

SMALL OPERATOR'S ASSISTANCE PROGRAM  
SUMMIT COAL COMPANY, BOYER MINE  
PRO/043/008

Submitted to:

Utah State  
Division of Oil, Gas and Mining

April 26, 1985



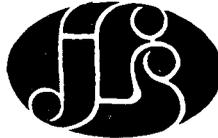
**J. F. SATO AND ASSOCIATES**

**CONSULTING ENGINEERS  
PROJECT MANAGERS & PLANNERS**

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April 26, 1985

State of Utah  
Division of Purchasing  
2112 State Office Building  
Salt Lake City, Utah 84114

RE: SMALL OPERATOR'S ASSISTANCE PROGRAM, SUMMIT COAL COMPANY,  
BOYER MINE, PRO/043/008

Dear Sir/Madam:

J.F. Sato and Associates (JFSA) is pleased to submit this proposal in response to the Division of Oil, Gas and Mining's (DOGM) RFP of April 3, 1985.

JFSA is a Denver based water resources, civil and structural engineering firm. The firm has been very active in SOAP projects for the Office of Surface Mining and the Colorado Mined Land Reclamation Division. The personnel assigned to the Boyer Mine SOAP project have conducted a total of six SOAP projects in Colorado and New Mexico and are familiar with the program. The Project Manager, Mr. Tsegaye Hailu, is also familiar with Utah's coal program having been involved in West Appa Coal Company's Rilda Canyon mine permit application review. Mr. Hailu is currently project manager of two contracts with the Office of Surface Mining.

JFSA looks forward to serving DOGM through the proposed SOAP project for the Summit Coal Company's Boyer Mine.

Very truly yours,

James F. Sato, P.E.  
President

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SMALL OPERATOR'S ASSISTANCE PROGRAM (SOAP)  
for  
SUMMIT COAL COMPANY'S - BOYER MINE

I. INTRODUCTION

The impact of mining on the existing environment is best assessed if comprehensive and systematic baseline data are collected prior to mining operations. Mining has the potential of introducing changes in the quality and quantity of the existing hydrologic system. Determination of the probable hydrologic consequences enables the Division of Oil, Gas and Mining (DOGGM) to institute proper mitigation plans into the mining activity and post mining reclamation efforts. J.F. Sato and Associates (JFSA) has pertinent experience to appreciate the complexity of collecting the necessary environmental data to develop a meaningful determination of consequences.

This technical proposal for the Summit Coal Company's, Boyer Mine, discusses our technical approach to the study; the management and organization plan, the work plan; our organizational experience in similar previous projects, and the experience of the personnel that JFSA intends to assign to the task.

## II. TECHNICAL APPROACH

The study will be divided into three main parts: (1) collection of baseline data; (2) data interpretation and conclusions; and (3) report preparation. A thorough review and maximum use of existing information will be combined with collection of new data in order to develop a meaningful field work plan. This approach will ensure the completeness of the data collection process.

### 1. Collection of Baseline Data

In order to have some understanding of the existing environment a thorough review will be made of available data. This will also help define better the new data that needs to be collected. We anticipate that the mine operator's permit application with DOGM contains site specific data on surface water and ground water hydrology.

Specific tasks to be performed as per the RFP are summarized below. Exhibits are cited from our previous SOAP reports to show the procedures we will follow or the type of results to be expected.

#### 1.1 Surface Water Baseline Information

- a) Describe watershed characteristics including general site conditions; physical location(s), elevation range and average slope; and vegetation cover and soil types to determine the patterns of rainfall runoff characteristics of the area.
- b) Map (1"-1,000') and classify natural streams, channels, man-made diversion, lakes, reservoirs and impoundments in the permit area and within one mile of the permit boundary. Information will include:

- o classification of streams as perennial, intermittent or ephemeral;
  - o documentation of stream channel characteristics including channel length, longitudinal profiles and several sections taken at points of hydraulic control (Exhibits 1 and 2);
  - o if intermittent or perennial, an estimate of average annual flow;
  - o area and capacity of existing reservoirs, lakes, and impoundments;
  - o documentation of all water uses and water rights.
- c) Compile all existing information on historical flow records for the permit area and adjacent areas and general climatological data. Information will include:
- o average annual high, low and mean flows of significant drainages in and around the permit area;
  - o historical extremes of said drainages;
  - o average monthly tabulations of precipitations, potential evapotranspiration and temperature.
- d) Estimate erosion potential and resulting sediment yield from the disturbed and undisturbed areas of the proposed mine site.
- e) Construct and maintain instrumentation necessary to collect sufficient baseline surface water data to satisfy DOGM guidelines which include:
- o one year of data collection;

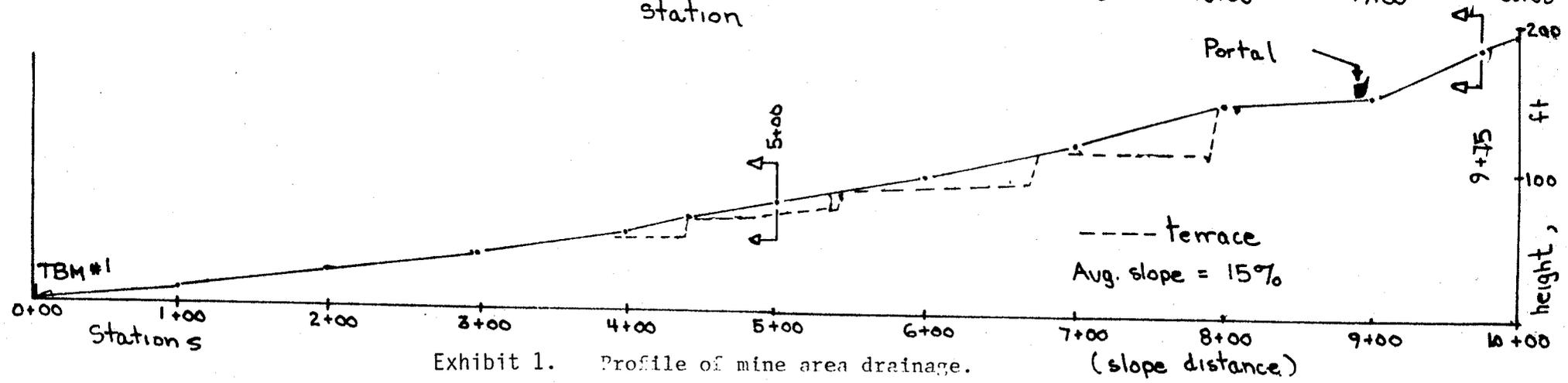
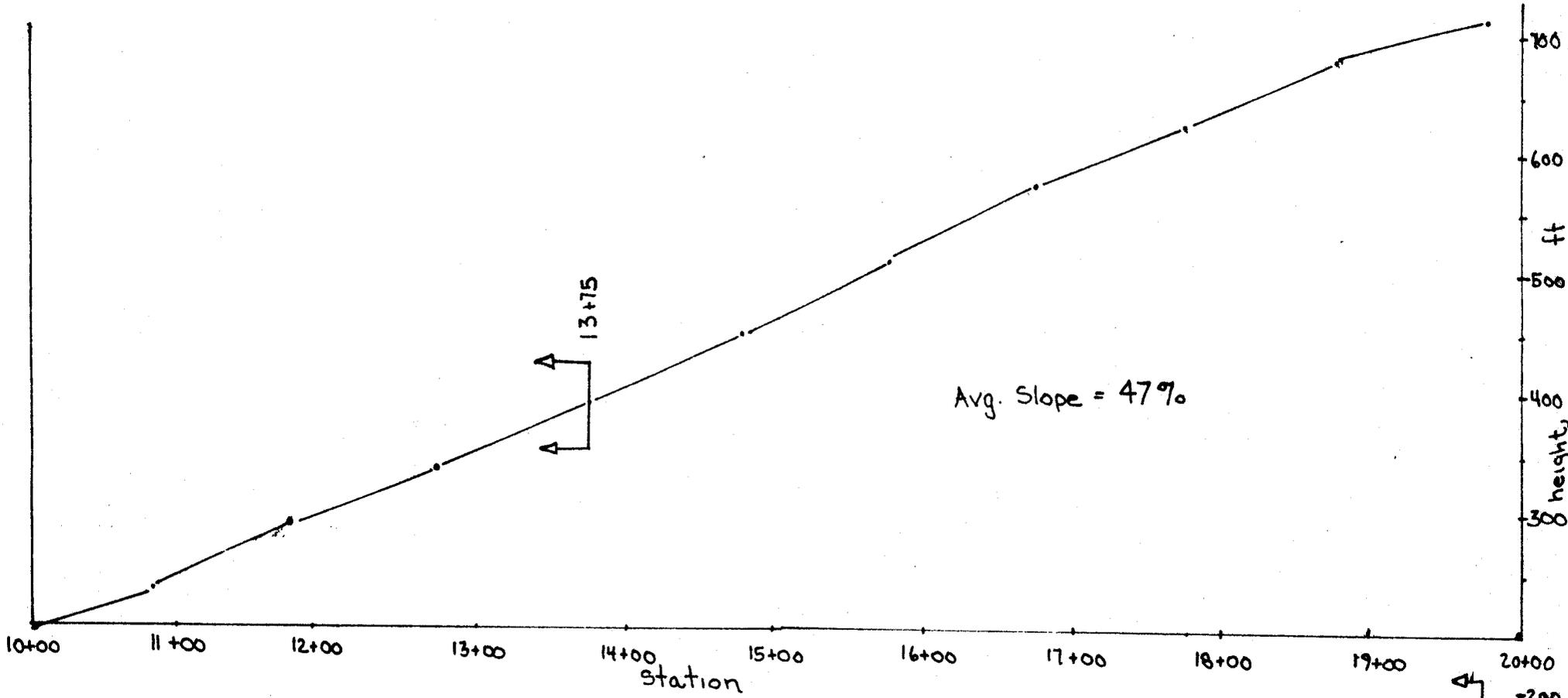
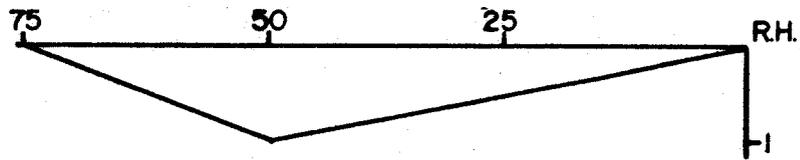
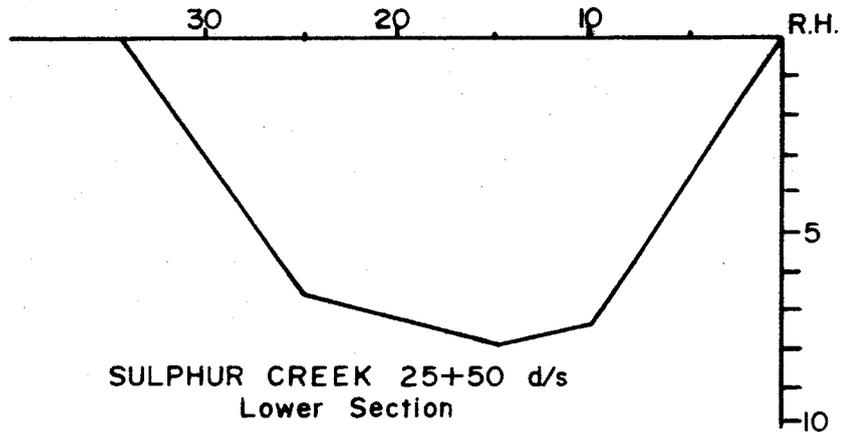


Exhibit 1. Profile of mine area drainage.

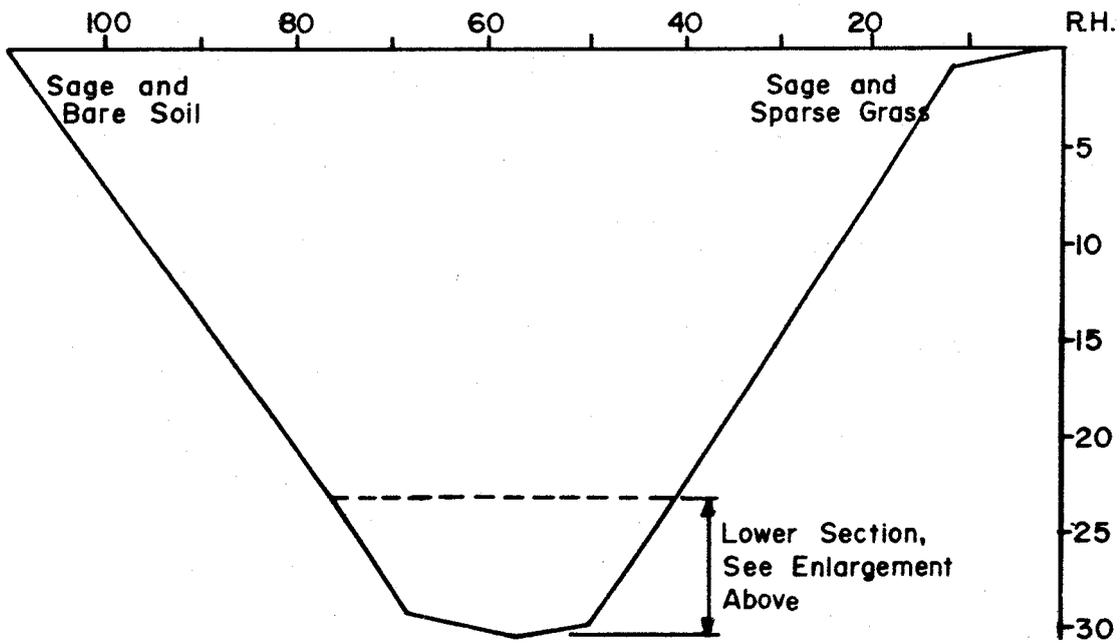
(slope distance)



SULPHUR CREEK 34+25 u/s



SULPHUR CREEK 25+50 d/s  
Lower Section



SULPHUR CREEK 25+50 d/s  
Complete Section

Exhibit 2. Cross sections.

- o recording of all runoff - producing rainfall events; through the installation of recording rain gage on-site;
  - o monthly flow measurements of monitoring sites on Chalk Creek and the intermittent channel in the permit area, and whenever flows occur in the ephemeral channels;
  - o quarterly water quality field measurements and sampling encompassing approximate high and low flow periods. Water quality monitoring of the intermittent channel every other month, and at least twice during the year for the ephemeral channel. Field data will be reported in the format shown in Exhibit 3.
  - o laboratory and field analyses of water samples for parameters listed in Table 1.
- f) Provide detailed physical description of Chalk Creek and the intermittent channel. Description will include:
- o stream gradient profiles;
  - o an evaluation of geologic, geomorphic and hydrologic characteristics;
  - o a description of stream bed, bank materials and riparian vegetation;
  - o calculation of the 10-year and 100-year return period flows for each channel;

SIEVE ANALYSIS

Exhibit 3.

J. F. SATO AND ASSOCIATES  
FIELD HYDROLOGY RECONNAISSANCE REPORT

Mine Name: \_\_\_\_\_  
Date: \_\_\_\_\_

I. Ground Water Stations

Monitoring Station ID and location	pH	Temperature	Alkalinity	Electro- ductivity	Depth to Water

II. Surface Water Stations

Monitoring Station ID and location	pH	Temperature	Alkalinity	Electro- ductivity	Depth to Water

Notes of channel roughness, hi-water marks, evidence of springs:

III. Precipitation Gages	Gage No.	Location	Rainfall Amount (inches)

TABLE 1

SURFACE WATER BASELINE WATER QUALITY PARAMETERS

Field Measurements:

- Flow
- pH
- Specific Conductivity (umhos/cm)
- Temperature (C°)
- Dissolved Oxygen (ppm)

Laboratory Measurements: (mg/l)

- Settleable Solids
- Total Suspended Solids
- Total Dissolved Solids
- Total Hardness (as CaCO<sub>3</sub>)
- Aluminum (Al)
- Arsenic (As)
- Barium (Ba)
- Boron (B)
- Carbonate (CO<sub>3</sub> -2)
- Bicarbonate (HCO<sub>3</sub> -)
- Cadmium (Cd)
- Calcium (Ca)
- Chloride (Cl<sup>-</sup>)
- Chromium (Cr)
- Copper (Cu)
- Fluoride (F<sup>-</sup>)
- Dissolved Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Mercury (Hg)
- Molybdenum (Mo)
- Nickel (Ni)
- Nitrogen: Ammonia (NH<sub>3</sub>)
- Nitrate (NO<sub>3</sub> -)
- Nitrite (NO<sub>2</sub>)
- Potassium (K)
- Phosphate (PO<sub>4</sub> -3)
- Selenium (Se)
- Sodium (Na)
- Sulfate (SO<sub>4</sub> -2)
- Sulfide (S<sup>-</sup>)
- Zinc (Zn)
- Oil and Grease
- Cation-Anion Balance

- o at least three cross-sectional diagrams at points of hydraulic control for each channel showing stream configurations for the 10-year and 100-year return period flows. Show locations of all cross-sections on a base map (Exhibit 4).
- g) In addition, the following information will be described or provided on maps:
- o location map (1" = 2000');
  - o maps of watersheds and subwatersheds of permit area and adjacent area (1" = 2000');
  - o location of all surface water bodies and points of diversion corresponding to water rights within one mile of boundaries of permit area (1" = 2000');
  - o location of all monitoring sites and rain gage(s) (1" = 500').

## 1.2 Ground Water Baseline Information

- a) Provide regional ground water description. Existing publications will be referenced. Descriptions will include:
- o map(s) and narrative describing possible aquifer boundaries, faults, geologic structures relating to ground water occurrence;
  - o specific formations that are known to be or potentially can be water-bearing strata.
- b) Inventory and describe all major seeps and springs in the proposed permit area and within a radius of one mile of the boundaries of the permit area.

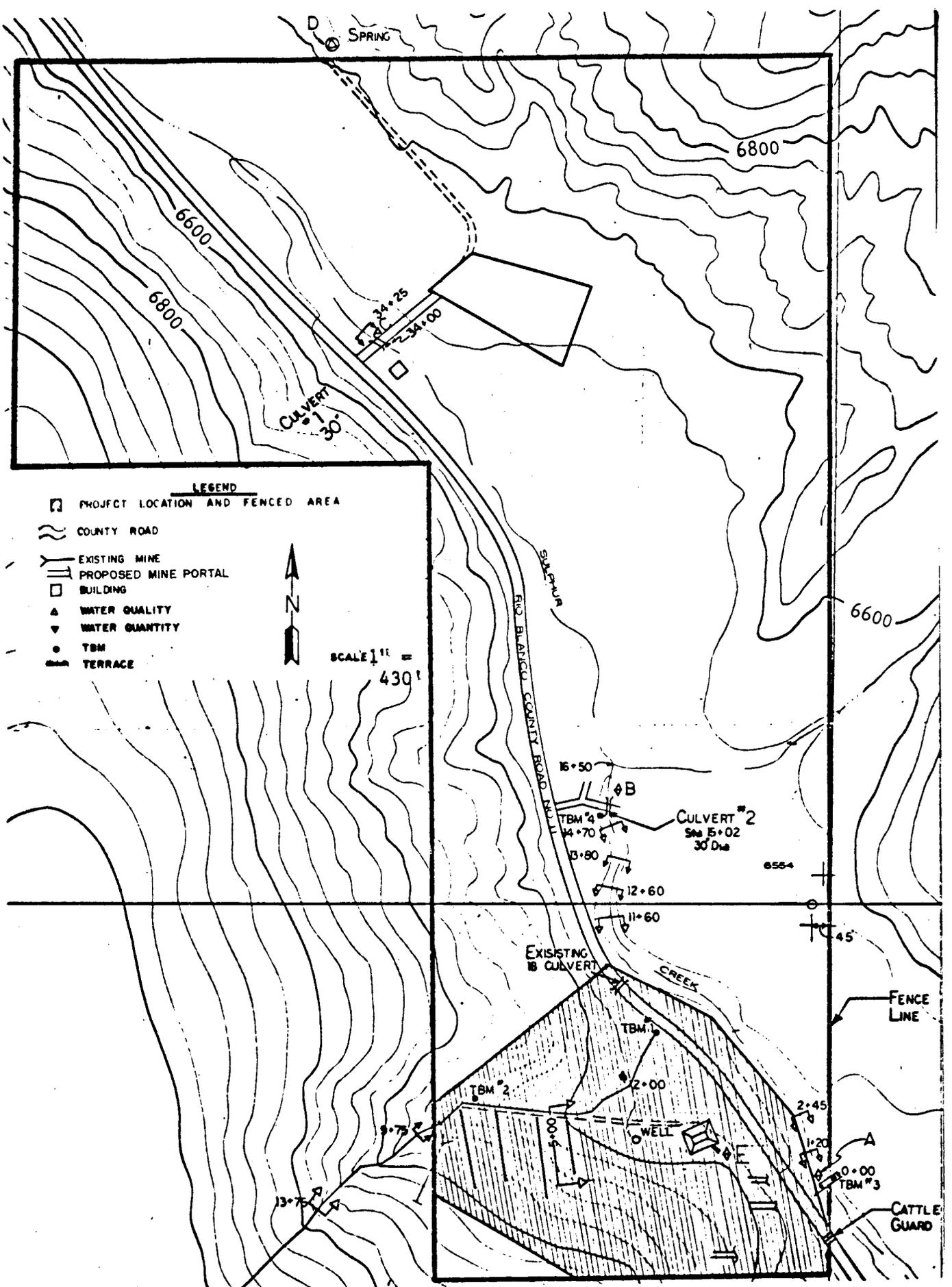


Exhibit 4. Location of sections across Sulphur Creek within the lease area.

- o inventory will be done during the fall and spring seasons;
  - o springs and seeps will be located on a map of minimum (1" = 2000') scale, spring/fall occurrences will be indicated and variation of flows during the two seasons described. Water rights and corresponding points of diversion will also be shown.
- c) Locate on a map of minimum 1" = 2000' scale and describe all active and inactive wells within a radius of one mile of boundaries of permit area. Description will include:
- o total depth, casing size, static water level, perforation levels, average flow, use of water and water rights;
  - o well logs (if available) for each well;
  - o information on existing oil wells and oil drilling operations in the area.
- d) Construct and maintain instrumentation necessary to collect sufficient baseline ground water data to satisfy DOGM guidelines. Three potential monitoring wells have already been selected by DOGM. One additional monitoring well in the western part of the permit area, may be needed to be drilled. Selection of site will be based on site specific ground water flow directions, if this can be determined from existing data. Ideally, monitor wells should be located up gradient and down gradient of the flow direction in the permit area so as to evaluate changes to ground water quality and quantity as it travels through the proposed mine area. In order for monitoring to continue during mining and post-mining, well sites need

to be outside of the area to be mined. Final selection will be made in consultation with and the approval of DOGM. Specifications for the construction of a monitor well will include:

- o diameter: preferably greater than four inches. We recommend 6 inches of borehole diameter.
- o depth: maximum will be 10 feet below the coal seam to be mined. The estimated range of depth at the proposed mine is 400 to 900 feet.
- o intervals to be monitored: overburden, coal seam and underburden, if these units contain water-bearing strata;
- o casing and completion: maximum of three, 2-inch, Schedule 80 PVC (see Exhibit 5 for multiple completion). Water-bearing zones will be screened, gravel packed, and sealed off at bottom and top with bentonite. Remaining annular space will be back-filled with drill cuttings or gravel. Gravel packing, bentonite and backfilling material will be tremied in using 1 1/2 inch tremie pipe in order to control the completion depth(s) and avoid bridging.

Final specifications will be submitted for approval by DOGM.

The following DOGM ground water monitoring guideline will be followed:

- o data collection period will be for one year;
- o ground water levels will be measured monthly as weather and snow cover permits and reported in the format shown in Exhibit 6;

**MONITOR WELLS COMPLETED**

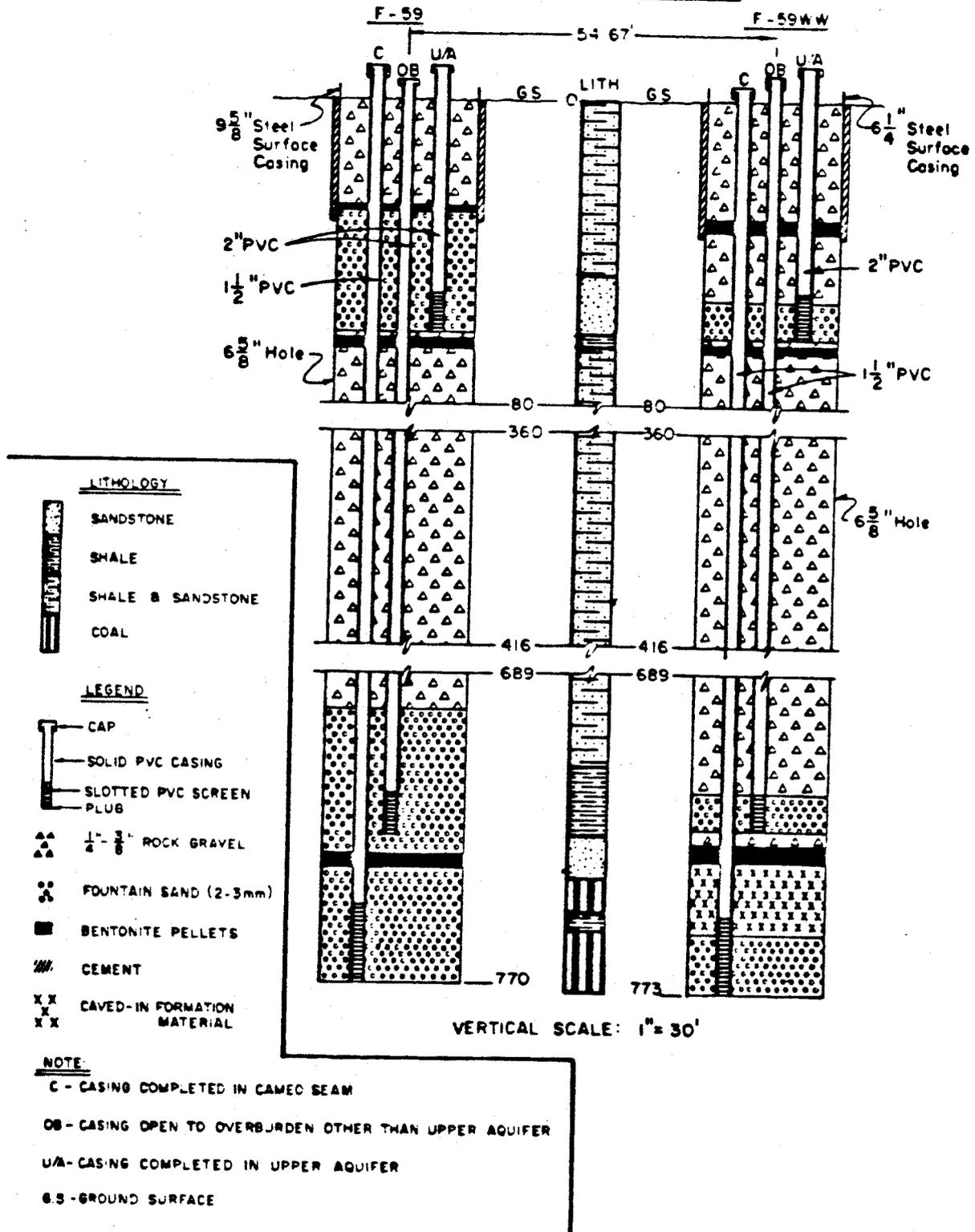


Exhibit 5. Multiple Well Completion



- o water quality samples will be collected quarterly with two samples encompassing approximate high and low water table elevations. Field measurements will be taken during each sampling time and recorded in the form shown in Exhibit 3;
  - o laboratory parameters that are to be measured are also listed in Table 2;
  - o field parameters that are to be measured are listed in Table 2.
- e) Ground water monitoring points will be located on a map (1" = 2,000') and tabulated to show the following data:
- o diameter, total depth perforated (screened) intervals, static water levels, water rights, water use and lithology of aquifer(s) supplying water to well.
- f) JFSA has complete field water quality kit and water sampling equipment.

### 1.3 Overburden, Coal Strata and Underburden Information

- a) Regional and site specific geologic description will be based on available literature, core samples and field investigation. Site specific geologic information will include:
- o map of suitable scale showing locations and datum elevation of holes. Extent of old underground workings will be included;

TABLE 2

GROUND WATER BASELINE WATER QUALITY PARAMETERS.

