



**United States Department of the Interior
Bureau of Land Management
Winnemucca Field Office**

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LONE TREE MINE MOSQUITO ABATEMENT

**Environmental Assessment
NV – 020-04-32**

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MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific and cultural values.

ENVIRONMENTAL ASSESSMENT

Proposed Lone Tree Mosquito Abatement Program

I. Description of the Alternatives Including the Proposed Action

A. Introduction

The Lone Tree Mine operation is located on the divide between the Pumpnickel and Clovers basins west and south of Lone Tree Hill (Figure 1). The facility is located along the southwest margin of the Humboldt River flood plain approximately fifteen miles northwest of Battle Mountain. The Mine is located about two miles south of the Humboldt River in a wide, low gradient portion of the river valley. The Herrin Slough, between the mine site and the river, consists of numerous braided, low gradient channels in the Humboldt River floodplain. The Herrin slough drainage has small ponded areas in the lower reaches and transports water primarily during periods of snowmelt and significant precipitation. As a result of the seasonal inundation by snowmelt, the slow moving nature of the water, and the vastness of the floodplain, mosquitoes and black fly densities can be oppressive during the warm months of the year. The Lone Tree Mine is well within the flight range of mosquitoes hatching within wet areas of the Humboldt River floodplain.

B. Purpose and Need

The Lone Tree Mine and mineral processing facilities requires 24-hour, seven day staffing by various site personnel. Mosquito attacks during the late spring/summer months can be extremely distracting and may present a work hazard by detracting from concentration during hazardous work. Mosquito density studies in the Valmy Power Plant area, four miles northeast of the mine site, have been conducted by entomologist Robin Gray (BLM, 1999). Measurements based on the placement of human subjects in open air for five minutes resulted in calculations of over 3,000 mosquito attacks per hour during peak activity periods. Past estimates of mosquito larvae populations have ranged from 120,000 to 350,000 per acre.

Robin Gray of Seven Valley Entomological Services and Newmont Mining Corporation propose to implement a mosquito and black fly aerial spraying operation on public lands near the Lone Tree Mine in an attempt to achieve better overall mosquito control in the area. In addition to near term control of the mosquito population, it has been observed that with a proper spray program conducted over several consecutive years, the incidence of mosquito larvae is considerably less than if no spray program is in effect (Robin Gray, personal communication).

C. Land Use Plan Conformance Statement

The proposed action and alternatives comply with the Sonoma-Gerlach Management Framework Plan, subject to development of adequate mitigation measures to avoid or reduce adverse impacts. Decision WLA 1.13 states: "In BLM initiated actions, apply no herbicides or pesticides directly over the Sonoma-Gerlach Resource Area's streams, lakes or reservoirs unless adverse impacts can be adequately mitigated." The proposed action is also consistent with federal, state and local laws, regulations and plans to the maximum extent possible.

D. Description of Proposed Action and Alternatives

1. Proposed Action

The proposed action is to conduct aerial spraying of two pesticide products: Anvil© 10+10 ULV and Dibrom, on public lands adjacent to the Lone Tree Mine (see Figure 2). The selection of which product would be used and when, would be based on degree of infestation and species of most concern, to be determined by Robin Gray of Seven Valley Entomological Services. Robin Gray is the lead for this proposed action. Upon determining the optimum time for pesticide application, Mr. Gray will notify an applicator with specific instructions on when and how to aerial spray. Product labels for both pesticides indicate the products are acceptable for mosquito control in outdoor residential and recreation areas where mosquitos are present in vegetation surrounding parks, woodlands, swamps, marshes and overgrown areas.

The proposed pesticide application program is centered over the immediate area of the Lone Tree Mine and processing facilities.

The affected public lands include the following blocks:

T34N., R 42E., Sec. 14, Sec. 16 All
 W ½, Sec. 12
 W ½ and NE ¼ Sec. 24
 N ½ and SE ¼ Sec. 22
 SW ¼ and SE ¼ and NE ¼ Sec. 10
 S ½ Sec. 2

This is about 3,308 acres of public land (see attached figure).

Spraying would not be conducted over open water. The only portion of the area that could potentially contain open water would be the Herrin Slough area, located in Section 1 (a private section), north of Interstate 80. Although this area would typically be dry during the summer, there is the possibility that channel flow and/or ponded water could occur after precipitation events. Prior to initiating the spray program, the Herrin Slough portion of the application area will be field inspected for the presence of open water. If any open water is located in the area, the Section 1 area, north of Interstate 8 will be eliminated from the application area.

