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Item 42

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WELSH ENGINEERING

PLAN OF OPERATIONS
FOR THE
PROPOSED TRIPLET GULCH PROJECT
LANDER COUNTY, NEVADA

Submitted to:

Battle Mountain District Office
Bureau of Land Management
North 2nd & Scott Sts.
Battle Mountain, NV 89820

Submitted by:

Coral Resources, Inc.
P.O. Box 8
Crescent Valley, NV 89821

Prepared by:

Welsh Engineering, Inc.
260 Coney Island Drive
Sparks, NV 89431

June 28, 1988

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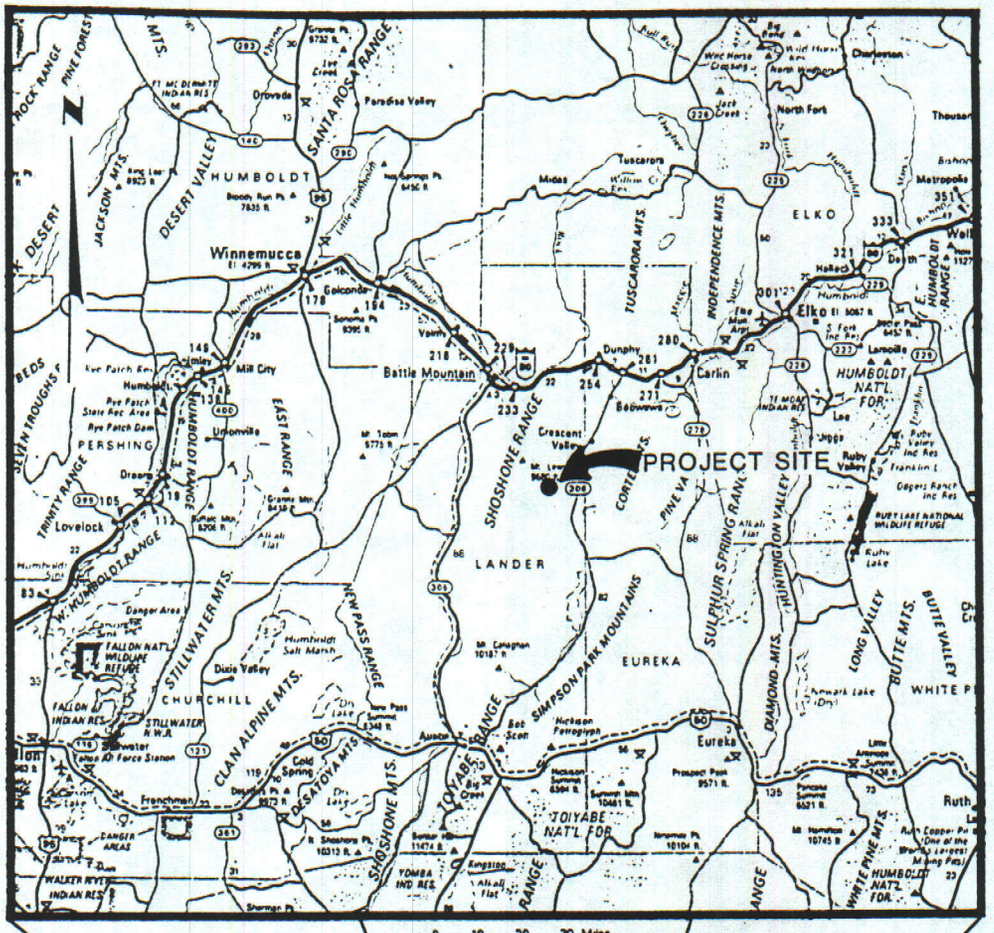
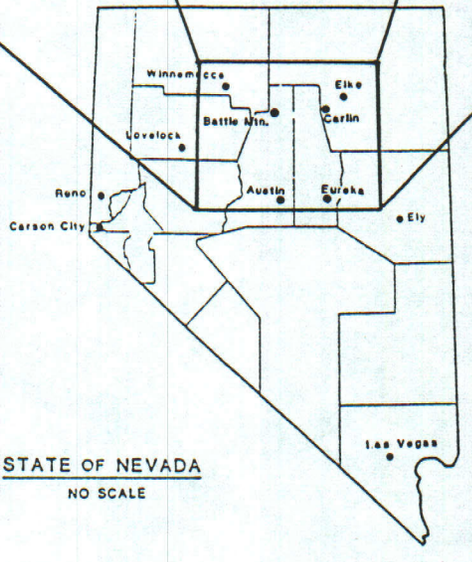
1.0 INTRODUCTION

Coral Resources, Inc. is submitting to the U. S. Bureau of Land Management (Battle Mountain District), this Plan of Operations for the Triplet Gulch Gold Mine Project, located on the eastern flanks of the Shoshone Range, about 10 miles south-southwest of the small community of Crescent Valley, Nevada. Figure 1 shows the regional location of the project site. The Triplet Gulch Project will use conventional open pit mining, heap leaching and carbon absorption methods for recovery of gold using cyanide solutions. Project facilities will include an open pit mine, waste rock dump, ore crushing/processing facilities, heap leach pad, carbon absorption recovery plant, a haul road, access roads and office and ancillary support facilities. Except for a patented mining claim held by Coral Resources, the area to be affected by the Triplet Gulch Project consists of lands managed by the Bureau of Land Management. This Plan of Operations is intended to provide the basis for project review by the BLM, as the responsible land management agency, and to fulfill the regulatory requirements of 43 CFR 3809, issued under the authority of Section 603 of the Federal Land Policy and Management Act of 1976, to establish procedures for management of mining activity on BLM-controlled lands.

In September of 1986, Coral Resources submitted to the Battle Mountain District of the BLM a Plan of Operations for an open-pit mine and heap leach operation at their nearby Robertson Project. The Robertson project is located about one mile away from the presently proposed Triplet Gulch Project (see Figure 2). In October of 1986, the BLM completed an Environmental Assessment of the Robertson Project; BLM issued a Record of Decision with the finding of No Significant Impact and approved the Robertson Project Plan of Operations in November, 1986. Much of the information about

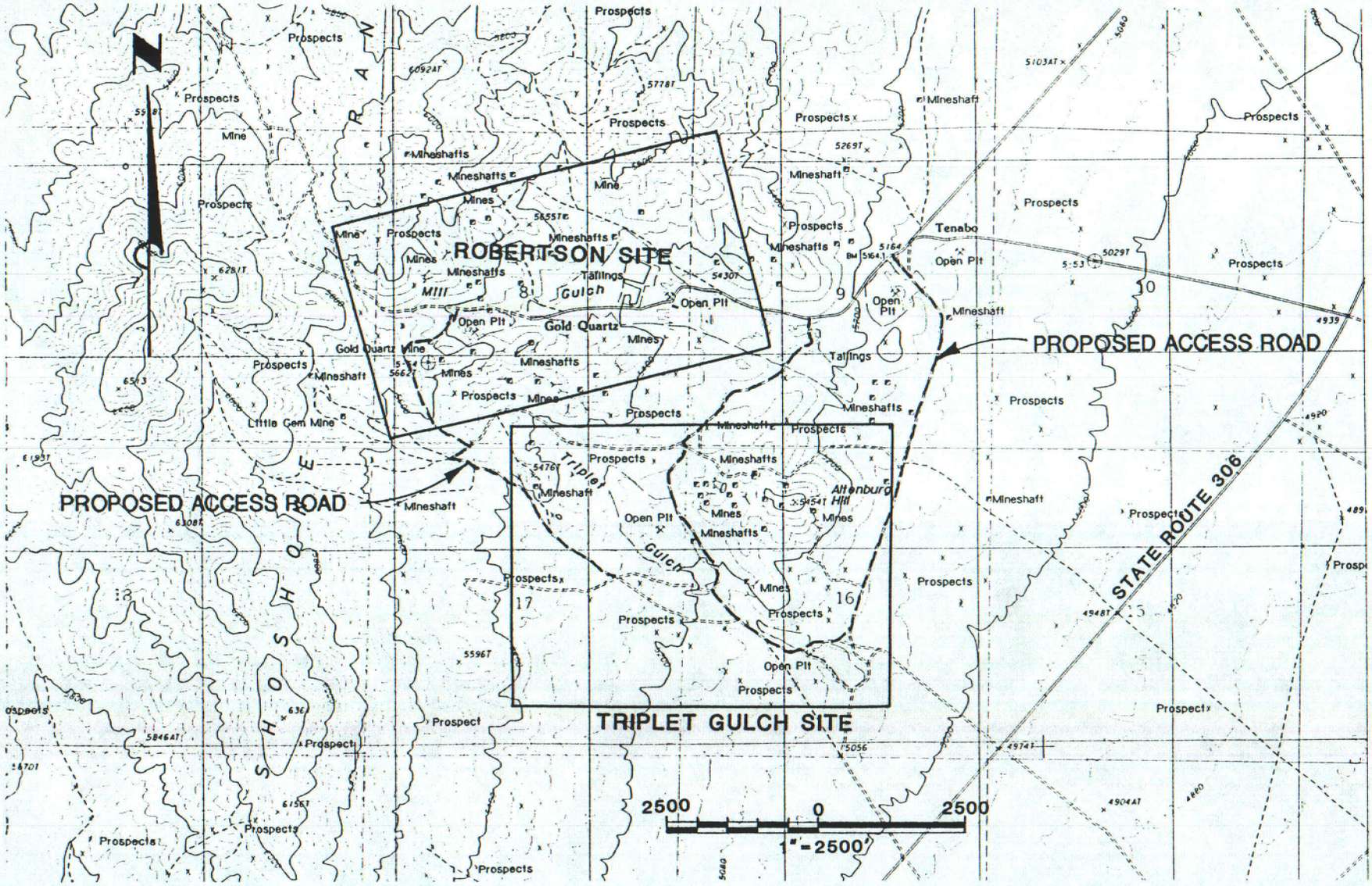




STATE OF NEVADA

NO SCALE

WELSH ENGINEERING 260 Coney Island Drive Sparks, Nevada 89431 (702) 358-2992	Scale _____ Job No. 7401 Engr. MH Date 6/2/88	TRIPLET GULCH PROJECT SITE REGIONAL LOCATION	DRAWING FIG 1



LOCATION OF TRIPLET GULCH PROJECT IN RELATION TO THE ROBERTSON PROJECT APPROVED BY BLM IN 1986.

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TRIPLET GULCH PROJECT LOCATION MAP

DRAWING FIG. 2

the existing environment in this Plan of Operations for Triplet Gulch is taken from the previous record for the Robertson Project. The final steps in the leaching recovery process for gold recovered from the Triplet Gulch leach pad will be completed at the processing plant currently under construction at the Robertson site.

The name and address of the operator for the Triplet Gulch Project is:

CORAL RESOURCES, INC.
P. O. BOX 8
CRESCENT VALLEY, NEVADA 89821

The project area consists primarily of unpatented mining claims on BLM-administered public land, except for a patented claim, Violet #3431, held by Coral Resources. Appendix A includes a list of all claims encompassed by the Triplet Gulch site, along with their BLM serial numbers. The names and addresses for the claim holders follows:

AARON MINING, INC.
P. O. BOX 8
CRESCENT VALLEY, NEVADA 89821

IMPACT ENTERPRISES
SUITE 120
890 WEST PENDER STREET
VANCOUVER, B.C., CANADA
V6C1J9

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND ACCESS

The project site, located in Lander County, is approximately 10 miles south-southwest of the small community of Crescent Valley, Nevada, and about 27 miles southeast of Battle Mountain (Figure 1). The project site consists of portions of Section 16 and 17 and small portions of Section 8 and 9 of Township 28N, Range 47E (Tenabo, Nevada 7 1/2-minute quadrangle map), as indicated in Figure 3.

Access to the project site is by one of two unimproved roads leading south from a graded two-lane road that connects with the paved State Route 306 (Figures 2 and 3). State Route 306 intersects with Interstate 80 about 30 miles north of the project area (Figure 1). Coral Resources will upgrade one or both of the unimproved roads for use as project access Figure 2). An existing unimproved road connecting the Robertson and Triplet Gulch Project sites will also be upgraded to provide access between the two project sites (Figure 2). The access roads will be widened by about 10 feet, graded and surfaced with gravel. Improving these roads will disturb about 2 acres each (1.5 miles x 10 feet), or a total of 6 acres for all three.

