A PRELIMINARY EVALUATION OF 30 POTENTIAL GRANITIC ROCK SITES FOR A RADIOACTIVE WASTE STORAGE FACILITY IN SOUTHERN NEVADA

By

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and
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February 15, 1978

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A PRELIMINARY EVALUATION OF 30 POTENTIAL GRANITIC ROCK SITES
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PREFACE

The preliminary study presented here was performed under subtask 2.7 of the NTS Terminal Waste Storage Program Plan for FY 1978. Subtask 2.7 examines the feasibility of locating a nuclear waste repository in a granitic stock or pluton in southern Nevada near the Nevada Test Site (NTS).

It is assumed strictly for the purposes of this study that such a repository cannot be located at NTS. This assumption may or may not be correct. In fact, five potential sites are being studied at NTS in the Twin Ridge Stock, Climax Stock, Gold Meadows Stock, Timer Mountain area, and Calico Hills area. The study reported here was conducted to answer the question, "If the sites at NTS are found to be unsuitable, could a suitable granitic site be found nearby?" The answer arrived at appears to be "yes".

This preliminary report does not identify a particular site as being a suitable location for a repository. Nor does it absolutely eliminate a particular site from further consideration. It does, however, answer the basic question of probable suitability of some of the sites and present a systematic method for site evaluation. Since the findings of this initial study have been favorable, it will be followed by more exhaustive and detailed studies of the original 30 sites and perhaps others. In future studies some of the evaluation criteria used in the preliminary study may be modified or eliminated, and new criteria may be introduced.
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A PRELIMINARY EVALUATION OF 30 POTENTIAL GRANITIC ROCK SITES FOR A RADIOACTIVE WASTE STORAGE FACILITY IN SOUTHERN NEVADA

I. INTRODUCTION

C. K. GeoEnergy Corporation (CKG), under contract to the Lawrence Livermore Laboratory (LLL), P. O. number 9567703, has developed a preliminary set of criteria for screening granitic plutons as potential radioactive waste storage sites. These criteria have been employed in an exercise to evaluate 30 potential sites in Nye, Esmeralda, Lincoln, and Clark counties, Nevada. It should be noted that as an exercise, this study is not intended to provide results that might be used by the Nevada Operations Office (NV) for decision making. The granitic plutons were selected by LLL (Stone, 1977), and the considerations used in the evaluation were developed by CKG under the supervision of LLL, utilizing considerations, factors, and criteria previously discussed by Stone (1978) and Burton and McClain (1977). One specific 40-ha site location was selected for each pluton, and used as the basis for the quantitative evaluations of distances, relief, etc.

Two sites were evaluated initially in order to check out the feasibility of the evaluation technique. These sites were the Climax Stock on the Nevada Test Site, NTS, (not one of the 30 potential sites considered in this study) and Site #1 in the Lucy Grey Range in Clark County.

There are other granitic plutons in southern Nevada that were not included in this study. When these are studied
some of them may prove to be suitable repository candidates.

A. EVALUATION CONSIDERATIONS

The following 10 broad categories encompassing the socio-economic/institutional and technical/environmental areas were used in the development of the evaluation considerations:

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**Topography**

1. The site should include a 20- to 40-ha above-ground operations area near the underground facility's portal with as low relief as possible.

2. The access route should also be characterized by low relief.

**Geology**

1. The mass of granitic rock exposed should be sufficient to contain the underground facility. (At least 4 km² should be available in the rock mass at depths of 300-1,500 m.)

2. The host rock should be competent.

3. Faults and surface lineaments should be at a minimum.

4. Open joints should be at a minimum.

5. A granitic rock mass in an overthrust should be avoided.
6. Joint frequency should be at a minimum.
7. Historic and Upper Cenozoic faults should be as far away from the site as practicable.
8. Volcanism risk should be low. Site should be located as far as practicable from vents younger than 6,000,000 years.
9. Abnormally stressed rocks should be avoided.
10. Younger rock masses are preferred if less fractured.
11. Geothermal resource areas should be avoided.
12. Sites potentially attractive for mineral development should be avoided.
13. The granitic rock mass should not be heavily dissected by valleys and crevasses. (Heavy dissection could indicate that the rock may be either incompetent or heavily faulted/open-jointed or both.)

**Hydrology**

1. The portion of the rock mass which is to contain the facility should be above the water table, if possible. If not possible, the fracture permeability should be at a minimum.
2. The site should be located as far away as practicable from existing water wells in use.
3. Areas with springs should be avoided.
4. Areas with perennial streams should be avoided if possible, and the 20 to 40-ha facility area should be located so as to obviate any damage from flash floods.
5. Lakes, man-made reservoirs, and paleolakes should be avoided.
6. Sufficient water should be available for the operation.
7. The site should be located in a recharge area and as far as practicable from discharge areas.
8. Closed groundwater basins are preferable.
9. Groundwater and surface water should not move into metropolitan areas, the Colorado River drainage basin, or the Owens basin.

Demography
1. Population density should be minimal near the site.
2. An established town should not be located too close to the site, and a support town with a reasonable population should be located within 150 km of the site.
3. Occupied human habitations should be minimal in the site area.
4. The site should be located as far as practicable from the state boundary.
5. The site should be located as far as practicable from existing mining operations or industrial activities.
6. It should be located as far as practicable from public recreation areas.
7. It should be located as far as practicable from currently-used farm lands.
Land Status

1. The site should not be located within a national or state park, wilderness or primitive area, withdrawn water sheds, federal or state wildlife reserve, national monument, national recreation area, Indian reservation, BLM or Bureau of Reclamation withdrawn lands, or near a wild or scenic river.

2. The site should be located as far as practicable from any of the foregoing types of land.

3. The site should preferably be located on federal land, not under lease.

4. Minimal mineral claims should exist on the site.

5. Minimal drilling and mining should have occurred within the 4 km² site area.

Safety/Security

1. The site should be located as far as practicable from airline corridors.

2. It should be located as far as practicable from military ranges.

3. The site should preferably be situated so as to allow the facility to be out of view from well-traveled paved roads.

Seismicity

1. The site should be located in an area with a minimal number of recorded earthquakes.

2. The magnitude of the largest natural earthquake with an epicenter located in the vicinity of the site should be minimal and the distance to that epicenter should be maximal.
3. The site should be expected to undergo minimal accelerations from NTS explosions or natural earthquakes (less than .5 g).

4. The site should be located as far as possible from any historic earthquake damage or fault movement.

Logistics

1. The site should be as close as practicable to a railroad.

2. It should be as close as practicable to a major paved road and still preferably out of view from the road.

3. The site should be located as near as practicable to existing power transmission lines.

4. It should also be located as near as practicable to an existing gas transmission line.

Meteorology

1. Sites with extremes in weather conditions should be avoided.

Archeology/History

1. Known sites of archeological or historical interest should be avoided, if possible.

Using these considerations, a list of about 60 characteristics was established for each site. Completely subjective distances, areas, etc., were used as limits in the descriptions
of site characteristics. Consequently, these limits should not be used in any context which requires theoretically, experimentally, or empirically-derived limiting criteria.

B. SCREENING TECHNIQUE

Site characteristics were compared and subjectively assigned weights. In addition, a number of characteristics were considered by the authors of this memorandum to be of such importance that a particular site could be eliminated entirely from preliminary consideration if it failed to meet the subjectively assigned standard for any one of these characteristics.

It is suggested that a second screening be conducted using more detailed information developed by an on-the-ground survey of each site. This second screening might utilize a different set of critical factors and coefficients that have resulted from additional field observations and the dialogue which would take place in the interim between this preliminary and the recommended follow-up evaluations.
II. SITE DESCRIPTIONS

A. INTRODUCTION

Information from each site is summarized in a four-page "Data Sheet" format (see Appendix A). Photographs of the sites taken in the course of an aerial reconnaissance are presented in Appendix B. The sources of data used to provide the information and a generalized description of the southwestern and southeastern sections of Nevada, in which the sites are located, are discussed in the following portions of this section of the report.

B. DATA SOURCES

Rapid assessment of many of the features of the sites was facilitated by a number of very helpful reports that have been published by the USGS and several State of Nevada agencies, the Nevada Bureau of Mines and Geology, the Nevada Division of Water Resources, and the Nevada Department of Conservation and Natural Resources.

Generalized geological information was found in the following data sources:


"A Probabilistic Estimate of Maximum Acceleration in Rock in the Contiguous United States," S. T. Algermissen and D. M. Perkins, USGS Open File Report 74-416 (1976) (see Figure 1).
"Cenozoic Rocks of Nevada," J. H. Stewart and J. E. Carlson  
Nev Bu M&G Map 52 (1976) (see Figure 2).

- Map S3 - Precipitation  
- Map S8 - Natural Ground Water Discharge Areas, (see Figure 3).  
- Map S13 - "...Interbasin Flow," (see Plate II).  
- Map L2 - "Pleistocene Lakes," (see Figure 4).  

"Prediction of Ground Motion Characteristics of Underground Nuclear Detonations," E.R.C. NVO-1163-239-UC11 (1974). (A 1-megaton shot on Pahute Mesa (see Figure 5) was used to calculate maximum acceleration at each site from nuclear events.)  


"Hot Springs, Sinter Deposits, and Volcanic Cinder Cones in Nevada," R. C. Horton, Nev Bu M&G Map 25 (1964)
"Map of Intrusive Rocks in Nevada," R. V. Wilson, R. R. Paul, Nev Bu M&G Map 30 (1965) (see Figure 6).

"Geothermal Energy Resources of the Western United States," NOAA (1977) (see Figure 7).

"Geologic and Water-Supply Reports and Maps - Nevada."
USGS Circ (1976)

"Geologic Map Index of Nevada," L. Boardman, R. J. Brown,
USGS Circ (1955)

I.A. Lutsey, Nev Bu M&G Map 42 (1971)

"Nevada Ground-Water Resources-Reconnaissance Series-Reports
No. 9, 10, 12, 13, 14, 16, 18, 21, 24, 25, 27, 28, 30, 31, 36, 38, 45, 46, 50, 51, 52, 54, 58, 60," Nev. Dept Cons & Nat Res.


"Mineral and Water Resources of Nevada," by USGS and Nev Bu M&G, Nev Bu M&G Bull 65 (1964)


"Bibliography of Nevada Mining and Geology," M. B. Ansari
Nev Bu M&G Report 24 (1975)

"Geothermal Exploration and Development in Nevada Through

"Oil and Gas Developments In Nevada 1968-1976," L. J.
Garside, B. S. Weimer, I. A.Lutsey, Nev Bu M&G Report 29
(1977)

"Directory of Nevada Mine Operations Active During Calendar

"Wells Drilled for Oil and Gas in Nevada Through 1976,"
L. J. Garside, H. H. Schilling, Nev Bu M&G Map 56 (1977)
(see Figure 8)

"Active Mines and Oil Fields in Nevada, 1976," A. L. Payne,
K. G. Papke, Nev Bu M&G Map 55 (1977), (see Figure 9)

"East-Trending Structural Lineaments in Central Nevada;"
E. B. Ekren et al, USGS Prof Paper 986 (1976)

"Chronology of Emplacement of Mesozoic Batholithic Complexes
in California and Western Nevada," J. F. Evernden, R. W.
Kistler, USGS Prof Paper 623 (1970)

A number of additional reports, maps, papers, etc., were
used in geological evaluations of the specific sites. These
specific data sources are listed as references on page four of
each site's set of "Data Sheets."

General references used to evaluate demographic data are
found in the following list:
C. EASTERN NEVADA SITES

The thirty sites can be conveniently divided into two groups, a western group (sites 2-9, 20-26, and 30) and an eastern group (sites 1, 10-19, 27-29). The geological characteristics of these groups are somewhat different. The eastern sites will be discussed in this section of the report and the western sites in the following section.

Nevada has been divided into four subprovinces by some economic geologists (Osmond and Elias, 1971). The eastern sites are located in the area typified by older sediments which were laid down in a volcanic "miogeosyncline." This miogeosynclinal area is divided into a stable and an orogenic component. (Subprovince I and II in Figure 12.)
Some of the later eastern granitic sites, 12, 13, 15, 16, 27, and 28, that seem to lie along four lineaments or their extensions, have been identified in Central Nevada (Ekren et al., 1976; see Figure 13). Sites 14, 15, 19, 25, 29 are north of the western branch of the Intermontain Seismic Zone (see Plate III) and sites 12, 13, 14, 15, 17, 19, 27, 28, and 29 are west of the Sevier Orogenic Zone, Figure 12. A number of the eastern locations seem to be in a generally stable environment (Western part of Osmand and Ellis' Subprovince I).

The Precambrian granitic sites, 1, 10, and 11, are in the Sevier Orogenic Zone. However, there are no historic faults in the immediate vicinity of these sites and they are also remote from other indicators of instability such as geothermal areas, (see Figure 7), relatively recent volcanism, (see Figure 2), seismic activity; (see Plate III), etc. Thus, these sites generally reflect a geologically stable environment.

Site 1

Site 1 is located in Clark County south of Las Vegas in the Lucy Grey Range. See Figure 14 (Bingler and Bonham, 1973). The range is a faulted Precambrian block capped with a layer of Tertiary volcanics of the Mount Davis Formation. The 40-ha site was arbitrarily located on the east side of the range in a granitic augen gneiss area. The rock appeared to be more resistant than the leucocratic quartz monzonite that occurs at several

* One 15-70 km deep ≤ 4.5 earthquake has been reported with a epicenter about 10 km northwest of site 10.
locations or the quartzo-feldspathic biotite gneiss/foliated gneissic granite that comprises the western portion of the range.

The McCullough fault separating the Lucy Grey from the McCullough Range has an apparent displacement of about 6 km (20,000 ft) using the projection of the Precambrian-Mount Davis contract (Longwell et al, 1965). This fault is Tertiary in age. There are no post-Tertiary faults nearer the site than the Late Cenozoic State Line Fault located about 10 km (6 mi) to the southwest.

This site is generally technically favorable except that the groundwater drains, via several other basins, into the Las Vegas Valley and thus into the Colorado River.

The site is favorable from a logistic standpoint, being near transportation and support facilities. However, this reduces the favorability from a security standpoint.

Figure 15a is a view of the site taken from the south. Figure 15b is a view of the volcanic cap on the promontory east of the site.

Figure 15c and 15d illustrate some of the recreational and grazing activities in the area.

A microwave tower is located about a kilometer south of the site. The access road and the power line to this Bell Telephone facility pass through the site (see Figure 15a).

Site 10

Site 10 is located on the west side of the Mormor Mountains in Lincoln County. Precambrian granite, amphibolite and gneiss
are exposed along a 6 km (4 mi) section adjacent to the arbitrarily chosen 40-ha site. Precambrian rocks are exposed through a window in the Tule Springs Thrust (see Figure 16). However, recent work (Dixon personal communication) indicates that the rock at this site has an appreciable gneiss and schists fraction, hence this site requires detailed field evaluation. Thus, the structural geological features of this site require an additional field study before a determination of favorability can be made. Furthermore, both the surface water and groundwater drain into the Colorado River system. In addition a moderate depth ≤ 4.5 earthquake has been reported about 10 km northeast of the site (Plate III).

Otherwise, site 10 is generally favorable from the logistic and security standpoint.

**Site 11**

Site 11 is located on the southeastern end of the East Mormon Mountains (see Figure 16). Precambrian amphibolites and gneisses are exposed along a 10 km (6 mi) stretch east of the eastern edge of the Tule Springs Thrust Fault. Recent work (Dixon personal communication) indicates that this site is predominantly gneiss and schists with lesser amounts of pre-Cenozoic granite, hence a detailed field evaluation would be required. Like Site 10, the structural geological factors must be studied before favorability can be determined. Furthermore, the surface and groundwater drain into the Colorado River system.
However, this is generally favorable from a logistic and security standpoint.

The 40-ha site was arbitrarily located near the southern end of the outcrop area near a road and power line that service a microwave tower.

**Site 12**

The Site 12 rocks consist of several small granitic stocks near the north end of the Groom Range. The stock arbitrarily chosen for the 40-ha site is a porphyritic quartz monzonite with chlorite sericite and calcite as alteration product (Tschanz and Pampeyan-1970). The stocks are rather small and unless they coalesce at depth there may not be a 4 km$^2$ pluton area at a depth of from 300-1,500 m below the surface. A moderate depth ≤ 4.5 earthquake has been reported less than 10 km northwest of the site (Plate III).

Site 12 is rather remote from any town or center of population. Thus this site has a problem from the standpoint of logistics.

**Site 13**

The Site 13 plutons are two Tertiary granitic intrusives located on the northwestern margin of the Timpahute Range. The northern pluton (see Figure 17) was selected as the arbitrary site location because it is more competent and because of the mineralization and active mining along the western margin of the southern stock.

Site 13 will not have 4 km$^2$ at depth unless the plutons
increase in cross sectional area with increasing distance from the land surface. The site is located within the Timpahute Lineament, and this aspect should be carefully evaluated.

Site 13 is somewhat remote from support facilities; thus representing a logistical problem. It is also near a new large tungsten mine which may be a problem from the standpoint of interference with mineral development.

Site 14

Site 14 comprises two Tertiary granitic intrusives located on the north end of the Worthington Range in Lincoln County. The eastern stock was arbitrarily chosen as the site. This stock is described as a leucocratic granite cut by many small mafic dikes. A view of the general topographic expression of the stock is presented as Figure 18a and a view of some of the veining is presented as Figure 18b.

The western stock is described as being quite heterogeneous with a highly altered and intruded wall rock (Tschanz and Pampeyan 1970). There is a tungsten prospect on the contact of the western stock and some mines in the contact rock near the eastern stock.

The site is remote and would represent somewhat of a logistical problem. However, the site appeared to be favorable from a evaluation of the technical aspects described in the literature, and was one of the sites selected for a ground visit.

Site 15

The site's pluton is a north-south elongated quartz diorite stock which appears to have its eastern margin along one of the
major faults in the southern Schell Creek Range in Lincoln County. The principle mineralization in the area is associated with a small quartz diorite porphyry located about 1.2 km (3/4 mi) northeast of the main stock.

The principle technical problem associated with this site is the reported movement of groundwater from the Cave Valley into the Colorado River drainage (Nevada Hydrolologic Atlas Map S-13, see Plate II).

The site is somewhat remote, but probably represents a reasonable compromise with respect to logistical and security aspects.

**Site 16**

Site 16 is located along the southern margin of a good size diorite/monzonite porphyry stock located in the Cedar Range, Lincoln County. The stock is typified by altered shear zones, along which the rock has low competency and some mineralization. There is a possibility that the stock represents a disseminated low grade copper/lead/zinc/silver "ore". (Tschanz and Pampyan, 1970.)

A technical problem associated with this site is the transport of surface and groundwater into the Colorado River drainage. A 4.5 medium depth earthquake was deported with a epicenter about 10 km north of this site.

The site is good from a logistic and security standpoint.

**Site 17**

Site 17 on the western side of the Delmar Range in Lincoln
County was originally thought to be a quartz monzonite/granitic porphyry, but it has since been characterized as consisting of Tertiary rhyolitic plugs that intrude the Kane Springs volcanic center (Twenhofel, 1978). Therefore, the structural geological factors are not favorable for site 17. Furthermore, groundwater from the site discharges into the Colorado River system.

Site 17 is moderately remote from support facilities, but it would probably be acceptable from a logistic and security standpoint.

Site 18

Site 18 in the predominantly volcanic rocks of the Clover Mountains in Lincoln County was at first identified as dioritic stock. It has since been mapped by Ekren and others as intrusive rhyolites associated with the Caliente volcanic center ring fracture zone (Twenhofel, 1978). Consequently, the structural geology of site 18 makes it unsuitable.

The ground and surface waters from the site drain into the Colorado River system and a shallow \( \leq 4.5 \) earthquake within a few kilometers of the site are factors that further reduces the acceptability of the site.

The site seems acceptable only from a logistic and security standpoint.

Site 19

The pluton of Site 19 is a quartz monzonite stock intruded into a complexly faulted Cambrian sequence in the southern part
of the Bristol Range in north central Lincoln County. The bulk of the mineralization in the Bristol Range occurs at least several kilometers north of the pluton. Water was encountered at an elevation of 1,765 m (5,790 ft) in this mining district, and provided a significant problem for economic recovery of the ore. The reported water level is only 155 m (510 ft) below the surface elevation of the arbitrarily selected 40-ha location on Site 19; thus it could be a technical problem for this site's development.

Another technical/environmental problem is the discharge of groundwater from the Site 19 basin into the Colorado River system.

The security and logistic characteristics for this site are generally satisfactory.

Site 27 and Site 28

The exact nature of the igneous bodies at sites 27 and 28 is in question. Twenhofel (1978) cites work by Moores, Scott, and Lumsden describing the rocks as granite porphyry and conflicting work by Stewart and Carlson and by Kleinhampl and Ziony describing the rocks as rhyolite porphyry. Further field work would be required to resolve these conflicting interpretations.

If the latter interpretation is correct, then these sites would not be suitable based on their rock type. Even if the first interpretation is correct, and the two bodies are granitic stocks, they are rather small and they are separated widely enough that
there is not a high probability that they coalesce at a depth of 300-1500 m. Thus, they may not represent a sufficiently large mass at the depth of interest.

There is an additional stock along the western margin of the range that should be evaluated and considered as a replacement for these sites.

The other technical, logistic and security factors associated with these stocks are generally favorable, and would be favorable for the alternate location.

**Site 29**

The Site 29 pluton is the Troy quartz monzonite intrusion of Cretaceous (?) age, located along the southwest margin of the Grant Range. The area is rather intensely deformed with major faulting reported after the time of emplacement of the Troy Stock (Cebull, 1970) (see Figure 19). The northern part of the stock is sheared, but the body is large enough so that competent rock occurs in a 4 square kilometer area near Troy Canyon (see Figure 20). The Troy stock is cut by large dikes of both acidic and basic composition; however, the contacts appear to be stable. Thus, the dikes should not represent structural discontinuities that would preclude the construction of stable underground workings.

The groundwater and surface water drain into Railroad Valley, which has no reported discharge into adjacent areas.

The stock seems generally favorable from a technical,
logistical, and security standpoint.

D. **WESTERN NEVADA SITES**

The rocks exposed in western Nevada consist predominantly of Tertiary volcanics. The rocks which the western Nevada plutons have intruded are primarily eugeosynclinal Paleozoic volcanic and sedimentary rocks in contrast to the predominantly miogeosynclinal rocks intruded by the eastern Nevada pluton. Earthquake activity and the incidence of historic surface breaks in western Nevada have been relatively high compared to that in eastern Nevada (see Figure 27 and Plate III).

Sites 2-9 and 30 are located just inside the Approximate Eastern Limit of Area of Abundant Jurassic Cretaceous Intrusions defined by Osmund and Elias (1971). Sites 20-26 are located to the east and outside this limit in a region of relatively sparse occurrences of intrusive granitic rocks.

Sites 5, 6, 7, 8, 9 are located in or near the Death Valley-Furnace Creek - Fish Lake Valley fault zone and constitute especially high risk seismic areas.

**Site 2**

Site 2 was visited on the ground. A photograph of the site is presented in Figure 21. The site is located on the southwest flank of Lone Mountain. The rock is a biotite quartz monzonite of Jurassic to Tertiary age. It intrudes the Precambrian Wymam Formation shales and limestones and the Precambrian Reed Dolomite.
The rock is competent, and it exhibits good exposures of the joint system. This site and site 3 are located in a "window" in the western high seismicity trend (Plate III), and also in a "window" in the Walker Lane - Las Vegas Valley Fault zone.

The hydrology of the site is favorable. The site is out of view from existing paved roads, but it is on an airline corridor. The logistics are particularly favorable; Tonopah is only 61 km (road distance) away, and the nearest railroad is within 78 km.

Site 3

Site 3 was also examined on the ground. A photograph is presented in Figure 22. The site is located on the northwest flank of the Weepah Hills just across the valley from Site 2. The rock is also a biotite quartz monzonite of Jurassic to Tertiary age. The pluton intrudes the Precambrian Wyman Formation and Reed Dolomite as well as the Cambrian Campito Formation (shales).

The quartz monzonite is more variable in competency (and generally less competent) than that of the Lone Mountain pluton. This site is also located in a window in the Walker Lane - Las Vegas Valley zone and western Nevada high seismicity area.

The hydrology of the site is favorable. The logistics are similar to those of the Lone Mountain pluton—generally favorable.
Site 4

Site 4 is located about 2 km west of the town of Silver Peak. The pluton is a biotite quartz monzonite of Jurassic to Tertiary age which intrudes the Precambrian Wyman Formation (siltstones and limestones).

The pluton has been displaced by high-angle normal faults. The site is located only 4 km from a known geothermal resource area (KGRA). Also, the Silver Peak Lithium Mine, operated by the Foote Mineral Company, is located only 5 km to the east. A < 6 m.y. old volcanic vent lies 8 km north of the site.

The hydrology is generally favorable. Safety, security, and logistics are generally favorable. However, the existence of the town of Silver Peak only 2 km away is considered quite unfavorable.

The Site is approximately 25 km northeast of the Nevada seismic zone.

Site 5

Site 5 is located on the western edge of the Silver Peak Range near Fish Lake Valley. The Dyer pluton is composed of biotite quartz monzonite of Jurassic to Tertiary age. It intrudes the Cambrian Harkless Formation (shale).

The structural geology is unfavorable; the pluton lies within the area affected by the Death Valley-Furnace Creek-Fish Lake Valley fault zone.

Except for a groundwater discharge area lying within 3 km
of the site, the hydrology is favorable. The Dyer Ranch is in view of the site, being located 2 km to the north. The town of Dyer is located only 8 km from the site - closer than is desirable.

Safety and security are acceptable. However, the rather long distance to the nearest support town (Tonopah) of 120 km makes the logistics somewhat unfavorable.

Site 6

Site 6 is located on the eastern flank of the White Mountains, just northwest of Dyer, Nevada. The rock is biotite quartz monzonite of Jurassic to Tertiary age. It intrudes the Precambrian Wyman shales and limestones and the Cambrian Harkless Siltstones.

The rock mass is extensive. However, it lies right on the California-Nevada border. An Upper Cenozoic fault lies only 3 km from the site, and the Death Valley-Furnace Creek fault zone appears to be present in the alluvium along the eastern edge of the pluton.* Thus seismicity is unacceptable. Except for there being perennial creeks within 3.5 km of the site and a Pleistocene lake within 3 km (Lake White Mountain), the hydrology is favorable.

Unfortunately, the site is located only 3.3 km from the state of California. Logistics are somewhat unfavorable; with the support town of Tonopah being 112 km distant from the site.

* Personal communication- Gary Dixon, U.S.G.S., Denver.
Site 7

Site 7 is located on the western flank of the Silver Peak Range in Fish Lake Valley. The pluton is almost 100 km in exposed area. It consists of biotite quartz monzonite of Jurassic to Tertiary age. The intruded formations include the Cambrian Harkless Siltstone and the Ordovician Palmetto Shale.

The pluton is located in an area that is probably affected by the Death Valley-Furnace Creek fault zone. Thus seismicity is unfavorable.

The hydrology is generally favorable, except that the White Mountain Pleistocene lake is located within 5 km of the site.

There is an active tungsten mine, the Jaca Mine run by J. G. J. Minerals Company, only 5 km away. Safety and security are satisfactory but logistics would be somewhat unfavorable, with the nearest support town of Tonopah located a route distance of 139 km away.

Site 8

Site 8 is located on the eastern flank of an arm of the Silver Peak Range near the California border. The pluton is 43 km² in exposed area and consists of biotite quartz monzonite of Jurassic to Tertiary age. It intrudes the Harkless Siltstone of Cambrian age.

Site 8 is in an overthrust and is located in an area probably
affected by the Death Valley-Furnace Creek fault zone*, consequently it is unfavorable from the standpoint of structural geology. Hydrology is generally favorable. Seismicity is unacceptable; the site is located in the Nevada seismic zone. In addition the state of California is only 3.1 km to the west and an active lead/silver mine, the Sylvania Mine operated by the Sylvania Mining Company, is located 6 km from the site.

Safety and security are excellent. However, logistics are less desirable, with the support town of Tonopah being located 118 route kilometers to the northeast.

**Site 9**

Site 9 is located on the Sylvania pluton which has an exposed area in Nevada of more than 280 km². The site is on the northern flank of Slate Ridge just a few kilometers west of Gold Point. The pluton consists of biotite quartz monzonite of Jurassic to Tertiary age. It intrudes the Precambrian Wyman Formation which consists primarily of siltstones and limestones.

The site is located in an area probably affected by the Death Valley-Furnace Creek Fault zone* and a fault more than 5 km long which extends to within 1 km of the site. The hydrology is generally favorable, except for significant surface discharge. There is an active gold mine within 3 km - the Penny Mine operated by Norman Bailey. Seismicity is unacceptable; the pluton is located in the Nevada seismic zone. Logistics are not entirely favorable; Tonopah is located at a distance larger than

*Personal communication - Gary Dixon, U.S.G.S. Denver.*
than 100 km and the nearest railroad is located 175 km away.

