

- C8. The proposal will not result in any substantial reduction of water for public supplies. The project site is uninhabited, and the drilling will not require large quantities of water.
- C9. The proposal will not result in flooding since no large amounts of water are required to complete the drilling.
- C10. The proposal will not result in changes to thermal springs since there are none of these on site nor in the vicinity of the project.

D. Plant Life.

- D1. The proposal will not result in a change to plant species since most of the work sites are along existing dirt roads. Minimal surface disturbance will take place in the off-road areas.
- D2. The proposal will not result in reduction of unique, rare or endangered species since none of these types were identified during a recent special status plant study. However, one sensitive status plant was discovered and will be avoided if encountered.
- D3. The proposal will not introduce new plant species and will not affect replenishment of existing species since the nature of the project is mineral exploration that will be conducted for the most part along existing dirt roads.
- D4. The proposal will not reduce agricultural areas since there are no agricultural areas within the site.

E. Animal Life.

- E1. The proposal will not result in changes in diversity or numbers of species since the scope of the project is limited to exploratory drilling by environmentally sensitive equipment to be used along existing roads. Off-road travel amounts to about 8200 feet.
- E2. A recent biological study states that there are no unique, rare or endangered species in the vicinity of the project.

E3. Drilling activity may temporarily displace wildlife from the immediate area of the work site. This should be a short term effect, and no long term adverse effects are anticipated.

E4. There may be some deterioration of wildlife habitat in the immediate area of the proposed drill sites while the drilling rig is at work. This is a temporary condition that will not extend past the completion of the exploratory drilling program. Proposed project conditions have also been incorporated into the detailed project description to insure that habitats are not harmed. These include consolidation of work areas and minimal use of vehicles.

F. Noise.

F1. The proposed exploratory drilling program will result in an increase to noise levels at the drill sites while the rig is in operation. This is a temporary condition that will not extend past the completion of the proposed drilling program.

F2. The site is uninhabited and therefore will not cause exposure of people to severe noise levels.

G. Light and Glare.

G1. The proposal will not result in production of new light or glare since the drilling would take place during daylight hours of late summer. No night work using lights has been proposed.

H. Land Use.

H1. The proposal will not result in substantial alteration of land use of the project site. The site is designated Intermediate Forest by Sierra County which is compatible with mining, and CDFG has previously approved a similar type of exploration project (PRC 7417.2) by Tenneco on lands adjacent to the site of the Antelope Valley project.

I. Natural Resources.

I1. The proposal will not result in increased use of natural resources since the project is limited to exploration.

I2. There will be no substantial depletion of nonrenewable resources since this project is exploratory in scope.

J. Risk of Upset.

J1. The proposal will not present the risk of an explosion or release of hazardous substances. Tenneco does not propose to use any explosive devices during the project site, and there will be no hazardous substances on the site.

J2. The proposal will not interfere with emergency response or evacuation plans. The project site is currently uninhabited.

K. Population.

K1. The proposal will not change the human population. The project site and its vicinity are uninhabited.

L. Housing.

L1. The proposal will not affect housing since there are no habitable structures on the site.

M. Transportation/Circulation.

M1. The proposal will not generate substantial additional vehicular movement. A proposed project condition stipulates that traffic will kept to a minimum.

M2. The proposal will not affect parking or create a new demand. The site is currently uninhabited.

M3. The proposal will not impact existing transportation systems. The site and its vicinity are uninhabited.

M4. The proposal will not affect economic activity in the vicinity since this area is uninhabited.

M5. The proposal will not alter water, rail or air traffic since the site is relatively isolated, and no facilities currently exist to facilitate those types of travel.

M6. The proposal will not cause traffic hazards. Project conditions stipulate keeping vehicle movements to a minimum throughout the span of the project.

N. Public Services: the proposal will not have an effect upon new altered government services in any of the areas listed. The scope of the proposal is mineral exploration and is limited to activities contained in the project description.

N1. Fire protection. No hazardous materials are proposed for use during the span of this project.

N2. Police protection. The project will not require policing. Tenneco personnel live in Loyaltan, and are readily available.

N3. Schools. The nature of the proposal is mineral exploration.

N4. Parks or recreation facilities. Proposed project conditions would limit the duration of equipment on the site.

N5. Maintenance of public facilities including roads. Proposed access routes into the site will not require maintenance.

N6. Other government services. The proposal is currently limited to mineral exploration activity utilizing a limited number of personnel.

O. Energy.

O1. The proposal will not consume substantial amounts of fuel or energy. It is limited in scope to activity detailed in the project description.

O2. The proposal will not substantially increase the demand for energy since it limited in scope and duration. Currently, there is no requirement to develop new sources.

