To: Tony Gallegos, Utah DOGM
From: Neil Simmons

UTU-73777
M/015/075

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DIV. OF OIL, GAS & MINING

SAN RAFAEL QUARRY
PLAN OF OPERATIONS

Prepared For:

Bureau of Land Management
Moab District, Price Office
Price, Utah

Prepared By:

United States Gypsum Company

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Attachment A: Approved MSHA Training Plan
Mapping : Map #1 USGS Big Bend Draw 1:24000
Map #2 San Rafael Quarry 1"=400'

BLM APPLICATION FORMAT

ut-060-38092-2
(August 1988)

(For BLM Use) Serial No._____

PLAN OF OPERATIONS

(For Operations Proposed Under the 43 CFR 3809 Regulations)

Operator Information:

Name	Address	Telephone Number
UNITED STATES GYPSUM CO. (CORPORATION)	125 SOUTH FRANKLIN CHICAGO, IL 60606	(312) 606-4000

Company Representative:

Name	Address	Telephone Number
Lee W. Taylor Plant Manager United States Gypsum Company	P.O. Box 570160 81 North State Sigurd, UT 84657	(801) 896-2401

Individual Completing Application:

Name	Address	Telephone Number
Brett T. Webster Quarry/Mill Manager United States Gypsum Company	P.O. Box 570160 81 North State Sigurd, UT 84657	(801) 896-2450

Claim Information:

Claim Name	UMC Serial Number	Type
GYP #2	336113	Placer
GYP #3	336114	Placer
GYP #5	336116	Placer
GYP #6	336117	Placer
GYP #8	336119	Placer
GYP #9	336120	Placer
GYP #11	336122	Placer
GYP #12	336123	Placer
GYP #13	336124	Placer
GYP #14	336125	Placer
GYP #15	359645	Placer
GYP #16	359646	Placer
GYP #17	359647	Placer
GYP #18	359648	Placer
GYP #19	359649	Placer

GYP #20	359650	Placer
GYP #21	359651	Placer

United States Gypsum Co. has a legal right to enter and conduct mining on the above claims. See attached Map #1 USGS Big Bend Draw Quadrangle for layout of mineral claims.

Location of Proposed Activity:

GYP #2 - NW 1/4 Sec 21 T23S R8E
GYP #3 - NE 1/4 Sec 21 T23S R8E

The project area is located on Public Land administered by the BLM, Moab District, Price Office. See attached Map #2 San Rafael Quarry Mining Area. The project area is located on the gently dipping western slope of the San Rafael Swell, a large, asymmetrical structural dome. The topography of this area has features of a shallow depression in relation to the surrounding terrain. The life of the project (LOP) is estimated to be a minimum of 30 years. Continued operations will be reviewed by USG and the BLM, Price Office prior to the end of the initial 30 year period.

Describe Existing Disturbance and Structures:

Prior disturbances in the project area include exploration trails and drill pads, two track trails, and off-highway vehicles (OHV) trails.

The exploration disturbances were created by United States Gypsum Company (USG) during exploration activities work in 1994 and 1996. The exploration activities were conducted under State of Utah, Division of Oil, Gas, and Mining Exploration (UDOGM) Notice E/015/066 and BLM Serial No. UTU-71056 Kimball Draw Drilling Program. The disturbances include core drill pads and access trails to each core drill hole location. The total disturbance from the exploration activities is currently listed at 7.9 acres. Reclamation has been performed on a large portion of the disturbed acreage. See attached Map #2 San Rafael Quarry Mining Area for details.

There are two-track trails located in the area. These trails appear to be caused by occasional four wheel drive enthusiasts. The two track trails exist to the north side and to the south side of the Kimball Draw area. The majority of these two track trails existed prior to any activities by USG. A small portion of these existing two track trails were utilized by USG for exploration purposes. The portions of the existing two track trails used by USG have been raked and reseeded as per the reclamation standards set forth in the BLM Serial No. UTU-71056 and UDOGM Exploration Notice E/015/066.

There are numerous occurrences of OHV disturbances in the general area of proposed mining. The OHV disturbances consist of individual tracks and more established OHV trails. All of the OHV disturbances appear to be caused by intermittent recreational users. The occurrence of the OHV disturbances are not limited to a specific area nor demonstrate a pattern such as an area touring trail.

Mining Area Geology:

The project area is located on the Colorado Plateau in central Utah and contains a gypsum deposit within the Jurassic Carmel Formation. The gypsum beds are exposed in some areas and covered by overburden in other areas. Overburden consists of weathered claystone of the Carmel and Entrada Formations. Two main gypsum beds are separated by an interbed of shale and limestone. In the areas that overburden is present, the thickness of the overburden varies. The overburden thickness is varies from being absent to more than 10 feet.

Description of Proposed Operations:

The mining of the gypsum deposit will begin with the removal of the topsoil. The topsoil will be segregated and stockpiled for use during reclamation. This step will be accomplished by the utilization of a bulldozer and rubber-tired loader/backhoe machines. Overburden will be placed in stockpiles for use during reclamation. A stockpile will be constructed along the western edge of the proposed mining area. The stockpile will be oriented in a northeasterly to southwesterly direction to act as a screening berm and insure that the mining activities are screened from immediate view at the observation point on Interstate 70.

The gypsum will be extracted initially by conventional drilling and blasting techniques. Drilling will be by a track-mounted, mobile blasthole drill. The pneumatic rotary-percussion drill will complete a predetermined pattern of 3.0 - 3.5 inch blastholes. Cuttings from every other blasthole will be sampled for analysis of gypsum quality. Blasting of the in place gypsum will be done in accordance with all MSHA, BATF, state and local regulations. The broken gypsum will be left in-place in the pit until it is loaded in over the highway haulage trucks. USG conducts annual training of all personnel involved in the transportation and handling of explosive material as per MSHA requirements.

Blasting components will consist of, but not be limited to, the following:

- ICI "HandiDet" non-electric surface and in-hole delay detonators;
- ICI "Magnum 65" detonator sensitive emulsion primer;
- ICI "Excel HTD" non-electric surface delay assembly;
- Ammonium nitrate/fuel oil (ANFO) prills;
- Safety fuse.

Each blasthole will be stemmed with cuttings and surface material to minimize flyrock and blasting noise. The design of the blasting round, including materials, depth, and spacing of holes, will be done in accordance with industry practices to minimize flyrock and noise. USG will utilize a certified seismograph to monitor and record blast events for noise and vibration levels.

Initial mining production tonnages will not necessitate the requirement of storing any blasting components onsite. Any changes to this will be approved by the BLM, Price Office prior to implementing.