**Site 20**

The site chosen on the "Round Mountain Pluton" is located 1.5 km east of the town of Round Mountain in the southern portion of the Toquima Range. The pluton is composed of granite of Jurassic (?) age and intrudes the slates and cherts of the Ordovician Palmetto Formation.

Site 20 is generally favorable from a structural geology and hydrology standpoint. However its close proximity to the active Round Mountain Gold Mine of the Smoky Valley Mining Company and the town of Round Mountain is unfavorable. Except for its remoteness from a railroad, the logistic situation is rather favorable.

**Site 21**

Site 21 on the "Manhattan District intrusive," is located on the southeastern edge of the Toquima Range. It consists of Cretaceous quartz monzonite and granodiorite and intrudes Ordovician shales, cherts and limestones.

Site 21 is generally favorable from standpoints of structural geology, hydrology, logistics (except for distance to nearest railroad) and safety. However, its close proximity to the town of Manhattan (8.5 km) is considered to be unfavorable. Particularly favorable, however, is the relatively close proximity to the nearest support town of Tonopah of only 47 km. The pluton is sufficiently large to allow a number of alternate sites to be
chosen which might prove to be acceptable.

Site 22

Site 22 on the "Clipper Gap Pluton" is located on the western side of the Toquima Range in the Big Smoky Valley, just south of the Nye/Lander County boundary. The pluton consists of biotite quartz monzonite and granodiorite of Jurassic age. It intrudes the Ordovician Vinini Formation which is composed of shale, chert, limestone, and quartzite.

This site is generally favorable from the standpoint of structural geology and hydrology except that the nearest groundwater discharge area is located only 5 km away. Also, the edge of Pleistocene Lake Toiyabe is only 3 km from the site.

Logistically, Site 22 is generally unfavorable in that the nearest support town of Tonopah is located 155 km to the south and the nearest railroad is almost 200 km distant by an acceptable route.

Site 23

Site 23 was examined on the ground. A photograph is shown in Figure 23. It is located just south of Aiken Creek on the eastern edge of the Toiyabe Range in Big Smoky Valley. The rock is Jurassic-Tertiary granodiorite and adamellite. It intrudes Cambrian formations composed primarily of quartzite.

The pluton is fairly extensive and may be continuous with another pluton located just north of the site. Competency of the exposed rock varies from place to place.
From a structural geology standpoint, the site is less than favorable. A 5+ km-long fault transects the site and a Quaternary/Upper Cenozoic fault lies within 2 km. Hydrology of the site is somewhat unfavorable in that a groundwater discharge area is located 3 km away and 7 perennial streams are located within 5 km. Pleistocene Lake Toiyabe lies 2 km to the east of the site.

Logistically, the site is less than desirable. The nearest support town, Tonopah, is located 139 km to the south and the nearest railroad is 188 km by an acceptable route.

Site 24

Site 24 was also investigated on the ground. A photograph of the pluton is presented in Figure 24. The site is located on the eastern slope of Toiyabe Range in Big Smoky Valley within several kilometers of Carver’s Corner. The pluton is quartz monzonite of Jurassic age. It intrudes the Ordovician Palmetto Formation.

The competence of the quartz monzonite is generally fair on the lower slopes of the pluton. However, it appears to be more competent and possibly silicified higher up in the range. The joints are generally not obvious sharp linear features. They exhibit more of a curly or wavy appearance. Slickenslides are not uncommon.
This rock mass is also transected by a 5+ km long fault. A Quaternary/Upper Cenozoic fault lies 2 km away. There are 50 springs and 3 perennial streams within 5 km of the site. Also, the nearest groundwater discharge area is located only 2 km away from the site. Pleistocene Lake Toiyabe extends to within 5 km of the site.

Probably 100 to 200 people reside at Carver's Corner, only a kilometer or so from the site. Logistics are not favorable.

Site 25

Site 25 was investigated on the ground. A photograph is presented in Figure 25. The site is located on the eastern slope of the Toiyabe Range in Big Smoky Valley. The rock is microcline granite of Jurassic (?) age which intrudes the conglomerate of the Permian Diablo Formation.

The rock is generally competent and is highly silicified in places. Its structural geology is not particularly favorable. Two perennial streams are located within 5 km. Otherwise, the hydrology is not unfavorable. Logistics are not particularly favorable in that the nearest railroad is 172 km away (route distance). There are four ranches in Big Smoky Valley in view of the site.

Site 26

Site 26 was also investigated on the ground. A photograph is presented in Figure 26. The site is located on the eastern
flank of the Toiyabe Range in Big Smoky Valley. The rock is a quartz monzonite of Jurassic (?) age which intrudes the Cambrian Goldhill Formation (quartzite and schist) and other Paleozoic rocks.

Its structural geology is similar to that of the other three Toiyabe Range sites; rather unfavorable. There are 4 perennial streams and 3 springs within 5 km of the site. It is located 3 km from a groundwater discharge area and 4 km from the Pleistocene Lake Toiyabe. There are a couple of ranches in view of the site. The logistics situation is not particularly favorable, as is the case with the other Toiyabe Range sites.

Site 30

Site 30 is located north of Gabbs, Nevada in the Gabbs Valley. The pluton is composed of granodiorite and diorite of Mesozoic to Tertiary age. It intrudes Upper Triassic to Lower Jurassic limestones, dolomites and siltstones.

The pluton is relatively small - about 9 km$^2$ of exposed area. Its structural geology is somewhat unfavorable in that a historic surface break is located within 11 km. Hydrology is favorable although there is a groundwater discharge area located within 9 km.

An active tungsten mine, the El Capital operated by B. L. Hedgecorth is located within 1 km of the site. Safety and security are satisfactory while seismicity is highly unfavorable. Logistics are excellent - the support town of Gabbs being located only 15 route kilometers to the south.
There are five other granitic plutons in the vicinity that were not included in this study, but which might be worthy of future consideration.

Sites 20, 22, 23, 24, 25 are located on the eastern margin of the Western Nevada high seismicity area, and site 30 is located well within the area, thus these sites have a higher than average seismic risk. This seismic risk as well as a number of other factors were evaluated in the screening process discussed in the following section.
III. SCREENING PROCESS

Values for some of the more important site characteristics were extracted from the site data sheets and placed in a matrix to provide a basis for screening. This matrix, presented in Plate VI, includes sixty-three characteristics. The data sources used in the preparation of this plate are presented in Appendix C.

Subjective assessments of the sites relative suitability were made in terms of technical/environmental, socio-institutional and economic factors. For purposes of the initial screening, it was assumed that there were no economic factors which would totally eliminate a site from consideration. However, three critical socio-institutional and nine critical technical/environmental limitations were used, any one of which could eliminate a particular site from further consideration.

The technique utilized to generate a specific value that could be used to rank each site was to set up an equation of the form:

\[ v = (a_1 \cdot a_2 \cdot a_3) \cdot (b_1 \cdot b_2 \cdot \ldots \cdot b_9) \sum_{i=1}^{32} c_i x_i \]

where:

\( v \) = relative score for site, the higher the score the more favorable the site.

\( a \) = the product of all the critical socio-institutional factors. Each of these factors was assigned a value of zero if found to be unfavorable and one if favorable.

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\[ b = \text{the product of all the critical technical/environmental factors. Each of these factors was assigned a value of zero if unfavorable and one if favorable.} \]

\[ c_i = \text{the subjectively selected coefficient of the non critical factors. The coefficients were assigned a value that would yield a } c_i x_i \text{ product commensurate with the importance of the factor as subjectively determined by the authors of this memorandum.} \]

\[ x_i = \text{the quantitative value assigned to the } i \text{th of the 32 factors used in this scoring exercise.} \]

If either \( a \) or \( b \) is found to be zero, then the site is eliminated from further consideration, and assigned a "value" of \( E \). This is done because the summation \( c_i x_i \) \((i = 1 - 30)\) could have a value of more than zero, zero, or less than zero. Thus, the \( E \) serves to distinguish between a fortuitous \( \sum c_i x_i = 0 \) with product \( a-b = 1 \) and a site with an \( a \) or \( b = 0 \).

A. SOCIO-INSTITUTIONAL SCREENING

The socio-institutional parameters used in this assessment and their subjectively assigned weights are listed in Table 1. The rationale used in assigning the various weights is presented in the following sections.

1. Distance to Nearest Town

Because of the nature of the contemplated facility, it was assumed that a minimum acceptable distance of 10 km should be set between the site and the nearest established town.
This would allow for the presence of a buffer zone in which there would be no mutual interference. As distance from the nearest town increased beyond 10 km, however, it was assumed that the added commute time would be a negative factor. Consequently, for sites located further than 10 km from the nearest town (and which were therefore not eliminated) a negative coefficient of -0.03 was applied to the distance in km. The resulting product had a maximum negative value of -3.3 and a maximum range of 3.0.

2. Distance to Nearest State Boundary

While technical considerations were also weighted which deal with sites located near a state boundary, it was assumed that a minimum acceptable distance of 10 km should be established to provide a buffer zone which could serve to avoid potential interstate problems which might delay development of a facility. Distances of 10 km or less to a state boundary were assigned an a value of zero. Distances beyond 10 km were not considered to be of any positive or negative impact and were assigned an a value of one.

3. Distance To Nearest Active Mine

Active mines were deemed to be a sufficient potential source of interference to completely eliminate from consideration those sites located within 5 km of one. Distances of 5 km or less from the site were assigned an a value of zero. Distances greater than 5 km were assigned an a value of one.

4. Distance To Nearest Military Range

For safety reasons, it was assumed that the further a
site was located from a military range, the better. However, the range activities could be modified if necessary, hence a rather low coefficient of 0.01 was assigned to this factor resulting in a range and maximum value of 2.7.

5. **Potential Interference From Mineral Development**

A subjective assessment of the potential for mineral development was made for each site. Ratings of "high, moderate and low" were assigned. Primarily because of the subjectivity of this assessment, no sites were eliminated from consideration with a "high" potential for mineral development. However, this characteristic was assigned the maximum range of potential weights of all the characteristics not assigned a minimum standard. A positive cx value of 5 points was assigned for low potential, a 0 for moderate and a negative 5 points for a high potential.

6. **Number of Old Mines Within 10 km**

A fairly objective indicator of potential for mineral development in the vicinity of a potential site was assumed to be provided by the number of inactive "mines" within 10 km. Actually, some of the "mines" counted were merely prospects and most were rather small. A coefficient of -0.05 was applied to the number of "mines" within 10 km to determine the cx value for this characteristic, with a negative cutoff value for the cx product of -5, and a resulting range of 5.
7. **Distance To Nearest Restricted Land**

Strictly because of potential conflicts with activities on restricted land, it was deemed appropriate to apply a negative weight for sites located within 10 km of such lands. No weight was given for distances in excess of 10 km. ex values of -2 and -1 were assigned for distances of <5 km and <10 >5 km, a 0 for distances ≥10 km; thus resulting in a maximum range of 2 for this factor.

8. **Distance To Nearest Airline Corridor**

From a safety standpoint, it was assumed that the further a site is located from an airline corridor, the better. However, it was also assumed that airline corridors could be adjusted, if necessary. Therefore, this characteristic was assigned a rather low maximum range of 2. A coefficient of +0.02 was applied with a cx cutoff of +2 points.

9. **Site Visibility From Paved Roads**

For the sake of both safety and security, an inconspicuous site was judged to be more favorable than one that is exposed. If a site were not visible from paved roads, it was given a cx value of 3, and 0 if it was exposed. This of course, results in a maximum range of 3.

10. **Route Distance To Nearest Support Town**

A site that is remote from its support town is not only expensive in terms of commute travel and freight costs but is also objectionable from the standpoint of workers' commute
time. For these reasons, this factor was given a relatively heavy weight -- a coefficient value of -.05 resulting in a minimum cx value of -8 and a range of 7.

11. Population of Nearest Support Town

The support towns of Las Vegas, Ely, and Tonopah were assigned cx values of 8, 4 and 1 respectively, since the larger support towns would be less affected by diversion of manpower to the contemplated storage operation. These weighting values were applied primarily because of the considerably larger populations in these towns than those in the smaller Nevada communities. All other towns were given a cx value in this category of 0. This, of course, would result in a range of 8 for this factor.

B. ECONOMIC SCREENING

Five considerations shown on Plate VI were used in the preliminary economic assessment for screening purposes. These considerations and the subjectively chosen weighting factors used are presented in Table 2. Obviously, there are many other economic considerations that should be evaluated after more detailed field investigations have been conducted.

1. Maximum Relief Of A 40-ha Area

A number of the sites do not have relatively flat operations area immediately adjacent to a potential adit or shaft location. It was felt that this condition could result in some added construction and operating costs. Therefore, a rather small weight was given to this factor - a coefficient of -0.01 yielding a minimum cx value of -1.5, and a range of 1.2.
2. **Distance To Nearest Power Line**

This factor was considered to be of minor economic impact and was therefore weighted about the same as the foregoing - a coefficient of -0.02, a minimum cx value of -1.7, and a range of 1.7.

3. **Route Distance To Nearest Railroad**

A number of the western Nevada sites are located near abandoned railroad beds. The condition of these beds is quite variable - from excellent to almost entirely washed away in some areas. In addition, the title to the land has reverted to the BLM. Because of this uncertainty with respect to their utility, no advantage was ascribed to sites near such abandoned beds. Only currently active railroad lines were considered.

Since a railroad bed and associated trackage would cost on the order of $200,000/km, the proximity of a site to an existing track was given a rather heavy weight. A coefficient of -.03 was used. This resulted in a minimum cx value of -7.6 and a range of 7.4.

4. **Route Distance To Nearest Paved Highway**

A weighting coefficient of -0.02 was applied to the distance to the nearest paved highway. Because the sites are located relatively close to paved roads, application of this coefficient resulted in a minimum cx value of only -1.4 and a range of 1.4.

5. **Route Distance To Nearest Commercial Airport**

For purposes of this assessment a "commercial airport" was defined as one with regularly scheduled airline service.
These airports for the southern Nevada sites include those located in Las Vegas, Ely, Bishop (CA), and Cedar City (UT).

A weighting coefficient of 0.01 was used. Because of the extremely long distances involved, the minimum cx value for this factor was -2.7 and a range of 2.1.

C. TECHNICAL/ENVIRONMENTAL SCREENING

A total of 22 site characteristics were extracted from the matrix in Plate VI for use in the technical/environmental screening. Nine of these characteristics were considered to be sufficiently important so that a site could be eliminated from consideration if it failed to meet the subjectively established minimum standard for any one of these nine characteristics, i.e., the characteristics would have a b value of zero and thus eliminate the site.

The remaining 13 characteristics were subjectively assigned coefficients so that the cx product would have appropriate volumes.

The 22 characteristics used, minimum standards, coefficient values, and maximum/minimum cx products are listed in Table 3. A discussion of the rationale used in establishing the weighting factors follows for each site characteristic.

1. **Site Characteristics With a Minimum Standard**
   
   a. **Does the rock mass occur outside an overthrust and is there 4 km² at depths of 300 - 1,500 m?**

   A pluton in an overthrust would be suspect as to vertical continuity as well as possibly the degree of deformation it has undergone. Also, a
pluton of limited surface exposure with resulting questionable area at depth would be of somewhat limited utility for the proposed facility. For these reasons, at least for the preliminary screening, it was deemed appropriate to assign a b value of 0 to either of these eventualities, thus eliminate any such plutons.

b. The groundwater and surface water do not drain into the Colorado River basin?

The potential problems associated with discussions about movement of groundwater and surface water from the basin in which a site was located to the Colorado River basin could be significant and all plutons so located were assigned b values of zero and were consequently eliminated. This limitation caused a number of otherwise acceptable sites to be eliminated. On any successive screenings, it might be appropriate to reconsider this limitation in light of the distance and time that the groundwater, at least, would be required to travel to enter the Colorado River basin.

c. Distance to nearest volcanic vent <6 m.y. and <10 m.y.

Sites located within 10 km of either a <6 or <10 m.y. volcanic vent were assigned a b value of zero and eliminated because of the potential for future volcanic activity to interfere with storage operations.
It is believed that any interference caused by ejecta from a vent located more than 10 km away from a site would be acceptable. Thus, positive cx values were given to sites with vents located at the more remote distances. A coefficient of 0.05 was applied to distances from 10 m.y. vents. A maximum cx cutoff value of 5 points was set. For 6 m.y. vents, a coefficient of .01 was used with a maximum cx cutoff value of 10 points. This resulted in a range of 5 for the 10 m.y. vent locations and a range of 10 for the 6 m.y. vents.

d. Distance to nearest known Geothermal Resource Area

Because of potential interference with future geothermal energy development operations, the indication of recent orogenic activity, and the potential for elevated temperatures to affect storage operations in the pluton, it was deemed appropriate to assign a b value of zero and to eliminate from consideration those sites within 10 km of a known Geothermal Resource Area, (KGRA).

A positive cx value was given those sites located more remote from KGRA's. A coefficient of 0.1 was used resulting in a maximum cx value of 5 points, and a range of 4.

e. Distance to nearest historic faults

Historic faults (see Figure 27) were considered to be of sufficient concern to assign a b value of
zero to all sites within 5 km of such a break, thus eliminating them.

A coefficient of 0.1 was used to weight sites with faults located beyond 5 km. A maximum cx value cutoff of 10 points was ascribed to this factor, resulting in a range of 9.5.

f. Estimated maximum acceleration from future earthquakes

All sites located in regions which are expected to sustain ground accelerations of more than 0.4 g from future earthquakes were deemed to be vulnerable to damage. These sites were assigned a b value of zero and were eliminated entirely from consideration.

Those sites located in regions of potential minor ground accelerations were given cx values. A coefficient of -30 was applied to the expected ground motion. This resulted in a minimum cx cutoff value of -10 points, and a range of 9.7.

2. Site Characteristics With No Minimum Standard

a. Degree of rock mass resistance to erosion

Based upon the nature of the elevation contours on the topographic maps, a subjective high-moderate-low assessment of the pluton's resistance to erosion was made. It was reasoned that this characteristic was somewhat correlatable with overall rock mass competency at depth. A cx value of +3 was assigned
to a high resistance, 0 to moderate and -3 to low resistance. This resulted in a range of 6 for this characteristic.

b. **Area of exposed rock mass**

The larger the outcrop of the pluton, the less uncertainty exists as to its comprising a sufficient area at depth for a facility. Also, a number of potential sites can be chosen on large plutons. For these reasons, a maximum ex value of +5 points was ascribed to this factor. This +5 value was assigned to plutons with exposure of >100 km². The following lesser weights were used: <5 km² = 0, 5-10 km² = 2, 10-30 km² = 3, 30-100 km² = 4. This resulted in a range of 5 for this factor.

c. **Volcanic hazard**

D. R. Mullineaux's Preliminary Overview Map of Volcanic Hazards in the 48 Conterminous United States (1976) was used to determine values for regions of volcanic hazards. An x hazard value of 1 was applied to his "Zone C." (Area subject to 5 cm or more of ash from a "very large" eruption similar to the Mt. Macama (Crater Lake) eruption about 6,600 years ago.) And an x value of 2 was applied to his "Zone B." (Area subject to 5 cm or more of ash from a "large" eruption, similar to the Mt. St. Helens eruption about 3,400 years ago.)
These x hazard values were multiplied by a coefficient of -1 to obtain incremental cx hazard weights for sites located in these respective regions and a range of 1.

d. **Distance to nearest 5+ km - long fault trace**

An arbitrary minimum fault trace length of 5 km was set for consideration of faults with unspecified pre-Upper Cenozoic age. For distances less than 5 km, a cx weight of zero was given; for distances greater than 5 km and less than 10 km, a cx value of one was ascribed; and for distances beyond 10 km, the cx value was 2. The range for this factor was 2.

e. **Distance to nearest Upper Cenozoic Fault**

Twice as much maximum weight was given to this factor (see Figure 27) as was the case for pre-Upper Cenozoic "age - unspecified" faults. A coefficient of 0.2 was applied to all distances and a maximum cx value of 4 was allowed. This resulted in a range of 4.

f. **Annual groundwater discharge**

The less groundwater discharged from the pluton's groundwater basin, the better. Therefore, sites in basins with relatively small discharges should be given incrementally more favorable cx weights. A coefficient of -0.1 was applied, resulting in a minimum cx value of -4 and a range of 4.
g. **Distance to nearest groundwater discharge area**

Since the further groundwater travels from a site before discharge, the better; positive weight was applied to sites far removed from discharge areas. A coefficient of 0.1 was used. This resulted in a maximum ex value of 5.4 points for this factor, and a range of 5.2.

h. **Annual surface water discharge**

Screening weight was given to annual surface water discharge for the same reasons as those asserted for groundwater. A ex value of +2 was ascribed for 0 discharge, 0 for minor discharge and -2 for significant discharge, resulting in a range of 4 for this factor.

i. **Distance to nearest perennial stream, nearest lake/reservoir and nearest spring within 5 km**

It was assumed that potential surface water problems could be avoided by selecting a site removed from surface streams, lakes, and springs. Perennial streams and springs were weighted equally in this regard. The absence of either feature within 5 km was associated with a ex value of +2, and the absence of both received a value of +4. If one occurred within 1 km, a ex value of -2 ascribed and if both occurred within 1 km, a value of -4 was used. This resulted in a range of 8 for these factors.
If a site had a lake/reservoir within 5 km it was assigned a cx value of -2, and beyond 5 km a cx value of 0. This resulted in a range of 2 for this factor.

j. Estimated maximum horizontal acceleration from future NTS explosions

In order to obtain this estimate, it was assumed that a 1 megaton buried explosive would be detonated at Pahute Mesa (see Figure 5). The Pahute Mesa regression equation was used to determine peak vector acceleration (ERC-1974) for each site. This vector acceleration was multiplied by .9 to obtain an estimate of the horizontal acceleration. Finally the 1 sigma value was determined by multiplying this value by 2.3. A coefficient of -30 was applied to the 1 sigma values. The resulting minimum cx value was -5, and the range was 4.7.
IV. SUMMARY AND CONCLUSIONS

This report represents an attempt to apply some of the geological, engineering and socioeconomic considerations, factors and criteria, previously discussed by Stone (1978) and Burton and McClain (1977), to a preliminary screening of the 30 granitic sites in Southern Nevada previously identified by Stone (1977), as well as the Climax Stock located on the NTS.

The technique used for the preliminary screening was to construct a four-page "data sheet" which listed a number of considerations/factors/criteria in two broad categories - Technical/Environmental and Socioeconomic/Institutional. The factors selected were those that might be at least partially evaluated with information obtainable from the literature. A data source file was developed and the sheets were completed. The data sheets for the 30 sites and the Climax Stock are presented as Appendix A.

A number of factors (63) were selected for inclusion in a matrix (see Plate VI). Thirty-nine of these factors were selected for further processing.

The numeric technique selected for the final preliminary screening was a linear type equation of the form:

\[ v = (a_1 \cdot a_2 \cdot a_3) \sum_{i=1}^{32} c_i x_i \]

where:

- \( v \) = relative score from site, the higher the score the more favorable the site.
a = the product of all the socio-institutional "show stoppers."* Each of these factors was assigned a value of zero if found to be unfavorable.

b = the product of the Technical/Environmental "show stoppers."

c_i = the value of the coefficient selected to yield a subjective value for the factor

x_i = one of the 32 factors used in this scoring exercise.

It should be stressed that the critical or multiplying factors were selected on an entirely subjective basis by the authors of this memo. Other evaluators might generate a quite different list. The critical factors were selected from the technical, environmental, socio-institutional areas. None of the economic factors were deemed critical in this analysis.

Coefficients for the additive portion of the screening equation were also selected on a subjective basis. The values of the coefficients were chosen so that the range of the product c_i x_i reflected the authors ideas about the overall importance of factor x_i. This range varied from 1 for factors deemed to be minor to 10 for factors deemed to be of major importance. The results of this evaluation are presented as Tables 4, 5, 6, and 7.

The screening values for the nine sites that were not eliminated are tabulated as follows:

*Show stoppers is a slang expression for all the factors that were believed to be important enough to eliminate the site if found to be unfavorable.
Site Designation | Screening Value
---|---
2 | 9.0
3 | 9.8
14 | 9.4
22 | 23.9
23 | 12.7
24 | 9.1
25 | 15.0
26 | 12.1
29 | -4.4

These nine sites were selected for an on-the-ground evaluation. This evaluation and the aerial examination and photographic flight over all the sites, (see Appendix B) made in conjunction with the field trips, significantly changed the opinions about the suitability of some of the sites.

Site 21 should be reconsidered and perhaps added to the acceptable list since the pluton appears to be large enough so that the 40-ha site could be relocated to prevent encroaching on the town of Manhattan. (The mines at Manhattan appear to be closed, thus further reducing any conflict between any existing culture and a waste storage site.)

Site 23 should be questioned as suitable because of nearby ranches that were not located on available literature.

Site 24 probably should be eliminated because (1) the population at Carver has greatly increased, and (2) the evidence of a later Quaternary/Historic (?) fault near the eastern margin of the pluton.
Sites 25 and 26 should be questioned because of the nearby ranches.

Site 27 should be reconsidered because an alternate location may be available at a larger stock a few kilometers to the west.

Site 28 should be reevaluated because the stock may be larger than figured for this exercise.

Some suggestions about future activities for this project are:

(1) On-the-ground studies should be made of all the sites to upgrade the information in the Site Characteristics Matrix.

(2) A second selection of critical factors and coefficients could be made based on the additional information developed by the field studies and the dialogue about site selection that will occur subsequent to this preliminary study.

Based on this Preliminary Evaluation it appears that there are several granitic plutons in Southern Nevada that would constitute potential nuclear waste storage site locations.
Fig. 1
Preliminary Map of Horizontal Acceleration
Fig. 2
DISTRIBUTION AND LITHOLOGIC CHARACTER
- OF SEDIMENTARY AND IGNEOUS ROCKS
AND UNCONSOLIDATED DEPOSITS OF
NEVADA LESS THAN 6 MILLION YEARS OLD.
SHOWING CENTERS OF VOLCANISM

by
John H. Stewart and John E. Carlson
Fig. 3

EXPLANATION

AREA OF GROUND WATER DISCHARGE

[Legend and map details]

SITES LOCATED

PRINCIPAL AREAS OF NATURAL GROUND WATER DISCHARGE

Produced by
STATE OF NEVADA
DIVISION OF WATER RESOURCES
STATE ENGINEER'S OFFICE

BASIS ON STATE FEDERAL COMPENDIUM FRAMEWORK STUDIES

Edited by E. S. Boyd

Cartography by J. R. Beale Jr.

With assistance of
Drawings and Illustrations
U.S. MATH. MAPS, LAS VEGAS, NEVADA.
SITE LOCATION

"Pleistocene" lakes in the rock which began 2 to 3 million years ago and ended about 20,000 years ago. The Pleistocene Lakes on the map are estimated to have reached the greatest extent between 5000 and 30,000 years ago.

PLEISTOCENE LAKES IN NEVADA
LAKES IN NEVADA
Fig. 5
DISTANCES FROM SITES TO HIGH YIELD NUCLEAR EXPLOSIVE TEST SITE

ASSUMED LOCATION OF 1 MEGATON NUCLEAR SHOT.
Fig. 5
DISTANCES FROM SITES TO TEST SITE
HIGH YIELD NUCLEAR EXPLOSIVE

ASSUMED LOCATION OF 1 MEGATON NUCLEAR SHOT.
ONE MILLION SCALE SET

Fig. 6

INTRUSIVE ROCKS OF NEVADA

BY ROLAND V. WILSON AND RICHARD R. PAUL
Fig. 7

KNOWN GEOTHERMAL RESOURCE AREAS

SCALE 1:2,500,000

○ SITE LOCATION
□ KGRA

Fig. 8

SITE LOCATION

ONE MILLION SCALE SET

WELLS DRILLED FOR OIL AND GAS IN NEVADA THROUGH 1976

Larry J. Garside and John H. Schilling

1977
Fig. 9

ONE MILLION SCALE SET

ACTIVE MINES AND OIL FIELDS IN NEVADA, 1976

Anthony L. Payne and Keith G. Papke

1977
Fig. 10
TRANSMISSION AND TRANSPORTATION FACILITIES IN NEVADA
By Keith Lockard

EXPLANATION

ELECTRICAL POWER

TRANSMISSION LINES:

OWNERSHIP LIST

GENERATING STATIONS

SITE LOCATION

TRANSPORTATION AND CULTURE

GAS AND LIQUID FUELS
Fig. 12

PETROLEUM SUBPROVINCES OF THE GREAT BASIN

REF: J.C. OSALSON & O. W. ELLIS, "POSSIBLE FUTURE PETROLEUM RESOURCES OF GREAT BASIN—NEVADA AND WESTERN UTAH." AAPG Mem. 18, V. 1, p. 418, Fig. 8.
Fig. 14
GEOLOGY OF SITE 1
REF: NEVADA BUREAU OF MINES & GEOLOGY
MAP 143, 1972.
Figure 15a. Site 1, looking west.

Figure 15b. Basalt capped ridge east of Site 1.
Figure 15c. Grazing north of Site 1.