Exploration and mining for gold has been conducted on the project site for much of this century. Most recently, the area was worked by Aaron Mining, Inc. Surface disturbance on the site from the past mining activity consists of a network of roads, two areas that were excavated for placer mining in the late 1970's (shaded areas in Figure 3), along with associated waste dumps, several mine shafts and adits and numerous prospect pits and drill holes. Figure 3, a detail of the site from the Tenabo 7-1/2 minute quadrangle map, shows the location of the existing surface disturbance and

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40' CONTOUR INTERVALS

LEGEND

- MINESHAFT
- PROSPECT PIT
- ADIT
- OPEN PIT
- OLD PLACER EXCAVATION
- TRAIL
- UNIMPROVED ROADS
- IMPROVED ROADS

Mine Prospects
Mines
Mineshafts
Mill
Tailings
8
Gulch
Open Pit
Gold Quartz
Gold Quartz Mine
5-54
5662T
Mineshaft
Mines
Prospects
Mine
Access Road
Mineshaft
Open Pit
5476T
Mineshaft
Staging Area
Waste Rock
Crushing Area
Prospects
17
5596T
Prospect
Prospect
Mineshafts
5430T
9
Open Pit
Mineshaft
Tenabo
5164
BM 5164.1
Open Pit
5-53
Mineshaft
Tailings
Access Road
Prospects
Mineshafts
Prospects
Mineshafts
Altenburg Hill
5454T
Mines
Mines
Mineshafts
Mineshaft
Prospects
Mines
16
Prospects
Leach Pad
Ponds & Process Area
Prospects
Star Route 306
5056
4974T

WELSH ENGINEERING 260 Coney Island Drive Sparks, Nevada 89431 (702) 358-2992	Scale	CORAL RESOURCES	
WELSH	Job No. 7401 Engr. MH Date 6/28/88	TRIPLET GULCH PROJECT SITE FACILITIES, ACCESS ROADS & EXISTING SURFACE DISTURBANCE	DRAWING FIG. 3

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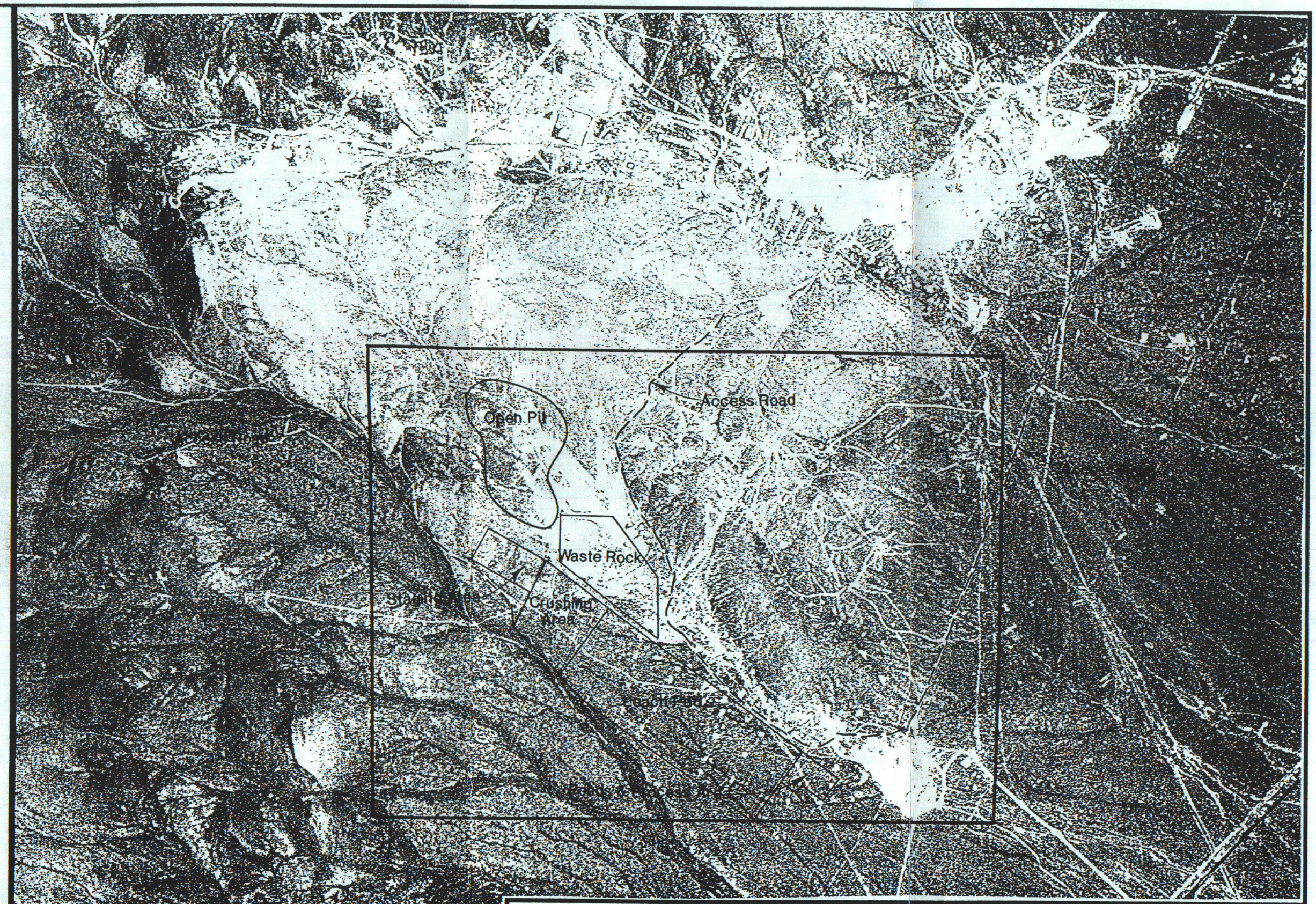

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Date 6/29/88

CORAL RESOURCES

TRIPLET GULCH PROJECT SITE

AERIAL PHOTO (1983)

DRAWING

FIG. 4

the general location of proposed project facilities. Figure 4 is a copy of an aerial photograph of the site vicinity taken in 1983 and shows the extent of existing surface disturbance.

2.2 PROPOSED PROJECT ACTIVITIES

Coral Resources proposes to extract gold from an ore body located on the Triplet Gulch site using conventional open pit mining, cyanide heap leaching and carbon absorption recovery methods. Drawing No. 1 shows the proposed location of project facilities, including the open pit, waste rock dump, ore crushing/processing facilities, heap leach pad, solution ponds, recovery facility and office and support facilities. Further drilling is anticipated to better delineate the northern extent of the Triplet Gulch ore body. A total of approximately 129 acres will be disturbed over the operating life of the project, about half of this area consists of land already disturbed by previous mining activities. Table 1 summarizes the estimated surface disturbance for each of the project components. A description of proposed project activities follows.

2.2.1 Exploratory Drilling

Several holes have already been drilled to delineate the ore body. Following approval of the Plan of Operations, additional drilling will take place to better define the northern extent of the ore body. This drilling is expected to commence in the late summer or early fall of 1988 and last less than one month. Drilling will be done by conventional truck-mounted drill rigs. Areas to be disturbed by drilling will be within the area to be disturbed by future mining of the open pit. Any drill sites outside of mined areas will be reclaimed as described in Chapter 3, Reclamation.

TABLE 1. Summary of Surface Disturbance for the Triplet Gulch Project

Project Facility	Acreage Disturbed
Open Pit	25
Waste Rock Dump	17
Ore Crushing/Processing Plant	12
Contractor Staging Area, Equipment Storage Area, Topsoil Stockpiles	7
Leach Pad*	46
Solution Ponds and Recovery Plant	3.5
Offices, Warehouse, etc.	3.5
Haul Road (1.3 miles long, 50 feet wide)	8.5
Access Roads (two existing roads, a total of 3.5 miles long, widened by 10 feet)	6
TOTAL SURFACE DISTURBANCE	129 ACRES

* The final size of the leach pad will be 2,000,000 square feet (about 46 acres). It will be constructed in multiple phases as mining progresses.

2.2.2 Mining

Mining at Triplet Gulch is anticipated to begin in the Fall of 1988 and last for approximately three years. Contract mining will be utilized. The present preliminary estimate of total ore reserves for the Triplet Gulch site is 1,000,000 tons. At peak production, an estimated 2000 tons of ore will be mined per day. Mining will be by conventional open pit methods. Waste rock will be disposed of in a dump area southeast of the open pit.

Mine Pit

Although further drilling must be accomplished to better delineate the extent of the ore body, the dimensions of the pit will be approximately those shown in Drawing No. 1. The pit will be about 150 feet deep and disturb approximately 25 acres in its final configuration. Much of the area proposed for the open pit has been disturbed by previous excavations for placer deposits (Figure 3). A staging area and equipment storage for the mining contractor will disturb an additional 7.0 acres near the leach pad (Drawing No. 1).

Presently, the pit is designed to have approximately 1:1 pit wall slopes and benches will be about 10 feet high. Pit wall stability and geotechnical considerations may require modification of the projected pit design. Based on information from drillholes and an existing water well, groundwater on the site is located below 300 feet; pit dewatering will not be necessary.

Mining Sequence

Mining will occur in two stages. The first stage will be pre-production removal of topsoil and overburden. Because much of the pit area has been disturbed by earlier placer mining (Figures 3 and

4), very little topsoil remains. During opening of the pit, any usable topsoil will be removed from the surface, using bulldozers and/or front end loaders, and reserved in a topsoil stockpile area, near the leach pad, to be used during later reclamation efforts. Topsoil stockpiles will be clearly marked as such and seeded to prevent erosion. Overburden will then be removed from the pit using bulldozers and/or front-end loaders, loaded into haulage trucks and disposed of in the waste rock dump located southeast of the pit, as indicated in Drawing No. 1. Overburden removal may require some drilling and blasting. Topsoil and overburden removal may be accomplished in several stages as pit development progresses during mining.

The second stage of mining will be removal of the ore. This process will involve drilling and blasting the exposed ore and use of front-end loaders and haulage trucks to remove the ore from the pit. Ore will be hauled to a run-of-the-mine stockpile area near the crushing facility (Drawing No. 1). Blasting operations will utilize six-inch diameter drill holes and ANFO (Ammonium Nitrate/Fuel Oil mix). Charge size will vary depending upon location in the pit and ground conditions. Blasting will be accomplished during the daylight hours. Customary blasting practices that are utilized in the mining industry will be followed, and federal safety requirements pertaining to the storage, handling and use of explosives will be met. Explosive materials will be brought on-site by truck and stored in approved storage facilities.

A total of approximately 1,000,000 tons of ore and 2,000,000 tons of overburden will be removed from the pit at an approximate daily tonnage rate of 2000 tons per day of ore and 4000 tons per day

of overburden. It is anticipated that the mining operation will work one 8- to 10-hour shift per day for five days per week. Security will be maintained on-site on a 24-hour basis during active project operations. Mining is expected to continue throughout the year, with no seasonal shut-down anticipated.

The mining operation will utilize the following equipment:

Type	Anticipated Size
Bulldozer	D8 to D9 class
Front End Loader	5 - 10 cubic yard
Blasting drill	6"
Motor Grader	14 to 16 class
Haul Trucks	35 - 85 ton
Water Truck	3000 - 5000 gallons
Backhoe	about 1 cubic yard
Ore Crusher	jaw type
Diesel Generator	100 - 400 KW
Vibratory roller/compactor	---
Service/utility vehicles	---

Haul Roads

A haul road will be constructed connecting the pit with the waste rock dump, the ore processing facility, and surrounding the heap leach pad. The haul road will be designed for use by off-highway trucks and will be of sufficient width to provide safe transport for the large haulage trucks in both directions. The haul road will be approximately 50 feet wide, including allowance for drainage ditches on either side. The road will be graded and crowned away from the centerline for drainage and surfaced with

gravel or crushed waste rock. A total of approximately 1.4 miles of haul road will be constructed, involving disturbance of about 8.5 acres (Table 1).

Waste Rock Dump

The anticipated location of the waste rock dump is southeast of the pit, as shown on Drawing No. 1. Depending upon waste characteristics, some material could be used for road base and possibly for construction of the leach pad. Given the estimated stripping ratio of approximately 2:1, a total of about 2 million tons of waste rock will ultimately be placed in the dump. It is estimated that a maximum of 17 acres will be disturbed by placement of the waste (Table 1). The entire area in which the dump will be located has been extensively disturbed by past placer mining, and no topsoil exists to be salvaged.

The waste dump will be developed by end dumping, with the active dump face lying at the angle of repose. It is anticipated that the waste rock will have an angle of repose of approximately 37 degrees and a swell factor of about 30 percent. Design of the dump will be refined as more information about the waste material becomes available, to ensure long-term stability of the waste rock dump.

It is expected that natural drainage of the dump will take place as a result of material segregation during dumping--the coarser material will occupy the lower portions of the dump, enhancing drainage characteristics. There are no springs in the area planned for the dump, and it is anticipated that surface runoff will be minimal.

