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MRP
Mining Operation and Reclamation Plan

TEXT & APPENDICIES **MRP VOL 1 of 1**

WHITE OAK MINING & CONSTRUCTION CO. **SEPTEMBER, 1994**

SCOFIELD ROUTE * HELPER, UTAH 84526 * PHONE [801] 448-9413

White Oak Mining & Construction Co., Inc.
Scofield Route, Helper, Utah 84526
(801) 448-9420 - Fax # (801) 448-9456

Mr. Daron R. Haddock, Permit Supervisor
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center - Suite 350
Salt lake City, Utah 84001

September 12, 1994

RE: Submittal of Modified MRP to reflect Ownership Change.

Dear Daron:

Included within this submittal are 3 copies of the White Oak Mining & Construction Co. MRP which are submitted to reflect the change in ownership from Valley Camp of Utah, Inc. Some changes to base mapping have been made over those submitted in the August 1993 MRP. It will be noted that some of the maps have been shifted to the east so that the coal tracts east of Mud Creek could be represented in future permitting. It will also be noted that as we have gathered new information for the Miller/Gordon Creek tract areas, such as ownership, seep & spring, water rights, etc., that the data has been added to the mapping. Timing of future efforts has necessitated the addition of this data to existing mapping as it is obtained. It is requested that, although the data can be reviewed, that it be ignored when it is evaluated for consistency with mapping submitted in August 1993.

Should you have any questions, please call.

Sincerely,

WHITE OAK MINING & CONSTRUCTION CO.

by:

Steven K. Tanner
Environmental Coordinator

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CERTIFICATION STATEMENT

I hereby certify that this submittal has been prepared by me or under my direct supervision, and that I am a duly registered professional engineer in the State of Utah. Information, data and conclusions contained within this submittal are to the best of my knowledge true and correct. Some data and conclusions contained herein have been taken directly from previous permit submittals as prepared by the applicant and are assumed correct. Such data and conclusions have been used at times in preparing conclusions for this submittal.

REGISTERED PROFESSIONAL ENGINEER
#7888
DAVID E.
HANSEN
9/12/94
STATE OF UTAH

VERIFICATION OF RESPONSIBLE INDIVIDUAL

Verification of Application by Responsible Official

STATE OF UTAH)
: ss.
COUNTY OF CARBON)

I, Mark Wayment, having been duly sworn, depose and state that I am authorized to complete and file this Mining and Reclamation Plan on behalf of White Oak Mining & Construction Co., Inc., and that the information contained herein is true and correct to the best of my information and belief.

_____(Signature)

Mark Wayment (Printed Name)

General Manager (Title)

Subscribed and sworn to before me this 13th day of Sept, 1994

Julie G. McKenzie
NOTARY PUBLIC

Residing at: Davis County

My Commission Expires:

NOTARY PUBLIC
Julie G. McKenzie
275 South State, 12th Flr.
Salt Lake City, Utah 84111
My Commission Expires
June 22, 1997
STATE OF UTAH

GENERAL INTRODUCTION TO THE MRP

The complete permit package submitted by White Oak Mining & Construction Co., Inc. (White Oak) includes a "Permit Application Package" (PAP) and a "Mining and Reclamation Plan" (MRP). Both the PAP and MRP were submitted in revised form in August of 1993. It is the intent that the PAP will remain as a "Historical" document wherein lies all information and appendicies required for the granting of the original permit. The MRP is intended to be a living document wherein the operational and reclamation requirements are addressed. From time to time is is expected that information and studies will need to be added to the complete permit package. If historical in nature, meaning that it is unlikely that the information will change over time, it will be submitted as an appendix to either the PAP or MRP as appropriate, and will be named according to the year in which it is submitted. If temporary in nature, the information will be added to the MRP as replacement pages, tables, maps, etc.. The following table will be included with future MRP submissions to help delineate and document permit modifications. The table will also clearly identify which information is considered by the operator to be an active part of the permit package as of the date of its printing.

SUBMITTAL	CONTENTS	SUBMITTAL DATE	ACTIVE
Permit Application Package - (Historical Document)			
PAP Package	Reformated Package	Aug 1993	YES
PAP Addendum 1994-1	Addendum to Replace Section 100	Sept 1994	YES
Mining and Reclamation Plan - (Living Document)			
MRP Package	Reformated Package	Aug 1993	NO
1994 MRP	Revised version to reflect Change in Ownership	Sept 1994	YES

The White Oak Permit Area consists of about six and one-half square miles of land situated on the northern end of the Wasatch Plateau of Utah astride the Carbon-Emery county line. The property straddles the divide between the headwaters of Huntington Creek on the west and Long Canyon (east) and the Elbow on the east (see Map 100). Land and Coal Ownership for the Permit Area are shown on Maps 112.500 and 112.600 respectively.