Figure 15d. Example of recreational activities near Site 1.
GEOLOGIC MAP SHOWING MORMON MOUNTAIN AREA

REF: NEVADA BUREAU OF MINES & GEOLOGY BULLETIN 73, 1970
SCALE 1:250,000

-69-
Fig. 17
GEOLOGIC MAP OF THE TEM PIUTE DISTRICT

drawing number 12, MUNO 71, U.S.

CONTOUR INTERVAL 500 FEET

Fig. 70
Figure 18a. Site 14, looking west.

Figure 18b. Site 14, looking east.
Fig. 19

GEOLOGIC MAP OF THE SOUTHERN GRANT RANGE

REF: S.E. CEBULL, "BEDROCK GEOLOGY & OROGENIC SUCCESSION IN SOUTHERN GRANT RANGE, NUE CO., NV," AAPG V. 54, No. 10, Pg. 1832, Fig. 4.
Figure 20. Site 29 (Troy Stock) looking east.
Figure 21. Site 2, looking east.

Figure 22. Site 3, looking west.
Figure 23. Site 23, looking west.

Figure 24. Site 24, looking west.
Figure 25. Site 25, looking west.

Figure 26. Site 26, looking west.
Fig. 27
HISTORIC, QUATERNARY, AND UPPER CENOZOIC FAULTS

LEGEND:
- HISTORIC SURFACE FAULTS
- QUATERNARY FAULTS
- UPPER CENOZOIC FAULTS

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<th>Site Char. Number</th>
<th>Site Characteristic</th>
<th>Minimum Standard</th>
<th>Weighting Coefficient</th>
<th>Maximum Weight</th>
<th>Minimum Weight</th>
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(1) Moderate = 0, Low = +5, High = -5
(2) 5 to 10 km = 1, 10 km = 0, 5 km = -2
(3) Yes = +3, No = 0
(4) Las Vegas = 8, Ely = 4, Tonopah = 1, Others = 0
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<th>Minimum Weight</th>
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<td>--------------------------------------------------------</td>
<td>------------------</td>
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<td>Volcanic Hazard</td>
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<td>-1</td>
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(1) Moderate = 0, High = 3, Low = -3
(2) <5 = 0, 5-10 = 2, 10-30 = 3, 30-100 = 4, >100 km² = 5
(3) <5 km = 0, >10 km = +2, 5-10 km = +1
(4) None = 5
(5) 0 = 2, Minor = 0, Significant = -2
(6) None = +2, 1 to 2 km = -1, <1 km = 2, >2 km = 0
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Barnes, H., R. L. Christiansen (1967) "Cambrian and Precambrian Rocks from the Groom District," USGS Bull. 1244-G


REFERENCES


Horton, R. C. (1964) "Hot Springs, Sinter Deposits, and Volcanic Cinder Cones in Nevada," Nev Bu M&G Map 25


REFERENCES


Nichols, S. L., I. A. Lutsey (1972) "Topographic Map of Nevada," Nev Bu M&G Map 43


-90-
REFERENCES


Robinson, P. T. and D. F. Crowder (1973) "Geology Map of Davis Mtn. Quad," USGS GQ 1078


REFERENCES


Vitaliano, C. J. and E. Callaghan (1963) "Geology of the Paradise Peak Quad, Nev.," USGS GQ-250

Westgate, L. G. and A. Knopf (1932) "Geology and Ore Deposits of the Pioche District, Nevada," USGS Prof. Paper 171


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APPENDIX A

SITE DATA SHEETS

(Numerical Order)
**DATA SHEET**

**CLIMAX STOCK**

**SITE NO.**

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### I. GENERAL

- **Location:** Nye County, 37° 14' N. Lat. 116° 3' W. Long
- **Geomorphic Feature:** Climax Stock
- **Elevation:** 1,493-1,859m (4,900'-6,100')
- **Vegetation Types:** Salt desert shrub

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### II. TOPOGRAPHY

- **Maximum Relief Of 20 ha Operations Area:** 34m
- **Maximum Relief of 40 ha Operations Area:** 38m
- **Degree of Rock Mass Dissection:** moderate
- **Maximum Relief Between Paved Road & Site:** 0m

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### III. GEOLOGY

- **Rock Type, Name, Age:** Granodiorite/Quartz monzonite, Cretaceous
- **Intruded Rock Type, Name, Age:** Fagoping gp lms/dol Ord, Stirling Quartzite, pre
- **Area of Exposed Rock Mass:** 2.8km²
- **Surface Rock Mass Competency:** Low to high (underground - high)
- **Faults:** (Underground: 4 faults/meter)
- **Joints:** (Underground freq: 2.7 joints/meter) (Surface density: 2 to 20/m²)
- **Distance to Nearest Historic Surface Break:** 0.4 km
- **Distance to Nearest Upper Cenozoic Fault:** 22 km
- **Rock Mass in an Overthrust?** No
- **Distance to and Name of Nearest 5+km-Long Fault Trace:** Okm
- **Site Potential for Mineral Development:** Low
- **4 km² Area at Depths of 300-1,500 m?** Yes
- **Distance to Nearest Volcanic Vent Younger Than 10 m Years:** 29 km
- **Distance to Nearest KCRA Within 40 km:** None
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No

Name of Site's GW Region & B.-sin Central Region Yucca Flat Basin

Groundwater Discharge 1000 ac ft/yr
Surface Discharge None

Where Does Surface Water Go? Within basin
Where Does Groundwater Go? California

Distance to Nearest Spring Within 5 km 0.8 km Tub Spring
Number of Springs Within 5 km 3

Distance To and Names of Perennial Streams Within 5 km None

Distance to and Names of Lakes/Reservoirs Within 5 km None

Distance to and Names of Paleo Lakes Within 30 km 15 km - Groom, 20 km - Papoose, 27 km - Yucca, 25 km - Kawich

Distance to Nearest Water Well In Use 2 km

Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 54 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Mercury, 64 km, population unknown

Nearest Human Habitation and Number of People 2 km - PHS complex

Distance to State Boundary 90 km

Distance to and Name of Nearest Active Mine Within 25 km None

Distance to Nearest Farm/Ranch Within 25 km None
VI. LAND STATUS

Is Site Located on Restricted Land? Yes
Type of Restricted Land NTS
Distance to and Types of Restricted Lands Within 20 km (Within restricted area)
Land Ownership (State, Federal, Private) Federal
Land Use Nuclear explosive testing
Number of Old Mines Within 10 km 1 District Mo, Au, Ag, W (Oak Springs District)
Number of Oil and Gas Exploratory Holes Within 10 km None

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 72 km
Distance to Nearest Military Range From Boundary 2.5 km Paved
Distance to Nearest Non-Restricted Road in Use From Boundary 64 km Paved
Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 14+
Record Period 1932-1960
Magnitude of Largest Earthquake Within 100 km 6+
Distance to Largest Earthquake's Epicenter Within 100 km 95 km
Maximum Expected Acceleration From NTS Blasts 0.15 g
Reported or Observed Recent Fault Scarp Within 5 km? Yes, Yucca Fault (.4 km)

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Beatty 62.4° - 99.7°F (JUL)
Average Daily Temperature Range, Coldest Month At Beatty 27.7° - 55.3°F (JAN)
Annual Precipitation < 8"
IX. **METEOROLOGY** (Continued)

* Azimuth and Distance To:
  - LAS VEGAS: 146° - 142 km
  - LAS VEGAS 146° - 160 km
  - HENDERSON 146° - 162 km
  - BOULDER CITY 139° - 176 km
  - MOJAVE DESERT 310° - 139 km
  - ELY - 176 km
  - FALLON

* Distance to and Location of Nearest Meteorological Station (NTS) On Site

X. **ARCHEOLOGY/HISTORY**

* Reported or Observed Archeological Site Within 5 km? Probably

* Reported or Observed Historical Site Within 5 km? Yes, Mining camp on site

XI. **LOGISTICS**

* Distance to and Name of Nearest Gas Line: 160 km, Southwest Gas

* Distance to and Name of Nearest Power Line: 0 km, DDA

* Route Distance to and Ownership of Nearest Railroad: 170 km, Union Pacific

* Route Distance to and Name of Nearest Paved Highway: 0 km

* Type of Nearest Paved Highway: 2 Lane

* Route Distance to and Name of Support Town: Las Vegas, 160 km

* Population of Support Town: 375,000 (1975 est)

* Route Distance to and Name of Nearest Commercial Airport: 170 km, Las Vegas

* Only locations within 200 km are evaluated.

**REFERENCES**

1. Geol map of the Wheelbarrow Peak - Rainier Mesa Area - Nye Co., Nev
   by K.A. Sargent and P.O. Orkild (1973) USGS Map 1-754


* For cities within 200 km only.
DATA SHEET
SITE NO.1

I. GENERAL

Location T 26 & 27S, R 60 E, Clark County 35° 37'N, 115° 14' W

Geomorphic Feature Lucy Grey Range

Elevation 1,356 m (4,450')

Vegetation Types Sagebrush, Blackrush, Cactus, Rabbitbrush

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 61 m (200')

Maximum Relief of 40 ha Operations Area 76 m (250')

Degree of Rock Mass Dissection moderate

Maximum Relief Between Paved Road & Site Rd 795 m (2,608') pass 1,052 m (2,350') site 1,356 m (4,450'), Ave 361 m (1,182')/10 km, Ave 35 m/km, Figure 1-1

III. GEOLOGY

Rock Type, Name, Age Grey Granitic Augen Gneiss, Precambrian

Intruded Rock Type, Name, Age Range is basement rk.

Area of Exposed Rock Mass 36 km² Figure 1-2

Surface Rock Mass Competency Moderate

Faults 60 km to Historic, 10 km to U. Cenozoic

Joints variable, 0.6-1/m² in resistant granitic augen gneiss to 10/m² in fracture dikes and gray gneiss.

Distance to Nearest Historic Surface Break 60 km

Distance to Nearest Upper Cenozoic Fault 10 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 1/2 km Sheep Mt. Roach, McCullough, Figure 1-3

Site Potential for Mineral Development Low, Figure 1-4

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years 46 km

Distance to Nearest KGRA Within 40 km None
### IV. HYDROLOGY

#### Site in a Closed Groundwater Basin?
- **No**

#### Site in an Interstate GW Basin?
- **Yes**  
  - Water comes from California and goes to Las Vegas Valley & Colorado River

#### Name of Site's GW Region & Basin
- (10) Central Region - (164A) North Ivanpah Valley

#### Groundwater Discharge
- 2000 ac. ft/yr

#### Surface Discharge
- **No**

#### Where Does Surface Water Go?
- Roach and North Ivanpah Dry Lakes

#### Where Does Groundwater Go?
- Indirectly into Colorado River Region (Las Vegas Valley)

#### Distance to Nearest Spring Within 5 km
- None within Lucy Grey Range

#### Number of Springs Within 5 km
- **None**

#### Distance To and Names of Perennial Streams Within 5 km
- None (5 intermittent streams drain range, 1 has alt. course into Ivanpah dry lake, rest into Roach Lake)

#### Distance to and Names of Lakes/Reservoirs Within 5 km
- **None**

#### Distance to and Names of Paleo Lakes Within 30 km
- 3 km Ivanpah, 13 km Jean
  - 17 km East Jean, 20 km Mesquite

#### Distance to Nearest Water Well In Use
- **9 km**

#### Depth to Water in Nearest Well
- 35 m (116 ft)

#### Site in Groundwater Recharge Area?
- **Yes**

#### Distance to Nearest Groundwater Discharge Area
- 52 km (Las Vegas Valley)

### V. DEMOGRAPHY

#### Nearest Town, Population, and Distance
- Jean, 99, 40 km (route dist.)

#### Nearest Human Habitation and Number of People
- 11 km, State Line Stations (25)

#### Distance to State Boundary
- 10 km

#### Distance to and Name of Nearest Active Mine Within 25 km
- **None**

#### Distance to Nearest Farm/Ranch Within 25 km
- **None**
DATA SHEET SITE NO. J.

VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use Some grazing, limited recreation, access to Bell Microwave Facility

Number of Old Mines Within 10 km 3 (Sandia Int. Met. Corp. Duff #1)

Number of Oil and Gas Exploratory Holes Within 10 km (1971, 438′ 9 11 km)

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary (within)

Distance to Nearest Military Range From Boundary 160 km

Distance to Nearest Non-Restricted Road in Use From Boundary 9 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 8

Record Period 1881-1977

Magnitude of Largest Earthquake Within 100 km 5-6

Distance to Largest Earthquake's Epicenter Within 100 km 56

Maximum Expected Acceleration From NTS Blasts 0.01

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Las Vegas 23 to 40.6°C (73.4 to 105°F)

Average Daily Temperature Range, Coldest Month At Las Vegas -7 to 13.7°C (30.7 to 56.6°F)

Annual Precipitation 15 cm (6 inches)
IX. METEOROLOGY (Continued)

Azimuth and Distance To: LAS VEGAS 10°/60 km, PIONEER 15°/266 km, HENDERSON 20°/53 km

BOULDER CITY 22°/57 km, TONOPAH 327°/320 km, ELY 4°/410 km, FALLON 324°/525 km

HAZTHORNE 316°/438 km, RENO 317°/588 km, CARSON CITY 314°/557 km

Distance to and Location of Nearest Meteorological Station: McCarran Airport, 50 km

Prevailing wind direction is from SW @ 14 km/hr (9 mi/hr)

X. ARCHAEOLOGY/HISTORY

Reported or Observed Archaeological Site Within 5 km? No

Reported or Observed Historical Site Within 5 km? No

XI. LOGISTICS (702) 643-3944 (8½ km, 14" products line - CalNev Pet Co)

Distance to and Name of Nearest Gas Line: 30 km, Southwest Gas Company

Distance to and Name of Nearest Power Line: 5 km, Los Angeles Municipal

Route Distance to and Ownership of Nearest Railroad: 14 km, Union Pacific

Route Distance to and Name of Nearest Paved Highway: 16 km, Interstate 15

Type of Nearest Paved Highway: Interstate

Route Distance to and Name of Support Town: 75 km, Las Vegas, Nevada

Population of Support Town: 375 k (1975)

Route Distance to and Name of Nearest Commercial Airport: 69 km, McCarran Field

REFERENCES

Hewett, D.F. "Geology and Mineral Resources of the Ivanpah Quadrangle, California and Nevada" USGS Prof Paper 275 (1956)


"Clark County Nevada, Data File" Nev. Dept Econ. Dev (1977)

"Roach Lake 15 Min Quadrangle" USGS (1955)
TOPOGRAPHY OF SITE 1

Ref: USGS Topographic Sheet, Roach Lake Quadrangle, Nevada, 15'

Scale 1: 62,500
GEOLOGY OF SITE 1

SCALE 1:250,000

PROSPECT

REF: NEVADA BUREAU OF MINES & GEOLOGY BULLETIN 62, PLATE 1, GEOLOGIC MAP OF CLARK COUNTY, NEVADA.
TECTONIC MAP OF SITE 1

PROSPECT

FAULT

REF: NEVADA BUREAU OF MINES & GEOLGY BULLETIN 82, PLATE 3, TECTONIC MAP OF CLARK COUNTY, NEVADA.
MINE LOCATIONS NEAR SITE 1

O PROSPECT
SCALE 1: 250,000

REF: NEVADA BUREAU OF MINES & GEOLOGY, BULLETIN 62,
PLATE 2, MINERAL RESOURCE MAP OF CLARK CO., NEVADA.
ROAD MAP OF SITE 1 AREA

PROSPECT

REF: MAP OF CLARK COUNTY, NEVADA, BY HARRY FRESE, COUNTY & STATE MAPS, OAKLAND, CALIFORNIA.
## I. GENERAL

<table>
<thead>
<tr>
<th>Location</th>
<th>Esmeralda Co. T2N R40E 37° 59'N 117 31'W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomorphic Feature</td>
<td>Lone Mountain</td>
</tr>
<tr>
<td>Elevation</td>
<td>1853 M (6080')</td>
</tr>
<tr>
<td>Vegetation Types</td>
<td>Salt Desert/Northern Desert Shrub</td>
</tr>
</tbody>
</table>

## II. TOPOGRAPHY

<table>
<thead>
<tr>
<th>Maximum Relief Of 20 ha Operations Area</th>
<th>37m (120')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Relief of 40 ha Operations Area</td>
<td>48m (160')</td>
</tr>
<tr>
<td>Degree of Rock Mass Dissection</td>
<td>High</td>
</tr>
<tr>
<td>Maximum Relief Between Paved Road &amp; Site</td>
<td>61m (200')</td>
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</tbody>
</table>

## III. GEOLOGY

<table>
<thead>
<tr>
<th>Rock Type, Name, Age</th>
<th>Biotite Quartz Monzonite, Jurassic to Tertiary, Lone Mtn. Pluton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intruded Rock Type, Name, Age</td>
<td>Wyman fm, sh,ls p6, Reed Dolomite, p6</td>
</tr>
<tr>
<td>Area of Exposed Rock Mass</td>
<td>59 km²</td>
</tr>
<tr>
<td>Surface Rock Mass Competency</td>
<td></td>
</tr>
<tr>
<td>Faults</td>
<td>None reported w/in stock</td>
</tr>
<tr>
<td>Joints</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance to Nearest Historic Surface Break</th>
<th>59 km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to Nearest Upper Cenozoic Fault</td>
<td>10 km</td>
</tr>
<tr>
<td>Rock Mass in an Overthrust?</td>
<td>No</td>
</tr>
<tr>
<td>Distance to and Name of Nearest 5+km-Long Fault Trace</td>
<td>5 km Overthrust</td>
</tr>
</tbody>
</table>

Site Potential for Mineral Development: Low

4 km² Area at Depths of 300-1,500 m?: Yes

Distance to Nearest Volcanic Vent Younger Than 16 m Years: 25 km

Distance to Nearest KGSA Within 40 km: 22.5 km - inside prospective area (Silver Peak)
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No

Site in an Interstate GW Basin? No

Name of Site's GW Region & Basin Central Region (10), Big Smoky Valley Basin (137)

Groundwater Discharge 8,000 ac ft/yr

Surface Discharge None

Where Does Surface Water Go? Within Basin

Where Does Groundwater Go? Columbus Salt Marsh (118) & Clayton Valley (143)

Distance to Nearest Spring Within 5 km 1.4 km

Number of Springs Within 5 km 4

Distance To and Names of Perennial Streams Within 5 km None

Distance to and Names of Lakes/Reservoirs Within 5 km None

Distance to and Names of Paleo Lakes Within 30 km 15 km - Tonopah,

15 km - Goldfield, 17 km - Clayton

Distance to Nearest Water Well In Use 23 km

Depth to Water in Nearest Well 14 m (47 ft)

Site in Groundwater Recharge Area? Yes

Distance to Nearest Groundwater Discharge Area 10 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Tonopah, 1,716 (1970), 26 km

Nearest Human Habitation and Number of People

Distance to State Boundary 63 km

Distance to and Name of Nearest Active Mine Within 25 km None

Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land?  No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 22

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 0 km

Distance to Nearest Military Range From Boundary 36 km - Nellis

Distance to Nearest Non-Restricted Road in Use From Boundary 15.5 km Paved

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 86

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 97

Maximum Expected Acceleration From NTS Blasts 0.01 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Goldfield 14°-32°C

Average Daily Temperature Range, Coldest Month At Goldfield -7° to 6°C

Annual Precipitation 30 cm
II. METEOROLOGY (Continued)

*Azimuth and Distance To: LAS VEGAS — PIOCHE — HENDERSON —

BOULDER CITY — TONOPAH 70°/27 km — ELY — FALLON 326°/192 km

HAWTHORNE 302°/111 km — END — BISHOP 230°/100 km

Distance to and Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes

Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 128 km Southwest Gas

Distance to and Name of Nearest Power Line 10 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 78 km - sp (12 km - Oldbed)

Route Distance to and Name of Nearest Paved Highway 15.5 km US 95 US 6

Type of Nearest Paved Highway 2 Lane

Route Distance to and Name of Support Town 61 km Tonopah

Population of Support Town 1,716 (1970)

Route Distance to and Name of Nearest Commercial Airport 157 km — Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES Bull 78 Geol & Mineral Deposits of Esmeralda Co. NV. NevBuMins (1972)
TOPOGRAPHY OF SITE 2

REF.: USGS TOPOGRAPHIC SHEET, SILVERPEAK QUADRANGLE, NV, 15'
SCALE 1:62,500
DATA SHEET
SITE NO. 3
(SILVER PEAK QUAD - 15')

I. GENERAL
Location T1N, R39E & R40E 37° 58’ W 117° 33’ W
Geomorphic Feature Wespah Hills
Elevation 1774m (5820')
Vegetation Types Salt Desert Shrub

II. TOPOGRAPHY
Maximum Relief of 20 ha Operations Area 55 m (180')
Maximum Relief of 40 ha Operations Area 67 m (220')
Degree of Rock Mass Dissection Low
Maximum Relief Between Paved Road & Site 0 m

III. GEOLOGY
Rock Type, Name, Age Biotite Quartz Monzonite, Jurassic to Tertiary, Wespah Hills Pluton
Intruded Rock Type, Name, Age Wyman fm, sh, ls, pS; Reed dol, ps, Campito fm, sh, 6
Area of Exposed Rock Mass 30 km²
Surface Rock Mass Competency
Faults None reported w/in stock
Joints

Distance to Nearest Historic Surface Break 60 km
Distance to Nearest Upper Cenozoic Fault 9 km
Rock Mass in an Overthrust? No
Distance to and Name of Nearest 5+km-Long Fault Trace 5 km Overthrust
Site Potential for Mineral Development Med
4 km² Area at Depths of 300-1,500 m? Yes
Distance to Nearest Volcanic Vent Younger Than 10 m Years 17 km
Distance to Nearest KGRA Within 40 km 17.5 km - inside prospective area (SILVER PEAK)
DATA SHEET SITE NO. 3

IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Central Region (10) Big Smoky Valley Basin (137)
Groundwater Discharge 8,000 ac ft/yr
Surface Discharge None
Where Does Surface Water Go? Within Basin
Where Does Groundwater Go? Columbus Salt Marsh (118) & Clayton Valley (143)
Distance to Nearest Spring Within 5 km 3.4 km
Number of Springs Within 5 km 1
Distance To and Names of Perennial Streams Within 5 km None
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km 10 km - Tonopah,
12 km - Clayton, 14 km - Goldfield
Distance to Nearest Water Well In Use 12 km
Depth to Water in Nearest Well 14 m (47 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 8 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Tonopah, 1,716 (1970) 30 km
Nearest Human Habitation and Number of People
Distance to State Boundary 60 km
Distance to and Name of Nearest Active Mine Within 25 km 21 km - Silver Peak
Mine - Foote Mineral Company (lithium)
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 14

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 0 km

Distance to Nearest Military Range From Boundary 40 km - Nellis

Distance to Nearest Non-Restricted Road in Use From Boundary 15.5 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 98

Record Period 1881-1977

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 97 km

Maximum Expected Acceleration From NTS Blasts 0.018 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Goldfield 14°C-32°C

Average Daily Temperature Range, Coldest Month At Goldfield -7°C to 6°C

Annual Precipitation 20 cm
DATA SHEET SITE NO. 3

Page Four

IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS — Pioche — Henderson —

Boulder City — Tonopah 64°/31 km Ely — Fallon 327°/195 km

Hawthorne 305°/113 km Reno — Bishop — Carson City 230°/96 km

Distance to and Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes

Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 125 km Southwest Gas

Distance to and Name of Nearest Power Line 5 km — Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 78 km — sp (Oldbed — 12 km)

Route Distance to and Name of Nearest Paved Highway 15.5 km US 95 US 6

Type of Nearest Paved Highway — 2 Lane

Route Distance to and Name of Support Town 59 km Tonopah

Population of Support Town — 1,716 (1970)

Route Distance to and Name of Nearest Commercial Airport 156 km — Bishop, California

* Only locations within 200 km are evaluated.

REFERENCES — Bull 78 NevBumines & Geol 1972
TOPOGRAPHY OF SITE 3

REF: USGS TOPOGRAPHIC SHEET, SILVERPEAK QUADRANGLE, NV, 15'

SCALE 1:62,500
DATA SHEET

SITE NO. 4
(LIDAWASH QUAD -15')

I. GENERAL

Location T2S R39E 37° 45'N 117° 40'W

Geomorphic Feature Silver Peak Range

Elevation 1402m (4600')

Vegetation Type Salt Desert Shrub

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 67 m (220')

Maximum Relief of 40 ha Operations Area 73m (240')

Degree of Rock Mass Dissection High

Maximum Relief Between Paved Road & Site 73m (240')

III. GEOLOGY

Rock Type, Name, Age Biotite Quartz Monzonite, Jurassic to Tertiary, Mineral Ridge Pluton.

Intruded Rock Type, Name, Age Wyman fm, sit, Ls, pE

Area of Exposed Rock Mass 6 km²

Surface Rock Mass Competency

Faults None w/in stock

Joints

Distance to Nearest Historic Surface Break 81 km

Distance to Nearest Upper Cenozoic Fault 14 km

Rock Mass in an Overthrust? NO

Distance to and Name of Nearest 5+ km-Long Fault Trace 1.3 km

Site Potential for Mineral Development MED

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 15 m Years 8 km

Distance to Nearest KGRA Within 40 km 4 km - inside prospective area (Silver Peak)
DATA SHEET SITE NO. 4

IV. HYDROLOGY

Site in a Closed Groundwater Basin? Yes
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Central Region (10) Clayton Valley Basin (143)
Groundwater Discharge None
Surface Discharge None

Where Does Surface Water Go? Within Basin
Where Does Groundwater Go? Within Basin
Distance to Nearest Spring Within 5 km None
Number of Springs Within 5 km 0
Distance To and Names of Perennial Streams Within 5 km None
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km 30 km - Whitemtn
4 km - Clayton 28 km - Tonopah 24 km - Goldfield

V. DEMOGRAPHY

Nearest Town, Population, and Distance Silver Peak, 1.8 km, pop 150
Nearest Human Habitation and Number of People
Distance to State Boundary 34 km
Distance to and Name of Nearest Active Mine Within 25 km 5 km - Silver Peak
Mine (Lithium) Foote Mineral Company
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 57

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 1 km

Distance to Nearest Military Range From Boundary 49 km - Nellis

Distance to Nearest Non-Restricted Road in Use From Boundary 2 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 117

Record Period '81-77

Magnitude of Largest Earthquake Within 100km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 83 km

Maximum Expected Acceleration From NTS Blasts 0.019 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Goldfield 16° to 32° C

Average Daily Temperature Range, Coldest Month At Goldfield -7° to 6° C

Annual Precipitation 20 cm
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS — PICOHE — HENDERSON —

BOULDER CITY — TONOPAH 47°/52 km ELY — FALLON —

HAZTHORNE 327°/115 km RENO — BISHOP — CARSON CITY 238°/75 km

Distance to And Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? None

Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 150 km - Southwest Gas

Distance to and Name of Nearest Power Line 1 km - Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 87 km - SP (Old Bed - 6 km)

Route Distance to and Name of Nearest Paved Highway 2 km Nev 47

Type of Nearest Paved Highway 2 Lane

Route Distance to and Name of Support Town 90 km, Tonopah

Population of Support Town 1,716 (1970)

Route Distance to and Name of Nearest Commercial Airport 80 km - Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES Bull 78, NevBumines & GEOL (1972)
TOPOGRAPHY OF SITE 4

SCALE 1:16,250

TOPOGRAPHIC SHEET, LIDA MINE & SILVER PEAK QUADRANGLES, NV, US

SILVER PEAK RANGE

SITE 4

T 25 N
R 39 E
Sec 21

WOODS CREEK

SILVER PEAK

SCALE 1:16,250

TOPOGRAPHIC SHEET, LIDA MINE & SILVER PEAK QUADRANGLES, NV, US
DATA SHEET

SITE NO. 5
(Mt. Barcroft Quad, 15')

I. GENERAL
Location
T 2S R36E 37° 45'N 118° 1'W

Geomorphic Feature Silver Peak Range

Elevation 1609 m (5280')

Vegetation Types Northern Desert Shrub/Pinon Juniper

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 69 m (160')

Maximum Relief of 40 ha Operations Area 73 m (240')

Degree of Rock Mass Dissection Low

Maximum Relief Between Paved Road & Site 122 m (400')

III. GEOLOGY

Rock Type, Name, Age Biotite Quartz Monzonite, Jurassic to Tertiary, Dyer Pluton

Intruded Rock Type, Name, Age Harkless fm,sh,G

Area of Exposed Rock Mass 5 km²

Surface Rock Mass Competency

Faults None reported w/in Pluton

Joints

Distance to Nearest Historic Surface Break 67 km

Distance to Nearest Upper Cenozoic Fault 9 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 10 km overthrust

Site Potential for Mineral Development MED

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 30 m Years 25 km

Distance to Nearest KGRA Within 40 km 32.5 km (Silver Peak)
### IV. HYDROLOGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>Yes</td>
</tr>
<tr>
<td>Name of Site's GW Region &amp; Basin</td>
<td>Central Region (10), Fish Lake Valley Basin (117)</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
<td>500 ac ft/yr</td>
</tr>
<tr>
<td>Surface Discharge</td>
<td>Significant</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
<td>Columbus Salt Marsh (118) NV</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
<td>Columbus Salt Marsh (118) NV</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
<td>3 km</td>
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<tr>
<td>Number of Springs Within 5 km</td>
<td>2</td>
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<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 5 km</td>
<td>3.2 km Fish Lake</td>
</tr>
<tr>
<td>Distance to and Names of Paleo Lakes Within 30 km</td>
<td>5 km White Htn, 29 km Clayton</td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
<td>2.5 km</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
<td>46 m 150 ft</td>
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<tr>
<td>Site in Groundwater Recharge Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
<td>3 km</td>
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### V. DEMOGRAPHY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Town, Population, and Distance</td>
<td>Dyer, NV, Pop 10, 8 km</td>
</tr>
<tr>
<td>Nearest Human Habitation and Number of People</td>
<td></td>
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<tr>
<td>Distance to State Boundary</td>
<td>14 km</td>
</tr>
<tr>
<td>Distance to and Name of Nearest Active Mine Within 25 km</td>
<td>19 km Sixteen to One Mine (Silver) Sunshine Mining Company</td>
</tr>
<tr>
<td>Distance to Nearest Farm/Ranch Within 25 km</td>
<td>2 km Dyer Ranch</td>
</tr>
</tbody>
</table>
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 10

Number of Oil and Gas Exploratory Holes Within 10 km 2

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 23 km

Distance to Nearest Military Range From Boundary 78 km - Nellis

Distance to Nearest Non-Restricted Road in Use From Boundary 10 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 143

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 66 km

Maximum Expected Acceleration From NTS Blasts 0.015 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Goldfield 14° - 32°C

Average Daily Temperature Range, Coldest Month At Goldfield -7° to 6°C

Annual Precipitation 20 cm
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS —— PIOCHE —— HENDERSON ——

BOULDER CITY —— TONOPAH 65°/80km ELY —— FALLON 347°/195 km

HAWTHORNE 331°/96km RENO —— CARSON CITY 216°/52 km

Distance to And Location of Nearest Meteorological Station

X. ARCHAEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes

Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 150 km Southwest Gas

Distance to and Name of Nearest Power Line 5 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 83 km SP (42 km - Old Bed)

Route Distance to and Name of Nearest Paved Highway 10 km, Nev 3A

Type of Nearest Paved Highway 2 Lane

Route Distance to and Name of Support Town 120 km Tonopah

Population of Support Town 1,716 (1970)

Route Distance to and Name of Nearest Commercial Airport 110 km Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES CO-960, USGS (1971) GEOL Map of Mt. Barcroft Quad, CA-NV, K.B. Ktauskopf

Bull 78 NevBumines & GEOL (1972)
DATA SHEET

SITE NO. 6

(Davis Mtn Quad - 15')

I. GENERAL

Location  T2S R34E, T1S R33E  70° 45'W  110° 12'W

Geomorphologic Feature  White Mtns.