2.2.3 Ore Processing, Leaching and Recovery Facilities

The ore processing facilities, leach pad, solution ponds, carbon columns for recovery of gold from the pregnant solution, and ancillary support facilities will be located as shown on Drawing No. 1. Construction of these facilities will disturb a total of 72 acres (see Table 1). The ore processing operation is depicted schematically in Figure 5.

Ore coming from the pit will be stockpiled in a run-of-the-mine stockpile adjacent to the crushing facilities (Drawing No. 1). Ore will be fed through the crushing plant by direct dumping from haul trucks arriving from the pit or by front end loader from the run-of-mine ore stockpile. Crushed ore materials will be stored in a crushed ore stockpile near the leach pad for later application to the heap. Pregnant leach solution draining from the pad will be processed by conventional carbon absorption recovery methods to recover gold.

2.2.4 Crushing Plant

The crushing plant will consist of jaw type crushers, appropriate screens and conveyors and dust suppressant devices. The crushing plant will be located adjacent to the heap leach pad, as shown on Drawing No. 1. The operating capacity of the plant is planned at approximately 2000 tons per day; the plant will be operated 8 to 10 hours per day, 5 days per week, year-round.

The ore will crushed and screened to achieve minus one inch material. Based on the presently known characteristics of the ore, it is anticipated that agglomeration by addition of lime and cement will be required. A belt conveyor system and/or haulage trucks will

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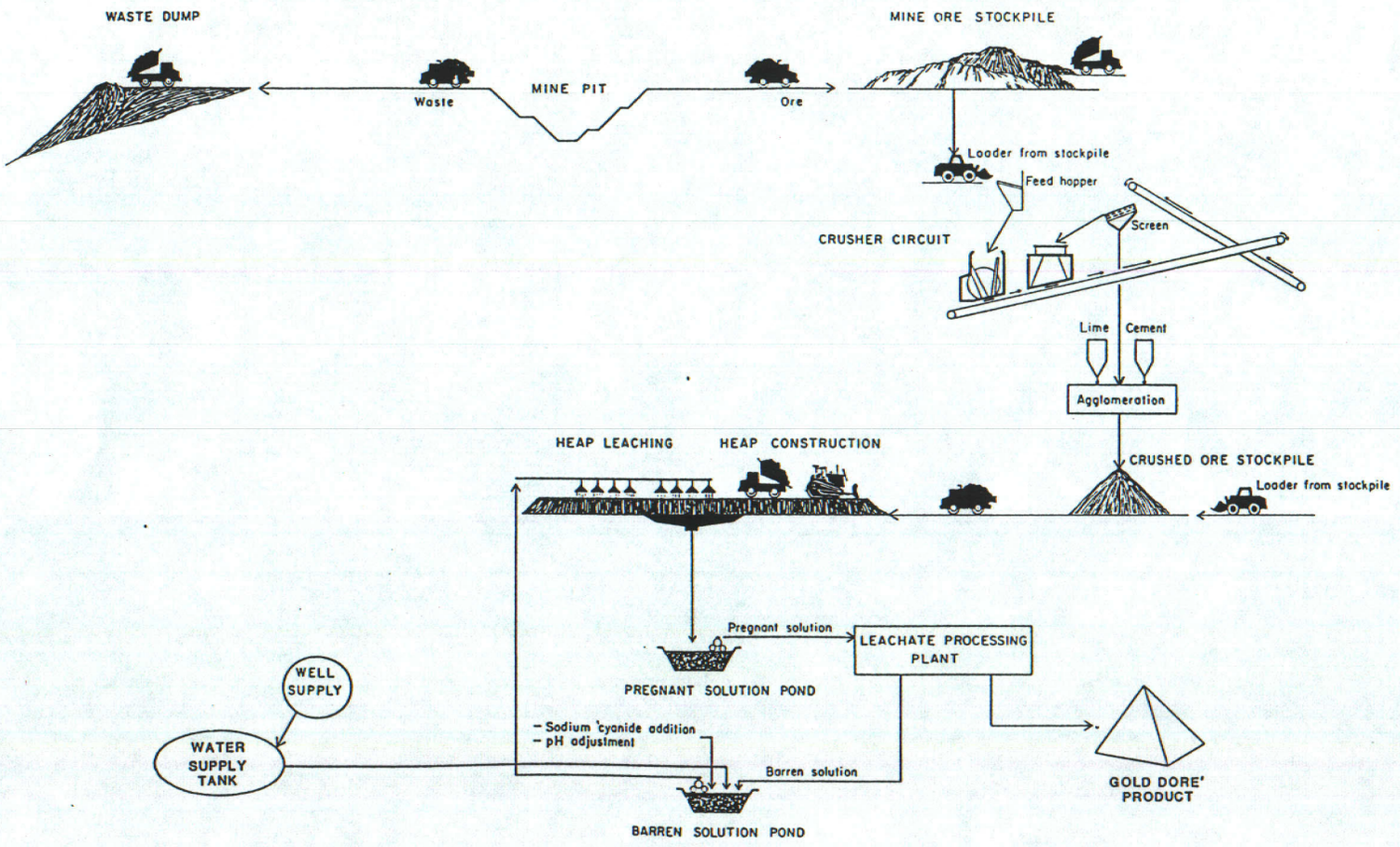
ORE PROCESSING FLOWSHEET



WELSH ENGINEERING 260 Coney Island Drive Sparks, Nevada 89431 (702) 358-2992	Scale _____ Job No. 7401 Engr. MH Date 6/2/88	ORE PROCESSING FLOWSHEET	DRAWING FIG 5

be used to transport crushed ore to a crushed-ore stockpile for application to the leach pad. It is anticipated that dust will be controlled using water spray bars on the crusher and over the conveyor area. Water will also be added during agglomeration. The necessary air quality permit to construct will be obtained from the Nevada Division of Environmental Protection, Air Quality Section, upon selection of the crushing equipment.

2.2.5 Leaching Facility

The leaching facility will be located south of the pit, as shown in Drawing No. 1, and will be fenced to exclude entry of livestock and deer. The pad will ultimately cover an area of about 2,000,000 square feet (about 46 acres) and will be constructed in multiple phases as the mining operation progresses. The layout of the leaching facility is shown on Drawing No. 1. It will consist of the following:

- a prepared and lined 2,000,000-ft^2 pad,
- one 195' x 195' x 15' deep pregnant solution pond,
- one 195' x 195' x 15' deep barren solution pond,
- solution collection trenches, and
- runoff control ditches and berms.

Leach Pad Design

Design of the leach pad will be for zero discharge and will meet all Nevada Division of Environmental Protection requirements. The anticipated design will use a single liner system consisting of a primary synthetic liner of 60 mil high density polyethylene (HDPE).

A 24-inch layer of crushed waste material will be placed on the synthetic liner to protect it during loading of the ore. The anticipated heap height will be 30 feet. Ore will be applied to the pad in lifts of approximately 10 feet.

Solution Ponds Design

There will be two solution ponds situated downgradient from the leach pad (Drawing No. 1). The ponds will be double lined with 40 or 60 mil HDPE, and a leak detection/recovery system will be installed between the liners. The ponds will be sized to hold the precipitation from a 25-year, 24-hour storm event plus the normal operating volume. The ponds will be operated with a 2-foot freeboard. The area surrounding the ponds will be fenced with an 8-foot high fence designed to exclude wildlife (see Section 2.8). The ponds and fence will be designed such that mist netting can be added later if waterfowl mortality proves to be a problem.

The leachate solutions will be conveyed from the heap in solution trenches to the pregnant pond. Pregnant solution will be pumped from the pregnant pond to the carbon recovery facility and barren solution will be returned via pipelines. Leaching solution will be conveyed from the barren solution pond to the leach pad for application to the heap by pipelines.

Leachate Collection System

The leachate solution within the heap will be collected on top of the synthetic liner by a system of pipes and flow by gravity to collection trenches surrounding the pad. The solution collection trenches have been designed to convey the leachate flow plus runoff

from the heap from a 25-year, 24-hour storm event. They will be lined with 40- or 60-mil thick synthetic liner.

Runoff Collection and Diversion

The leach pad, solution ponds and processing facility will be surrounded by berms designed to control fugitive solutions. The pit and waste rock areas and the leaching facility will be surrounded by diversion ditches designed to route runoff around the facilities and into the existing natural drainage below.

Heap Leach Circuit

The leaching circuit is depicted schematically in Figure 5. The leaching operation will consist of application of a buffered sodium cyanide solution to the heaped ore on the leach pad with a drip system at an approximate rate of 500 gallons per minute. Leach solutions will be prepared in the barren pond. Makeup water, cyanide and pH adjuster will be added at this point to achieve the desired concentration and pH. Metallurgical characteristics of the ore will determine the ultimate optimum concentration and pH of the leach solution. Leach solution draining from the heap will be collected and flow by gravity to the pregnant pond. Pregnant solution from this pond will be pumped to the carbon columns for recovery of gold. Barren solution from the recovery process will be returned to the barren pond for adjustment of pH and cyanide concentration prior to being applied to the heap.

2.2.6 Recovery Process and Facility

Gold will be recovered from the pregnant leach solution using a conventional carbon absorption system, depicted schematically in

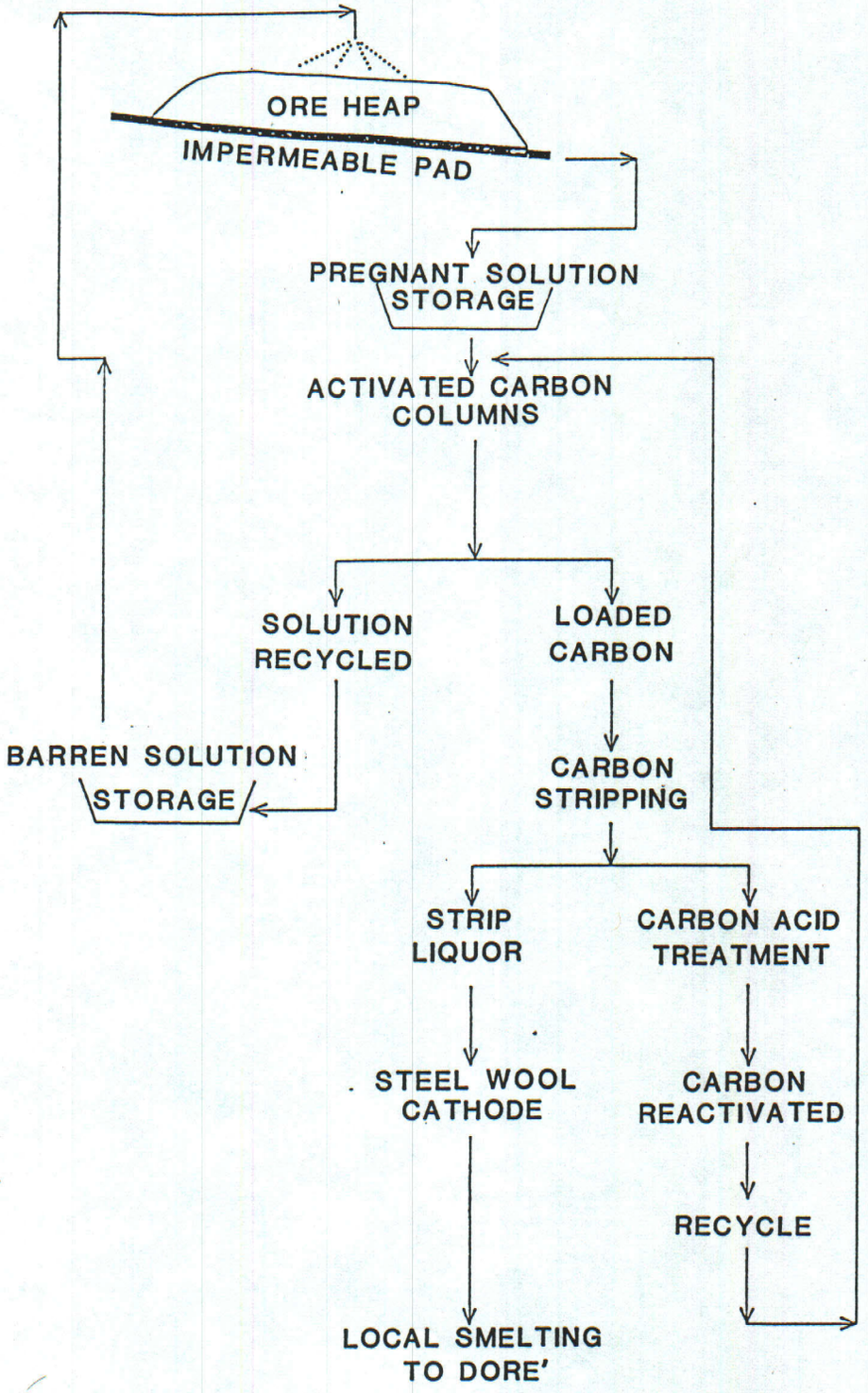
Figure 6. The process involves pumping of the gold-bearing solution up through carbon columns, causing the gold to absorb onto the carbon. An acid solution is employed to strip the gold from the carbon. The gold-bearing acid solution is passed through charged steel wool cathodes, causing the gold to plate onto the steel wool. Recovery of gold from the steel wool is accomplished by smelting with appropriate fluxes and heating in a crucible furnace, resulting in dore bullion. The dore bullion will be periodically transferred off-site for further refining.

