorded within the given area. However, habitat may be available for: the Eastwood milkweed, *Asclepias eastwoodiana*, a Nevada Bureau of Land Management Sensitive Species; the squalid milkvetch, *Astragalus serenoi* var. *sordescens*, a Taxon determined to be Imperiled by the Nevada Natural Heritage Program (NNHP); and the Candelaria blazingstar, *Mentzelia candelariae*, a Taxon determined to be Vulnerable by the NNHP. We do not have complete data on various raptors that may also occur in the area; for more information contact Chet VanDellen, Nevada Department of Wildlife at (775) 688-1565. Please note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including species not tracked by this office.

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

December 10, 2009

Robin Griffin
Potomac-Hudson Engineering
7830 Old Georgetown Road
Suite 220
Bethesda, MC 20814

Re: Advanced Battery Supplier Manufacturing Facilities Environmental Assessment, Chemetall Foote, Kings Mountain, Cleveland County, ER 09-2792

Dear Ms. Griffin:

We have received notification of the above project from National Energy Technology Laboratory.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

Renee Gledhill-Earley

Peter Sandbeck

STATE OF NEVADA
DEPARTMENT OF CULTURAL AFFAIRS
State Historic Preservation Office
100 N. Stewart Street
Carson City, Nevada 89701
(775) 684-3448 • Fax (775) 684-3442
www.nvshpo.org

JIM GIBBONS
Governor

MICHAEL E. FISCHER
Department Director

RONALD M. JAMES
State Historic Preservation Officer

December 10, 2009

Robin Griffin
Potomac-Hudson Engineering
7830 Old Georgetown Road Suite 220
Bethesda MD 20814

RE: Expansion of the Silver Peak Lithium Carbonate Manufacturing Facility, Esmeralda County. Undertaking #2010-081.

Dear Robin Griffin:

The Nevada State Historic Preservation Office (SHPO) reviewed the subject undertaking. In order to determine the archaeological sensitivity of the project area, the SHPO consulted the online statewide archaeological inventory (NVCRIS). According to these records, the project area has not been inventoried for cultural resources and no sites have been previously recorded in the vicinity of the project area. Given the disturbances visible in the aerial photos included with your submission, it is unlikely that an intact historic property would be present in the project area.

The SHPO concurs with the U.S. Department of Energy determination that no historic properties will be affected by the subject undertaking.

If buried and previously unidentified resources are located during project activities, the SHPO recommends that all work in the vicinity cease and this office be contacted for additional consultation per 36 CFR 800.13.b.3. and NRS 383.150-383.190.

If you have any questions concerning this correspondence, please contact me by phone at (775) 684-3443 or by e-mail at Rebecca.Palmer@nevadaculture.org.

Sincerely,

Rebecca L Palmer

Rebecca Lynn Palmer
Review and Compliance Officer, Archaeologist