Elevation  1804 m (5920')

Vegetation Types  Northern Desert Shrub/Salt Desert Shrub

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area  73 m (240')

Maximum Relief Of 40 ha Operations Area  116 m (380')

Degree of Rock Mass Dissection  High

Maximum Relief Between Paved Road & Site  317 m (1040')

III. GEOLOGY

Rock Type, Name, Age  Biotite Quartz Monzonite, Jurassic to Tertiary, Inyo Batholith

Intruded Rock Type, Name, Age  Wyman fm, sh, fs, pG, Harkless fm, nlt &

Area of Exposed Rock Mass  100 km² (in NV)

Surface Rock Mass Competency

Faults  None reported w/in stock

Joints

Distance to Nearest Historic Surface Break  64 km

Distance to Nearest Upper Cenozoic Fault  3 km

Rock Mass in an Overthrust?  No

Distance to and Name of Nearest 5+km-Long Fault Trace  10 km

Site Potential for Mineral Development  Low

4 km² Area at Depths of 300-1,500 m?  Yes

Distance to Nearest Volcanic Vent Younger Than 10,000 Years  19 km

Distance to Nearest KGRA Within 40 km  40 km (Mono-Long Valley)
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? Yes
Name of Site's GW Region & Basin Central Region (10), Fish Lake Valley Basin (117)
Groundwater Discharge 500 ac ft/yr
Surface Discharge Significant
Where Does Surface Water Go? Columbus Salt Marsh (118) NV
Where Does Groundwater Go? Columbus Salt Marsh (118) NV
Distance to Nearest Spring Within 5 km 4.6 km
Number of Springs Within 5 km 2
Distance To and Names of Perennial Streams Within 5 km 3.8 km - Leidy Creek, 3.5 km - Indian Creek (Both drain into NV)
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km 3 km - White Mountain
Distance to Nearest Water Well In Use 8 km
Depth to Water in Nearest Well 46 m (150 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 8 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Dyer, Pop 10, 11.5 km
Nearest Human Habitation and Number of People
Distance to State Boundary 3.3 km
Distance to and Name of Nearest Active Mine Within 25 km None
Distance to Nearest Farm/Ranch Within 25 km 9 km
VI. LAND STATUS
Is Site Located on Restricted Land? No
Type of Restricted Land
Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal
Land Use Nat. Forest
Number of Old Mines Within 10 km 4
Number of Oil and Gas Exploratory Holes Within 10 km None

VII. SAFETY/SECURITY
Distance to Nearest Airline Corridor From Boundary 20 km
Distance to Nearest Military Range From Boundary 95 km - Nellis
Distance to Nearest Non-Restricted Road in Use From Boundary 6.7 km
Site Out of View of Existing Roads? No

VIII. SEISMICITY
Number of Recorded Earthquakes Within 100 km; m >= 4+ 145

Record Period 61-77
Magnitude of Largest Earthquake Within 100 km 6-7
Distance to Largest Earthquake’s Epicenter Within 100 km 60 km
Maximum Expected Acceleration From NTS Blasts 0.013 g
Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY
Average Daily Temperature Range, Hottest Month At Goldfield 14° - 32°C
Average Daily Temperature Range, Coldest Month At Goldfield -7° to 6°C
Annual Precipitation 28 cm
IX. METEOROLOGY (Continued)

Azimuth and Distance To: LAS VEGAS ~ POCHE ~ HENDERSON

BOULDER CITY ~ TONOPAH 65°/88 km ~ ELY ~ FALLON 343°/195 km

HAWTHORNE 333°/96 km ~ RENO ~ BISHOP ~ CARSON CITY 210°/45 km

Distance to And Location of Nearest Meteorological Station

X. ARCHAEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes
Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 150 km Southwest Gas

Distance to and Name of Nearest Power Line 11 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 83 km SP (42 km - Old Bed)

Route Distance to and Name of Nearest Paved Highway 6.7 km Highway 3A

Type of Nearest Paved Highway 2 Lane

Route Distance to and Name of Support Town 112 km, Tonopah

Population of Support Town 1,766

Route Distance to and Name of Nearest Commercial Airport 110 km - Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES

GQ 1078 USGS (1973) GEOL Map of Davis Mtn Quad, P.T. Robinson et al

Bull 78 New BuMines & GEOL (1972)
TOPOGRAPHY OF SITE 6

REF: USGS TOPOGRAPHIC SHEET, DAVIS Mtn. QUADRANGLE, NV, 15'

SCALE 1:62,500
DATA SHEET

SITE NO. 7
(Piper Peak Quad - 15"

I. GENERAL

Location T4S R37E Esmeralda Company 37°34'N, 117°52'W

Geomorphc Feature Silver Peak Range

Elevation 1756m (5760')

Vegetation Types Northern Desert Shrub/Pinon Juniper

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 49m (160')

Maximum Relief of 40 ha Operations Area 76m (250')

Degree of Rock Mass Dissection High

Maximum Relief Between Paved Road & Site 244m (800')

III. GEOLOGY

Rock Type, Name, Age Biotite Quartz Monzonite, Jurassic to Tertiary, Palmetto Pluton

Intruded Rock Type, Name, Age Harkless fm,slt,6 Palmetto fm,sh,ordovician

Area of Exposed Rock Mass 96 km²

Surface Rock Mass Competency

Faults None reported w/in Pluton

Joints

Distance to Nearest Historic Surface Break 63 km

Distance to Nearest Upper Cenozoic Fault 11 km

Rock Mass in an Overthrust? Yes

Distance to and Name of Nearest 5km-Long Fault Trace 5 km Overthrust

Site Potential for Mineral Development Med

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10^6 m Years 33 km

Distance to Nearest XGRA Within 40 km 27.5 km (Silver Peak)
IV. HYDROLOGY

Site in a Closed Groundwater Basin?  No
Site in an Interstate GW Basin?  Yes
Name of Site's GW Region & Basin  Central Region (10) Fish Lake Valley (117)
Groundwater Discharge  Minor
Surface Discharge  Significant
Where Does Surface Water Go?  Columbus Salt Marsh Basin, NV (119)
Where Does Groundwater Go?  Columbus Salt Marsh Basin, NV (119)
Distance to Nearest Spring Within 5 km  None
Number of Springs Within 5 km  0
Distance to and Names of Perennial Streams Within 5 km  None
Distance to and Names of Lakes/Reservoirs Within 5 km  None
Distance to and Names of Paleo Lakes Within 30 km  5 km - White Mtn
22 km - Clayton
Distance to Nearest Water Well In Use  6 km
Depth to Water in Nearest Well  18 m
Site in Groundwater Recharge Area?  Yes
Distance to Nearest Groundwater Discharge Area  9 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance  Dyer, pop 10, 21.3 km
Nearest Human Habitation and Number of People
Distance to State Boundary  5.8 km
Distance to and Name of Nearest Active Mine Within 25 km  5 km - Paca Mine
(Tungsten)  J.C.I. Minerals Company
Distance to Nearest Farm/Ranch Within 25 km  15.6 km McAfee Ranch
### VI. LAND STATUS

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Site Located on Restricted Land?</td>
<td>No</td>
</tr>
<tr>
<td>Type of Restricted Land</td>
<td>NV</td>
</tr>
<tr>
<td>Distance to and Types of Restricted Lands Within 20 km</td>
<td>None</td>
</tr>
<tr>
<td>Land Ownership (State, Federal, Private)</td>
<td>Federal</td>
</tr>
<tr>
<td>Land Use</td>
<td></td>
</tr>
<tr>
<td>Number of Old Mines Within 10 km</td>
<td>29</td>
</tr>
<tr>
<td>Number of Oil and Gas Exploratory Holes Within 10 km</td>
<td>None</td>
</tr>
</tbody>
</table>

### VII. SAFETY/SECURITY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to Nearest Airline Corridor From Boundary</td>
<td>13 km</td>
</tr>
<tr>
<td>Distance to Nearest Military Range From Boundary</td>
<td>67 km - Nellis</td>
</tr>
<tr>
<td>Distance to Nearest Non-Restricted Road in Use From Boundary</td>
<td>7.3 km</td>
</tr>
<tr>
<td>Site Out of View of Existing Roads?</td>
<td>No</td>
</tr>
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</table>

### VIII. SEISMICITY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Recorded Earthquakes Within 100 km: m = 4+</td>
<td>127</td>
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<tr>
<td>Record Period</td>
<td>'81-'77</td>
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<tr>
<td>Magnitude of Largest Earthquake Within 100 km</td>
<td>6-7</td>
</tr>
<tr>
<td>Distance to Largest Earthquake's Epicenter Within 100 km</td>
<td>65</td>
</tr>
<tr>
<td>Maximum Expected Acceleration From NTS Blasts</td>
<td>0.018</td>
</tr>
<tr>
<td>Reported or Observed Recent Fault Scarp Within 5 km?</td>
<td>None</td>
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</table>

### IX. METEOROLOGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Daily Temperature Range, Hottest Month At Goldfield</td>
<td>14° - 32°C</td>
</tr>
<tr>
<td>Average Daily Temperature Range, Coldest Month At Goldfield</td>
<td>-7 to 6°C</td>
</tr>
<tr>
<td>Annual Precipitation</td>
<td>20 cm</td>
</tr>
</tbody>
</table>
IX. METEOROLOGY (Continued)
  Azimuth and Distance To: LAS VEGAS — PIOCHE — HENDERSON —
  BOULDER CITY — TONOPAH 52°/82km ELY — FALLON —
  HAVTHORNE 331°/115km RENO — ELY — FALLON —
  HAWTHORNE 331°/115km RENO — ELY — FALLON —
  Distance to and Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY
  Reported or Observed Archeological Site Within 5 km? None
  Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS
  Distance to and Name of Nearest Gas Line 172 km Southwest Gas
  Distance to and Name of Nearest Power Line 1 km Sierra Pacific
  Route Distance to and Ownership of Nearest Railroad 112 km-SP (35km - Old Bed)
  Route Distance to and Name of Nearest Paved Highway 7.3 km Highway 3A
  Type of Nearest Paved Highway 2 Lane
  Route Distance to and Name of Support Town 139 km, Tonopah
  Population of Support Town 1716
  Route Distance to and Name of Nearest Commercial Airport 70 km, Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES Bull 78 NevBumines & GEOL (1972)
TOPOGRAPHY OF SITE 7

REF: USGS TOPOGRAPHIC SHEET, PIPER PEAK QUADRANGE, NV, 15'

SCALE 1:62,500
DATA SHEET

SITE NO. 8
(Soldier Pass Quad - 15")

I. GENERAL

Location Esmeralda Company T5S R38E SEC 29, 37°28'N 117°47'W

Geomorphic Feature Palmetto Mtns.

Elevation 1755 m (5760')

Vegetation Type Salt Desert Shrub

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 30 m (100')

Maximum Relief of 40 ha Operations Area 43 m (140')

Degree of Rock Mass Dissection Low

Maximum Relief Between Paved Road & Site 30 m (100')

III. GEOLOGY

Rock Type, Name, Age Biotite Quartz Monzonite, Jurassic to Tertiary, Palmetto Wash Pluton

Intruded Rock Type, Name, Age Harkless Fm, slate

Area of Exposed Rock Mass 43 km²

Surface Rock Mass Competency

Faults None reported w/in stock

Joints

Distance to Nearest Historic Surface Break 61 km

Distance to Nearest Upper Cenozoic Fault 9 km

Rock Mass in an Overthrust? Yes

Distance to and Name of Nearest 5+km-Long Fault Trace 2.6 km

Site Potential for Mineral Development Low

4 km² Area at Depths of 300-1,500 m? ?

Distance to Nearest Volcanic Vent Younger Than 10⁶ Years 41 km

Distance to Nearest KGMA Within 40 km 31 km (Silver Peak)
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? Yes
Name of Site's GW Region & Basin Central Region (10) Fish Lake Valley (117)
Groundwater Discharge Minor
Surface Discharge Significant
Where Does Surface Water Go? Columbus Salt Marsh Basin, NV (119)
Where Does Groundwater Go? Columbus Salt Marsh Basin, NV (119)
Distance to Nearest Spring Within 5 km None
Number of Springs Within 5 km 0
Distance To and Names of Perennial Streams Within 5 km None
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of *Malo* Lakes Within 30 km 14 km - White Mtn
24 km - Clayton
Distance to Nearest Water Well In Use 13 km
Depth to Water in Nearest Well 66 m
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 21 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Lida, NV, pop 15, 24 km
Nearest Human Habitation and Number of People
Distance to State Boundary 3.1 km
Distance to and Name of Nearest Active Mine Within 25 km 6 km - Sylvania Mine
(Lead Silver) - Sylvania Mining Company
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land NV

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 50 (NV)

Number of Oil and Gas Exploratory Holes Within 10 km None

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 1 km

Distance to Nearest Military Range From Boundary 57 km - Nellis Paved

Distance to Nearest Non-Restricted Road in Use From Boundary 2.5 km Paved

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 120

Record Period 1961-77

Magnitude of Largest Earthquake Within 100km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 87

Maximum Expected Acceleration From NTS Blasts 0.02 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Goldfield 14° - 32°C

Average Daily Temperature Range, Coldest Month At Goldfield -7 to 6°C

Annual Precipitation 20 cm
IX. METEOROLOGY (Continued)

<table>
<thead>
<tr>
<th>Azimuth and Distance To:</th>
<th>LAS VEGAS</th>
<th>PIOCHE</th>
<th>HENDERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOULDER CITY</td>
<td>37°/80km</td>
<td>ELY</td>
<td>FALLON</td>
</tr>
<tr>
<td>TONOPAH</td>
<td>37°/80km</td>
<td>ELY</td>
<td>FALLON</td>
</tr>
<tr>
<td>ELY</td>
<td>326°/134km RENO</td>
<td>BISHOP CITY</td>
<td></td>
</tr>
<tr>
<td>HAWTHORNE</td>
<td>258°/57 km</td>
<td>BISHOP</td>
<td></td>
</tr>
</tbody>
</table>

Distance to and Location of Nearest Meteorological Station:

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? None

Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 190 km Southwest Gas

Distance to and Name of Nearest Power Line 10 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 128 km - SP (48 km - Old Bed)

Route Distance to and Name of Nearest Paved Highway 2.5 km Highway 3

Type of Nearest Paved Highway 2 Lane

Route Distance to and Name of Support Town 118 km Tonopah

Population of Support Town 1716

Route Distance to and Name of Nearest Commercial Airport 62 km, Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES

CG-654 USGS (1967) GEOL. Map of Soldier Pass Quad Ca & NV R.H. McKee et al

USGS Bull 1251-H GEOL of Magruder Mtn area NV-CA (1968)

Bull 78 Nev Bumines & GEOL
TOPOGRAPHY OF SITE 8

REK: USGS TOPOGRAPHIC SHEET, SOLDIER PASS QUADRANGLE, NV; 15'

SCALE: 1:62,500
## DATA SHEET

### SITE NO. 9

(Gold Point SW Quad - 7/4)

### I. GENERAL

<table>
<thead>
<tr>
<th>Location</th>
<th>T7S R41E SEC 9 37°21'N 117°26'W</th>
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</thead>
<tbody>
<tr>
<td>Geomorphic Feature</td>
<td>Sylvania Hills</td>
</tr>
<tr>
<td>Elevation</td>
<td>1646 m (5400')</td>
</tr>
<tr>
<td>Vegetation Types</td>
<td>Salt Desert Shrub</td>
</tr>
</tbody>
</table>

### II. TOPOGRAPHY

<table>
<thead>
<tr>
<th>Maximum Relief of 20 ha Operations Area</th>
<th>40 m (130')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Relief of 40 ha Operations Area</td>
<td>49 m (160')</td>
</tr>
<tr>
<td>Degree of Rock Mass Dissection</td>
<td>High</td>
</tr>
<tr>
<td>Maximum Relief Between Paved Road &amp; Site</td>
<td>76 m (250')</td>
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</tbody>
</table>

### III. GEOLOGY

<table>
<thead>
<tr>
<th>Rock Type, Name, Age</th>
<th>Biotite Quartz Monzonite, Jurassic to Tertiary, Sylvania Pluton</th>
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</thead>
<tbody>
<tr>
<td>Intruded Rock Type, Name, Age</td>
<td>Wyman Fm, alt. 1a, n6</td>
</tr>
<tr>
<td>Area of Exposed Rock Mass</td>
<td>280 + km² (in NV)</td>
</tr>
<tr>
<td>Surface Rock Mass Competency</td>
<td></td>
</tr>
<tr>
<td>Faults</td>
<td>None reported w/in stock</td>
</tr>
<tr>
<td>Joints</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance to Nearest Historic Surface Break</th>
<th>93 km</th>
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</thead>
<tbody>
<tr>
<td>Distance to Nearest Upper Cenozoic Fault</td>
<td>22 km</td>
</tr>
<tr>
<td>Rock Mass in an Overthrust?</td>
<td>No</td>
</tr>
<tr>
<td>Distance to and Name of Nearest 5+km-Long Fault Trace</td>
<td>1 km High Angle</td>
</tr>
<tr>
<td>Site Potential for Mineral Development</td>
<td>Low</td>
</tr>
<tr>
<td>4 km² Area at Depths of 300-1,500 m?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Volcanic Vent Younger Than 50 m Years</td>
<td>30 km</td>
</tr>
<tr>
<td>Distance to Nearest EGRA Within 40 km</td>
<td></td>
</tr>
</tbody>
</table>
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Central Region (10), Lida Valley Basin (144)
Groundwater Discharge 1000 ac ft/yr
Surface Discharge Significant
Where Does Surface Water Go? Secobatus Flat (146)
Where Does Groundwater Go? California Eventually
Distance to Nearest Spring Within 5 km None
Number of Springs Within 5 km 0
Distance To and Names of Perennial Streams Within 5 km None
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km 21 km - Lida 28 km - Bonnie Claire
Distance to Nearest Water Well In Use 28 km
Depth to Water in Nearest Well 81 m (265 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 29 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Gold Point, Pop. 25, 5.5 km
Nearest Human Habitation and Number of People
Distance to State Boundary 14.5 km
Distance to and Name of Nearest Active Mine Within 25 km 3 km - Penny Mine (Gold) Norman Bailey
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No
Type of Restricted Land
Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal
Land Use
Number of Old Mines Within 10 km 38
Number of Oil and Gas Exploratory Holes Within 10 km None

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 0 km
Distance to Nearest Military Range From Boundary 32 km - Nellis
Distance to Nearest Non-Restricted Road in Use From Boundary 12.5 km
Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: n = 4+ 76+
Record Period 1981-77
Magnitude of Largest Earthquake Within 100 km 5-6
Distance to Largest Earthquake's Epicenter Within 100 km 42
Maximum Expected Acceleration From NTS Blasts 0.028 g
Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Goldfield 14° - 32°C
Average Daily Temperature Range, Coldest Month At Goldfield -7° to 5°C
Annual Precipitation 23 cm
* excludes NTS Shots
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS - PIOCHE - HENDERSON -

BOULDER CITY - TONOPAH $13^\circ/79\text{km}$ - ELY - FALLON 0

HAUThORNE $319^\circ/164\text{km}$ RENO - BISHOP - CARSON CITY $270^\circ/85 \text{ km}$

Distance to And Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? None

Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 200 km Southwest Gas

Distance to and Name of Nearest Power Line 48 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 175 km - SP (95 km: Old Bed)

Route Distance to and Name of Nearest Paved Highway 12.5 km Highway 3 (State)

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 98 km Tonopah

Population of Support Town 1716 (1970 pop.)

Route Distance to and Name of Nearest Commercial Airport 131 km, Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES Bull 78 NevBumines & GEOL (1972)
TOPOGRAPHY OF SITE 9

REF: USGS Topographic Sheet, Gold Point SW Quadrangle, NV, 7 1/2'

SCALE 1:24,000
DATA SHEET

SITE NO. 10

I. GENERAL

Location 36°58'N. 114°35'W. T11S. R66.67E. Lincoln Co

Geomorphic Feature Mormon Mtns

Elevation 1097 m 3600'

Vegetation Types Sagebrush, Cactus

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area 46 m (150ft)

Maximum Relief of 40 ha Operations Area 85m (280ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 533m (1750ft)

III. GEOLOGY

Rock Type, Name, Age Predominantly Gneiss and Schists some Granite-Precambrian

Intruded Rock Type, Name, Age (Basement)

Area of Exposed Rock Mass 7.7 km² (3 mi²)

Surface Rock Mass Competency Mod

Faults None reported

Joints

Distance to Nearest Historic Surface Break 136 km

Distance to Nearest Upper Cenozoic Fault 26 (Quat)

Rock Mass in an Overthrust? No, It is a window in the Tule Sp. Thrust

Distance to and Name of Nearest 5+km-Long Fault Trace At boundry, Tule Sp.

Site Potential for Mineral Development Low

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years 92 km (Utah)

Distance to Nearest KGRA Within 40 km None
### IV. HYDROLOGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Name of Site's GW Region &amp; Basin</td>
<td>Lower Meadow Wash Valley, Colorado River Region</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
<td>7000 ac. ft</td>
</tr>
<tr>
<td>Surface Discharge</td>
<td>Yes 500 ac. ft</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
<td>to Muddy River &amp; Colorado River</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
<td>to Muddy River</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
<td></td>
</tr>
<tr>
<td>Number of Springs Within 5 km</td>
<td></td>
</tr>
<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
<td></td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 5 km</td>
<td></td>
</tr>
<tr>
<td>Distance to and Names of Paleo Lakes Within 30 km</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
<td>9 km</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
<td>7 m    (22 ft)</td>
</tr>
<tr>
<td>Site in Groundwater Recharge Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
<td>18 km, Muddy River</td>
</tr>
</tbody>
</table>

### V. DEMOGRAPHY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Town, Population, and Distance</td>
<td>Carp, 35, 14 km</td>
</tr>
<tr>
<td>Nearest Human Habitation and Number of People</td>
<td></td>
</tr>
<tr>
<td>Distance to State Boundary</td>
<td>19 km</td>
</tr>
<tr>
<td>Distance to and Name of Nearest Active Mine Within 25 km</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Farm/Ranch Within 25 km</td>
<td></td>
</tr>
</tbody>
</table>
DATA SHEET SITE NO. 10

VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) BLM

Land Use Grazing, Recreation

Number of Old Mines Within 10 km 1

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 19 km

Distance to Nearest Military Range From Boundary 65 km

Distance to Nearest Non-Restricted Road in Use From Boundary Road 25 km to site

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 23

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 58

Maximum Expected Acceleration From NTS Blasts 0.013g

Reported or Observed Recent Fault Scarp Within 5 km? No

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Caliente 13 to 36°C (56 to 96°F)

Average Daily Temperature Range, Coldest Month At Caliente -9 to 8°C (16 to 46°F)

Annual Precipitation 30 cm (12in)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 211°,106  PIONEER 4°,106  HENDERSON 200°,112
BOULDER CITY 193°,116  TONOPAH 4°,106  ELY  FALLOM
HAWTHORNE  RENO  CARSON CITY
Distance to And Location of Nearest Meteorological Station  70 km Caliente

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km?  0
Reported or Observed Historical Site Within 5 km?   0

XI. LOGISTICS

Distance to and Name of Nearest Gas Line  75 km Southwest Gas Company
Distance to and Name of Nearest Power Line  36 km Nevada Power Company
Route Distance to and Ownership of Nearest Railroad  8 km Union Pacific
Route Distance to and Name of Nearest Paved Highway  41 km State 1
Type of Nearest Paved Highway  2 Lane
Route Distance to and Name of Support Town   120 km Las Vegas
Population of Support Town  375,000 (1975)
Route Distance to and Name of Nearest Commercial Airport   130 m McCarran

*Only locations within 200 km are evaluated.

2) Olmone, S.D. "Style & Evolution of thrusts in the Region of the Mormon Mtn, Nev."
3) "Rox, N-E 74° Quadrangle" USGS (1969)
4) "Lincoln County Nevada Data File" Nevada Dept Economic Develop
5) Stewart, J.H. & J. E. Carlson, "Geologic Map of Nevada" unpublished,
TOPOGRAPHY OF SITE 10

REF: USGS TOPOGRAPHIC SHEET, ROX NE QUADRANGLE, NV, 7½'

SCALE 1:24,000
I. GENERAL

Location 36°55'N, 114°16'W T11,12S, R69E, Lincoln, Co.

Geomorphic Feature: East Mormon Mtn.

Elevation 927 m (3040 ft)

Vegetation Types: Sagebrush, Creosote bush, black brush and cactuses

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 64 m (210 ft)

Maximum Relief of 40 ha Operations Area 122 m (400 ft)

Degree of Rock Mass Dissection: Mod

Maximum Relief Between Paved Road & Site 287 m (940 ft)

III. GEOLOGY

Rock Type, Name, Age: Predominantly Gneiss and Schists, some granite- Precambrian

Intruded Rock Type, Name, Age: above rock mass is "basement".

Area of Exposed Rock Mass: 6.4 km² (2.5 mi²)

Surface Rock Mass Competency: Mod

Faults: None reported

Joints

Distance to Nearest Historic Surface Break: 168 km

Distance to Nearest Upper Cenozoic Fault: 9 km (Quat.)