The spray proposal is for up three treatments (once each May, June, July). Spray periods would be limited to evening hours for both products, when mosquito populations are highest and when environmental conditions are suitable for effective control of target species. To avoid drift, spraying will be conducted only during periods of no or low wind speeds. To increase effectiveness and avoid runoff, spray operations will also be limited to periods when no rain is forecast for the next 24 hour period. All spray activity would be in conformance with the product label.

Product description

Two restricted pesticide products, Anvil 10+10 ULV and Dibrom, are proposed for application under this proposed action. Proposed application rates are: 0.0036 pounds A.I.* per acre for Anvil 10+10 ULV and 0.5 to 1.0 fluid ounces per acre of Dibrom. These application rates are in accordance with the product labels (see Appendix I and II).

*A.I. – active ingredient

Dibrom, the preferred pesticide product, is classified as an organophosphorus pesticide. Organophosphorus pesticides are systemic poisons which inhibit cholinesterase enzyme activity resulting in nervous system failure in insects. The primary route of entry of these products is through dermal contact. Since the product is not readily stored in fat cells, it is not considered a bio-accumulating compound. Dibrom is considered an adulticide which means it only targets adult life stages of the target insects. This reaction pathway is the least toxic to non-target species.

As systemic poisons, organophosphorus pesticides require skin contact and absorption where they inhibit crucial amino acid production and cause nervous system failure. Organophosphorus pesticides degrade rapidly in alkaline solutions and under neutral conditions would degrade completely within 72 hours. Alkaline environments prevail in the Humboldt River floodplain. The soils and water are strongly alkaline, so it is expected these products would degrade rapidly upon contact with the ground surface and would not migrate off the site.

Dibrom consists of 87.4% active ingredients (Naled) and is used undiluted, without mixing agents.

Anvil 10+10 ULV is an oil soluble synthetic pyrethroid for control of adult mosquitoes. For best results, it is applied by ground and/or aerial application as a fog close to ground in cool temperatures and wind speed not greater than 10 mph. Anvil 10+10 ULV kills mosquitoes in one hour and breaks down after one hour in sunlight. It is an effective insecticide even on organophosphate-resistant species of mosquitoes. Due to the products sensitivity to sunlight, spray operations would only be conducted in the evening hours.

Anvil 10+10 consists of 20% active ingredients mixed with petroleum distillates, predominantly white mineral oil. It is used undiluted, without mixing agents.

2. Alternatives to the Proposed Action

2.1 No Action Alternative

Under the no action alternative the mosquito abatement program would not be conducted. Spraying would not occur on public lands and insect densities would continue to follow natural environmental conditions. Mosquito populations in the vicinity of the Lone Tree Mine would increase accordingly.

2.2 Alternatives Considered but Eliminated from Further Analysis

2.2.1 Alternative Pesticide Product

One alternative pesticide product was considered for the mosquito abatement program: *Fyfanon*® ULV. *Fyfanon*® ULV is a malathion (95%) product that is widely used for aerial application mosquito control. Although an effective product for mosquito control, a disadvantage of malathion is longer persistence in the environment and a greater potential effect on non-target species. Mosquito's contacted with malathion may take up to 72 hours to die (Robin Gray, personal communication). During this time, the affected mosquito's are mobile and can continue to be a food source for birds and bats. The two proposed products have a more immediate lethal effect on mosquitos and more rapid degradation in the environment.

Based on these characteristics, the use of *Fyfanon*® ULV was eliminated from further consideration.

2.2.2 Alternative Application Method for Pesticide Products

An alternative method of pesticide application, consisting of ground spraying from a truck, was investigated. This is not a practical alternative due to the size of the area and the problem of local vehicle inaccessibility.

Moreover, the proposed products will be applied using ULV (ultra-low volume) methods that results in an application rate of product, in the case of Dibrom, of only 0.75 fluid oz/acre. To maintain these low application rates uniformly over a large area generally requires aerial application methods.