MAP 100. PERMIT AREA BASE MAP
MAP 112.500. SURFACE OWNERSHIP
MAP 112.600. COAL OWNERSHIP

Elevation varies from a low of about 7,800 feet at the White Oak Loadout and General Office areas in the south end of Pleasant Valley (running north and south) approximately three miles south of the town of Scofield, Utah. The White Oak Complex is within Whisky Canyon and backdropped by the ridges cresting at nearly 9,800 feet, with the southern portion of the area upwards to 10,200 feet.

To get from the Loadout Facility to the White Oak Complex, you travel south to Eccles Canyon, then westerly up Eccles Canyon to the White Oak Haul Road turnoff between Whisky Canyon and South Fork Canyon, you then travel south westerly up the White Oak Haul Road on the east facing side of Whisky Canyon to the White Oak Complex.

The MRP area envolves four distinct areas, 1) the Loadout Facility, 2) the General Office area, 3) the White Oak Haul Road, and 4) the White Oak Complex.

The White Oak properties and adjacent areas are vegetated having canyons with steep slopes and rounded summits, within the aspen-spruce-fir phase of the boreal forest biome, with representatives of cool desert shrub, riparian, and, to a lesser extent, mountain brush community types present as significant though minor components.

The spruce-fir community, a type found mainly on north-facing slopes is dominated by Engelmann spruce and subalpine fir, with variants supporting admixtures of aspen and wet meadow subtypes characterized by species of sedges and grasses. Often broad transitional zones occur between the dense spruce-fir forest and adjacent aspen communities. Occasionally stands of the spruce-fir type are almost entirely single species and dominates due to past logging or other successional influence.

White Oak believes wildlife has not been adversely effected by the mining activities as many of the species are witnessed in and around the Permit Area on a regular basis throughout the more favorable seasons.

The historic land use of the Loadout Facility and General Office Area has been mining since around the turn of the century and to the east, rangeland, while the area of White Oak Complex was rangeland with the exception of the O'Connor Mine near the head of Boardinghouse Canyon and the Old Black Diamond Mine in upper Finn Canyon. Both of these mines are just east of the O'Connor Fault and approximately one mile west of the town of Clear Creek, Utah.

The dominant soils in the area are loamy and are moderately deep (20 to 40 inches) with thin, dark surface horizons (high in organic matter), medium-textured (loamy) surface layers, and moderately fine-textured (clay loam) subsoils. Coarse fragment contents tend to be high (35 to 50 percent). A small portion of the area also consists of gravelly and stony colluvial slopes, rock outcrops, and very shallow soils.

The White Oak properties are within the Wasatch Plateau coal field on the west flank of the Clear Creek Anticline (Doelling, 1972) and is partially within the Clear Creek gas field. The

dip of the strata is generally towards the southwest, ranging from four to eight percent (two to five degrees).

With the exception of local alluvial deposits, all of the units exposed on and immediately adjacent to the properties are Cretaceous members of the MesaVerde Group. The Star Point Sandstone, which is exposed at the surface in the east canyons, is approximately 1,000 feet thick and nearly devoid of shale (Doelling, 1972). This yellow-grey (salt and pepper) beach sandstone is massive and medium-grained (Spieker, 1931). Speiker (1931) had identified three types of shale in the Blackhawk Formation, all continental in origin.

Most of the faults have a northerly trend. The Connelville Fault forms the western boundary of the White Oak Permit Area with a drop which varies from 190 feet at the western central permit boundary to 75 feet near Eccles Canyon (U.S. Geological Survey 1979). Another major fault in the area, the O'Connor Fault, extends through the center of the White Oak Permit Area and has a drop of about 350 feet (U.S. Geological Survey 1979). The Pleasant Valley Fault generally runs parallel to Mud Creek and lies toward the western boundary of the Loadout Facility.

The Permit Area is situated in the headwaters of the Price and San Rafael river basins, with the Carbon-Emery county line marking the watershed divide.

The Loadout Facility/General Office Area portion of the Permit Area crosses over a total of four small watersheds. Green Canyon is an east facing drainage and the remaining three (Broads Canyon and two unnamed watersheds) are west facing drainages. The White Oak Complex portion of the Permit Area crosses over a total of seven small watersheds. Four of the seven are east facing drainages with the remaining three being west facing drainages. The east facing drainages include Eccles Canyon, Boardinghouse Canyon, Finn Canyon, and Long Canyon (south). West facing drainages include Burnout Canyon, James Canyon and Coal Canyon. Local perennial streams which may potentially be impacted by mining include Upper Huntington Creek, Eccles Creek and Mud Creek.

Approximately three quarters of the surface water runoff drains from the total Permit Area to the east through Eccles Creek and other smaller tributaries of Pleasant Valley and Mud Creek. The remaining area not tributary to Scofield Reservoir drains to the south and west towards the San Rafael River via Upper Huntington Creek and Electric Lake.