Field Measurements:

- Water Levels
- pH
- Specific Conductivity (umhos/cm)
- Temperature (C<sup>0</sup>)

Laboratory Measurements: (mg/l)

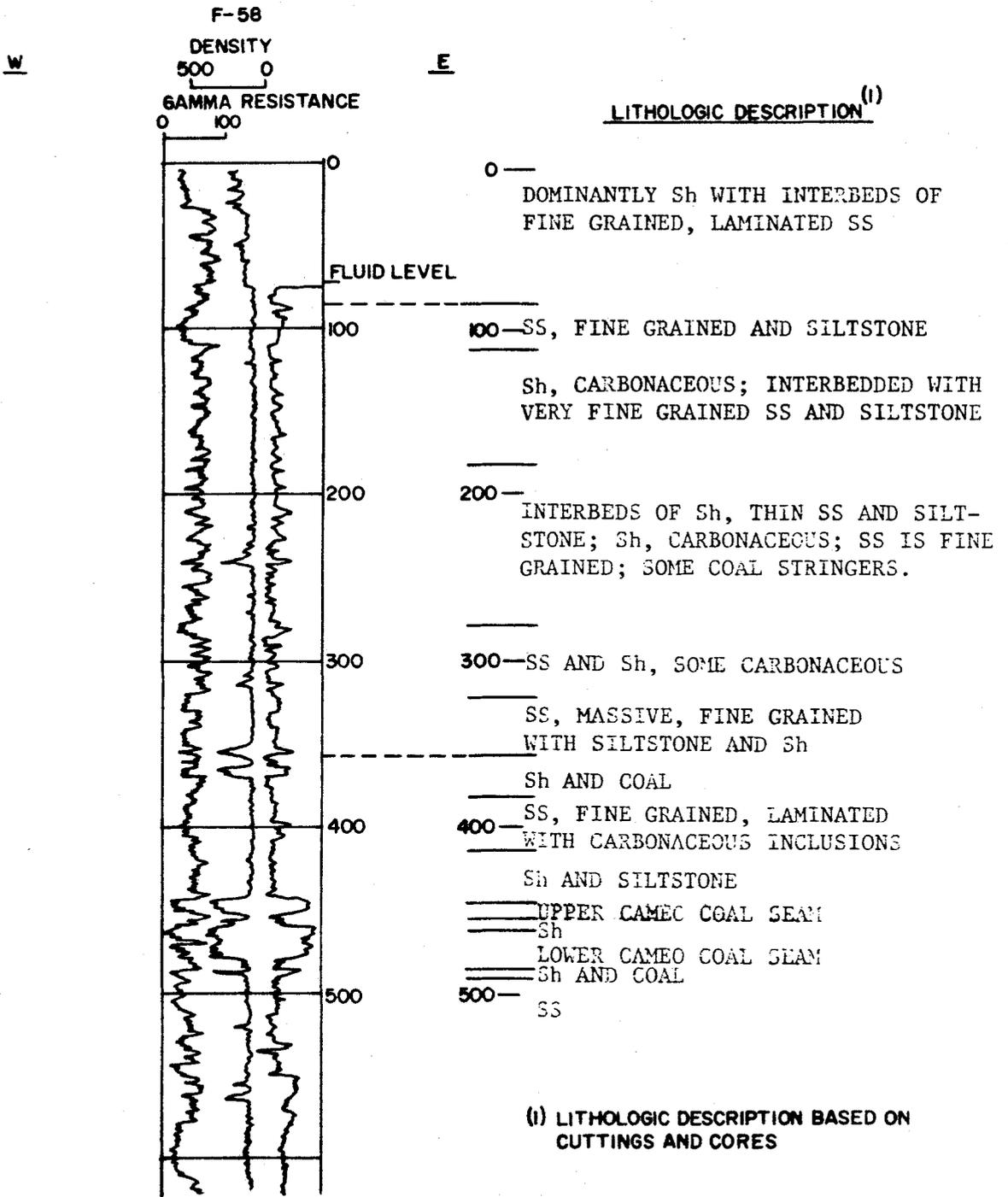
- Total Dissolved Solids
- Total Hardness (as CaCO<sub>3</sub>)
- Aluminum (Al)
- Arsenic (As)
- Barium (Ba)
- Boron (B)
- Carbonate (CO<sub>3</sub> <sup>-2</sup>)
- Bicarbonate (HCO<sub>3</sub> <sup>-</sup>)
- Cadmium (Cd)
- Calcium (Ca)
- Chloride (Cl<sup>-</sup>)
- Chromium (Cr)
- Copper (Cu)
- Fluoride (F<sup>-</sup>)
- Dissolved Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Mercury (Hg)
- Molybdenum (Mo)
- Nickel (Ni)
- Nitrogen: Ammonia (NH<sub>3</sub>)
- Nitrate (NO<sub>3</sub> <sup>-</sup>)
- Nitrite (NO<sub>2</sub>)
- Potassium (K)
- Phosphate (PO<sub>4</sub> <sup>-3</sup>)
- Selenium (Se)
- Sodium (Na)
- Sulfate (SO<sub>4</sub> <sup>-2</sup>)
- Sulfide (S<sup>-</sup>)
- Zinc (Zn)
- Cation-Anion Balance

- o submittal of borehole logs depicting lithology down to and including a minimum of 10 feet of stratum immediately below the lowest coal seam to be mined (see Exhibit 7);
  - o identification and estimate of thickness of major strata and coal seam(s) within a resolution of 0.5 feet.
- b) Run chemical and physical analyses of core samples as follows:
- o composite representative samples from 20 feet of overburden, the coal stratum and at least 10 feet of underlying strata;
  - o analyses to determine potential acid- or toxic-forming sections and physical aspects of the overburden and underlying strata. Sampling parameters to determine these effects are summarized in Table 3.
  - o analyses to determine potential acid- or toxic-forming sections and physical aspects of the coal stratum to be mined. Include pyritic sulfur tests, acid-base potential and determination of clay content.

## 2. Data Interpretation and Conclusions

### 2.1 Surface Water

Existing data, field observations and maps will be utilized to develop an accurate and thorough qualitative description of the Boyer Mine watershed and channel system.



(i) LITHOLOGIC DESCRIPTION BASED ON CUTTINGS AND CORES

Exhibit 7. Well Log

TABLE 3  
OVERBURDEN ANALYSES PARAMETERS

<u>Parameter</u>	<u>Reported As</u>
- pH	Hydrogen ion activity
- Conductivity	mmhos/cm at 25°C
- Saturation	Percent
- Particle Size Analysis	Percent clay, silt, sand and very fine sand
- Texture	USDA textural class
- Soluble Ca, Mg and Na	meq/l
- Sodium absorption ratio	SAR calculated from soluble Ca, MG and Na concentrations
- Carbonates	Percent
- Selenium	ppm to a lower detection limit of .01
- Boron	ppm
- Nitrate-Nitrogen	ppm
- Molybdenum	ppm to a lower detection limit of 0.1
- Mercury	ppm
- Acid Potential	meq H/100g or percent sulfur
- Neutralization Potential	percent CaCO <sub>3</sub> or tons CaCO <sub>3</sub> /1,000 tons material
- Acid-base Potential	tons CaCO <sub>3</sub> /1,000 tons material
- Arsenic	ppm

In perennial streams, the active-channel level is nearly coincident with the stage corresponding to mean annual discharge. For ephemeral streams, the active-channel capacity is usually more indicative of higher return flow events, such as the 10-year event. Greater accuracy can be achieved in these estimates by considering sediment properties. Although insufficient data exists to make firm discharge and sediment estimates using channel geometry regression techniques, these field observations are key indications of the existing flux in the local fluvial system.

It has long been established that quantity of sediment and sediment size are directly proportional to water discharge and stream channel slope (Lane, 1955). Relationships have also been developed to describe the balance in fluvial systems utilizing meander wave length, width, depth, gradient, and sinuosity (Schumm, 1969). Predictions of directions of change in these variables as a result of a change in one or more variables is possible. Hydrologic and meteorologic data gathered for the Boyer Mine site will be analyzed and as a minimum the following will be provided:

- o site-specific peak flow and low flow determination for Chalk Creek and the intermittent channel (see Exhibit 8 for sample peak flow calculations);
- o monthly graphical representation of average flows for Chalk Creek and the intermittent channel;
- o correlation of all runoff events to corresponding precipitation amounts for all channels;
- o chemical analysis for flows from all channels. Graphs will be include that depict seasonal variations in concentrations of all chemical constituents at each sampling site.

Exhibit 8.  
Flood Flows By SCS Method

	Site A	Site B
10 yr.	430	430
25 yr.	860	860

Figure 8  
SCS Method Calculation Summary

<u>Soils</u>							
Hydrologic Unit	Land Use	Condition	CN	Area, mi <sup>2</sup>		R <sub>10</sub>	R <sub>25</sub>
				to A	to B		
B	grazing, meadow	fair	68	4.5	4.5	.08	.20
B/C	grazing	fair	75	6.7	6.7	.20	.38
C	grazing, wildlife	fair	74	2.1	2.1	.18	.35
C/D	wildlife	poor+	88	<u>0.5</u>	<u>0.5</u>	.66	.97
	Total			13.8	13.6		

Precipitation

AMC:II

P<sub>10</sub>=1.6" P<sub>25</sub>=2.0"

Weighted R

$R_w = \sum (R_i \times A_i) / A_t$  gives

	<u>Site A</u>	<u>Site B</u>
R <sub>10</sub>	0.17	0.17
R <sub>25</sub>	0.34	0.34

Time of Concentration

Overland Portion.

slope, from  $S = (0.25z) \times (LC_{25} + LC_{50} + LC_{75}) / D.A.$ , measured from 1:100,000 map  
 $s = 0.25 \times 350m \times 3.28 \text{ ft/m} (14200 + 14200 + 8300) / 4.84 \times 10^7 \text{ ft}^2 = 22\%$

From Fig 3-1, "Peak Flows", with 1/2 way between short grass/bare ground

$$V = 4 \text{ ft./sec}$$

$T_t = L/V$ , L is measured as 10800 ft.,  $T_t$  = time of travel.

$$T_t = 0.75 \text{ hr.}$$

Exhibit 8 (con't).

Channel portion.

$$\text{Manning } v = 1.49/n r^{2/3} s^{1/2}$$

n is taken as 0.045

r is based on sta. 2+45 u/s, 2.5' depth, z=4

$$r = (b + zy)y / (b + 2y + z^2)$$

with b = 6, y = 2.5, z = 4;

$$r = 1.5$$

S is take as 0.02

$$v \text{ is thus: } 1.49/0.045 \times 1.5^{2/3} \times 0.02^{1/2} = 6.1 \text{ ft/sec}$$

$T_t$  to A:

$$T_{ta} = L_A/V, L_A = 31200 \text{ ft.}$$

$$T_{tb} = 1.42 \text{ hr.}$$

$T_t$  to B:

$$T_t = L_B/V \quad L_B = 29200 \text{ ft.}$$

$$T_t = 1.33 \text{ hr.}$$

$$\text{now: } T_c \text{ to A} = T_{ta} + T_t \text{ (overland)} = 1.42 + 0.75 = 2.17 \text{ hr.}$$

$$T_c \text{ to B} = T_{tb} + T_t \text{ (overland)} = 1.33 + 0.75 = 2.08 \text{ hr.}$$

Yield

from S-1 in "Peak Flows"

CSM/IN for A = 180; CSM/IN for B = 185

Peak Discharge

Sta A.

$$Q_{10} = R_{10} \times \text{D.A.} \times \text{CSM/IN} = 0.17 \times 14 \times 180 = 430 \text{ cfs}$$

$$Q_{25} = R_{25} \times \text{D.A.} \times \text{CSM/IN} = 0.34 \times 14 \times 180 = 860 \text{ cfs}$$

Sta B

$$Q_{10} = R_{10} \times \text{D.A.} \times \text{CSM/IN} = 0.17 \times 13.8 \times 185 = 430 \text{ cfs}$$

$$Q_{25} = R_{25} \times \text{D.A.} \times \text{CSM/IN} = 0.34 \times 13.8 \times 185 = 860 \text{ cfs}$$

For the regression equation method, the Sulphur Creek area was classified as Northern Plateau ( 7500 ft elevation). The regression equations in Table 5 of TMI were used. The appropriate value of A was used and annual precipitation was taken as 41 cm, or 16 inches from the SCMP.

The values resulting for  $Q_{10}$ ,  $Q_{50}$ ,  $Q_{100}$ ,  $Q_{500}$  are shown in Table 5. The  $Q_{25}$  value was estimated from a graph of these values, see Fig. 9.

Exhibit 8 (con't).

Using results of USGS regression equations to estimate  $Q_{25}$  at Sample stations 2 and 3 (B and A).

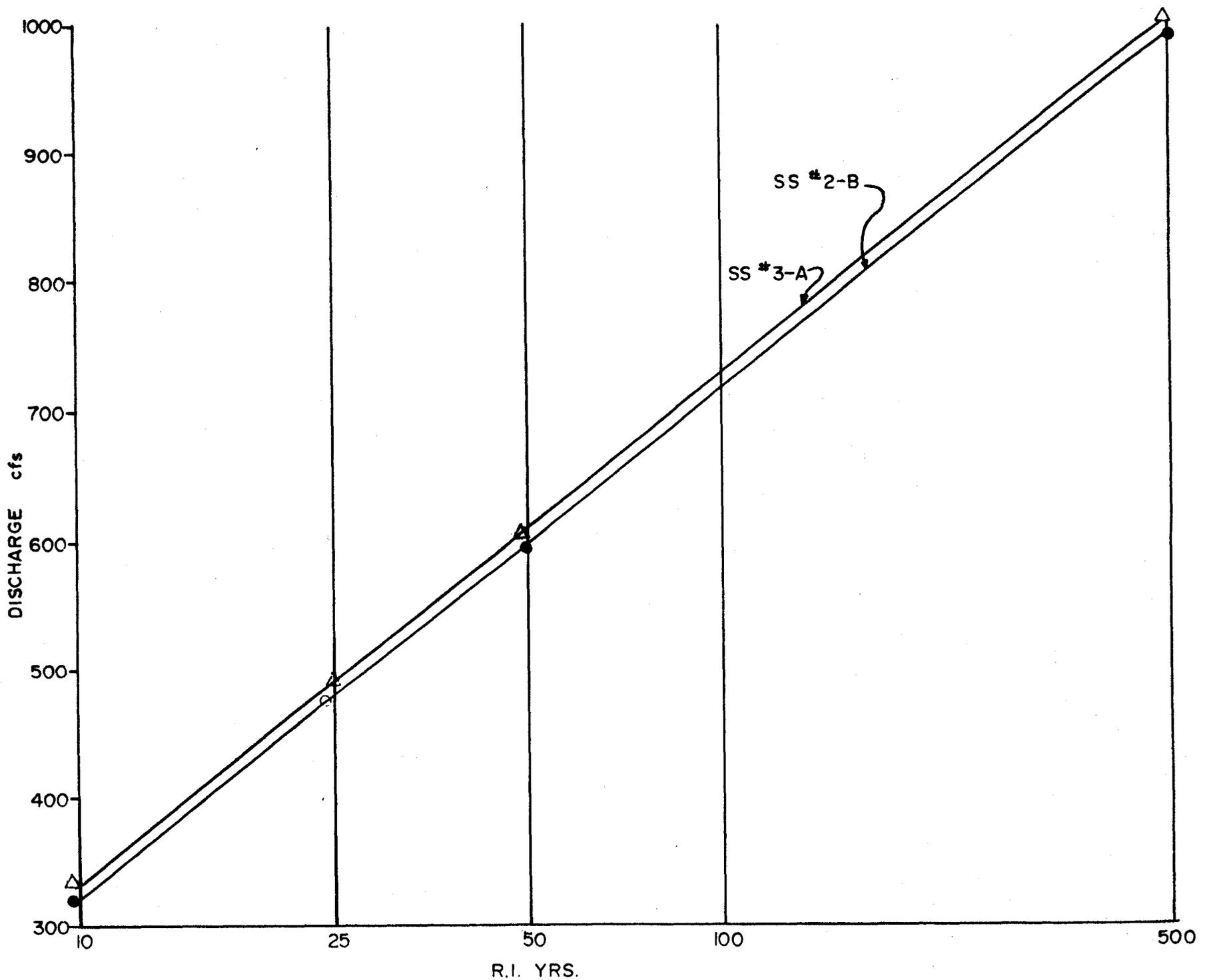


Exhibit 8 (con't)

Flood Flows By Regression Method.

	Site A	Site B
1. $Q_{10}$	335 cfs	330 cfs
2. $Q_{25}$	495	490
3. $Q_{50}$	600	600
4. $Q_{100}$	740	730
5. $Q_{500}$	1010	1000

1,3,4,5 are from regression equation. 2 is from interpolation on graph.

These two methods give roughly comparable results for the 10 year flood, but poor correlation for the 25 year flood. This is not unexpected, since the SCS method is not directly applicable to high watersheds and the regression method is being stretched to cover a smaller watershed than was used in developing the regression equations.

To apply the SCS method more correctly, it would be necessary to sub-divide the basins and adjust the CN/AMC relation based on precipitation data and runoff events. This degree of accuracy is not warranted at this stage. However, because the site visit indicated that the calculated flood flows were unexpectedly high, a brief revision of the SCS method was made. The rationale is given in the Appendix to this section.

For purposes of Task Order 4, the calculated values of  $Q_{10}$  and  $Q_{25}$  for AMC II should be used. If necessary, a refined set of values could be generated under the next Task Order. This would result in a better definition of the true AMC and other variables such as transmission losses, etc.

- o annual soil loss from undisturbed and typical disturbed areas will be estimated using actual soil data and acceptable methodologies.

*SPECIFIC*

## 2.2 Ground Water

Groundwater baseline analyses will include: a description of the regional geology and ground water flow; identification of all aquifers down to and including the first aquifer 10 feet below the lowest coal seam to be mined; identification of recharge and discharge areas; identification of water quality and use; and description of springs and seeps (location, source, water quantity, and water quality). Aquifer characteristics (transmissivity, specific yield and head) will be determined from aquifer tests. Information on overburden characteristics will be obtained from previous studies, and from laboratory analysis of existing core samples.

As a minimum, interpretation of the Boyer Mine ground water data will include:

- o site-specific high and low water level determinations for all monitoring sites;
- o monthly graphical representation of average water levels for all monitoring sites;
- o chemical analysis for samples from all monitoring sites. Graphs will be included that depict seasonal variation of concentrations of all chemical constituents at each sampling site.
- o determination through pump tests, slug tests, etc., of hydraulic conductivity, transmissivity storage

coefficients/specific yields and average specific capacity. Actual test data will also be submitted.

- o using available data, a water budget for the proposed permit area and surrounding areas will be derived.

### 2.3 Probable Hydrologic Impacts

Impacts on the geo-hydrologic balance will be projected based upon the analyses of existing conditions in the watershed system, surface and subsurface water quantity and water quality, and acid- or toxic-forming materials in the coal and overburden materials.

GOOD PRESENT. } Mining activities can effect several components of the watershed system such as availability of sediment for transport, compaction of soil, drainage density (by decreasing flow distance), vegetative cover, hillslope shapes and slopes. In order to design stable slopes and channels according to the conditions provided by reclaimed soils, vegetation, and topographic features, it is necessary to understand the watershed system in both the undisturbed and disturbed conditions. The purpose of the "Determination of Probable Hydrologic Impacts" in mining regulations is to provide a data base to compare the undisturbed and disturbed watershed conditions. The effects of the changes can then be analyzed and proper mitigation measures instituted in the mining activity in anticipation of these changes.

Similarly, early determination of coal and overburden chemical and physical characteristics and the relationship between the rock formations and ground water quality and quantity, helps in making the right decisions to make reclamation efforts more economical and successful. Coal mining can be expected to impact water quality by allowing previously separated aquifer systems with different chemical

characteristics to interact, or by exposing a stratum with undesirable elements to ground water circulation. Effects on water quantity may be reflected in the total dewatering of an aquifer system overlying the coal seam, lowering of ground water level on a regional level; or reduction of stream flow. This in turn would affect subirrigation conditions in areas where an alluvial valley floor (AVF) may exist such as along Chalk Creek adjacent to the Boyer Mine permit area.

} AVF

If adverse impact of the hydrologic system is predicted mitigative measures will include plans for replacement of impacted water rights, water treatment systems, and construction of sediment ponds among others.

3. Reports

Monthly narrative summaries will be submitted to the DOGM Lead Reviewer by the 15th of the following month. These summaries will include an updated report of work tasks accomplished, copies of technical results, a compendium of field data collected, a summary of certified laboratory results, identification of any problems encountered at the mine permit area and an estimate of cumulative expenditures by the Contractor to date.

The Project Manager will be responsible for maintaining coordination with the DOGM.

A draft report will be submitted to the Division's Lead Reviewer within 240 days after notice to proceed. The Division will review the report within 30 days and return it to JFSA with detailed comments of inadequacies. JFSA will address and correct the inadequacies in the draft report and resubmit it within 30 days.

The final report, containing a description of the existing environment and a statement of probable hydrologic consequences of the proposed underground mining activity, will be submitted to the Division on the 415th day after notice to proceed.

### III. PROJECT MANAGEMENT

Mr. Tsegaye Hailu will be the Project Manager as well as the Project Hydrogeologist. Mr. Hailu was involved in the West Appa Rilda Canyon Mine plan review and is familiar with Utah's Coal Mining and Reclamation Permanent Program.

The Project Manager is responsible for all communications with DOGM's Lead Reviewer and mine operator. The Project Manager assigns all technical work and ensures its accuracy and completeness. Schedule and budget are planned and monitored by the Project Manager. All personnel assigned to this project have worked together on several SOAP projects similar to this. Assignment of personnel is shown in Figure 1.

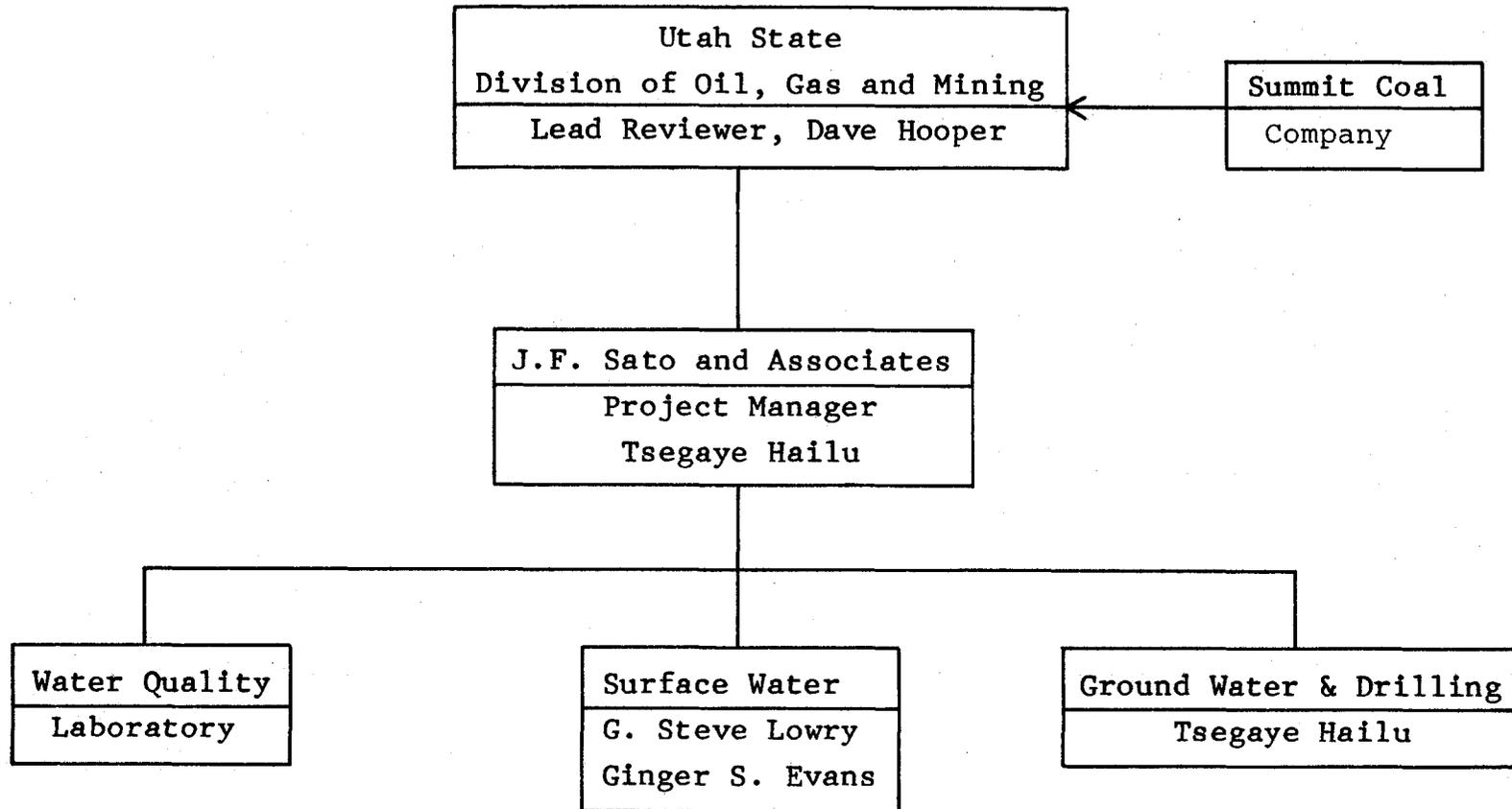


Figure 1. Management Structure

#### IV. WORK PLAN

The Boyer Mine project calls for the services of a hydrogeologist and a surface water hydrologist. The following table summarizes the tasks to be performed, the personnel required, and the manhours involved.

TABLE 4. PROJECT TASKS AND LABOR LOADING

<u>Tasks</u>	<u>Personnel</u>	<u>Manhours</u>
1. <u>Initial briefing &amp; site visit</u>	Project Manager (PM)	8
2. <u>Review of existing data - study records with DOGM, State Engineers Office, SCS, etc.</u>	Hydrogeologist Hydrologist	8 8
3. <u>Field data collection</u>		
a) Surface Water	Hydrologist	
-Water rights/use investigation		4
-Define watershed characteristics		16
-Describe Chalk Creek and Inter-mittent channel		16
-Monthly flow measurements & quarterly water quality testing & sampling		64
b) Ground Water	Hydrogeologist	
-Water rights/use investigation		8
-Drilling/well recovery (1)		80
-Logging/well completion/developing		16
-Aquifer/testing		8
-Monthly water level measurements and quarterly water quality testing and sampling		64
c) Geology	Hydrogeologist	
-Study site - specific geology		16
d) Travel	P.M./Hydrogeologist Hydrologist	included in the above tasks

<u>Tasks</u>	<u>Personnel</u>	<u>Manhours</u>
4. <u>Data evaluation and analysis</u>		
a) Surface water	Hydrologist	40
b) Ground water	Hydrogeologist	40
c) Geology	Hydrogeologist	16
d) Review of interpretations	P.M.	16
5. <u>Reports</u>		
a) Monthly progress summary	P.M.	24
b) Draft report	Hydrogeologist	40
	Hydrologist	40
c) Draft final report	Hydrogeologist	20
	Hydrologist	20
d) Final report	Hydrogeologist	12
	Hydrologist	12
e) Review of reports	P.M.	<u>16</u>
		612

(1) Includes travel time.

(2) Drilling of one monitor well in the western part of the permit area may be subcontracted to:

Construction Drilling International  
 1775 N. Beck Street  
 Salt Lake City, Utah 84116

## V. RELEVANT EXPERIENCE OF J.F. SATO AND ASSOCIATES

J.F. Sato & Associates provides a wide range of water resource and environmental services for design of monitoring programs, impact analysis, planning, permitting and regulatory compliance. Staff expertise includes civil engineering, river mechanics, water quality, groundwater hydrology, geology, geomorphology, erosion and sediment control, computer programming and revegetation. The firm has participated in projects with the U.S. Bureau of Mines, the Office of Surface Mining, the Department of Energy, Colorado Mined Land Reclamation Division, Colorado Dept. of Health, U.S. Forest Service, and the Bureau of Reclamation, and Western Area Power Administration, among others. Clients' satisfaction with the firms' professional performance are expressed in their letters of recommendation (Exhibit 9 to 12). Brief description of some of the projects are given below.

### Twin Pines No. 2 Mine (SOAP)

This project involved surface water, ground water and alluvial valley floor studies at the Twin Pines No. 2 Mine near Canon City. Field investigation included study of stream channel morphology, description of the geology and hydrogeology of the area, location of springs, completion and developing of one monitor well, field testing and sampling of surface waters, springs, and the monitor well, reconnaissance study of one alluvial valley floor, and determination of existing water rights in the area. Data were analyzed according to the requirements of the Colorado Mined Land Reclamation and the "Determination of Probable Hydrologic Consequences" and "Statement of the Results of Test Borings or Core Samplings" were prepared.