II. Affected Environment

The proposed application area consists of the immediate area of Lone Tree Mine area and a surrounding area of approximately one (1) mile (See Figures 1 & 2). The Lone Tree Mine area consists of an open pit mine and associated waste dumps, process facilities area (mill, crushing facilities, leach pad, tailings impoundment), maintenance facilities, a water treatment plant, administration offices and various ancillary facilities. The mine is located on public and private land, predominantly in Sections 11, 13-15 and 23, T34N, R 42E. Mine related disturbance is approximately 3,166 acres of which 705 is public land administered by BLM.

Currently, several segments of the Humboldt River floodplain are treated annually for mosquito and black fly infestation including the Sierra Pacific Valmy generating station and portions of the Winnemucca, Golconda and Battle Mountain communities. Approximately 3,500 acres of private lands immediately adjacent to the Valmy facility have been treated for mosquitos since 1997. The community of Valmy is located nearby but is not known to be engaged in a formal mosquito spraying operation at this time. Other isolated mosquito spraying operations may also be occurring at nearby ranches on a small scale.

1. Soils

The Humboldt River floodplain is broad and extensive. Typical soils vary from silty loams with low infiltration rates to gravelly loams along pediment slopes. Soils are typically somewhat saline and alkaline.

2. Vegetation

Typical vegetation in the area occur as two dominant plant communities: shadscale saltbush/bud sagebrush and Spiny hopsage/big sagebrush. The Shadscale saltbush *Atriplex confertifolia* /bud sagebrush *Artemisia spinescens* community dominates the area around the mine site. The community is dominated by shadscale, averaging 10% cover, and bud sage, averaging 7 % cover. Grasses and forbs are sparse, with only Sandberg bluegrass *Poa secunda* averaging over 1% cover. Total cover for this community is less than 20%.

Spiny hopsage *Grayia spinosa*/big sagebrush *Artemisia tridentata* var. *wyominaensis* is less prevalent than the shadscale saltbush/bud sagebrush community and generally associated with ephemeral drainages. Measured plots in the mine area indicated an average plant cover of 27% for this plant community, with individual plant species cover as follows: spiny hopsage – 12%, big sage – 4%, rubber rabbitbrush *Chrysothamnus nauseosus* – 2%.

Floodplain vegetation, generally north of the application area, is predominantly a greasewood *Sarcobatus vermiculatus*/shadscale community with associated rabbitbrush , saltgrass *Distichlis stricta*, and Great Basin wildrye *Elymus cinereus*.

3. Wildlife/Fisheries

Wildlife species occupying the project area are varied and abundant. A detailed description of wildlife in the area is contained in the Environmental Impact Statement for the Lone Tree project (USDI, 1995) which is incorporated herein by reference.

Mule deer year-long habitat includes the shadscale saltbush/bud sagebrush vegetation types surrounding the Lone Tree operation. Other species such as coyote, black-tailed jackrabbit, mountain cottontail, least chipmunk and deer mouse occur in all the vegetation types.

Executive order #13186 titled “Responsibilities of Federal Agencies to Protect Migratory Birds,” signed 1/10/01, requires that the BLM evaluate the effects of federal actions on migratory birds. No migratory bird inventory has been completed for the proposed project area.

Common migratory birds which may use the area as habitat include various species of ducks, geese, song birds, owls, blackbirds, crows, ravens, hawks, finches, doves, juncos, killdeer, robins, meadow larks, loggerhead shrike, sage thrasher and black throated sparrow. For a partial list of representative species occurring or potentially occurring in the project area, see Appendix III.

The Herrin Slough consists of numerous braided, low gradient channels in the Humboldt River floodplain. The Herrin slough drainage has small ponded areas in the lower reaches and transports water primarily during periods of snowmelt and significant precipitation. The slough could provide seasonal habitat for fish adapted to warm water habitats and high sediment loads. This could include suckers, carp, channel catfish, bluegill, mosquito fish, and black bullhead.

4. Water/Hydrology

Water from the Humboldt River below the project area is used for several purposes including agriculture, recreation, and fisheries/wildlife habitat. The Humboldt River ultimately flows into the Humboldt Sink south of Lovelock, where it serves as aquatic wildlife habitat until it either evaporates or infiltrates into the ground.

5. Floodplains

The proposed spray program would be immediately south of the Humboldt River floodplain.