Snowmelt is the primary source of water for the perennial streams in the two major drainage basins with summer precipitation usually producing little runoff (U.S. Geological Survey, (1979). Prior to mining the White Oak Complex consisted of rangeland with the exception of the O'Connor Mine near the head of Boardinghouse Canyon and the Old Black Diamond Mine in upper Finn Canyon, both of which are located just east of the O'Connor Fault and approximately one mile west of the town of Clear Creek, Utah.

The plans that follow have been separated into two sections, the Operation Plan and the Reclamation Plan. The Operation Plan is intended to be a summary of the environmental Commitments which have been made between White Oak Mining & Construction Co., Inc. and the Utah Division of Oil, Gas & Mining (UDOGM). The Reclamation Plan includes all aspects of reclamation which are desired and/or required to protect the environment.

OPERATION PLAN

The Operation Plan included herein is a summary of the monitoring and reporting requirements. Each requirement is identified below separately.

ANNUAL REPORTING

The following annual reports, submitted in combined form are submitted to UDOGM by April 1st of each year (with the exception of sediment pond stability inspection reports which are required quarterly, and the fuel and oil storage tank certification which is submitted to the Utah State Department of Health, Division of Environmental Health, Bureau of Solid and Hazardous Waste.

Hydrology/Water Quality

Annual reporting for hydrology and water quality consist of statistical data summaries of water quality and flow data collected throughout the previous year. Included as part of this data summary are spring depletion curves which are used to identify potential impacts to local water sources by mining activities.

Mining Progress Map and Tonnage Summary

Mining progress map(s) are prepared to identify the extent to which mining has advanced during the year just completed and to document the amount of production achieved.

Interim Reclamation

Any reclamation activities which were completed during the year are identified, discussed and documented.

New Surface Disturbances

Prior to new surface disturbance, White Oak will adjust the performance bond to the amount approved by the Division.

Sediment Pond Stability

Quarterly inspections are made as to the continued integrity of all sedimentation ponds by a qualified individual. Certifications summarizing the quarterly inspections are submitted annually.

Subsidence

An annual report is submitted summarizing the findings and conclusions of the pedestrian subsidence survey. Each year new areas are checked for addition to the surveyed boundaries coincident with advancing mining.

AQUATIC MONITORING PLAN

Eccles Creek

Available data on Eccles Creek include fish survey results (UDWR, 1968-1979); macroinvertebrate survey results (Winget, 1979); water quantity and quality survey results (Vaughn Hansen Associates, 1979-1980); and stream habitat observations (Winget, 1979). Yearly monitoring of Eccles Creek of Macroinvertebrate samples, habitat measurements and fish surveys are taken by the UDWR. Intensity and duration of sampling will be dependent upon success of sedimentation control measures. Regular water quality and quantity monitoring is ongoing as required.

Mud Creek

No surface disturbance of Mud Creek is anticipated. Sedimentation from upstream land use is one of the potential threats to Mud Creek. Sediment samples will be taken at a frequency and duration depending upon success of sediment control upstream. Aquatic macroinvertebrate samples will be taken in conjunction with the sediment samples in the spring, summer, and fall of each year as required by effects of surface disturbance activities.

James Canyon Creek

Cutthroat trout have been observed in high number in James Canyon Creek during the spring spawning time. James Canyon Creek is an important part of the fisheries resource of Electric Lake. It is unlikely that the stream will be impacted by the White Oak Project. If the stream is impacted a monitoring and protection plan will be initiated.

Slaughterhouse, Boardinghouse, Finn, Whisky, Long and Mud Creeks

These streams are all intermittent, at least during low precipitation years. As such they are not considered as important parts of the fishery resources of Mud Creek or Scofield Reservoir (personal communication, Mr. John Livesay, UDWR, Price Office, November 7, 1979). Since these streams will not be directly impacted by the White Oak Project, a monitoring and/or protection plan was deemed not necessary.

AVIFAUNA AND RAPTOR MONITORING PLAN - 1980

Ornithological investigations have been accomplished over several time periods in the Scofield, Skyline, and White Oak Mining & Construction Co., Inc. coal mining areas. Specifically, these periods have been: December 1, April 7-8, April 25-26, May 17-18, June 13-14, and July 26-29, 1980. During these periods a record has been maintained on threatened or endangered species, raptors and raptor nests, occurrences of species of high Federal interest, and migratory birds. The obvious time period where observations are missing is during the major autumn migration period of September-October. This may represent a critical time. For example, the peak raptor migration along the Wasatch Front, 60 miles north of Scofield, revealed a total of 308 migration raptors recorded between September 9 and October 4 with the peak number around mid to late September (Mosher, et al. 1978).

No part of the Permit Area has shown evidence of being inhabited by the endangered Northern Bald Eagle which occurs in the Scofield area during the migration season between November 15 and March 15 each year. Currently no roost trees have been observed. Two active nests were found in Eccles Canyon, one of the Goshawk and the other of the Cooper's Hawk (White, 1980). The Cooper's Hawk is a species of high federal interest. These two species can generally tolerate considerable human impact. The Golden Eagle, also of high federal interest, has been seen in the Permit Area, but no nests were found.