Staffing: Tsegaye Hailu, Principal Investigator

Ginger Sunday Evans, Hydrology

Client: Colorado Mined Land Reclamation Division

### Small Operator Assistance Program (SOAP)

J.F. Sato and Associates has been the contractor to OSM Region V to carry out the SOAP. This program provided assistance to



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

LLOYD 500 BUILDING, SUITE 1692

500 N.E. MULTNOMAH STREET

PORTLAND, OREGON 97232

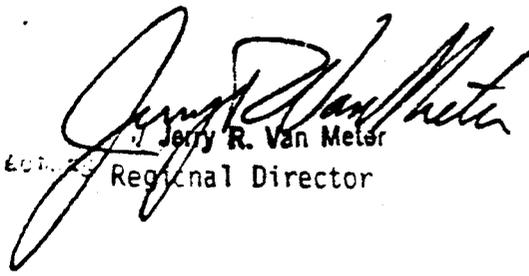
August 14, 1981

Mr. Larry Mann  
U.S. Department of Energy  
915 Second Ave.  
Seattle, Washington 98174

Dear Mr. Mann,

I would like to take this opportunity to thank your for the services of your contractor, J.F. Sato and Associates in conducting feasibility studies for hydroelectric potential at U.S. Fish and Wildlife Service facilities. Your cooperation in effecting the study is greatly appreciated. The study reports are already proving to be very useful in our energy conservation program.

Mr. Steve Lowry of J.F. Sato and Associates conducted the field studies and prepared the reports. He is to be commended for the exceptional quality of his work.

  
Jerry R. Van Meter  
Regional Director



**United States Department of the Interior**  
**OFFICE OF SURFACE MINING**  
**Reclamation and Enforcement**  
**BROOKS TOWERS**  
**1020 15TH STREET**  
**DENVER, COLORADO 80202**

August 10, 1981

To Whom It May Concern:

Subject: Letter of Recommendation

J.F. Sato and Associates have been doing consulting work for the Office of Surface Mining, Small Operator Assistance Program, for over one and a half years. The work has consisted of geologic, hydrologic and engineering analysis of existing and proposed coal mines in Colorado and New Mexico. The work products have been very professional and within time and budget constraints.

Murray Smith  
Assistant Regional Director  
State Programs Branch



STATE OF COLORADO RICHARD D. LAMY, Governor  
DEPARTMENT OF NATURAL RESOURCES  
D. Monte Pascoe, Executive Director

## **MINED LAND RECLAMATION**

423 Centennial Building, 1313 Sherman Street  
Denver, Colorado 80203 Tel. (303) 839-3567

**David C. Shelton**  
Director

August 5, 1981

To whom it may concern:

J. F. Sato and Associates have worked on two small operators assistance program (SOAP) projects I have dealt with in the last year; the Sulphur Creek and Sunlight coal mines. The SOAP program involves collection of baseline geologic and hydrologic information for small coal mines to use in obtaining a permit under the Colorado Permanent Regulatory Program.

To date, we have received a final report on the Sunlight Mine, which covers all the information needs presented by the Mined Land Reclamation Divisions. During our many meetings, I was particularly impressed by how well they worked with MLRD and the mine operator in reaching solutions to the various hydrologic and geologic issues presented. Therefore, based on my knowledge of their work, I would give this organization a good recommendation.

Sincerely,

**Jim Herron, Reclamation Specialist**

RECEIVED  
R 5-12-81 D



United States Department of the Interior  
OFFICE OF SURFACE MINING  
Reclamation and Enforcement  
BROOKS TOWERS  
1020 15TH STREET  
DENVER, COLORADO 80202

Mr. James F. Sato  
President  
J.F. Sato and Associates  
5898 South Rapp Street  
Littleton, Colorado 80120

11 MAY 1981

Dear Mr. Sato:

I would like to extend our thanks for the presentation given to the OSM staff regarding the Hydrology Manual. I appreciate the fact that your staff and the staff of Simons, Li and Associates took time out of your busy schedules to advise the OSM staff as to the uses of the Hydrology Manual. It is my understanding that the program answered many of the questions raised by our staff.

Again, thank you for all of your assistance in putting together this usefull document. I would like to extend special thanks to Ms. Ginger Sunday for her role in leading the project.

Sincerely,

John Nadolski  
Technical Project Officer

several operators to evaluate the impacts of mining in the areas of hydrology and overburden effects. Specifically, J.F. Sato & Associates has prepared the "Determination of Probable Hydrologic Consequences: and "Statement of the Results of Test Borings or Core Samplings" as well as other environmental requirements of Colorado Mined Land Reclamation Board. Studies of four mines in Colorado and New Mexico involved extensive field assessment of the hydrologic regime and geologic conditions. Heavy consideration was given to prediction of impacts on the hydrologic balance. All studies included Alluvial Valley Floor investigations.

Staffing: Ginger Sunday Evans, Project Manager & Hydrology  
G. Steve Lowry, Hydrology  
Dr. Russell Shepherd, Geology  
Tsegaye Hailu, Geology  
Helen Weagraff, Environmental Sciences  
Client: Office of Surface Mining, Region V

Ground Water Investigation for Pryor Mine (SOAP)

The primary goal of this investigation was to locate and characterize aquifer systems to be affected by proposed mining activities at Pryor Mine near Walsenburg, CO. Local and regional faults were mapped using aerial photos and field reconnaissance. The study also identified the geohydrologic connection between abandoned mine workings that are flooded and the new mining area. Overburden samples were analyzed for toxic and acid-forming materials and water samples were taken from the flooded workings. The undisturbed stream channel was studied for use in designing a stable reclaimed channel section.

Staffing: Ginger Sunday Evans, Project Manager/Engineering  
Surface Water Hydrology  
Tsegaye Hailu, Geology/Ground Water  
Helen Weagraff, Permits/Sampling  
Client: Colorado Mined Land Reclamation

Determination of the Impact of Longwall Mining on the Hydrologic Balance

J.F. Sato & Associates was contracted by the Bureau of Mines to carry out this study. The purpose of the project was to describe and monitor the baseline hydrologic conditions for an area that will be mined by longwall techniques. To accomplish this, several monitor wells were drilled and completed, groundwater pump tests were used to determine the aquifer characteristics, detailed geologic logging and coring were used to determine overburden characteristics, and a three-dimensional, finite-difference groundwater model was used to simulate the pre-mining aquifer system. A regular monitoring program was also implemented. Other components of the study included surface water investigations, on-site soil testing, water quality sampling, and establishing a weather station.

Staffing: Ginger Sunday Evans, Project Manager & Hydrology

G. Steve Lowry, Hydrology

Dr. Russell Shepherd, Geohydrology

Dr. James Warner, Computer Simulation

Tsegaye Hailu, Geology

Helen Weagraff, Soils and Vegetation

Client: U.S. Bureau of Mines

Study to Review and Analyze Approaches for Conducting Probable Hydrologic Consequences (PHCs) and Cumulative Hydrologic Impact Assessments (CHIAs) Associated with Surface Coal Mining Operations

This study for the Office of Surface Mining is in progress. Over 90 CHIAs and 100 PHCs for the coal producing states west of the Mississippi River have already been reviewed and an expansion of the scope of work to include the eastern states has been agreed upon in principle by the OSM. The final outcome will be a documentation, identification and analysis of methodologies used in CHIAs and PHCs nation wide. Data management and analysis are handled using an in-house computer.

Staffing: James Sato, Principal in Charge, P.E.  
John Nadolski, Principal Investigator & Hydrologist  
Tsegaye Hailu, Geology  
Russell Shepherd, Geohydrology  
Steve Lowry, Hydrology  
Ginger Evans, Hydrology  
Helen Weagraff, Environmental

Client: Office of Surface Mining

Surface Water Hydrology and Sedimentology Manual

This manual was prepared for OSM Region V. The initial task of the project was to review 30 mine permit applications to assess the predictive and analytical methods used by mine operators. Another segment of the project involved preparation of a Hydrology and Sediment Yield Work Manual, designed to facilitate some of the most frequently used procedures in mine plan submittals. The main document of the project, the Hydrology Manual, discusses in detail the technical merits of surface water hydrologic models, sediment yield models, and hydraulic structures applied to mitigate adverse impacts of coal mining. The manual was well received by OSM as expressed in their letter of recommendation, Exhibit 12.

Staffing: Ginger S. Evans, Project Manager  
Dr. Russ Shepherd, Geomorphology  
G. Steve Lowry, Hydrology  
Tsegaye Hailu, Geology  
Helen M. Weagraff, Environmental Sciences

Client: Office of Surface Mining

Mine Site Investigations for William Lackey Assoc.

Studies included a subsidence survey and monitoring program, detailed vegetation study, soil mapping, and drainage control plan. A coal resources estimation was also prepared for the site.

Staffing: Tsegaye Hailu, Geology  
Helen Weagraff, Soils and Vegetation  
Ginger Sunday Evans, Hydraulic Structures and Erosion  
Estimates.  
Client: Private Mining Company

Review of Soil Stabilization Methods for Four Mining and  
Reclamation Plans

J.F. Sato & Associates was a subcontractor on this study and provided input on erosion and runoff controls. The study also provided an assessment of methods used with recommendations of appropriate applications.

Staffing: Ginger S. Evans, Erosion and Runoff Control  
Client: Willard Owens Associates, Inc.

"K" Factor Determination

J.F. Sato & Associates was a subcontractor to Simons, Li Associates on this project for OSM, Region V. The project evaluated the contributing factors to erosion on four soil types found in western mining operations. The study uses a rainfall simulator to produce the required data which will then be analyzed. J.F. Sato & Associates was involved in both data collection and data analysis.

Staffing: Ginger S. Evans, Project Manager  
Client: Simons, Li Associates

Technical Assistance to DOE Region X for Small Hydropower  
Projects

JFSA was awarded this contract to assist potential developers evaluate their hydroelectric sites. To date the firm has analyzed 35 sites. Each appraisal level report contains information on potential technical, environmental, economic and social constraints. An estimate of the project cost is developed and compared to expected project revenues by means of a present value of net revenue analysis. A benefit/cost ratio is used to determine if the site warrants further study.

During this project, the firm has gained valuable experience in identifying the potential environmental and social impacts of such a project on the local area. Topics that have been addressed in some detail are fishery resources (both anadromous and resident), water rights, availability of water, competing land use (including USFS land), selection of equipment, and site layout.

This project operates under strict time and budgetary limits. JFSA has been able to produce high quality reports within these limits, as evidenced by the letter of recommendation from the U.S. Fish & Wildlife which is included as Exhibit 9.

Staffing: G. Steve Lowry, Water Resources

Client: Department of Energy

#### Low-Head Hydroelectric Evaluation and Inventory

J.F. Sato and Associates was a subcontractor to Tudor Engineering, San Francisco, for this Bureau of Reclamation study. The firm was given the primary responsibility for the comprehensive evaluation of developed and undeveloped low-head dam sites in seven of the seventeen western states under study. The last phase of the project, October 1980 to October 1981, included detailed appraisal studies for approximately 40 sites in a seven-state area. Flow exceedance values used to size the embankment, spillway, and turbine for each site were obtained using the SMHYDRO computer program developed by the Bureau of Reclamation and modified by Tudor/JFSA. Probable Maximum Flood (PMF) estimates were made using the Bureau of Reclamation-approved Creager formula.

Prior to the initial design, each site had been selected based on U.S.G.S. flow data, local topography, geology and both social and environmental constraints. The environmental considerations included fishery resources, visual impacts, water quality, recreation uses, protected species, cultural resources, wetlands and natural areas. The social impacts considered were those due

primarily to the effects of the in-migration of workers to the local area during the construction period.

Site reconnaissance provided basic data required for the initial design. Profiles and sections of the affected reach of river were then completed. Structures that would be impacted were identified. Site specific data on the nature of the river was collected. As a result of this study and other projects, our staff has a deep appreciation for environmental issues associated with, and has data for, many river systems in the western U.S. Our staff has used both the USGS Water Resources Data Publications and computer listings of USGS WATSTORE data. For the Bureau of Reclamation study, we covered Colorado, Nebraska, Kansas, New Mexico, Texas, Oklahoma, and Utah.

Staffing: Steve Lowry, Water Resources  
Ginger Evans, Water Resources  
Julie McHenry, Draftsperson  
Tsegaye Hailu, Geology

Client: Tudor engineering

#### Arapaho and Roosevelt National Forests Cadastral Survey Project

The project involved corner search and evaluation survey; clearing, marking and posting of National Forest boundary lines. Property boundaries were cleared, posted, marked and records and reports prepared for final documentation of the survey.

Staffing: Mike Smith, Chief Surveyor

#### Real Property Services

J.F. Sato and Associates is presently providing the Western Area Power Administration (WAPA) with services concerning real property including real property appraisals, land acquisition, land management, records, and reports, and right-of-way engineering.

Staffing: Robert Curnow  
Steve Webber

### Civil Engineering Support Services

This contract with WAPA is for engineering analysis, design, preliminary and final drawings, estimates, technical specifications and studies required for new and existing high-voltage (HV) and extra-high-voltage (EHV) substations and transmission lines.

Staffing: Scott Greim  
          Andy Rawlins  
          Jim Geist

### Winter Park, CO Flood Insurance Study

This project encompassed all engineering phases of flood insurance studies, as defined by FEMA for this region, including: hydrologic analysis of stream gage records using Log Pearson Type III; distinguishing snow melt peak flows from rainfall peak flows; utilizing existing cross-section data; performing required surveying according to a consistent datum; utilizing the most current version of HEC-II for hydraulic analysis; preparation of required base maps and mapping; and detailed project coordination.

The Winter Park study required an extensive study of existing flood information, since many of the developers along the Fraser River and its tributaries have done their own flood studies and mapping. The steep slope of these mountain streams makes consideration of supercritical flow an important element of the hydraulic analysis. Since aerial photo coverage was available for part of the study area, digitized channel cross-sections were obtained using photogrammetric methods.

Staffing: G.S. Lowry, Project Manager/Hydraulics  
          G.S. Evans, Hydrology/Hydraulics

### Big Dry Creek Flood Study

Backwater curves were calculated to determine the effect of channel encroachment at a Westminster Water Treatment Plant on an upstream highway bridge.

Staffing: J.F. Sato, Hydrologist/Hydraulic Engineer  
G.S. Evans, Hydrologist

#### Technical Data Book Preparation

The firm is currently under contract with the Bureau of Reclamation to prepare technical data books for about 50 days under the Safety Evaluation of Existing Dam (SEED) Program.

Staffing: J.F. Sato, Principal-in-Charge  
G.S. Lowry, Project Manager  
Tsegaye, Hailu, Project Coordinator, Preparer

#### Environmental Technical Services

The firm is currently under contract with the WAPA to provide services in environmental planning and environmental protection. Responsibilities cover environmental assessments and environmental statements, study for compliance of environmental legislation dealing with cultural resources, biological resources, and socioeconomics; provide guidelines for WAPA's toxic and hazardous material and waste situations, water and air quality related matters, participate in environmental protection and planning research, etc.

Staffing: Cindy Smith  
Steve Miller  
Karan S. North  
Ben Phillips  
Richard Becker

#### Mine Plan Reviews

JFSA has been reviewing numerous mining and reclamation plans for the Office of Surface Mining and the State of Utah. Particular areas of responsibility have included project management, surface and ground-water hydrology, alluvial valley floor determinations, cumulative hydrologic impact assessments, drainage and sediment control, roads, and bonding. The review process is multiphased beginning with a completeness review and culminating with a technical assessment. JFSA has recently been awarded a basic

ordering agreement for providing multidisciplinary assistance to the Office of Surface Mining.

Staffing: John Nadolski, Hydrology  
Tsegaye Hailu, Hydrogeology  
Paul Perasso, Civil Engineering

Clients: Office of Surface Mining  
Engineering Science  
Native Plants, Inc.

Cost: \$200,000 (JFSA)

Environmental Assessment of Coal Mining in Northwest Georgia

This EIA was prepared for Region II of OSM under a stringent time constraint. The purpose of the EIA was to evaluate the environmental impacts, if any, of the Federal regulatory program that was to be implemented in Georgia. The study covered three counties in which contour, limited strip, and underground mining was practiced. Impacts on the hydrology, geology, soils, wildlife, socioeconomic structure, transportation system, air quality, recreation resources and archeological resources were evaluated.

Staffing: James F. Sato, Project Manager  
G. Steve Lowry, Technical Team Leader, Hydrologist  
Dr. Russ Shepherd, Geologist  
Paul C. Deutsch, Soils  
E.J. Smith, Socioeconomics

Client: Office of Surface Mining Region II

## VI. EXPERIENCE OF PERSONNEL

Tsegaye Hailu is an experienced geologist and ground-water hydrologist. He logged and completed monitor wells for OSM and Colorado Mined Land Reclamation at Sulfur Creek Mine, Pryor Mine, and Twin Pines No. 2 Mine and several multiple-completion wells at the Fruita Mine for the Bureau of Mines. He has performed numerous aquifer tests, and determination aquifer characteristics. He has been Principal Investigator and Project Hydrogeologist on several SOAP projects in Colorado. Mr. Hailu was also involved in the Rilda Canyon mine plan review for DOGM. He is currently, Project Manager for the preparation of environmental assessments and secretarial decision documents as well as multidisciplinary support services for OSM.

Ginger S. Evans has managed and provided technical design for numerous surface- and ground-water investigations related to mining impacts. She successfully completed a large project for the U.S. Bureau of Mines that included design, drilling, completion and testing of 8 multiple-completion monitor wells ranging in depth from 500 to 1200 feet. A state-of-the-art computer model was used to analyze the ground-water system. Ms. Evans was also project manager for the Pryor Mine SOAP project which included drilling a 250-foot monitor well and analyzing a mined-through stream channel reconstruction. She has extensive experience monitoring surface streams, predicting flood peaks, and predicting erosion. She was senior author for the "Surface Water Hydrology and Sedimentology Manual" prepared for OSM. She has used standard U.S.G.S. stream gaging equipment on streams as large as the Yampa River.

G. Steve Lowry has extensive experience in ground- and surface-water hydrology projects. He assisted in the field completion of monitor wells for the U.S. Bureau of Mines. He has completed over 20 wells for the U.S. Public Health Service in Montana and over 10 in Africa. He has completed two "Probable

Hydrologic Consequences" documents for OSM and designed a stream reconstruction for Colorado Mined Land Reclamation. He performed stream surveys and gaging on Tarryall Creek for the City of Thornton.

Resumes of key personnel are included herein.

**TSEGAYE HAILU**  
Geologist/Hydrogeologist

**J.F. SATO AND ASSOCIATES, INC.**

**Education**

Diploma, Hydrogeology, Hebrew University, Jerusalem, 1970  
B.S., Geosciences, University of Hawaii, 1967

**Professional Affiliations**

Fellow, Geological Society of Africa  
National Water Well Association  
Colorado Ground Water Association  
Rocky Mountain Association of Geologists

**Experience**

Since joining J.F. Sato and Associates, Mr. Hailu has been involved in the geologic, engineering geology, hydrogeologic and environmental studies of several projects. Geologic tasks involved lithologic, stratigraphic and structural studies of strata overlying and underlying coal beds, identification of toxic materials within the strata, and coal reserve estimation. Hydrogeologic tasks consisted of ground water investigations, drill site selection, lithologic logging, interpretation of geophysical logs, development, completion and aquifer testing of wells. Under ground water monitoring services, Mr. Hailu performed water level measurements, water quality sampling and analysis of water quality data. Mr. Hailu also undertook engineering geology tasks in connection with investigations of proposed dam sites and preparation of technical data books on existing Bureau of Reclamation dams under the Safety Evaluation of Existing Dams program. Mr. Hailu dealt with environmental issues through mine plan reviews for coal mines in Colorado, Wyoming, Utah and North Dakota.

Mr. Hailu also served as Senior Geologist in the Geological and Mineral Resources Department of the Sudan. He supervised field parties and conducted mineral exploration and geologic mapping of the southeastern parts of the country. He helped compile a new Geologic Map of the Sudan (1:2,000,000).

As Senior Geological Consultant with Metals and Minerals Nigeria Limited, Mr. Hailu undertook mineral propection for gold and industrial minerals in southwestern Nigeria, carried out a market survey for limestone products throughout Nigeria, valuated some cassiterite and molybdenum mines, and carried out a geologic study of a proposed damsites.

Prior to his work in Nigeria, Mr. Hailu was with the Geological Survey of Ethiopia. He worked first, as regional mapping and mineral survey geologist, and later as head and co-project manager of the Survey and the United Nations Development Program's Strengthening Project. He has co-authored various papers and geologic map sheets of northern Ethiopia and contributed to the Geological Map of Ethiopia (1:2,000,000), 1973 Edition.

As Research Assistant at the Water Resources Research Center, University of Hawaii, he was responsible for establishing laboratory instrumentation for the concentration of tritium in natural Hawaiian waters for detection by scintillation counting as the first-phase in the study of groundwater flow direction and layering.

**GINGER SUNDAY EVANS**  
Hydraulics and Hydrology Engineering

**Education**

M.S., Hydraulics, C.E., Colorado State University, 1979  
B.S., Civil Engineering, Colorado State University, 1977

**Professional Engineer Registration**  
Colorado

**Experience**

Ms. Evans was Project Manager for a U.S. Bureau of Mines research study of a proposed longwall mining area. The study included a detailed field investigation and 3-D computer model of the groundwater system, installation and survey of a subsidence monitoring network, characterization of the surface water hydrology, and climatological monitoring for the longwall mining area. She is also Project Manager for hydrologic and geologic investigations at Pryor Mine funded by Colorado Mined Land Reclamation Board under the Small Operator Assistance Program. She assisted in design of sediment ponds at the G.E.C. mine and detention ponds and piping network for the Regional Transportation District's Arapahoe Park-n-Ride site in the Denver Tech Center. Ms. Evans was one of the project engineers for the Bureau of Reclamation's inventory of low-head hydroelectric sites in seventeen western states. During the study, she assisted in collecting environmental criteria and developing regional maps, selecting feasible sites, and preliminary design of the embankment, spillway, powerhouse and turbine for seven sites.

Ms. Evans was design engineer for the 1984 Arapahoe County Drainage Improvements Project. These projects included storm sewer and inlet design, estimates of peak flows, and riprap design. She was responsible for writing the construction specifications, assembling the bid package, and tabulation and evaluation of bids.

Ms. Evans was a member of the project team for the Winter Park FEMA Flood Insurance Study. she was in charge of hydrology and co-technical team leader of hydraulics. Ms. Evans has also prepared the hydrology and hydraulics report and construction documents for two bridges, one on the Cucharas River east of Walsenburg, (Colo. Dept. of Highways) and one on Cherry Creek in downtown Denver (City and County of Denver). She recently completed a project for Stapleton International Airport as co-project manager which included extensive hydraulic analysis and design of a \$1 million utility project.

Ms. Evans has served as Project Manager and hydrologist for preparation of two mine plan submittals to Colorado Mined Land Reclamation Board. Her experience assessment of the probable hydrologic consequences of mining and a special study of soil stabilization techniques on four North Dakota surface coal mines. She has designed water quality monitoring systems and runoff control plans for a mine in New Mexico and three mines in Colorado. Ms. Evans was Project Manager and senior author for the "Surface Water Hydrology and Sedimentology manual" prepared for the Office of Surface Mining. She prepared sections on field investigations for characterization of stream channels, regional hydrologic assessment techniques, estimates of peak flow from snowmelt, fluvial geomorphology, and hydraulic structures. As part of the same project, Ms. Evans was the sole author for a literature review of current hydrologic procedures and a work manual designed for facilitate calculations utilizing the most common techniques for hydrology and sediment yield. Under contract to URS Co., Ms. Evans has performed numerous urban hydrology studies using the Colorado Urban Hydrograph Procedure.

**Membership in Organization, Honors, and Publications**

Chi Epsilon

American Society of Civil Engineers (Outstanding Civil Engineering Student)

Colorado Engineering Council, Certificate of Merit

Ralph L. Parshall Award from the Dean of Engineering, CSU

Engineering Legislature, President

Shen, H.W., SUNDAY, G.K., Enck, E.D., "Salt Loading from Hillslopes," International Association for Hydraulics Research, proceedings of annual conference, Cagliari, Italy, 1979

G. STEVE LOWRY  
Water Resources Engineer

### Education

M.S., Civil Engineering, University of Hawaii, 1980  
B.S., Science Engineering, University of Michigan, 1971

### Professional Engineer Registration

Montana 1979  
Colorado 1980  
Washington 1982

### Experience

Mr. Lowry is the head of the firm's Water Resource Department. He has been with the firm since June 1980. During this time he has had progressive experience with projects in the areas of hydroelectric evaluation, hydraulic studies, water supplies, coal mine development, hydrologic studies and utility design.

Mr. Lowry's hydroelectric experience with JFSA includes being the Project Manager and Engineer for a U.S. Department of Energy contract to evaluate hydroelectric sites in the Pacific Northwest. Under this program 30 brief reconnaissance studies covering environmental, technical, economic and financial constraints were completed. Mr. Lowry also participated in the U.S. Bureau of Reclamation's Inventory of Small Hydroelectric sites. On this project, Mr. Lowry evaluated 10 sites in Colorado, Utah, Texas, and Oklahoma. Mr. Lowry has performed similar studies for the City of Walla Walla, Washington and Salem, Oregon. Prior to joining JFSA, Mr. Lowry served as a Resident Engineer on the construction of three small hydropower facilities.

Mr. Lowry's hydraulic study experience focuses on Flood Insurance Studies conducted for the Federal Emergency Management Agencies. Mr. Lowry is Project Manager and Task Leader for Hydraulics, on the Winter Park, CO study and the Arapahoe, Douglas, Teller Counties study. He has used HEC-2 for bridge and channel analysis and has formal training in its use.

Mr. Lowry's experience in the design of water supplies includes being Project Manager and Engineer for the design of extensive modifications to two water systems in the Rocky Mountain National Park. Prior to joining JFSA, Mr. Lowry had designed small surface water and groundwater systems for the Indian Health Service in Montana and for the Central District Council in Botswana, where he was a Peace Corps Volunteer.

Mr. Lowry has experience in the development and permitting process for coal-mines. He was the Technical Team Leader for the OSM sponsored Environmental Impact Assessment of Coal Mining in N.W. Georgia. He has performed the hydrology and hydraulic studies for sedimentation ponds for OSM's Small Operator Assistance Program as well as directly for coal operators. He was Project Manager and Hydrologist for a study of the 66 mile long Castle Valley RR spur in Utah.

In the area of utility design Mr. Lowry has designed water and sewer lines for the Stapleton International Airport expansion program. This involved extensive field work and analysis of existing facilities. He also investigated utility and relocations for the preliminary engineering portion 15 miles of the Denver Light Rail system.

VII. PROJECT COST

<u>Item</u>	<u>Rate/Hour</u>	<u>Hours</u>	<u>Amount</u>
<u>LABOR</u>			
Project Manager	\$40.00	64	\$2,560.00
Hydrogeologist	40.00	328	13,120.00
Hydrologist	46.00	220	<u>10,120.00</u>
		Sub-total	\$25,800.00

DIRECT EXPENSES

Travel <sup>(1)</sup> - \$98/person-roundtrip x 12 persons-roundtrip		\$1,176.00
Per diem - \$50/person-day x 30 person-day		1,500.00
Telephone		150.00
Copying		<u>100.00</u>
	Sub-total	\$2,926.00

Subcontractor and Other Costs

Drilling <sup>(2)</sup> (including casing material)	\$24,000.00
Laboratory - (Utah State Health Laboratory)	4,576.00
Surfacewater - \$130/sample x 18 samples = \$2340	
Groundwater - \$106/sample x 16 samples = \$1696	
Overburden <sup>(3)</sup> - \$180/sample x 3 samples = \$540	
Air freight - (15 lb of overburden samples)	56.00
Recording rain gage	<u>2,000.00</u>
	Sub-total \$30,632.00

Summary:

Total Labor	\$25,800.00
Total Direct Expenses	<u>33,558.00</u>
Total Project Cost	\$59,358.00

(1) Most of the traveling is for the monthly surface flow and ground water level measurements. JFSA will attempt to minimize this cost by hiring a qualified local person to do the monthly surface and ground water monitoring. The quarterly field water quality

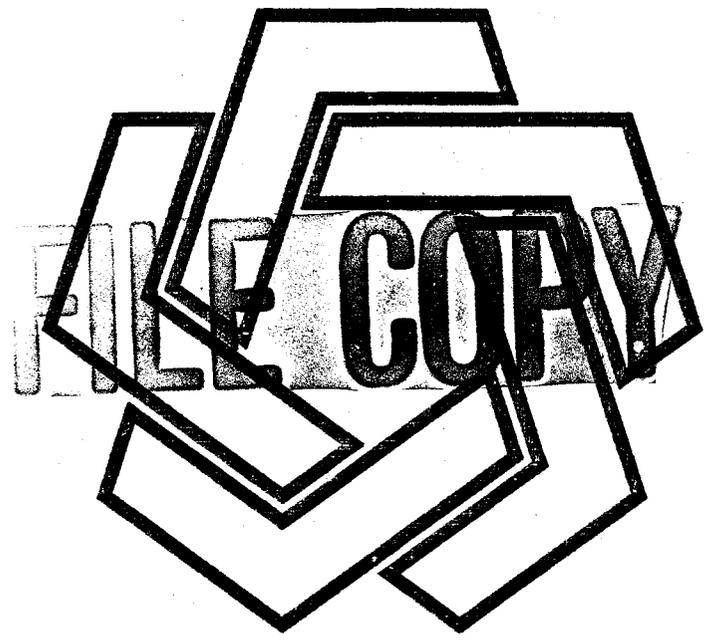
tests and water quality samplings will, however, be performed by JFSA. Estimates of cost reduction from such an arrangement are shown below:

<u>Item</u>	<u>Unreduced Cost</u>	<u>Reduced Cost</u>
Surface water and ground water monitoring (local help @ \$25/hr)	\$2,560.00	\$1,600.00
Travel	1,176.00	588.00
Per diem	<u>1,500.00</u>	<u>950.00</u>
Total	\$5,236.00	\$3,138.00

Net cost reduction (\$5,236.00 - \$3,138.00) = \$2,098.00

- (2) Drilling cost was estimated at \$24/ft for 900 ft depth plus mobilization and casing material costs. Further reduction of cost may be realized if the depth for the new monitor well turns out to be shallower than estimated.
- (3) Overburden samples will be analyzed by Accu-Labs Research, Inc. of Denver, Colorado.