6. Range

Four livestock grazing allotments administered by the Winnemucca Office BLM are within or adjacent to the proposed application area:

- The Pumpnickel allotment occurs in the western portion of the proposed treatment area and allows for yearlong cattle and sheep grazing, although use by livestock within the proposed application area is infrequent and intermittent.
- The North Buffalo allotment is south and east of the area and is grazed by cattle and sheep. This allotment is permitted for yearlong use.
- The White House allotment is permitted for cattle grazing during March and April. It is located north of the treatment area.

- The Twenty-Five allotment is located northeast of the anticipated treatment area and is a yearlong permit for both cattle and horses.

7. Drinking/Ground Water Quality

Water from the Humboldt River contributes to the maintenance of the vast regional aquifer systems which supply several communities with portions of their drinking water supply.

Downstream communities of Golconda, Winnemucca, and Lovelock get their drinking water from underground wells and not Humboldt River water.

8. Threatened/Endangered/Sensitive species

The bald eagle *Haliaeetus leucocephalus*, a Federally listed threatened species, is an occasional visitor to the Humboldt River basin, mostly in the winter. Bald eagles usually winter near bodies of water because fish and waterfowl are common prey and riparian areas often have cottonwood trees used as perches. Due to the lack of roosting areas and food sources, bald eagles would not be expected in the proposed application area.

The spotted frog *Rana pretiosa* is a Federally listed candidate species occurring throughout the Humboldt River basin. The frogs require permanent fresh water with sufficient depth and current to keep temperatures cool in summer and prevent solid freezing in winter. Potential spotted frog habitat appears to be present in the Humboldt River; however, high turbidity, relatively high water temperatures and fluctuating water levels may render wetlands and riparian area marginal or unsuitable habitat. No spotted frogs have been observed in or near the project area.

The golden eagle *Aquila chrysaetos*, white-faced ibis *Plegadis chihi*, and the Nevada viceroy *Limenitis archippus lahontani*, a butterfly, are Nevada state protected sensitive species.

Several Nevada/BLM sensitive bat species designated by the State director and Nevada Department of Conservation and Natural Resources could potentially occur in the project area. Included are the small-footed myotis *Myotis ciliolabrum*; long-legged bat *Myotis volans*; Townsend's big-eared bat *Corvynorhinus townsendii*; spotted bat *Euderma maculatum*; long-eared myotis *Myotis evotis*; fringed myotis *Myotis thysanodes* and Yuma myotis *Myotis yumanensis*.

A few formal bat surveys have been conducted in the project area. These surveys were conducted as part of permitting at the Marigold Mine (USDI, 2003) confirmed the presence of the small-footed myotis, long-legged bat and Townsend's big-eared bat in the area.

These sensitive species may occur throughout the Humboldt River floodplain as seasonal to season long visitors foraging over the site.

9. Human Health and Safety

There are no permanent residents in the proposed pesticide application area. The nearest residents are located in the community of Valmy, about four (4) miles southeast of the Lone Tree mine. The Lone Tree Mine employs approximately 400 people in a variety of mine related employment. The mine operates on a 24 hour, seven day per week basis.

The Interstate 80 corridor crosses the northeast portion of the proposed application area. Aerial spraying is proposed on both the north and south side of the highway; however, the actual interstate corridor will not be sprayed.

10. Native American Religious Concerns

The application area lies in the traditional territory of Northern Paiute and the Western Shoshone peoples. The Battle Mountain Band Council of the Te-Moak Tribe of Western Shoshone have been contacted via notification letter to elicit any concerns that may be relative to the proposed action.

11. Critical Elements of the Human Environment

The following critical elements of the human environment are either not present or are not affected by the proposed action or alternative: Air Quality, Areas of Critical Environmental Concern, Cultural Resources, Environmental Justice, Prime or Unique farmlands, Noxious Weeds, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness.

III. Environmental Consequences

A. Proposed Action

1. Soils

The proposed action is non-disturbance in nature and will result in no impact to soils in the project area. The proposed pesticide products degrade rapidly and are not expected to leave residual concentrations in site soils. In the case of Dibrom, degradation would be accelerated by contact with the alkaline soils in the area.

2. Vegetation

The proposed action is non-disturbance in nature and will result in no physical impact to vegetation in the project area. The product labels indicate no adverse impacts to vegetation and no such impacts are expected.