In order to minimize disturbance to the Bald Eagle and other endangered or important species all personnel associated with the mining operation will be made aware of the birds' annual presence and value to society. These people will also be instructed not to disturb Bald Eagles or other endangered or important raptors. If a roost tree is located it will be immediately reported to the UDWR and the USFWS. Roost trees and a suitable buffer zone will be protected from human disturbance during the winter period.

Design and construction of all electric power lines and other transmission facilities will be in accordance with guidelines set forth in "Environmental Criteria for Electric Transmission System" published by the USDI and USDA in 1970 and/or the REA Bulletin 61-10 "Powerline Contacts by Eagles and Other Large Birds."

In 1982 Mr. Ron Joseph of the United States Department of the Interior, Fish and Wildlife Service, 1311 Federal Building, 125 South State Street, S.L.C., Utah, conducted a power distribution line survey of the Permit Area and found no threat to the Bald or Golden eagle. Mr. Joseph stated previous Fish and Wildlife Service (FWS) surveys have not shown a problem with powerlines in coniferous cover primarily because trees themselves offer much better perch sites than crossarms of power poles. Mr. Joseph also stated that, on close examination, the powerlines did not reveal any use by raptors. This may be verified in the Fish and Wildlife Service survey report to Mr. Cleon Feight, Director of the Utah Division of Oil, Gas and Mining, Dated November 10, 1982.

RAPTOR MONITORING PLAN - 1993

A survey for raptor nests in the areas providing a nesting habitat was to have been conducted in the early spring of 1993 with the assistance from UDWR and the Division, however, Bill Bates (of UDWR) was unable to respond as planned.

The 1993 spring survey would have covered the area immediately above the newly projected mining plan directly north of the O'Connor mine, this area will include a specified radius encompassing proposed mining for one year.

Additional surveys will depend upon future mining time frames. When mining is reactivated, White Oak will with the assistance of UDWR, during the winter do an aerial survey of all the Permit Area which contains raptor nesting habitat.

SUBSIDENCE

Plans related to subsidence include Subsidence Control, Subsidence Monitoring and Subsidence Mitigation.

Subsidence Control Plan

The forest land is classed as a renewable resource, and as such, will be afforded subsidence protection as outlined within this plan in order to ensure future productivity of the forest and at the same time maximize the use of the natural coal resources of the area as required under 522. Steps being taken by White Oak to maximize this resource while controlling the limits and effects of subsidence include the following:

- Coal recovery operations currently utilize the "Room and Pillar" method of mining. This mining method has historically been the method showing the least amount of overall subsidence to surface features, and as discussed under regulation 525.210, the Operator has opted not to adopt other methods of mining at this point in time in lieu of the "Room and Pillar" method.

- Mining within the Permit Area is conducted in a manner to attempt to follow the overall mining projections shown on mining maps contained within the permit. The extent of mining is controlled by faulting and by the angle of draw from identified surface features such as existing gas lines, etc.. The approved Mineral Management Services (MMS) plan calls for an angle-of-draw of 35 degrees for limited extraction. If at any future time monitoring indicates a different angle-of-draw, the plan will be modified.

- As per the report entitled "Subsidence Potential over Two-Seam Developments" prepared in March 1991 by Kenneth C. Ko & Associates, Inc., (and found within the 523 section of the 1993 Appendix) White Oak has the intention of maintaining a standard overburden

of at least 200 feet. This overburden was identified as the minimum amount required to protect against "Plug" type subsidence under full seam recovery.

- A buffer zone of at least 150 feet is left around natural gas wells located within the mine area. According to information obtained from consultants and our understanding of local angle of draw characteristics, subsidence should not damage the wells.

The Subsidence Base Maps 728.100a and 728.100b show angle of draw, survey monument information, gas line locations, power lines and other pertinent surface features related to subsidence.

MAP 728.100a. SUBSIDENCE BASE MAP
MAP 728.100b. SUBSIDENCE SURVEY LOCATION MAP

Subsidence Monitoring Plan

In 1987, the Manti-Lasal National Forest USDA withdrew from the subsidence monitoring program, and in 1988 the Operator committed to conduct annual aerial surveys in an effort to monitor subsidence. In response to that commitment, both the aerial survey and the pedestrian survey were completed during the summer of 1988 and 1989. The aerial surveys completed proved unable to produce data which could be utilized for the construction of a Subsidence Map because of heavy forestation which is characteristic of currently subsided areas. The pedestrian survey, in coordination with a differential level survey of subsided areas utilizing rebar monuments, has proved to be the most reliable source for the identification of surface disturbance. The pedestrian survey have been conducted annually since 1982 by Hansen, Allen & Luce, Inc. and the controlled survey has been completed by Bruce T. S. Ware. Data recorded as part of these surveys is documented on Maps 728.100a and 728.100b.