At the Triplet Gulch site, the pregnant solution will be passed through carbon columns in a building located adjacent to the solution ponds, as shown in Drawing No. 1. The loaded carbon will then be transported to the processing facility at the Robertson Project site, located approximately one mile from the Triplet Gulch facility, for stripping of the gold from the carbon and completion of the processing to dore bullion. The "clean" carbon will be returned to the Triplet Gulch leach facility.

The carbon columns for gold recovery will be housed in a metal building on a concrete pad foundation. The concrete pad will be bermed around the outside perimeter and sloped to drain via piping into the solution ponds in the event of spillage or leakage of solution during the recovery process. This design will insure that the system is fully contained and under a zero discharge system.

2.3 WATER CONSUMPTION

The total consumptive use of water for all project operations is estimated at approximately 75 gallons per minute, or 121 acre-feet per year. This includes evaporative losses of process water from the pad and pond



WELSH ENGINEERING 260 Coney Island Drive Sparks, Nevada 89431 (702) 358-2992	Scale _____ Job No. 7401 Engr. MH Date 6/2/88	TRIPLET GULCH PROJECT METAL RECOVERY CIRCUIT	DRAWING FIG 6

areas, application of water for dust abatement, and uses for sanitary and drinking purposes. Bottled water will be used for drinking purposes. Water for process water makeup, for dust suppression and sanitary uses will come from an on-site well. Presently, negotiations are under way to use a well drilled by the U.S. Geological Survey near the center of Section 16. Application has also been made with the Nevada Division of Water Resources to appropriate water from underground sources at two proposed well locations in Section 16, located as indicated in Drawing No. 1.

2.4 SANITARY AND SOLID WASTE DISPOSAL

During the early phases of construction, all sanitary waste will be collected in portable toilets and hauled off-site for disposal by a licensed contractor. Later, all sanitary wastes will be discharged to a septic leach field, located downgradient from the processing and office facilities. Plans for septic system will be filed with the Nevada Division of Consumer Health for approval.

Trash will be disposed of on-site in a private Class III landfill to be located adjacent to the waste rock dump. Eventually, near the final phase of project operations, the waste rock dump will be extended over the trash landfill. Plans for the Class III landfill will be filed with the Nevada Division of Environmental Protection Solid Waste Section, and the landfill will be constructed and operated per Nevada regulations governing this type of facility.

2.5 ELECTRICAL POWER

All electrical power needs will be generated on-site using two 75-kilowatt-capacity diesel powered generators. These generators will be located adjacent to the processing facility. Fuel will be stored in two

5000-gallon tanks that will be surrounded by a berm designed to contain the volume of the tanks in the event of spillage.

2.6 SUPPORT FACILITIES

As shown on Drawing No. 1, there will be a shop/warehouse, an office building, two 10,000-gallon water tanks, and a parking lot located near the leach pad and recovery plant. The parking lot will be surfaced with gravel. The warehouse building will probably be a prefabricated structure built on a cement slab. The office will be housed in a trailer or trailers. A laboratory facility will be available at the Robertson Project, about one mile away.

2.7 CHEMICAL HANDLING

Reagents required for the heap leach operation and recovery facility are listed in Table 2. Cyanide will be received by truck in metal flobins, drums or dry bulk tanks. Transportation of the cyanide will be handled by properly licensed carriers. Cyanide will be stored in the warehouse. The solid cyanide will be added to the leach solution in the barren solution pond. Cyanide handling and usage at the site will be done with properly trained and authorized personnel.

Lime and cement will be transported by truck in bulk form. Caustic soda, for pH adjustment, will be obtained in bulk as a solid. The lime and the caustic soda will be stored in the warehouse. The acids and fluxes listed in Table 2 will be stored at the processing plant on the adjacent Robertson Project site. Miscellaneous laboratory reagents will also be stored at the laboratory located on the adjacent Robertson Property.

Table 2. Chemical Reagents for Ore Processing

Sodium cyanide	Hydrochloric Acid
Sodium hydroxide (caustic soda)	Nitric Acid
Lime	Various Fluxes:
Portland cement	Borax, silica
Activated Charcoal	nitre, soda ash

2.8 FENCING

The solution ponds will be fenced to prevent access by wildlife and livestock, as per guidelines issued by the Nevada Department of Wildlife for open cyanide-containing waters in their Habitat Modification Permit issued in 1986 for Coral Resources' adjacent Robertson Property. Fences will be 8 feet high, consisting of 1-inch mesh chicken wire fence for the bottom 6 feet. One strand of barbed wire will be placed even with the top of the chicken wire. Two more strands of barbed wire will be placed at 12-inch intervals to read the 8-foot height. The bottom will be placed tight to the ground level to prevent animals from securing access under the fence.

The leach pad, the open pit and the waste rock dump will each be fenced with a four-strand barbed wire fence to prevent entry of livestock and deer. The fences will be constructed to meet Bureau of Land Management's specifications.

2.9 DUST SUPPRESSION

Dust will be controlled on haul roads and during mining by spraying with water. Dust emissions from the ore crushing facility will be controlled at key material transfer points with water spray bars, and water will be injected with the ore during agglomeration. An Air Quality Permit for Surface Disturbance has been applied for from the Nevada Division of Environmental Protection. An Air Quality Registration Permit to construct

will be applied for when more detailed information about the type of crushing and screening equipment is available. Specific particulate emission control measures will be determined in consultation with Nevada Division of Environmental Protection personnel.

2.10 DRAINAGE RUNOFF CONTROL

Most of the project facilities are situated near the heads of drainages, so that runoff problems will be minimal. Berms and ditches will be installed above the pit, waste rock dump and ore processing facilities to divert runoff around this area to the natural drainage below. The leaching facilities will be surrounded by diversion ditches sized to divert the runoff from a 100-year, 24-hour storm event around the facility. Design of the haul road and access roads will take into consideration drainage and erosion control measures to protect the roads from runoff flows. Periodic drain cut outs will be provided to channel drainage off the road surface.

2.11 LABOR FORCE

The peak construction and mining work force is estimated to be from 20 to 25 people, including the contract mining workers. It is anticipated that this work force will be drawn from the populations in Battle Mountain, Carlin, Elko, Crescent Valley/Beowawe and Austin. The majority of the work force can be expected to commute from the larger communities of Battle Mountain and Elko, both approximately a one-hour drive (one way) from the site. Car-pooling by employees will be encouraged.

2.12 PEROIDS OF NON-OPERATION

At present, periods of temporary or seasonal closure are not anticipated. It is expected that the facility will operate year-round. However,

in the event that unfavorable market conditions force temporary closure the following will occur:

a. Prior to the time of temporary closure, the volume of leaching solutions in the ponds will be reduced to a minimum. The heap leach pad and the barren and pregnant solution ponds will be capable of storing all precipitation and snow melt that accumulates during any shutdown winter period.

b. Equipment and machinery will be mothballed in a safe and clean condition.

c. Reagents and fuel will either be removed from the site or stored in a secured area.

d. Temporary reclamation measures will be taken as necessary to stabilize disturbed sites from wind and water erosion.

e. A responsible security/caretaker crew will be maintained to inspect the facilities regularly.

2.13 PERMITS

Table 3 provides a summary of regulations and permits that apply to the Triplet Gulch project. All of the permits listed have either been applied for or will be applied for when the appropriate information regarding detailed project design and choice of equipment is available.

TABLE 3

SUMMARY OF PERMITS AND APPROVALS REQUIRED FOR TRIPLET GULCH

LANDER COUNTY, NEVADA

AGENCY	AUTHORITY (Permit, Approval, Review)	FACET OF PROJECT
Federal		
U.S. Bureau of Land Management Battle Mountain District	Approve Plan of Operations	All activities on unpatented mining claims or involving rights-of-way on Federal land
State		
Office of Community Services - State Clearing House	Review of EA	All aspects of project.
Nevada Division of Environmental Protection	1. Air Quality Permit to Construct	All aspects that produce air contaminants including particulates, hydrocarbons, etc.
	2. Air Quality Permit to Operate	
	3. Zero Discharge	Heap leach operation-Review discharge and seepage potential.
	4. Solid Waste Disposal	Approval of plans for disposal of solid waste, i.e., garbage, construction waste.
Nevada Department of Health	Septic System	Sanitary waste
Nevada Division Water Resources	Permit to Appropriate Public Water	Use of surface or and groundwater

TABLE 3 (Continued)

AGENCY	AUTHORITY (Permit, Approval, Review)	FACET OF PROJECT
Nevada Division of Historic Preservation	Review project and EA to determine impact on cultural resources.	Any proposed surface disturbances.
State Inspection of Mines	Notification of Opening or Closing Mines	Mining
Nevada Department of Wildlife	Habitat Modification Permit, Review EA	All lands affected by the project.
Local Government		
Lander County	Building Permits	All buildings must meet building codes.

3.0 RECLAMATION

The Triplet Gulch site has been extensively disturbed by past exploration and mining activities not related to Coral Resources' present project. Coral Resources does not intend reclamation of any previously disturbed areas, providing that they are not further disturbed during project construction and operation. All areas disturbed by construction and operation of Coral Resources' project will be reclaimed as soon as practicable; reclamation will be a continuing process during operation of the Triplet Gulch project.

Several factors make reclamation in the arid Great Basin difficult: lack of precipitation; alkaline, rocky, poorly developed soils; intense sunlight; strong winds; and a history of overgrazing. Additionally, at the Triplet Gulch site, extensively past disturbances have left little topsoil available in many areas where project facilities will be located. Coral Resources intends to use the best practices available to stabilize slopes and to prepare seedbeds that promote natural revegetation as much as possible. It is anticipated that reasonable reclamation success can be achieved. Coral Resources' reclamation and closure goals at the Triplet Gulch property are as follows:

1. Close the leach pad, solution ponds and open pit in a manner to insure that zero discharge of pollutants continues following closure;

2. Contour and level slopes as much as practical;

3. Stabilize disturbances from water and wind erosion;

4. Prepare disturbed areas for revegetation where practical by spreading of topsoil--if sufficient topsoil is not available, ripping or scarification may be employed--areas will also be mulched and fertilized as needed;

5. Establish vegetative cover as soon as possible to stabilize areas and to encourage natural invasion and reseeding of native species from surrounding undisturbed areas.

Prior to disturbance of areas for construction of roads, leach pad, waste rock dump and opening of the pit, any available topsoil will be stripped and reserved in clearly marked stockpiles. To protect them from erosion, all topsoil stockpiles will be seeded with the prescribed seed mixture listed in Table 4, recommended by the Bureau of Land Management for the adjacent Robertson Project.

Diversion structures will be constructed around all major project facilities to intercept runoff from areas above the operation and route it to natural drainages below the disturbed areas. These diversion structures will be left after closure to protect reclaimed areas from water erosion.

Where practical, such as on the waste rock dump and heap leach pad, slopes will be re-contoured to not steeper than 2:1. Seedbeds will be prepared on disturbed areas by scarification, and/or, where reasonably practical, by spreading of topsoil to a depth of at least six inches. The BLM-recommended prescribed seed mixture and application rates are listed in Table 4. Seed will be spread by broadcast seeding. A native hay mulch will be spread and disced into the soil to protect the seed and to retain moisture. Two tons of hay per acre will be used. Soil tests will be taken from the reclaimed areas to determine if fertilizer is required to improve seed growth. Fertilizer will be used if required. Seeding will take place in the late fall or early spring to take advantage of precipitation and snowmelt. Where possible, fall is the preferred seeding time. Detailed reclamation plans for the various project facilities are in the following sections.

TABLE 4. Prescribed Seed Mixture and Application Rates

Seed Mixture	Rate (lbs/acre)
Shadscale	1
Fourwing saltbrush	1
Crested wheatgrass	3
Thickspike wheatgrass	2
Globemallow	1/2

3.1 ROADS, DRILLSITES

Interim reclamation of roadsides and drill sites will take place during project operation. Exploration drill sites and roads, unless subject to mining will be reclaimed following abandonment. The areas will be scarified and seeded and mulched as described above, preferably in the fall. Following final closure of the project, all roads will be reclaimed. Any culverts will be removed, drainage ditches and any cut slopes will be recontoured to fit the surrounding topography. Where practical, compacted roadbeds will be ripped to a depth of 1/2 to 1 foot. All disturbed areas will be spread with topsoil, if available, and reseeded with the prescribed seed mixture in Table 4.