**BOYER MINE  
PHASE I  
CONTRACT SPECIFICATIONS  
ACT/043/008  
Fall 1990  
SUMMIT COUNTY, UTAH**



**STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS & MINING  
COAL RECLAMATION PROGRAM**

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS & MINING  
COAL RECLAMATION PROGRAM  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
(801)538-5340

Issued to: \_\_\_\_\_

Check No: \_\_\_\_\_ ( ) General Conditions issued

Issued by: \_\_\_\_\_, DOGM

Date: \_\_\_\_\_

The Utah Department of Natural Resources receives federal aid and prohibits discrimination on the basis of race, color, sex, age, national origin, or handicap. For information or complaints regarding discrimination, contact Executive Director, Utah Department of Natural Resources, 1636 West North Temple #316, Salt Lake City, Utah 84116-3193 or Office of Equal Opportunity, U.S. Department of the Interior, Washington, D.C. 20240

# FILE COPY

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## NOTICE TO CONTRACTORS

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM), 1110 State Office Building, Salt Lake City, Utah, phone 538-3016, for the BOYER MINE, PHASE I, RECLAMATION CONSTRUCTION, Summit County, Utah.

Specifications may be obtained from 8:00 am to 5:00 pm starting September 5, 1990, from the Coal Reclamation Program, Division of Oil, Gas and Mining (DOGGM), 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah 84180-1203, phone 538-5340. A \$20 charge is required. All bidders must be prequalified with DFCM.

### A MANDATORY SITE MEETING WILL BE HELD FOR ALL BIDDERS ON SEPTEMBER 12, 1990.

Meet at the Boyer Mine Site, located approximately 11 miles east of the town of Coalville along the Chalk Creek Road, at 11:00 am.

Bids will be received until 3:00 pm, Wednesday, September 19, 1990, at which time they will be opened and read aloud in the DFCM offices. Engineer's estimate is \$5,000.00. Project Engineer is Randy Harden, DOGM.

DIANNE R. NIELSON, DIRECTOR, DOGM



# INSTRUCTIONS TO BIDDERS

## 1. Request for Bids

The Utah Division of Facilities Construction and Management is accepting bids for BOYER MINE, PHASE I, RECLAMATION CONSTRUCTION. The WORK consists of backfilling three (3) mine portals at an abandoned mine site in Summit County, Utah. Details of the WORK are contained in these Specifications. Bids are due on Wednesday, September 19, 1990, no later than 3:00 p.m., at which time they will be opened and read aloud in room 1110 of the State Office Building.

## 2. Prequalification of Bidders

Prior to bid opening, it will be necessary for the person or company bidding to have on file with the Division of Facilities Construction and Management a copy of their current Utah license covering the type of work to be done and a statement from their surety company evidencing bondability to the amount of the Contract.

All CONTRACTORS who have previously performed WORK on an Abandoned Mine Reclamation (AMR) project or a Coal Reclamation project will be evaluated based on the Contractor Performance Rating Form (Appendix B). A rating of ten points or more is required.

## 3. Drawings and Specifications

Drawings and Specifications may be obtained from the Division of Oil, Gas and Mining for the amount stated in the NOTICE TO CONTRACTORS. Checks should be made payable to the Utah Division of Oil, Gas and Mining. The payment is nonrefundable and covers the costs of printing the Drawings and Specifications.

General Specifications entitled General Conditions for Reclamation Projects dated June 24, 1988, are part of these Specifications.

## 4. Pre-bid Site Meeting

Meet at the Boyer Mine Site, located approximately 11 miles east of the town of Coalville along the Chalk Creek road, at 11:00 am, September 12, 1990. The site meeting is expected to last approximately two (2) hours.

DUE TO THE NATURE OF THE WORK IN THIS PROJECT, CONTRACTORS ARE REQUIRED TO ATTEND THE SITE MEETING.

5. Proposals

Before submitting a proposal, each bidder shall carefully examine the drawings, specifications and other contract documents; shall visit the site of the WORK; shall fully inform himself or herself as to all existing conditions and limitations; and shall include in the proposal the cost of all items included in the CONTRACT. CONTRACTOR shall fill out all blanks and include all forms and submittals, or be subject to having the bid disqualified.

The pages required for bidding are bound in the specifications on perforated sheets for easy removal. The bidder should submit the Proposal, Bid Bond, Minority and Woman Business Form, Bid Schedule, and required submittals in the sealed bid.

6. Contract and Bond

The contract agreement will be on a form similar to that which is bound in the specifications. The completion date of construction will be as indicated in the proposal. The successful bidder simultaneously with the execution of the contract agreement will be required to furnish a performance bond and a payment bond in an amount equal to one hundred percent (100%) of the contract price, said bonds shall be secured from a company satisfactory to OWNER.

7. Listing of Subcontractors

The experience and responsibility of Subcontractors may have bearing on the selection of a CONTRACTOR by the OWNER.

The apparent two low bidders shall deliver to OWNER within 24 hours (not including Saturday, Sunday, or State holidays) for OWNER's approval, a list of the names of Subcontractors to be furnished for each of the principal parts of the work and the corresponding dollar amounts. Each principal part shall mean a subcontract dollar value in excess of \$5,000. A form for this submission is included in these Specifications.

Such list shall be binding upon the CONTRACTOR; however, OWNER has a right to reject any or all Subcontractors listed or unlisted which OWNER feels is unqualified to do the work.

OWNER may withhold awarding CONTRACT to any particular bidder if one or more of his or her proposed Subcontractors are considered by the OWNER to be unqualified.

8. Interpretation of Plans and Specifications

If any person contemplating submitting a bid for the proposed CONTRACT is in doubt as to the true meaning of any part of the drawings, specifications or other proposed CONTRACT documents, he or she may submit to the Division of Oil, Gas & Mining a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery.

Any interpretation of the proposed documents will be made only by addendum duly issued. A copy of such addendum will be mailed or delivered to each person receiving a set of documents. The OWNER will not be responsible for any other explanations or interpretations of the proposed documents.

9. Addenda or Bulletins

Any addenda or bulletins issued during the time of bidding shall become part of the documents issued to the bidders for the preparation of the bid, shall be covered in the bid, and shall be made a part of the CONTRACT.

10. Bid Schedule

Bidding CONTRACTORS shall examine the specifications and the Bid Schedule and fill in all blanks of the CONTRACTOR'S Proposal and Bid Schedule and submit all required information contained in the Specifications Schedule or have the bid subject to disqualification.

11. Award of CONTRACT

The CONTRACT will be awarded as soon as possible to the lowest responsible bidder, provided the bid is reasonable and is in the interests of the OWNER to accept it. Responsible bidders will be considered to be those bidders who have fully evaluated the WORK to be performed, as detailed in their bids. For bidders who have previously performed WORK on a Reclamation project, evaluation of the responsibility of the bidder will also include consideration of past performance on Reclamation CONTRACTS. Both the base bid price and the unit prices for additional quantities will be considered in awarding the CONTRACT. The OWNER may reject a bid if unit prices for Additional Work are inconsistent with the base bid prices. The OWNER reserves the right to waive any technicalities or formalities in any bid or in the bidding.

12. Qualifications

The CONTRACTOR's and Subcontractor's past performance, organization, equipment, and ability to perform and complete their contracts in the manner and within the time limit specified will be elements along with the cash amount of the bid, which will be considered by the OWNER in the letting of the CONTRACT. A rating of ten points or more on the Contractor Performance Rating Form (Appendix B) is required for any CONTRACTOR who has previously performed WORK on a Reclamation project. The CONTRACTOR shall comply with and require all of his or her Subcontractors to comply with the license laws as required by the State of Utah.

13. Cost Breakdown

The CONTRACTOR shall, before starting WORK, submit to OWNER a cost breakdown showing the cost of various segments of the WORK according to a specification heading, the total amount equaling the CONTRACT price. This breakdown shall be used as the basis for the payment of estimates as stated in the contract documents.

14. Right to Reject Proposals

The OWNER reserves the right to reject any or all proposals.

15. Time is Essence and Award of CONTRACT

Time is of the essence in award of the CONTRACT.

16. Withdrawal of Bids

Bids may be withdrawn upon written or telegraphic request received from bidders prior to the time fixed for opening. Telegraphic request must be received by OWNER in written form before bid opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

17. Bid Security

Bid Security in the amount of five percent (5%) of the bid, made payable to the Division of Oil, Gas & Mining, shall accompany bid. If a certified or cashier's check is used in lieu of bid bond, a current certificate from an approved surety company guaranteeing execution of a 100% Performance Bond and 100% Payment Bond must be on file with the OWNER.

# PROPOSAL

NAME OF BIDDER \_\_\_\_\_ DATE \_\_\_\_\_

To the Division of Facilities and Construction Management  
4110 State Office Building  
Salt Lake City, Utah 84114

Gentlemen:

The undersigned, in compliance with your invitation for bids for the  
**BOYER MINE, PHASE I RECLAMATION CONSTRUCTION,**  
having examined the Drawings and Specifications, related documents, and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of labor, hereby propose to furnish all labor, materials, and supplies as required for the WORK in accordance with the CONTRACT documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the WORK required under the CONTRACT Documents of which this Proposal is a part. Negotiation of BID PRICE shall be completed with the OWNER prior to final execution of the CONTRACT.

I/We acknowledge receipt of the following addenda: \_\_\_\_\_, For all WORK shown on the Drawings and described in the Specifications, I/we agree to perform for the sum of:

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)  
(In case of discrepancy, written amount shall govern)

For your consideration, we further propose the following ALTERNATIVES for the following total amounts to be added/deducted to/from the above bid amount:

\_\_\_\_\_ Add \$ \_\_\_\_\_ Deduct \$ \_\_\_\_\_

I/We guarantee to complete the WORK within 25 calendar days after receipt of Notice to Proceed, should I/we be the successful bidder.

For your consideration I/we propose an alternative amount of time to complete the WORK after Notice to Proceed, should I/we be the successful bidder. Such an extension allows the following total amount to be deducted from the bid amount:

Alternative: \_\_\_\_\_ Total Calendar Days      Deduct \$ \_\_\_\_\_

This bid shall be good for 45 days after bid opening.

Enclosed is \_\_\_\_\_, as required, in the sum of \_\_\_\_\_  
(Bond or Check)

The undersigned CONTRACTOR's License Number for Utah is \_\_\_\_\_.



## BID BOND

\_\_\_\_\_  
Date Bond Executed

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Sum of Bond

KNOW ALL MEN OF THESE PRESENTS, that we, the PRINCIPAL AND SURETY above named, are held and firmly bound unto the STATE OF UTAH, ACTING BY AND THROUGH THE DIVISION OF OIL, GAS AND MINING OF UTAH, IN THE SUM OF THE AMOUNT STATED ABOVE, FOR THE PAYMENT OF WHICH SUM WELL AND TRULY TO BE MADE, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents. THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the principal has submitted the accompanying bid, dated as shown above, for:

\_\_\_\_\_ DOLLARS (\$\_\_\_\_\_)

NOW THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal shall execute a CONTRACT and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such CONTRACT to the principal, this obligation shall then be null and void; otherwise it shall remain in full force and effect.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

\_\_\_\_\_  
INDIVIDUAL OR PARTNERSHIP PRINCIPAL

\_\_\_\_\_  
Corporate Principal

\_\_\_\_\_  
Business Address

By: \_\_\_\_\_ Affix  
Corporate  
Seal

\_\_\_\_\_  
Title

**SURETY COMPANY:**

\_\_\_\_\_  
Corporate Surety:

\_\_\_\_\_  
Business Address:

By: \_\_\_\_\_ Affix  
Corporate  
Seal

\_\_\_\_\_  
Attorney-in-Fact

**WITNESS:**

\_\_\_\_\_, being first duly sworn on oath,  
deposes and says that he/she is the Attorney-in-Fact of the above-named Surety Company, and  
that he/she is duly authorized to execute the same and has complied in all respects with the  
laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

Subscribed and sworn to before me this \_\_\_\_\_ DAY OF \_\_\_\_\_ 19\_\_

My commission expires \_\_\_\_\_

NOTE: If certified or cashier's check is used in lieu of Bond, a certificate from an approved surety  
company guaranteeing execution of a full performance bond must accompany bid.

**BIDDER'S PROPOSED SUBCONTRACTORS, SUPPLIERS & VENDORS LIST**

**BOYER MINE PHASE I RECLAMATION CONSTRUCTION**

ACT/043/008

Utah Division of Oil, Gas & Mining

In conformance with Section 63-10-26, UCA, we submit the following list of subcontractors, suppliers and vendors for OWNER approval. We recognize this list as binding on us, and acknowledge OWNER'S right to reject any or all subcontractors, suppliers or vendors listed or unlisted which the OWNER feels are unqualified to do the work.

<u>SUBCONTRACTOR</u>	<u>CONTRACT AMOUNT</u>	<u>STATE CONTRACTOR'S LICENSE NO.</u>	<u>LICENSE LIMIT</u>
Excavation:			
Concrete:			
Masonry:			
Demolition:			
Fabrication:			
Revegetation			
Other:			

<u>SUPPLIER/VENDOR</u>	<u>AMOUNT</u>	<u>PRODUCT</u>

BIDDER'S PROPOSED SUBCONTRACTORS, SUPPLIERS & VENDORS LIST

Page 2

We certify that:

1. This list includes all subcontractors, suppliers and vendors whose bids exceed \$5,000.
2. Where we have listed "Self" it is our intent to perform said work and that we generally and regularly perform that type of work, and are appropriately licensed.
3. Any approved change in sub-bidders, suppliers or vendors which results in a lower contract price for sub-bid work shall accordingly reduce the total sum of the prime contract.

Signed by: \_\_\_\_\_

Firm: \_\_\_\_\_

Date: \_\_\_\_\_

Note:

Failure to submit this form properly completed and signed within 24 hours (not including Saturday, Sunday, or State holidays) of the bid opening may be grounds for OWNER'S refusal to enter into a written CONTRACT with BIDDER. Action will be taken against BIDDER'S bid bond or cashier's check as deemed appropriate by OWNER. Timely notice of unacceptable subcontractors, suppliers or vendors will be given to the BIDDER.

**MINORITY AND WOMAN BUSINESS ENTERPRISE REPRESENTATION**

The offeror represents that it [ ] is [ ] is not a minority business enterprise.

A minority business enterprise is defined as a concern that:

- 1) is at least 51 percent owned by one or more individuals who are socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock owned by one or more individuals who are socially and economically disadvantaged individuals; and
- 2) has its management and daily business controlled by one or more such individuals.

Qualified groups. The offeror shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic American, Native Americans, Asian-Pacific American, Asian-Indian Americans, and other individuals found to be qualified by the Small Business Administration under 13 CFR 124.1.

The offeror represents that it [ ] is [ ] is not a woman business enterprise.

A woman business enterprise is defined as a concern that:

- 1) is at least 51 percent owned by one or more women, or a publicly owned business having at least 51 percent of its stock owned by one or more women; and
- 2) has its management and daily business controlled by one or more of the women owners.

Business firms which are 51 percent owned by minorities or women, but are in fact managed and operated by non-minority individuals do not qualify as minority or woman business enterprises.

The offeror represents that the following proposed subcontractor(s) is (are) a minority or woman business enterprise:

---

---

\_\_\_\_\_  
Signature of Offeror

\_\_\_\_\_  
Title

Date: \_\_\_\_\_

This information is requested for Federal reporting purposes only. Minority/woman status has no bearing on the selection of a contractor.



**BID SCHEDULE**  
**BOYER MINE PHASE I RECLAMATION CONSTRUCTION**

ITEM OF WORK	SPECIFICATION SECTION	ESTIMATED QUANTITY	LUMP SUM \$ AMOUNT	ADDITIONAL UNIT \$ AMOUNT
1. Bonds/Insurance			\$ _____	n/a
2. Mobilization/Demobilization	0220		\$ _____	n/a
3. Mine Closures	0250, 0300			-
Backfilling				
Portal 1		290 YD3	\$ _____	\$ _____/YD3
Portal 2		290 YD3	\$ _____	\$ _____/YD3
Portal 3		290 YD3	\$ _____	\$ _____/YD3
4. Water Bars	0300	2 EACH	\$ _____	\$ _____/EACH
Total BID PRICE for Site			\$ _____	LUMP SUM

OPTIONAL WORK - NONE.

NOTE: Award of CONTRACT will be based on consideration of the base BID PRICE.



# C O N T R A C T

Boyer Mine Phase I  
Reclamation Construction  
Summit County, Utah

THIS AGREEMENT, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 1990 by and between the DIVISION OF OIL, GAS & MINING, hereinafter called the OWNER, and \_\_\_\_\_ a corporation authorized to transact business in the State of Utah as \_\_\_\_\_, hereinafter called the CONTRACTOR, whose address is:

\_\_\_\_\_.

WITNESSETH: WHEREAS, the OWNER intends the WORK to include reclamation construction of the BOYER MINE, PHASE I.

WHEREAS, the CONTRACTOR agrees to perform the WORK for the sum herein stated.

NOW THEREFORE, the OWNER and the CONTRACTOR for the considerations hereinafter provided agree as follows:

## **ARTICLE 1. SCOPE OF WORK.**

The SCOPE OF WORK, hereinafter the WORK, to be performed is that contained in the Drawings and Technical Specifications prepared by: the Division of Oil, Gas & Mining and entitled TECHNICAL SPECIFICATIONS: Boyer Mine Phase I; the General Specifications prepared by the Division of Oil, Gas and Mining entitled GENERAL CONDITIONS FOR RECLAMATION PROJECTS, dated June, 1988; and the Supplementary Conditions listed in the Technical Specifications cited above.

The CONTRACTOR agrees to furnish all labor, materials and equipment to complete the WORK as described the Drawings, Specifications, and addendums to the specifications which are hereby made a part of this CONTRACT by reference. It is understood and agreed by the parties hereto that all WORK will be performed as required in the Drawings and Specifications and will be subject to inspection and approval prior to final acceptance by the OWNER. The relationship of the CONTRACTOR to the OWNER hereunder is that of an independent CONTRACTOR.

## **ARTICLE 2. TIME OF COMPLETION.**

The WORK under this CONTRACT shall be commenced upon notice to proceed and shall be completed within \_\_\_\_\_ calendar days after date marked on registered receipt of said Notice to Proceed and no later than \_\_\_\_\_ 1990. WORK delays caused by weather may, at the discretion of the OWNER, extend the completion date. CONTRACTOR also agrees to the liquidated damages provisions of Article 14.

**ARTICLE 3. CONTRACT SUM.**

The OWNER agrees to pay, and the CONTRACTOR agrees to accept in full performance of this contract, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_) , which is hereinafter the BID PRICE (plus any alternatives) and which sum also includes the cost of a Performance Bond and Payment Bond for 100% of the Bid Price, said Bonds having been posted by the CONTRACTOR pursuant to State law.

**ARTICLE 4 PAYMENT.**

OWNER will promptly pay for services performed by the CONTRACTOR. Vouchers for reimbursement of expenditures under this Agreement must be filed promptly with OWNER's Representative by the tenth day of the month following the month in which WORK has been performed. OWNER will withhold from payment an amount not to exceed 10% of the total CONTRACT cost, except for Mobilization, which will have 40% withheld, until all WORK has been performed by the CONTRACTOR and is approved and accepted by OWNER.

**ARTICLE 5. INDEBTEDNESS.**

Before final payment is made, the CONTRACTOR must submit evidence including lien waivers, satisfactory to the OWNER that all payrolls, materials bills, subcontracts and outstanding indebtedness in connection with the WORK have been paid or that arrangements have been made for their payment. Payment will be made without unnecessary delay after receipt of such evidence as mentioned above and Final Acceptance of the WORK by the OWNER.

**ARTICLE 6. ADDITIONAL WORK.**

It is understood and agreed by the parties hereto that no money will be paid to the CONTRACTOR for any additional WORK, labor or materials, furnished unless a new CONTRACT in the form of a Change Order or a modification hereof for such additional materials or labor has been executed by OWNER and CONTRACTOR. The OWNER specifically reserves the right to modify or amend this CONTRACT and the total sum due hereunder either by enlarging or restricting the WORK through a change order.

**ARTICLE 7. ACCEPTANCE.**

The WORK will be inspected for acceptance by the OWNER promptly upon receipt of notice from the CONTRACTOR that the WORK is complete and ready for inspection.

**ARTICLE 8. DISPUTES PERTAINING TO PAYMENT FOR WORK.**

Any disputes which may arise respecting the value of any WORK done, or any WORK omitted, or of any ADDITIONAL WORK which CONTRACTOR may be required to perform, or respecting any other elements involved in this CONTRACT, will be decided by the Director of the Division of Oil, Gas & Mining, acting as the OWNER.

**ARTICLE 9. TERMINATION OF CONTRACT**

- a. If the CONTRACTOR is adjudged bankrupt or if the CONTRACTOR makes a general assignment for the benefit of CONTRACTOR'S creditors or if a receiver is appointed on account of CONTRACTOR'S insolvency, or if CONTRACTOR or any of his/her Subcontractors violates any of the provisions of this CONTRACT, or if the CONTRACTOR does not perform the WORK according to the Specifications, the OWNER may serve written notice upon CONTRACTOR of its intention to terminate the CONTRACT; and unless within ten (10) days after the serving of the notice, the violation ceases, the OWNER then may take over the WORK and at the expense of the CONTRACTOR, complete it by contract or by any other method it may deem advisable. The CONTRACTOR will be liable to the OWNER for any excess cost incurred by the OWNER and the OWNER may, without liability for so doing, take possession of and utilize in completing the WORK, such materials, appliances, paint, and any other property belonging to the CONTRACTOR as may be on the site of the WORK.
- b. OWNER may terminate this Agreement upon thirty days written notice to CONTRACTOR in the event the U.S. Department of the Interior fails to grant to OWNER sufficient funds to meet its obligations under this Agreement. In such event, CONTRACTOR will be entitled to receive just and equitable compensation for any satisfactory WORK completed up to the time of termination.

**ARTICLE 10. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE APPLICATION THEREOF.**

The OWNER may withhold from payment to the CONTRACTOR an amount or amounts as, in the OWNER'S judgment, may be necessary to pay just claims against the CONTRACTOR or any Subcontractor for labor and services rendered and materials furnished in and about the WORK. The OWNER in its discretion may apply the withheld amounts on the payment of such claims. In so doing the OWNER will be deemed the agent of the CONTRACTOR and payments so made by the OWNER will be considered as a payment made under the CONTRACT by the OWNER to the CONTRACTOR and the OWNER will not be liable to the CONTRACTOR for any such payments made in good faith. Such payments may be made without prior determination of the claim or claims.

**ARTICLE 11. INDEPENDENT CONTRACTOR.**

The CONTRACTOR will be considered an independent CONTRACTOR, and, as such, has no authorization, expressed or implied, to bind the State of Utah or the OWNER to any agreement, settlement, liability or understanding whatsoever, nor to perform any acts as agent for the State of Utah, except as herein expressly set forth. The compensation provided for herein will be the total compensation payable hereunder by the State of Utah or the OWNER.

**ARTICLE 12. LIABILITY AND INDEMNIFICATION.**

It is agreed that the CONTRACTOR will at all times protect and indemnify and save harmless, the State of Utah and all institutions, agencies, departments, authorities and instrumentalities of the State of Utah and any member of their governing bodies or of their boards or commissions or any of their elected or appointed officers or any of their employees or authorized volunteers, or the private landowners who have consented to reclamation construction, as described in the general conditions of the project specifications which are included herein by reference, from any and all claims, damages of every kind and nature made, rendered or incurred by or in behalf of any person or corporation whatsoever, including the parties hereto and their employees that may arise, occur or grow out of any acts, actions, work or other activity done by the CONTRACTOR in the performance and execution of this CONTRACT.

**ARTICLE 13. SUBCONTRACTOR.**

No part of this CONTRACT may be sublet by the CONTRACTOR without the prior written approval of the OWNER.

**ARTICLE 14. LIQUIDATED DAMAGES.**

In the event the CONTRACTOR fails to complete the WORK within the time agreed upon in CONTRACTOR's schedule as set forth in Article 2, or within such additional time as may have been allowed by the OWNER, there will be deducted from any moneys due or that may become due the CONTRACTOR the sum of \$500.00 per day, for each and every calendar day beyond the agreed or extended completion day, that the WORK remains uncompleted. Such sum is fixed and agreed upon by the OWNER and the CONTRACTOR as liquidated damages due the OWNER by reason of the inconvenience and added costs of administration, engineering and supervision resulting from the CONTRACTOR's default, and not as a penalty.

The CONTRACTOR and the OWNER for themselves, their heirs, successors, executors, and administrators, hereby agree to the full performance of the covenants herein contained.

Contract  
Boyer Mine Phase I  
Page 5.

Permitting the CONTRACTOR to continue and finish the WORK or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, in no way operates as a waiver on the part of the OWNER of any of OWNER'S rights under the CONTRACT.

The CONTRACTOR was selected for this contract in accordance with the State of Utah, Division of Facilities Construction and Management's Regulations for the Procurement of Construction and Professional Services.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

**FOR THE CONTRACTOR:**

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Title:

ATTEST:

\_\_\_\_\_  
Secretary of Corporation or Witness

\_\_\_\_\_  
Title:

TAXPAYER ID #: \_\_\_\_\_

**FOR THE STATE OF UTAH:**

**APPROVED FOR AVAILABILITY OF FUNDS:  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS & MINING**

\_\_\_\_\_  
Lowell P. Braxton, Associate Director

\_\_\_\_\_  
Dianne R. Nielson, Director

\_\_\_\_\_  
Carl Roberts, Budget/Accounting

**APPROVED AS TO FORM:  
ATTORNEY GENERAL'S OFFICE**

**APPROVED FOR EXPENDITURE:  
DIVISION OF FINANCE**

\_\_\_\_\_  
Assistant Attorney General

\_\_\_\_\_  
(for) Director of Finance

DIVISION OF PURCHASING: Delegation of Purchase Authority #DGR025



# PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

## KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_, hereinafter referred to as the "Principal," and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, with its principal office in the City of \_\_\_\_\_, hereinafter referred to as the "Surety," are held and firmly bound unto \_\_\_\_\_, hereinafter referred to as the "Obligee," in the amount of \_\_\_\_\_ DOLLARS (\$\_\_\_\_\_) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_\_, which CONTRACT is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the CONTRACT in accordance with the Plans, Specifications and conditions thereof, then this obligation shall be void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as Amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.



# PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

## KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_, hereinafter referred to as the "Principal," and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, with its principal office in the City of \_\_\_\_\_, hereinafter referred to as the "Surety," are held and firmly bound unto \_\_\_\_\_ hereinafter referred to as the "Obligee," in the amount of \_\_\_\_\_ DOLLARS (\$\_\_\_\_\_) for the payment whereof, the said Principal and surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_\_, to which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to him/her or his/her subcontractors in the prosecution of the work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended and all liabilities on this bond to all such claimants shall be determined in accordance with said provisions to the same extent as if it were copies at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument  
this \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_.