P. Utilities: The proposal will not require a need for new utility systems or substantial alteration of existing systems. The scope of the project is limited to mineral exploration utilizing equipment that will be on site for a specific duration of time.

- P1. Power or natural gas will not be required during the project since the proposed equipment does not require public utility services, and the Tenneco personnel will not be in permanent residence at the site.
- P2. Communication systems will not be used since there are no public outlets on the site, and the site is uninhabited.
- P3. Water if needed will be trucked into the site.
- P4. Sewer or septic systems will not be used since there are no habitable structures on site.
- P5. Storm drains are not necessary since the scope of the project is limited to mineral exploration.
- P6. Solid waste disposal facilities will not be used since there are no outlets, and there is no housing on the site.

Q. Human Health.

- Q1. The proposal will not create any human health hazards. A project condition stipulates that the work will be carried out in a safe manner.
- Q2. The scope of the proposal will be limited to the activity detailed in the project description. This will not cause potential health hazards.

R. Aesthetics.

- R1. There are no unique physical or scenic features in the vicinity of the project site. The project is of temporary duration, reclamation will commence during the drilling activity and will continue after drilling until the site is returned to original condition to the extent possible.

S. Recreation.

- S1. The proposal will be limited to the time frames recommended by CDFG to coincide with their seasonal recreation requirements, and therefore should not create an impact on these opportunities.

T. Cultural Resources.

- T1. The proposal will not alter or destroy prehistoric or historic archaeological sites. A comprehensive records search was conducted and no previously recorded sites were found. However, portions of the site appear sensitive for cultural resources, and a survey is recommended.
- T2. The proposal will not adversely effect cultural resources. A cultural resource survey was conducted, Exhibit B, and changes made in the project consistent with its findings and recommendations.
- T3. The proposal does not have the potential to cause any changes to known cultural resources. A report for the cultural survey scheduled to be completed at the end of May will be available about June 15th, and will include any avoidance measures.
- T4. The proposal will not restrict any religious or sacred uses of the site. The records search included a letter from the Native American Heritage Commission stating their records search indicated that there are no known Native American cultural resources in the immediate area of the project site.

U. Mandatory Findings of Significance.

- U1. The proposed Antelope Valley project does not have the potential to degrade the environment. The project is limited in its scope, and will be of temporary duration. The project may have the potential to reduce natural habitat in the immediate areas of the work sites. However, this is temporary and will not last after the end of the drilling program. The project will be conducted for the most part along existing dirt roads. New surface disturbance will be minimal.
- U2. The proposed project is of limited duration, and as described and conditioned has no short term or long term potential adverse effects.
- U3. The cumulative impacts of the project to the environment of the site are minimal. The project as described and conditioned should not cause any adverse effects.

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U4. The project does not have environmental effects which will be adverse to humans. The scope of the project is limited to short term mineral exploration.

Doc#:5.4

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Special-Status Plant Survey  
for  
Exploratory Drilling Adjacent to  
the Golden Dome Mine Project

*Prepared for:*

Tenneco Minerals  
P.O. Box 1035  
35 East First Street  
Loyalton, CA 96118

*Prepared by:*

Jones & Stokes Associates, Inc.  
2600 V Street, Suite 100  
Sacramento, CA 95818-1914  
Contact: Steve Holl  
916/737-3000

May 16, 1991

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## INTRODUCTION

The Golden Dome Mine Project, proposed by Tenneco Minerals Company (Tenneco), is located in Antelope Valley, Sierra County, California. The botanical, wildlife, aquatic, and soil resources of a 164-acre project area have already been analyzed (Jones & Stokes Associates 1987). The project area included private land, and lands administered by the Tahoe National Forest (TNF) and the California Department of Fish and Game (DFG).

No state or federally listed, candidate, or proposed rare, threatened, or endangered species occurred within project area, nor was any significant aquatic habitat found capable of supporting game fish species. Numerous populations of one special-status plant, Sierra Valley ivesia (*Ivesia aperta aperta*), and potential goshawk (*Accipiter gentilis*) habitat were identified during the surveys. The site was not considered critical deer winter range, nor was it on an important migration corridor.

Tenneco has proposed additional exploratory drilling adjacent to the 164-acre project area on lands administered by TNF and DFG (Figure 1). The State Lands Commission (SLC) and U.S. Forest Service (USFS) determined that additional surveys for special-status plants would be required before permits to allow drilling could be approved. Tenneco hired Jones & Stokes Associates to conduct surveys and assess potential impacts of the proposed drilling operation on special-status plants.