As part of the monitoring plan the following conditions will be met by White Oak:

- One copy of the Subsidence Map and data will be submitted to the Division each year. The subsidence map and data will be part of the annual subsidence report which will be prepared and submitted to the Division within the first quarter of the following year.

- The Subsidence Monitoring Plan will continue for at least five years following reclamation of the mined area. Concurrence of all involved parties would be necessary for any additional annual monitoring for subsidence.

Subsidence Mitigation Plan

It is understood and expected that some subsidence will occur within the Permit Area as has occurred historically. Continued monitoring of subsidence as described in the preceding section will verify that subsidence is occurring as planned, and within the areas designated on

Map 728.100a. Should monitoring discover that subsidence has occurred, the following steps to mitigation will be implemented.

- Should material damage be incurred to the natural gas pipelines located within the Permit Area, despite the approved subsidence damage prevention measures, will be either 1) to repair the damage to the pipelines caused by subsidence from the Operators mining activities, or 2) to compensate the owner of the pipeline for such damage according to the value of the damaged section of the pipeline at the time that damages occurred.

- Any roads within the Permit Area which are materially damaged by subsidence will be repaired and re-graded to restore them to presubsidence usefulness.

- The Operator will restore to the extent physically and economically feasible the original stream channels of intermittent and perennial streams within the Permit Area that may be disturbed by underground coal mining activities, including surface subsidence effects.

- Water resources impacted by subsidence will be mitigated according to the plan included within Section 728 including the following actions.

  1. The affected water right could be purchased by the Operator.

  2. The Operator has two wells within the Permit Area which could be utilized to supply supplemental amounts of water for both private or industrial use.

  3. The Operator could initiate an exchange of water right with the State Engineer to exchange water owned by the Operator in Scofield Reservoir for water currently found at any one of the other 71 springs found within or adjacent to the Permit Area for which water rights have not been filed. This option would in most cases be acceptable to the State Engineer if it could be shown that the spring upon which water is being filed is not critical to downstream rights between the spring and Scofield Reservoir.

FUEL & OIL STORAGE TANKS

All buried petroleum storage facilties located within the Permit Area will be monitored annually by a licensed certifed contractor to verify their condition. Any annual reports required will be submitted directly to the Utah State Department of Health, Division of Environmental Health, and Bureau of Solid and Hazardous Waste. All buried petroleum storage facilities will be removed by 1994.

WATER QUALITY MONITORING

The monitoring program is a continued modification of previous monitoring programs developed between the Operator and the regulatory agency. A complete review of water quality

parameters including a careful review of the "Guidelines for Establishment of Surface and Ground Water Monitoring Programs for Coal Mining and Reclamation Operations" was made in preparation of the original PAP, resubmitted 1993 PAP and the 1993 MRP.

Surface and ground water quality monitoring stations and identified water quality parameters aid in determining local impacts due to mining. Changes which may potentially occur to the ground water system which will be identified through the monitoring plan found herein include the loss of water due to subsidence or mine dewatering, and the potential water quality deterioration due to increase sediments, oil & grease, decreased pH, or the increase of other water quality parameter concentrations. The monitoring and analysis programs outlined throughout the following sections will help identify impacts to the water systems through graphical and analytical methods and aid in identifying potential solutions where required.

The reporting format for monitoring data will be based upon results provided by an independent certified laboratory. The data records will contain as a minimum information relating to the date and time of collection, analysis conducted, and when appropriate, the related detection limits of all constituents tested for. The independent testing laboratory will provide documentation, upon request, as to the methods utilized for quality testing, and the associated detection limits.

Surface Water

The surface water monitoring plan used and implemented by the Operator includes the parameters and sampling schedule shown in Table 731.211a. The locations of the sampling sites are shown on Map 722.100a, and information related to quality of the waters is discussed in Section 722. Sampling stations for the UPDES permit discharge points are located at the discharges for Sediment Ponds 001A, 002A, 003A, 004A, and for Filter Pond 005A (See Map 527 Sheets 1 through 14 for locations of ponds). Specifics related to UPDES discharges are given later in this section.

MAP 722.100a. GROUND AND SURFACE WATER SAMPLING LOCATIONS WITH SEASONAL WATER QUALITY

The need for additional water monitoring stations is evaluated based upon the potential for impact to an area by mining activities. In the event that projected mine workings extend into areas not currently monitored, new sampling sites will be considered for addition to the water quality monitoring plan.