Rock Mass in an Overthrust: No

Distance to and Name of Nearest 5+km-Long Fault Trace: ½ km, Gourd Springs

Site Potential for Mineral Development: Mod

4 km² Area at Depths of 300-1,500 m?: Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years: 72 km (Utah)

Distance to Nearest KGRA Within 40 km: None
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No

Site in an Interstate GW Basin? Yes

Name of Site's GW Region & Basin Colorado River Region, Virgin River Basin

Groundwater Discharge 40,000 ac ft/yr

Surface Discharge Yes (80,000 ac ft/yr)

Where Does Surface Water Go? Virgin River to Colorado River

Where Does Groundwater Go? Lake Mead

Distance to Nearest Spring Within 5 km None

Number of Springs Within 5 km 0

Distance To and Names of Perennial Streams Within 5 km

Distance to and Names of Lakes/Reservoirs Within 5 km

Distance to and Names of Paleo Lakes Within 30 km None

Distance to Nearest Water Well In Use 13 km

Depth to Water in Nearest Well 57 m (220 ft)

Site in Groundwater Recharge Area? Yes

Distance to Nearest Groundwater Discharge Area 21 km (Virgin River Valley)

V. DEMOGRAPHY

Nearest Town, Population, and Distance 23 km, Bunkerville, 180

Nearest Human Habitation and Number of People

Distance to State Boundary 24 km

Distance to and Name of Nearest Active Mine Within 25 km None

Distance to Nearest Farm/Ranch Within 25 km 20 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) BLM

Land Use Access to radio tower, grazing

Number of Old Mines Within 10 km 2

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 12 km (within central area)

Distance to Nearest Military Range From Boundary 87 km

Distance to Nearest Non-Restricted Road in Use From Boundary 11 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 20

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 57

Maximum Expected Acceleration From NTS Blasts 0.011 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Caliente - 13-36°C (95.8 - 56.0 °F)

Average Daily Temperature Range, Coldest Month At Caliente - 9 to 8°C (45.7 - 16.1 °F)

Annual Precipitation 20 cm (8 in.)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To. LAS VEGAS 222°-108km PIOCHE 354°-116km HENDERSON 211° - 112km

BOULDER CITY 204° 112km TONOOPAH ELY FALLON

HAWTHORNE RENO CARSON CITY

Distance to And Location of Nearest Meteorological Station 80 km, Caliente

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? - None

Reported or Observed Historical Site Within 5 km? - None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 78 km, Southwest Gas Company

Distance to and Name of Nearest Power Line 35 km, Nevada Power Company

Route Distance to and Ownership of Nearest Railroad 38 km, Union Pacific

Route Distance to and Name of Nearest Paved Highway 20 km, Interstate 15

Type of Nearest Paved Highway 4 lanes, Interstate

Route Distance to and Name of Support Town 120 km, Las Vegas

Population of Support Town 375,000 (1975)

Route Distance to and Name of Nearest Commercial Airport 130 km, McCarran

*Only locations within 200 km are evaluated.

REFERENCES


1) Tschanz, C.M. and E.H. Pampeyan "Geology and Mineral Deposits of Lincoln Co. Nev"

2) Olmone, S.E. "Style & Evolution of thrusts in the region of the Mormon Mtn, Nev."

U. Utah, PHD Thesis (1971)

3) "Davidson Peak 7½ minute Quadrangle" USGS (1969)

4) "Lincoln Co NV Data File" Nevada Dept. Economic Develop.

Approximate Outline Granitic Body

20 ha
40 ha

36°51'4"

TOPOGRAPHY OF SITE II

REF: USGS TOPOGRAPHIC SHEET, DAVIDSON PEAK QUADRANGLE, NV, 7.5'
SCALE 1:24000
I. GENERAL

Location 37°34'N, 115°45'47"W, 855E, Lincoln Co.

Geomorphic Feature Groom Range

Elevation 1737 m (5700 ft)

Vegetation Types Ponderosa, Juniper, Sagebrush

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 55 m (180 ft)

Maximum Relief of 40 ha Operations Area 67 m (220 ft)

Degree of Rock Mass Dissection HI

Maximum Relief Between Paved Road & Site 263 m (863 ft)

III. GEOLOGY

Rock Type, Name, Age Granite, Tertiary

Intruded Rock Type, Name, Age Quartzite, Prospect Mtn, Precambrian

Area of Exposed Rock Mass Total of 5.1 km² (2 mi²)

Surface Rock Mass Competency Mod

Faults None Reported

Joints

Distance to Nearest Historic Surface Break 50 km

Distance to Nearest Upper Cenozoic Fault 3 km (Quat)

Rock Mass In an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 1.5 km, Tom Plute

Site Potential for Mineral Development Mod

4 km² Area at Depths of 300-1,500 m? Prob. Not

Distance to Nearest Volcanic Vent Younger Than 100 m Years 33 km

Distance to Nearest KGRA Within 40 km None
<table>
<thead>
<tr>
<th><strong>IV. HYDROLOGY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
</tr>
<tr>
<td>Name of Site’s GW Region &amp; Basin</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
</tr>
<tr>
<td>Surface Discharge</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
</tr>
<tr>
<td>Number of Springs Within 5 km</td>
</tr>
<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 30 km</td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
</tr>
<tr>
<td>Site in Groundwater Recharge Area?</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>V. DEMOGRAPHY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Town, Population, and Distance</td>
</tr>
<tr>
<td>Nearest Human Habitation and Number of People</td>
</tr>
<tr>
<td>Distance to State Boundary</td>
</tr>
<tr>
<td>Distance to and Name of Nearest Active Mine Within 25 km</td>
</tr>
<tr>
<td>Distance to Nearest Farm/Ranch Within 25 km</td>
</tr>
</tbody>
</table>
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km 4.6 km Nellis Air Force Bombing and Gunnery Range

Land Ownership (State, Federal, Private) BLM

Land Use Grazing

Number of Old Mines Within 10 km 7

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 56 km

Distance to Nearest Military Range From Boundary 4.6 km

Distance to Nearest Non-Restricted Road in Use From Boundary 8 km

Site Out of View of Existing Roads?

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 24

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 5-6

Distance to Largest Earthquake's Epicenter Within 100 km 87

Maximum Expected Acceleration From NTS Blasts 0.05 g

Reported or Observed Recent Fault Scarp Within 5 km? No

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Caliente 13-36°C (56-96°F)

Average Daily Temperature Range, Coldest Month At Caliente -9 to 8°C (16 to 46°F)

Annual Precipitation 20 cm (8 in)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 128°,162 PIOCHE 71°,125 HENDERSON 125°,182
BOULDER CITY 123°,193 TONOPAH 295°,138 ELY 24°,220 FALLON
HAWTHORNE RENO CARSON CITY

Distance to And Location of Nearest Meteorological Station 113, Caliente

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? No
Reported or Observed Historical Site Within 5 km? No

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 150 km Southwest Gas

Distance to and Name of Nearest Power Line 84 km Nevada Power Company

Route Distance to and Ownership of Nearest Railroad 130 km Union Pacific

Route Distance to and Name of Nearest Paved Highway 15 km State 25

Type of Nearest Paved Highway 2 Lane

Route Distance to and Name of Support Town 150 km Caliente

Population of Support Town 916

Route Distance to and Name of Nearest Commercial Airport 222 km McCarran

*Only locations within 200 km are evaluated.

REFERENCES 1) Nev, Bu. Mines & Geol Bull #73
3) "Lincoln County Nevada Data File" Nev Dept Econ Dev (1977)
4) "White Blotch Springs 15 minute Quadrangle" USGS (1952)
TOPOGRAPHY OF SITE 12

REF: USGS TOPOGRAPHIC SHEET, WHITE BLOTCH SPRINGS QUADRANGLE, NV., 15' SCALE 1:62,500
DATA SHEET
SITE NO. 13

I. GENERAL

Location 37°38'N, 115°38'W, T3S, R 56-57E

Geomorphic Feature Timpahute Range

Elevation 1829 m (6000 ft)

Vegetation Types Pinon, Juniper, Sagebrush

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 49 m (160 ft)

Maximum Relief of 40 ha Operations Area 67 m (220 ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 357 m (1170 ft)

III. GEOLOGY

Rock Type, Name, Age Granite Tertiary

Intruded Rock Type, Name, Age Upper Paleozoic Clastics & Carbonates

Area of Exposed Rock Mass 3.8 km² (1.5 mi²)

Surface Rock Mass Competency Mod

Faults None reported in Pluton

Joints

Distance to Nearest Historic Surface Break 60 km

Distance to Nearest Upper Cenozoic Fault 6 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 1 km, Ten Piute

Site Potential for Mineral Development Good

4 km² Area at Depths of 300-1,500 m? Prob

Distance to Nearest Volcanic Vent Younger Than 10 m Years 40 km

Distance to Nearest KGRA Within 40 km None
## IV. HYDROLOGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
<td>Yes</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Name of Site's GW Region &amp; Basin</td>
<td>Penoyer, Central</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Surface Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
<td>Sand Springs Dry Lake</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
<td>Closed Basin</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Number of Springs Within 5 km</td>
<td>0</td>
</tr>
<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to and Names of Paleo Lakes Within 30 km</td>
<td>8 km, Penoyer</td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
<td>7.2 km</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
<td>32 m (104 ft)</td>
</tr>
<tr>
<td>Site in Groundwater Recharge Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
<td>13 km</td>
</tr>
</tbody>
</table>

## V. DEMOGRAPHY

- Nearest Town, Population, and Distance: Hiko, 15, 35
- Nearest Human Habitation and Number of People: 
- Distance to State Boundary: 139 km
- Distance to and Name of Nearest Active Mine Within 25 km: Tempiute, 3 km
- Distance to Nearest Farm/Ranch Within 25 km: 7 km
VI. LAND STATUS

Is Site Located on Restricted Land? No
Type of Restricted Land
Distance to and Types of Restricted Lands Within 20 km
Nellis Range, 16 km

Land Ownership (State, Federal, Private) BLM
Land Use Grazing, recreation
Number of Old Mines Within 10 km 4
Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 48 km
Distance to Nearest Military Range From Boundary 22 km
Distance to Nearest Non-Restricted Road in Use From Boundary 7 km
Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; n = 4 22
Record Period 1881-1977
Magnitude of Largest Earthquake Within 100 km 5-6
Distance to Largest Earthquake's Epicenter Within 100 km 87 km
Maximum Expected Acceleration From NTS Blasts 0.035 g
Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Caliente 13-36°C (56-96°F)
Average Daily Temperature Range, Coldest Month At Caliente -9 to 8°C (16-46°F)
Annual Precipitation 30 cm (12 in)
* Except NTS events
DATA SHEET SITE NO. 13

IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 165°, 168 PICCHE73°, 106 HENDERSON 162°, 187
BOULDER CITY 159, 197 TONOPAH 288°, 148 ELY 19°, 188 FALLON
HAWTHORNE RENO CARSON CITY

Distance to and Location of Nearest Meteorological Station 108 km, Caliente

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? None

Reported or Observed Historical Site Within 5 km? Ghost Town of Temoiute

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 155 km Southwest Gas

Distance to and Name of Nearest Power Line 70 km Nevada Power

Route Distance to and Ownership of Nearest Railroad 138 km Union Pacific

Route Distance to and Name of Nearest Paved Highway 14 km State 25

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 149 km Caliente

Population of Support Town 916

Route Distance to and Name of Nearest Commercial Airport 221 km McCarran

*Only locations within 200 km are evaluated.

REFERENCES 1) Nev Bu M & C Bull #73*
2) "Lincoln County Nevada Data File" Nevada Dept Econ Dev (1977)
3) "Temoiute Mtn 15 minute Quad" USGS (1964)

* Plate 6 - Fig 25
TOPOGRAPHY OF SITE 13

REF: USGS TOPOGRAPHIC SHEET, TEMPIUTE MTN. QUADRANGLE, NV, 15'
SCALE 1:62,500
## I. GENERAL

Location: 37° 55'N, 115° 35'W, T1N, R57E

Geomorphic Feature: Worthington Mts.

Elevation: 1981 m

Vegetation Types: Pinon, Juniper, Sagebrush

## II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area: 49 m (160 ft)

Maximum Relief of 40 ha Operations Area: 67 m (220 ft)

Degree of Rock Mass Dissection: Mod

Maximum Relief Between Paved Road & Site: 792 m (2600 ft)

## III. GEOLOGY

Rock Type, Name, Age: Granite, Tertiary

Intruded Rock Type, Name, Age: Carbonate, Poponip Group, Ordovician

Area of Exposed Rock Mass: 5.1 km² (2 mi sq)

Surface Rock Mass Competency: Low

Faults: None reported

Joints:

Distance to Nearest Historic Surface Break: 95 km

Distance to Nearest Upper Cenozoic Fault: 16 km

Rock Mass in an Overthrust?: No

Distance to and Name of Nearest 5+km-Long Fault Trace: 1 km, Freiburg Fault

Site Potential for Mineral Development: Good

4 km² Area at Depths of 300-1,500 m?: Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years: 26 km

Distance to Nearest KGRA Within 40 km: None
IV. HYDROLOGY

Site in a Closed Groundwater Basin? Yes
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Penoyer, Central
Groundwater Discharge 0
Surface Discharge 0
Where Does Surface Water Go? Sand Spring Dry Lake
Where Does Groundwater Go? Closed Basin
Distance to Nearest Spring Within 5 km
Number of Springs Within 5 km
Distance To and Names of Perennial Streams Within 5 km
Distance to and Names of Lakes/Reservoirs Within 5 km
Distance to and Names of Paleo Lakes Within 30 km 14 km Penoyer, 21 km Coal
Distance to Nearest Water Well In Use 6 km
Depth to Water in Nearest Well 174 m (570 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 32 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Hiko, 15, 43 km
Nearest Human Habitation and Number of People
Distance to State Boundary 131 km
Distance to and Name of Nearest Active Mine Within 25 km
Distance to Nearest Farm/Ranch Within 25 km 12 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) BLM

Land Use Grazing, Recreation

Number of Old Mines Within 10 km 5

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 14 km

Distance to Nearest Military Range From Boundary 40 km

Distance to Nearest Non-Restricted Road in Use From Boundary 34 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; $n = 4+$ 19*

Record Period 1981-77

Magnitude of Largest Earthquake Within 100km 5-6

Distance to Largest Earthquake's Epicenter Within 100 km 75

Maximum Expected Acceleration From NTS Blasts 0.026 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Pioche 14-32°C (58-89°F)

Average Daily Temperature Range, Coldest Month At Pioche -6 to -5°C (21-41°F)

Annual Precipitation 30 cm (12in)

* Excludes NTS Shots
II. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 167°, 199 Pioche 91°, 101 Henderson 169°, 217
   Boulder City 161°, 227 Tonopah 276°, 142 Elv 24°, 157 Fallon
   Hawthorne ____________ Reno ____________ Carson City ____________

Distance to and Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? 0
Reported or Observed Historical Site Within 5 km? 1 (Old Mining Camp of Freiburg north of site)

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 182 km Southwest Gas
Distance to and Name of Nearest Power Line 85 km Nevada Power
Route Distance to and Ownership of Nearest Railroad 134 km Union Pacific
Route Distance to and Name of Nearest Paved Highway 69 km State 25
Type of Nearest Paved Highway 2 lane
Route Distance to and Name of Support Town 134 km Caliente
Population of Support Town 916
Route Distance to and Name of Nearest Commercial Airport 221 McCarran

*Only locations within 200 km are evaluated.

REFERENCES 1) Nev Bu M & G Bull #73
2) "Lincoln County Nevada Data File" Nev Dept Econ Dev (1977)
3) "Caliente 1x2 minute Map" USGS (1954-70)
TOPOGRAPHY OF SITE 14

REF: USGS TOPOGRAPHIC SHEET, CALIENTE QUADRANGLE, NV, 1° x 2°

SCALE 1: 250,000
DATA SHEET
SITE NO. 15

I. GENERAL
Location 38° 16' N, 114° 35' W, T5S, R63 E
Geomorphic Feature Schell Creek Range
Elevation 1902 m (6240 ft)
Vegetation Types Pinon, Juniper, Sagebrush

II. TOPOGRAPHY
Maximum Relief Of 20 ha Operations Area 24 m (80 ft)
Maximum Relief of 40 ha Operations Area 37 m (120 ft)
Degree of Rock Mass Dissection Low
Maximum Relief Between Paved Road & Site 226 m (740 ft)

III. GEOLOGY
Rock Type, Name, Age Granodiorite Tert.
Intruded Rock Type, Name, Age Paleozoic Carbonates, Guinnette & Simpson Formations
Area of Exposed Rock Mass 5.1 km² (2 mi sq)
Surface Rock Mass Competency
Faults None reported
Joints
Distance to Nearest Historic Surface Break 134 km
Distance to Nearest Upper Cenozoic Fault U. Cenozoic - 16 km
Rock Mass in an Overthrust? No
Distance to and Name of Nearest 5+ km-Long Fault Trace 0 km (on boundary)
Site Potential for Mineral Development Low
4 km² Area at Depths of 300-1,500 m? Yes.
Distance to Nearest Volcanic Vent Younger Than 10 m Years 90 km
Distance to Nearest KCRA Within 40 km None
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin: Cave Valley, Central
Groundwater Discharge: 14,000 ac ft
Surface Discharge: 0
Where Does Surface Water Go? Cave Dry Lake
Where Does Groundwater Go? White River Valley
Distance to Nearest Spring Within 5 km
Number of Springs Within 5 km: 0
Distance to and Names of Perennial Streams Within 5 km
Distance to and Names of Lakes/Reservoirs Within 5 km
Distance to and Names of Paleo Lakes Within 30 km: 8 km, Cave
Distance to Nearest Water Well In Use: 20 km
Depth to Water in Nearest Well: 93 m (304 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area: 27 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance: Pioche, 600,50 km
Nearest Human Habitation and Number of People
Distance to State Boundary: 74 km
Distance to and Name of Nearest Active Mine Within 25 km
Distance to Nearest Farm/Ranch Within 25 km: 17 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) BLM

Land Use Grazing, Recreation

Number of Old Mines Within 10 km 1

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary w/in Corridor

Distance to Nearest Military Range From Boundary 112 km Paved

Distance to Nearest Non-Restricted Road in Use From Boundary 25 km Paved

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 7

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 4-5

Distance to Largest Earthquake's Epicenter Within 100 km 59

Maximum Expected Acceleration From NTS Blasts 0.013 g

Reported or Observed Recent Fault Scarp Within 5 km? No

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Pioche 14-32°C (58-89°F)

Average Daily Temperature Range, Coldest Month At Pioche -6 to 5°C (21-41°F)

Annual Precipitation 30 cm (12 in)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 185°, 228 PIOCHE 130°, 53 HENDERSON 181°, 243

BOULDER CITY 178°, 248 TONOPAH 265°, 203 ELY 1°, 111 FALLON

HAYTHORNE RENO CARSON CITY

Distance to And Location of Nearest Meteorological Station 53 Pioche

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? 0

Reported or Observed Historical Site Within 5 km? 0

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 212 km Southwest Gas

Distance to and Name of Nearest Power Line 26 km Nevada Power

Route Distance to and Ownership of Nearest Railroad 12 km Union Pacific

Route Distance to and Name of Nearest Paved Highway 12 km 93 Bypass

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town Pioche 19 km

Population of Support Town 600

Route Distance to and Name of Nearest Commercial Airport 174 Cedar City

*Only locations within 200 km are evaluated.

REFERENCES
1) Nev Bu M & G Bull #73
3) "Lincoln County Nevada Data File" Nev Dept Econ Dev (1977)
4) "Silver King Well 7¼ minute Quadrangle" USGS (1970)
TOPOGRAPHY OF SITE 15

REF: USGS TOPOGRAPHIC SHEET, SILVER KING WELL, NV, 7 YS.

SCALE 1:24,000
DATA SHEET

SITE NO. 16

I. GENERAL

Location 37°37'N, 114°22'W, T3-4 S, R 68-69E

Geomorphic Feature Cedar Range

Elevation 1768 m (5800 ft)

Vegetation Types Pinyon, Juniper, Sagebrush

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 37 m (120 ft)

Maximum Relief of 40 ha Operations Area 49 m (160 ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 305 m (1000 ft)

III. GEOLOGY

Rock Type, Name, Age Diorite, Tertiary

Intruded Rock Type, Name, Age Volcanics, Tert/Cret.

Area of Exposed Rock Mass 15.4 km² (6 mi²)

Surface Rock Mass Competency Low to Mod

Faults None reported

Joints

Distance to Nearest Historic Surface Break 166 km

Distance to Nearest Upper Cenozoic Fault 5 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+ km-Long Fault Trace 1 km

Site Potential for Mineral Development Good

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years 110 (Utah)

Distance to Nearest KGRA Within 40 km None
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Clover Valley, Colorado River Basin
Groundwater Discharge 500 ac ft
Surface Discharge Significant Volume
Where Does Surface Water Go? Meadow Valley Wash Colorado River
Where Does Groundwater Go? Colorado River Basin
Distance to Nearest Spring Within 5 km
Number of Springs Within 5 km
Distance To and Names of Perennial Streams Within 5 km
Distance to and Names of Lakes/Reservoirs Within 5 km
Distance to and Names of Paleo Lakes Within 30 km
Distance to Nearest Water Well In Use 8 km
Depth to Water in Nearest Well 47 m (155 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 15 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Caliente, 916, 17 km
Nearest Human Habitation and Number of People
Distance to State Boundary 24 km
Distance to and Name of Nearest Active Mine Within 25 km
Distance to Nearest Farm/Ranch Within 25 km 14 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) BLM

Land Use Grazing, Recreation

Number of Old Mines Within 10 km 7

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 55 km

Distance to Nearest Military Range From Boundary 90 km

Distance to Nearest Non-Restricted Road in Use From Boundary 11 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 21

Record Period '81-77

Magnitude of Largest Earthquake Within 100 km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 25

Maximum Expected Acceleration From NTS Blasts 0.012 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Pioche 14-32°C (58-89°F)

Average Daily Temperature Range, Coldest Month At Pioche -6 to 5°C (21-41°F)

Annual Precipitation 30 cm (12in)
II. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 201°,177  PIONEER 355°,30  HENDERSON 195°,186

BOULDER CITY 191°,189  TONOPAH 281°,269  ELY 347°,178  FALLON

HAYTHORNE  RENO  CARSON CITY

Distance to And Location of Nearest Meteorological Station 10 km Caliente

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? 0

Reported or Observed Historical Site Within 5 km? 0

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 150 km Southwest Gas

Distance to and Name of Nearest Power Line 8 km Nevada Power

Route Distance to and Ownership of Nearest Railroad 19 km Union Pacific

Route Distance to and Name of Nearest Paved Highway 18 km US 93

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 22 km Caliente

Population of Support Town 916

Route Distance to and Name of Nearest Commercial Airport 174 km Cedar City

*Only locations within 200 km are evaluated.


2) "Lincoln County Data File" Nev, Dept Econ Dev (1977)

3) "Mosey Mtn 7½ minute Quadrangle" USGS (1972)

4) "Jalen 7½ Minute Quadrangle" USGS (1972)
TOPOGRAPHY OF SITE 16

REF: USGS TOPOGRAPHIC SHEET, MOSEY MTN. QUADRANGLE, NV, 7½'
SCALE 1:24,000
DATA SHEET

SITE NO. 17

I. GENERAL

Location 37°20'N, 114°47'W, T7S, R63E

Geomorphic Feature Delamar Mountains

Elevation 1722 m (5650 ft)

Vegetation Types Pinon, Sagebrush, Juniper

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area 43m (140 ft)

Maximum Relief of 40 ha Operations Area 67m (220 ft)

Degree of Rock Mass Dissection N/A

Maximum Relief Between Paved Road & Site 686 m (2250 ft)

III. GEOLOGY

Rock Type, Name, Age Rhyolite Porphyry Tertiary

Intruded Rock Type, Name, Age Volcanic, Undifferentiated, Cret/Tert.

Area of Exposed Rock Mass 3.3 km² (1.3 mi²)

Surface Rock Mass Competency

Faults None reported

Joints

Distance to Nearest Historic Surface Break 125 km

Distance to Nearest Upper Cenozoic Fault 4 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5-km-Long Fault Trace Border, Menard Lake

Site Potential for Mineral Development Low

4 km² Area at Depths of 300-1,300 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years 100 km

Distance to Nearest KGRA Within 40 km None
DATA SHEET SITE NO. 17

IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No (But discharges into one)
Name of Site's GW Region & Basin Delamar Valley, Central Region
Groundwater Discharge 6,000 ac ft/yr
Surface Discharge 0
Where Does Surface Water Go? Delamar Dry Lake
Where Does Groundwater Go? Into White River Valley
Distance to Nearest Spring Within 5 km 2.9 km
Number of Springs Within 5 km 1
Distance To and Names of Perennial Streams Within 5 km
Distance to and Names of Lakes/Reservoirs Within 5 km
Distance to and Names of Paleo Lakes Within 30 km 12 km Delamar
Distance to Nearest Water Well In Use 19 km
Depth to Water in Nearest Well 6 m (21 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 30 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Elgin, 15, 24 km
Nearest Human Habitation and Number of People
Distance to State Boundary 65 km
Distance to and Name of Nearest Active Mine Within 25 km
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) BLM

Land Use Crazing, Recreation

Number of Old Mines Within 10 km 1

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 65 km

Distance to Nearest Military Range From Boundary 45 km

Distance to Nearest Non-Restricted Road in Use From Boundary 24 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 28

Record Period 1981-77

Magnitude of Largest Earthquake Within 100 km 6-7

Distance to Largest Earthquake’s Epicenter Within 100 km 53

Maximum Expected Acceleration From NTS Blasts 0.019 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Caliente 13-36°C (56-96°F)

Average Daily Temperature Range, Coldest Month At Caliente -9 to 8°C (16-46°F)

Annual Precipitation 25 cm (10in)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 193°, 129 PIOCHE 24°, 75 HENDERSON 186°, 142

BOULDER CITY 181°, 147 TONOPAH 292°, 228 ELY 358°, 213 FALLON

HAWTHORNE RENO CARSON CITY

Distance to And Location of Nearest Meteorological Station 40 km Caliente

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes, Probably @ Jumbo Springs

Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 106 km Southwest Gas

Distance to and Name of Nearest Power Line 10 km Nevada Power

Route Distance to and Ownership of Nearest Railroad 56 km Union Pacific

Route Distance to and Name of Nearest Paved Highway 32 km US 93

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 56 km Caliente

Population of Support Town 916

Route Distance to and Name of Nearest Commercial Airport 150 km McCarran

*Only locations within 200 km are evaluated.

REFERENCES 1) Tschanz..., Nev Bu M & G Bull 73

2) "Lincoln County Nevada Data File" Nev. Dept Econ Dev (1977)

3) "Gregerson Basin 7.5 minute Quadrangle" USGS (1969)
TOPOGRAPHY OF SITE 17

GREGERSON BASIN QUAD

PLUTON

SITE

TOP: USGS TOPOGRAPHIC SHEET, GREGERSON BASIN QUADRANGLE, NV., 7/2.

SCALE 1:24,000
DATA SHEET

SITE NO. 10

I. GENERAL

Location 37°25'N, 114°28'W, T6.S., R67E

Geomorphlc Feature Clover Mtns

Elevation 1585 m 5200'

Vegetation Types Pinon, Juniper, Sagebrush, Cactus

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area 55 m (180 ft)

Maximum Relief of 40 ha Operations Area 67 m (220 ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 411 m (1350 ft)

III. GEOLOGY

Rock Type, Name, Age Rhvolite Phorphy Tertiary

Intruded Rock Type, Name, Age Volcanics Cretaceous/Tertiary

Area of Exposed Rock Mass 12.8 km² (5 mi²)

Surface Rock Mass Competency

Faults None reported

Joints

Distance to Nearest Historic Surface Break 153 km

Distance to Nearest Upper Cenozoic Fault 9 km U. Cenozoic Faults

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace on Boundary

Site Potential for Mineral Development Good

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10 m Years 97 km (Utah)

Distance to Nearest KCRA Within 40 km None
DATA SHEET SITE NO. 18

IV. HYDROLOGY

Site in a Closed Groundwater Basin?  No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin  Lower Meadow Wash Valley, Colorado
Groundwater Discharge  7,000 ac ft.
Surface Discharge  500 ac ft
Where Does Surface Water Go?  Colorado River
Where Does Groundwater Go? Colorado River
Distance to Nearest Spring Within 5 km
Number of Springs Within 5 km 0
Distance To and Names of Perennial Streams Within 5 km  None
Distance to and Names of Lakes/Reservoirs Within 5 km  None
Distance to and Names of Paleo Lakes Within 30 km  None
Distance to Nearest Water Well In Use  7.5 km
Depth to Water in Nearest Well  6 m (21 ft)
Site in Groundwater Recharge Area?  Yes
Distance to Nearest Groundwater Discharge Area  28 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance  Elgin, 15, 9 km
Nearest Human Habitation and Number of People
Distance to State Boundary  38 km
Distance to and Name of Nearest Active Mine Within 25 km
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) BLM

Land Use Grazing, Recreation

Number of Old Mines Within 10 km 5

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 46 km

Distance to Nearest Military Range From Boundary 74 km

Distance to Nearest Non-Restricted Road in Use From Boundary 19 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 23

Record Period '81-77

Magnitude of Largest Earthquake Within 100 km 6-7

Distance to Largest Earthquake's Epicenter Within 100 km 25

Maximum Expected Acceleration From NTS Blasts 0.013 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Caliente 13-36°C (56-96°F)

Average Daily Temperature Range, Coldest Month At Caliente -9 to 8°C (10-46°F)

Annual Precipitation 25 cm (10 in)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 203°, 146 PIOCHE 2°, 58 HENDERSON 196°, 157
BOULDER CITY 191°, 160 TONOPAH 287°, 249 ELY FALLON
HAZTHORNE RENO CARSON CITY

Distance to And Location of Nearest Meteorological Station 21 km

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? None
Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 120 km Southwest Gas
Distance to and Name of Nearest Power Line 22 km Nevada Power
Route Distance to and Ownership of Nearest Railroad 8 km Union Pacific
Route Distance to and Name of Nearest Paved Highway 30 km US 93
Type of Nearest Paved Highway 2 Lane
Route Distance to and Name of Support Town 30 km Caliente
Population of Support Town 916
Route Distance to and Name of Nearest Commercial Airport 174 km McCarran

*Only locations within 200 km are evaluated.