### Proposed Project

Drilling would occur on 28 sites distributed among three parcels of TNF land and on 46 sites on DFG lands. Most of the TNF land west and north of the Tenneco land had been previously surveyed (Jones & Stokes Associates 1987).

The drilling would be conducted in late summer and early fall. No drilling will be done during deer hunting season (August 17 to September 8 and September 21 to October 6), because of potential conflicts between drillers and hunters, and during deer migration in late October (Young pers. comm.).

A rubber-tired or track-mounted portable drill would be used for the drilling, and existing roads would be used where available. No trees or shrubs would be removed where cross-county travel was required to reach a drill pad. No vegetation would be removed; however, some vegetation would be trampled within each 100-foot by 100-foot drill pad. The drill cuttings would be back-filled in the holes or scattered over each drill pad.

Tenneco has further proposed that the exploratory drilling project would not affect special-status plants (Young pers. comm.). If special-status plants should occur on drill pads or access routes, they will be realigned to avoid the plants. If the drill pads or access routes cannot be feasibly realigned to avoid special-status plants, then Tenneco has agreed to abandon the site from its proposed drilling program.

## METHODS

On May 9, 1977, Mr. Jokerst, botanist and plant ecologist with Jones & Stokes Associates, conducted a reconnaissance survey of the areas proposed for the exploratory drilling. Mr. Jokerst has extensive experience with the special-status plants of the Sierra Valley region. He is familiar with their geographic distributions and habitat requirements and has studied each of the species in the field on previous occasions. The objective of the survey was to determine if special-status plants or their habitats were located at the proposed drill pads or access routes.

Habitats of all special-status plants potentially occurring in the project area were evaluated because the surveys were conducted early in the growing season and many of the special-status plants had not sprouted and become identifiable.

## RESULTS

The project site is dominated by stands of open-forested Jeffrey pine and a sagebrush understory. Nine special-status plants have the potential to occur in the project area (Table 1), based on their geographic ranges and association with Jeffrey pine forests and sagebrush.

Sierra Valley evening primrose, Plumas ivesia, and Bailey ivesia would not be affected by the project. The seasonal wetlands capable of supporting the Sierra Valley evening primrose and Plumas ivesia and the bedrock outcrops required by the Bailey ivesia were not present on the proposed drill pads or access routes.

No populations of lens-pod milkvetch, Webber's milkvetch, and Dog Valley ivesia were observed in the project area. Although it was early in the growing season, the potential for these species to occur in the project area is very low. The nearest known locations are quite distant and no populations of any of these species have ever been observed in the project area despite numerous surveys by consultants and the USFS. Nonetheless, surveys should be conducted later in the growing season to confirm the absence of these species.

Table 1. Target Special-Status Plant Species Searched for at the Golden Dome Mine Project Site

Species	Status				Known Geographic Range	Known Habitat Associations
	State	Federal	USFS	CNFS		
<i>Astragalus lentiginosus</i> Lens-pod milkvetch	--	C2		1b	Sporadic and rare in Nevada and Oregon, known in California from two populations in northern Sierra Valley, historic collection from Sierra County.	Well-drained soil in sparse Jeffrey pine forest with a sagebrush understory.
<i>Astragalus webberi</i> Webber's milkvetch	--	C2	W	1b	Plumas and Sierra Counties, not restricted to Sierra Valley.	Limited information is available; open arid slopes in conifer forest.
<i>Camissonia lanacetifolia</i> sp. <i>quadrifida</i> <del>varia</del> Sierra Valley evening primrose	--	C3		3	Sierra Valley in Plumas and Sierra Counties, from an area approximately 25 miles across at its widest point.	Vernal pools and drainage low-lying areas with heavy clay soils; sagebrush scrub vegetation.
<i>Ivesia aperta</i> ssp. <i>aperta</i> Sierra Valley ivesia	--	--	S	1b	Sierra Valley in Plumas and Sierra Counties.	Well-drained rocky/loamy soil; alkali flats; low sage scrub; and ephemeral creeks.
<i>Ivesia aperta</i> ssp. <i>canina</i> Dog valley ivesia	--	C1	S	1b	Dog Valley in Sierra County.	Well-drained soils, open pine forests.
<i>Ivesia baileyi</i> Bailey ivesia	--	--	--	2	Uncommon, three locations in Lassen and Plumas Counties.	Moist, shaded, steep to vertical crevices on bedrock; steep canyon walls with protected exposures.
<i>Ivesia sericeolucida</i> Plumas ivesia	--	--	S	1b	Plumas, Sierra and Nevada Counties from north of Sierra Valley to north of Truckee.	Mesic sites in pine forest and vernaly flooded, alkali pools and drainages in low sage scrub vegetation.
<i>Ivesia webberi</i> Webber's ivesia	--	C2	S	1b	Plumas County in Sierra, American and Indian Valleys and Nye County, Nevada; known just north of Layton.	Limited information is available; open patches of volcanic ash, dry barren ground on gravelly, open ridgetops and summits.
<i>Trifolium lemmingii</i> Lemmon's clover	--	C3c	W	4	Plumas, Sierra, and Nevada Counties, in the region of Squaw, Red Clover, and Sierra Valleys, and southward in areas just north of Truckee. Also in Washoe County, Nevada.	Variable; metavolcanic barrens, rocky flat, sandy openings, and vernaly wet low-lying areas in sagebrush scrub and yellow pine forest vegetation.