TABLE 731.211a
WATER QUALITY ANALYTICAL SCHEDULE

Revised: 8/93

	PARAMETER	MONTH OF SAMPLE					TYPE OF SAMPLE	
		APRIL (High Flow)	MAY	JUNE	JULY	SEPT OR OCT (Low Flow)	SURFACE WATER	GROUND WATER
	FIELD MEASUREMENTS							
	Air Temperature	X	X	X	X	X	X	X
	Dissolved Oxygen	X	X	X	X	X	X	
	Water Level or Flow	X	X	X	X	X	X	X
	pH	X	X	X	X	X	X	X
	Specific Conductivity @ 25°C	X	X	X	X	X	X	X
	Water Temperature	X	X	X	X	X	X	X
	LABORATORY ANALYSES							
•	Aluminum, Total	Once at High Flow *				X	X	X
•	Arsenic, Total	Once at High Flow *				X	X	X
	Bicarbonate	X	X	X	X	X	X	X
•	Boron, Total	Once at High Flow *				X	X	X
•	Cadmium, Total	Once at High Flow *				X	X	X
	Calcium, Total	X	X	X	X	X	X	X
	Carbonate	X	X	X	X	X	X	X
	Chloride, Dissolved	X	X	X	X	X	X	X
•	Copper, Total	Once at High Flow *				X	X	X
	Iron, Total	X	X	X	X	X	X	X
	Iron, Dissolved	Once at High Flow *				X	X	X
•	Lead, Total	Once at High Flow *				X	X	X
	Magnesium, Total	X	X	X	X	X	X	X
	Manganese, Total	X	X	X	X	X	X	X
	Manganese, Diss	Once at High Flow *				X	X	X
•	Molybdenum, Total	Once at High Flow *				X	X	X
•	Nitrate	Once at High Flow *				X	X	X
•	Nitrite	Once at High Flow *				X	X	X
•	Nitrogen: Ammonia	Once at High Flow *				X	X	X
	Oil & Grease	Once at High Flow **					X	
•	Phosphate, Total	Once at High Flow *				X	X	X
	Potassium, Total	X	X	X	X	X	X	X
•	Selenium, Total	Once at High Flow *				X	X	X
	Sodium, Total	X	X	X	X	X	X	X
	Specific Conductivity	X	X	X	X	X	X	X
	Sulfate	X	X	X	X	X	X	X
	Total Dissolved Solids	X	X	X	X	X	X	X
	Total Hardness	Once at High Flow *				X	X	X
	Total Settleable Solids	X	X	X	X	X	X	
	Total Suspended Solids	X	X	X	X	X	X	
•	Zinc, Total	Once at High Flow *				X	X	X
	LABORATORY REPORTING							
	Cation-Anion Balance	X	X	X	X	X	X	X

• Baseline parameter, to be included in monitoring program (for Total and Dissolved) during high and low flow events during year preceding Permit Renewal.

* As allowed by site accessibility.

** To be collected during each sample date at sites VC-1 and VC-5 as accessibility permits.

The current surface water monitoring program includes sampling locations from adjacent streams. Surface water monitoring stations include VC-1, VC-2, VC-4, VC-5, VC-10, VC-11, and VC-12. No lakes, reservoirs or impoundments are located on or immediately adjacent to the Permit Area, and are

therefore not included in the water quality sampling program for the mine. Station VC-4 was identified for inclusion in the monitoring program because of its location above the White Oak Mines. VC-5 monitors water quality at the mouth of Whisky Canyon, thereby allowing for a direct comparison between water above and below the mine and its impact area. Station VC-10, located in Eccles Canyon provides a basis for comparison between impacted Whisky Canyon waters and other mine impacted waters from adjacent mining operations. Stations VC-11 and VC-12 have been identified for inclusion within the monitoring program because of their ability to isolate drainage basin waters adjacent to the mining operation. Should ground water be impacted through mining efforts, a change in water quality in these stations might provide an indicator as to the overall relative magnitude and timing of the impact. Station VC-2 located along Mud Creek immediately above the Loadout Facility, and VC-1 located immediately below the facility will provide an indicator as to the relative impact of the Loadout Facility on Mud Creek.

As a general guide to determine mining impacts, parameters including TDS, pH, iron and manganese will be compared with historic data for 1) the specific sampling station and 2) with background stations located above the mine. These comparisons will provide a check of noted variations between background and station specific historic water quality. The comparisons will also provide a clue to understanding the source of the changed water quality parameter as well as providing clues as to potential remedial actions to prevent additional increases.

No construction activities are planned for the White Oak mining operation. Should any begin, the Operator agrees to submit a monitoring plan which is agreeable to the regulatory agency. Such a plan would include weekly measurements for total suspended solids and total settleable solids. Other water quality parameters to be monitored during any future construction activities will be set by the Operator and the regulatory agency. The surface water quality monitoring program is outlined in detail in Table 731.211a. From the table, both the parameters to be monitored as well as the timing of monitoring can be identified.

Ground Water

The ground water monitoring plan used and implemented by the Operator includes 1) an update to information related to identified seeps and springs as determined from a seep and spring survey completed in August, 1990, and 2) the regular sampling of selected water quality parameters for predetermined sampling sites as determined from the five year seep and spring inventory update. The seep and spring survey completed in August of 1990 was conducted in such a way that all previously identified seeps and springs will be revisited, and sampling parameters monitored. Any new sites located during the field investigation will likewise be documented. All seeps and springs thus identified will be monitored for field parameters including flow, conductivity, pH, and temperature. In addition to these parameters, anion and cation analyses will be completed for those seeps and springs for which similar data was collected during the original 1980 survey. By collecting similar data to that available historically, a comparison can be made as to the overall relative changes which have occurred over time.