USG may elect to use a surface mining machine (surface profiler) in addition to, or to replace, the drilling and blasting operations to recover the gypsum. The surface mining machine will cut the exposed gypsum to a depth of 18 inches in a path approximately 96 inches wide. The cut gypsum will then be pushed up with a bulldozer or a rubber-tired front end loader into a stockpile for future loading into the contracted over-the-road haulage trucks.

The gypsum rock stockpiles will be left in place for the transportation phase of the mining operation. Stockpiling of gypsum will be done in a manner to minimize the color contrasts when viewing the terrain from the observation point on Interstate 70. The transportation of the broken gypsum to USG's plant location in Sigurd, Utah will involve the use of contracted truck haulage. The contracted haulage trucks will enter to the project area via Interstate 70 and a graveled access road from Exit 105 of Interstate 70. The trucks will be loaded from the stockpiles of broken gypsum with a rubber-tired loader.

Production of PC (Portland Cement) Rock from the gypsum deposit will require the use of a portable crushing system. The portable crushing system is self contained, highway legal, trailer mounted crushing system. The portable system will be set up on-site and used to process the broken gypsum to the product sizing specifications. The sized product will be conveyed to either a stockpile or portable storage bin. The loaded highway haulage trucks hauling PC rock will be weighed to ensure legal gross weight for traveling on highways. While routine maintenance of the sizing equipment would be performed on-site, major repairs/rebuilds of the sizing system will involve the equipment to be transported to the Sigurd Plant location when possible.

Equipment Requirements:

The equipment necessary to perform the above mining activities will consist of the following types: tracked type bulldozer, rubber-tired loader/backhoes, surface mining machine, portable crushing system, tracked-type mobile drill, highway haulage trucks, and four wheel drive vehicles. Other equipment will be necessary for the production of PC rock. The mobile quarrying and crushing/screening equipment will be transported to the USG, Sigurd, UT plant during significant periods of inactivity during the initial low-production phase of the quarrying.

On-site fueling and lubrication of the equipment will be performed by a service pickup truck. As production levels increase, a storage system within a containment system, such as double walled vessels, may be located on-site. The containment system will comply with the permeability rate and containment standards of this type of storage system. Routine and preventative maintenance will be performed onsite by USG personnel using a mechanic's service truck. Major repairs/rebuilds of the equipment will be done at the Sigurd Plant location facilities when possible. USG will provide either a portable toilet or a portable trailer on-site for personnel sanitary purposes. The waste from either of these will be collected and properly disposed at an approved facility. The following list shows the possible equipment types and quantities for the life of the project.

Task	Equipment	Activity/Operation
Access Road Construction		
	1 or 2 bulldozers	Dozing and grading
	1 or 2 rubber-tired loaders	Loading cut and fill material
	1 motorgrader	Grading
	1 roller	Surface compaction
	1 or 2 backhoes	Excavating cuts and ditches
	Haul trucks	Hauling cut and fill, road base, and road surfacing material
	1 water truck	Dust suppression
	1 or more pickups and service trucks	Transportation and equipment maintenance
Mining		
	1 bulldozer	Topsoil and overburden removal and stockpiling
	1 tracked type mobile drill	Drilling blast holes
	1 or 2 rubber-tired loaders	Loading and stockpiling
	Highway haulage trucks	Transporting gypsum rock
	Portable crushing/screening	Crushing/sizing fractured rock
	Conveyor	Crushing/sizing system
	Water storage tank	Dust suppression water storage
	1 or 2 portable trailers	Office, change room, sanitary, and lunch room facilities
	Surface mining machine	Cutting gypsum in situ
	Storage bins	Loading of PC rock into truck for transport
	Truck scale	Weighing of loaded PC rock trucks
Reclamation		
	1 bulldozer with attachments	Surface grading, contouring, and ripping
	1 or 2 rubber-tired loaders	Loading topsoil and overburden
	1 rubber-tired tractor with attachments	Surface discing, seeding, and mulching

Due to ongoing changes and developments in mining equipment design and efficiency, USG may change or substitute within the above equipment list. BLM, Price Office will be consulted prior to changing or substituting equipment from the above list.

Mine Site Access:

Access to the project area will be from Exit 105 on Interstate 70. Use of the exit and entrance ramps will allow the mining traffic to safely exit and merge with Interstate 70 traffic. An established Emery County "Class D" road proceeds in a southerly direction from Exit 105. Another established road branches off to the south from this route and terminates at a gravel pit established by the Utah Department of Transportation in Section 7 Township 23 South, Range 8 East. From this point, USG will construct a gravel access road into the northwest corner of the "GYP #2" mineral claim (see Map #1). Construction of the gravel access road and improvements to the existing roads will be done under the standards set forth by BLM and Emery County. A professional engineering firm will be retained to perform the surveying and design of the road construction as per the standards. See Page 2-14 of UT-066-97-7 Environmental Assessment for a typical cross section illustration of the road construction design. The road construction will follow the terrain contours, as much as possible, to minimize cut and fills. Measures will be taken to attempt blending the road surface color with the color of the surrounding terrain. During construction, a dust suppressant will be applied to the travel surface to minimize dust from the road traffic. Ground disturbance caused during the access road construction will be included within the reclamation plan and bonding. Disturbances along the sides of the access road that are not necessary for the operation of the access road will be reclaimed as soon as possible after road construction.

Stormwater runoff and erosion control will be a part of the road design by the professional engineering firm. Measures will be taken to minimize additional erosion of the surrounding terrain from precipitation runoff. Measures would include placement of materials such as rock or certified weed free straw to minimize possible erosion due to water runoff flow. Culverts will be installed in established drainages to minimize the existing drainage flows. USG will commit to monitoring the amount of erosion caused by runoff through the drainages. After the occurrence of significant precipitation, USG personnel will conduct an inspection of the area and document the findings for BLM review and recommendations.

Estimated Production Volumes:

Gypsum production from the project area will begin at approximately 12,000 tons production and incrementally rise over 5 years to approximately 50,000 tons production each year. These production tonnages will be used to supplement and extend existing reserves at the Sigurd, Utah plant location. The gypsum currently being processed at this location is used for the manufacturing of wallboard and other gypsum based products. If market conditions permit and the gypsum deposit remains of sufficient quality, additional gypsum based products such as PC Rock, plasters, and agricultural gypsum may be produced from the gypsum quarried from the project area. Production could increase to approximately 250,000 tons per year over the life of the project if sufficient markets for the additional products can be secured. The impact of this production level was addressed in the development of the environmental assessment. The amount of estimated gypsum reserves in the mining area is estimated to support the above production rates. USG personnel conservatively estimate gypsum reserves of the mineral claims to be in excess of 40 million tons. Exploration data analysis completed in 1994 and 1996 is the basis for the estimated gypsum reserves.