3.2 OPEN PIT

Upon completion of mining, the open pit will encompass about 25 acres. Based on the known groundwater hydrology (depth to water table is over 300 feet), the pit should remain dry except for brief accumulation of winter precipitation that will evaporate during the summer. Pit slopes will be left as is following mining. Drainage diversion structures will be left in place following closure. The fencing around the pit will also be left in place to prevent entry of deer and livestock. Disturbed areas directly

around and adjacent to the pit rim will be scarified, if necessary, covered with topsoil as available, and reseeded with the prescribed seed mixture in Table 4.

3.3 WASTE ROCK DUMP

The waste rock dump will encompass about 17 acres in its final configuration. Following closure, the slopes will be re-contoured to less than 2:1, covered with topsoil as much as practical and reseeded with the prescribed seed mixture in Table 4.

3.4 HEAP LEACH FACILITY AND SOLUTION PONDS

Closure of the heap leach pad and ponds will follow guidelines issued by the Nevada Division of Environmental Protection to neutralize the heap and isolate any remaining pond solids. All chemicals or reagents will be removed from the site, along with their empty containers. All buildings and tanks will be removed and any cement foundations ripped and buried. Berms surrounding tanks will be smoothed to blend with the topography. Fencing will be removed. All plumbing and buried conduit will be removed and disposed of. All areas disturbed in the vicinity of the leach facility will be covered with topsoil and reseeded as described above.

Closure of the leach pad will require treatment of the agglomerated heap to reduce or neutralize the free cyanide available in the ore. The first choice of a method to accomplish this is to rinse the agglomerated heap with freshwater. Agglomerated ores may not rinse well, however, due to the presence of lime and/or cement. An alternative is to chemically treat the heap until the mean WAD cyanide is less than 10 mg per kilogram of spent ore. This may be accomplished by one of several methods: peroxidation, chlorination, oxidation with sulfur dioxide, complexation with ferrous sulfate, or some form of bio-oxidation. At the present stage of

the project, it is not possible to predict whether the spent ore on the pad will be amenable to simple rinsing with freshwater or to predict which chemical treatment, if any, will be required.

The closure details for the heap and ponds are as follows:

1. The spent heap will be rinsed with freshwater until the rinsate from the heap shows for three consecutive days that free cyanide is less than 1.0 mg/l and total zinc and copper concentrations gain less than 50% increase above their background concentrations in the source process water. If this simple rinsing is not effective, the spent ore will be chemically treated until the mean WAD cyanide is less than 10 mg/kg of dried spent ore.

2. All rinsate from heap treatment to reduce cyanide will be routed to the double-lined solution ponds and allowed to evaporate to dryness.

3. Following evaporation of all liquid from the ponds, the synthetic liners will be folded around the evaporate and buried on-site.

4. The pond sites and ditches will be filled and re-contoured to prevent ponding of runoff. The area will be scarified and re-seeded as described above.

5. The side slopes of the heap will be re-contoured to less than 2:1. Perimeter berms and ditches will be destroyed. The liner and drain pipes will be left under the stabilized heap. The heap will be re-surfaced with topsoil, as available, and re-seeded.

3.5 FENCING

Fencing will be left around any areas designated by the BLM for protection of livestock or where human safety is a factor. It is anticipated that fencing around the pit, an area of about 25 acres, will remain. All other fencing will be removed.

4.0 DESCRIPTION OF EXISTING ENVIRONMENT

4.1 MINING HISTORY AND EXISTING SURFACE DISTURBANCE

The Triplet Gulch Project Site is within the Bullion Mining District, on the east side of the Shoshone Range. Silver was the first economic mineral to be found in the District, which led to the founding of the town of Lander in the 1870's. In the spring of 1905, gold was discovered at the Goldquartz property, near the location of the present project site, and the town of Tenabo was founded. The town soon grew to a population peak of 1,000 and included stores, saloons, a hotel, school and post office, but by 1912 was in decline. Placer gold was discovered near Tenabo in 1906 and again in 1916 in Mill Gulch, north of the project site. Significant production of placer gold from the project area vicinity was recorded in 1931, but since that time placer production has been limited. Most recently, the placer deposits in Mill Gulch and Triplet Gulch were worked in the 1970's, resulting in several excavations, pits and waste dumps in the area. The total value of past production from the Bullion District is estimated at about $16 million. Production includes approximately 300,000 ounces of gold, 1 million ounces of silver, 1.3 million pounds of copper and lead, 500,000 tons of barite and several million dollars worth of turquoise.

Existing surface disturbance on the project site consists of two areas of placer excavation (shown as shaded areas on Figure 3 and visible as white scars on the aerial photo in Figure 4), waste dumps, several roads, mine shafts, adits, and prospect pits. Approximately 200 acres on the project site have been severely disturbed by previous mining activities. About one quarter of the area to be affected by construction of the Triplet Gulch project consists of previously disturbed areas.

4.2 TOPOGRAPHY AND GENERAL SITE CHARACTER

The Triplet Gulch site is situated in the low foothills of the eastern side of the Shoshone Range. Elevations at the site range from 5080 to 5267 feet above mean sea level. The general character of the site is low rolling sagebrush-covered hills.

The climate of the area is typical of the Great Basin cool desert. Based on weather records at Battle Mountain, the nearest recording station, the site receives about 7.5 inches of precipitation a year and 15 inches of snowfall. Average summer high temperatures are in the low 90's, and summer lows average in the low 50's. Average winter highs are in the low 40's, and average winter lows are in the upper teens.

4.3 AIR QUALITY

The project site is located within Air Quality Area 54, Crescent Valley, as delineated by the Nevada Division of Environmental Protection. It is considered to be an "attainment" area for criteria pollutants. The project site vicinity is classified as a Class II area pursuant to the Prevention of Significant Deterioration regulations promulgated under the Clean Air Act. Class II areas allow for acceptable levels of development. The major air quality concern for mining operations similar to the proposed project is release of total suspended particulates (TSP), or dust, from construction, mining and use of haul roads. There are only two operations (both mining) currently permitted by the NDEP in the Crescent Valley Air Quality Region.

Like most rural areas in Nevada, existing air quality at the project site is good, due to the limited population and absence of major industrial activity. There are no nearby monitoring stations for measurement of ambient air quality. The nearest monitoring station to the project site is

in Battle Mountain, approximately 27 miles northwest of the site. Battle Mountain, however, is a non-attainment area and would not be representative of conditions at the project site. Data from Valmy Monitoring Station No. 3, located in an undisturbed area about 75 miles northwest of the project site, may be considered characteristic of conditions at the site. Records from 1984 through 1986 indicated an annual geometric mean of 13 to 15 ug/m^3 (micrograms per cubic meter); the Nevada State Standard is 75 ug/m^3. At Valmy, maximum 24-hour averages were generally from 50 to 70 ug/m^3; one exceedance of the State standard of a maximum of 150 ug/m^3 24-hour average was recorded in the three years of monitoring data (USBLM, 1988).

4.4 GEOLOGY

The part of the Shoshone Range in the vicinity of the project site is underlain by siliceous and volcanic assemblage rocks of Ordovician and Devonian age in a complex array of thrust slices, generally along bedding planes in the upper plate of the Roberts Mountains Thrust. These rocks are intruded locally by Tertiary granitic rocks. Gold deposits occur within the Bullion District in localized chert and limestone breccia in the Roberts Mountains thrust zone, in quartz veins along faults in granitic rocks, and adjacent to dikes that intrude quartzite and siliceous shales. Placer deposits of gold occur in alluvial gravels of Mill Gulch and, on the project site, in Triplet Gulch.

The project area is within the Altenberg Hill-Triplet Gulch subdistrict of the Bullion Mining District. Altenberg Hill contains Ordovician Valmy Formation silicic shales and cherts intruded by a Tertiary granitic stock. Prograding wedges of Quaternary alluvium emanate eastward from the

Shoshone Range in the area. The leach facility will be located in Quaternary alluvium in Triplet Gulch.

4.5 SOILS

According to the information from the Robertson Project Environmental Assessment, soils in the area range in depth from ten to twenty inches over bedrock on most slopes and up to twenty to forty inches on some north-facing slopes. Surface soil layers are composed of gravelly loams. About half of the soils have subsoils that are cobbly and gravelly clay loams. The other half have gravelly and sandy loam subsoils with about a twelve inch hardpan over the bedrock. Slopes are fifteen to thirty percent and the erosion hazard is moderate. Permeability is moderate to moderately slow. Many areas of the Triplet Gulch Project site have no topsoil as a result of severe disturbance by past placer mining.

4.6 VEGETATION

Vegetation of the project area is typical of that expected in the cool Great Basin desert shrub steppe. Vegetation on slopes that have a good development of soil over bedrock consists of Wyoming big sagebrush, rabbitbrush, Sandberg bluegrass and bottlebrush squirrel tail grass, along with a variety of forbs such as Indian Paintbrush and several annual species. In areas of topographic low, or where soils are underlain by hardpan, vegetation consists of the more saline-tolerant shadscale, along with bud sagebrush, rabbitbrush and bottlebrush squirrel tail.

4.7 RANGE RESOURCES

The project site is within the BLM's Carico Lake Grazing Allotment. The primary grazing allotments within the project area are to the "C" Ranches and to the Dean Ranch, both owned by John Filipini. Range

resources on the project site (the eastern half of Section 17 and Section 16) have a carrying capacity of 16 acres per animal unit month (AUM).

4.8 WILDLIFE RESOURCES

Wildlife at the project site consists of a variety of small mammals and songbirds typical of those species that would be expected to occur in the Great Basin desert shrub sagebrush habitats. Consultation with the BLM and with the regional representative of the Nevada Department of Wildlife indicate that the site does not contain any valuable game habitat or habitat for sensitive wildlife species. A sagegrouse strutting ground was observed in 1954 in Section 9. The grounds were re-visited in 1969 and no activity was recorded; no observations have been made since. Project activities at the Triplet Gulch site will not affect area in Section 9 except by traffic on the existing access road to the site.

4.9 THREATENED AND ENDANGERED SPECIES

Based on discussions with and a file search by the Nevada Natural Heritage data base program, and a review of the literature, no threatened or endangered plant or animal species would be expected to occur in the general region of the project site.

4.10 WATER RESOURCES

There are no perennial streams on the project site and no surface waters within approximately 5 miles of the project area. The drainage area immediately above the site of the proposed pit and leach pad is very limited. Little overland flow would be expected on the project site except briefly during periods of high intensity rainstorms or rapid snowmelt.

Drainage from the project area and above is to a wash southwest of the proposed leach pad area and eventually to the center of Crescent Valley via several intermittent drainages.

Based on information from drill holes in the area and on the depth to water in an existing well on site, the water table is at depths below 300 feet. Groundwater is apparently non-potable and appears to be cold, oxidized geothermal water (Nevada Division of Environmental Protection Water Quality Permit NEV60035 Fact Sheet for the adjacent Coral Resources Robertson Leach Project). A U.S. Geological Survey well was drilled in the center of Section 16 on the project site to a depth of about 1200 feet. Water was encountered at 315 feet.

4.11 VISUAL RESOURCES

The project site is located in an area that has been extensively disturbed by past exploration and mining activities since about the turn of the century. Within the project area there are several roads, two extensive areas of excavation for placer mining, several mine shafts and adits and many prospect pits and holes. The landscape characteristics consist of gently sloping hills and alluvial fans covered by a low growth of sagebrush and grasses.

The project site is within a U.S. Bureau of Land Management Class IV visual management class. The BLM's visual management system rates areas on the quality of the existing visual environment, relative to its ability to accommodate man-made changes. The ratings are from Class I to Class IV, with Class I areas being the most scenic and protected visual resources, and Class IV the least protected. Management objectives for a Class IV area allow for major modifications of the existing landscape, with man-made activities being allowed to dominate the landscape.

4.12 CULTURAL RESOURCES

Mining activity has occurred in the project area vicinity since about 1905. The area has been extensively disturbed by past drilling, roads, placer excavation, mine waste dumps, mine shafts and adits. A cultural resources inventory of the site was completed June 20, 1988, by Frank Johnson, a BLM-approved archaeological consultant. No archaeological sites or cultural resources older than 50 years were located. The report is included as Appendix B.

4.13 SOCIO-ECONOMICS

The project site is situated such that it may attract workers from parts of three counties, Lander, Eureka and Elko. The site is about a hour's commute (one way) from the towns of Battle Mountain, Elko, Carlin and Austin. The small population of Crescent Valley and Beowawe may also be a potential source of project labor. According to the Nevada Employment Security Department, the 1987 annual average unemployment rate for Lander County was 6.4%, for Elko County, 6.4% and for Eureka County, 2.6%; the March 1988 employment rate for Lander County was 6.3%, for Elko County 5.1%, and for Eureka County 2.6%.