Ongoing seep and spring sampling for selected sites is accomplished according to the sampling schedule shown in Table 731.211a. The locations of the sampling sites are shown on Ground and Surface Water Sampling Locations with Seasonal Water Quality Map 722.100a.

The ground water monitoring program as required within the regulations includes where applicable the monitoring of springs, wells, and selected in-mine waters within the Permit Area. The water quality

monitoring program as instituted for the Permit Area presently includes consistent and scheduled monitoring of springs, and (when applicable) in-mine seeps and springs. No wells are currently monitored within the Permit Area. Springs monitored as part of this program consist of stations S7-11, S24-12, S25-13, S31-13, S36-7 (starting in 1992), S36-17, S36-19, and S36-23. These stations have been chosen because of their strategic location relative to mine workings, and their potential ability to indicate changes in ground water conditions.

The need for additional water monitoring stations is evaluated based upon the potential for impact to an area by mining activities. In the event that projected mine workings extend into areas not currently monitored, new sampling sites will be considered for addition to the water quality monitoring plan. Mining activities projected over the next five years will be concentrated within the White Oak No. 2 Mine in the general areas shown in Map 722.100a. The area of impact of these projected mine workings falls well within the existing area of impact, therefore no additional water quality monitoring stations (beyond those already being sampled) are planned for this MRP. Monitoring stations may change from time to time based upon a mutual concurrence of UDOGM and White Oak.

As shown in Table 731.211a a comprehensive set of water quality parameters (identified as Baseline Parameters) was measured twice during the year prior to permit renewal. The baseline parameters required for permit renewal were collected during the low flow period in the fall of 1990 and the high flow period in the spring of 1991. The timing of the baseline samples is scheduled to coincide with high and low flow events. As shown in the table, the high and low flow events generally occur during the months of April or May and September or October respectively. The list of baseline parameters was developed from UDOGM guidelines as outlined in "Guidelines for Establishment of Surface and Ground Water Monitoring Programs for Coal Mining and Reclamation Operations". An overview of the water quality monitoring program developed by White Oak follows. Other aspects of the guidelines including the location of surface and ground water resources etc., have already either been approved in prior submittals or are presented throughout the appropriate sections of this MRP.

Water quality data collected through the ground water monitoring program outlined herein will be used to identify impacts resulting by mining through graphical and statistical analyses completed on a yearly basis. Selected data will be plotted on time graphs over a moving five year period of record to identify the occurrence of trends in the data. If an undesirable trend is believed to be occurring, further evaluations will be conducted including statistical trend analyses. Should the analyses completed indicate that trends do exist, a more in-depth study will be conducted to identify the source of the trend, and solutions will be investigated which may potentially decrease or reverse the trend. Water quality parameters which are anticipated for use in these ground water trend analyses include Flow, pH, Iron, TDS and the Anions-Cations. Annual updates to spring depletion curves aids in the determination of potential mining impact upon each water source.

Spring Monitoring

All spring locations applicable to this permit which are sampled, or are proposed to be sampled have been identified and shown on Map 722.100a. The springs shown are believed to be representative of water quality for the area and are chosen so as to include currently mined areas as well as mined areas projected for the next 5 year period. Monitoring and sampling of these springs is scheduled to be completed as shown in Table 731.211a as per the recommended guidelines.

In-Mine Waters

The in-mine ground water monitoring program consists of 1) monitoring ground water inflow to the mines from individual inflow sources which exceed five gallons per minute for discharge periods in excess of 30 consecutive days, and 2) determining the consumption of ground water through evaporation, production, and mine discharge. According to mine personnel, no mine inflow sources exceeding the 5 gpm or 30 day criteria have been encountered within the past, and therefore no in-mine water quality data is available.

When new sources or areas of measurable flow are encountered (measurable flow meaning 5 gpm or more for a period in excess of 30 days), a sampling program will be initiated on a quarterly sampling schedule as recommended in the UDOGM guidelines. The sampling program will consist of the ground water parameters and monitoring frequency shown in Table 731.211a. Data submittals of sampling completed will be prepared for the regulatory agency on a quarterly basis, including a copy of a map indicating the location of new flow sources. Quarterly sampling will continue until in-mine flows diminish to less than 5 gallons per minute, or until the regulatory authority approves discontinuance of the sampling site.

When in-mine monitoring is found to be required, an annual in-mine ground water monitoring report will be submitted to the regulatory authority within 90 days after the end of the reporting year. Included within the report will be an estimate of the ground water balance including mine inflows, outflows, ventilation, evaporation, coal production, and mine discharge.