Estimated Disturbance and Reclamation Acreage:

Creation of mining disturbances and reclamation will occur in phases throughout the life of the project. Exploration disturbances are currently under the reclamation process. Disturbances caused by the access road construction that are not necessary for the use of the access road will be immediately reclaimed after the access road construction is completed. As the mining area progresses, USG will determine what disturbed areas can be reclaimed without the possibility of disturbing the areas again during continuing operations. During operations, topsoil stockpiles will be temporarily reclaimed (i.e., seeded with a prescribed seed mixture or otherwise stabilized to prevent soil loss). The proposed reclamations seed mixture is shown on page 13. Final reclamation will occur upon closure of mining operations. All equipment unnecessary for reclamation purposes will be removed from the site and all remaining disturbances will be reclaimed. The projected reclamation schedule is shown in the following table:

Projected Reclamation Schedule

Years/Interval	Estimated Disturbance Acreage	Estimated Reclamation Acreage	Estimated Reclamation Release Acreage	Total Disturbance	Disturbance Area Not Released from Bond
Year 1	46.4	11.4	0	35	46.4
Years 2-5	5	3	7.9	37	43.5
Years 6-10	19	6	6.5	50	56
Years 11-15	10	10	6.0	50	60
Years 16-20	11	7	10	54	61
Years 21-25	12	7	7	59	66
Years 26-30	4	13	7	50	63

Mining Personnel On-site:

The number of personnel required to be on-site during the mining operations will vary with the level of gypsum production. Initially, personnel from the Sigurd Plant will be used to perform the mining operations. At the possible 250,000 tons/year production rate, local personnel may be employed to operate the mining operations. Administrative work will be performed by USG's staff in Sigurd. Blasting component vendor personnel could also be present on-site during a blast event to monitor product effectiveness. The loading of broken/sized gypsum into highway haulage trucks and transport to the Sigurd Plant location will be done by the contracted trucking firm drivers. Access by personnel will be via Interstate 70 and the access road.

USG personnel will be on-site for limited time periods during the initial years of mining and relatively low production rates. During the first year, USG will attempt to blast and stockpile gypsum for two years of production. Production levels beyond the 50,000 could require personnel to be on-site yearly for extended periods. Personnel would have to be on-site daily should production levels increase to the 250,000 tons/year level. Significant changes in personnel and on-site periods will be

coordinated with the BLM, Price Office. The following table is the proposed personnel and duration for the various production tonnage rates.

Projected Mining Personnel

		12,000 tons/year Production		50,000 tons/year Production		250,000 tons/year Production	
Employment Category	Task	Number Required	Duration	Number Required	Duration	Number Required	Duration
Dozer/Loader Operator	Topsoil and overburden removal, blasting gypsum	1	Daily for two months	1	Daily for two months	1	Daily, 300 days per year
Drill/Surface mining machine operator	Drilling and blasting gypsum, cutting gypsum	1	Daily for two months	1	Daily for two months	1	Daily, 300 days per year
Mechanic/ Crusher-Screen Operator	Maintenance, crushing and screening	1	As needed	1	As needed	1	Daily, 300 days per year
Supervisor/ Mechanic	Supervision duties, quarry operations, monitoring prod. and environmental compliance.	1	Twice per week for two months	1	Twice per week for two months	1	Daily, 300 days per year

Transportation of Produced Gypsum:

A trucking firm will be contracted to provide the necessary haulage of the produced gypsum from the mine site to the Sigurd Plant location. The trucking firm will comply with USG's contractor safety program. As part of the contractor safety program, compliance with BLM directives, speed limits, remaining on established roads, and other safety rules will be required. Failure to maintain compliance could result in loss of haulage contract. The trucking firm will haul broken/sized gypsum from the mine site on a yearly basis with weather permitting.

The number of haulage trips per day for each truck could range from one to three. As the gypsum production increases, the number of trucks utilized for haulage purposes will increase. Initial production amount will require at least one haulage truck. As yearly production tonnage increases, the number of haulage trucks required will increase accordingly. At 50,000 tons per year production rate, two or three haulage trucks will be required. If sales of PC Rock or other additional gypsum products are obtained, six to seven haulage trucks will be required to transport the sized gypsum. BLM, Price Office, will be kept informed of changes with the contracted haulage trucks.

Mitigation Measures:

Various impacts and mitigation measures were addressed in UT-066-97-7. USG will remain in consultation with the BLM, Price Office on mitigation measures for the various impacts. Should

changes be necessary to the mitigation measures, USG will meet with the BLM, Price Office to determine feasible and practical changes. The following are individual listings of the impacts and mitigation measures.

Air Quality:

The project area is located in an Attainment Area for National Ambient Air Quality Standards. The nearest PSD Class I areas are located approximately 25 miles southwest and 50 miles southeast, respectively Capital Reef and Canyonlands National Parks. The PM_{10} emissions have been calculated for the initial and possible production tonnage levels in the environmental assessment document. All necessary air quality permits will be secured from the Utah Division of Air Quality in compliance with Utah Air Quality Rule R307-12 and the Clean Air Act.

USG will apply a dust suppressant to the access road and use, or contract, the application of water spray in the mining operations. The dust suppressant will be applied to the access road during construction and at intervals when deemed necessary by the BLM, Price Office and USG. USG may contract with a local contractor to apply water to the access road surface for additional dust suppression. The contractor will provide the water from the contractor's water source in the Castledale, UT area. The tracked type mobile drill is equipped with a water mist dust suppression system for use while drilling blast holes. Should USG employ a surface mining machine, the water spray dust suppression system will be used during cutting operations. The same type of dust suppression system will be used for crushing/sizing equipment used at the higher production levels. Whenever possible, the stockpiles will be located in areas to minimize the erosional effects of wind. USG will coordinate dust suppression measures with the BLM, Price Office.

USG will maintain the mining equipment in good operating condition to minimize the amount of combustion emissions. The engines and exhaust systems of the mining equipment will be kept in good working order for this purpose and to minimize equipment noise. The proposed mining personnel requirements include the provision of a mechanic for such repairs and maintenance of equipment. Other measures to be taken by USG to minimize fugitive dust will include, but are not necessarily limited to:

- minimizing area of disturbance;
- restricting vehicle speeds on the access road and in the mining area;
- prompt revegetation of the disturbed areas;
- covering loaded haulage trucks to minimize loss of material to wind and spillage;
- restricting vehicles to established roads.