3. Wildlife/fisheries

The Environmental Protection Agency (EPA) has determined that Dibrom, when used in accordance with the product label does not pose unreasonable risk to wildlife (EPA, 2002a). The product degrades rapidly in the environment and displays low toxicity to birds and mammals. In some instances, birds may suffer direct mortality from application of the pesticide. However, these occurrences would be limited subject to time and duration of exposure and would not affect large populations. EPA has also determined that synthetic pyrethroids, the active ingredient in Anvil 10+10 does not pose unreasonable risks to wildlife or the environment. Pyrethroids, when applied at mosquito control rates, are low in toxicity to mammals, and are practically nontoxic to birds (EPA, 2002b). However, pyrethroids are toxic to fish. Based on the proposed action, there will be no spraying over open water and fish will not be affected by the proposed program.

4. Water/hydrology

Spraying will not take place over open water. As indicated above, the pesticides rapidly degrade in the natural environment. Surface water associated with the Humboldt River watershed will not be affected by the proposed program.

5. Floodplains

The proposed spray program would be immediately south of the Humboldt River floodplain. Both of the pesticides degrade rapidly and are not expected to have a long term detrimental affect on the floodplains.

6. Range

During the proposed spraying time of May, June and July, cattle may be present on the Pumpnickel and Twenty Five allotments. With the low application rates and rapid insecticide degradation, no impacts to the grazing or trailing livestock are expected.

7. Drinking/Ground Water Quality:

Water quality would not be impacted by the proposed action. The pesticides would not be sprayed over open water associated with the Humboldt River. Each pesticide product under neutral environmental conditions completely degrade within 72 hours of application, and are degraded even more quickly under the alkaline environments present at the project site. In addition, the application rates and total number of treatments being proposed is low. Therefore, the likelihood, that these products would contaminate surface or the groundwater is very low .

8. Threatened/Endangered/Sensitive Species

There would be no direct effects to the bald eagle. The bald eagle may be present along the floodplain during the winter, when abatement operations would not be occurring. In addition, impacts to prey species of fish would not occur due to the location of the spraying operation.

The spotted frog may be impacted if it were to occur within the spray area and was out during the spray operation. The spotted frog occurs throughout the Humboldt River basin but it has never been documented in the proposed application area. The likelihood of direct mortality of this species as a direct or indirect result of spraying would be minimal.

Each of the pesticide products is likely to cause some non-target mortality and some loss of diversity of macro invertebrates. This is expected to be limited to the smaller soft bodied insects such as those in the Diptera (true flies) and Ephemeroptera (mayflies).

Lepidopterans (butterflies and moths) would additionally be impacted by use of these products. As indicated, spraying operations would be restricted to occur within periods of favorable wind and rain conditions. With these spraying limitations and the pesticide application rates indicated, the non-target mortality would be limited to the immediate sprayed area. Other forms of hard bodied insects would be minimally affected. The intermittent nature of the treatment program (3 treatments), small treatment area (3,308 acres public and approximately 3,772 acres private), combined with the continuous/high productivity of the adjacent floodplain ensures that a steady supply of insects would be soon available for forage for prey species.

The white-faced ibis occurs intermittently throughout the Humboldt River floodplain. It is a common species along the Humboldt River. The ibis eats a variety of organisms including fresh water mollusks, small fish and insects. Impacts to this species could occur if application rates resulted in wider insect kill than the target populations. Performance guidelines provided on the labels of each product indicate that with application of the proposed products at identified rates, kill of non-target organisms is minimized. With the identified location and effects of the spray operation, an abundance of other insect species would not be impacted, ensuring a continuous supply of insects. Ibis do not feed on mosquito or black fly adults and the pesticide products involved do not result in control of immature life classes of insects.

The Nevada viceroy is a small butterfly that occupies riparian habitat throughout the Humboldt River basin. Although the project area is outside the typical habitat of the viceroy, some mortality may occur as a result of spraying if any specimens occur within the proposed project area. Mortality of the Nevada viceroy will be minimized with application of the products at label recommendations.

Sensitive bat species are sensitive to mosquito/black fly control in this area due to the impacted food source. Bats occurring in the area are predominantly flying insect specialists that feed on adult mosquitoes and black flies. As an indication of the importance of these insect species to bats, the little brown bat *Myotis lucifugus* has been documented catching over 1,200 mosquitos in a single hour and depends on mosquitos as its sole prey. Considering the population of mosquitos in the area; however, bats would not be a significant mosquito population controller.