\_\_\_\_\_  
Principal (SEAL)

WITNESS OR ATTESTATION:

\_\_\_\_\_  
By

\_\_\_\_\_  
Surety (SEAL)

\_\_\_\_\_  
By

WITNESS:

\_\_\_\_\_

STATE OF UTAH )  
 )ss  
COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ being first duly sworn on oath, deposes and says that he/she is the  
Attorney-in-fact of the \_\_\_\_\_ and that he/she is duly authorized to  
execute and deliver the foregoing obligation that said company is authorized to execute the same,  
and has complied in all respects with the laws of Utah in reference to becoming sole surety upon  
bonds, undertakings and obligations.

\_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My commission expires: \_\_\_\_\_

APPROVED AS TO FORM:  
ATTORNEY GENERAL'S OFFICE

\_\_\_\_\_  
ASSISTANT ATTORNEY GENERAL

# CONTRACT CHANGE ORDER

**UTAH DIVISION OF OIL, GAS AND MINING**  
 355 West North Temple, 3 Triad Center, Suite 350  
 Salt Lake City, Utah 84180-1203

To: \_\_\_\_\_ Date: \_\_\_\_\_  
 Address: \_\_\_\_\_ Contract No. \_\_\_\_\_  
 \_\_\_\_\_ Act. Number: \_\_\_\_\_  
 \_\_\_\_\_ Org. Number: 5808

Project: Boyer Mine Phase I Change Order No. \_\_\_\_\_

You are hereby requested to comply with the following changes from the contract plans and specifications:

ITEM NO.	DESCRIPTION OF CHANGES IN QUANTITIES, UNIT PRICES, SCHEDULE, ETC.	INCREASE (DECREASE)
----------	---	---------------------

Net change in the contract price due to this order: \$ \_\_\_\_\_

THE SUM OF \$ \_\_\_\_\_ IS HEREBY ADDED TO/DEDUCTED FROM THE TOTAL CONTRACT PRICE, AND THE TOTAL ADJUSTED CONTRACT PRICE TO DATE THEREBY IS \$ \_\_\_\_\_. THE TIME FOR COMPLETION OF THE CONTRACT IS INCREASED/DECREASED BY \_\_\_\_\_ CALENDAR DAYS. CONTRACT SHALL EXPIRE ON \_\_\_\_\_. THIS DOCUMENT SHALL BECOME ATTACHED TO AND BECOME AN AMENDMENT TO THE CONTRACT AND ALL PROVISIONS OF THE CONTRACT WILL APPLY HERETO.

Approved/Accepted By:

Contract Representative: \_\_\_\_\_ Date: \_\_\_\_\_  
 Associate Director: \_\_\_\_\_ Date: \_\_\_\_\_  
 Assistant Atty General: \_\_\_\_\_ Date: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
 DOGM Budget Officer: \_\_\_\_\_ Date: \_\_\_\_\_  
 DOGM Director: \_\_\_\_\_ Date: \_\_\_\_\_  
 Division of Finance: \_\_\_\_\_ Date: \_\_\_\_\_

# CERTIFICATE OF SUBSTANTIAL COMPLETION

## UTAH DIVISION OF OIL, GAS AND MINING

PROJECT Boyer Mine Phase I PROJECT NO. ACT/043/008  
CONTRACT NO. \_\_\_\_\_

The WORK performed under the subject CONTRACT has been reviewed on this date and found to be substantially completed.

### DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the OWNER can occupy the project or specified area of the project for the use for which it was intended.

A list of items to be completed or corrected, prepared by the Division of Oil, Gas & Mining and verified by the OWNER, is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the CONTRACTOR to complete all the WORK in accordance with the Contract Documents, including authorized changes thereof.

Division of Oil, Gas & Mining \_\_\_\_\_  
CONTRACT REPRESENTATIVE DATE

The CONTRACTOR will complete or correct the work on the list of items appended hereto within \_\_\_\_\_ days from the above date of issuance of this Certificate.

\_\_\_\_\_  
CONTRACTOR AUTHORIZED REPRESENTATIVE DATE

The OWNER accepts the project or specified area of the project as substantially complete and will assume full possession of the project or specified area of the project at:

\_\_\_\_\_ (time) on \_\_\_\_\_ (date).

Division of Oil, Gas & Mining \_\_\_\_\_  
OWNER CONTRACT REPRESENTATIVE DATE

\_\_\_\_\_  
ASSOCIATE DIRECTOR DATE

RESPONSIBILITIES AND/OR EXCEPTIONS:

This form used by permission of A.I.A.  
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

# CERTIFICATE OF FINAL ACCEPTANCE

## UTAH DIVISION OF OIL, GAS AND MINING

PROJECT: Boyer Mine Phase I PROJECT NO. ACT/043/008  
CONTRACT NO. \_\_\_\_\_

The WORK performed under the subject CONTRACT has been reviewed on this date and found to be completed.

### DEFINITION OF FINAL ACCEPTANCE

The date of final acceptance of a project is the date when the construction is completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the OWNER can occupy the project for the use for which it was intended.

Items listed on the Certificate of Substantial Completion, as prepared by the Division of Oil, Gas & Mining, have been completed or corrected and verified by the OWNER as having been completed or corrected.

<u>Division of Oil, Gas &amp; Mining</u> OWNER	_____ INSPECTOR	_____ DATE
	_____ CONTRACT REPRESENTATIVE	_____ DATE
_____ CONTRACTOR	_____ AUTHORIZED REPRESENTATIVE	_____ DATE

The OWNER accepts the project as complete and will assume full possession of the project or specified area of the project at:

\_\_\_\_\_ (time) on \_\_\_\_\_ (date).

<u>Division of Oil, Gas &amp; Mining</u> OWNER	_____ ASSOCIATE DIRECTOR	_____ DATE
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## SUPPLEMENTAL CONDITIONS

### Statement Clarification of Terms:

The Division of Oil, Gas & Mining will assume responsibility for design and engineering on this project and will provide inspection. See Articles 36, 37, and 38.

### Plan Checks:

Checks shall be made out to the Utah Division of Oil, Gas & Mining.

# BOYER MINE - PHASE I

## TECHNICAL SPECIFICATIONS

SECTION 0200 GENERAL SITE INFORMATION

SECTION 0220 MOBILIZATION/DEMobilIZATION

SECTION 0250 MINE CLOSURES

SECTION 0300 SPECIFIC SITE REQUIREMENTS

## SECTION 0200 GENERAL SITE INFORMATION

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

- A. The WORK consists of backfilling three (3) hazardous portals at the Boyer Mine site in Summit County. The Boyer Mine site is located approximately eleven miles east of the town of Coalville, Utah. Access is by a paved state road heading east out of Coalville, Utah. The location of the site is shown on FIGURE 1, in Appendix A. Phase I reclamation construction shall consist of closure of the mine openings, and the construction of two water bars for drainage control.

#### 1.02 SUBMITTALS

- A. Submittals requested in the Technical Specifications shall be delivered to the designated representative for the Division of Oil, Gas and Mining (DOG M), referred to in these Specifications as the OWNER.
- B. Submittals requested to be delivered with the bid proposal shall be included in and submitted with the bid proposal.
- C. CONTRACTOR shall submit within ten (10) days after execution of the CONTRACT a calendar of WORK for performing the WORK, including routine workdays and hours, anticipated holidays, and days that the project will remain idle. Schedule shall also indicate WORK schedules for subcontractors and their estimated start and completion days. Allowance in the schedule shall be made for routine delays due to weather or other site conditions as they occur. The OWNER shall approve said schedule. Any significant deviation from that schedule shall be submitted in writing to the OWNER in the form of an updated schedule as the WORK progresses.

#### 1.03 RELATED WORK

- A. Section 0220: Mobilization/Demobilization
- B. Section 0250: Mine Closures
- C. Section 0300: Specific Site Requirements

#### 1.04 CONDITIONS AND RESTRICTIONS

- A. WORK will be limited to items specifically identified in Section 0300: Specific Site Requirements.
- B. The extent and condition of the underground workings at this mine site are not well known. These workings could present a hazard to equipment operators and other workers at the site.

## SECTION 0200- GENERAL SITE INFORMATION (CONTINUED)

- C. Due to the nature of WORK at these sites, the CONTRACTOR will be required to participate in the entire prebid site tour and meeting in the project area prior to submitting a bid for the project. The CONTRACTOR shall acknowledge in the bid that the site conditions have been examined and that the measurements and evaluations necessary to plan and bid the WORK have been made.
- D. WORK shall occur normally during daylight hours and shall not be performed when darkness or other conditions require the use of artificial light to safely perform the WORK.
- E. WORK shall be performed during week days and shall not be performed during weekends or legal State and Federal holidays without the prior approval of the OWNER. A schedule of holidays is available from the OWNER.
- F. WORK shall be conducted with minimum interference to public or private thoroughfares. Egress and access shall be maintained at all times.
- G. Roadways shall not be closed or obstructed without permits. The CONTRACTOR will close and lock gates at the landowner's request.
- H. All trucks transporting materials and debris shall be covered with tarps or other suitable coverings to eliminate loss of material during transportation to and from the WORK site.
- I. No materials shall be placed in or be situated such that they may enter any tributary or drainage channel.
- J. Blasting shall be permitted only with prior approval of the OWNER and following submission by the CONTRACTOR of a blasting plan.
- K. Due to the hazards associated with abandoned coal mines, all WORK on mine portals shall be conducted under the supervision of a qualified person with current certification to do such WORK under the General Safety Orders of Utah Coal Mines. This person is referred to as the "Certified Person" in these specifications hereafter. No smoking, open flames, or welding shall be permitted within one hundred feet of any mine opening. No person shall be permitted to enter a mine opening unless the atmosphere of the opening is tested, the roof is adequately supported and tested, and only at the direction of a person certified to conduct such tests.
- L. CONTRACTOR shall identify and develop rapid communication procedures with the closest available emergency medical response units and medical centers. All foremen, superintendents, and managers shall be indoctrinated to emergency response procedures.
- M. Existing utilities, bench marks, trees, vegetation and landscaping materials which are not to be demolished, relocated or otherwise disturbed shall be protected.

## SECTION 0200- GENERAL SITE INFORMATION (CONTINUED)

- N. Employees shall be compensated at a rate of no less than 1.5 times the base rate of pay for work beyond 40 hours in one week.
- O. The WORK shall stop and the OWNER notified immediately if an accident occurs or upon discovery of a hazard that threatens the safety of workers or the public. The OWNER shall be notified immediately of any situation which may cause environmental damage.
- P. CONTRACTOR shall submit to OWNER each week daily logs indicating the following: 1) weather conditions, 2) crew size, 3) hours worked, 4) equipment used, 5) work completed, 6) WORK approved, 7) delays, 8) equipment downtime, 9) injuries, 10) visitors, 11) access problems, etc. OWNER will provide a form for these logs (Appendix C).
- Q. Should onset of adverse winter weather conditions force construction to stop prior to completion of the WORK, the sites shall be left in a condition that minimizes safety hazards and risk of erosion by spring runoff. Temporary erosion control structures may be required.

### 1.05 QUALITY ASSURANCE

- A. CONTRACTOR shall use only quality materials in performing the WORK.
- B. Quality of the WORK performed by the CONTRACTOR shall be subject to approval by the OWNER. CONTRACTOR shall assure that the WORK has been performed to the specifications and standards as described herein. The OWNER shall inspect and accept or reject the WORK as the WORK progresses. Payment shall only be made for WORK accepted and approved by the OWNER. CONTRACTOR shall warrant the WORK for a period of one year following final acceptance except that such material warranties and guarantees from manufacturers and suppliers that may be longer than one year shall carry for their term.

## PART 2 - PRODUCTS

### 2.01 GENERAL

- A. Products and materials used in the WORK shall be as required in these Specifications.

### 2.02 DELIVERY, STORAGE AND HANDLING

- A. CONTRACTOR shall be responsible for the delivery, storage and handling of all items and materials used in performing the WORK.

## **SECTION 0200- GENERAL SITE INFORMATION (CONTINUED)**

- B. CONTRACTOR shall be responsible for all materials used in conjunction with the WORK until said WORK is accepted and approved by the OWNER and shall warrant all materials as required by Part 1.05, Quality Assurance.

### **PART 3 - EXECUTION**

#### **3.01 PREPARATION**

- A. Upon receipt of notice of acceptance of the bid and notice to proceed, the CONTRACTOR shall perform the WORK as required by these Specifications and Construction Drawings.
- B. CONTRACTOR shall obtain and provide proof of all licenses, permits, bonds, insurance and other such items as may be required by these Specifications and local, regional, State and Federal jurisdictions prior to execution of the WORK.
- C. Upon receipt by the CONTRACTOR of the NOTICE TO PROCEED, the CONTRACTOR shall notify the OWNER of the date and execution of the WORK shall commence in accordance with the General Specifications as included with the Agreement and the Technical Specifications as presented herein. CONTRACTOR shall provide the OWNER with a schedule for the proposed WORK in calendar form.

### **PART 4 - MEASUREMENT AND PAYMENT**

#### **4.01 WORK INCLUDED**

- A. The WORK included shall be as described within each Section of the Technical Specifications.
- B. Lump sum and unit prices shall include all compensation for the WORK.

#### **4.02 MEASUREMENT**

- A. Measurement for lump sum items shall be as the WORK is completed and approved by the OWNER. Payment will only be for those lump sum items shown in the Bid Schedule which are accepted and approved by the OWNER.
- B. Measurement for additional quantities on lump sum items with estimated quantities will be made by appropriate field measurements. Additional quantities shall be the quantity of WORK performed which exceeds the estimate shown on the Bid Schedule. Claims will not be considered until the tolerance shown in the applicable Section of these Specifications has been exceeded. Contractor shall notify and obtain the approval of the OWNER prior to exceeding the tolerance limits.

#### **4.03 PAYMENT**

**SECTION 0200- GENERAL SITE INFORMATION (CONTINUED)**

- A. Payments shall only be made for those items shown on the Bid Schedule. All other costs of incidentals shall be reflected in the Bid Schedule or shall be paid at the CONTRACTOR'S expense.
- B. Lump sum items shall be paid on the BID PRICE. The CONTRACTOR'S estimate of percentage of WORK completed and the concurrence of the OWNER will be used in determining partial payment for the WORK as the WORK progresses.
- C. Payment for lump sum items will be reduced or eliminated only if the individual bid item is completely deleted from the WORK.
- D. Additional quantities for lump sum items shall be paid in the BID UNIT PRICE after a Change Order is executed and made part of the CONTRACT. Proof of additional quantities will be required from CONTRACTOR prior to payment. The BID UNIT PRICE will include all costs incurred for the ADDITIONAL WORK, and shall be the only compensation for such ADDITIONAL WORK.
- E. Unless stated otherwise in the specific Section of the Specifications, all final bid item payments shall have ten percent withheld as retainage until successful completion of the CONTRACT. The retainage shall be made from each progress payment, in proportion to the total BID PRICE.

END OF SECTION 0200

## **SECTION 0220**

### **MOBILIZATION / DEMOBILIZATION**

#### **PART 1 - GENERAL**

##### **1.01 WORK INCLUDED**

- A. The item for payment for mobilization/demobilization is intended to compensate the CONTRACTOR for operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to and from the project area, and for all other WORK and operations which must be performed or costs incurred prior to the initiation of meaningful work at the site.

#### **PART 2 - PRODUCTS**

##### **2.01 DRINKING WATER AND SANITARY FACILITIES**

- A. CONTRACTOR shall provide and maintain safe drinking water and sanitary facilities for his employees, his subcontractors' employees and the OWNER. Drinking water and sanitary facilities shall comply with all regulations of the local and state departments of health and as approved by the OWNER.

#### **PART 3 - EXECUTION**

##### **3.01 PREPARATION**

- A. Preparation of the WORK shall include obtaining all permits and other such incidentals as necessary to execute the WORK.
- B. Permits shall be posted as required by municipal, State or Federal regulations prior to start of construction activities.

##### **3.02 EXECUTION**

- A. Upon receipt by the CONTRACTOR of due NOTICE TO PROCEED, the CONTRACTOR shall notify the OWNER of the starting date and execution of the WORK shall commence in accordance with the General Specifications as included with the Agreement and the Technical Specifications as presented herein. CONTRACTOR shall provide the OWNER with a schedule for the proposed WORK in calendar form.

#### **PART 4 - MEASUREMENT AND PAYMENT**

##### **4.01 BASIS FOR PAYMENT**

- A. No partial payments will be made for multiple equipment moves or for moving between sites. Only the following partial payment shall be made of the total lump sum for

## SECTION 0220 - MOBILIZATION / DEMOBILIZATION (CONTINUED)

mobilization and demobilization. Payment of sixty percent (60%) of total lump sum for mobilization will be made when 10 percent of the overall BID PRICE has been earned from other bid items. Payment of the remaining forty percent (40%) of the total lump sum for demobilization will be made after issuance of the Certificate of Substantial Completion at the completion of CONTRACT. Payments for mobilization/demobilization are not subject to withholding of retainage. The BID PRICE for mobilization/demobilization will also include those incidental costs as required by the CONTRACTOR in order to commence the WORK such as permits, insurance, and other such items as may be required to perform the WORK.

### 4.02 MEASUREMENT

- A. Measurement will be based on the amount of the WORK performed and accepted and approved by the OWNER. When 10 percent of the WORK has been earned, the CONTRACTOR may submit on the invoice, sixty percent (60%) of the BID PRICE for mobilization/demobilization as set forth above. On completion of the CONTRACT and issuance of the Certificate of Substantial Completion, the CONTRACTOR may claim the remaining forty percent (40%) of the BID PRICE for mobilization demobilization.

### 4.03 PAYMENT

- A. The lump sum BID PRICE for mobilization/demobilization will be paid once only and will include complete mobilization and demobilization regardless of the number of times equipment is moved or additional equipment is transported to or from the construction site. The BID PRICE will also include those incidental costs as required by the CONTRACTOR in order to commence with the WORK such as permits, insurance, and other such items as may be required to perform the WORK.

END OF SECTION 0220

# SECTION 0250

## MINE CLOSURES

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

This section describes the various types of mine closures to be used to seal mine openings. The WORK described in this Section also includes preparation, excavation and backfilling of subsidence openings into mine voids. The requirements for furnishing and placing stone and block closures and backfill closures are described here and are indicated on the Drawings. The WORK includes all preparation, labor, materials, furnishing and placing materials, equipment and incidentals necessary to complete the mine closures. WORK required will be to those sections as they apply and are described in Section 0300 - Specific Site Requirements.

#### 1.02 RELATED WORK

- A. Section 0200: General Site Information
- B. Section 0300: Specific Site Requirements

#### 1.03 SUBMITTALS

- A. CONTRACTOR shall submit proposed construction procedures in writing and a copy of the certification of the Certified Person to the OWNER for approval.
- B. CONTRACTOR shall furnish the OWNER a set of as-built drawings upon completion of the WORK which shall be required for release of the retainage.

#### 1.04 JOB CONDITIONS

##### A. PROTECTION

1. CONTRACTOR shall exercise precautions appropriate to working near, over, or in areas prone to subsidence. Such known areas should be flagged by the CONTRACTOR prior to the commencement of the WORK. Personnel shall be informed of special safety procedures for equipment usage and general work in these areas.
2. Personnel shall not enter any mine opening unless under the direction of the Certified Person.
3. No personnel shall be allowed to work under an unsupported mine roof. Temporary support shall be installed under the direction of a Certified Person qualified to determine roof conditions.
4. Smoking or any open flame in or within 100 feet of the mine openings is prohibited.

## SECTION 250 - MINE CLOSURES (CONTINUED)

5. Before any personnel enter any openings a check for explosive and toxic gases shall be made by a Certified Person. Continuing checks shall be made throughout the closure operation by the Certified Person.
6. CONTRACTOR shall inspect openings for old dynamite prior to construction activities.
7. Personnel shall wear safety belts while working within 15 feet of vertical openings unless otherwise approved by the OWNER.

## PART 2 - PRODUCTS

### A. CONCRETE BLOCK

Solid concrete block shall be high strength with a minimum compressive strength of 3,000 pounds per square inch. Hollow block used as shown on the Drawings must be concrete-filled.

### B. STONE

CONTRACTOR shall select the most suitable stone available near the site. Large stones which can be laid with a minimum use of mortar and small filler stones are preferred. The stone shall be sound durable rock. Shales, claystone or other friable rocks shall not be acceptable.

### C. BACKFILL

Backfill material shall normally consist of mineral soil, subsoil, or a blend of mineral soil, subsoil, and coal refuse. Blended backfill material shall be composed of no more than 40% coal refuse and 60% mineral soil and/or subsoil materials (40:60 mix). Backfill material shall be free from combustible noncoal materials. This shall include but not be limited to wood, wood products, trash and vegetation. Unless otherwise directed per Section 0300: Specific Site Requirements, backfill containing coal refuse must be compacted adequately to eliminate oxygen and the possibility of spontaneous combustion and be covered with a minimum of 6 inches of noncoal soil material.

### D. MORTAR

Mortar shall be either Masonry Cement, 1:3 mix, Type N, or Portland Cement and Lime, 1:1:6 mix, Type N. Precautions must be taken to prepare and protect mortar during cold weather. Mortar will have a 28 day minimum compressive strength for 2-inch cubes of 700 psi.

### E. CONCRETE

Concrete shall be in accordance with Section 0251: Cast-in-Place Concrete.

## SECTION 250 - MINE CLOSURES (CONTINUED)

### F. REINFORCEMENT

Reinforcement shall be in accordance with Section 0252: Concrete Reinforcement.

### G. FILTER CLOTH

Filter cloth shall be a non-woven geotextile fabric having a minimum thickness of 15 mil in accordance with ASTM D-1777 and a minimum permeability of  $10^{-2}$  centimeters per second, such as Fibertex 150 manufactured by Crown Zellerbach, or an approved equivalent.

### H. TEMPORARY MINE ROOF SUPPORTS

1. Mine roof supports shall be wooden posts or approved equal that have the following minimum requirements:
  - a. 4-1/2 inch diameter.
  - b. Spruce or pine with a specific gravity between 0.35 and 0.48.
  - c. Moisture content between 10.8 and 14 percent.
  - d. Allowable unit stress of extreme fiber in bending of 750 psi for spruce or 700 psi for pine.
  - e. Maximum diameter of knots on one surface no greater than 1/2 inch.
2. Caps and wedges shall be used for installation of roof supports.
3. Mine roof jacks may be substituted for wooden posts with the approval of the OWNER.

### I. POLYURETHANE FOAM

1. Polyurethane foam shall be MSHA approved for use in underground coal mines. The recommended product is polyurethane foam which is available in self-contained, portable, 40-pound kits, such as Froth-Pak, manufactured by Insta-Foam Products, Inc., 1500 Cedarwood Drive, Joliet, Illinois 60435. A suggested supplier for polyurethane foam is:

Flame Safety Supply  
2478 South 900 East, Suite 5  
Salt Lake City, UT 84106  
(801) 486-9404 (800) 767-2409

## PART 3 - EXECUTION

### 3.01 PROBING COLLAPSED OPENINGS

- A. Designated mine openings shall be probed to determine the extent of natural closure and to define appropriate reclamation plans if required. Probe WORK shall be completed

## SECTION 250 - MINE CLOSURES (CONTINUED)

prior to the start of any other mine closure WORK. Openings shall be probed to a minimum depth of ten (10) feet in the direction of the opening when hand methods are used or fifteen (15) feet when equipment is used unless otherwise specified in Section 0300: Specific Site Requirements.

- B. In areas inaccessible to equipment the probe shall be conducted by hand.
- C. In areas accessible to equipment the probe shall be conducted by appropriate earth-moving equipment approved by the OWNER.
- D. All probing operations shall be performed under the direct supervision and approval of the OWNER.
- E. All openings probed shall be inspected by the OWNER at the furthest extent of the probe. If an opening is found, WORK necessary for the probe will be approved as completed and the opening left for mine closure WORK under a Change Order or another Contract. If no opening is found, after inspection by the OWNER, completion of the probe WORK shall include backfilling and revegetation of the disturbed area in accordance with Section 0270: Site Grading/Earthwork and Section 0290: Revegetation.

### 3.02 PREPARATION FOR MINE CLOSURES

- A. CONTRACTOR shall clear and grub the face area of mine openings of all vegetation, wood and debris to the extent shown on the Drawings. CONTRACTOR shall inspect, scale and secure the mine openings to a degree which will make the WORK safe to perform. Particular care shall be taken to make WORK conditions safe in instances where, due to the condition of the opening and the probability of loose soil and rock above the opening, there is danger of a rockfall. For openings to be backfilled the CONTRACTOR shall excavate the brow back to a stable condition prior to initiation of closure operations, unless otherwise directed by the OWNER.
- B. The roof and ribs of the mine openings may contain loose rock. Such loose materials shall be scaled by use of tools or equipment extended into the openings before personnel enter the opening for placement of mine roof supports or for any other reason.
- C. Loose, unstable materials typically exist just inside the opening. These materials shall be removed from the working surface inside of the mine openings so a solid working surface exists on which to build the mine closures. The working surface shall be inspected, accepted and approved by the OWNER.
- D. CONTRACTOR shall prepare backfill where required by uniformly blending roughly equal (60:40 mix) portions of mineral soils and coal refuse. Blending may be accomplished by placing alternating horizontal layers of soils and refuse in a stockpile, and loading the material in manner such that several layers are utilized at once. Other blending methods may be used with the approval of the OWNER.

## SECTION 250 - MINE CLOSURES (CONTINUED)

- E. Temporary mine roof supports shall be installed on no more than four foot centers before any personnel enter the opening for construction purposes.
- F. CONTRACTOR shall construct work pad as required.

### 3.03 INSTALLATION OF MINE CLOSURES

#### A. BLOCK WALL CLOSURE

1. CONTRACTOR shall construct walls in the adits as specified in Section 0300: Specific Site Requirements. Variation of the location of the walls will be allowed so that CONTRACTOR can select a suitable location for the walls, with approval of OWNER. Parameters for suitable location of the walls shall be as follows:
  - a. Select an area in which competent rock is found in the back, ribs, and sill (roof, walls, and floor) of the adit.
  - b. Utilize irregularities in the ribs and back where possible such that the wall can be "keyed" into the rock to provide more strength and integrity to the wall.
  - c. Locate the wall as far into the adit as is reasonable to reduce visibility of the wall from outside the opening and a minimum of 20 feet unless otherwise approved by the OWNER. Allowance for the location of the walls is discussed in Section 0300. Where the remaining portion of the adit left open is unstable or unsafe, backfill shall be placed from the brow to the wall unless otherwise approved by the OWNER.
2. CONTRACTOR shall scale down back and ribs (roof and sides) of the adit, removing any loose rock from the area in which the wall is to be constructed and along access to bulkhead. Any mud, clay, moss or other materials shall be removed where the wall is to be constructed which would be deleterious to the integrity of the wall and would not allow good bonding of the mortar to the rock. CONTRACTOR shall excavate sill (floor) of adit to solid rock where the wall is to be constructed. Drainage shall be provided for any water that tends to accumulate on either side of the bulkhead, in accordance with 0280: Drainage Control and Stream Protection, and Part 3.03.A.6 of this Section. Excavated materials shall be cast into the adit behind the bulkhead to minimize surface disturbance in the area.
3. Concrete foundations shall be constructed unless competent foundation rock is encountered which is not friable, subject to deterioration, or otherwise unacceptable and is approved by OWNER. The foundation shall be made of a minimum of 18 inches in thickness and 30 inches wide to accommodate the 2-foot thick wall. The foundations shall be made of concrete as specified in Section 0251: Cast-In-Place Concrete. Concrete shall be reinforced with No. 4 rebar as shown on the Drawings and as specified in Section 0252: Concrete Reinforcement.