Soils:

During the life of the project, up to 66 acres may be disturbed. The overall disturbance acreage will depend upon the mining rates, gypsum quality, and market demands. The project area contains critical soils. USG is committed to minimizing the erosional loss of critical soils as practicable. Erosion control measures will include but not limited to the following:

- minimizing area of disturbance;
- attempting reclamation of disturbed areas as soon as possible;
- avoiding steep slopes when feasible;
- using best management practices on all mining and construction sites;
- constructing roads to BLM specification which include installation of culverts and roadside ditches to control surface water flows;
- design and placement of erosion control devices such as straw bales, rock check dams, waterbars, silt fences, netting, and berms to slow and/or divert water flow to reduce soil loss;
- reclamation of all disturbed areas as described in Appendix A of UT-066-97-7.

Microbiotic Crusts:

Surveys for soil microbiotic crust occurrences have been completed on the mining site. The microbiotic crusts will be salvaged separately from topsoil within the abilities of the equipment and operators. During initial stages of the mining operations, the excess salvaged microbiotic crust will be stockpiled in a low linear fashion to minimize organism fatality. If necessary, erosional control measures will taken to prevent loss of these stockpiles. In the later stages of the mining operations, the salvaged microbiotic crust will be directly back hauled to reclaim areas as part of the reclamation process whenever possible. USG will consult with the BLM, Price Office, during the life of the project on the preservation of microbiotic crust.

Threatened or Endangered Species:

Surveys have been completed for threatened and endangered species within the project area. U.S. Fish and Wildlife Service (USFWS) was consulted regarding the impacts to the Wright Fishhook cacti that were found within and adjacent to the project area. The following mitigation measures will be implemented, based upon the USFWS recommendations:

- The 25 Wright fishhook cactus individuals to be lost will be removed and transported to the USFWS Utah Field Office for disposition as specimans for biological research in support of the species recovery plan.
- Soil within 1 meter of each Wright fishhook cactus plant to be lost will be removed to a depth of 5.0 centimeters, secured in a waterproof container which would be maintained at the site until reclamation. This soil will be used, in consultation with USFWS, during

site reclamation.

- Vehicle users associated with the mining operation will be instructed to remain on existing roads and the mining site at all times.
- Signs would be posted to advise other motorists to remain on existing roads.
- Roads within Wright fishhook cactus habitat will be improved to reduce the incentive for motorists to travel off established roads.

No other T&E plant species and no T&E wildlife species were found. If, during access road construction or mining operations, any individual(s) of such plant or animal species or their habits be found, recommendations for avoidance or mitigation will be made or if necessary, a Section 7 consultation with USFWS will be initiated.

Wild horses occur in the vicinity of the project area. USG will commit to not allowing any chasing or harassing of the wild horses by USG personnel or by the contracted haulage firm personnel. Additionally, USG will maintain a log book of wild horse observances by USG personnel when they are on-site. The log book will document the observed activities of the wild horses. The activities recorded will be such as grazing, number of horses, running, walking, etc. The log book will be kept on-site for BLM review and documentation.

Visual Contrasts:

A visual contrast rating was completed to determine visual impacts of the access road and mining location to viewers at three key observation points (KOPs) along Interstate 70. USG is committed to maintaining visual impacts at practical and feasible minimums. To mitigate visual impacts, the following measures will be implemented:

- The access road will be surfaced with red-brown pumice or scoria so as to be unnoticeable to the casual observer from the three KOPs. Cuts and fills will be reclaimed with topsoil that closely matches the surrounding terrain color. Revegetation will be done with native shrubs, grasses, and forbs. Cuts and fills and roadside ditches that can not be readily reclaimed will be rock-mulched with low contrast rock or stabilized with brown or black jute netting.
- The access road will be designed to follow existing topography as much as possible. However, a smooth grade is necessary for the safe and efficient operation of the haul trucks; therefore, cutting and filling will be necessary. Measures will be taken to minimize the amount of cut and fill when practical.
- Mining will begin in Section 21. The terrain of this area is depressed in relation to the surrounding area and will help to provide a screening effect of the mining area to the KOPs. Mine planning will be done as to take advantage of the natural terrain when possible to minimize visual contrasts from the KOPs.
- An overburden stockpile will be constructed along the western edge of the mining area to promote the screening effect of the terrain. The overburden stockpile will be engineered so that the stockpile height, width, and contour will provide screening but not be immediately obvious in the surrounding landscape.
- Mitigation measures outlined in the Air Quality section will also be used to minimize the visual contrast impacts.

Cultural Resources:

A Class III cultural resources survey has been conducted on the mining site and access road areas. Only two cultural resource sites were identified. One site is a small surficial lithic scatter. The other site contains extensively vandalized prehistoric pictographs. The two sites are located in the eastern portion of Northwest 1/4 Section of Section 22, Township 23 South, Range 8 East. USG will comply with the following stipulations regarding cultural resources:

- Site 42Em2439 will be avoided by all construction activities;
- Construction and mining activities will be restricted to the inventoried area;
- If evidence of additional prehistoric or historic sites is discovered during ground disturbing activities, these activities will cease immediately and the BLM, Price Office will be notified as soon as possible;
- USG will not allow mining personnel to remove any artifacts.

Surface Water:

Surface flow occurs in the area due to spring runoff and in response to summer storms. Annual precipitation is between 6 and 8 inches and rainstorms occur approximately 15 days/year in the project area. There are no impoundments located within the mining site. A large borrow pit located within the gravel quarry adjacent to the project area contains water for a few months each year.

USG will employ runoff control measures such as straw bales, rock check dams, waterbars, silt fences, netting, and berms to slow and/or divert water flow. These measures will allow movement of surface water while helping to control erosional soil loss. USG will perform an inspection of the access road and mining areas as soon as practical after major precipitation occurs in the area. The observations of the runoff inspection will be documented and made available for the BLM, Price Office, to review.

Ground Water:

Although the Carmel Formation is known to contain limited quantities of groundwater in various places of Central Utah, no groundwater was encountered during the exploration drilling within the mining area. Additionally, the access road construction will not include any deep excavations that would impact groundwater. All of the previous exploration drill holes were plugged as per State of Utah standards. Should groundwater be encountered during mining operations, the State of Utah will be notified as per standards.

Noise:

During field surveys conducted in the mining area, ambient noise levels were measured at numerous locations with a Sper Scientific digital sound meter, Model No. 840029. Average

noise levels ranged from 32 to 82 dBA. The higher noise levels were generally correlated with strong gusts of wind.

As mitigation measures to minimize noise levels, USG will use the natural terrain whenever possible to reduce the noise levels. The project area is located in an area that has a depressed topography surrounded by higher ridges. This natural terrain feature will act to abate the mining equipment noises. The mining equipment will be maintained in good operating condition with emphasis on the exhaust systems to minimize the noise of the internal combustion engines. USG will conduct mining operations during the daylight hours so that noise impacts at night to area campers can be avoided. During the initial production volumes, USG plans on conducting mining operations during early spring so that the possibly heavier volume of recreation use during the later summer months is less disturbed.