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Table 1. Continued

Status:

Federal

C1 = Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

C3 = no longer a candidate for federal listing. Category 3 species have been dropped from the candidate list because they are extinct (C3a), taxonomically invalid or do not meet the USFWS definition of a "species" (C3b), or too widespread or not threatened at this time (C3c).

W = U.S. Forest Service "watch list". Potential impacts on these species are evaluated on a case-by-case basis.

State

-- = not listed.

California Native Plant Society

1b = List 1b species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

3 = List 3 species: plants about which more information is needed to determine their status.

4 = List 4 species: plants of limited distribution.

Sierra Valley ivesia was growing in the project area, but no identifiable populations were observed in the drill pads or access routes. Three small, dry, grassy meadows at drill pads 6 to 16 and 25 on DFG lands and on one drill pad on TNF parcel III provided potential habitat for Sierra Valley ivesia and Webber's ivesia, although no individuals of either species were observed following a close examination of the sites. The chance of Sierra Valley ivesia occurring was considered low because the plant was growing elsewhere and the sites did not have the hydrologic or edaphic conditions normally associated with Sierra Valley ivesia. The habitat requirements of Webber's ivesia are not well understood and it may have been too early in the growing season to detect the species. Additional surveys will identify the distribution of these species at these drilling sites.

One population of Lemmon's clover was found during the reconnaissance surveys. An extensive population occurred on DFG lands between drill pads 39 and 40 and on an existing road that would be used as an access route (Figure 2). Although Lemmon's clover has a limited distribution (CNPS list 4) and is on the USFS watch list, impacts may not be considered significant because only a small portion of the population would be affected, additional populations probably occur in the project area, and it is no longer a federal candidate species. Impacts on Lemmon's clover could be reduced by avoiding as much of the population as possible.

## CONCLUSION

Tenneco has proposed to avoid all activity that would cause significant impacts for special-status plants. The proposed drilling operation has the potential to affect special-status plants; however, the actual impacts cannot be determined until surveys are completed in late June or July when the plants are identifiable. The potential for impacts on three species was considered very low because they probably don't occur in the project area. No identifiable populations of Sierra Valley ivesia would be affected by the project. Sierra Valley ivesia and Webber's ivesia could be affected if they occur at drill pads on DFG and TNF lands. A small portion of one extensive population of Lemmon's clover would be affected, but the impacts may be less than significant.

Tenneco can avoid all significant impacts on special-status plants by taking the following steps:

- Survey all areas potentially affected by the drilling operation by mid-July, 1991. The boundary of the survey area should be broad enough to ensure that any access roads or drill sites can be realigned to avoid conflicts with special-status plants.
- Prepare a report that documents the locations of special-status plants located in or near project impact areas and submit the report SLC and USFS.
- Identify all populations of special-status plants within 200 feet of drill pads or access routes with brightly colored surveyor's flagging.