## SECTION 250 - MINE CLOSURES (CONTINUED)

4. CONTRACTOR shall construct walls from foundation or solid rock base if approved by OWNER. Walls shall be constructed of concrete block, native stone, or imported stone. Concrete block walls shall be a minimum of 16 inches thick. Native stone and imported stone walls shall be constructed to a minimum thickness of 2 feet at the base and 18 inches at the top. The wall shall be free of any voids within the wall structure and shall be 100 percent rock and mortar construction. Hollow block bricks, when used, shall be concrete filled. Mortar shall be free of voids and air pockets and shall be firmly packed along ribs and roof of the opening to maintain the integrity of the wall and to make an effective seal.
5. CONTRACTOR shall use the natural shape and irregularities of the mine opening to "key" the wall to the mine opening to provide strength and protection of the wall from damage due to vandalism.
6. Designated openings shall require the installation of a drainage pipe. The drainage pipe shall be located near the base of the stone wall within 15 inches of the intersection of the floor material in the approximate center of the wall or near a low spot along the base. The drain pipe shall extend through the foundation or the base of the wall and a trap shall be formed out-by the wall near the brow as shown on the drawings. The drain pipe shall protrude a minimum of 12 inches on either side of the wall and shall be made from 6-inch nominal diameter, Schedule 80 PVC pipe. The inside end of the pipe shall be firmly supported by block or natural stone. Both the inside and outside ends of the pipes shall be clear of any obstructions which would impair or restrict flow. Both ends of the pipe shall be covered with a protective screen mesh. Gravel shall be installed over the ends of the pipes to protect the pipe from roof falls and plugging. Gravel shall form a drain and cover the top of the pipe with a minimum of 8 inches of material. The gravel drain shall be no less than 18 inches wide and shall extend to and from the end of the pipes a minimum of two feet. Gravel used in the drain channels shall be selected material ranging from 3/4 to 6 inch in size. CONTRACTOR shall extend a drainage channel away from the bulkhead if it is situated such that water could impound near the base.
7. As further protection, grout shall be used to seal the base of the bulkhead and shall be placed to partially cover the drainpipe. Grout should extend one foot to either side of the base of the wall.
8. A 1/4 inch copper surveillance tube shall be installed within six inches of the top of the wall as shown in the drawings. The exposed end of the tubing shall be protected by securing to a metal T-bar post. A stopcock or valve shall be installed on the end of the tube. The tube is used to monitor the atmosphere behind the wall after closure.
9. The portal areas shall be cleared of all building materials, trash and debris. The site shall be left in a clean and finished appearance.
10. Revegetation of sites shall be completed as specified in Section 0290: Revegetation.

## SECTION 250 - MINE CLOSURES (CONTINUED)

11. Final acceptance of the WORK shall be subject to field inspection by the OWNER.

### B. BACKFILL CLOSURE

1. CONTRACTOR shall backfill mine openings as described in Section 0300: Specific Site Requirements or as directed by the OWNER. Backfill shall contain sufficient fines to minimize void space.
2. Drainage lines and surveillance tubes shall be extended, if required, to the projected limits of the backfill. The drain line shall be placed on a minimum slope of 2 percent and firmly bedded with well-compacted sand and gravel. The end of the pipe and surveillance tube shall be protected as described in Part 3.03.A.6 & 8.
3. Backfill shall be placed in mine openings to minimum dimensions described and in a manner to eliminate voids. CONTRACTOR shall construct a work pad in front of the opening as required to allow for uniform access to ram the backfill into the opening utilizing a ram or backhoe bucket. Care should be taken not to push the wall out if one has been installed. Materials which require compaction shall be tamped to achieve compaction such that any additional settlement of the fill will not result in reopening of the portal.
4. Final shape of the fill shall be mounded over the opening and blended into surrounding contours as much as practical. Runoff and snowmelt shall be diverted away and across the fill by use of small channels containing light riprap so that the fill does not erode or impound water.
5. Revegetation of sites shall be completed as specified in Section 0290: Revegetation.
6. The portal areas shall be cleared of all building materials, trash and debris. The site shall be left in a clean and finished appearance.
7. Final acceptance of the WORK shall be subject to field inspection by the OWNER.

### C. HAND BACKFILL CLOSURE METHOD

1. Hand Backfill Closure Method shall be used only in places inaccessible to heavy equipment as designated in Section 0300: Specific Site Requirements. The backfill requirements of Section 0250: Mine Closure, Part 3.03.B apply except as provided for equipment or approved by the OWNER.
2. CONTRACTOR shall obtain backfill materials from areas specified in Section 0300: Specific Site Requirements, or as directed by the OWNER.

## SECTION 250 - MINE CLOSURES (CONTINUED)

3. Backfill materials shall be placed in 12 inch thick horizontal lifts in the locations and to the extent shown on the Drawings.
4. Each lift of the backfill shall be compacted utilizing a handheld mechanical compactor.
5. The final surface of the backfill shall be covered with soil/rock fill as defined in Section 0270: Site Grading/Earthwork.

### D. WALL AND BACKFILL CLOSURE

1. Designated mine openings shall be backfilled after the installation of the wall. Bring backfill to the grades shown in the Drawings or as designated in Section 0300: Specific Site Requirements to blend with natural contours. Walls shall be installed per Section 0250, 3.03 A, B, and C.

### E. VERTICAL SHAFT CLOSURE METHOD

1. Timber and debris shall be removed from openings to the extent safely possible.
2. CONTRACTOR shall inspect the collar of the opening and determine required precautions for safe completion of WORK. Installation of a short conveyor belt or a ramp may be required.
3. Shaft shall be filled with backfill material to a height above the collar of the shaft to provide drainage away from the opening. The backfill shall be well-graded with a maximum particle size of approximately 2 feet.
4. Filter cloth shall be installed as shown on the Drawings.
5. CONTRACTOR shall place and compact the backfill starting five feet below the surface. Suitable compaction energy shall be applied in this zone in one-foot lifts by either pressure from the back of the backhoe bucket or other means accepted and approved by the OWNER. The upper five feet of backfill shall not contain any coal spoils or refuse, coal shales, or coal, or any other material that may have elevated sulfate concentrations.
6. The backfill shall be mounded a minimum of 24 inches above the adjacent grade, or shall be sloped at 3h:1v and extend a minimum 3 feet horizontal distance beyond the edge of the shaft.

### F. SUBSIDENCE OPENING CLOSURE

1. WORK for subsidence opening closure shall be accomplished under the direction of the OWNER.

## SECTION 250 - MINE CLOSURES (CONTINUED)

2. CONTRACTOR shall inspect subsidence openings and determine required precautions for safe completion of WORK. Openings and known or suspected subsidence-prone areas shall be flagged by the CONTRACTOR prior to commencement of the WORK.
3. CONTRACTOR shall clear and grub working area. Waste materials shall be disposed of in accordance with Section 0240: Demolition and Clean-up.
4. Where directed, CONTRACTOR shall enlarge subsidence openings by excavation to allow placement of backfill to the maximum limits of the underground void. Loose soil and rock proximate to the opening shall be removed. Rock overlying the mine void shall be broken to the extent required by the OWNER. Excavated materials shall be stockpiled for use as backfill. The CONTRACTOR shall safeguard against blocks of excavated material dropping into the mine void and obstructing subsequent backfilling operations.
5. Where a subsidence opening or an excavation for subsidence opening breaks through into the underground workings, the OWNER shall inspect prior to backfilling to determine if further excavation or additional closure methods are required. CONTRACTOR shall backfill the opening placing backfill material as far into the mine void as practical. Massive material, when approved by the OWNER may be placed first to provide a barrier within the mine void to retain the backfill. In horizontal openings, backfill material shall be placed in 18-inch thick horizontal lifts and compacted by the mechanized equipment that can extend into the opening, such as a backhoe bucket. In vertical openings the final 5 feet of material shall be compacted. The surface of the backfill shall be raised to the level of the surrounding ground and then mounded over the opening to a minimum height of 24 inches. The final surface of the backfill shall be of soil/rock fill as available on site. The extent and compaction of backfill as well as selection of materials used shall be as directed by the OWNER.

### 3.04 POLYURETHANE FOAM SEALS

- A. Clean existing block walls and surrounding rock with a wire brush to form a clean surface for the polyurethane foam to bond to. Spray the foam onto the wall and surrounding rock following the foam manufacturer's instructions to a minimum thickness of 2 inches to prevent the wall from leaking air. The success of the seal will be demonstrated by testing for leakage with a smoke tube. Backfill as specified in Section 0300: Site Specific Requirements.

### 3.05 MINE CLOSURE GRADING

- A. CONTRACTOR shall bring backfill to the grades shown on the Drawings or to blend with natural contours. Backfill shall be free of voids and shall be compacted by mechanized equipment or hand-held mechanical compactors in one foot lifts.

## **SECTION 250 - MINE CLOSURES (CONTINUED)**

- B. CONTRACTOR shall extend the drainage line (if required) and surveillance tube to the projected limits of the backfill. The drain line shall be placed at a minimum slope of 2 percent and firmly bedded with well compacted sand and gravel. The end of the pipe and tube shall be protected as described in Part 3.03.A.6 & 8.
- C. The backfilled slopes shall be covered with a minimum of 6 inches of soil/rock fill available on site from areas designated by the OWNER.
- D. Revegetation and mulching of the disturbed areas shall be performed in accordance with Section 0290: Revegetation.
- E. Final shape and completeness of the WORK shall be subject to approval by the OWNER.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. Basis of payment for the WORK will be on a lump sum basis for completion of all the WORK as described in this Section. Breakdown of the WORK into unit lump sum prices for individual mine openings shown in the Bid Schedule will be used in determining partial payment or adjustment of the total lump sum BID PRICE for this Section as the WORK progresses.
- B. Basis of payment for probing mine openings will be a lump sum basis per mine site. Probing by hand excavation shall result in excavation of a trench with normal dimensions of 3 feet wide by 10 feet long by 5 feet deep, equivalent to about 10 cubic yards of volume. Machine excavation shall result in excavation of a trench with nominal dimensions of 3 feet wide by 15 feet long by 9 feet deep, equivalent to about 20 cubic yards of volume.

### **4.02 MEASUREMENT**

- A. Measurement for mine closures will be on a lump sum BID PRICE per mine opening. Measurement will be based on and compared to the dimensions and quantities identified on the bid sheets, these Specifications and Drawings. The OWNER will request intermediate measurements to determine progress of the WORK.
- B. Measurement for backfilling subsidence openings will be on a lump sum BID PRICE per subsidence opening. Measurement will be based on and compared to the dimensions and quantities identified on the bid sheets, these Specifications, and Drawings. The OWNER will request intermediate measurements to determine progress of the WORK.
- C. Measurement for probing of mine openings will be made of the number of probings per mine site required by the Specifications and completed to the approval of the OWNER.

## SECTION 250 - MINE CLOSURES (CONTINUED)

### 4.03 PAYMENT

- A. Payment for mine closures will be for each mine site at the lump sum BID PRICE. Payment will only be for those closures which are complete, accepted, and approved by the OWNER. No partial payments will be made for lump sum prices of individual mine openings.
- B. Payment for backfilling subsidence openings will be for each mine site at the lump sum BID PRICE. Payment will be authorized by the OWNER only for completed earthwork. No partial payments will be made.
- C. Payment at the UNIT PRICE for additional quantities will be made for mine closures when final quantities are greater than 15 percent in excess of the estimated quantities shown on the bid sheet for a given mine site. Such unit price payment will require proof of additional quantities provided by the CONTRACTOR and approval of the OWNER, and shall be full compensation for the approved additional masonry or backfilling.
- D. Payment for probing of mine openings will be for each mine site at the lump sum BID PRICE. Payment will be authorized by the OWNER for acceptably completed WORK.

END OF SECTION 0250

# SECTION 0300

## SPECIFIC SITE REQUIREMENTS

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

This Section describes the location, the features present, and the WORK to be performed at the Boyer Mine project site. The items of WORK will be performed according to the appropriate sections of these Specifications.

CONTRACTOR will be aware that the portal dimensions are specific. CONTRACTOR will also be aware that minimum or maximum dimensions on the Drawings or given in the Specifications are specific and are to be adhered to unless such changes are approved in writing by the OWNER. The quantities presented should be considered within a tolerance of plus or minus 15 percent. CONTRACTOR will visit the site and determine for his own purposes the quantities and amounts required in performing the WORK as intended in these Specifications and on the Drawings.

#### 1.02 LOCATION AND DESCRIPTION

The Boyer Mine project site is located approximately 11 miles east of the town of Coalville along the Chalk Creek Road, in the NE 1/4 of Section 36, T3N, R6E, SLBM. A drawing of the site location can be found in Appendix A, FIGURE 1. The site is composed of three (3) benches on the north side of State Highway U-133 with two of the portals being located on the middle bench and the third portal located on the upper bench. A general layout of the surface facilities as they existed during mining operations can be found in Appendix A, FIGURE 2. Specific descriptions of each of the three (3) portals to be sealed at the Boyer Mine site are presented below.

### PART 2 - EXECUTION

#### 2.01 BOYER MINE PROJECT SITE

##### A. PORTAL LOCATION AND DESCRIPTION

**PORTAL 1** PORTAL 1 is the most southern of the three portals on the Boyer Mine site. The face-up for PORTAL 1 consists of a steel arch liner plate approximately 56 feet in length. The arch is approximately 19 feet in width at the floor and averages approximately 9 feet in height. The estimated amount of material to be backfilled into this portal is 295 cubic yards.

**PORTAL 2** PORTAL 2 is the middle of the three portals on the Boyer Mine site. The face-up for PORTAL 2 consists of a steel arch liner plate approximately 37 feet in length. The arch is approximately 17 feet in

**SECTION 0300 - SPECIFIC SITE REQUIREMENTS (CONTINUED)**

width at the floor and averages approximately 9 feet in height. The estimated amount of material to be backfilled into this portal is 180 cubic yards.

**PORTAL 3** PORTAL 3 is the most northern of the three portals on the Boyer Mine site. The face-up for PORTAL 3 consists of a steel arch liner plate approximately 50 feet in length. The arch is approximately 20 feet in width at the floor and averages approximately 9 feet in height. Additionally, a vertical steel culvert section is located approximately at mid-point of the steel arch liner. This vertical section was used for connection to the exhaust fan of the mine facilities and is 8 feet in diameter and extends vertically for approximately 15 feet above the top of the steel arch liner for PORTAL 3. The estimated amount of material to be backfilled into this portal is 290 cubic yards plus an additional 30 cubic yards for backfilling the vertical fan extension.

A summary of the backfilling requirements is tabled below:

ITEM	W x H x L	YD3 Fill
PORTAL 1	19 x 9 x 56	295 YD3
PORTAL 2	17 x 9 x 37	180 YD3
PORTAL 3	20 x 9 x 50	290 YD3
FAN EXTENSION	8 x 8 x 15	30 YD3

---

TOTALS 795 YD3

**B. THE WORK**

The WORK at the Boyer Mine site will include backfilling the mine portals. CONTRACTOR will backfill the mine openings utilizing a mixture of coal spoil and mineral soil materials. Backfill material shall normally consist of mineral soil, subsoil, or a blend of mineral soil, subsoil, and coal refuse. Blended backfill material shall be composed of no more than 40% coal refuse and 60% mineral soil and/or subsoil materials (40:60 mix). Backfill material shall be free from combustible noncoal materials. This shall include but not be limited to wood, wood products, trash and vegetation. Backfill containing coal refuse must be compacted adequately to eliminate oxygen and the possibility of spontaneous combustion and be covered with a minimum of 6 inches of noncoal soil material.

## SECTION 0300 - SPECIFIC SITE REQUIREMENTS (CONTINUED)

All three portals will be backfilled starting from the inby location of the steel arch liner. Backfilling of the portals will continue to the extent that the backfilled material will completely fill the steel liner plate for all three portals and the vertical fan extension located on PORTAL 3. Complete backfilling is to occur until the backfilled material is flush with the surface contours adjacent to the steel liner plate or the fan extension. Backfilling of the steel liner plate beyond the point where the liner plate extends beyond the adjacent surface contours will NOT be required.

Closure of these mine openings will only require the backfilling of material and will NOT include or require the installation of sampling tubes, drain pipes, block walls or other such facilities as described in Section 0250 - MINE CLOSURES.

Borrow material for backfilling the portals will be adjacent to or in the immediate vicinity of the portals. The borrow areas will be as directed by the OWNER as the work progresses. Borrow areas should be excavated in a manner so as not to impound water and the slopes of the borrow areas should generally not exceed 2H:1V, and in no case should they exceed the angle of repose for the material.

Care should be taken by the CONTRACTOR during the handling of the coal spoil materials in the event that fires may exist within the spoil piles. The CONTRACTOR should avoid handling spoil materials in a manner that would promote spontaneous combustion. Spoil materials which are disturbed during the course of the work should be regraded and compacted to prevent spontaneous combustion.

Portal closure activity should be limited to restricting personnel and equipment to operate beneath the steel arch liner plates in the portals. Mine workings beyond the steel arch liner plate are considered unstable and under no circumstances should personnel or equipment be allowed to enter the mine openings beyond the extent of the steel arch liner plate.

### C. WATER BARS AND DRAINAGE CONTROL

Upon completion of the backfilling of the portals, the CONTRACTOR will install water bars across the two access roads for the mine facilities. The location of these water bars is found on FIGURE 2, in Appendix A.

Water bars shall be elongated mounds of compacted soil constructed at an angle with respect to the slope of the terrain so that runoff is conveyed from disturbed areas to the sediment pond thereby alleviating rill and gully erosion. The water bars will be installed to the satisfaction of the OWNER and may require grading or ditching to ensure proper drainage to the sediment pond.

END OF SECTION 0300

## **A P P E N D I X   A**

**FIGURE 1 -    PROJECT LOCATION**

**FIGURE 2 -    FACILITIES LOCATION**

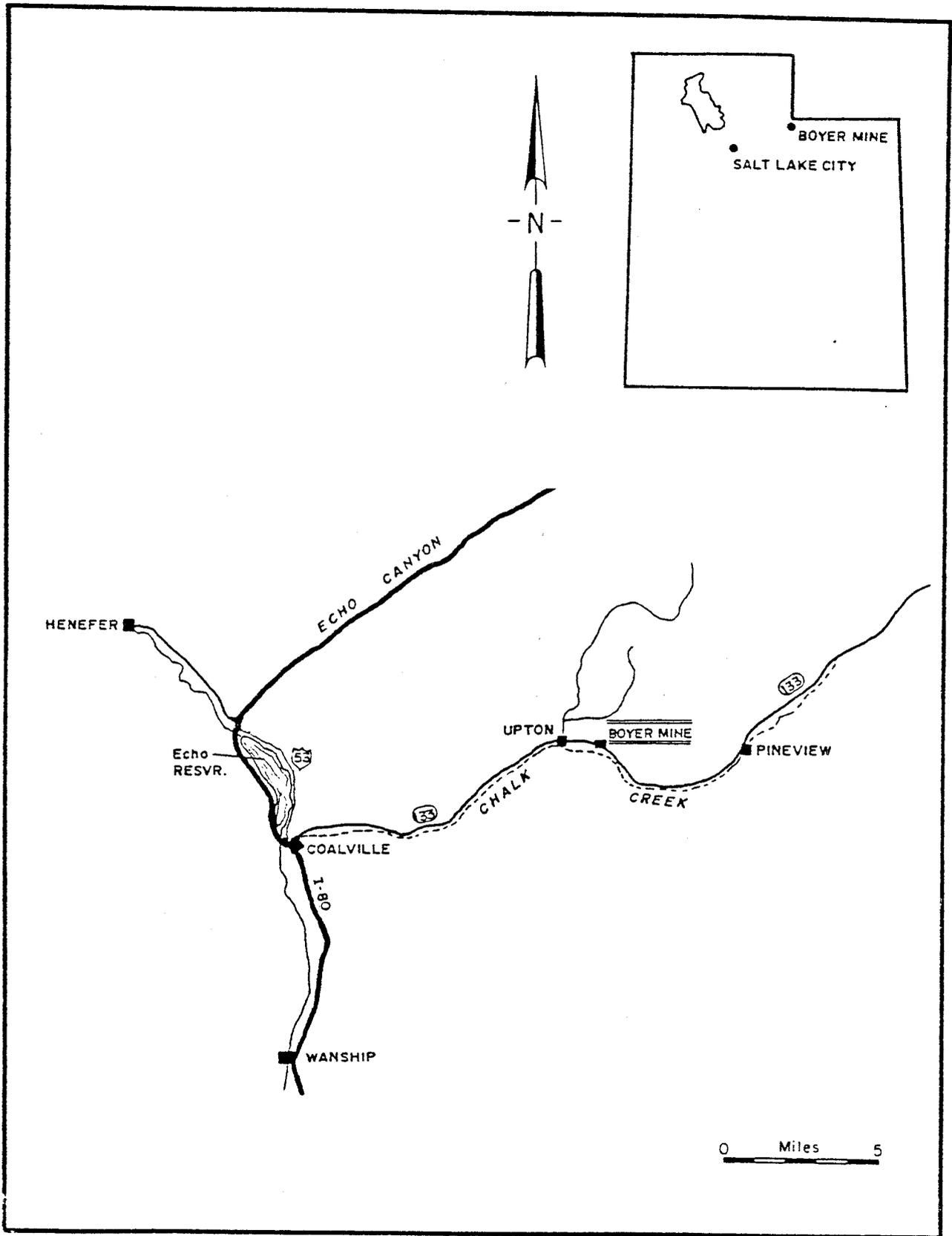


Figure 1



# **A P P E N D I X   B**

## **CONTRACTOR REPORT FORMS**

Daily Construction Progress Report

Contractor Performance Rating Form

# DAILY CONSTRUCTION PROGRESS REPORT

-- CONTRACTOR --

Project: Boyer Mine Phase I Date: \_\_\_\_\_ MON TUE WED THU FRI  
Crew: \_\_\_\_\_ Supervisor: \_\_\_\_\_  
Working Hours: from \_\_\_\_\_ to \_\_\_\_\_  
Equipment: \_\_\_\_\_

General description of work performed, equipment/material deliveries, etc:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Attach as-built drawings as required.)

WORK items approved:

\_\_\_\_\_  
\_\_\_\_\_

Problems/delays and proposed or actual resolution. DOGM action required? Y N

\_\_\_\_\_  
\_\_\_\_\_

Visitors & purpose:

\_\_\_\_\_

Additional Comments on Attached pages? YES NO

Temp: 20 30 40 50 60 70 80 90 100  
Sky: fair pc mc cloudy overcast rain snow  
Ground: dry wet muddy snow \_\_\_" frozen

Project is approximately \_\_\_\_\_ on schedule Contract expires: \_\_\_/\_\_\_/\_\_\_  
\_\_\_\_\_ days behind schedule  
\_\_\_\_\_ days ahead of schedule

Contractor: \_\_\_\_\_ \_\_\_/\_\_\_/\_\_\_  
Project Engineer: \_\_\_\_\_ \_\_\_/\_\_\_/\_\_\_  
Associate Director: \_\_\_\_\_ \_\_\_/\_\_\_/\_\_\_

# CONTRACTOR PERFORMANCE RATING

Contractor: \_\_\_\_\_

Project: Boyer Mine Phase I ACT / 043 / 008

Project Start Date: \_\_\_/\_\_\_/\_\_\_ Project End Date: \_\_\_/\_\_\_/\_\_\_ Duration: \_\_\_\_\_ Days

Rating: Satisfactory= 1; Unsatisfactory= 0

- \_\_\_ 1. Achieved the specified level of project quality and quantity.
- \_\_\_ 2. Prompt, diligent, and systematic prosecution of work.
- \_\_\_ 3. Adequate personnel (number and skill level).
- \_\_\_ 4. Adequate equipment (number, type, and operating condition).
- \_\_\_ 5. Effective on-site management and supervision of work.
- \_\_\_ 6. Cooperation, responsiveness, and communication with inspector and project manager.
- \_\_\_ 7. Cooperation and timely response in negotiation of contract changes.
- \_\_\_ 8. Cooperation in negotiation of claims.
- \_\_\_ 9. Record of prompt payment for labor, materials, equipment, and subcontract work.
- \_\_\_ 10. On-time submission of necessary documents and reports.
- \_\_\_ 11. Compliance with all applicable federal, state, and local laws and regulations.
- \_\_\_ 12. Minimized the adverse effect of construction activities on public and environment.
- \_\_\_ 13. Cooperation with landowners and/or utilities.

\_\_\_ Total Performance Rating

Attach explanations of all "Unsatisfactory" ratings.

Rated by \_\_\_\_\_ Date \_\_\_\_\_

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

**A contractor with a Performance Rating (or average rating if there is more than one rating) of 10 or less fails to prequalify.**

Explanation of All Unsatisfactory Ratings Shown Above:

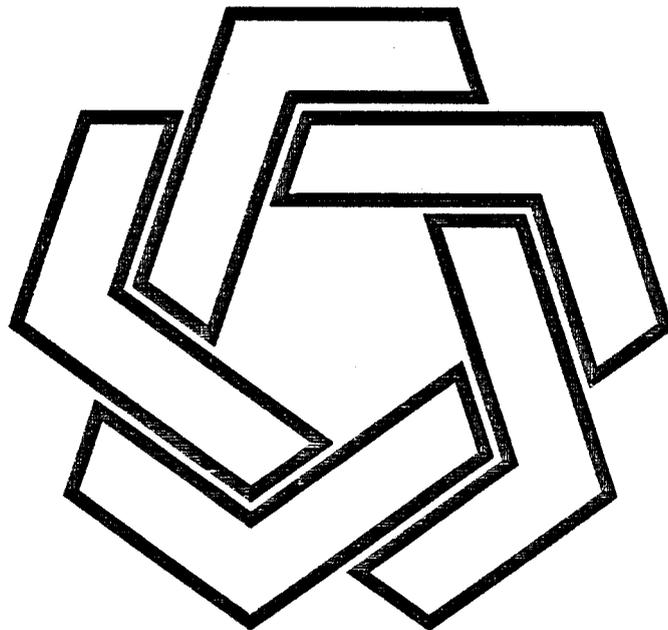
NUMBER    EXPLANATION

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# APPENDIX C

GENERAL CONDITIONS FOR RECLAMATION PROJECTS

**GENERAL CONDITIONS  
FOR  
RECLAMATION PROJECTS**



**State of Utah  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
(801) 538 - 5340**

Last Revised - June 24, 1988

NOTICE: The General Conditions contained herein are binding to all Reclamation Projects funded with State of Utah, Division of Oil, Gas and Mining monies. CONTRACTORS are bound by these conditions which are hereby made part of the reclamation construction contract.

Date issued: \_\_\_\_\_

Issued to: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Number: \_\_\_\_/\_\_\_\_/\_\_\_\_

# DIVISION OF OIL, GAS & MINING

## GENERAL CONDITIONS FOR RECLAMATION PROJECTS

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76. Use of Explosives
77. Compliance with Copeland Regulations
78. Overtime Compensation
79. Clean Air and Water

# DIVISION OF OIL, GAS AND MINING

## GENERAL CONDITIONS FOR RECLAMATION PROJECTS

### 1. Definitions:

- A. The CONTRACT documents consist of the agreement, the general conditions of the CONTRACT, the drawings and specifications, including all modifications thereof incorporated in the documents before their execution. These form the CONTRACT.
- B. The OWNER and the CONTRACTOR or pronouns used in place thereof, are those mentioned as such in the agreement. They are treated throughout the CONTRACT documents as if each were in the singular number.
- C. The term "Subcontractor," as employed herein, includes anyone having a direct CONTRACT with anyone except the OWNER to provide material and/or labor under this CONTRACT, and it includes one who furnishes material worked to a special design according to the plans and/or specifications of this WORK, but does not include one who merely furnishes material not so worked.
- D. The word "state," or pronoun used in place thereof, is to designate the State of Utah, as represented by the Division of Oil, Gas & Mining.
- E. The word "OWNER," or pronoun used in place thereof, is to designate the State of Utah, as represented by the Division of Oil, Gas & Mining.
- F. The term "WORK" of the CONTRACTOR or subcontractor includes labor or materials or both, and the SCOPE OF WORK.
- G. The term "site" shall be used to refer to all areas where the WORK is to be performed.
- H. The term "engineer" shall be used to refer to a consultant representing the OWNER or a designated representative of the OWNER.
- I. The applicable laws and regulations of the State of Utah shall govern the execution of the WORK embodied in the contract documents.

### 2. Correlation and Intent of Documents:

The CONTRACT documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment, and transportation necessary for the proper and complete execution of the WORK, and equal in quality and workmanship to the highest standards. The CONTRACTOR is to abide by and comply with the true intent and meaning of all drawings and specifications taken as a whole and is not to avail himself to the detriment of the WORK, of any manifestly unintentional error or omission, should any exist. All minor details of WORK which are not shown on the plans, as well as such items as are not specifically mentioned in the specifications but are obviously necessary for the proper

completion of the WORK, shall be considered as incidental and as being part of the WORK.

### 3. Copies Furnished:

Unless otherwise provided in the CONTRACT documents, the OWNER will furnish the CONTRACTOR, free of charge to the CONTRACTOR, copies of drawings and specifications, reasonably necessary for the execution of the WORK.

### 4. Dimensions:

Where no figures or memoranda are given, the drawings shall be accurately followed according to their scale, but figures or memoranda are to be preferred to the scale, in all cases of difference, and the larger scale details shall take preference over those of smaller scale.

### 5. Detail Drawings and Instructions:

The OWNER shall furnish, with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the WORK. All such drawings and instructions shall be consistent with the CONTRACT documents, true developments thereof, and reasonably inferable therefrom. The WORK shall be executed in conformity with the drawings and instructions. Any WORK performed by the CONTRACTOR in advance of these drawings and instructions shall be entirely at the CONTRACTOR's risk.

### 6. Drawings and Specifications on the Work:

The CONTRACTOR shall keep at the jobsite one copy of all drawings and specifications on the WORK in good order, available to the OWNER and their representatives.