Vegetation:

The project area's vegetation is made up of three community types — desert shrub, badlands, and pinyon-juniper. The pinyon-juniper community is located on the eastern edge of the project area boundary. At present, no mining can be foreseen for this area. The mining area contains the community types of desert shrub and badlands. Field surveys have been conducted to determine the species of the community types occurring in the mining area. The results of the vegetation surveys indicate that the vegetation is relatively sparse (approx. 10% cover) and dominated by shrubs.

USG will use the following certified weed free seed mixture that is similar to what was prescribed in 1996 for reclamation of the exploration drilling areas contained within the mining area:

Grasses	Species	PLS per acre
Galleta grass	Hilaria jamesii	2
Indian ricegrass	Oryzopsis hymenoides	4
Needleandthread grass	Stipa comata	2
Shrubs		
Forage kochia	Kochia prostrata	4
Green Morman tea	Ephedra viridis	4
Yellow sweet clover	Melilotus officinalls	2
Scarlet globemallow	Sphaeralcea coccinea	2
	Total	20

USG and the BLM, Price Office will conduct yearly inspections of the revegetation efforts to determine the success and feasibility of the above seed mixture. Changes to the above seed mixture will be done after consultation between USG and BLM, Price Office. The yearly

inspections will also determine the occurrence, if any, of noxious weeds and the remediation measures to remove and prevent the occurrence of noxious weeds.

Hazardous Waste:

USG and the contracted haulage firm will comply with all applicable federal laws and regulations pertaining to the use of materials deemed hazardous. The anticipated hazardous materials to be used during the project life are listed in Table 2.4 of the UT-066-97-7 environmental assessment. Initial mining operations will not require the storage of hydrocarbons products such as diesel fuel, lubrication oils, greases, and other hazardous materials onsite other than what is contained in the equipment systems themselves. The materials will be brought onsite daily in a service vehicle and removed daily. Production levels at the higher end could require the storage of material onsite. USG will locate, handle, and store the materials in an appropriate manner that minimizes the material from contaminating soil and water resources. Any release of these materials in excess of the reportable quantity as established by 40 CFR, Part 117, will be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended. This will be reported to BLM's authorized officer and all other appropriate federal and state agencies. Reportable releases will be properly cleaned up and removed to an approved facility for disposal or remediation. Prior to construction of storage, USG will prepare a Spill Prevention Control and Countermeasure Plan which will be kept on-site during working hours.

Waste Disposal:

All solid wastes will be removed from the mining area and disposed of in a permitted landfill in accordance with state regulations. Portable sanitary facilities will be provided on-site by a local contractor or USG may park a small travel trailer at the mining area so no on-site sewage treatment facilities will be required. Sanitary waste will be removed from the mining area and disposed of according to state and local regulations.

Fire Suppression:

The project area is located within a conditional suppression area, which means that the cost of fire suppression is compared to the resource loss that would occur without suppression. USG and contractors will be responsible for preventing fires by adequately maintaining equipment used on-site, properly disposing of smoking devices, etc. All of USG's vehicles and equipment will be equipped with fire extinguishers or suppression systems. Should a fire occur, the local fire-fighting authorities and the BLM authorized officer will be notified immediately.

Safety:

USG is committed to maintaining a safe workplace. Safety training on a wide variety of subjects is presented to all mining personnel in the workplace and the practice of safe working habits by mining personnel is required. Mine Safety and Health Administration (MSHA) regulations and USG safety rules will apply the mining operations. A copy of the approved MSHA training plan for the mining operations will be made available when requested (See Attachment A). USG will provide MSHA approved training personnel for training purposes and training requirements will be conducted on an annual basis. Inspections of the mining operations by MSHA will be conducted at least twice a year. When handling, storing, and transporting explosives, the Bureau of Alcohol, Firearms, and Tobacco (BATF) and Department of Transportation (DOT) standards will be met by USG. The contracted haulage firm will be held to the safety measures set forth in USG's contractor safety program.

USG will provide safety measures of erecting and maintaining access road and mining area signs. These signs will consist of traffic warnings, speed limits, where vehicles are allowed and not allowed, mine area warnings, etc. The safety signs will provide additional safety for not only the mining personnel but other public land users in the area area. These signs will be located so that persons in the immediate vicinity can see the safety signs but not impose on the landscape when viewed from a considerable distance.

Initially, the mining area will not be fenced. The above warning signs will be posted along the access road and around the perimeter of the mining area. No gates or cattle guards will be used on the main access road. Should the safety of other public land users, livestock, or wildlife become an issue, USG will consult with the BLM, Price Office. The BLM authorized officer will make recommendations on the fence design, location, and materials.

Reclamation:

Reclamation will be conducted on all disturbed areas in compliance with BLM and Utah, Division of Oil, Gas, and Mining (UDOGM) standards. UDOGM has assigned a large mine file number, M/015/075, to the project area. Both the BLM Plan of Operations and the UDOGM Large Mine Operation Notice of Intention will describe the same operation, however, each document will be formatted according to the rules and regulations of the respective agencies. USG will secure the necessary bonding for reclamation purposes. Reclamation bonding is currently estimated at $2,500 per acre of disturbance. The proposed reclamation plan is provided in Appendix A of UT-066-97-7. In general, the goals of the reclamation efforts will be:

- to stabilize disturbed areas to minimize erosion and sedimentation on both a short- and long-term basis;
- to reestablish self-sustaining vegetation communities, microbiotic crusts, and wildlife habitat consistent with predevelopment conditions and the proposed postmining land use; and

- to achive visual compatibility with the surrounding landscape.

Reclamation will occur in phases. Initially, areas disturbed during access road construction or mining area development that are not required for operations and maintenance activities will be reclaimed as soon as practicable after construction is complete. Interim reclamation will be performed after specific areas are mined out. As it becomes necessary to disturb new areas in the mining site, USG will determine what areas can be reclaimed without the possibility of redisturbing them during future operations. All areas where reclamation is feasible and practical will be reclaimed as soon as possible after mining has progressed to other areas. Upon closure of the mining operations, all facilities will be removed and any remaining disturbed areas will be reclaimed.

Reclamation procedures will include the regrading of slopes and spoils to an approved postmining topography, replacing topsoil, preparing the seedbed, reseeding and respreading microbiotic crusts, and protecting and maintaining reseed areas. Interim and final reclamation procedures will be based on site-specific requirements and techniques commonly employed at the time the area is to be reclaimed. USG will maintain a yearly inspection and review of reclamation success with BLM, Price Office. Consultation between USG and BLM on the effectiveness and/or necessary modifications to the reclamation techniques will be ongoing.