REFERENCES 1) Tschanz.... Nev Bu M & G Bull 73
2) "Lincoln County Nevada Data Sheet" Nev Dept Econ Dev
3) " Caliente 1 x 2 Degree Topographic Map" USGS (1954-1970)
DATA SHEET

SITE NO. 19

I. GENERAL

Location 38°00'N, 116°38'W, T2N, R66E

Geomorphic Feature Bristol Range

Elevation 1920 m (6300 ft)

Vegetation Types Pinon, Juniper, Sagebrush

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 49 m (160 ft)

Maximum Relief of 40 ha Operations Area 61 m (200 ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 380 m (1249 ft)

III. GEOLOGY

Rock Type, Name, Age Quartz Monzonite - Tertiary

Intruded Rock Type, Name, Age Cambrian Sediments & Carbonates

Area of Exposed Rock Mass 2.6 km$^2$ (1 mi$^2$)

Surface Rock Mass Competency Mod

Faults none reported

Joints

Distance to Nearest Historic Surface Break 162 km

Distance to Nearest Upper Cenozoic Fault 5 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace forms part of boundary

Site Potential for Mineral Development Mod

4 km$^2$ Area at Depths of 300-1,500 m? No

Distance to Nearest Volcanic Vent Younger Than 10 m Years 111 km

Distance to Nearest KGRA Within 40 km None
IV. HYDROLOGY

Site in a Closed Groundwater Basin?  No  #181 Central Region
Site in an Interstate GW Basin?  No (But drains into one eventually)
Name of Site's GW Region & Basin  Dry Lake Valley, Central
Groundwater Discharge  5000 ac ft/yr
Surface Discharge  0
Where Does Surface Water Go?  Dry Lake
Where Does Groundwater Go?  Into White River Drainage
Distance to Nearest Spring Within 5 km  0.7 km
Number of Springs Within 5 km  3
Distance to and Names of Perennial Streams Within 5 km  
Distance to and Names of Lakes/Reservoirs Within 5 km  
Distance to and Names of Paleo Lakes Within 30 km  20 km, Bristol 76B
Distance to Nearest Water Well In Use  3 km
Depth to Water in Nearest Well  3m (10 ft)
Site in Groundwater Recharge Area?  Yes
Distance to Nearest Groundwater Discharge Area  32 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance  Pioche, 600, 16 km
Nearest Human Habitation and Number of People  14.5 km (?)
Distance to State Boundary  49 km
Distance to and Name of Nearest Active Mine Within 25 km  Pan American, 10 km
Distance to Nearest Farm/Ranch Within 25 km  14.5 km
VI. LAND STATUS

Is Site Located on Restricted Land? No
Type of Restricted Land
Distance to and Types of Restricted Lands Within 20 km

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 9 km
Distance to Nearest Military Range From Boundary 71 km
Distance to Nearest Non-Restricted Road in Use From Boundary 7 km
Paved
Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 19

Record Period '81-'77
Magnitude of Largest Earthquake Within 100 km 6-7
Distance to Largest Earthquake's Epicenter Within 100 km 77
Maximum Expected Acceleration From NTS Blasts 0.013 g

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Pioche 14-32°C (58-89°F)
Average Daily Temperature Range, Coldest Month At Pioche -6 to 5°C (21-41°F)
Annual Precipitation 25 cm (10 in)
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS 195°, 225 PIOCHE 113°, 17 HENDERSON 190°, 218

BOULDER CITY 187°, 222 TONOPAH 350°, 229 ELY 350°, 140 FALLON

HAWTHORNE RENO CARSON CITY

Distance to and Location of Nearest Meteorological Station 17 km, Pioche

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes
Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 100 km Southwest Gas

Distance to and Name of Nearest Power Line 7 km Nevada Power

Route Distance to and Ownership of Nearest Railroad 10 km Union Pacific

Route Distance to and Name of Nearest Paved Highway 10 km US 93 Bypass

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 20 km Pioche

Population of Support Town 600

Route Distance to and Name of Nearest Commercial Airport 193 Cedar City

*Only locations within 200 km are evaluated.

REFERENCES

1) Turghanz. Nev Bu M & G Bull 73

2) "Lincoln County Nevada Data File" Nev Dept Econ Dev.

3) "Highland Peak 7½ minute Quadrangle" USGS (1953-1969)

4) Westgate, L.G. & A. Knopf (1932)"Geology and Ore Deposits of the Pioche District. Nevada"

USGS Prof Paper 171
"Pluton"

Site 19

Mc Callum's Hill

TOPOGRAPHY OF SITE 19
REF: HIGHLAND PEAK QUADRANGLE, NV USGS 7½' TOPOGRAPHIC MAP
SCALE 1:24,000
### DATA SHEET

**SITE NO. 20**
(Round Mtn Quad - 7½)

#### I. GENERAL

<table>
<thead>
<tr>
<th>Location</th>
<th>Nye Co. T10N R 44E Sec 21, 38° 43'N, 117° 3'W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomorphic Feature</td>
<td>Round Mountain</td>
</tr>
<tr>
<td>Elevation</td>
<td>(6640')</td>
</tr>
<tr>
<td>Vegetation Types</td>
<td>Pinyon Juniper/Northern Desert Shrub</td>
</tr>
</tbody>
</table>

#### II. TOPOGRAPHY

<table>
<thead>
<tr>
<th>Maximum Relief of 20 ha Operations Area</th>
<th>37 m (120')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Relief of 40 ha Operations Area</td>
<td>61 m (200')</td>
</tr>
<tr>
<td>Degree of Rock Mass Dissection</td>
<td>Mod</td>
</tr>
<tr>
<td>Maximum Relief Between Paved Road &amp; Site</td>
<td>93 m (300')</td>
</tr>
</tbody>
</table>

#### III. GEOLOGY

<table>
<thead>
<tr>
<th>Rock Type, Name, Age</th>
<th>Granite, Jurassic (?), Round Mtn. Pluton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intruded Rock Type, Name, Age</td>
<td>Palmetto Fm. Slate/Chert, Ordovician</td>
</tr>
<tr>
<td>Area of Exposed Rock Mass</td>
<td>175 km²</td>
</tr>
<tr>
<td>Surface Rock Mass Competency</td>
<td></td>
</tr>
<tr>
<td>Faults</td>
<td></td>
</tr>
<tr>
<td>Joints</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Historic Surface Break</td>
<td>50 km</td>
</tr>
<tr>
<td>Distance to Nearest Upper Cenozoic Fault</td>
<td>12 km</td>
</tr>
<tr>
<td>Rock Mass in an Ovorthrust?</td>
<td>No</td>
</tr>
<tr>
<td>Distance to and Name of Nearest 5+km-Long Fault Trace</td>
<td>7.5 km</td>
</tr>
<tr>
<td>Site Potential for Mineral Development</td>
<td>Mod</td>
</tr>
<tr>
<td>4 km² Area at Depths of 300-1,500 m?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Volcanic Vent Younger Than 10 m Years</td>
<td>90 km</td>
</tr>
<tr>
<td>Distance to Nearest NCRA Within 40 km</td>
<td>inside prospective area</td>
</tr>
</tbody>
</table>
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No

Site in an Interstate GW Basin? No

Name of Site’s GW Region & Basin Central Region (10), Basin: Big Smoky Valley (137)

Groundwater Discharge 8000 acft/yr

Surface Discharge None

Where Does Surface Water Go? Within Basin

Where Does Groundwater Go? Clayton Valley (143) and Columbus Salt Marsh (110) NV

Distance to Nearest Spring Within 5 km 4 km Inkhouse Spring

Number of Springs Within 5 km 2

Distance To and Names of Perennial Streams Within 5 km 1.6 km Jefferson Cr

Distance to and Names of Lakes/Reservoirs Within 5 km None

Distance to and Names of Paleo Lakes Within 30 km 13 km Toiyabe

Distance to Nearest Water Well In Use 20 km

Depth to Water In Nearest Well 2 m (17 ft)

Site in Groundwater Recharge Area? Yes

Distance to Nearest Groundwater Discharge Area 11 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Round Mountain, NV pop. 100, 1.5 km

Nearest Human Habitation and Number of People 1.5 km 100

Distance to State Boundary 145 km (CA)

Distance to and Name of Nearest Active Mine Within 25 km 2 km - Round Mtn

Gold Mine Smoky Valley Mining Co.

Distance to Nearest Farm/Ranch Within 25 km 11 km Wood’s Ranch
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km 10 km - Indian Res (Yomba)

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km ~ 100

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 54 km

Distance to Nearest Military Range From Boundary 91 km - Nellis Paved

Distance to Nearest Non-Restricted Road in Use From Boundary 1.5 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; n = 4+ 49

Record Period '81-'77

Magnitude of Largest Earthquake Within 100km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 82

Maximum Expected Acceleration From NTS Blasts 0.013 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15°C - 32°C

Average Daily Temperature Range, Coldest Month At Tonopah -7°C - 4°C

Annual Precipitation 35 cm
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS — PIOCHE — HENDERSON —

BOULDER CITY — TONOPAH 192°/70 km ELY 70°/190 km FALLON 300°/165 km

HAWTHORNE 260°/135 RENO — BISHOP CARSON CITY 217°/183 km

Distance to And Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Probably

Reported or Observed Historical Site Within 5 km? No

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 80 km Southwest Gas

Distance to and Name of Nearest Power Line 1 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 158 km — SP (63 km Old Bed)

Route Distance to and Name of Nearest Paved Highway 1.5 km State Highway 92

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town Tonopah, 90 km

Population of Support Town 1,716

Route Distance to and Name of Nearest Commercial Airport 258 km, Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES GQ 40 USGS (1954) "Geol. of Round Mtn Quad"

Prelim, Recon. Geol, Map of Central Nevada, R.E. Anderson, et. al. (1967)
TOPOGRAPHY OF SITE 20

REF: USGS TOPOGRAPHIC SHEET, ROUND MOUNTAIN QUADRANGLE, NV, 7 1/2'
SCALE 1:24,000
DATA SHEET

SITE NO. 21

(Baxter Spring Quad -15')

I. GENERAL

Location Nye Co. T7N R44E Sec 17, 38°27'N, 117°4'W

Geomorphic Feature Toquima Range South

Elevation 2085 m (6840')

Vegetation Types Pinion Juniper/Northern Desert shrub

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 37 m (120')

Maximum Relief of 40 ha Operations Area 49 m (160')

Degree of Rock Mass Dissection High

Maximum Relief Between Paved Road & Site 244 m (800')

III. GEOLOGY

Rock Type, Name, Age Quartz Monzonite/Granodiorite, Cretaceous, Manhattan Dist, Intrusive

Intruded Rock Type, Name, Age Ordovician Shale, Chert, and Limestone

Area of Exposed Rock Mass 50 km^2

Surface Rock Mass Competency

Faults

Joints

Distance to Nearest Historic Surface Break 50 km

Distance to Nearest Upper Cenozoic Fault 12 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 18.2 km

Site Potential for Mineral Development Low

4 km^2 Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10^6 Years 83 km

Distance to Nearest KGRA Within 40 km
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Central Region (10), Ralston Valley Basin (141)
Groundwater Discharge 6000 ac ft/yr
Surface Discharge None
Where Does Surface Water Go? Clayton Valley (143) and Alkali Spring Valley (142) NV
Where Does Groundwater Go? 2.5 km Mud Spring
Distance to Nearest Spring Within 5 km 2.5 km
Number of Springs Within 5 km 5
Distance To and Names of Perennial Streams Within 5 km None
Distance To and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km None
Distance to Nearest Water Well In Use
Depth to Water in Nearest Well
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 19 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Manhattan, 30 pop, 8.5 km
Nearest Human Habitation and Number of People
Distance to State Boundary 126 km (CA)
Distance to and Name of Nearest Active Mine Within 25 km 7 km - Manhattan
Gold Mine - Formerly Summa Corp.
Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 100

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 26 km

Distance to Nearest Military Range From Boundary 63 km - Nellis

Distance to Nearest Non-Restricted Road in Use From Boundary 12 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: \( n = 44 \)

Record Period '61-'77

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 88

Maximum Expected Acceleration From NTS Blasts 0.016 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15°-32° C

Average Daily Temperature Range, Coldest Month At Tonopah -7 to 4° C

Annual Precipitation 30 cm
**IX. METEOROLOGY** (Continued)

<table>
<thead>
<tr>
<th>Azimuth and Distance To:</th>
<th>Pioche</th>
<th>Henderson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulder City</td>
<td>197°/41 km</td>
<td>Ely</td>
</tr>
<tr>
<td>Tonopah</td>
<td></td>
<td>Fallon</td>
</tr>
<tr>
<td>Bishop, CA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawthorne</td>
<td>275°/128 km</td>
<td>Reno</td>
</tr>
<tr>
<td>Carson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>223°/160 km</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Distance to and Location of Nearest Meteorological Station

**X. ARCHEOLOGY/HISTORY**

Reported or Observed Archeological Site Within 5 km? Yes
Reported or Observed Historical Site Within 5 km? No

**XI. LOGISTICS**

Distance to and Name of Nearest Gas Line 82 km - Southwest Gas
Distance to and Name of Nearest Power Line 10 km - Sierra Pacific
Route Distance to and Ownership of Nearest Railroad 132 km - SP (38 km - Old Bed)
Route Distance to and Name of Nearest Paved Highway 12 km, State Highway 82
Type of Nearest Paved Highway 2 lane
Route Distance to and Name of Support Town 47 km Tonopah
Population of Support Town 1716
Route Distance to and Name of Nearest Commercial Airport 225 km - Bishop, California

*Only locations within 200 km are evaluated.

REFERENCES
TOPOGRAPHY OF SITE 21

REFERENCES: USGS TOPOGRAPHIC SHEET, GARTER SPRING QUADRANGLE, NV, 15'

SCALE: 1:62,800
### DATA SHEET

**SITE NO. 22**

(Wildcat Peak Quad - 15')

#### I. GENERAL

<table>
<thead>
<tr>
<th>Location</th>
<th>Nye Co. T15N, R45E, Sec 22, 39° 9'N, 116°54'W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomorphologic Feature</td>
<td>Toquima Range North</td>
</tr>
<tr>
<td>Elevation</td>
<td>1865 m (6120')</td>
</tr>
<tr>
<td>Vegetation Types</td>
<td>Pinion Juniper</td>
</tr>
</tbody>
</table>

#### II. TOPOGRAPHY

<table>
<thead>
<tr>
<th>Maximum Relief of 20 ha Operations Area</th>
<th>116 m (380')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Relief of 40 ha Operations Area</td>
<td>146 m (480')</td>
</tr>
<tr>
<td>Degree of Rock Mass Dissection</td>
<td>High</td>
</tr>
<tr>
<td>Maximum Relief Between Paved Road &amp; Site</td>
<td>183 m (600')</td>
</tr>
</tbody>
</table>

#### III. GEOLOGY

- **Rock Type, Name, Age**: Biotite Quartz Monzonite/Granodiorite, Jurassic, Clipper Cap Pluton
- **Intruded Rock Type, Name, Age**: Vinini Fm, sh, ch, ls, qtzite, Ordovician
- **Area of Exposed Rock Mass**: 22 km²
- **Surface Rock Mass Competency**
- **Faults**
- **Joints**: Steeply Dipping: 1 every few meters; Gently Dipping: Twice that of the steep ones
- **Distance to Nearest Historic Surface Break**: 50 km
- **Distance to Nearest Upper Cenozoic Fault**: 50 km: 13 km
- **Rock Mass in an Overthrust?**: No
- **Distance to and Name of Nearest 5+km-Long Fault Trace**: 4.6 km
- **Site Potential for Mineral Development**: Low
- **4 km² Area at Depths of 300-1,500 m?**: Yes
- **Distance to Nearest Volcanic Vent Younger Than 10 m Years**: 132 km
- **Distance to Nearest XGRA Within 40 km**: Inside prospective area
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Central Region (10), Big Smoky Valley Basin (137)

Groundwater Discharge 8000 ac ft/yr
Surface Discharge None

Where Does Surface Water Go? Within Basin
Where Does Groundwater Go? Columbus Salt Marsh (118) & Clayton Valley (143)

Distance to Nearest Spring Within 5 km 2.2 km
Number of Springs Within 5 km 2

Distance To and Names of Perennial Streams Within 5 km None

Distance to and Names of Lakes/Reservoirs Within 5 km None

Distance to and Names of Paleo Lakes Within 30 km 3 km - Tolva Me 21 km - Diana

Distance to Nearest Water Well In Use 15 km
Depth to Water in Nearest Well 52 m (170 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 5 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Austin, NV Pop 300, 38 km

Nearest Human Habitation and Number of People

Distance to State Boundary 187 km

Distance to and Name of Nearest Active Mine Within 25 km 20 km - P & S Mine

(Site) Standard Slat Co.

Distance to Nearest Farm/Ranch Within 25 km 16.4 km, Kingston Ranch
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 3

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 100 km

Distance to Nearest Military Range From Boundary 108 km - HAAS

Distance to Nearest Non-Restricted Road in Use From Boundary 13 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+ 36

Record Period 181-77

Magnitude of Largest Earthquake Within 100 km 5-6

Distance to Largest Earthquake's Epicenter Within 100 km 87

Maximum Expected Acceleration From NTS Blasts 0.01 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15-32°C

Average Daily Temperature Range, Coldest Month At Tonopah -7 to 4°C

Annual Precipitation 25 cm
IX. METEOROLOGY (Continued)

<table>
<thead>
<tr>
<th>Azimuth and Distance To:</th>
<th>LAS VEGAS</th>
<th>PIOCHE</th>
<th>HENDERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOULDER CITY</td>
<td>190°/118km</td>
<td>ELY118°/172km</td>
<td>FALLON 283°/158</td>
</tr>
<tr>
<td>HAWTHORNE</td>
<td>244°/155km</td>
<td>RENO</td>
<td></td>
</tr>
</tbody>
</table>

Distance to and Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes

Reported or Observed Historical Site Within 5 km? No

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 92 km - Southwest Gas

Distance to and Name of Nearest Power Line 47 km - Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 198 km - Sp (120 km Old Bed)

Route Distance to and Name of Nearest Paved Highway 13 km, State Highway 8A

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 155 km Tonopah

Population of Support Town 1716

Route Distance to and Name of Nearest Commercial Airport 254 km - Ely, NY

*Only locations within 200 km are evaluated.

REFERENCES

"Preliminary Recon Geol Map of Central Nevada" E.E. Anderson, et.al. (1967)

"Geol. of No. part of Toquima Range, Lander, Eureka, and Nye Co. Nev." USGS

Prof Paper 931 E.H. McKee (1976)
TOPOGRAPHY OF SITE 22

Ref: USGS Topographic Sheet, Wildcat Peak Quadrangle, NV, 15'

Scale 1:62,500
**DATA SHEET**

**SITE NO. 23**

*Millet Ranch Quad - 15'*

### I. GENERAL

<table>
<thead>
<tr>
<th>Location</th>
<th>Nye Co. T15N R43E Sec 27, 39°7'N, 117°8'W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomorphic Feature</td>
<td>Central Toiyabe Range</td>
</tr>
<tr>
<td>Elevation</td>
<td>1877 m (6160')</td>
</tr>
<tr>
<td>Vegetation Types</td>
<td>Northern Desert Shrub</td>
</tr>
</tbody>
</table>

### II. TOPOGRAPHY

| Maximum Relief of 20 ha Operations Area | 98 m (320')                          |
| Maximum Relief of 40 ha Operations Area | 128 m (420')                          |
| Degree of Rock Mass Dissection         | Mod                                  |
| Maximum Relief Between Paved Road & Site | 170 m (560')                          |

### III. GEOLOGY

<table>
<thead>
<tr>
<th>Rock Type, Name, Age</th>
<th>Granodiorite/Adamellite, Mesozoic-Tertiary, Aiken Creek Pluton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intruded Rock Type, Name, Age</td>
<td>Paleozoics</td>
</tr>
<tr>
<td>Area of Exposed Rock Mass</td>
<td>25 km²</td>
</tr>
<tr>
<td>Surface Rock Mass Competency</td>
<td></td>
</tr>
<tr>
<td>Faults</td>
<td></td>
</tr>
<tr>
<td>Joints</td>
<td></td>
</tr>
</tbody>
</table>

Distance to Nearest Historic Surface Break: 50 km
Distance to Nearest Upper Cenozoic Fault: 50 km: 2 km
Rock Mass in an Overthrust?: No
Distance to and Name of Nearest 5+km-Long Fault Trace: 0 km
Site Potential for Mineral Development: Low
4 km² Area at Depths of 300-1,500 m?: Yes.
Distance to Nearest Volcanic Vent Younger Than 10⁶ Years: 123 km
Distance to Nearest KGRA Within 40 km: —
IV. HYDROLOGY

Site in a Closed Groundwater Basin?  No

Site in an Interstate GW Basin?  No

Name of Site's GW Region & Basin  Central Region (10) Big Smoky Valley Basin (137)

Groundwater Discharge  8,000 ac ft/yr

Surface Discharge  None

Where Does Surface Water Go?  Within Basin

Where Does Groundwater Go?  Columbus Salt Marsh (118) & Clayton Valley (143)

Distance to Nearest Spring Within 5 km  4.5 km

Number of Springs Within 5 km  3

Distance To and Names of Perennial Streams Within 5 km  4.3 km - Carlsey Cr
1.0 km - Aiken Cr, 10 - unnamed, 1.3 km - unnamed, 1.8 - Decker Ck, 3.7 - 2 unnamed, total 7

Distance to and Names of Lakes/Reservoirs Within 5 km  None

Salt Marsh - 4.5 km

Distance to and Names of Paleo Lakes Within 30 km  2 km - Toiyabe

Distance to Nearest Water Well In Use  18 km

Depth to Water in Nearest Well  20 km (64 ft)

Site in Groundwater Recharge Area?  Yes

Distance to Nearest Groundwater Discharge Area  3 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance  Austin, Nev, 300 pop, 38 km

Nearest Human Habitation and Number of People

Distance to State Boundary  119 km

Distance to and Name of Nearest Active Mine Within 25 km  23 km - Bobbie #4

(Tungsten) A & B Mining & Milling Co.

Distance to Nearest Farm/Ranch Within 25 km  2 km (?) could be mine bldgs.
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 18

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 95 km

Distance to Nearest Military Range From Boundary 90 km NAAS

Distance to Nearest Non-Restricted Road in Use From Boundary 2 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 89

Record Period 1961-1977

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 87

Maximum Expected Acceleration From NTS Blasts 0.01 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15°-32°C

Average Daily Temperature Range, Coldest Month At Tonopah -7° to 4°C

Annual Precipitation 30 cm
IX. METEOROLOGY (Continued)
* Azimuth and Distance To: LAS VEGAS — PIOCHE — HENDERSON —
BOULDER CITY — TONOPAH 184°/115 km ELY 84°/192 km FALLOON 285°/142 km
HAWTHORNE 243°/140 RENO — CARSON CITY —
Distance to And Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY
Reported or Observed Archeological Site Within 5 km? Yes
Reported or Observed Historical Site Within 5 km? No

XI. LOGISTICS
Distance to and Name of Nearest Gas Line 72 km - Southwest Gas
Distance to and Name of Nearest Power Line 45 km - Sierra Pacific
Route Distance to and Ownership of Nearest Railroad 188 km - SP (112km - Old Bed)
Route Distance to and Name of Nearest Paved Highway 2 km Highway 8 A
Type of Nearest Paved Highway 2 lane
Route Distance to and Name of Support Town 139 km Tonopah
Population of Support Town 1716
Route Distance to and Name of Nearest Commercial Airport 251 km - Ely, NV

*Only locations within 200 km are evaluated.

REFERENCES
"Geologic Map of Nevada, Map 57, New Rumines & Geol (1977)
J.H. Steward & J.E. Carlson
TOPOGRAPHY OF SITE 23

REF: USGS TOPOGRAPHIC SHEET, MILLET RANCH QUADRANGLE, NV, 15'
SCALE 1:62,500
### DATA SHEET

**SITE NO. 24**

(Carvers Quad - 7½)

#### I. GENERAL

<table>
<thead>
<tr>
<th>Location</th>
<th>Nye Co T11N R43E 38°46'N, 117°12'W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geomorphic Feature</td>
<td>Toiyabe Range</td>
</tr>
<tr>
<td>Elevation</td>
<td>1829 m (6000')</td>
</tr>
<tr>
<td>Vegetation Types</td>
<td>Northern Desert Shrub</td>
</tr>
</tbody>
</table>

#### II. TOPOGRAPHY

<table>
<thead>
<tr>
<th>Maximum Relief of 20 ha Operations Area</th>
<th>79 m (260')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Relief of 40 ha Operations Area</td>
<td>107 m (350')</td>
</tr>
<tr>
<td>Degree of Rock Mass Dissection</td>
<td>Low</td>
</tr>
<tr>
<td>Maximum Relief Between Paved Road &amp; Site</td>
<td>107 m (350')</td>
</tr>
</tbody>
</table>

#### III. GEOLOGY

<table>
<thead>
<tr>
<th>Rock Type, Name, Age</th>
<th>Quartz Monzonite, Jurassic, &quot;Woods Ranch&quot; Pluton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intruded Rock Type, Name, Age</td>
<td>Palmetto fm,</td>
</tr>
<tr>
<td>Area of Exposed Rock Mass</td>
<td>7.3 km²</td>
</tr>
<tr>
<td>Surface Rock Mass Competency</td>
<td></td>
</tr>
<tr>
<td>Faults</td>
<td></td>
</tr>
<tr>
<td>Joints</td>
<td></td>
</tr>
</tbody>
</table>

Distance to Nearest Historic Surface Break: 50 km
Distance to Nearest Upper Cenozoic Fault: 50 km; 2 km
Rock Mass in an Overthrust?: No
Distance to and Name of Nearest 5+km-Long Fault Trace: 0 km
Site Potential for Mineral Development: Low
4 km² Area at Depths of 300-1,500 m?: Yes
Distance to Nearest Volcanic Vent Younger Than 10 m Years: 106 km
Distance to Nearest KGRA Within 40 km: 6
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Central Region (10), Big Smoky Valley Basin (137)
Groundwater Discharge 8,000 ac ft/yr
Surface Discharge None
Where Does Surface Water Go? Within Basin
Where Does Groundwater Go? Columbus Salt Marsh (118) & Clayton Valley (143)
Distance to Nearest Spring Within 5 km 1.4 km
Number of Springs Within 5 km 50
Distance To and Names of Perennial Streams Within 5 km 5 km - Broad C.K., 4 km - Cove Canyon Ck., 4 km - Lee Ck.
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km 5 km - Toiyabe
Distance to Nearest Water Well In Use NA
Depth to Water in Nearest Well NA
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 2 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance Round Mountain, pop. 130, 14 km
Nearest Human Habitation and Number of People
Distance to State Boundary 91 km, CA
Distance to and Name of Nearest Active Mine Within 25 km 14 km - Round Mtn Gold Mine - Smoky Valley Mining Co.
Distance to Nearest Farm/Ranch Within 25 km 2 km - Winilgaas Ranch
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km 2 km - Yomba Indian Reservation

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 0

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 65 km

Distance to Nearest Military Range From Boundary 95 km - NAA5

Distance to Nearest Non-Restricted Road in Use From Boundary 1.2 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 73

Record Period 81-77

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 72

Maximum Expected Acceleration From NTS Blasts 0.012 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15°-32°C

Average Daily Temperature Range, Coldest Month At Tonopah -7° to 4°C

Annual Precipitation 30 cm
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS — PIONEER — HENDERSON —

BOULDER CITY — TONOPAH 179°/75 km ELY 75°200 km FALLON 299°/150 km

HAWTHORNE 255°/122 km RENO — LAUGHLIN CITY 213°/180 km

Distance to and Location of Nearest Meteorological Station

X. ARCHAEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes

Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 62 km Southwest Gas

Distance to and Name of Nearest Power Line 13 km Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 160 km — SP (78 km — Old Bed)

Route Distance to and Name of Nearest Paved Highway 1.2 km, State Highway 8A

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 96 km Tonopah

Population of Support Town 1716

Route Distance to and Name of Nearest Commercial Airport 268 km — Bishop, CA

*Only locations within 200 km are evaluated.