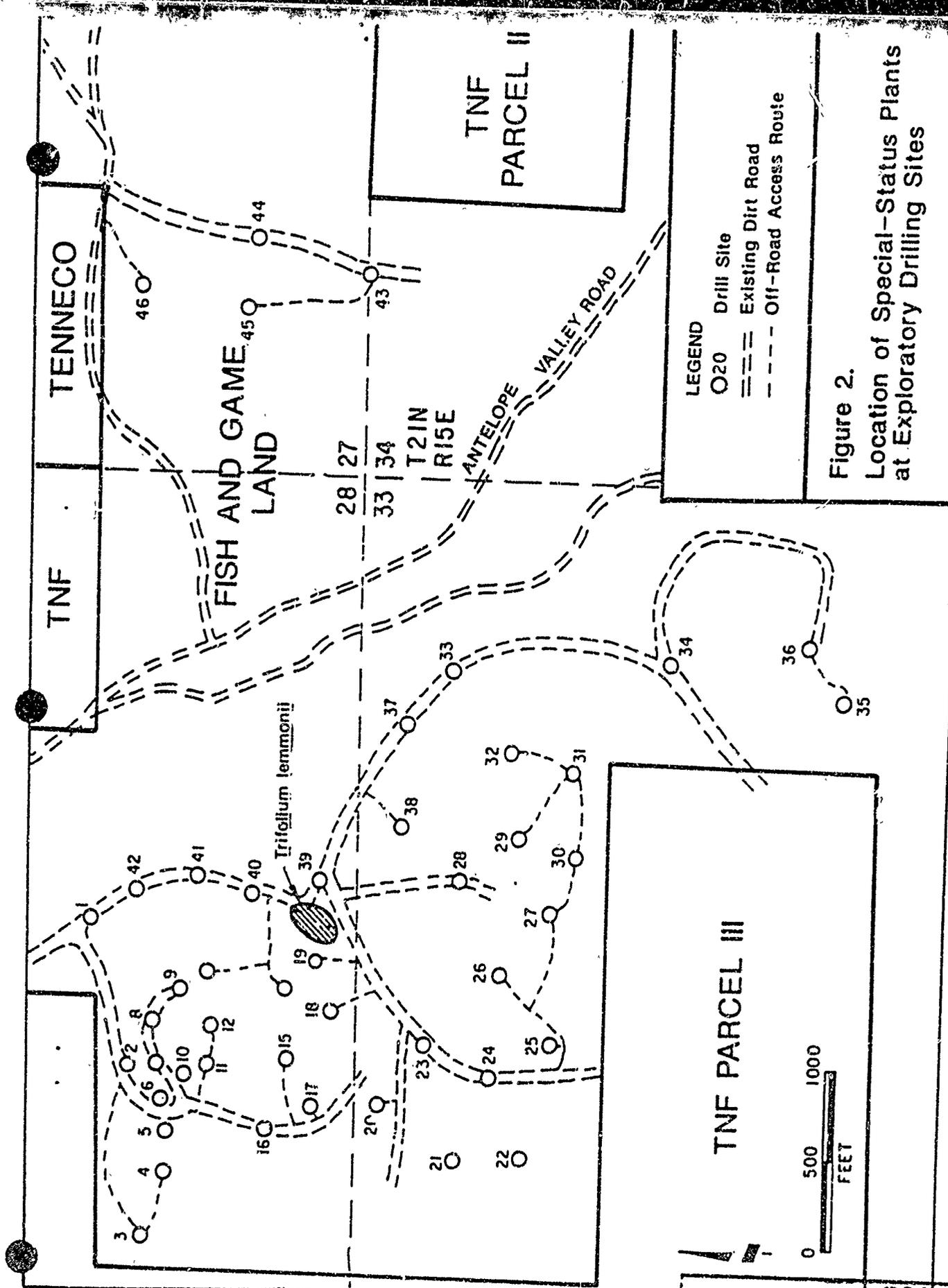


Figure 2.  
Location of Special-Status Plants  
at Exploratory Drilling Sites

- Identify all access routes and the boundary of each drill pad by using brightly colored surveyor's flagging.
- Ensure that a qualified botanist or biologist be present during any drilling activities if a population of special-status plants is found within 200 feet of project activities.

#### ACKNOWLEDGEMENTS

Mr. Steve Holl was the project manager and reviewed the report. Mr. James Jokerst conducted all of the field surveys and prepared the report. Jane Palik, Tony Rypich, and Jack Whelehan assisted with preparation of the report.

#### PRINTED REFERENCES

Jones & Stokes Associates, Inc. 1987. The biological and soils resources of the Golden Dome Mine project site. (JSA 87-059.) Sacramento, CA. Prepared for Condor Environmental Management Company, Sonora, CA.

Smith, J., and K. Berg. 1988. Inventory of rare and endangered vascular plants of California. 4th edition. (Special Publication No. 1.) California Native Plant Society. Sacramento, CA.

#### PERSONAL COMMUNICATION

Young, Thomas. Project manager. Tenneco Minerals Company. Loyalton, CA. May 9, 1991 - personal conversation.

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May 10, 1991

Archaeological Services, Inc.  
8110 Lorraine Ave., Suite 408  
Stockton, CA 95210  
ATTN: Suzanne B. Stewart

RECEIVED MAY 14 1991

RE: ANTELOPE VALLEY MINING PROJECT; IC# D91-19  
T21N, R15E, Sec. 21, 22, 27, 28, 33, 34;  
USGS Sierraville 15'quad  
600 acres

Dear Ms. Stewart,

In response to your request received April 26, 1991, a record search for the above cited project was conducted by examining the official maps and records for archaeological sites in Sierra County.