Post Mining Use:

Currently, the project area is utilized for dispersed outdoor recreation, wildlife habitat, and livestock grazing. Through reclamation techniques and success, post mining use of the project area will again be for dispersed outdoor recreation, wildlife habitat, and livestock grazing.

interoffice
MEMORANDUM

to:

cc:

from: B.T. Webster - #223 Quarry/Mill Manager

re: Use of currently approved MSHA training plan for San Rafael Quarry

date: 05/06/97

On 05/06/97, William Tanner, Supervisory Mine Safety and Health Inspector, Utah Field Office, Salt Lake City and I discussed the need of an approved MSHA training plan and identification number for the proposed San Rafael Quarry. I explained to Mr. Tanner that USG was expecting to begin mining operations at the San Rafael site in the near future and that USG would be using mining personnel from the Jumbo-Jensen Mine, ID Number 4200160, for approximately 2 to 3 months yearly at the San Rafael mine. Mr. Tanner instructed me to use the currently approved Jumbo-Jensen training plan and ID number for both mining locations while USG personnel were working for only a few months on-site at San Rafael each year. Mr. Tanner also said that this was contingent upon USG notifying MSHA when mining operations at San Rafael are being conducted so that inspections could be scheduled. Mr. Tanner said that when USG begins mining operations on a continuous basis in San Rafael, a separate training plan and id number would be approved.

from the desk of...
B.T. Webster
Quarry/Mill Manager
U. S. Gypsum Company
81 North State
Sigurd, Ut. 84657

(801) 896-2450

Fax: (801) 896-2407

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JAN 30 1997
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TRAINING PLAN - SURFACE

1. **COMPANY NAME** United States Gypsum Company **MINE NAME** Jumbo-Jensen Mine

ADDRESS P.O. Box 570160 **MSHA ID NUMBER** 4200160

Sigurd, UT 84657

2. **PERSON RESPONSIBLE FOR HEALTH AND SAFETY TRAINING AT THE MINE:**

NAME	POSITION	PHONE (INCLUDE AREA CODE)
Lee W. Taylor	Plant Manager	(801) 896-2401

3.

MSHA APPROVED INSTRUCTOR(S)	SOCIAL SECURITY NUMBER	COURSE(S) QUALIFIED TO TEACH
B.T. Webster	585-08-1739	Part 48, Subpart B (Surface)
George Mynar	452-80-0866	Part 48, Subpart B (Surface)
George Mynar	452-80-0866	First Aid, CPR (Red Cross)

4. **REPRESENTATIVE OF MINERS** None

5. **APPROXIMATE No. OF MINERS EMPLOYED** 8 **MAXIMUM NUMBER TRAINEES/SESSION** 8

6. **THE PREDICTED TIME OR PERIODS OF TIME WHEN REGULARLY SCHEDULED REFRESHER TRAINING WILL BE GIVEN** Monthly ** . **LENGTH OF EACH SESSION OF TRAINING** Approx. 45 min. .

** Or training to be done throughout year and remainder to be done in December.

TRAINING PROGRAM FOR NEW MINERS (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Instruction in statuatory rights of miners & their representatives under the Act; authority & responsibility of supervisors.	1 hr	Conference Room Quarry	Approved Instructor	Lecture Discussion	Mine Safety & Health Act	Oral
Transportation controls and communication systems.	1 hr	Conference Rm & Quarry	Approved Instructor	Demonstration Lecture Discussion	MSHA Standards Co. Policy	Oral
Introduction to the work environment.	2 hr	Quarry & Plant	Approved Instructor	Walk around Lecture Discussion	Quarry & Plant	Oral
Escape & emergency evacuation plans; fire warning & fire fighting.	1 hr	Conference Rm. & Quarry	Approved Instructor	Walk around Lecture Discussion Demonstration	MSHA Standards Company Fire Exting. Policy	Oral Demonstrate
Ground control & working around highwalls; water hazards; night work.	1 hr	Conference Rm. & Quarry	Approved Instructor	Walk around Lecture Discussion	MSHA Standards MSHA Guides	Oral

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TRAINING PROGRAM FOR NEW MINERS (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Self Rescue and respiratory devices	1 hr	Conference Rm.	Approved Instructor	Lecture Demonstration	Respirator	Discussion Demonstrate
Health	1 hr	Conference Rm.	Approved Instructor	Lecture Discussion	MSHA Standards MSHA Guides	Oral
Hazard Recognition	1 hr	Conference Rm. & Quarry	Approved Instructor	Lecture Discussion	MSHA Standards Co. Policy	Oral
Electrical Hazards	1 hr	Conference Rm.	Approved Instructor	Lecture Discussion	" "	" "
First-Aid	8 hr	Conference Rm.	Approved Instructor	Lecture Demonstration	Red Cross	Oral Demonstration
Explosives	1 hr	Conference Rm.	Approved Instructor	Lecture Discussion	MSHA Blaster Co. Policy	Oral
Health & Safety aspects of the task to which the new miner will be assigned.	5 hr	Quarry & Plant	Approved Instructor	Lecture Demonstration	MSHA Standards Co. Policy	Oral Observation
	24 Hrs. Total	Courses that must be taught at the mine site and completed prior to work assignment.				

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TRAINING PROGRAM FOR NEWLY HIRED EXPERIENCED MINERS (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Introduction to work environment		Quarry & Plant	Approved Instructor	Show & Dicuss	Plant & Quarry	Oral
Mandatory health & safety standards.		Conference Room	Approved Instructor	Lecture Discuss	MSHA Standards	" "
Authority & responsibility of supervisors & miners representatives.		" "	Approved Instructor	" "	Company Policy	" "
Transportation controls and communication systems.		" "	Approved Instructor	" "	MSHA Standards Co. Policy	" "
Escape and emergency evacuation plans; fire warning & fire fighting.		" "	Approved Instructor	" "	" "	" "
Ground control & working near high walls; water hazards; night work.		" "	Approved Instructor	" "	MSHA Standards	" "

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TRAINING PROGRAM FOR NEWLY HIRED EXPERIENCED MINERS (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Hazard recognition	1 hr	Quarry	Approved Instructor	Show & Discuss	Plant & Quarry	Oral

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ANNUAL REFRESHER TRAINING (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Mandatory health & safety standards	1/2 hr	Conference Room	Approved Instructor	Lecture Discuss	MSHA Standards Co. Policy	Oral
Transportation controls & communication systems.	1/2 hr	Conference Rm. & Quarry	Approved Instructor	Lecture Discuss Show	" "	" "
Escapeways; emergency evacuation; fire warning & fire fighting.	1/2 hr	" "	Approved Instructor	" "	" "	" "
Ground control & working near highwalls; water hazards; night work.	1/2 hr	" "	Approved Instructor	Lecture Discuss	" "	" "
First-aid	4 hr	Conference Room	Approved Instructor	Lecture Discuss Demonstrate	Red Cross	Oral Demonstrate
Electrical Hazards	1/2 hr	" "	Approved Instructor	Lecture Discuss	MSHA Standards Co. Policy	Oral