There are several known summer roosts and breeding colonies within five to ten miles of the project area, and due to the low percentage of inventories of potential habitats, there is a strong likelihood that even more populations exist in the area. The project areas distance from known roosts is within the nightly foraging range of these species. A diminished food source in the project area would force bats to forage elsewhere for insects.

In general, the greatest impact to bat species from pesticide applications such as that proposed for the Lone Tree Mine would result with evening spraying operations or morning operations when conducted more than one half hour before sunrise. With this timing, the treated adult insects, which do not die immediately, would be subject to predation by foraging bat species. It is possible that some minor loss of bats may occur from these pesticides. However, with the spray program, fewer mosquitoes would occur as forage for bats and bats would be forced to search elsewhere within their range for their prey.

9. Human Health and Safety

Both pesticide products are approved by EPA for public health mosquito control programs without posing unreasonable risks to the general population. Because of the very small amount of active ingredient released per acre, risk assessments have shown for all scenarios considered, exposures were hundreds or even thousands of times below an amount that might pose a health concern (EPA, 2002b). The predominant exposure to humans associated with the proposed program would be to workers at the Lone Tree Mine. As a precaution, workers will be advised to remain indoors during mosquito spraying operations.

10. Native American Religious Concerns

Any concerns that Native American groups may have are not known, although input from the Battle Mountain Band Council of the Te-Moak Tribe of Western Shoshone is pending. In the event that concerns are expressed, they will be taken into account prior to the implementation of the proposed action.

Alternative 1 No Action

With this alternative, spraying would not occur on public lands and insect densities would continue to follow natural environmental conditions. Adult mosquito and black fly attacks on Lone Tree employees would be higher if abatement activities were not authorized on public lands. There would be no environmental consequences associated with selection of this alternative. Conceivably, there could be increased human exposure to disease related to mosquito vectors.

C. Cumulative Impacts of the Proposed Action

The Council of Environmental Quality (CEQ) regulations define cumulative impacts as:... “[T]he impact to the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions.” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). The cumulative impact assessment area for this EA is defined in figure 3.

Past and Present Actions

Past and present actions located within the assessment area, includes; mineral activities, a coal fired power plant, livestock grazing and mosquito abatement. Mineral activities have occurred in the area since gold was discovered in the area north of Trout Creek in 1927. Surface disturbance from historic mining activities includes development of mine adits, shafts, open pits, waste rock storage facilities and other facilities. Current mineral exploration activities, consisting of drilling, trenching, sampling and reclamation have occurred throughout the area by numerous operators. Exploration activities have typically been focused in the vicinity of known mineral deposits. Mining within the cumulative assessment area includes the Lone Tree Mine. Operations at The Lone Tree Mine includes; open pit mining, ore milling and processing, waste rock disposal, tailings disposal, and heap leaching. The Lone Tree operation is actively dewatering to support the mining operations.

Electrical power generation at the North Valmy Generating Station - This coal fired power plant is operated by Sierra Pacific power company and employs approximately 110 people. It is located about 5 miles northeast of the proposed project area.

Livestock grazing – Historical and present livestock grazing includes 2 grazing allotments.

Mosquito Abatement – Past and present actions within the cumulative assessment area also includes mosquito abatement near the North Valmy Generating Station. Mosquito abatement has been ongoing for many years near the power plant.

Reasonably Foreseeable Future Actions

Reasonable foreseeable future actions in the area include: Discontinuance of mining operations at the Lone Tree Mine, possible expansion of the North Valmy Generating Plant, continued livestock grazing, most likely at current levels and continued mosquito abatement near the North Valmy Generating Plant. Mosquito abatement at the Lone Tree Mine would probably cease once the mine discontinues mining. Based on the analysis of the proposed action there would be no cumulative impacts to livestock grazing and floodplains

Evaluation of Potential Cumulative Impacts

Soils & Vegetation

Past & Present – Impacts from mineral actions includes surface disturbance to soils at the Lone Tree Mine plus numerous exploration projects. The Lone Tree Mine is currently permitted to disturb approximately 4, 222.5 acres on a combination of public and private lands. A number of past exploration projects have occurred within the cumulative assessment area however, most of these have been discontinued and reclaimed. Adverse impacts to soils and vegetation associated with mineral actions is dependant on the degree and nature of surface disturbance. Heavy equipment removes vegetation and can compact soils and mix soil horizons making them less productive. However, mine permits include reclamation requirements that would off set most of these impacts.