REFERENCES

TOPOGRAPHY OF SITE 24

Ref.: USGS TOPOGRAPHIC SHEET, CARRIERS QUADRANGLE, NV., 7½'
Scale 1:24,000
DATA SHEET
SITE NO. 25
(Carvers NW Quad 7½')

I. GENERAL

Location  Nye County, T170, R42E, Sec 10, 38°56'N, 113°15'W
Geomorphic Feature  Toiyabe Range East.
Elevation  1920 m (6300')
Vegetation Types  Pinon, Juniper

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area  79 m (260')
Maximum Relief of 40 ha Operations Area  104 m (340')
Degree of Rock Mass Dissection  Med
Maximum Relief Between Paved Road & Site  183 m (600')

III. GEOLOGY

Rock Type, Name, Age  Microcline Granite, Jurassic (?), "Millets Ranch" Pluton
Intruded Rock Type, Name, Age  Diablo Fm, Conglomerate, Permian
Area of Exposed Rock Mass  15 km²
Surface Rock Mass Competency
Faults
Joints
Distance to Nearest Historic Surface Break  50 km
Distance to Nearest Upper Cenozoic Fault  2 km
Rock Mass in an Overthrust?  No
Distance to and Name of Nearest 5+km-Long Fault Trace  0 km
Site Potential for Mineral Development  Low
4 km² Area at Depths of 300-1,500 m?  Yes
Distance to Nearest Volcanic Vent Younger Than 100,000 Years  113 km
Distance to Nearest KGRA Within 40 km  -
### IV. HYDROLOGY

<table>
<thead>
<tr>
<th>Site in a Closed Groundwater Basin?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>No</td>
</tr>
</tbody>
</table>

Name of Site's GW Region & Basin: Central Region (10), Big Smoky Valley Basin (137)

Groundwater Discharge: 8,000 ac ft/yr

Surface Discharge: None

Where Does Surface Water Go? Within Basin

Where Does Groundwater Go? Columbus Salt Marsh (118) & Clayton Valley (143)

Distance to Nearest Spring Within 5 km: None (?) 1:250,000 scale topo coverage

Number of Springs Within 5 km: 0

Distance To and Names of Perennial Streams Within 5 km:
- Ophir Cr - 3 km
- Twin River - 2 km

Distance to and Names of Lakes/Reservoirs Within 5 km: None

Distance to and Names of Paleo Lakes Within 30 km: 7 km - Toiyabe

Distance to Nearest Water Well In Use: 20 km

Depth to Water in Nearest Well: 6 m (19 ft)

Site in Groundwater Recharge Area?: Yes

Distance to Nearest Groundwater Discharge Area: 8 km

### V. DEMOGRAPHY

Nearest Town, Population, and Distance: Round Mountain, pop 100, 27.5 km

Nearest Human Habitation and Number of People: 

Distance to State Boundary: 105 km

Distance to and Name of Nearest Active Mine Within 25 km: 5 km Bobbie #4 (Tungsten) A & B Mining & Milling Co.

Distance to Nearest Farm/Ranch Within 25 km: 8 km RO Ranch
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km 2 km - Yomba Indian Reservation

Land Ownership (State, Federal, Private) Federal

Land Use

Number of Old Mines Within 10 km 2 (1:250,000 topo)

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 75 km

Distance to Nearest Military Range From Boundary 88 km - NAAS

Distance to Nearest Non-Restricted Road in Use From Boundary 4 km Paved

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 78

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake's Epicenter Within 100 km 66

Maximum Expected Acceleration From NTS Blasts 0.009 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15°-32°C

Average Daily Temperature Range, Coldest Month At Tonopah -7 to 4°C

Annual Precipitation 30 cm
DATA SHEET SITE NO. 25

**IX. METEOROLOGY** (Continued)

<table>
<thead>
<tr>
<th>Azimuth and Distance To</th>
<th>Las Vegas</th>
<th>Pioche</th>
<th>Henderson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulder City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TONOPAH 177°/90 km ELY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FALLON 255°/144 km</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BISHOP, CA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RENO 250°/122 km</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAYWARD 211°/192 km</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Distance to and Location of Nearest Meteorological Station

**X. ARCHEOLOGY/HISTORY**

Reported or Observed Archeological Site Within 5 km? None

Reported or Observed Historical Site Within 5 km? Yes

**XI. LOGISTICS**

<table>
<thead>
<tr>
<th>Distance to and Name of Nearest Gas Line</th>
<th>62 km Southwest Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to and Name of Nearest Power Line</td>
<td>30 km Sierra Pacific</td>
</tr>
<tr>
<td>Route Distance to and Ownership of Nearest Railroad</td>
<td>172 km - SP 90 km OldBed</td>
</tr>
<tr>
<td>Route Distance to and Name of Nearest Paved Highway</td>
<td>4 km - State Highway 8A</td>
</tr>
<tr>
<td>Type of Nearest Paved Highway</td>
<td>2 lane</td>
</tr>
<tr>
<td>Route Distance to and Name of Support Town</td>
<td>113 km - Tonopah</td>
</tr>
<tr>
<td>Population of Support Town</td>
<td>1716</td>
</tr>
<tr>
<td>Route Distance to and Name of Nearest Commercial Airport</td>
<td>275 km Ely, NV</td>
</tr>
</tbody>
</table>

*Only locations within 200 km are evaluated.

REFERENCES

"Geol of Round Mtn Quad, NV, QG 40, USGS, 1954,

H.G. Ferguson and S.M. Cathcart"
TOPOGRAPHY OF SITE 25

REF: USGS TOPOGRAPHIC SHEET, CARVERS NW. QUADRANGLE, NV., 7 1/2'

SCALE 1:24,000
DATA SHEET

SITE NO. 26
(Carvers NW Quad - 7\textdegree)  

I. GENERAL

Location Nye Co. T14N, R42E, Sec 25, 39°3'N, 117°13'W

Geomorphic Feature Toiyabe Range East

Elevation 1963 m (6440')

Vegetation Types Northern Desert Shrub

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area 98 m (320')

Maximum Relief of 40 ha Operations Area 122 m (400')

Degree of Rock Mass Dissection Med

Maximum Relief Between Paved Road & Site 274 m (900')

III. GEOLOGY

Rock Type, Name, Age Quartz Monzonite, Jurassic (?) "Alkali Flat" Pluton

Intruded Rock Type, Name, Age Paleozoics, including 6 Goldhill fm, qzite, schist

Area of Exposed Rock Mass 23 km²

Surface Rock Mass Competency

Faults

Joints

Distance to Nearest Historic Surface Break 50 km

Distance to Nearest Upper Cenozoic Fault 50 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 0 km

Site Potential for Mineral Development Mod

4 km² Area at Depths of 300-1,500 m? Yes 6

Distance to Nearest Volcanic Vent Younger Than 10 m Years 123 km

Distance to Nearest KGRA Within 40 km
### IV. HYDROLOGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Name of Site's CW Region &amp; Basin</td>
<td>Central Region (10), Big Smoky Valley Basin (137)</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
<td>8,000 ac ft/yr</td>
</tr>
<tr>
<td>Surface Discharge</td>
<td>None</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
<td>Within Basin</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
<td>Columbus Salt Marsh (118) &amp; Clayton Valley (143)</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
<td>3.7 km</td>
</tr>
<tr>
<td>Number of Springs Within 5 km</td>
<td>3</td>
</tr>
<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
<td>2.8 km - Deckbob Cr, 2.3 km - McLeod Cr, 4.3 km Tierney Cr, 4.5 km unnamed Cr.</td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to and Names of Paleo Lakes Within 30 km</td>
<td>4 km - Toiyabe</td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
<td>18 km</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
<td>6 m (21 ft)</td>
</tr>
<tr>
<td>Site in Groundwater Recharge Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
<td>3 km</td>
</tr>
</tbody>
</table>

### V. DEMOGRAPHY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Town, Population, and Distance</td>
<td>Round Mountain, pop. 100, 37.5 km</td>
</tr>
<tr>
<td>Nearest Human Habitation and Number of People</td>
<td></td>
</tr>
<tr>
<td>Distance to State Boundary</td>
<td>118 km</td>
</tr>
<tr>
<td>Distance to and Name of Nearest Active Mine Within 25 km</td>
<td>10 km - Robbie #4</td>
</tr>
<tr>
<td>(Tungsten) A &amp; B Mining &amp; Milling Co.</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Farm/Ranch Within 25 km</td>
<td>4.3 km Miller Ranch</td>
</tr>
</tbody>
</table>
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

15 km - Yomba Indian Reservation

Land Ownership (State, Federal, Private) Federal

Land Use National Forest

Number of Old Mines Within 10 km 24

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 80 km

Distance to Nearest Military Range From Boundary 85 km NAAS Paved

Distance to Nearest Non-Restricted Road in Use From Boundary 3.7 km Paved

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 101

Record Period 1881-1977

Magnitude of Largest Earthquake Within 100 km 7-8

Distance to Largest Earthquake’s Epicenter Within 100 km 75

Maximum Expected Acceleration From NTS Blasts 0.01 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15°-32°C

Average Daily Temperature Range, Coldest Month At Tonopah -7° to 4°C

Annual Precipitation 25 cm
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS —— PIOCUE —— HENDERSON ——
BOULDER CITY —— TONOPAH 179°/100km ELY 81°/196km FALLOON 290°/139 km
HAWTHORNE 246°/128km RENO —— CARSON CITY ——

Distance to And Location of Nearest Meteorological Station

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Yes
Reported or Observed Historical Site Within 5 km? Yes

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 68 km Southwest Gas
Distance to and Name of Nearest Power Line 46 km Sierra Pacific
Route Distance to and Ownership of Nearest Railroad 187 km — SP (105 km Old Bed)
Route Distance to and Name of Nearest Paved Highway 3.7 km, State Highway 8A
Type of Nearest Paved Highway 2 Lane
Route Distance to and Name of Support Town 125 km, Tonopah
Population of Support Town 1716
Route Distance to and Name of Nearest Commercial Airport 265 km, Ely, NV

*Only locations within 200 km are evaluated.

REFERENCES 1) Geologic Map of Nevada, 1:1,000,000, J.M. Stewart and John E. Carlson —
Nev Bumines & Geol, Map 57 (1977)
TOPOGRAPHY OF SITE 26
REF: USGS TOPOGRAPHIC SHEET, CARVERS NW QUADRANGLE, NV, 7 1/2'
SCALE 1: 24,000
DATA SHEET
SITE NO. 27

I. GENERAL

Location 38°51'N 115°22'W, T11N, R59W

Geomorphie Feature White Pine Range

Elevation 2057 m (6750 ft)

Vegetation Types Pinon, Juniper, Sagebrush

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area 18 m (60 ft)

Maximum Relief of 40 ha Operations Area 24 m (80 ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 61 m (200 ft)

III. GEOLOGY

Granite Porphyry (or possibly Rhyolite Porphyry)

Rock Type, Name, Age Northern Currant stock, Tertiary

Intruded Rock Type, Name, Age Carboniferous Sediments and Tertiary Volcanics

Area of Exposed Rock Mass 2 km² (0.8 mi²)

Surface Rock Mass Competency

Faults None reported

Joints

Distance to Nearest Historic Surface Break 83 km

Distance to Nearest Upper Cenozoic Fault 10 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long F...t Trace 1 km

Site Potential for Mineral Development Low

4 km² Area at Depths of 300-1,500 m? Prob if 27 & 28 combine

Distance to Nearest Volcanic Vent Younger Than 10 m Years 56 km

Distance to Nearest KGRA Within 40 km None
<table>
<thead>
<tr>
<th>IV. HYDROLOGY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Name of Site's GW Region &amp; Basin</td>
<td>Northern Railroad Valley, Central Region</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Surface Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
<td>Railroad Dry Lake</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
<td>Railroad Dry Lake</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Number of Springs Within 5 km</td>
<td>0</td>
</tr>
<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
<td>Flows through site Little Currant Creek</td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to and Names of Paleo Lakes Within 30 km</td>
<td>19 km Railroad</td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
<td>4 km</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
<td>NA</td>
</tr>
<tr>
<td>Site in Groundwater Recharge Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
<td>12 km Currant Cr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V. DEMOGRAPHY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Town, Population, and Distance</td>
<td>Duckwater, 20, 35 km</td>
</tr>
<tr>
<td>Nearest Human Habitation and Number of People</td>
<td></td>
</tr>
<tr>
<td>Distance to State Boundary</td>
<td>115 km</td>
</tr>
<tr>
<td>Distance to and Name of Nearest Active Mine Within 25 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to Nearest Farm/Ranch Within 25 km</td>
<td>6.9 km</td>
</tr>
</tbody>
</table>
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km None

Land Ownership (State, Federal, Private) National Forest

Land Use Grazing, Lumber, Recreation

Number of Old Mines Within 10 km 2

Number of Oil and Gas Exploratory Holes Within 10 km 0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 45 km

Distance to Nearest Military Range From Boundary 268 km

Distance to Nearest Non-Restricted Road in Use From Boundary 5.5 km

Site Out of View of Existing Roads? Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 8

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 5-6

Distance to Largest Earthquake's Epicenter Within 100 km 76

Maximum Expected Acceleration From NTS Blasts 0.011 g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15-32°C (59-89°F)

Average Daily Temperature Range, Coldest Month At Tonopah -7 to 4°C (20-40°F)

Annual Precipitation 30 cm (12 in)
**IX. METEOROLOGY (Continued)**

<table>
<thead>
<tr>
<th>Distance to and Location of Nearest Meteorological Station</th>
<th>km</th>
<th>Ely</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**X. ARCHEOLOGY/HISTORY**

| Reported or Observed Archeological Site Within 5 km? | None |
| Reported or Observed Historical Site Within 5 km? | None |

**XI. LOGISTICS**

| Distance to and Name of Nearest Gas Line | 216 km Southwest Gas |
| Distance to and Name of Nearest Power Line | 10 km Ely Power & Light |
| Route Distance to and Ownership of Nearest Railroad | 230 km Union Pacific |
| Route Distance to and Name of Nearest Paved Highway | 8 km US 6 |
| Type of Nearest Paved Highway | 2 lane |
| Route Distance to and Name of Support Town | 75 km Ely |
| Population of Support Town | 2616 |
| Route Distance to and Name of Nearest Commercial Airport | 75 km Ely |

*Only locations within 200 km are evaluated.*

**REFERENCES**

1. Moore, EM, RB Scott, WW Lumsden (1968) "Tertiary Tectonics of the White Pine-Grant Range Region, East-Central Nevada, and some Regional Implications" *CSC Bull* 79 No 12 pp 1703-1726
2. Stewart, JH, JK Carlson "Preliminary Geologic Map of Nevada" USGS MF 609
5. "Current Min 15 minute Quadrangle" USGS (1952)
TOPOGRAPHY OF SITE 27

REF: USGS TOPOGRAPHIC SHEET, Currant Mountain Quadrangle, NV, 15'
SCALE 1:62,500
### I. GENERAL

**Location** 38°50'N, 115°20'W, T11N, R59E

**Geomorphic Feature** Horse Range

**Elevation** 1966 m (6450 ft)

**Vegetation Types** Pinon, Juniper, Sagebrush

### II. TOPOGRAPHY

**Maximum Relief Of 20 ha Operations Area** 18 m (60 ft)

**Maximum Relief of 40 ha Operations Area** 24 m (30 ft)

**Degree of Rock Mass Dissection** Mod

**Maximum Relief Between Paved Road & Site** 12 m (40 ft)

### III. GEOLOGY

**Rock Type, Name, Age** Granite Porphyry, (or possibly Rhyolite Porphyry) Southern Currant Stock, Tertiary

**Intruded Rock Type, Name, Age** Carboniferous Sediments & Tertiary Volcanics

**Area of Exposed Rock Mass** 2.6 km² (1 mi²)

**Surface Rock Mass Competency**

**Faults** None reported

**Joints**

**Distance to Nearest Historic Surface Break** 85 km

**Distance to Nearest Upper Cenozoic Fault** 13 km

**Rock Mass in an Overthrust?** No

**Distance to and Name of Nearest 5+km-Long Fault Trace** 1 km Currant Summit

**Site Potential for Mineral Development** Mod

**4 km² Area at Depths of 300-1,500 m?** Prob

**Distance to Nearest Volcanic Vent Younger Than 10 a Years** 53 km

**Distance to Nearest KGRA Within 40 km** None
## IV. HYDROLOGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site in a Closed Groundwater Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Site in an Interstate GW Basin?</td>
<td>No</td>
</tr>
<tr>
<td>Name of Site's GW Region &amp; Basin</td>
<td>Northern Railroad Valley, Central Region</td>
</tr>
<tr>
<td>Groundwater Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Surface Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Where Does Surface Water Go?</td>
<td>Railroad Dry Lake</td>
</tr>
<tr>
<td>Where Does Groundwater Go?</td>
<td>Railroad Dry Lake</td>
</tr>
<tr>
<td>Distance to Nearest Spring Within 5 km</td>
<td>2.9 km</td>
</tr>
<tr>
<td>Number of Springs Within 5 km</td>
<td>3</td>
</tr>
<tr>
<td>Distance To and Names of Perennial Streams Within 5 km</td>
<td>1.2 km Little Currant Creek</td>
</tr>
<tr>
<td>Distance to and Names of Lakes/Reservoirs Within 5 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to and Names of Paleo Lakes Within 30 km</td>
<td>21 km Railroad</td>
</tr>
<tr>
<td>Distance to Nearest Water Well In Use</td>
<td>4 km (11N, 59E, 16b)</td>
</tr>
<tr>
<td>Depth to Water in Nearest Well</td>
<td>NA</td>
</tr>
<tr>
<td>Site in Groundwater Recharge Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Distance to Nearest Groundwater Discharge Area</td>
<td>10 km Currant Cr</td>
</tr>
</tbody>
</table>

## V. DEMOGRAPHY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Town, Population, and Distance</td>
<td>Duckwater, 20, 33 km</td>
</tr>
<tr>
<td>Nearest Human Habitation and Number of People</td>
<td></td>
</tr>
<tr>
<td>Distance to State Boundary</td>
<td>110 km</td>
</tr>
<tr>
<td>Distance to and Name of Nearest Active Mine Within 25 km</td>
<td>None</td>
</tr>
<tr>
<td>Distance to Nearest Farm/Ranch Within 25 km</td>
<td>3.8 km</td>
</tr>
</tbody>
</table>
VI. LAND STATUS

Is Site Located on Restricted Land? No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private) National Forest

Land Use Grazing, Lumber, Recreation

Number of Old Mines Within 10 km 2

Number of Oil and Gas Exploratory Holes Within 10 km 1

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary 48 km

Distance to Nearest Military Range From Boundary 260 km

Distance to Nearest Non-Restricted Road in Use From Boundary 1.2 km

Site Out of View of Existing Roads? No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+ 8

Record Period '81-'77

Magnitude of Largest Earthquake Within 100 km 5-6

Distance to Largest Earthquake's Epicenter Within 100 km 69

Maximum Expected Acceleration From NTS Blasts 0.011g

Reported or Observed Recent Fault Scarp Within 5 km? None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15-32°C (59-89°F)

Average Daily Temperature Range, Coldest Month At Tonopah -7 to 4°C (20-40°F)

Annual Precipitation 30 cm (12in)
IX. METEOROLOGY (Continued)

Actauth and Distance To:

- Las Vegas --- Pioche 141°126 Henderson
- Boulder City --- Tonopah 243°183 Ely 40°60 Fallon
- Hawthorne --- Reno --- Carson City

Distance to and Location of Nearest Meteorological Station 60 km Ely

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Probably
Reported or Observed Historical Site Within 5 km? None

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 219 km Southwest Gas
Distance to and Name of Nearest Power Line 5 km Ely Light & Power
Route Distance to and Ownership of Nearest Railroad 221 km Union Pacific
Route Distance to and Name of Nearest Paved Highway 5 km US 6
Type of Nearest Paved Highway 2 Lane
Route Distance to and Name of Support Town 68 km Ely
Population of Support Town 6216
Route Distance to and Name of Nearest Commercial Airport 68 km Ely

*Only locations within 200 km are evaluated.

REFERENCES
1) Morres EM, RB, Scott WE Lumsden (1968) "Tertiary Tectonics at the White Pine-Grant Range Region, East-Central Nevada, and some regional implications" Csa Bull 79 No 12 pp 1703 - 1726
2) Stewart JH, JE Carlson "Preliminary Geologic Map of Nevada" USGS MF 609
3) Kleinampl, RJ, JJ Zioary (1967) "Preliminary Geological Map of Northern Nye County, NV" USGS Open File Map
4) "NYE County Nevada Data File" Nev Dept Econ Dev (1977)
5) "Current Mt 15 minute Quadrangle" USGS (1952)
TOPOGRAPHY OF SITE 28

REF: USGS TOPOGRAPHIC SHEET, CURRENT MOUNTAIN QUADRANGLE, NV, 1971

SCALE 1:62,500
I. GENERAL

Location 38°22'N, 115°35'W T56N, R57E

Geomorphic Feature Grant Range

Elevation 1676 m (5500 ft)

Vegetation Types Sagebrush, Pinon, Juniper

II. TOPOGRAPHY

Maximum Relief Of 20 ha Operations Area 122 m (400 ft)

Maximum Relief Of 40 ha Operations Area 145 m (400 ft)

Degree of Rock Mass Dissection Mod

Maximum Relief Between Paved Road & Site 98 m/50 km (320 ft)

III. GEOLOGY

Rock Type, Name, Age Quartz Monzonite, Troy Peak Stock, Cretaceous/L.Tert.

Intruded Rock Type, Name, Age Precambrian & Paleozoic Clastics & Carbonates

Area of Exposed Rock Mass 23 km² (9mi²)

Surface Rock Mass Competency Mod

Faults none reported

Joints

Distance to Nearest Historic Surface Break 68 km

Distance to Nearest Upper Cenozoic Fault 1 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace Forms Boundry, Irwin Canyon Thrust

Site Potential for Mineral Development Good

4 km² Area at Depths of 300-1,500 m? YES

Distance to Nearest Volcanic Vent Younger Than 10 m Years 35 km

Distance to Nearest ZGRA Within 40 km None
IV. HYDROLOGY

Site in a Closed Groundwater Basin? No
Site in an Interstate GW Basin? No
Name of Site's GW Region & Basin Northern Railroad Valley, Central Region

Groundwater Discharge None reported
Surface Discharge None

Where Does Surface Water Go? To Railroad Valley Dry Lake
Where Does Groundwater Go? No Discharge Reported

Distance to Nearest Spring Within 5 km 4 km
Number of Springs Within 5 km 14
Distance To and Names of Perennial Streams Within 5 km Troy Creek
Distance to and Names of Lakes/Reservoirs Within 5 km None
Distance to and Names of Paleo Lakes Within 30 km 3 km Railroad

Distance to Nearest Water Well In Use 2 flowing wells @ 5 km
Depth to Water in Nearest Well above surface
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area 4½ km

V. DEMOGRAPHY

Nearest Town, Population, and Distance 110 km, 250 Lund
Nearest Human Habitation and Number of People
Distance to State Boundary 134 km
Distance to and Name of Nearest Active Mine Within 25 km None

Distance to Nearest Farm/Ranch Within 25 km 10 km
VI. LAND STATUS

Is Site Located on Restricted Land?  No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km

Land Ownership (State, Federal, Private)  National Forest

Land Use  Grazing, Recreation

Number of Old Mines Within 10 km  4

Number of Oil and Gas Exploratory Holes Within 10 km  1

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary  22 km

Distance to Nearest Military Range From Boundary  80

Distance to Nearest Non-Restricted Road in Use From Boundary  24 km

Site Out of View of Existing Roads?  Yes

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km; m = 4+  17

Record Period  81-77

Magnitude of Largest Earthquake Within 100 km  5-6

Distance to Largest Earthquake's Epicenter Within 100 km  59

Maximum Expected Acceleration From NTS Blasts  0.016g

Reported or Observed Recent Fault Scarp Within 5 km?  none

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah 15032°C (59-89°F)

Average Daily Temperature Range, Coldest Month At Tonopah -7 to 4°C (20-40°F)

Annual Precipitation  30 cm (12 in)
IX. METEOROLOGY (Continued)

Airmath and Distance To: LAS VEGAS 172°, 265 PICOHE 75°, 102 HENDERSON
BOULDER CITY 258°, 146 ELY 30°, 118 FALLON
HAWTHORNE RENO CARSON CITY

Distance to And Location of Nearest Meteorological Station 108 Pioche

X. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? Probably are along Troy Cr
Reported or Observed Historical Site Within 5 km? Yes, Mining Camp of Troy

XI. LOGISTICS

Distance to and Name of Nearest Gas Line 208 km Southwest Gas
Distance to and Name of Nearest Power Line 30 km Sierra Pacific Power
Route Distance to and Ownership of Nearest Railroad 253 km Union Pacific
Route Distance to and Name of Nearest Paved Highway 50 km, US 6
Type of Nearest Paved Highway 2 lane
Route Distance to and Name of Support Town 134 km Ely
Population of Support Town 6216
Route Distance to and Name of Nearest Commercial Airport 134 Ely

*Only locations within 200 km are evaluated.

REFERENCES
1) Cebull, Sec (1967) "Bedrock Geology of the Southern Grant Range, Nye County, Nevada" Univ. Wash Thesis
2) Cebull, S.E. "Bedrock Geology and Orogenic Seccession in Southern Grant Range, Nye County, Nevada" AAPG Bull Vol 54 pp 1828-1842
3) Kleinhanpl, K.J., J.I. "Preliminary Geologic Hap of Northern Nye County, NV" USGS Open File Map
4) "Nye County Nevada Data File" Nev Dept Econ Dev (1977)
5) "Troy Canyon 15 minute Quadrangle" USGS (1964)
TOPOGRAPHY OF SITE 29

REF.: U.S.G.S. TOPOGRAPHIC SHEET, TROW CANYON QUADRANGLE, NV., 1941.

SCALE 1:62,500
DATA SHEET

SITE NO. 30

(Paradise Peak Quad-15')

I. GENERAL

Location Nye Co. T13N, R36E, 38°55'N, 117°54'W

Geomorphologic Feature Paradise Range

Elevation 1524 m (5000')

Vegetation Types Salt Desert Shrub

II. TOPOGRAPHY

Maximum Relief of 20 ha Operations Area 30 m (100')

Maximum Relief of 40 ha Operations Area 40 m (130')

Degree of Rock Mass Dissection High

Maximum Relief Between Paved Road & Site 60 m (200')

III. GEOLOGY

Rock Type, Name, Age Granodiorite, diorite Mesozoic - Tertiary

Intruded Rock Type, Name, Age lsh, dol, silt Upper Triassic - Lower Jurassic

Area of Exposed Rock Mass 9 km²

Surface Rock Mass Competency

Faults

Joints

Distance to Nearest Historic Surface Break 11 km

Distance to Nearest Upper Cenozoic Fault 5 km

Rock Mass in an Overthrust? No

Distance to and Name of Nearest 5+km-Long Fault Trace 4.4 km (?)

Site Potential for Mineral Development Mod

4 km² Area at Depths of 300-1,500 m? Yes

Distance to Nearest Volcanic Vent Younger Than 10⁵ Years 90 km

Distance to Nearest KGRA Within 40 km - inside prospective area
IV. HYDROLOGY

Site in a Closed Groundwater Basin? Yes
Site in an Interstate GW Basin? No

Name of Site's GW Region & Basin: Central Region (10), Gabbs Valley (122)

Groundwater Discharge: None
Surface Discharge: None

Where Does Surface Water Go? Within Basin
Where Does Groundwater Go? Within Basin

Distance to Nearest Spring Within 5 km: None
Number of Springs Within 5 km: None
Distance To and Names of Perennial Streams Within 5 km: None

Distance to and Names of Lakes/Reservoirs Within 5 km: None
Distance to and Names of Paleo Lakes Within 30 km: 19 km – Gabbs

Distance to Nearest Water Well In Use: 5 km (2 wells)
Depth to Water in Nearest Well: 43 m (143 ft)
Site in Groundwater Recharge Area? Yes
Distance to Nearest Groundwater Discharge Area: 9 km

V. DEMOGRAPHY

Nearest Town, Population, and Distance: Gabbs, 874 pop., 11 km

Nearest Human Habitation and Number of People

Distance to State Boundary: 73 km
Distance to and Name of Nearest Active Mine Within 25 km: 1 km – El Capitan (Tungsten) Bus. L. Hedgecorth

Distance to Nearest Farm/Ranch Within 25 km
VI. LAND STATUS

Is Site Located on Restricted Land?  No

Type of Restricted Land

Distance to and Types of Restricted Lands Within 20 km  None

Land Ownership (State, Federal, Private)  Federal

Land Use

Number of Old Mines Within 10 km  100

Number of Oil and Gas Exploratory Holes Within 10 km  0

VII. SAFETY/SECURITY

Distance to Nearest Airline Corridor From Boundary  37 km (within restricted area)

Distance to Nearest Military Range From Boundary  34 km (NASS)

Distance to Nearest Non-Restricted Road in Use From Boundary  3.7 km

Site Out of View of Existing Roads?  No

VIII. SEISMICITY

Number of Recorded Earthquakes Within 100 km: m = 4+  157

Record Period  '81- '77

Magnitude of Largest Earthquake Within 100 km  7-8

Distance to Largest Earthquake’s Epicenter Within 100 km  27

Maximum Expected Acceleration From NTS Blasts  0.009 g

Reported or Observed Recent Fault Scarp Within 5 km?  None

IX. METEOROLOGY

Average Daily Temperature Range, Hottest Month At Tonopah  15° - 32° C

Average Daily Temperature Range, Coldest Month At Tonopah  -7° to 4° C

Annual Precipitation  20 cm
IX. METEOROLOGY (Continued)

* Azimuth and Distance To: LAS VEGAS – PIOCHE – HENDERSON –

BOULDER CITY – TOMOPAH 116°/113 km – ELY – FALLON 309°/90 km

HAWTHORNE 232°/73 km – RENO 293°/170 km – CARSON CITY 280°/156 km – Bishop 194°/174 km

Distance to and Location of Nearest Meteorological Station

I. ARCHEOLOGY/HISTORY

Reported or Observed Archeological Site Within 5 km? None

Reported or Observed Historical Site Within 5 km? Yes

II. LOGISTICS

Distance to and Name of Nearest Gas Line 8 km – Southwest Gas

Distance to and Name of Nearest Power Line 3 km – Sierra Pacific

Route Distance to and Ownership of Nearest Railroad 55 km – SP

Route Distance to and Name of Nearest Paved Highway 5.5 km – State Highway 23

Type of Nearest Paved Highway 2 lane

Route Distance to and Name of Support Town 15 km – Gabbs, NV

Population of Support Town 874

Route Distance to and Name of Nearest Commercial Airport 205 km – Bishop, CA

* Only locations within 200 km are evaluated.