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ANNUAL REFRESHER TRAINING (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Prevention of accidents.	1/2 hr	Conference Room	Approved Instructor	Lecture Discuss	MSHA Standards Co. Policy	Oral
Health	1/2 hr	Conference Room	Approved Instructor	" "	" "	" "
Explosives	1/2 hr	Conference Rm. & Quarry	Approved Instructor	" "	" "	" "
Self-rescue & respiratory devices.	1/2 hr	Conference Room	Approved Instructor	" "	" "	" "
	8 Hrs. Total					

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TRAINING PROGRAM
EXPERIENCED MINER NEW TASK TRAINING (SURFACE)

WORK ASSIGNMENT	TOTAL HOURS	LOCATION	CONDUCTED BY	TRAINING PROCEDURES	EQUIPMENT/ MATERIALS	EVALUATION
CRUSHER OPERATOR 1. Loader oper. a)Safety Chk. b)Operation 2. Rock Breaker 3. Gen. Crusher Operations 4. Housekeeping in & around Crusher Sys.	20-30 hr	Plant (Crusher)	Experienced Person	Lecture Discuss Demonstration	MSHA Standards MFG. Handbook Co. Policy Front End Ldr. Rock Breaker	Questions Demonstrate Observations
HAUL TRUCK OPER. 1. Equip. Inspec. 2. Operations 3. Pit Loading procedures 4. Road Traffic 5. Communications	2-6 hr	Plant & Quarry	Experienced Person	Lecture Discuss Demonstration	MSHA Standards MFG. Handbook Co. Policy Haul Trucks	Questions Demonstrate Observations
DOZER OPERATOR 1. Equip. Inspec. 2. Operations 3. Techniques for stripping, ripping, road building, & reclamation 4. Minor repairs	20-30 hr	Plant & Quarry	Experienced Person	Lecture Discuss	MSHA Standards MFG. Handbook Co. Policy Dozer	Questions Demonstrate Observations

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TRAINING PROGRAM
EXPERIENCED MINER NEW TASK TRAINING (SURFACE)

WORK ASSIGNMENT	TOTAL HOURS	LOCATION	CONDUCTED BY	TRAINING PROCEDURES	EQUIPMENT/ MATERIALS	EVALUATION
DRILL OPERATOR 1. Equip. Inspec. 2. Operation 3. Layout of drill pattern 4. Minor repairs to drill	30 - 40	Quarry & Plant	Experienced Person	Lecture Discuss Demonstrations	MSHA Standards MFG. Handbook Co. Policy Drill	Questions Demonstrate Observation
GRADER OPERATOR 1. Equip. Inspec. 2. Operation 3. Techniques of contouring and road blading 4. Road Traffic	10 - 20	Quarry & Plant	Experienced Person	Lecture Discuss Demonstrations	MSHA Standards MFG. Handbook Co. Policy Grader	Questions Demonstrate Observation
BLASTER 1. Explosives safety 2. Pattern layout 3. Inspection of blast site 4. Recordkeeping 5. Handling and Transportation	30 - 40	Quarry & Plant	Experienced Person	Lecture Discuss Demonstration	MSHA Standards Company Policy Explosive MFG. handbooks	Questions Demonstrate Observation
BACKHOE/ROCK BREAKER OPER. 1. Equip. inspec (cont'd)					MSHA Standards	

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TRAINING PROGRAM
EXPERIENCED MINER NEW TASK TRAINING (SURFACE)

WORK ASSIGNMENT	TOTAL HOURS	LOCATION	CONDUCTED BY	TRAINING PROCEDURES	EQUIPMENT/ MATERIALS	EVALUATION
BACKHOE/ROCK BREAKER OPER. 2. Operation 3. Minor Repairs 4. Road Traffic 5. Communication	2 - 6	Quarry & Plant	Experienced Person	Lecture Discuss Demonstration	MSHA Standards MFG. Handbook Co. Policy Backhoe/Breaker	Questions Demonstrate Observation
WATER TRUCK 1. Equip. Inspec 2. Operation 3. Loading procedures 4. Road Traffic 5. Communications	6 - 10	Quarry & Plant	Experienced Person	Lecture Discuss Demonstration	MSHA Standard MFG. Handbook Co. Policy Water Truck	Questions Demonstrate Observation

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TRAINING PROGRAM - HAZARD TRAINING (SURFACE)

COURSE	EST. TIME	LOCATION	CONDUCTED BY	TEACHING METHODS	COURSE MATERIAL	EVALUATION
Hazard recognition & avoidance.	1/2 - 1	Conference Room	Approved Instructor	Lecture Discussion	MSHA Standard Co. Policy	Oral
Emergency & evacuation procedures	1/2 - 1	" "	" "	" "	MSHA Standard Co. Policy	Oral
Health & safety standards; safety rules & safe working procedures.	1/2 - 1	" "	" "	" "	MSHA Standard Co. Policy Plant Safety Rule Book	Oral
Self-rescue & respiratory devices.	1/2 - 1	" "	" "	Lecture Discussion Demonstrate	MSHA Standard Co. Policy Respirator	Oral