### 7. Ownership of Drawings:

All copies of drawings and specifications furnished the CONTRACTOR by the OWNER are the property of the OWNER. They are not to be used by the CONTRACTOR on other work, and are to be returned to the OWNER, upon request, at the completion of the WORK.

### 8. Shop Drawings/As Built Drawings:

The CONTRACTOR shall submit to the OWNER, with such promptness as to cause no delay in his/her WORK or in that of any other CONTRACTOR, six copies of all shop/as built drawings or setting drawings and schedules required for the WORK of the various trades and the OWNER shall pass upon them with reasonable promptness, making desired corrections. Said corrections shall pertain to conformance with the basic design concepts embodied in the CONTRACT documents. The CONTRACTOR shall make any corrections required by the OWNER. The OWNER shall distribute the corrected drawings as follows: Two drawings to the OWNER; three drawings back to the general CONTRACTOR; and one drawing to the project inspector (if one is assigned to the job). The OWNER's

approval of such drawings or schedules shall not relieve the CONTRACTOR from responsibility for deviations from drawings or specifications, unless he/she has in writing called the OWNER's attention to such deviations at the time of submission, and has received the OWNER's written approval of such deviation; nor shall it relieve him/her from responsibility for errors of any sort in shop/as built drawings or schedules.

**9. Samples:**

The CONTRACTOR shall furnish to the OWNER for approval, all samples as directed. The WORK shall be in accordance with approved samples.

**10. Materials, Appliances, Employees:**

Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities and services necessary for the execution and completion of the WORK.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of high quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The CONTRACTOR shall at all times enforce strict discipline and order among his/her employees, and shall not employ on the WORK any unfit person or anyone not skilled in the work assigned to him/her.

**11. Royalties and Patents:**

The CONTRACTOR shall pay all royalties and license fees. He/she shall defend all suits or claims for infringement of any patent rights and shall save the OWNER harmless from loss on account thereof.

**12. Surveys, Permits and Regulations:**

The OWNER shall furnish surveys necessary to establish site boundaries and existing topography. The OWNER shall provide those surveys necessary for laying out the WORK.

The CONTRACTOR shall give all notices and comply with all applicable laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the drawings and specifications are at variance therewith, he/she shall promptly notify the OWNER in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the WORK. If the CONTRACTOR performs any work knowing it to be contrary to such laws, ordinances, rules and regulations and without such notice to the OWNER, he/she shall bear all costs arising therefrom.

Inasmuch as the WORK under this contract will be performed for the State of Utah, it will not be necessary to take out local building permits, electrical permits and plumbing permits, nor will it be necessary to pay fees for inspections pertaining thereto; however, it will be necessary to obtain a permit from the city, county, and or Department of Transportation having jurisdiction whenever the WORK involves their property. The CONTRACTOR shall cooperate as necessary with these jurisdictions to comply with all their requirements, which may include a bond and permit fee.

Fees for connection to utilities such as water and power must be borne by the CONTRACTOR.

**13. Protection of Work and Property:**

The CONTRACTOR shall continuously maintain adequate protection of all his/her WORK from damage and shall protect the OWNER's property from injury or loss arising in connection with this CONTRACT. CONTRACTOR shall make good any such damage, injury, or loss, except such as may be directly due to errors in the CONTRACT documents or caused by agents or employees of the OWNER. CONTRACTOR shall adequately protect adjacent property as provided by law and the CONTRACT documents.

The CONTRACTOR shall take all necessary precautions for the safety of employees on the WORK and shall comply with all applicable provisions of federal, state and municipal safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the WORK is being performed. CONTRACTOR shall erect and properly maintain at all times, as required by the conditions and progress of the WORK, all necessary safeguards for the protection of workers and the public and shall post danger signs warning against hazardous conditions.

**14. Inspection of Work:**

The OWNER and the representatives thereof and authorized federal government inspectors shall at all times have access to the WORK, and the CONTRACTOR shall provide proper facilities for such access and for inspection.

If the specifications or the OWNER requires any work to be specially tested or approved, the CONTRACTOR shall give the OWNER timely notice of its readiness for inspection. Inspections shall be promptly made and, where practicable, at the source of supply. If any WORK should be covered up without approval or consent of the OWNER, it must, if required by the OWNER, be uncovered for examination at the CONTRACTOR's expense.

**15. Superintendence and Supervision:**

The CONTRACTOR shall keep on the WORK, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the OWNER. The superintendent shall represent the CONTRACTOR in his/her absence, and all directions given to superintendent shall be as binding as if given to the CONTRACTOR.

The CONTRACTOR shall give efficient supervision to the WORK, using his/her best skill and attention. CONTRACTOR shall carefully study and compare all drawings, specifications and other instructions, and shall at once report to the OWNER any error, inconsistency, or omission which CONTRACTOR may discover, but shall not be held responsible for their existence or discovery.

**16. Changes:**

A. Change Order. The OWNER, at any time, unilaterally and without notice to sureties, in writing designated or indicated to be a change order, may order:

- (1) Changes in the WORK within the scope of this CONTRACT;
- (2) Changes in the time for performance of this CONTRACT that do not alter the scope of WORK of this CONTRACT; and/or
- (3) Changes necessary to continue the WORK or to accommodate the OWNER with essential services required to complete the WORK as normally intended in accordance with specifications.

B. Adjustments of Price or Time for Performance. If any change order increases or decreases the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK under this CONTRACT, whether changed or not changed by any such change order, an equitable adjustment shall be made in the contract price or completion date, or both, and this contract shall be modified in writing accordingly. Any adjustment in contract price made pursuant to this clause shall be determined in accordance with the Price Adjustment Clause of this contract.

Failure of the parties to agree to an adjustment shall not excuse the CONTRACTOR from proceeding with this contract as changed, provided that the OWNER promptly and duly makes such provisional adjustments in payments or time for performance as the OWNER deems to be reasonable.

C. Written Certification. No change order shall be authorized without a written certification, signed by an official of the OWNER responsible for monitoring and reporting the status of the costs of the total project or the contract budget, stating that funds are available therefor.

Where the OWNER has assigned an engineer to the project, the CONTRACTOR shall submit such proposals to the engineer in sufficient number that one copy may be transmitted to the OWNER, one to the project inspector, and one retained by the engineer. Upon acceptance of the proposal by all parties, a written change order will be issued.

Whenever a request for a change order proposal is received by the CONTRACTOR, he/she shall indicate thereon his/her proposed price to be added or deducted from the CONTRACT sum due to the change, together with his/her request for any adjustment in time of final completion of the entire CONTRACT.

It is further agreed that all time extensions to the completion date of the CONTRACT and any costs or changes in the CONTRACT price from any cause whatsoever that may be incurred as a result of the change order(s) are included in the change order as authorized.

**17. Claims Based on OWNER's Actions or Omissions:**

Notice of Claim. If any action or omission on the part of the OWNER, requiring performance changes within the scope of the CONTRACT and which are not covered by other clauses of this CONTRACT, constitutes the basis for a claim by the CONTRACTOR for additional compensation, damages, or an extension of time for completion, the CONTRACTOR shall

continue the performance of the CONTRACT in compliance with the directions or orders of the OWNER, but by so doing, the CONTRACTOR shall not be deemed to have prejudiced any claim for additional compensation, damages, or an extension of time for completion; provided:

- (1) The CONTRACTOR shall have given written notice to the OWNER:
  - (a) Prior to the commencement of the WORK involved, if at that time the CONTRACTOR knows of the occurrence of such action or omission; or
  - (b) Within thirty (30) days after the CONTRACTOR knows of the occurrence of such action or omission, if the CONTRACTOR did not have such knowledge prior to the commencement of the WORK; or
  - (c) Such further time as may be allowed by the OWNER in writing.

This notice shall state that the CONTRACTOR regards the act or omission as a reason which may entitle the CONTRACTOR to additional compensation, damages, or an extension of time. The OWNER, upon receipt of such notice, may rescind such action, remedy such omission, or take such other steps as may be deemed advisable in the discretion of the OWNER.

- (2) The notice required by Subparagraph (A)(1) of this paragraph describes as clearly as practicable at the time the reasons why the CONTRACTOR believes that additional compensation, damages, or an extension of time may be remedies to which the CONTRACTOR is entitled; and
- (3) The CONTRACTOR maintains and, upon request, makes available to the OWNER within a reasonable time, detailed records to the extent practicable, of the claimed additional costs or basis for an extension of time in connection with such changes.

**18. Deductions for Uncorrected Work:**

If the OWNER deems it inexpedient to correct WORK damaged or done not in accordance with the CONTRACT, an equitable deduction from the CONTRACT price shall be made therefor.

**19. Delays and Extension of Time:**

If the CONTRACTOR is significantly delayed at any time in the progress of the WORK by any act or neglect of the OWNER, or of any employee of either, or by any separate CONTRACTOR employed by the OWNER, or by significant changes ordered in the WORK or by strikes, lockouts, fire, unavoidable casualties or any causes beyond the CONTRACTOR's control, or by any cause which the OWNER shall decide justifies the delay, then the time of completion shall be extended for such reasonable time as the OWNER may decide. No action shall lie against the OWNER for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the OWNER or its agents; however, the CONTRACTOR may receive an extension of time in which to complete the WORK under this CONTRACT as provided above. The right to apply

for such an extension of time shall be the exclusive remedy available to the CONTRACTOR or any Subcontractor as against the OWNER for such loss.

Any request for extension of time shall be made to the OWNER in writing within seven (7) days from the time of occurrence of cause for delay. In case of a continuing cause of delay, only one claim is necessary.

**20. Correction of WORK Before Final Payment:**

The CONTRACTOR shall promptly remove from the premises all WORK condemned by the OWNER as failing to conform to the CONTRACT, whether incorporated or not, and the CONTRACTOR shall promptly replace and reexecute his/her own WORK in accordance with the CONTRACT and without expense to the State of Utah and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

If the CONTRACTOR does not remove such condemned WORK within a reasonable time, fixed by written notice, the OWNER may have the materials removed and stored at the expense of the CONTRACTOR.

**21. Correction of WORK After Final Payment:**

Neither the final certificate of payment nor any provision in the CONTRACT documents nor partial or entire occupancy of the premises by the OWNER shall constitute an acceptance of WORK not done in accordance with the CONTRACT documents or relieve the CONTRACTOR of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The CONTRACTOR shall remedy any defects in the WORK and pay for any damage to other WORK resulting therefrom which shall appear within a period of one year from the date of substantial completion of the WORK, unless a longer period is specified. The OWNER will give notice of observed defects with reasonable promptness.

**22. Termination for Default Clause:**

A. The OWNER may, subject to the provisions of Paragraph (C) below, by written notice of default to the CONTRACTOR, terminate the whole or any part of this CONTRACT in any one of the following circumstances:

- (1) If the CONTRACTOR fails to perform this CONTRACT within the time specified herein or any extension thereof; or
- (2) If the CONTRACTOR fails to perform any of the other provisions of this CONTRACT, or so fails to make progress as to endanger performance of this CONTRACT in accordance with its terms, and in either of these two circumstances does not cure such failure within a period of five (5) days (or such longer period as the OWNER may authorize in writing) after receipt of notice from the OWNER specifying such failure.

B. In the event the OWNER terminates this CONTRACT in whole or in part as provided in Paragraph (A) of this clause, the OWNER may procure, upon such terms and in such manner as the OWNER may deem appropriate, supplies or services similar to those so terminated, and the

CONTRACTOR shall be liable to the OWNER for any excess costs for such similar supplies or services; provided that the CONTRACTOR shall continue the performance of this CONTRACT to the extent not terminated under the provisions of this clause.

- C. Except with respect to defaults of Subcontractors, the CONTRACTOR shall not be liable for any excess costs if the failure to perform the CONTRACT arises out of causes beyond the control and without the fault or negligence of the CONTRACTOR. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the state or federal government in either their sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case the failure to perform must be beyond the control and without the fault or negligence of the CONTRACTOR. If the failure to perform is caused by the default of a Subcontractor, and if such default arises out of causes beyond the control of both the CONTRACTOR and the Subcontractor, and without the fault or negligence of either of them, the CONTRACTOR shall not be liable for any excess costs for failure to perform unless the supplies or services to be furnished by the Subcontractor were obtainable from other sources in sufficient time to permit the CONTRACTOR to meet the required delivery or completion schedule.

If this CONTRACT is terminated as provided in Paragraph (A) of this clause, the OWNER, in addition to any other rights provided in this clause, may take over the WORK and prosecute the same to completion, by contract or otherwise, and may take possession of, and utilize in completing the WORK, such materials, equipment and plants as may be on the site of the WORK and necessary therefor. The OWNER may require the CONTRACTOR to transfer title and deliver to the OWNER, in the manner and to the extent directed by the OWNER:

- (1) Any completed portion of the WORK; and
- (2) Any partially completed portion of the WORK and any parts, tools, dies, jigs, fixtures, plans, drawings, information, and CONTRACT rights (hereinafter called "construction materials") as the CONTRACTOR has specifically produced or specifically acquired for the performance of such part of this CONTRACT as has been terminated; and the CONTRACTOR shall, upon direction of the OWNER, protect and preserve property in the possession of the CONTRACTOR in which the OWNER has an interest.

Payment for completed WORK accepted by the OWNER shall be at the contract price. Payment for construction materials delivered to and accepted by the OWNER and for the protection and preservation of property shall be in an amount agreed upon by the CONTRACTOR and OWNER. The OWNER may withhold from amounts otherwise due the CONTRACTOR for such completed WORK or construction materials such sum as the OWNER determines to be necessary to protect the OWNER against loss because of outstanding liens or claims of former lien holders.

- E. If, after notice of termination of the contract under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions of this clause, or that the default was excusable under the provisions of this clause, the rights and obligations of the parties shall, if the CONTRACT contains a clause providing for termination for convenience of the OWNER, be the same as if the notice of termination had been issued pursuant to such clause. If, after notice of termination of this CONTRACT under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions of the clause, and if this CONTRACT does not contain a clause providing for termination for convenience of the OWNER, the CONTRACT shall be equitably adjusted to compensate for such termination and the contract modified accordingly.
- F. The rights and remedies of the OWNER provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this CONTRACT.

**23. Application for Payments:**

The CONTRACTOR shall submit an application monthly for progress payments to the OWNER for approval. The CONTRACT REPRESENTATIVE shall approve the payment, and obtain the signature of the inspector for payment. Receipts or other vouchers showing payments for the materials and labor, including payments to Subcontractors, for the preceding month shall be submitted with the application if required.

If payments are made on valuation of WORK done, such application shall be submitted at least ten days before each payment falls due. The CONTRACTOR shall, before the first application, submit to the OWNER, a schedule of values for the various parts of the WORK, including quantities, aggregating the total sum of the CONTRACT, divided so as to facilitate payments as outlined above and made out in such form as the OWNER and the CONTRACTOR may agree upon, and supported by such evidence as to its correctness as the OWNER may direct. This schedule, when approved by the OWNER, shall be used as a basis for payment, unless it be found to be in error. In applying for payments, the CONTRACTOR shall submit in duplicate a statement based upon this schedule and itemized in such form and supported by such evidence as the OWNER may direct, showing CONTRACTOR's right to the payment claimed.

In making payments to the CONTRACTOR for completed WORK or for materials stored on site, it is understood between the OWNER and the CONTRACTOR that proportionate parts of such payments as are made to the CONTRACTOR for completed WORK of Subcontractors and/or suppliers will be transmitted to such Subcontractors and/or suppliers in the form of payments for completed WORK within ten (10) days after receipt of such payments by the CONTRACTOR. The submittal of an application by a CONTRACTOR for a progress payment shall constitute prima facie representation by that CONTRACTOR that all previous proportionate payments made by the OWNER to the CONTRACTOR for completed WORK of Subcontractors and/or suppliers have been transmitted to all appropriate Subcontractors and/or suppliers for their completed WORK within ten (10) days after receipt of respective payments.

For projects in excess of \$100,000, the CONTRACTOR may request retainage to be paid to an escrow agent for interest to accrue to the CONTRACTOR's benefit. See OWNER for forms and more information.

**24. OWNER's Right to Withhold Certain Amounts and Make Application Thereof:**

The OWNER may withhold from payment to the CONTRACTOR such an amount or amounts as, in its judgment, may be necessary to pay just claims against the CONTRACTOR or any Subcontractor for labor and services rendered and materials furnished in and about the WORK. The OWNER may apply such withheld amounts on the payment of such claims in its discretion. In so doing, the OWNER shall be deemed the agent of the CONTRACTOR and payments so made by the OWNER shall be considered as a payment made under the CONTRACT by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments in good faith made. Such payments may be made without prior determination of the claim or claims.

Neither the final certificate of payment nor any provision in the CONTRACT documents, nor partial or entire occupancy of the premises by the OWNER shall constitute an acceptance of WORK not done in accordance with the contract documents or relieve the CONTRACTOR of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The CONTRACTOR shall remedy any defects in the WORK and pay for any damage to other WORK resulting therefrom, which shall appear within a period of one year from the date of the certificate of substantial completion of the WORK, unless a longer period is specified. The OWNER will give notice of observed defects with reasonable promptness.

**25. Liability Insurance:**

To protect against liability, loss, or expense arising from damage to property or injury or death of any person or persons incurred in any way out of, in connection with or resulting from the WORK provided hereunder, CONTRACTOR shall obtain at its own expense from reliable insurance companies acceptable to OWNER's Risk Manager and authorized to do business in the state in which the work is to be performed, and shall maintain in full force during the entire period of this contract the following or equivalent insurance:

- (a) Workers' Compensation Insurance and Employers' Liability Insurance providing statutory benefits.
- (b) Comprehensive General Liability Insurance, including premises-operations; explosion; collapse and underground hazards; products and completed operation hazards; blanket contractual; broad form property damage; independent CONTRACTORS; and personal injury including employees with limits not less than \$1,000,000 combined single limit per occurrence.
- (c) Comprehensive Automobile Liability Insurance including owned, hired and non-owned automobiles with limits not less than \$1,000,000 combined single limit per occurrence.
- (d) CONTRACTOR using its own aircraft, or employing aircraft in connection with the WORK performed under this contract shall maintain Bodily Injury and Property

Damage Liability coverage with a combined single limit of not less than \$1,000,000 per occurrence.

Any policy required by this section may be arranged under a single policy for the full limit required, or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy.

OWNER may accept equivalent self-insured programs in lieu of insurance upon specific approval of OWNER's Risk Manager.

Irrespective of the requirements as to insurance to be carried by CONTRACTOR as provided herein, insolvency, bankruptcy or failure of any insurance company to pay all claims accruing, shall not be held to relieve CONTRACTOR of any obligations hereunder.

The State of Utah and all Institutions, Agencies, Departments, Authorities and Instrumentalities of the State of Utah, and while acting within the scope of their duties as such: any member of their governing bodies, or of their boards, commissions, or advisory committees, or any of their elected or appointed officials, or any of their employees or authorized volunteers shall be listed as additional insureds under each of the policies required to be purchased and maintained by CONTRACTOR, with the exception of Workers' Compensation. Each policy so required shall be primary to the aforesaid additional insureds listed above, and shall apply to the full policy limits prior to any other insurance coverage which the aforesaid additional insureds may have in the event of claim under any of said policies, but, only with respect to WORK being performed by CONTRACTOR on behalf of the aforesaid additional insureds.

Before the WORK is commenced, certificates evidencing that satisfactory coverage of the type and limits set forth above are in effect, shall be furnished to the OWNER. Such insurance policies shall contain provisions that no alteration, cancellation or material change therein shall become effective except upon thirty (30) days prior written notice to OWNER's Risk Manager as evidenced by return of registered or certified letter sent to OWNER's Risk Manager.

Any and all deductibles in the above described policies shall be assumed by, for the account of, and at sole risk of CONTRACTOR.

#### 26. Property Insurance:

OWNER shall provide "all risk" property insurance to protect OWNER, as well as all CONTRACTORS, Subcontractors and sub-subcontractors with respect to WORK performed hereunder at OWNER's own cost and expense, according to the policy forms currently in force with insurance carriers selected by OWNER's Risk Manager. OWNER's Risk Manager will furnish, upon request, all parties in interest with copies of said policies authenticated by authorized agents of the insurers or the State Risk Management Fund.

The above described policies shall be subject to a total deductible of \$500.00 per loss occurrence, which shall be assumed by all insureds in proportion to their share of the total amount of an insured loss occurrence.

Any insured property loss is to be adjusted with the OWNER's Risk Manager, and made payable to the OWNER's Risk Manager as trustee for the insureds, as their interests may

appear, subject to the requirements of any applicable loss payable clause.

CONTRACTOR and OWNER hereby waive all rights against each other for damages caused by perils insured against under the property insurance provided by OWNER, except such rights as CONTRACTOR may have to the proceeds of such insurance held by the OWNER's Risk Manager as trustee.

If the CONTRACTOR requests in writing that insurance for special hazards be included in the property insurance policy, the OWNER's Risk Manager shall, if possible, include such insurance, and the cost thereof shall be charged to the CONTRACTOR by appropriate change order.

#### 27. Indemnification:

"Indemnities" shall be defined for the purposes of this section: the State of Utah and all institutions, agencies, departments, authorities, and instrumentalities of the State of Utah, and any member of their governing bodies, or of their boards or commissions, or any of their elected or appointed officers, or any of their employees or authorized volunteers.

The CONTRACTOR will protect, indemnify and hold harmless indemnities from every kind and character of damages, losses, expenses, demands, claims and causes of action arising against indemnities and their Subcontractors, their officers, agents, employees or any other person, firm or corporation whatsoever from, against, or on account of any and all claims damages, losses, demands causes of action and expenses (including attorney's fees) arising out of or resulting from any violation or alleged violation by CONTRACTOR, his officers, agents and employees, or his Subcontractors or their officers, agents and employees of any federal, state or local law, statute or ordinance, relating to the WORK to be performed by the CONTRACTOR on the project growing out of or incident to the WORK to be performed and operations to be conducted by CONTRACTOR, or his Subcontractors, under this agreement, whether such claims, death or damages, result from or are claimed to have resulted from the negligence of CONTRACTOR, his officers, agents or employees, or his Subcontractors, their officers, agents, employees, or whether resulting from or alleged to have resulted from the concurrent negligence of indemnities and/or CONTRACTORS, their officers, agents or employees. The CONTRACTOR, at his own expense, shall defend any suit or action brought against OWNER based on any such alleged injury, death or damage, and shall pay all damages, costs and expenses, including attorney's fees in connection therewith or in any manner resulting therefrom. Such damages will include all the injuries or damages occasioned by the failure of, use of, or misuse of any and all kinds of equipment, whether owned or rented by CONTRACTOR or furnished by a Subcontractor.

The OWNER shall be fully informed by the CONTRACTOR of settlement negotiations regarding any matter referred to in the preceding paragraph and shall first approve any settlement to be made by CONTRACTOR. Any such settlement shall include a release of all claims relating to OWNER. The form copy of all releases obtained shall be furnished by OWNER. If CONTRACTOR is unable to make settlement of any such claims within fifteen (15) days after the final completion date, the OWNER reserves the right, at his/her option, to either make settlement of the claim and charge the amount to CONTRACTOR or to withhold the dollar amount, in whole or

in part, of the claim or claims in question from payment to CONTRACTOR until OWNER receives a release for such claim or claims.

In any and all claims against indemnities by any employee or CONTRACTOR, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

The CONTRACTOR shall indemnify and hold harmless indemnities from all claims, demands, causes of action or suits of whatever nature arising out of services, equipment, supplies, materials and/or labor furnished by CONTRACTOR or its Subcontractors under this agreement; from all labor and/or mechanic or materialmen liens upon the real property upon which the work is located arising in favor of laborers and/or materialmen, Subcontractors and suppliers, out of services, equipment, supplies, materials and/or labor furnished by CONTRACTOR or any of his/her Subcontractors from all liens, claims and encumbrances arising from the performance of CONTRACTOR or his/her Subcontractors.

**28. Guarantee Bonds:**

The CONTRACTOR shall include in his/her bid, as part of the quoted total, all costs involved in securing and furnishing the following bonds based on the completed cost of the CONTRACT:

- (a) A full 100% performance bond covering the faithful execution of the CONTRACT; and
- (b) A full 100% payment bond of all obligations arising thereunder.

**29. Liens:**

Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR, if required, shall deliver to the OWNER a complete release of all liens arising out of this CONTRACT, or receipts in full in lieu thereof, and, if required in either case, an affidavit that so far as CONTRACTOR has knowledge or information the releases and receipts include all the labor and materials for which a lien could be filed, but the CONTRACTOR may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the OWNER to indemnify him/her against any lien. If any lien remain unsatisfied after all payments are made, the CONTRACTOR shall refund to the OWNER all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

**30. Assignment:**

The CONTRACTOR shall not assign the CONTRACT or sublet it as a whole without the written consent of the OWNER, nor shall the CONTRACTOR assign any moneys due or to become due to CONTRACTOR hereunder, without the previous written consent of the OWNER.

**31. Mutual Responsibility of Contractors:**

Should the CONTRACTOR cause damage to any separate CONTRACTOR on the WORK, the CONTRACTOR agrees, upon due notice, to settle with such CONTRACTOR by agreement or arbitration, if he/she will so settle. If such separate CONTRACTOR sues the OWNER on account of any damage alleged to have been so sustained, the OWNER shall notify the CONTRACTOR, who shall defend such proceedings at his/her own expense, and if any judgment against the OWNER arises therefrom, the CONTRACTOR shall pay or satisfy it in its entirety.

**32. Separate Contracts:**

The OWNER reserves the right to let other CONTRACTS in connection with this WORK. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his/her WORK with theirs.

If any part of the CONTRACTOR's WORK depends for proper execution or results upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the OWNER any defects in such WORK that render it unsuitable for such proper execution and results. His/her failure so to inspect and report shall constitute an acceptance of the other CONTRACTOR's work as fit and proper for the reception of his/her work, except as to defects which may develop in the other CONTRACTOR's WORK after the execution of his/her WORK. To insure the proper execution of his/her subsequent WORK, the CONTRACTOR shall measure WORK already in place and shall at once report to the OWNER any discrepancy between the executed WORK and the drawings.

**33. Subcontractors:**

The two apparent low bidders shall furnish to the OWNER, within twenty-four (24) hours after the opening of bids, a list of the Subcontractors by name and amounts where Subcontractors' bids are in excess of \$5,000 and shall not employ any that the OWNER may, within a reasonable time, object to as incompetent or unfit. Bidders shall not list themselves or "self" under any category as Subcontractor unless the bidder intends to perform as the Subcontractor for which he/she lists "self," and unless he/she generally and regularly performs that type of subcontract WORK. The OWNER shall, on request, furnish to any Subcontractor, wherever practicable, evidence of the amounts certified on this account.

The CONTRACTOR agrees that CONTRACTOR is as fully responsible to the OWNER for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them, as he/she is for the acts and omissions of persons directly employed by CONTRACTOR.

Nothing contained in the CONTRACT documents shall create any contractual relation between any Subcontractor or supplier and the OWNER.

**34. Relations of CONTRACTOR and Subcontractor:**

The CONTRACTOR agrees to bind every Subcontractor and every Subcontractor agrees to be bound by the terms of the

agreement, the general conditions, and the drawings and specifications as far as applicable to his/her WORK. Nothing in this article shall create any obligation on the part of the OWNER to pay or to see to the payment of any sums to any Subcontractor.

**35. State's Inspection:**

The OWNER, at his/her option, may assign an inspector to the project. Such staff inspector will cooperate with the CONTRACT REPRESENTATIVE and design engineer in noting deviations from, or necessary adjustments to, the CONTRACT documents or of deficiencies or defects in the construction. The staff inspector's presence on the project, however, shall in no way relieve the CONTRACT REPRESENTATIVE of the prime responsibilities as set forth herein.

**36. CONTRACT REPRESENTATIVE Status:**

The OWNER shall appoint a CONTRACT REPRESENTATIVE who shall have general supervision of the work and he/she is the agent of the OWNER to the extent provided in the CONTRACT documents and when in special instances he/she is authorized by the OWNER to so act.

As the CONTRACT REPRESENTATIVE is, in the first instance, an interpreter of the conditions of the CONTRACT and a judge of its performance, he/she shall side neither with the OWNER nor with the CONTRACTOR, but shall use his/her powers under the CONTRACT to enforce its faithful performance by both.

**37. CONTRACT REPRESENTATIVE's Decisions:**

The CONTRACT REPRESENTATIVE shall, within a reasonable time, make decisions on all claims of the OWNER or CONTRACTOR and on all other matters relating to the execution and progress of the WORK or the interpretation of the CONTRACT documents.

**38. Cash Allowances:**

The CONTRACTOR shall include in the BID PRICE all allowances named in the CONTRACT documents and shall cause the WORK so covered to be done by such CONTRACTORS and for such sums as the CONTRACT REPRESENTATIVE may specify and certify, the BID PRICE being adjusted in conformity therewith, upon approval of the OWNER.