Based on statistics from the Nevada Office of Community Services, the Elko County population in 1987 was about 25,000, up 45% from its 1980 population of 17,269. Lander County grew 12% from 4,076 in 1980 to 4,580 in 1987. Eureka County's population in 1987 was 1,950, an increase of 62% from the 1980 population of 1,190. The large increases in population are primarily a result of increased employment opportunities related to the mining boom that the area has been experiencing. A large portion of the in-migrating population is from other western states. Housing in all of the communities in the project vicinity is extremely tight.

The nearest large community to the project site is Battle Mountain. Battle Mountain has three elementary schools, a junior high school and a high school, and the closest hospital to the site. Law enforcement on the project site, which is located in Lander County, would come from the Lander County Sheriff's Office, with headquarters in Battle Mountain. A Eureka County Sheriff's deputy is permanently stationed at Crescent Valley, about 10 miles from the project site. Fire-fighting services on the project site would be provided by the BLM; a volunteer fire department exists at Crescent Valley.

5.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATING MEASURES

5.1 AIR RESOURCES

Project construction and operation will result in the release of total suspended particulates, mainly as fugitive dust, and exhaust emissions from heavy equipment operation and vehicular traffic. It is not anticipated that project emissions will significantly affect air quality within the Crescent Valley Air Quality Region. Coral Resources is currently applying for a Permit for Surface Disturbance and an Air Quality Registration Permit to Construct from the Nevada Division of Environmental Protection.

Mitigation of effects on air quality from release of particulates will be achieved by controlling release of fugitive dust. Dust caused by mining traffic on the access and haul roads will be mitigated by surfacing the roads with gravel and by regular watering, as necessary. Particulate releases at the crushing facility will be controlled by water spray bars and/or by other appropriate dust suppressant methods. Addition of water to the ore during agglomeration will aid in controlling particulate release during later placement of ore on the heap.

5.2 SOILS

Project construction and clearing of the open pit will disturb a total of 129 acres, of which approximately a quarter has little or no soil covering, as a result of past mining disturbance. Project operations may result in a minor, short-term increase in soil erosion which will be mitigated by construction of runoff diversion structures and by timely reclamation.

To protect the mine site, waste dump and leach pad areas from erosion, diversion ditches will be constructed upslope to drain runoff around these areas. The ditches will be left to protect the reclaimed areas.

Any available topsoil in areas to be disturbed will be stripped and stored in stockpiles that will be re-seeded with the BLM-recommended seed mixture in Table 4 at the recommended rate. As part of the final reclamation, the waste rock dump and heap will have the sides constructed or re-contoured to 2:1 slopes or flatter, to reduce erosion potential. All areas to be revegetated will be graded to a final slope not steeper than 2:1 prior to preparation for re-seeding. As much as practical, topsoil will be spread to a depth of 6 inches prior to planting in the fall.

5.3 VEGETATION

All existing vegetation will be removed from the areas to be disturbed by the pit, the waste rock dump, the ore processing and leaching facilities and the administrative areas, a total of about 129 acres. As much as possible, vegetation cover will be re-established in these areas following project closure. Revegetation techniques and the BLM-recommended seed mixture and application rates may be found in Chapter 3.

5.4 RANGE RESOURCES

Approximately 125 acres will be fenced and unavailable to livestock during project construction, operation and reclamation (approximately three to four years). The carrying capacity of the project site is estimated to be approximately 16 acres per animal unit month (AUM); thus project operations will displace about 8 AUM annually for three to four years. Following reclamation, all but the 25 acres occupied by the open pit will become available to livestock. The open pit will represent a permanent loss of about 1.5 AUMs of grazing capacity. These grazing losses are not considered to be significant, considering the amount of surrounding land available within the grazing allotment.

5.5 WILDLIFE RESOURCES

Project operation will cause temporary displacement of some species of wildlife as a result of human activity and presence, and will result in a loss of some wildlife habitat as a result of land clearing. Impacts to wildlife are not expected to be significant. Because of past mining disturbances and lack of perennial water nearby, the project site does not constitute good wildlife habitat. No important habitat for game species or sensitive wildlife occurs on the project site. An area just northeast of the project area, in Section 9, was identified as a historic sage grouse strutting area, although no recent strutting activity has been observed. Project operations will not disturb any of this area and vehicle traffic through Section 9 to the project site will be restricted to an existing access road.

Fences will be constructed around the solution ponds to preclude access by wildlife to any open cyanide-containing waters. The fences are described in Section 2.8 and will meet Nevada Department of Wildlife Specifications. Because the site is not near any major waterfowl use areas and because of the small size of the solution ponds, it is not expected that waterfowl will be attracted to the ponds. The ponds and the surrounding fences are designed so that netting could be added later in the event that waterfowl mortality is recorded.

5.6 THREATENED AND ENDANGERED SPECIES

No known threatened or endangered species occur in the project area; no impacts are anticipated.

5.7 WATER RESOURCES

Project construction and operation will not affect surface waters or groundwater. There is no perenial surface water within about 5 miles of the project site; the groundwater table is at depths below 300 feet. Diversion structures will be constructed around the pit and waste rock area and the leach pad to channel water away from surface disturbances. This will minimize erosion and increased sediment load to downstream areas. The facility is designed as, and will be operated as, a Zero Discharge facility, with no releases to surface waters or to groundwater. The leach pad will have a liner of synthetic geomembrane; the solution ponds will be double-lined with leak detection/recovery systems; the carbon absorption recovery facility will be surrounded by berms to contain any fugitive solutions. The design of the leach pad, solution ponds and processing facility will be submitted to the Nevada Division of Environmental Quality upon application for the Zero Discharge Permit.

5.8 VISUAL RESOURCES

The impact on visual resources will be minimal. The project site is within a BLM Class IV visual management class, for which management objectives allow for major modification of the existing landscape. The project area has already been extensively disturbed by previous mining activity during which roads, placer excavations, waste dumps and several mine shafts and adits were created. The additional of a leach pad, a new open pit and waste rock dump will not be inconsistent. Reclamation efforts will recontour disturbed areas as much as practical to fit with the surrounding landscape, and disturbed areas will be revegetated.

5.9 CULTURAL RESOURCES

There will be no impacts to cultural/archaeological resources. All areas to be disturbed by project activities were surveyed in June 1988 by a BLM-approved archaeologic consultant, Mr. Frank Johnson. No archaeological sites or cultural resources older than 50 years of age were located. No mitigation of impacts or avoidance of any areas were recommended. The report is included as Appendix B.

5.10 SOCIOECONOMIC EFFECTS

The peak labor force during project activities will consist of approximately 20 to 25 people. These workers will probably come from the surrounding communities of Battle Mountain, Carlin, Elko, and possibly Austin--all within an hour's commute (one way) of the project site. The surrounding small population center at Beowawe/Crescent Valley may also be a source of workers. Housing is extremely tight in the entire region, as a result of the current mining boom. However, the combination of the small labor force projected for this project and the number of potential communities on which the project will draw on for labor should minimize socioeconomic impacts on any one community. The project operators will encourage carpooling as much as possible.

6.0 CONSULTATION

The following agencies and individuals were consulted during preparation of this Plan of Operations for the Triplet Gulch Project.

Bureau of Land Management, Battle Mountain District Office:

Ahmed Mohson
Byrd Kershaw
Joe Lowe
Nancy Clifton
Gary Foulkes

Nevada Heritage Program Natural Data Base:

Terri Knight

Nevada Division of Environmental Protection:

John West, Solid Waste
Air Quality, Janice Ferguson
Water Quality, Harry van Drielen
Hazardous Waste, Tom Fernopfel

Nevada Division; Consumers Health Protection Services:

Sanitary Waste, Allen Tinney

Nevada Office of Community Services

Planning Office/State Clearinghouse, John Walker

Lander County:

Lander County Clerk, Judy Negro
Lander County Commissioner, George Schwinn

National Weather Service Data Center

Coral Resources, Robert Forest

APPENDIX A

CLAIMS COVERED BY TRIPLET GULCH PROJECT

CLAIMS COVERED BY TRIPLET GULCH PROJECT

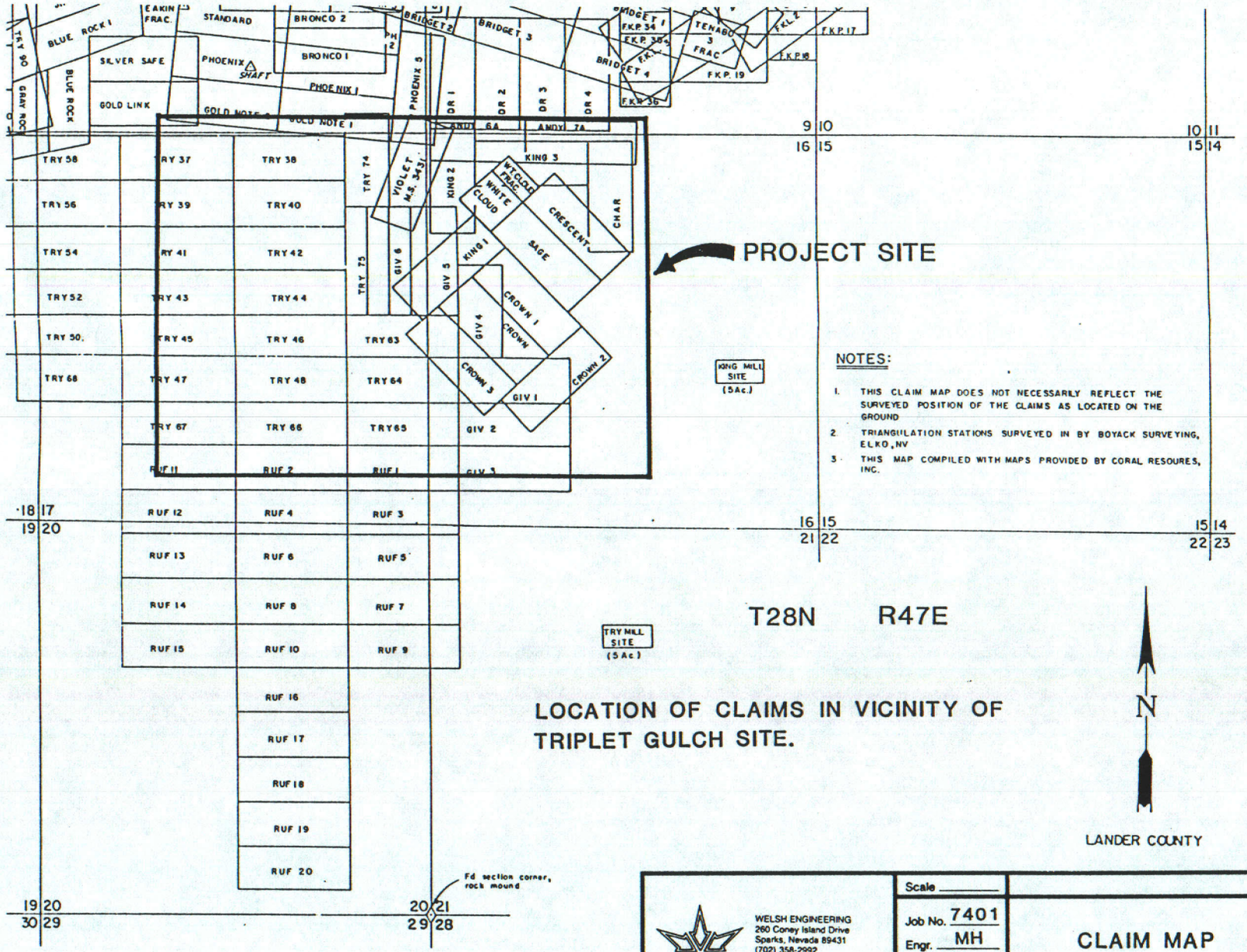
Claim Name	BLM Serial No.
Ruf 1	108404 LD
Ruf 2	108405 LD
Ruf 3	108406 LD
Ruf 4	108407 LD
Ruf 11	108414 LD
Ruf 12	108415 LD
Giv 1	108476 LD
Giv 2	108477 LD
Giv 3	108478 LD
Giv 4	108479 LD
Giv 5	108480 LD
Giv 6	120965 LD
Crown	108398 LD
Crown 1	108399 LD
Crown 2	108396 LD
Crown 3	108397 LD
Crescent	108400 LD
Sage	108401 LD
Char	108452 LD
White Cloud	108402 LD
King 2	2681 LD
King 3	2682 LD
Andy 6A	185340 LD
Andy 7A	185341 LD
DR 1	108392 LD
DR 2	108393 LD
DR 3	108394 LD
DR 4	108395 LD
Phoenix	108381 LD
Phoenix 1	108385 LD
Phoenix 2	108386 LD
Phoenix 3	108387 LD
Phoenix 4	108388 LD
Phoenix 5	108389 LD
Gold Note 1A	245899 LD
Gold Note 2A	245900 LD
Gold Link	121036 LD
Try 37	2721 LD
Try 38	2722 LD
Try 39	2723 LD
Try 40	2720 LD
Try 41	2719 LD
Try 42	2718 LD
Try 43	2717 LD
Try 44	2716 LD
Try 45	2715 LD
Try 46	2714 LD
Try 47	2713 LD

CLAIMS COVERED BY TRIPLET GULCH PROJECT CONT.