REFERENCES GQ-250 "Geol. of the Paradise Peak Quad, Nev."

USGS, C.J. Vitaliano & E. Callaghan
TOPOGRAPHY OF SITE 30

REF: USGS Topographic Sheet, Paradise Peak Quadrangle, NV, 15'

SCALE 1: 62,500
APPENDIX B

SITE AERIAL PHOTOGRAPHS

(Numerical Order)
Site 1. Lucy Grey Range, Precambrian gneiss.

Site 2. Lone Mountain Pluton.
Site 3. Weepah Pluton.

Site 5. Dyer Pluton.

Site 6. Inyo Batholith.
Site 7. Palmetto Pluton.

Site 8. Palmetto Wash Pluton.

Site 10. Mormon Mountains, Precambrian igneous and metamorphic rocks.
Site 11. East Mormon Mountains, Precambrian igneous and metamorphic rocks.

Site 12. Five small stocks in northern Groom Range.
Site 13. Two small stocks in Timpahute Range.

Site 14. Two small stocks at north end of Worthington Mountains.
Site 15. Stock at south end of Schell Creek Range.

Site 16. Diocritic stocks of the Cedar Range.
Site 17. Granite porphyry stock on west side of Delamar Mountains.

Site 18. Diorite stock in Clover Mountains.
Site 19. Quartz monzonite stock in southern Bristol Range.

Site 20. Round Mountain pluton, southern Toquima Range.
Site 21. Manhattan district intrusive, southern Toquima Range.

Site 22. Clipper Gap Pluton, northern Toquima Range.
Site 23. Carseley Creek and Aiken Creek Plutons, central Toiyabe Range.

Site 24. "Wood's Ranch" pluton, east of Toiyabe Range.
Site 25. "Millett's Ranch" pluton, east side of Toiyabe Range.

Site 26. "Alkali Flat" pluton, east side of Toiyabe Range.

Site 29. Troy Peak Stock, Grant Range.

Site 30. Plutons of Paradise Range, northwestern corner of Nye County.
## APPENDIX C

### DATA SOURCES USED TO DETERMINE SITE CHARACTERISTICS LISTED IN PLATE VI

<table>
<thead>
<tr>
<th>Site Characteristic Number</th>
<th>Data Source</th>
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<tr>
<td>1- 5</td>
<td>USGS Topographic Sheets</td>
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<tr>
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<td>Geologic Maps Referenced on Site Data Sheets</td>
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<tr>
<td>7</td>
<td>On-Site Investigations and Geologic Reports Referenced on Site Data Sheets</td>
</tr>
<tr>
<td>8</td>
<td>Mullineaux - 1976 (Zone B=2, Zone C=1)</td>
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<td>Mullineaux-1976</td>
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<td>10</td>
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<td>11</td>
<td>Stewart and Carlson - 1976 (Figure 2)</td>
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<td>NOAA - 1977 (Figure 7)</td>
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<td>16-17</td>
<td>Rogers, et al - 1977 (Figure 27)</td>
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<td>18-20</td>
<td>Nevada State Division of Water Resources - 1972 (Plate II)</td>
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<td>21</td>
<td>Geologic Maps Referenced on Site Data Sheets</td>
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<td>Nevada State Division of Water Resources - 1972 (Figure 3)</td>
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<td>23-24</td>
<td>Nevada Department of Conservation and Natural Resources - Reconnaissance Series Reports</td>
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<td>25-26</td>
<td>Nevada State Division of Water Resources - 1972 (Plate II)</td>
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<td>USGS Topographic Sheets</td>
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<td>Nevada State Division of Water Resources - 1972 (Figure 4)</td>
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<td>32</td>
<td>USGS Topographic Sheets, State of Nevada Road Map</td>
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<td>State of Nevada Road Map</td>
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<tr>
<td>34-35</td>
<td>On-Site Investigation</td>
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<td>36</td>
<td>USGS Topographic Sheets and On-Site Investigation</td>
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### APPENDIX C (Con't)

**DATA SOURCES USED TO DETERMINE SITE CHARACTERISTICS LISTED IN PLATE VI**

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<thead>
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<th>Site Characteristic</th>
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<tr>
<td>37</td>
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<td>Payne and Papke - 1977 (Figure 9)</td>
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<td>USGS Topographic Sheets, County Geologic Maps</td>
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<td>40</td>
<td>Garside &amp; Schilling - 1977 (Figure 8)</td>
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<td>41-44</td>
<td>Lutsey &amp; Nichols - 1977 (Plate V)</td>
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<td>NOAA - Oct. 1977</td>
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<td>46</td>
<td>State of Nevada Road Map</td>
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<tr>
<td>47-48</td>
<td>USGS Topographic Sheets</td>
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<tr>
<td>49</td>
<td>Paher - 1970 (Figure 11)</td>
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<td>50</td>
<td>Algermissen and Perkins - 1976</td>
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<td>51</td>
<td>ERC - 1974</td>
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<td>52-53</td>
<td>NOAA - 1978 (Plate III)</td>
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<td>54-55</td>
<td>County Data Files (Nye, Clark, Esmeralda, Lincoln) Nevada State Department of Economic Development</td>
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<td>56</td>
<td>Division of Water Resources - 1972</td>
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<td>57-59</td>
<td>Lockard - 1970 (Figure 10)</td>
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<td>60-62</td>
<td>Nevada State Road Map</td>
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<tr>
<td>63</td>
<td>USGS 1:250,000 Topographic Sheets</td>
</tr>
</tbody>
</table>
Jurassic or Cretaceous mostly 6-17 lissbthijn 17-43 m.y. 6 m.y. old

Upper Tertiary | Quaternary

Middle Cenozoic

Lower Cenozoic

Upper Mesozoic

Cenozoic

Mesozoic
ALLUVIAL AND PLAYA DEPOSITS  Locally includes alluvial deposits that may be as old as Tertiary
VOLCANIC ROCKS (less than 6 m.y. old)  Mostly basalt. Sparse andesite and rhyolite
UPPER VOLCANIC ROCKS (6-17 m.y.)  Basalt, andesite, rhyolite, siliceous tuff, and related rocks. Sparse tuffaceous sediments and gravel
TUFFACEOUS SEDIMENTARY ROCKS (6-17 m.y.)  Locally includes minor amounts of tuff. In places, may include rocks of Cretaceous age
LOWER VOLCANIC ROCKS (Mostly 17-43 m.y.)  Siliceous tuff, rhyolite, and related rocks. Minor amounts of sedimentary rocks, mostly tuffaceous. Very sparse basalt. Includes some sedimentary rocks of Tertiary or Cretaceous age, older than 43 m.y.
INTRUSIVE ROCKS  Granite, and diorite rocks of Mesozoic and Tertiary age. Also includes some intermediate and mafic porphyritic or apharic intrusive rocks of Tertiary age
IGNEOUS AND METAMORPHIC COMPLEX (Jurassic or Cretaceous)  Complexly intermixed Mesozoic glacial rocks and metamorphosed Lower Paleozoic and uppermost Precambrian sedimentary rocks. Southern Elko County
SEDIMENTARY, VOLCANIC, AND INTRUSIVE ROCKS (Mesozoic)  Mostly claystone, shale, siltstone, sandstone, conglomerate, limestone, and dolomite. Includes abundant volcanic rocks or volcanoclastic rocks in western Nevada. Also includes volcanic rocks of the Lower Tertiary Kuparuk Group and related facies of andesite and rhyolite porphyries in central Nevada and Lower and Middle Jurassic gabbros and basalt in Churchill and Pershing Counties. Locally includes rocks as old as Cretaaceous
SILICEOUS AND VOLCANIC ASSEMBLAGE (Upper Paleozoic)  Rocks of the magmatic belt of Cordilleran geosyncline in western and central Nevada. Consists of quartz, andesite, and minor amounts of siltstone, sandstone, conglomerate, and limestone. Mafic volcanic rocks locally abundant. Many allochthonous rocks thrust westward in the upper plate of the Golconda thrust. May include some Tertiary rocks in western Nevada
CARBONATE AND SILICEOUS ASSEMBLAGE (Upper Paleozoic)  Includes thin sequences of conglomerate, siltstone, and limestone within the Antler orogenic belt. Relative thickness sequences of shale, siltstone, sandstone, and limestone along the eastern margin of the Antler orogenic belt are in foreland basin to east and moderately thin to thick sequences of carbonate rock in foreland basin on shelf. Includes Cardenali Formation (Early Triassic) in Mineral, Esmeralda, and northern Nye Counties
SILICEOUS AND VOLCANIC ASSEMBLAGE (Lower Paleozoic)  Rocks of the magmatic belt of the Cordilleran geosyncline in western and central Nevada. Consists of quartz, andesite, siltstone, sandstone, quartzite, limestone, and greenstone. Many allochthonous rocks in upper plate of Roberts Mountains thrust. Includes some strata that may be para-autochthonous or autochthonous and in lower plate
CARBONATE AND TRANSITIONAL ASSEMBLAGES (Precambrian Z and lower Paleozoic)  Rocks of the mafic volcanic belt of the Cordilleran geosyncline. The carbonate assemblage consists of shale, limestone, and minor amounts of siltstone, sandstone, and quartzite. The transitional assemblage consists of shale, limestone, and minor amounts of siltstone, sandstone, and quartzite. The carbonate assemblage consists of shale, limestone, and minor amounts of siltstone, sandstone, and quartzite. The transitional assemblage consists of shale, limestone, and minor amounts of siltstone, sandstone, and quartzite. The carbonate assemblage consists of shale, limestone, and minor amounts of siltstone, sandstone, and quartzite. The transitional assemblage consists of shale, limestone, and minor amounts of siltstone, sandstone, and quartzite
METAMORPHIC AND INTRUSIVE ROCKS (Precambrian X and Y)  Gneiss and schist, including folded granite lenses 1,740±25 m.y. old (L. T. Silver, oral commun., 1973). Intruded by porphyritic granite 1,650±25 m.y. old (L. T. Silver, oral commun., 1973)

--- HIGH-ANGLE FAULT  Dashed where approximately located or uncertain, dotted where concealed.
--- STRIKE-SLIP FAULT  Dashed where approximately located or uncertain, dotted where concealed. Arrows indicate relative movement.
--- LOW-ANGLE FAULT  Dashed where approximately located or uncertain, dotted where concealed. Sawtooth on upper plate.
Geologic map generated from "Preliminary geologic map of Nevada" by J. H. Stewart and J. E. Carlson (U.S. Geological Survey Miscellaneous Field Studies map MF-1328, 1974).


Printed by Williams and Helmz, Map Corp., Washington, D.C.
Geography by Susan L. Nichols.

Nevada Bureau of Mines and Geology.
University of Nevada, Reno, NV 89557
Price $3.50.
EXPLANATION

This map shows estimated annual surface and groundwater flows between hydrologic areas and across state lines. Also shown is each area when data are available and estimates of annual rainfall, potential yield and water stored in the upper 400 feet of the groundwater reservoir. The area symbol reflects these estimates about amount of surface water which flows from the mountains to the alluvial fans and where the two meet. Potential yield is the amount of groundwater which may be removed from a hydrologic area each year without depleting the groundwater reservoir. Where precise yields are not available, system yields are shown followed by the letter "P." System yield is the maximum amount of surface and groundwater which can be removed from a hydrologic area each year for an indefinite period of time.

STATE OF NEVADA

WATER RESOURCES

AND

INTER-BASIN FLOWS

PREPARED BY

DIVISION OF WATER RESOURCES

STATE ENGINEER'S OFFICE

NOTE

Surface water flows are based on existing periods of record. Rainfall measurements are made at 970 Gages and flow at the Spring Canal which are estimated based on historical data. The water table elevation, streamflow, and groundwater are determined for the periods of record for each individual reservoir.

PREPARED WITH THE CONSENT OF THE GEOLOGICAL SURVEY, U.S. DEPARTMENT OF INTERIOR
Earthquake Epicenter Locations

Prepared by the National Geophysical and Solar-Terrestrial Data Center, National Oceanic and Atmospheric Administration.

Site Location

Legend

Magnitude:

Depth

Range 1: 0.0 to 15.0 km
Range 2: 15.0 to 70.0 km
Range 3: 70.0 to 300.0 km
Public Domain

Approximately 80 percent of Nevada's land area is under the jurisdiction of the Federal government, a greater percentage than any other state but Alaska. Much of this land is public domain, public lands under Federal management which have not been reserved for special uses such as parks, National Forests, recreation areas, and military installations.

Public domain lands in Nevada total approximately 47 million acres and are administered by the Bureau of Land Management of the U. S. Department of the Interior. The Bureau processes, adjudicates, and records all transactions involving public lands, and manages these lands for the benefit of the Nation. It is broadly concerned with the survey, engineering, inventory, classification, evaluation, administration, development, improvement, conservation, and multiple use of public lands.

An important and continuing function of the Bureau of Land Management is the cadastral survey of the Nation's public lands survey, that creates, defines, reestablishes, and monuments boundaries of tracts of public lands. The Bureau also is legally responsible for the survey of lands administered by other Federal agencies. Many townships remain to be surveyed in Nevada, and some of the older surveys, made as long as 100 years ago, are so obliterated and erratic that extensive resurveys are necessary.

Public land records for the State are maintained in the State Office of the Bureau in Reno, where they are available for public inspection. They consist of Master Title Plats, Use Plats, Historical Indexes, Survey Plats, Mineral Surveys, and Original Patents, which

Wildlife ranges, lands in several areas kinds of game and
National Wildlife

ranges, land in several areas
National Wildlife

Wildlife ranges, lands in several areas
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Wildlife ranges, lands in several areas
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Wildlife ranges, lands in several areas
National Wildlife
Federal wildlife ranges, refuges, and management areas

Wildlife ranges, refuges, and management areas have been established on Federal land in several areas of Nevada for the preservation, study, and management of various kinds of game and waterfowl.

National Wildlife Ranges and Refuges are administered by the Bureau of Sport Fisheries and Wildlife, Fish and Wildlife Service, of the U.S. Department of the Interior. The 14 National Wildlife Ranges and Refuges in Nevada were established to protect wildlife and provide opportunities for hunting and fishing. Public use and enjoyment are permitted on certain designated areas of each refuge. Public or private economic use, including mineral entry, is permitted under Special Use Permit obtained from the refuge manager. Entry is restricted or prohibited for reasons such as fire danger, animal migrations, or lamb seasons. Further information concerning use of these areas may be obtained from headquarters offices located on or nearby to the several Ranges and Refuges.

National Parks, Monuments and Recreation Areas

National Parks and Monuments are administered by the National Park Service, Department of the Interior. Federal lands in Nevada include the Charles E. Summer National Monument, only a relatively small part of which is included in the National Monument, only a relatively small part of which is subject to special use regulations. Prospectors and prospecting are restricted or prohibited for reasons such as fire danger, animal migrations, or lamb seasons. Further information concerning use of these areas may be obtained from headquarters offices located on or nearby to the several Ranges and Refuges.

EXPLANATION

Federal wildlife ranges, refuges, and management areas

National Monuments and Recreation Areas

The National Park Service has since 1936 administered recreational use of Lake Mead, which was formed by the Hoover Dam, and includes also Lake Mead National Recreation Area, authorized by Congress in 1964, and includes also Lake Mead National Recreation Area. Public use and enjoyment are permitted on certain designated areas of each refuge. Public or private economic use, including mineral entry, is permitted under Special Use Permit obtained from the refuge manager. Entry is restricted or prohibited for reasons such as fire danger, animal migrations, or lamb seasons. Further information concerning use of these areas may be obtained from headquarters offices located on or nearby to the several Ranges and Refuges.

Other wildlife ranges and management areas on Federally administered lands include the Charles E. Summer National Monument, jointly managed by the Bureau of Sport Fisheries and Wildlife, Fish and Wildlife Service.
National Monuments and Recreation Areas

Monuments and Recreation Areas are administered by the National Park Service. Lehman Caves National Monument in eastern Nevada, which is a relatively small part of which is in Nevada, was established in 1922. Death Valley, a relatively small part of which is in Nevada, was established in 1933. These unique natural environments in national parks are subject to special regulations within Death Valley. The National Park Service has since 1936 administered and managed the public land, which was formed by the completion of Hoover Dam by the National Park Service in 1935. Lake Mead National Recreation Area was formally established in 1964, and includes also Lake Mead, formed by the completion of Hoover Dam. Hunting, fishing, camping and other recreational activities are allowed in the Recreation Area. While prospecting and location of mineral claims are prohibited in Lehman Caves National Monument, and are subject to special regulations within Death Valley. The National Park Service stipulations.
The National Forests are administered by the Forest Service of the U.S. Department of Agriculture, and are dedicated to the principle of multiple use management of the Nation's forest resources, the protection and enhancement of the watersheds for quality water production for sustained yields of wood, forage, wildlife, and to provide outdoor recreation opportunities. National Forests in the eastern part of the State comprise the Humboldt National Forest, with headquarters in Elko, those in the central and western parts of Nevada comprise the Toiyabe National Forest, headquartered in Reno. The small part of the White Mountains that lie within Nevada's Mineral and Esmeralda Counties, are part of the Inyo National Forest, administered from Bishop, Calif. Each of the national forests is divided into several Ranger Districts.

Several National Forest areas in Nevada have been formally set apart because of their unique scenic or wilderness opportunities. The Wheeler Peak Scenic Area in the Snake Range section of the Humboldt National Forest in eastern White Pine County contains Nevada's only glaciers, and a stand of ancient bristlecone pines. The Ruby Mountain Scenic Area southeast of Elko is another area of outstanding scenic and recreational interest. The headwaters region of the Jarbidge River in north-central Elko County is one of a number of wilderness areas throughout the United States that has been set aside by Congress for preservation in their primitive state. Other outstanding scenic and recreational areas partly or entirely within National Forests include the Lake Tahoe basin, and the Mount Charleston area west of Las Vegas, both in the Toiyabe National Forest.

Hunting and fishing, camping, hiking, picnicking and other outdoor pursuits are encouraged in all National Forests. Swimming and winter sports are likewise encouraged wherever facilities are available. Cross-country vehicle travel is discouraged and in some areas prohibited.

Vehicular travel is prohibited in the Jarbidge Wilderness, restricted in areas of fragile soil and the Scenic Areas mentioned above. Mining claims may be staked on all National Forests subject to compliance with the rules and regulations governing such forests. Some National Forest areas, however, have been withdrawn from mineral entry or are otherwise not subject to the mining laws. Information concerning these areas and the National Forest rules and regulations can be obtained from the district ranger or forest supervisor.

**National Forests**

The U.S. Atomic Energy Commission's Nevada Test Site was established in December, 1950, after a survey of many possible locations where relatively low yield atmospheric detonations could be conducted with full assurance of public safety.

In succeeding years the Test Site has been used by the Commission for the testing of more than 404 nuclear devices for both defense and peaceful uses. All tests since the signing of the Limited Test Ban Treaty in August, 1963 have been conducted underground.

Unauthorized entry to the Nevada Test Site is prohibited both for security and personal safety reasons. Requests for permission to enter the Test Site should be made to the Manager of Nevada Operations, USAEC, P.O. Box 14100, Las Vegas, Nevada 89114.
Bureau of Reclamation withdrawals

Land in western Churchill County and northern Lyon County, withdrawn from the public domain by the Bureau of Reclamation, Department of the Interior early in this century, is the site of the Newlands Project, one of the original reclamation developments begun as a result of the Reclamation Act of 1902. Much of the land originally withdrawn has since passed to private ownership, primarily for agricultural purposes, and some is now managed by the Bureau of Sport Fisheries and Wildlife in connection with wildlife refuges and management areas.

Lands under Bureau jurisdiction in the vicinity of Lake Mead are parts of a withdrawal of land in the 1920's in connection with the construction of Hoover Dam, first of the Bureau's huge multipurpose projects.

Other Bureau of Reclamation lands include those adjacent to Lahontan Reservoir west of Fallon, at Rye Patch Reservoir and near Battle Mountain on the Humboldt River.

Private lands

Only about 12 percent of the land area of Nevada, amounting to some 8 million acres, is held in private ownership, a smaller percentage than that of any other state but Alaska.

Nearly 5 million acres in Nevada were granted by the Federal government to the Central Pacific Railroad in the 1860's in return for the building of the first transcontinental railroad and free transport of government materials in ensuing years. This land appears on the map as alternating sections of a broad, 40-mile-wide, checkerboard pattern generally centered on the main line of the Southern Pacific Company, successor to the Central Pacific Railroad in the 1860's in return for the building of the first transcontinental railroad, and free transport of government materials in ensuing years. This land appears on the map as alternating sections of a broad, 40-mile-wide, checkerboard pattern generally centered on the main line of the Southern Pacific Company, successor to the Central Pacific Railroad and present owner of much of the original grant. The Southern Pacific Company retains ownership of about 1.5 million acres; the remainder has been sold to other private owners.

The U. S. Congress, in its Nevada State Enabling Act of 1864, granted to Nevada sections 16 and 36 of each township the sale or use of which was intended for the support of the common schools, similar to land grants made to other western states. Through this Act the State acquired rights to about 3,800,000 acres of land, much of which was in unsurveyed, mountainous or barren areas. Only 62,000 acres had been sold by 1880, when Nevada agreed to relinquish the remainder in exchange for 2 million acres to be selected from among all surveyed public lands within its borders. Most selections consisted of valley lands in northern, western and southern Nevada suitable for agriculture. Other State acquisitions of Federal lands up to 1934 totaled more than 730,000 acres. Of these more than 2.7 million acres, but approximately 125,000 acres remained for sale by 1936. Aside from a relatively small percentage now included in urban areas, the land is presently devoted to private ranching and other agricultural uses.

Department of Defense facilities

The U. S. Air Force and Navy operate training facilities or munitions storage depots in several areas of Nevada. Alternating diagonal color bands in an area north of Las Vegas indicate an area jointly occupied by the Nellis Air Force Base Bombing and Gunnery Range, and the Desert National Wildlife Range.

Unauthorized entry to these installations is prohibited both for security and personal safety reasons. Requests for permission to enter should be made to the Commanding Officer of the installation concerned.

Indian reservations

Indian lands in Nevada comprise about 1.6 million acres. These include 10 small colonies, 15 reservations, and the Nevada Race Track. The Bureau of Indian Affairs' position of these properties requires approval of the U. S. Bureau of Indian Affairs, Stewart, Nevada.

State lands

Nearly half of all State-owned land consists of protection facilities. This includes 12 units ranging in size from a few acres to several hundred thousand acres, administered by the Division of State Parks, Department of State Resources. Several units consist of Bureau of Reclamation lands. Of these lands have been set aside for use by the public, and include picnic areas and hiking are permitted where adequate facilities exist. For further information, contact the Nevada State Parks, Carson City, Nevada.

The Nevada Department of Fish and Game manages the State's wildlife. Only those lands managed by the Bureau of Reclamation are shown on this map. Each is administered by the Division of State Parks.

Other State-owned lands include the Las Vegas Valley Wildlife Management Area, managed by the Nevada Department of Fish and Game, the Whittell Forest and Wildlife Area, and the Desert National Wildlife Range.

Stock driveways

Stock driveway withdrawals are public lands registered in the name of the State of Nevada, then leased to private individuals or companies for a fee. Stock driveways are open to location under mining and mineral leasing laws, but are not usually located in areas where livestock are not accessible to the public. The purpose of these driveways is to improve the pattern of roads in the state.

Patented lode mining claims

Claims are almost invariably located on valuable mineral lands. An unpatented mining claim is a title which is retained until needed for driveway purposes and to improve the driveway pattern.

Claims are almost invariably located on valuable mineral lands. An unpatented mining claim is a title which is retained under mining and mineral leasing laws, but are not usually located in areas where livestock are not accessible to the public. The purpose of these driveways is to improve the pattern of roads in the state.

Claims are almost invariably located on valuable mineral lands. An unpatented mining claim is a title which is retained until needed for driveway purposes and to improve the driveway pattern.
Indian Reservations

Indian Trust Allotments

Indian lands in Nevada comprise about 1.6 percent of the total area of the State, include 10 small colonies, 15 reservations, and scattered individual allotments. Erection lands and Indian Trust Allotments are private lands. Any use or disposal of these properties requires approval of the Indian owner and the Bureau of Indian Affairs. The Bureau of Indian Affairs is part of the U.S. Department of the Interior. Inquiries concerning access to or use of Indian lands should be directed to the Bureau of Indian Affairs, Stewart, Nevada.

State lands

More than half of all State-owned land consists of State Parks. The Nevada State Park system includes 15 units ranging in size from a few acres to more than 40,000 acres, and is managed by the Division of State Parks, Department of Conservation and Natural Resources. Several units consist of Bureau of Reclamation withdrawals or are made available to Fish and Game or Special Use Permits of the U.S. Forest Service. Most are open to the public year around, and include picnic and camping sites. Fishing, boating, and hunting are permitted where adequate facilities exist.

For further information, contact the Nevada State Park Division, Room 221, Nevada Department of Conservation and Natural Resources, Carson City, Nev.

The Nevada Department of Fish and Game manages numerous Wildlife Management Areas throughout the State. Only those Wildlife Management Areas consisting entirely of public lands or State-owned land are shown on this map. Entry may at times be restricted in order to conduct wildlife management practices, and is subject to regulations of the Nevada Department of Fish and Game.

The State-owned lands include the Las Vegas and Reno campuses of the University of Nevada, the Whitetail Forest and Wildlife Area, and the facilities of the various federal agencies.

Stock driveways

Stock driveway withdrawals are public lands reserved for the movement of livestock. Driveways generally cannot be disposed of under the non-mineral land laws but are subject to leasing under mining and mineral leasing laws. Withdrawn lands may be considered for lease until needed for driveway purposes and may be considered for exchange out of the driveway pattern.

Patented lode mining claims

Claims are almost invariably located when valuable mineral is discovered on public lands. An unpatented mining claim is a title which is never complete, and must be maintained by annual expenditure in work and improvements as required by law. If mineralization is to be commercially feasible, application for patent is usually made with the United States Patent Office. Patent requirements are exacting and must be fully met. When a patented title is perfected, and the claims are owned in fee simple as are any private lands. Patented mining claims are separately shown on this map mainly as evidence to users interested in mineral resource discovery and development.
METHOD OF COMPILATION

Land status was determined by inspection of the Master Title Plats on file at the Nevada State Office of the Bureau of Land Management, and by inspection of maps and other documents received from the several Federal and State agencies that administer Nevada lands.

The map scale, and errors inherent in the compilation and printing processes, combine to impose a lower limit on the size of land parcels that can be separately shown on this map. The quarter section of land (160 acres) was selected as the smallest individually mapable unit in most cases. If a particular status prevailed in half or more of a given quarter section, the entire quarter section was shown under that status classification. If a quarter section was evenly divided between two classifications, one of which is public domain, the other status classification was shown for that entire quarter section.

Leases, Special Land Use Permits, highway right-of-way, and other land parcels that have not been patented, withdrawn, or segregated from the public domain, are not identified on the map.

ACKNOWLEDGMENTS

This map is the successor to the first edition of the Land Status Map of Nevada, compiled by Roland V. Wilson and issued as Nevada Bureau of Mines Map 26 in 1964. Many changes occurred in the status of Nevada lands subsequent to publication of the first edition, and planning for a second edition began shortly after the original version went out of print in 1969. It was decided to base the second edition on a slightly modified version of the 1:500,000 scale topographic map of Nevada, some preliminary elements of which had been made available by the U.S. Geological Survey and which had been used as a basis for the first edition. The most evident addition to the present base consists of the contours, which had not been available at the time the first edition of the Land Status Map was compiled.

The generous aid of personnel of the Nevada State Office of the Bureau of Land Management is acknowledged with gratitude; compilation would have been extremely difficult without their continued interest and help. The aid and cooperation of other Federal and State agencies that administer Nevada lands is also acknowledged; all of the agencies mentioned in the adjacent description of land status categories contributed materially to the success of the project.

Thanks are also due to Thomas A. Smith and James R. Lee, former employees of the Nevada Bureau of Mines and Geology, who aided in the initial stages of data compilation.
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- Distance in Meters
- Distance in Kilometers
- Magnitude
- Underground Fault Density
- Old Railroad Road Bed Main Closer
- In Nevada
- m = Less Than 500 Ac. Ft/yr
- S = Significant but Not Measured Discharge
- Manmade Diversion Cut or Basin Could be Terminated in Case of Storage in Basin
- 6+ Means 6.0 - 6.9
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