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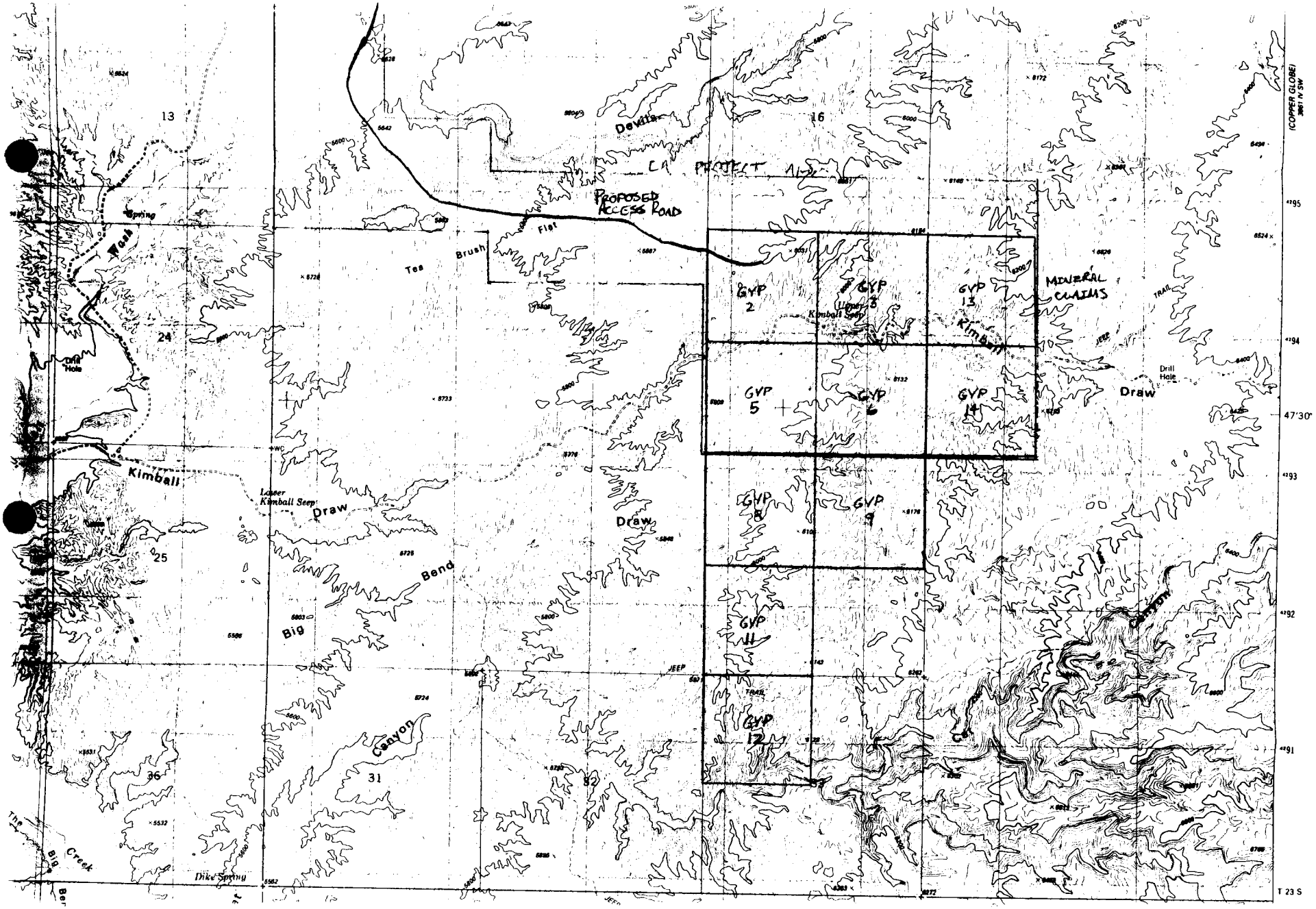

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MINERAL CLAIMS
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GYP 3
GYP 13
GYP 5
GYP 6
GYP 14
GYP 8
GYP 9
GYP 11
GYP 12
Kimball
Draw
Lower Kimball Seep
Upper Kimball Seep
Big Bend Draw
Canyon
Tea Brush Flat
Devils
Wash
Spring
Drill Hole
Dike Spring
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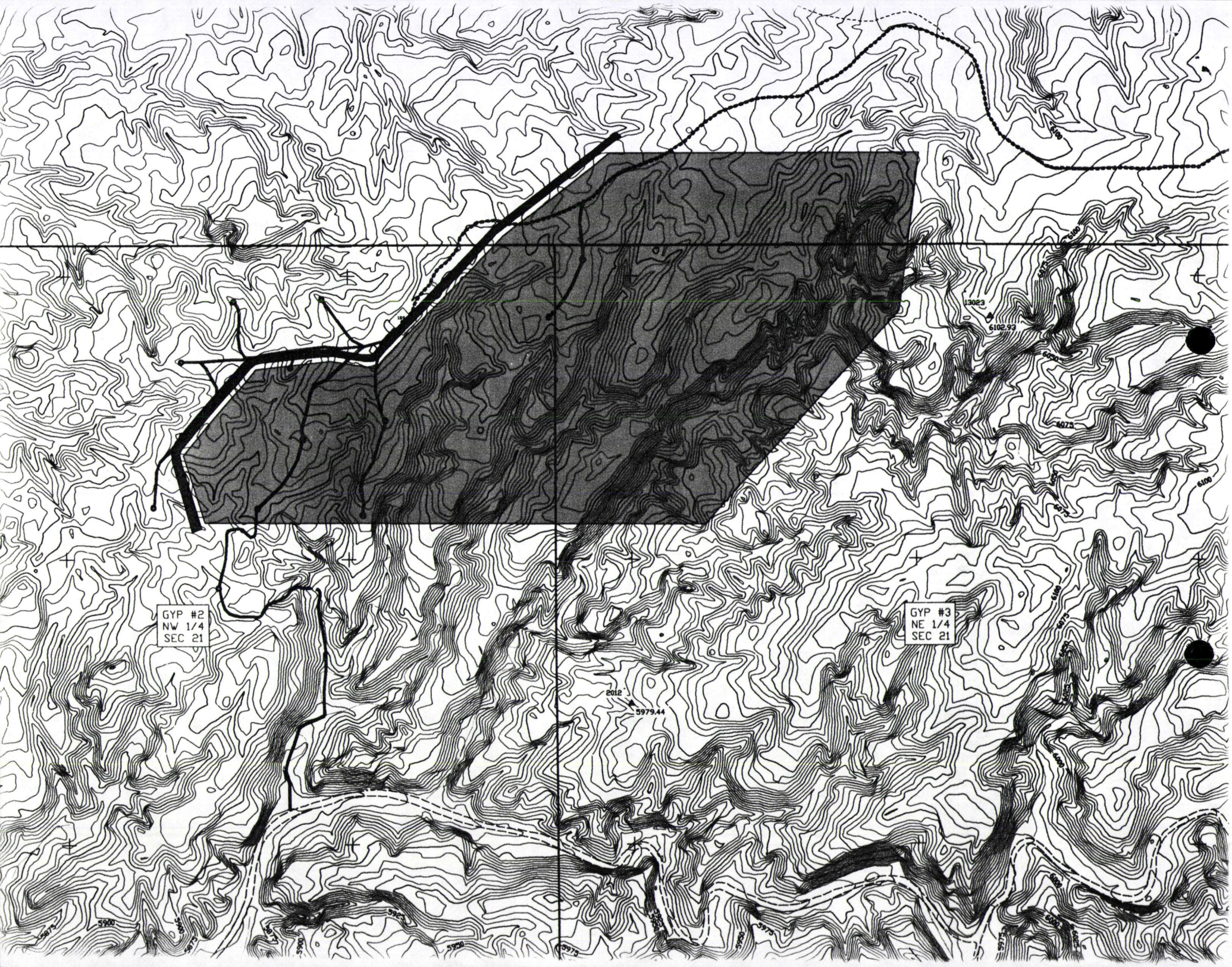
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SEC 21
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