RESULTS:

PREHISTORIC RESOURCES: There are no recorded sites of this type known to be located within the project boundaries. However, one site of this type has been recorded within a one-mile radius of the project area. This site, CA-SIE-397, is recorded as a prehistoric campsite. A copy of the site record has been enclosed, and the site has been plotted on the enclosed map in red ink. Numerous sites of this type have been recorded in similar environmental zones to the north, south, and west of the project area.

HISTORIC RESOURCES: There are no previously recorded sites of this type known to be located within the boundaries of the project area or within a one-mile radius of the project area. However, the USGS quad map notes the presence of two sites which are probably unrecorded historic cultural resources. Antelope Mine, located in Section 27, is located within project boundaries. Our records indicate that this mine was first discovered in 1863, and that gold, silver, and copper were extracted from this mine. The ruins of the Winnie Smith Mill are located in Section 33, also within the boundaries of the project area. We were not able to locate any information on Winnie Smith or the mill. The nearby historic town of Sierraville is a California Inventory of Historic Resources property, and was a supply center for area mines, camps, and

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towns.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS: According to our records, the project area has not been previously surveyed for cultural resources.

LITERATURE SEARCH: Reviewed were the official records and maps for archaeological sites and surveys in Sierra County. Also reviewed were the National Register of Historic Places-Listed Properties and Determined Eligible Properties (1988, Computer Listing 1966 through 3-10-88 by National Park Service), the California Inventory of Historic Resources (1976), California Points of Historical Interest, California Historical Landmarks (1982), History of Plumas, Lassen, and Sierra Counties, California (1882), Gold Districts of California (1970), and Historic Spots in California (1966).

RECOMMENDATIONS: Based upon the above information obtained as a result of this search and the local topography, this project is located in an area considered to be extremely sensitive for both prehistoric and historic cultural resources. Therefore, we recommend that the entire project area be surveyed for cultural resources by a professional archaeologist prior to any project operations. The project archaeologist should evaluate both Antelope Mine, and the Winnie Smith Mill to determine if these are unrecorded historic cultural resources. All cultural resources encountered should be formally recorded and appropriate mitigation measures should be prepared for any sites which may be affected by project operations. Thank you for your concern in preserving California's cultural heritage. The cost of this record search is \$90.00, and an invoice will follow for billing purposes.

Sincerely,

*Makoto Kowta*

Dr. Makoto Kowta  
Coordinator, Northeast Information Center

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## NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 288  
SACRAMENTO, CALIFORNIA 95814  
(916) 322-7791

RECEIVED MAY 14 1991



May 10, 1991

Suzanne B. Stewart, Senior Staff Archaeologist  
Archaeological Services, Inc.  
8110 Lorraine Avenue, Suite 408  
Stockton, California 95210

RE: Sierra Valley Site

Dear Ms. Stewart:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

CEQA, Appendix K gives directions to follow in the event any previously undetected archaeological sites are inadvertently discovered during any phase of construction. Use of the language in Appendix K, or reference to the standardized procedures therein, helps to eliminate costly delays and assures more adequate protection of such cultural resources. I would also recommend that you contact and work closely with the appropriate Native American groups in the area during the initial planning stages. They may be able to offer input regarding sites in the area.

The Native American Heritage Commission has prepared a pamphlet for use by lead agencies, planners, developers, and property owners. It provides an easy-to-read breakdown of the California Codes pertaining to Native American human remains and their disposition. I have included a copy of this brochure for your information.

If you have any questions or need any additional information, please contact this office.

Sincerely,

Debbie Piles-Treadway  
Staff Analyst

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# Archaeological Services, Inc.

8110 Lorraine Avenue, Suite #08 • Stockton, California 95210 • (209) 474-3121

## CULTURAL RESOURCES PROGRESS REPORT:

### PREFIELD RESEARCH SUMMARY

#### TENNECO MINERALS EXPLORATORY DRILLING PROJECT

#### ANTELOPE VALLEY, SIERRA COUNTY, CALIFORNIA

Submitted by

Suzanne E. Stewart  
Project Coordinator

Roger H. Werner  
Principal Investigator

Submitted to

Tom Young  
Tenneco Minerals' Company  
Loyalton, Sierra County, California

14 May 1991

ASI 91-0422-V-TGD

209-224-9077  
Fresno, California



## PREFIELD RESEARCH SUMMARY

### Introduction

Tenneco Minerals of Reno, Nevada, proposes to conduct exploratory drilling in and adjacent to Antelope Valley, Sierra County, California, situated in Sections 27, 28, 33, and 34 of Township 21 North, Range 15 East, Mount Diablo Base and Meridian (see Map). Project-area lands are controlled by the California State Department of Fish and Game (320 acres) and the U.S. Department of Agriculture, Tahoe National Forest (240 acres). Also included in the exploratory drilling project are approximately 180 acres of non-Federal land that was studied in 1987 by Roger Werner of Archaeological Services, Inc.