Claim Name	BLM Serial No.
Try 48	2712 LD
Try 50	2710 LD
Try 52	2708 LD
Try 54	2706 LD
Try 56	2704 LD
Try 58	2702 LD
Try 63	2701 LD
Try 64	2700 LD
Try 65	2699 LD
Try 66	2698 LD
Try 67	2697 LD
Try 74	2694 LD
Try 75	2693 LD
Violet Patented	3431 LD

NOTE: In all the above claims, the type is LODE.

118297



NOTES:

1. THIS CLAIM MAP DOES NOT NECESSARILY REFLECT THE SURVEYED POSITION OF THE CLAIMS AS LOCATED ON THE GROUND
2. TRIANGULATION STATIONS SURVEYED IN BY BOYACK SURVEYING, ELKO, NV
3. THIS MAP COMPILED WITH MAPS PROVIDED BY CORAL RESOURES, INC.

LOCATION OF CLAIMS IN VICINITY OF TRIPLET GULCH SITE.

WELSH ENGINEERING
260 Coney Island Drive
Sparks, Nevada 89431
(702) 358-2992

Scale _____

Job No. 7401
Engr. MH
Date 6/2/88

CLAIM MAP

DRAWING FIG A-1

APPENDIX B

CULTURAL RESOURCES SURVEY

FRANK W. JOHNSON
Archaeological Consultant

Specializing in cultural resource surveys for mineral, oil and gas exploration.

A CULTURAL RESOURCES SURVEY OF THE TRIPLET GULCH PROJECT IN LANDER COUNTY, NEVADA for WELSH ENGINEERING, INC. (FWJ Project #119)

BLM CRR 6-1137(N)

CR Use Permit No. N-42786
Nevada Antiquities Permit No. 272

Submitted to: Ms. Kathleen Oakes
Environmental Specialist
Welsh Engineering, Inc.
260 Coney Island Drive
Sparks, Nevada 89431

Prepared by: Frank W. Johnson
Frank W. Johnson, Principle Investigator

June 20, 1988

NOTE: This report has not been reviewed by the BLM and may be superseded by an amended version!

Post Office Box 1626, Crystal Bay, Nevada 89402 Telephone (916) 546-4041

ABSTRACT

In June of 1988 a Class III archaeological reconnaissance of approximately 124 acres (including 1.5 miles of haul road) and approximately 3.5 miles of access roads was conducted by Frank W. Johnson (FWJ Project #119) at the Triplet Gulch Project in Lander County, Nevada. The project is located about 10 miles SSW of the town of Crescent Valley in the foothills of the Shoshone Range. The survey was done on behalf of Welsh Engineering for Coral Resources. No archaeological sites or cultural resources exceeding 50 years old were found. It is recommended that no mitigation of proposed impacts or avoidance of areas within the study area be required.

Areal/Intensity Data:

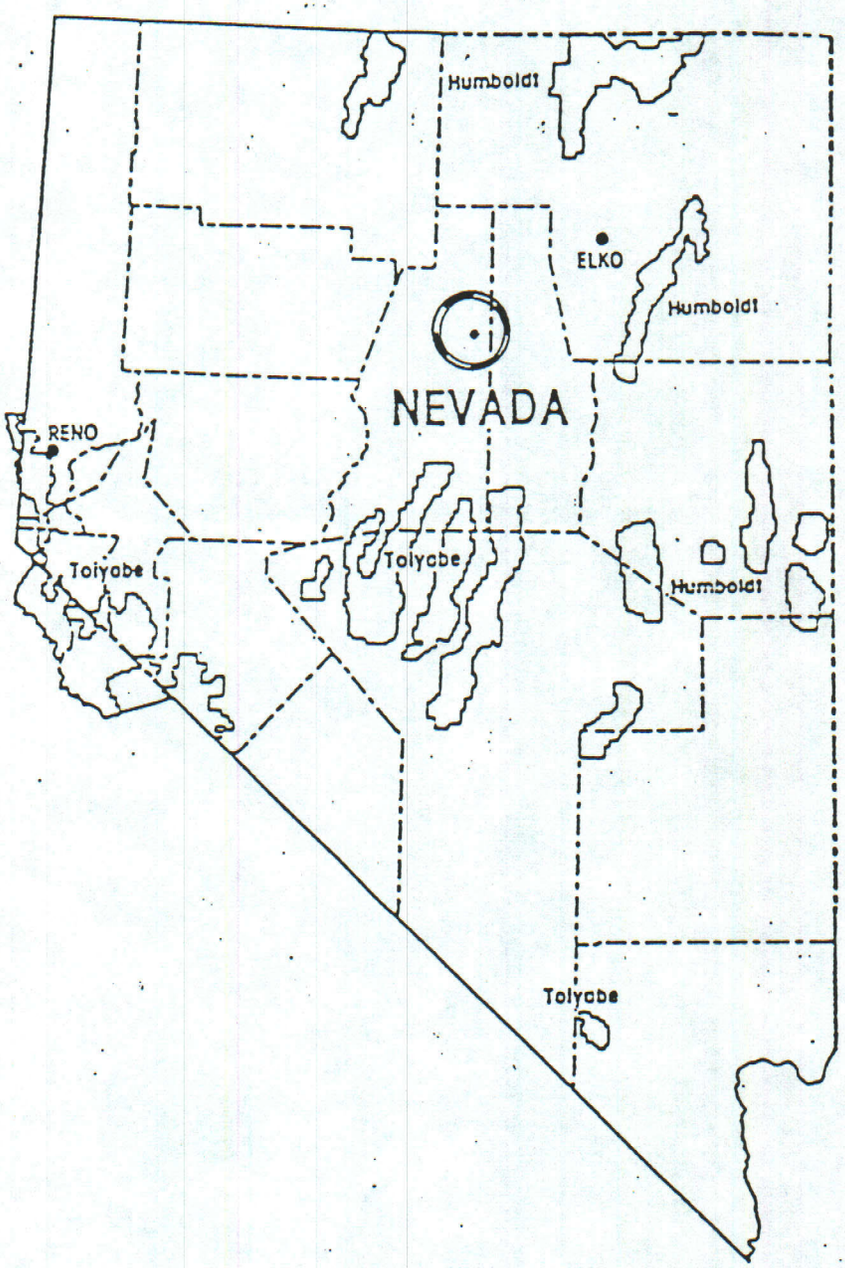
*Project Area: approximately 166 acres/67 hectares
Area surveyed: approximately 116 acres/47 hectares (Class III)
approximately 50 acres/20 hectares (Class II)

Transect Interval/No./Type:

Access roads: NA/1/Class III
Mining area: 30m/NA/Class III
Disturbed: 60m/c. 6/Class II

*Includes access roads, 30m wide transect x 3.5 miles = 42 ac.
(Mining area in Triplet Gulch = 124 acres)

STATE - PROJECT LOCATION MAP



Triplet Gulch Project
BLM CRR 6-1137(P)
FWJ Project #119
June, 1988

PROJECT OVERVIEW

Triplet Gulch - View Southeast

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MAPS

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Cultural Resources Short Report BLM CRR # 6-1137(N)

Dates of Field Operation: June 7 and 10, 1988.

Project Personnel: Frank Johnson, Principle Investigator; Susan Woodin, Field Archaeologist.

Project Name, Description/Potential Impacts: Open pit mining for extraction of gold ore at the Triplet Gulch site is proposed by Coral Resources, Inc. Impacts to the approximately 124 acre site will include an open pit, cyanide heap leaching, waste rock dump, ore crushing/processing plant, topsoil stockpiles, leach pad, solution ponds, recovery plant and associated offices, warehouses and storage areas. In addition, approximately 3.5 miles of existing dirt roads will be widened for use as access.

The project area has been severely disturbed by previous mining activity, much of which has occurred during the present century. The area was placer mined in the 1970s and numerous prospect pits, adits, waste dumps and a network of dirt roads are present resulting in nearly half the area being extensively disturbed.

District Office: Battle Mountain

County and State: Lander County, Nevada

Land Status: All lands administered by BLM (except one patented lode claim).

Legal Description: Most of the proposed impacts will be located in the E½ of Section 17 and the W½ of Section 16; portions of access roads extend into portions of SW¼ Section 8, NW¼ Section 17 and SW¼ Section 9; Township 28 N, Range 47 E.

Relationship to Cadastral Markers: None located during field survey.

PROJECT VICINITY MAP

AMS, Winnemucca, Nev.
1:250,000, 1955

Triplet Gulch Project
BLM CRR 6-1137(N)
FWJ Project #119
June, 1988

Relationship to Other Permanent Features: The project is situated on the lower eastern slopes of the Shoshone Range overlooking Crescent Valley. Access may be gained via paved State Route 306 proceeding south from the town of Crescent Valley for 8.3 miles and turning right (west) onto a dirt road. The historic remains of the townsite of Tenabo are reached in 1.5 miles and, rounding a curve to the south, the mine offices are 1 mile farther. Triplet Gulch is located about ½ mile to the south and immediately to the SW of the prominent Altenburg Hill.

Map References: AMS, Winnemucca, Nev., 1:250,000, 1955 (rev. 1971)
USGS, Tenabo, Nevada, 7.5', prov. ed. 1985

Purpose of Survey: The purpose of this archaeological survey is the inventory and evaluation of prehistoric and historic cultural resources located within the project area. This work was undertaken in compliance with Executive Order 11953 and the National Historic Preservation Act of 1966, as implemented in 36 CFR 800.

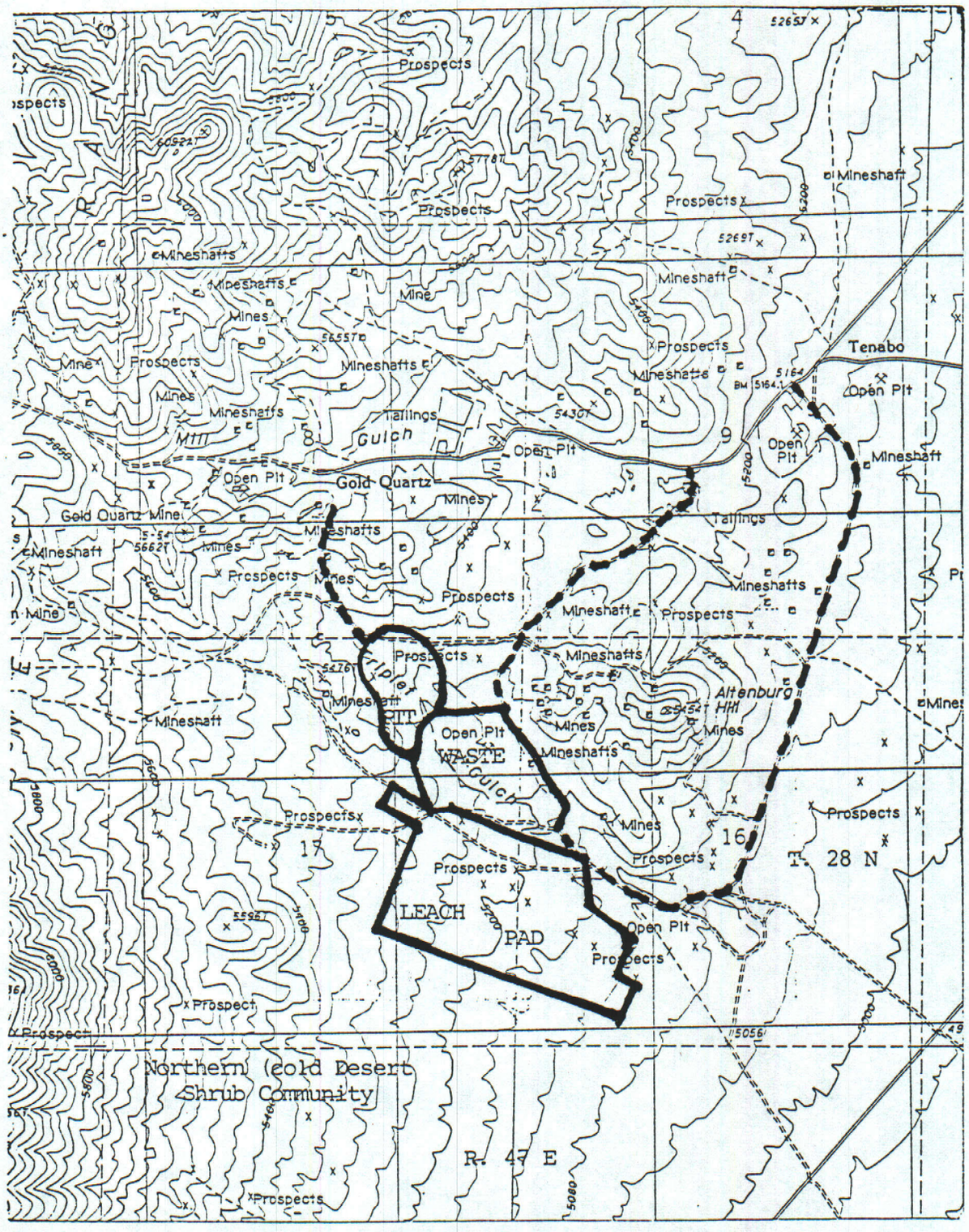
Consultations/Existing Data Review: Prior to the commencement of the field survey, archival and background research was conducted on June 7 at the Battle Mountain District Office of the BLM. With the assistance of District Archaeologists Roberta McGonagle and Gary Foulkes, previous Cultural Resource Reports, site records and map plots were consulted. The BLM was notified of the negative results of the survey by telephone.