Impacts to soils and vegetation from the power plant occurred during construction and continue where facilities are placed on the ground. These impacts include removal of vegetation, compaction of soils and loss are of productivity. It is expected that these impacts would be reduced in areas which have rehabilitated. Impacts to other areas would remain until the power plant discontinues operation.

Livestock grazing may affect soils by compaction from trails and in areas of concentrated grazing. These impacts are expected to be low as long as Standards for Rangeland Health are met.

Mosquito abatement at the power plant has had little to no known impacts to soils or vegetation.

Reasonable foreseeable future actions – Mineral activities are expected to become less as the Lone Tree Mine would close down and the site reclaimed. With the exception of the pit area, the site would be reclaimed and seeded which would restore soils and vegetation. Impacts to soils and vegetation from expansion of the power plant would be dependent on the nature and degree of surface disturbance. It is anticipated that impacts from grazing and mosquito abatement would remain similar to those identified under past and present actions.

Wildlife/fisheries

Past & Present – Mineral actions have displaced wildlife and removed habitat during construction and operation of the Lone Tree Mine. There is sufficient nearby habitat where wildlife has relocated. In addition, impacts to wildlife have been somewhat mitigated by concurrent reclamation which has restored habitat in areas within the mine. There have been few if any adverse impacts identified from mineral activities to fisheries.

Construction and operation of the power plant has also displaced wildlife and removed habitat. These impacts are low as there is sufficient adjacent habitat for wildlife to relocate to. There have been few if any adverse impacts identified from the power plant to fisheries.

Impacts from grazing to wildlife include competition for forage and habitat. Fish may be impacted in heavily grazed areas where stream bank vegetation is removed. These areas would be subject to possible increases in water temperature.

These impacts would be mitigated based livestock operations meeting Standards for Rangeland Health and other allotment specific objectives.

Mosquito abatement would cause direct mortality to other insect species especially insects characterized by having soft bodies. The prey based for certain insectivores would also be affected. Due to the low residual nature of the insecticides being used, these impacts would be short in duration and it is not expected that there would be long term adverse impacts. Insectivores may have to seek prey outside of the treatment areas in the short term. Overall these impacts would be considered low based on proper application of insecticides.

RFFAs - The closure and reclamation of the Lone Tree Mine would re-establish habitat for some wildlife species that were displaced during mining operations. A remaining pit lake at the Lone Tree Mine may afford additional habitat for fish.

Any expansion of the Valmy Power Plant would remove wildlife habitat depending on the nature and degree of surface disturbance. It is anticipated that these impact would be low as expansion would probably be in close proximity to the plant where impacts to wildlife habitat has already occurred.

Continued livestock grazing would have similar impacts to wildlife and fisheries as described under past and present analysis.

The cumulative impact of continued mosquito abatement would be similar to those described under the past and present analysis with the exception that mosquito abatement at the Lone Tree Mine would discontinue. Overall impacts should be low based on compliance with recommended label application rates.

Water/Hydrology

Past & Present – Mineral activities would affect ground water and surface water at the Lone Tree Mine as pit dewatering continues. Groundwater has continued to be depleted near the Lone Tree pit. The water pumped from dewatering ultimately flows into the Humboldt River. Impacts to surface waters would be low subject to compliance with state standards and permits.

Groundwater impacts generated by the power plant includes; pumping of groundwater to meet operational needs at the plant. These impacts have reduced the availability of groundwater within the groundwater basin. However, impacts from the plant have been reduced as Lone Tree Mine is providing some water to the power plant.

Impacts to water from livestock grazing would occur in areas of heavy grazing which would remove vegetation making soils susceptible to erosion and possible increased sedimentation to water resources. These impacts would be low subject to livestock operations being in compliance with Standards for Rangeland Health and allotment specific objectives.

There would be no direct adverse impacts to water resources from mosquito abatement operations as insecticides would not be sprayed directly on water.

RFFAs – The discontinuance of mining operations at the Lone Tree Mine would allow for recovery of the groundwater in the vicinity. The formation of a pit lake would increase the availability of surface water in the area.

Any expansion at the power plant might increase the demand for ground water to meet operational needs. These impacts would be considered low based on the recovery of the groundwater table due to the shutdown of the Lone Tree Mine.