Archaeological Services has been contracted to conduct a cultural resources investigation of these lands prior to ground-disturbing activity. To date, a records search and literature review for both State and Federal lands have been completed. Field survey is currently planned for 15-18 May 1991. Separate reports detailing field survey and results will be completed for the Tahoe National Forest and the State Lands Commission in accordance with the particular requirements of each agency: the Federal report will be prepared in accordance with standards of the Secretary of Interior; the State report in accordance with California Environmental Quality Act guidelines. The present document, however, reports the results of prefield research for the full acreage encompassing the exploratory drilling project.

### Prefield Research Methods

Prefield research included a records search conducted by the California Archaeological Inventory for this project, and a literature and environmental review by the author. The purposes of this prefield research were to identify: (1) all reported field or archival studies of the project area and immediate vicinity; (2) the nature of any recorded or otherwise known prehistoric or historic-period cultural resources within the project-area boundaries; and (3) the potential for the presence of unrecorded archaeological sites based on the project area's environmental setting and the nature of recorded sites in the vicinity.

The records search was conducted by the staff of the Northeast Information Center of the California Archaeological Inventory, California State University, Chico (IC# D91-19). The records search included review of archaeological base maps, site records, and reports on file at the Information Center. Also consulted were the National Register of Historic Places (1988) showing Listed Properties and Determined Eligible Properties; Department of Parks and Recreation (1976, 1982); Clark (1970); and Hoover, Rensch, and Rensch (1966). The Information Center's letter documenting their record search, dated 10 May 1991, is included as an attachment to this report.

Additional archaeological, ethnographic, and historic sources were consulted by the author to place the project area in cultural context. Among the works consulted were various cultural

resources overviews and reports prepared by the Tahoe National Forest (Carlson 1986; Jackson, Herbert, and Wee 1982; Markley and Henton 1985; Payen 1976); as well as more general references (e.g., D'Azevedo 1978; Kowta 1988; Kroeber 1925; Moratto 1984; and Riddell 1978). The results of this prefield research are briefly presented below; further nonfield research may be conducted for the final reports, particularly if archaeological sites require fuller historical context for preliminary significance evaluations. Brief ethnographic, historic, and archaeological overviews will be prepared for the reports.

Also as a part of prefield study, contacts were made with organizations that might have concerns regarding, or special knowledge of, the project area. Contacted prior to field work were the Native American Heritage Commission regarding their Sacred Lands File and the Washo Tribe of California and Nevada. The District Archaeologist of the TNF Sierraville District was also contacted; as noted below, that office will be visited and pertinent records and reports obtained prior to field survey. The Sierra County Historical Society will be contacted while in Sierra County.

#### Previous Cultural Resources Investigations

According to Information Center files, no recorded archaeological sites are located within the project area, and no archaeological or other cultural resource studies have been conducted on National Forest or State lands considered in this report. In 1987, Roger Werner of Archaeological Services, Inc., conducted a field survey for Hecla Mining Company's proposed Golden Dome Mine. The survey area consisted of approximately 180 acres of non-Federal land, primarily in the eastern half of Section 28 and the western half of Section 27, immediately adjacent to the current project area (see Map). Drill sites on National Forest land within this area had been surveyed previously by Forest Service personnel (ARR 05-17-385 and addendum), resulting in the identification of isolated mining features. Werner revisited these features; because they were within lands under the jurisdiction of Tahoe National Forest (TNF), they were not considered further in his report. On non-Federal land to the south of these mining features, Werner identified a large scattering of trash, milled wood, and other debris probably dating to post-1930s; the feature was not recorded. (These finds, apparently representing the Antelope Mine, are discussed further below.)

Recently, TNF personnel surveyed lands within and adjacent to the project area (Baldrice, personal communication 1991). From verbal descriptions of the areas surveyed, it appears that most TNF acreage in the project area has been surveyed; of the total 240 Federal acres to be surveyed in the present project, only the 80 acres in Section 33 received no coverage, while the 80 acres outlined in Section 34 received general coverage, and should be revisited for the present study. The exact locations included in the TNF survey will be identified at the Sierraville Ranger District office prior to our survey, and a copy of the survey report will be obtained. Decisions regarding which TNF areas will require re-survey, if any, will be made in consultation with the District Archaeologist.