Nevada entries in the National Register of Historic Places were checked and no properties in or near the Triplet Gulch project were found. (USDI 1979-1988).

Prehistory: A search of the Battle Mountain District BLM files revealed the following projects conducted and sites recorded in the immediate vicinity of the current study area.

CRR 6-142(N); IMR/Calloway/1978; seismic line.

PROJECT LOCATION MAP



USGS, Tenabo, Nevada
7.5', Prov. Ed. 1985

= Access Road

Triplet Gulch Project
BLM CRR 6-1137(N)
FWJ Project #119
June, 1988

Prehistory: (cont.)

CRR 6-373(P); Northland/Schock/1981; seismic line.
CrNV-06-2809; isolate, non-diagnostic white chert projectile point fragment. (Also, flake scatter, no tools or diagnostics, field #1-2).

CRR 6-492(P); NDOT/Petersen/1983; material pit.
CrNV-62-3180; historic mining site; intact buildings, outhouse, collapsed mill site, minor structures, debris. (26LA1662).
CrNV-62-3181; isolate, biface tip, white chert. (26LA1663)
CrNV-62-3182; isolate; chert proj. pt. base. Collected. (26LA1664).
CrNV-62-3183; isolate chert proj. pt. midsection; poss. Humboldt? (26LA1665).
26LA69; previously recorded; historic mining camp.
26LA70; " " ; Tenabo, hist. mining camp.

CRR 6-900(P); FWJ/Johnson/1985; seismic line.
CrNV-62-4142; light lithic scatter; biface tip, chert, chalcedony, basalt flakes.
CrNV-62-4143; isolate obsidian flake.
CrNV-62-4144; historic, solder seam cans.
CrNV-62-4145; historic isolate; square tin can w/ soldered side seams.
CrNV-62-4146; historic trash scatter w/ purple, amber, clear glass, milled lumber, wire, semi-porcelain bowls plates, tin; assoc. w/ 2 pits.

CRR 6-908(N); BLM/Clifton/1985; Caldwell tank pipeline.

The following four (4) historic sites in the area are Class 1:
CrNV-06-461; Lander, oldest camp in Bullion District founded in early 1870s.
CrNV-06-462; historic site of Tenabo.

CrNV-06-463; historic site, Gold Acres.
CrNV-06-2125; historic site of Bullion.

Ethnography: The current study area is within the area of the Western Shoshoni. Although Steward shows no villages located in Crescent Valley, lifeways and subsistence activities of the Shoshoni are discussed. Plant harvesting was the main subsistence activity, game being rather scarce. For much of the year families traveled alone or in small groups harvesting large areas. The most permanent association of families was at winter encampments. After the arrival of the white man, the horse became a major economic factor as it greatly increased their mobility. (Steward, p. 232, 1938). Other sources, however, do not support this point of view as the Western Shoshoni are referred to as "nonequestrian". (D'Azevedo, p. 279, 1986).

History: Mining has been the most important theme in the area and the Bullion District was discovered in the early 1870s. The historic town of Lander is located about two miles to the northwest and was a small but active camp through the 1880s. Stone buildings and dugouts remain. Tenabo was founded after silver was discovered in 1907 and supported a population of 1000 people. A few wooden buildings are left. To the southwest, Gold Acres was developed in 1936 and produced about $250,000 worth of gold by 1942. On the opposite side of Crescent Valley, Mill Canyon erected an eight stamp mill to process gold ore in 1864. In the same area, to the south of Mt. Tenabo (Indian for "Lookout Mountain"), lies Cortez. Originally an Indian turquoise mine, Cortez has been actively producing gold and silver since the early 1860s. Machinery for a mill was brought from California by bull team in 1864 by Simeon Wenban, "patriarch" of Cortez who became partners with George Hearst, father of the newspaper tycoon. (Paher 1970).

Vegetation Zones: The Triplet Gulch area supports a cold desert shrub community dominated in most areas by sagebrush. In shallower soils, especially in the lower parts of the project to the south-

east, more xeric plants, such as shadscale are found. Following is a list of plants identified in the field:

Sagebrush (Artemisia spp.), bud sage (A. spinescens), felt thorn (Tetradymia sp.), bean plant (Streptanthella longirostris), twist leaf rabbitbrush (Chrysothamnus viscidiflorus), spiny hopsage (Grayia spinosa), milkvetch (Astragalus spp.), buckwheat (Eriogonum sp.), shadscale (Atriplex canescens), ephedra (Ephedra sp.), cheat grass (Bromus tectorum), rice grass (Oryzopsis hymenoides), peppergrass (Lepidium perfoliatum), indian paintbrush (Castilleja sp.), yellow mustard (Brassica campestris), desert plume (Stanleya pinnata), sego lily (Calochortus nuttallii) and Great Basin rye grass (Elymus cinereus).

A few animals were seen during the field survey: black tailed jackrabbit (Lepus californicus), raven (Corvus corax), nighthawk (Chordeiles minor), mourning dove (Zenaidura macroura), meadowlark (Sturnella neglecta), leopard lizard (Crotaphytus wizlizeni) and aligator lizard (Gerrhonotus multicarinatus).

Soils/Topography: The project site is located in the lower foothills of the Shoshone Range overlooking Crescent Valley to the east. Slight to moderate slopes (5 - 25 degrees) are found along Triplet Gulch with a general aspect to the southeast. The project area is bounded to the north by a series of ridges and hills terminating at the prominent conical shaped Altenburg Hill. The southern side of the gulch is formed by low, rounded hills. Elevations range from about 5360' near the top of the pit area to about 5080' at the southern end of the proposed leach pad.

Soils are characterized in the Plan of Operations (Welsh 1988) as ranging in depth "from 10 to 20 inches over bedrock on most slopes and up to twenty to forty inches on some north facing slopes. Surface soils are composed of gravelly loams. About half the soils have subsoils that are cobbly and gravelly clay loams. The other

half have gravelly and sandy loam subsoils with about a twelve inch hardpan over bedrock."

Geology of the area is treated in detail in the Nevada Bureau of Mines and Geology bulletin on Lander County (Stewart and McKee 1977).

Nearest Water: There are no perennial water sources in or near the project area. The nearest available water appears to be Indian Creek, located about three miles to the north.

Field Techniques: All areas of proposed direct impact (including access roads) received an intensive pedestrian survey according to proceedures outlined in Cultural Resources Survey: General Guidelines (BLM 1985). Starting at the north end of the pit area in the NE¼ of Section 17, two persons walked parallel transects not exceeding 30m (100') in width generally from SW to NE. This was continued the entire length of the project area to the southeastern end of the proposed leach pad. Intensity of coverage was somewhat reduced while traversing areas near the center of the project which had been severely disturbed by previous mining activity such as placer mining, etc., described earlier (p. 1). Entire length of access roads (c. 3.5 miles) was walked by one person.

Findings: No archaeological sites or cultural resources were encountered during the survey. A modern tin can dump and occasional bits of debris were noted near the waste dump area in Section 17. The easternmost access road passes through approximately 50m of sparse historic debris immediately south of the road by Tenabo. This material is so disturbed as to be almost unrecognizable and is all small bits and pieces of glass, tin, wood, etc. (See 26LA70).

National Register Recommendations: None.

Summary and Avoidance/Mitigation Recommendations: No cultural resources were found during the field reconnaissance therefore it is recommended that no avoidance/mitigation be required.

The techniques used in this survey were such that any cultural resources visible to surface examination should have been found. If, however, cultural resources are subsequently discovered that could be adversely affected by project related activities, the latter should cease immediately and the Battle Mountain District Manager or District Archaeologist should be immediately informed.

Areal/Intensity Data:

*Project Area: approximately 166 acres/67 hectares
Area Surveyed: approximately 116 acres/47 hectares (Class III)
approximately 50 acres/20 hectares (Class II)

Transect Interval/Type:

Access roads: NA/1/Class III
Mining area: 30m/NA/Class III
Disturbed: 60m/c. 6/Class II

*Includes access roads, 30m wide transect x 3.5 miles = 42 ac.
(Mining area in Triplet Gulch = 124 acres)

REFERENCES CITED

Bureau of Land Management

1985 Cultural Resources Survey: General Guidelines. Reno

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D'Azevedo, Warren L.

1986 Handbook of north american indians. Great Basin, Volume II. Smithsonian Institution, U.S. Government Printing Office, Washington, D.C.

Paher, Stanley W.

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U.S.D.I.

1983-1988 National listing of historic properties. Federal Register Vol. 48(26), Vol. 49(26), Vol. 50(43), Vol. 51(37), Vol. 52(17, 46 and 77), Vol. 53(100).

Welsh Engineering, Inc.

1988 draft Plan of operations for the proposed Triplet Gulch project, Lander County, Nevada. Sparks, Nevada.

FRANK W. JOHNSON
Archaeological Consultant

Specializing in cultural resource surveys for mineral, oil and gas exploration.

Mr. Gary Foulkes
Archaeologist
Battle Mountain District
Bureau of Land Management
P.O. Box 1420
Battle Mountain, NV 89230

June 19,1988

Dear Gary,

Cultural resources survey of the Triplet Gulch Project has been completed [BLM CRR 6-1137(N)]. As the report indicates, findings were negative, therefore, I recommend that no avoidance or mitigation of proposed impacts be required. I have enclosed the original report and two copies. Please let me know if you have any questions. Thanks again for your help.

Regards,

Frank

Frank W. Johnson

cc: Welsh Engineering

enclosures

Post Office Box 1626, Crystal Bay, Nevada 89402 Telephone (916) 546-4041

0830 0039

APPROXIMATE PIT LIMITS

CONTRACTOR STAGING AREA

AREA WASTE DUMP AREA
(General Location)

PROPOSED ACCESS ROAD

PROCESSING / CRUSHING AREA

50' HAUL ROAD

50' HAUL ROAD

50' HAUL ROAD

PROPOSED HEAP LEACH PAD

PROPOSED ROUTE OF ACCESS ROAD

PROPOSED ROUTE OF ACCESS ROAD

EXISTING U.S.G.S. WATER WELL

WATER TANKS

BARREN POND

PROPOSED LOCATION OF
WATER WELL

PROPOSED LOCATION OF WATER WELL (Off Map)
SE1/4, SE1/4, SEC 16, T28N, R47E

Shop & Warehouse

Process
Plant

Office

PREGNANT POND

9000N

8000N

7000N

6000N

6000E

7000E

8000E

9000E

10000E

12,000E

200 100 0 200

REVISIONS No.	DESCRIPTION	BY	CKD.	APPROVED	DATE

REVISIONS No.	DESCRIPTION	BY	CKD.	APPROVED	DATE

REFERENCES

DESIGNED		
DRAWN	LW	7-1-88
CHECKED		
APPROVED		
APPROVED		
APPROVED		

ENGINEER

PREPARED FOR:
CORAL RESOURCES

STATE APPROVAL

PREPARED BY:
WELSH
J.D. WELSH AND ASSOCIATES
260 CONEY ISLAND DR.
SPARKS, NEVADA 89431
(702) 358-2992

DATE TO FIELD

A	B	C

1	2	3	4	5	6	7	8	9

TITLE
TRIPLET GULCH PROJECT SITE
CONCEPTUAL PLAN

SCALE 1" = 200'

DRAWING No.
07401-C

REVISION