Livestock grazing and mosquito abatement impacts would be similar to those described under the past and present analysis. Mosquito abatement would not occur at the Lone Tree Mine once mining ceases.

Threatened/Endangered/Sensitive Species

Past and Present - Mineral activities, operating power plant, livestock grazing, and mosquito abatement would not likely affect threatened, endangered, or sensitive species as few are known to occur within the assessment area. Mosquito abatement may affect sensitive bat species as their prey base would be reduced forcing bats travel longer distances to forage.

RFFAs - Impacts would be similar to those described in the past and present analysis.

Human Health & Safety

Past & Present – Other than job related health and safety issues there would be no impacts to workers from mining, power plant operations, and livestock grazing. Exposure to humans from insecticides would cause few health or safety problems as long as they were applied as recommended on the product label. The insecticides do not bio-accumulate and degrade within 72 hours.

RFFAs – Few impacts to human health and safety would occur from RFFAs. Based on the closure and reclamation at the Lone Tree Mine, few workers would remain on site. Expansion of the power plant may expand the work force slightly.

There would be no impacts to human health and safety from grazing. Continued mosquito abatement operations would have similar impacts as those identified under the past and present analysis.

Summary – Overall there would be minimal to low incremental cumulative impacts. Impacts would be reduced subject to conformance with product labels.

5. Cumulative Impacts of the No-Action Alternative

There would be no mosquito abatement cumulative impacts based on the no-action alternative. Workers at the power plant and Lone Tree Mine would be subject to mosquito bites, possible transmission of disease, and safety concerns that occur from mosquitoes distracting workers while operating equipment.

D. Monitoring/Mitigation Measures for the Proposed Action

The likelihood that control measures, as currently proposed would provide significant lasting relief from mosquito attacks is possible. For this reason, it is advisable that continued mosquito density monitoring be conducted weekly following treatment to determine the true effective result of the operation. The results of this monitoring would be provided to BLM for consideration of future pesticide spraying approval.

In addition to the above monitoring, the pesticide contractor would be required to submit their annual pesticide application report at the end of the season along with copies of any additional monitoring. If the contractor is retained by other entities (Valmy power plant, Valmy Township), or if existing operations (Battle Mountain, Golconda Townships) are expanded, BLM would be notified and would consider these new developments with regard to cumulative impacts.

Only the products and the application rates analyzed in this document would be authorized under this proposal. Although adverse impacts to wildlife are not anticipated, any dead or dying birds or mammals observed on the site shortly after spraying (within three days) would be immediately collected and frozen for possible determination of cause of death and the results should be reported to the BLM and Nevada Division of Wildlife (NDOW).

BLM will be notified a minimum of 24 hours before engaging in abatement activities.

If any aspect of the mosquito abatement operation changes, the contractor would be notify BLM in writing and would not be authorized to implement changed procedures without completing additional environmental analysis as required by BLM.

IV. Consultation and Coordination

Information contained herein has been compiled from various environmental studies conducted at the Lone Tree Mine site and surrounding area.

In addition to the specialists identified on the face sheet of this document, the following people were consulted:

Robin Gray,
Seven Valley Entomological Services

Dennis Laybourne

Newmont Gold Company

Public News Release

V. References

BLM, 1999, Environmental Assessment, Proposed Valmy Mosquito Abatement, EA# NV-020-99-15.

EPA, 2002a, Synthetic Pyrethroids for Mosquito Control, Pesticides: Topical and Chemical Fact Sheet, updated April 17, 2002.

EPA, 2002b, Naled for Mosquito Control, Pesticides: Topical and Chemical Fact Sheet, updated August 16, 2002.

SRK Consulting, 2003, Rapid Infiltration Basin Expansion Project Baseline Environmental Investigations Report, Humboldt County, Nevada, Internal report prepared for Newmont Mining Corporation.

USDI, 1996, Final Environmental Impact Statement – Lone Tree Mine Expansion Project, prepared by Winnemucca District BLM Office.

USDI, 2003, Final Supplemental Environmental Impact Statement – Glamis Marigold Mining Company's Millennium Expansion Project, prepared by Winnemucca District BLM Office

APPENDIX I

Anvil © 10+10 ULV

Product Label and MSDS

APPENDIX II

Dibrom©

Product Label and MSDS

APPENDIX III

Partial List of Wildlife Species Occurring in the Lone Tree Mosquito and Black Fly Abatement Project Area