### Prehistoric Archaeological Sites

The Information Center, which has not accessioned the results of the above-mentioned TNF survey, shows that one prehistoric campsite (CA-SIE-397), has been recorded within a 1-mile radius of the project area, and numerous such sites have been recorded in similar environmental zones to the north, south, and west. Among the recorded sites are 15 prehistoric sites recorded by Payen in 1976; prehistoric sites were categorized as (1) base camps; (2) task-specific or temporary camps; and (3) hunting loci. Also identified were curvilinear petroglyphs, apparently associated with Martis Complex habitation sites. Most of the sites appeared to be sparse lithic scatters with little depth. The small number of diagnostic artifacts encountered were primarily Martis Complex basalt items, with only a single obsidian projectile point identified. Payen (1976:14) also noted possible cultural materials on the old terraces of "Lake Sierra," around the margins of the Sierra Valley, at elevations between 5000 and 5050 feet above mean sea level; this ancient lake, which had not yet been dated, appears to have been a body of water comparable in size to Lake Tahoe. A small area containing terraces at this elevation is present within the current project area and will receive close attention in the field.

The recent TNF survey within and adjacent to the present project area identified several prehistoric and historic sites; as noted above, the report and records for these sites will be obtained from the District office prior to field survey.

### Ethnographic Sites

The project area and nearby Sierra Valley were within territory controlled by the Washoe; some researchers contend that the valley and surroundings were held jointly by the Washoe and the Northeastern Maidu, with the former group exploiting the drier eastern and southern portions of the area and the latter group focusing on the well-watered area in the north and northwest (Payen 1976:4). For the Maidu, Sierra Valley was occupied only in warmer months (Riddell 1978:370), while Washoe maintained year-round settlements in the eastern valley (D'Azevedo 1986:467). No ethnographic villages are shown in or near the project area on Kroeber's map (1925:plate 37); several 19th-century settlements are shown in the vicinity of the project area on D'Azevedo's (1986:468) map, all probably on the valley floor. Antelope Valley is a winter range for deer today (Baldrice, personal communication 1991), and probably was a focus of hunting prehistorically.

### Historic Archaeological Sites

No historic-period sites had been recorded within the project area prior to the recent TNF survey. Two possible historic sites are suggested by notations on a 15' USGS topographic map of the area. "Antelope Mine" is depicted in the southwest quarter of Section 27, outside the present study area but within the property to be explored by Tenneco (see Werner 1987). Records consulted by the Information Center note that the mine was first discovered in 1863, and that gold, silver, and copper were extracted from it. The mine was sold as a copper mine in the 1920s but was apparently only briefly explored. The "Winnie Smith Mill (Ruins)" is

indicated in the northeast quarter of Section 33; to date, no information has been gathered on the history of this mill. At the location at which the mill is plotted, Tom Young of Tenneco Minerals recently noted sawdust and the remains of an old cabin (personal communication, 5/10/91). The 1877 General Land Office (GLO) survey plat shows "Wilson's House" in the northwest quarter of the southeast quarter of Section 28, possibly within the property surveyed by Werner in 1987. Since potentially significant resources within Werner's former survey area are also to be addressed in this study, this location and the location of the Antelope Mine will be revisited and reassessed. Another house is shown on the GLO plat outside the Tenneco exploration area, in the southwest quarter of the southwest quarter of Section 22. It is possible that features associated with this occupation might extend into the project area.

### Survey Predictions

Based on the preliminary records search and literature review outlined above, the project area exhibits high potential for containing extensive evidence of prehistoric and historic-period use, although many sites in the project area may have been destroyed by logging and grazing activities. The most appropriate locations for large occupation sites in Antelope Valley are outside the boundaries of the present project: on level, well-draining terraces adjacent to confluences of permanent or established intermittent creeks. Such locations are somewhat common in the valley but are rare within the project area. Large occupation sites are therefore not anticipated. There are numerous locations suitable for hunting stations or small camp sites, and at least one base camp may be present. Isolated finds, such as single bifacially worked tools or milling equipment items, are considered likely, and petroglyphs may be found in isolation or as components of habitation sites.

The remains of small cabins and deposits of domestic refuse are considered possible adjacent to water courses, as indicated by the 1877 GLO map. Non-residential use of the project area was predominantly focused on grazing and logging; the former activity may be minimally evidenced, but extensive evidence of historic-period logging in the form of old roads, high tree stumps, and discarded logging equipment is anticipated. Presumably associated with the logging in the area are the ruins depicted as the Winnie Smith Mill; some evidence of these remains is known to be present. The Antelope Mine appears to be the only mining concern within the project area, although more claims may be identified through additional research. While the noted remains of this mine was considered to be insignificant on Werner's survey, the mapped location of the mine will be revisited and thoroughly examined to learn whether undetected, more intact, remains are present.