**39. Use of Premises:**

The CONTRACTOR shall confine apparatus, the storage of materials and the operations of his/her workers to limits indicated by law, ordinances, permit or directions of the CONTRACT REPRESENTATIVE and shall not unreasonably encumber the premises with his/her materials. The CONTRACTOR shall not load or permit any part of the equipment or structure to be loaded with a weight that will endanger its safety or the safety of any person on the premises.

**40. Cutting, Patching and Digging:**

The CONTRACTOR shall do all cutting, patching or fitting of his/her WORK that may be required to make its several parts

come together properly and fit it to receive or be received by WORK of other CONTRACTORS shown upon, or reasonably implied by, the drawings and specifications for the completed structure, and he shall make good after them as the CONTRACT REPRESENTATIVE may direct.

Any cost caused by defective or ill-timed work shall be borne by the party responsible therefor. The CONTRACTOR shall not endanger any WORK by cutting, digging or otherwise, and shall not cut or alter the WORK of any other CONTRACTOR save with the consent of the CONTRACT REPRESENTATIVE.

**41. Cleaning Up:**

The CONTRACTOR shall at all times keep the premises free from accumulations of waste material or rubbish caused by his/her employees or WORK. At the completion of the WORK, CONTRACTOR shall remove all rubbish from and about the building and all tools, scaffolding and surplus materials and shall leave his/her WORK "broom-clean" or its equivalent, unless more exactly specified. In case of dispute, the OWNER may remove the rubbish and charge the cost to the several CONTRACTORS as the CONTRACT REPRESENTATIVE may determine to be just.

**42. Substitutions:**

Where reference is made to one or more propriety products but restrictive descriptive material of one or more manufacturer(s) is used, it is understood that the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the plans and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the OWNER and the CONTRACT REPRESENTATIVE prior to the opening of bids. Requests for and information pertaining to said approval must be submitted to the OWNER no later than four (4) working days (not including Saturday, Sunday or state holidays) prior to bid opening. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design.

The CONTRACTOR may propose the substitution of any material as a supplement to his/her bid with the monetary amount, additive or deductive as may be the case, clearly stated and shall include the manufacturer's complete descriptive information with the proposed substitution. This shall be completely apart and separate from the BID PRICE quotation and shall be solely for the information of the OWNER and the use of such proposed substitutions shall be strictly at the decision of the OWNER. If substitution is accepted by the OWNER, the CONTRACT sum shall be adjusted from the BID PRICE either up or down as indicated on the supplementary list by change order after award.

**43. Laying Out WORK:**

The CONTRACTOR shall be held strictly responsible for the accuracy of the laying out of his/her WORK and for its strict conformity with the existing conditions of the building and shall determine all changes and chases and openings before WORK is commenced.

**44. Emergencies:**

In an emergency affecting the safety of life, or of the structure or of adjoining property, then the CONTRACTOR, without special instruction or authorization from the OWNER, shall act at his/her discretion to prevent such threatened loss or injury. Any compensation claimed to be due him/her therefrom shall be determined as provided for under Article 17, "Changes."

**45. Testing of Materials:**

In case the CONTRACT REPRESENTATIVE direct that any materials be tested or analyzed, then the CONTRACTOR shall furnish a sample for the test, such sample being selected according to the directions of the CONTRACT REPRESENTATIVE. The cost of testing or analysis of such sample or samples shall be borne by the manufacturer or supplier of the product. This provision shall not apply to the testing of concrete. The cost of testing shall be borne by the OWNER.

**46. Temporary Enclosing, Drying Out, Etc.:**

If applicable when openings are made in exterior walls, the CONTRACTOR shall, if required by the OWNER on account of weather or security conditions, close up all exterior openings (except one or more which are to be provided with battened doors, padlocks, etc.) with temporary frames covered with approved material.

The CONTRACTOR must, at all times, protect the building from damage from weather, surface water or subsoil drainage. He/she must keep the excavations dry, if necessary, by pumping, while concrete or masonry is being laid.

**47. Examination of Site:**

The CONTRACTOR shall visit the site and examine for himself/herself the site conditions. He/she shall furnish all labor and materials necessary for preparation of the site for the execution of this CONTRACT.

**48. Storage and Care of Materials:**

The CONTRACTOR shall provide, maintain and remove when directed, suitable, substantial, watertight storage sheds upon the premises where directed, in which he/her shall store his/her materials. All cement, lime and other materials affected by moisture shall be covered and protected to keep from damage while it is being transported to the site.

**49. Construction Risks:**

The construction and all materials and WORK connected therewith shall be at the CONTRACTOR's risk until they are accepted, and he/she will be held responsible for and liable for their safety in the amount paid to him/her by the OWNER on account thereof.

**50. Temporary Appurtenances and Conveniences:**

The CONTRACTOR shall provide well-fastened ladders and other means to facilitate inspection of the work.

**51. Scaffolding, Tools, Etc.:**

The CONTRACTOR shall provide and erect all the necessary platforms, scaffolds and supports of ample strength required for the handling of the materials and other loading to be imposed. The same shall apply to all derricks and hoisting machinery, all appliances and materials, ladders, horses, poles, plants, ropes, wedges, centers, moulds, and other tools and materials, and the cartage thereof to and from the site as may become necessary for the performance of his/her contract.

**52. Sanitary Provisions:**

The CONTRACTOR shall provide a chemical toilet for his workers' use. The CONTRACTOR shall keep the toilet clean, neat and in first-class condition at all times.

**53. Refuse:**

Refuse barrels are to be provided by the CONTRACTOR for the workers' lunch boxes and papers.

**54. Removing Water:**

The CONTRACTOR shall remove, at his/her expense from all excavations and/or from the site, all unwanted water appearing from any cause during any stage of the WORK until the site is accepted by the OWNER. All excavations shall be free from water before any concreting or other WORK is done in them.

**55. Taxes:**

The CONTRACTOR shall include in his/her BID PRICE the cost of social security, unemployment compensation, and sales and use taxes as required by federal and state laws.

**56. Citizens Preferred:**

Preference shall be given in hiring citizens of the United States or those having declared their intention of becoming citizens; failure to comply may result in the OWNER declaring the contract void.

**57. Code Requirements:**

The provisions of the 1979 Uniform Building Code, and the 1980 Supplement to Uniform Building Code and Uniform Building Code Standards, the 1981 National Electrical Code, except as specific variances therewith may be authorized by the OWNER, and the 1979 Utah Plumbing Code as amended, shall apply.

If the drawings and specifications fail to meet the minimum standards of the above-mentioned codes, it shall be the responsibility of the CONTRACTOR to bring such information to the attention of the OWNER having jurisdiction. Subcontractors shall also inform the CONTRACTOR of any infractions of the above-mentioned codes regarding their own particular trades.

In the event that workmanship or incidental materials are not specified or indicated, they shall at least conform to the above-mentioned codes and shall be incorporated into the work without any additional cost to the OWNER. If the plans and specifications call for items or workmanship which exceed the

codes, the plans and specifications hold precedence over any code requirements.

**58. Nondiscrimination - Equal Employment Opportunity:**

In order to comply with the provisions of the Utah Anti-Discrimination Act of 1965, relating to unfair employment practices, the CONTRACTOR agrees as follows:

- A. The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, sex, religion ancestry or natural origin.
- B. In all solicitations or advertisements for employees, the CONTRACTOR will state that all qualified applicants will receive consideration without regard to race, color, sex, religion, ancestry or national origin.
- C. The CONTRACTOR will send to each labor union or workers' representative notices to be provided, stating the CONTRACTOR's responsibilities under the statute.
- D. The CONTRACTOR will furnish such information and reports as requested by the division for the purpose of determining compliance with the statute.
- E. Failure of the CONTRACTOR to comply with the statute, the rules and regulations promulgated thereunder and this nondiscrimination clause shall be deemed a breach of contract and it may be canceled, terminated or suspended in whole or in part.
- F. The CONTRACTOR shall include the provisions of the above Paragraphs A through E in all subcontracts for this project.

**59. Affirmative Action:**

The CONTRACTOR will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

At its discretion, the OWNER may perform a compliance review at the office and project of the CONTRACTOR to check on compliance in hiring practices, record-keeping, contracting of agencies and unions, advertising, informing of personnel of the requirements under this provision, etc. If the visit to the project site or other information received indicates need to perform a compliance review more frequently on a project, this will be done. The size of the project, complaint situation, and past record of CONTRACTOR will determine the frequency of on-the-job compliance reviews.

**60. Safety:**

The CONTRACTOR shall institute a safety program at the start of construction to minimize accidents; such program to continue to the end of the job and conform to the latest general safety orders of the State Industrial Commission. The CONTRACTOR shall post signs, erect barriers, etc., as necessary to implement this program. The CONTRACTOR

shall have all workers and all visitors on site wear safety hard hats and obey all safety rules and regulations and statutes as soon as the CONTRACTOR proceeds. The CONTRACTOR shall post a sign regarding hats in a conspicuous location and furnish extra hats at his/her expense for visitors.

**61. Rubbish Disposal:**

Rubbish, trash, etc., shall not be burned on premises unless approved by the local fire authority, but rather, hauled from the site and legally disposed of or other methods as specified by OWNER.

**62. Subcontractors Financial Bid Limits and License Classification:**

The CONTRACTOR shall verify the license classification and bid limit of each of his/her Subcontractors. Regulations prohibit work of the above Subcontractors exceeding their respective bid limit and working outside of license classification as determined by the Department of Business Regulation, Department of Contractors.

In the event the bid limit or classification is not complied with, the respective Subcontractor(s) mentioned above will be disqualified by the OWNER, and the CONTRACTOR shall be responsible to provide a suitable and properly qualified Subcontractor as approved by the OWNER without a change in the contract price.

**63. Balancing and Testing:**

It is the intent of this specification that the site, when presented to the OWNER for final acceptance, be complete and operable in all respects, including, but not limited to, mechanical, utilities, and other systems which are tuned, tested, and balanced to the satisfaction of the OWNER, or his/her appropriate engineers and consultants. Any and all testing and balancing necessary shall be done as part of the CONTRACT with the state.

During, or in connection with the inspection of the WORK, the CONTRACTOR or his/her appropriate Subcontractor(s) shall perform such tests and/or demonstrations of the operation of the systems, or its components, as may be requested by the OWNER, or his/her appropriate engineers and consultants, as necessary to adequately determine the acceptability of the installation.

**64. Substantial Completion:**

The OWNER will conduct inspections to determine the dates of substantial completion and final payment, will receive written guarantees and related documents required by the CONTRACT and assembled by the CONTRACTOR and submit these to the OWNER, and will issue a final certificate for payment.

The date of substantial completion of the WORK or designated portion thereof is the date certified by the OWNER when construction is sufficiently complete in accordance with the CONTRACT documents so the OWNER may occupy the site or designated portion thereof for the use for which it is intended. When the CONTRACTOR determines that the WORK, or a designated portion thereof acceptable to the OWNER, is substantially complete, the OWNER shall prepare a list of items to be completed or corrected. The failure to include any item on such list does not alter the responsibility of

the CONTRACTOR to complete all WORK in accordance with the contract documents. When the OWNER, on the basis of an inspection, determines that this WORK is substantially complete, the CONTRACT REPRESENTATIVE then will prepare a Certificate of Substantial Completion which shall establish the date of substantial completion; shall state the responsibilities of the OWNER and the CONTRACTOR for maintenance, heat, utilities and insurance; and shall fix the time within which the CONTRACTOR shall complete the items listed therein, said time to be within the CONTRACT time unless extended pursuant to Article, "Delays and Extension of Time." The certificate of substantial completion shall be submitted to the OWNER and the CONTRACTOR for their written acceptance of the responsibilities assigned to them in such certificate. A sample form of the certificate of substantial completion is included in the specifications.

If within one year after the date of substantial completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the CONTRACT documents, any of the WORK is found to be defective or not in accordance with the CONTRACT documents, the CONTRACTOR shall correct it promptly after receipt of written notice from the OWNER to do so unless the OWNER has previously given the CONTRACTOR a written acceptance of such condition. The OWNER shall give such notice promptly after discovery of the condition.

**65. Other Prohibited Interests:**

No official of the OWNER who is authorized in such capacity and on behalf of the OWNER to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly interested personally in the contract or in any part hereof.

No officer, employee, attorney, engineer or inspector of or for the OWNER who is authorized in such capacity and on behalf of the OWNER to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project shall become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

**66. Conflicting Conditions:**

Any provision in any of the CONTRACT documents which may be in conflict or inconsistent with any of the paragraphs in these general conditions shall be void to the extent of such conflict or inconsistency. In the event of conflicts of plans and specifications, the CONTRACTOR shall follow the most stringent requirements as approved by the OWNER.

**67. Monthly Progress Meetings:**

Monthly progress meetings may be held at the discretion of the OWNER or the general CONTRACTOR, at which time the Subcontractors and/or suppliers will be required to be present.

**68. Suspension of WORK:**

A. Suspension of WORK for the Convenience of the Owner.  
The OWNER may order the CONTRACTOR in writing

to suspend, delay or interrupt all or any part of the WORK for such period of time as the OWNER may determine to be appropriate for the convenience of the OWNER.

B. Adjustment of Cost. If the performance of all or any part of the work is suspended, delayed or interrupted by an act or failure to act of the OWNER for an unreasonable period of time, an equitable adjustment in the CONTRACT price shall be made for any increase in the cost of performance of this CONTRACT necessarily caused by such unreasonable suspension, delay or interruption and an equitable adjustment of time for completion of the WORK will be allowed the CONTRACTOR and the CONTRACT shall be modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay or interruption to the extent:

- (1) That performance would have been so suspended, delayed or interrupted by any other cause, including the fault or negligence of the CONTRACTOR; or
- (2) For which an adjustment is provided or excluded under any other provision of this CONTRACT.

C. Time Period for Claims. Any claim by the CONTRACTOR for adjustment under this clause must be asserted by the CONTRACTOR, in writing, within thirty (30) days from the date of termination of such suspension, delay or interruption; provided that the OWNER may, in his/her sole discretion, receive and act upon any such claim asserted at any time prior to final payment under this CONTRACT.

D. Adjustments of Price. Any adjustment in contract price made pursuant to this clause shall be determined in accordance with the price adjustment clause of this CONTRACT.

**69. Differing Site Conditions:**

A. Notice. The CONTRACTOR shall promptly, and before such conditions are disturbed, notify the OWNER, in writing, concerning any:

- (1) Subsurface or latent physical conditions at the site differing materially from those indicated in this CONTRACT; or
- (2) Unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in this CONTRACT.

B. Adjustments of Price or Time for Performance. After receipt of such notice, the OWNER shall promptly investigate the site, and if it is found that such conditions do materially so differ and cause an increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK under this contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the CONTRACT modified in writing accordingly. Any adjustment in CONTRACT price made pursuant to this

clause shall be determined in accordance with the Price Adjustment Clause of this CONTRACT.

- C. Time Period for Notice of Claims. Any claim by the CONTRACTOR for an adjustment under this clause must be asserted by the CONTRACTOR, in writing, within thirty (30) days from the date of the CONTRACTOR's notice to the OWNER concerning the differing site conditions; provided that the OWNER may, in his/her sole discretion, receive and act upon any such claim asserted at any time prior to issuance of notice of substantial completion.
- D. No claim shall be allowed unless the CONTRACTOR has given the notice required in Subparagraph (A) of this clause; provided that the time prescribed therefor may be extended by the OWNER.
- E. Knowledge. Nothing contained in this clause shall be grounds for an adjustment in compensation if the CONTRACTOR had actual knowledge of the existence of such conditions prior to the submission of bids.

**70. Price Adjustment:**

- A. Price Adjustment Methods. Any adjustment in BID PRICE pursuant to any clause in this CONTRACT shall be made in one or more of the following ways:
  - (1) By agreement on a fixed-price adjustment before commencement of the pertinent performance;
  - (2) By unit prices specified in this CONTRACT;
  - (3) By the costs attributable to the applicable events or situations, plus appropriate profit or fee, in the following manner:
    - (a) The CONTRACTOR shall furnish to the OWNER a detailed estimate of the actual cost of labor, materials, taxes and equipment required for the performance of such WORK. Equipment rental rates shall not exceed those of comparable rates charged by rental companies or as agreed to by the OWNER and CONTRACTOR prior to start of the project.
    - (b) For added or omitted work by a Subcontractor (not including unit price) the CONTRACTOR shall furnish to the OWNER a detailed estimate of the actual cost of the Subcontractors for labor, materials, taxes and equipment to be used for such WORK. Each such estimate shall be signed by the Subcontractor as his/her estimate of the costs thereto.
    - (c) The CONTRACTOR and Subcontractor agree that a fixed fee not exceeding 15% of the increased costs shall be full compensation to cover all costs of supervision, overhead, bond, and any other direct or indirect overhead expenses and profit.
  - (4) In such manner as the parties may mutually agree; or

- (5) In the absence of agreement between the parties, by a unilateral determination by the OWNER of the costs attributable to the applicable event or situation, plus appropriate profit or fee, all as computed by the OWNER, subject to the CONTRACTOR's legal and contractual remedies.

- B. Submission of Cost or Pricing Data. The CONTRACTOR shall submit certified cost or pricing data for any price adjustments, except where they are based upon established catalog prices or market prices, or upon adequate price competition or are set by law or regulation. Any price adjustments allowable hereunder shall exclude sums found by the OWNER to have resulted from any cost or pricing data furnished by the CONTRACTOR which were inaccurate, incomplete or not current as of the date of their submission to the OWNER.

**71. Termination for Convenience of the Owner:**

- A. The performance of WORK under this contract may be terminated by the OWNER in accordance with this clause in whole, or from time to time, in part, whenever the OWNER shall determine that such termination is in the best interest of the OWNER or any person for whom the OWNER is acting under this CONTRACT. Any such termination shall be effected by delivery to the CONTRACTOR of a notice of termination specifying the extent to which performance of WORK under the contract is terminated, and the date upon which such termination becomes effective.

No termination may be effected unless the CONTRACTOR is given (1) not less than ten calendar days written notice (delivered by certified mail, return receipt requested), and (2) an opportunity for consultation with the OWNER prior to termination.

- B. After receipt of a notice of termination, and except as otherwise directed by the OWNER, the CONTRACTOR shall:
  - (1) Stop WORK under the CONTRACT on the date and to the extent specified in the notice of termination;
  - (2) Place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the WORK under the CONTRACT as is not terminated;
  - (3) Terminate all orders and subcontracts to the extent that they relate to performance of WORK terminated by the notice of termination;
  - (4) Assign to the OWNER in the manner, at the times, and to the extent directed by the OWNER, all of the right, title, and interest of the CONTRACTOR under the orders and subcontracts so terminated, in which case the OWNER shall have the right, in his/her discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
  - (5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts,

with the approval or ratification of the OWNER, which approval or ratification shall be final for all the purposes of this clause:

- (6) Transfer title and deliver to the OWNER in the manner, at the times, and to the extent, if any, directed by the OWNER:
    - (a) The fabricated or unfabricated parts, WORK in process, completed WORK, supplies, and other material produced as a part of, or acquired in connection with the performance of the WORK terminated by the notice of termination; and
    - (b) The completed or partially completed plans, drawings, information, and other property which, if the CONTRACT had been completed, would have been required to be furnished to the OWNER;
  - (7) Use his/her best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the OWNER, any property of the types referred to in (6) above; provided, however, that the CONTRACTOR:
    - (a) Shall not be required to extend credit to any purchaser; and
    - (b) May acquire any such property under the conditions prescribed by and at a price or prices approved by the OWNER; and provided further that the proceeds of any such transfer of disposition shall be applied in reduction of any payments to be made by the OWNER to the CONTRACTOR under this CONTRACT or shall otherwise be credited to the price or cost of the work covered by this CONTRACT or paid in such other manner as the OWNER may direct;
  - (8) Complete performance of such part of the WORK as shall not have been terminated by the notice of termination; and
  - (9) Take such action as may be necessary, or as the OWNER may direct, for the protection and preservation of the property related to this contract which is in the possession of the CONTRACTOR in which the OWNER has or may acquire an interest.
- C. After receipt of a notice of termination, the CONTRACTOR shall submit to the OWNER his/her termination claim, in the form and with certification prescribed by the OWNER. Such claim shall be submitted promptly but in no event not later than sixty (60) days from the effective date of termination, unless one or more extensions in writing are granted by the OWNER, upon request of the CONTRACTOR made in writing within such period or authorized extension thereof. However, if the OWNER determines that the facts justify such action, he/she may receive and act upon any such termination claim at any time after such sixty (60) day period or any extension thereof. Upon failure of the CONTRACTOR to submit his/her termination claim within the time allowed, the OWNER may determine, on the basis of

information available to him/her, the amount, if any, due to the CONTRACTOR by reason of the termination and shall thereupon pay to the CONTRACTOR the amount so determined.

- D. Subject to the provisions of Paragraph (C), the CONTRACTOR and the OWNER may agree upon the whole or any part of the amount or amounts to be paid to the CONTRACTOR by reason of the total or partial termination of WORK pursuant to this clause, which amount or amounts may include a reasonable allowance for profit on WORK done; provided that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the CONTRACT price of work not terminated. The CONTRACT shall be amended accordingly, and the CONTRACTOR shall be paid the agreed amount. Nothing in Paragraph (E) of this clause, prescribing the amount to be paid to the CONTRACTOR in the event of failure of the CONTRACTOR and the OWNER to agree upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this clause, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the CONTRACTOR pursuant to this Paragraph (D).
- E. In the event of the failure of the CONTRACTOR and the OWNER to agree, as provided in Paragraph (D), upon the whole amount to be paid to the CONTRACTOR by reason of the termination of WORK pursuant to this clause, the OWNER shall pay to the CONTRACTOR the amounts determined by the OWNER as follows, but without duplication of any amounts agreed upon in accordance with Paragraph (D):
  - (1) With respect to all CONTRACT WORK performed prior to effective date of the notice of termination, the total (without duplication of any items) of:
    - (a) The cost of such WORK;
    - (b) The cost of settling and paying claims arising out of the termination of WORK under subcontracts or orders as provided in Paragraph (B)(5) above, exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the Subcontractor prior to the effective date of the notice of termination under this CONTRACT, which amounts shall be included in the cost on account of which payment is made under (a) above; and
    - (c) A sum, as profit on (a) above, determined by the OWNER to be fair and reasonable; provided, however, that if it appears that the CONTRACTOR would have sustained a loss on the entire CONTRACT had it been completed, no profit shall be included or allowed under this subdivision (c) and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss; and

- (2) The reasonable cost of the preservation and protection of property incurred pursuant to Paragraph (B)(9); and any other reasonable cost incidental to termination of WORK under this CONTRACT, including expense incidental to the determination of the amount due to the CONTRACTOR as the result of the termination of WORK under this CONTRACT.

The total sum to be paid to the CONTRACTOR under (E)(1) above shall not exceed the total CONTRACT price as reduced by the amount of payments otherwise made and as further reduced by the CONTRACT price of WORK not terminated. Except for normal spoilage, and except to the extent that the OWNER shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the CONTRACTOR under (E)(1) above, the fair value, as determined by the OWNER of property which is destroyed, lost, stolen, or damaged so as to become undeliverable to the OWNER, or to a buyer pursuant to Paragraph (B)(7).

F. In arriving at the amount due the CONTRACTOR under this clause, there shall be deducted:

- (1) All unliquidated advance or other payments on account theretofore made to the CONTRACTOR, applicable to the terminated portion of this CONTRACT;
- (2) Any claim which the OWNER may have against the CONTRACTOR in connection with this CONTRACT; and
- (3) The agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the CONTRACTOR or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the OWNER.

G. If the termination hereunder be partial, the CONTRACTOR may file with the OWNER a claim for an equitable adjustment of the price or prices specified in the CONTRACT relating to the continued portion of the CONTRACT (the portion not terminated by the notice of termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices. Any claim by the CONTRACTOR for an equitable adjustment under this clause must be asserted within sixty (60) days from the effective date of the notice of termination, unless an extension is granted in writing by the OWNER.

H. The OWNER may, from time to time, under such terms and conditions as he may prescribe, make partial payments and payments on account against costs incurred by the CONTRACTOR in connection with the terminated portion of this CONTRACT whenever, in the opinion of the OWNER the aggregate of such payments shall be within the amount to which the CONTRACTOR will be entitled hereunder. If the total of such payments is in excess of the amount finally agreed or determined to be due under this clause, such excess shall be payable by the CONTRACTOR to the OWNER upon demand, together with interest at a rate equal to the average rate at the time

being received from the investment of state funds, as determined by the State Treasurer, for the period from the date such excess is repaid to the OWNER; provided, however, that no interest shall be charged with respect to any such excess payment attributable to a reduction in the CONTRACTOR's claim by reason of retention or other disposition of termination inventory until ten (10) days after the date of such retention or disposition, or such later date as determined by the OWNER by reason of the circumstances.

- i. Unless otherwise provided for in this contract, or by applicable statute, the CONTRACTOR shall - from the effective date of termination until the expiration of three years after final settlement under this CONTRACT - preserve and make available to the OWNER at all reasonable times at the office of the CONTRACTOR, but without direct charge to the OWNER, all books, records, documents and other evidence bearing on the costs and expenses of the CONTRACTOR under this CONTRACT and relating to the work terminated hereunder, or, to the extent approved by the contracting officer, photographs, micrographs, or other authentic reproductions thereof.

**72. Liquidated Damages:**

The CONTRACTOR is referred to Article 13 of the contract for conditions of liquidated damages.

**73. Termination for Breach, Etc.:**

If the CONTRACTOR shall be adjudged bankrupt, or if CONTRACTOR should make a general assignment for the benefit of his/her creditors, or if a receiver should be appointed on account of CONTRACTOR's insolvency, or if CONTRACTOR or any of his/her Subcontractors should violate any of the provisions of this CONTRACT, the OWNER may serve written notice upon CONTRACTOR of its intention to terminate said CONTRACT; and unless within ten (10) days after the serving of such notice, such violation shall cease, the OWNER then may take over the WORK and prosecute same to completion by CONTRACT or by any other method it may deem advisable for the amount and at the expense of the CONTRACTOR. The CONTRACTOR shall be liable to the OWNER for any excess cost occasioned the OWNER thereby and in such event, the OWNER may, without liability for so doing, take possession of and utilize in completing the WORK, such materials, appliances, paint, and any other property belonging to the CONTRACTOR as may be on the site of the work and necessary therefor.

**74. Normal Daylight Hours:**

Contractor shall perform WORK on the premises during normal daylight hours and shall not perform WORK on the site when artificial light would be required to safely perform the WORK.

**75. Normal Working Days:**

CONTRACTOR shall perform the WORK during normal working days and shall not work during Sundays, or recognized national and state holidays. CONTRACTOR may take the option of working on Saturdays if the WORK is scheduled regularly to be performed on Saturdays and is approved by OWNER.

**76. Use of Explosives**

The storage, possession or use of explosives on the site shall be strictly prohibited unless expressly authorized by the OWNER and approved by the State.

**77. Compliance with Copeland Regulations**

The CONTRACTOR shall comply with the Copeland Regulations of the Secretary of Labor (29 CFR Part 3) which are incorporated herein by reference.

**78. Overtime Compensation**

- A. The CONTRACTOR or Subcontractor shall not require or permit any laborer or mechanic in any workweek in which he or she is employed under this CONTRACT to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek, whichever is the greater number of overtime hours.
- B. In the event of any violation of the provisions of paragraph (a), the CONTRACTOR or Subcontractor shall be liable to any affected employee for any amounts due, and to the State of Utah for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard forty hour workweek without payment of the overtime wages required by paragraph (a).

**79. Clean Air and Water**

The CONTRACTOR shall use best efforts to comply with all requirements and applicable regulations, standards, and implementation plans under the Clean Air Act (42 USC 7401 et seq.) and the Clean Water Act (33 USC 1251 et seq.). No part of the WORK shall be performed in a facility listed on the U.S. Environmental Protection Agency List of Violating Facilities during the term of the CONTRACT. CONTRACTOR further agrees to insert the substance of this clause in any Subcontract.

Clean air and water standards include any enforceable rules, regulations, guidelines, orders, or other requirements issued under the Clean Air Act, Clean Water Act, or Executive Order 11738; applicable approved implementation plans described in Sections 110(d), 111(c&d), or 112(d) of the Clean Air Act; and requirements contained in permits issued by the U.S. Environmental Protection Agency or state or local governments authorized by Sections 402 or 307 of the Clean Water Act. "Facility," as used here, means any building, plant, structure, mine, location, or site of operations owned, leased, or supervised by the CONTRACTOR or Subcontractor in the performance of the CONTRACT.

[Last Revised June 24, 1988.]