In addition to the in-mine water quality sampling program, a water quality sample will be taken (when required by the State Division of Water Quality) of mine bypass waters which originate from the face area of the White Oak Complex and discharge into Whisky Creek. These waters will be sampled (when required) according to the regular ground water quality monitoring program outlined in Table 731.211a.

UPDES Discharge Permit

There are five UPDES discharge points located on the Permit Area. All five discharge points are associated with four sedimentation ponds and one filter pond used in conjunction with surface water and mine water containment facilities installed for the mining operation. The discharge points associated with the Loadout Facility include UPDES numbers 001A, 002A, and 003A which are associated with runoff and Sediment Control Ponds 001A, 002A, and 003A respectively as shown on Map 527 Sheets 1 through 3. Discharge points for all three ponds are at the outlets of each respective discharge spillway. UPDES discharge points located with runoff control and Sediment Pond 004A and Filter Pond 005A are found in the White Oak Complex area as shown on Map 527 Sheets 12 through 14. The discharge location for Pond 004A is located at the top of the primary spillway riser. The discharge location for Filter Pond 005A is the parshall flume located at the pond outfall located on the south side of the pond. Abbreviated specifics related to the UPDES permit are summarized on Table 731.221a. A complete copy of the permit is included in Appendix O1.

Water quality and flow data from each of the UPDES discharge locations is submitted monthly to the Utah Bureau of Water Pollution Control as required.

No biomonitoring requirements are set forth within the current UPDES permit. Statements within the UPDES permit related to this issue state that "Since Valley Camp of Utah, Inc. (now White Oak) has

been conducting Whole Effluent Toxicity (WET) testing since 1988 with no indication of toxicity ... Valley Camp of Utah, Inc. (now White Oak) will not be required to conduct Whole Effluent Toxicity (WET) at this time."

TABLE 731.221a
UPDES (UT-0022985) WATER QUALITY SAMPLING REQUIREMENTS

PARAMETER	30-DAY AVERAGE	7-DAY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY
Flow, gpd[1]	N/A	N/A	N/A	Twice Monthly
TSS, mg/L	25	35	70	Twice Monthly
Total Iron, mg/L	N/A	N/A	2.0	Monthly
TDS, mg/L	N/A	N/A	700	Monthly
Oil & Grease, mg/L	10	10	10	Monthly
pH	>6.5 & <9.0	>6.5 & <9.0	>6.5 & <9.0	Monthly
Floating Solids	Trace Only	Trace Only	Trace Only	N/A
Visible Foam	Trace Only	Trace Only	Trace Only	N/A
Sanitary Wastes	None	None	None	N/A
Acute Toxicity from 005A	None	None	None	As Required by Dept. of Health
Settleable Solids, mL/L	0.5	0.5	0.5	See Note 2

1. The flow measurement from discharge point 005A is taken via a reading from a discharge flume. Other discharge points may be measured via a depth of flow reading over the top of the respective discharge structure. Should safety considerations make these measurement locations nonaccessible, flows will be estimated by measuring the discharge depth exiting each pond spillway discharge pipe. The depths so taken will be converted to flow rates to comply with this requirement.

2. To be measured during any overflow or increase in discharge volume caused by precipitation or snowmelt of equivalent volume (including bypass systems) from an event less than or equal to a 10-Year 24-Hour event. This parameter is not applicable to Filter Pond 005A as per UPDES Permit Part I.B.4.

Mine Discharge

Mine water discharges from Filter Pond 005A are monitored according to the current UPDES permit. Grab samples taken monthly are analyzed for pH, TDS, Iron, and Oil and Grease. Flow and TSS samples are taken bi-monthly. All discharge samples are collected at the Parshall Flume installed at the pond outlet prior to mixing of the mine discharge water with Whisky Creek.

RECLAMATION PLAN

INTRODUCTION

This Reclamation Plan has been developed based upon information contained within the 1990 permit submittal made by Valley Camp of Utah, Inc. (now White Oak) as well as information obtained subsequent to that submittal as required under regulations promulgated by the Utah Division of Oil, Gas & Mining (UDOGM). The existing reclamation agreement is found in Appendix R-4. This plan was developed for the purpose of showing and explaining how the Operator will reestablish the disturbed areas created during mining, to conform with the contiguous environment. This submittal contains a narrative regarding the Reclamation Plan and activities as submitted and discussed with UDOGM personnel on various occasions. The following narrative does not respond to the regulations in a regulation by regulation format since it was determined in conjunction with UDOGM personnel prior to it's compilation that a story book format would be more conducive to review. The following Reclamation Plan has been separated into the major sections with content as described in the following table.

SECTION	CONTENT
HISTORICAL OVERVIEW	A discussion related overall reclamation, its history and current status
RECLAMATION REQUIREMENTS	General requirements of the R645 rules which apply to all other sections of the plan
RECLAMATION DETAILS	A physical description of each aspect of reclamation
MONITORING AND MAINTENANCE	Monitoring and maintenance requirements both during and after reclamation activities
TIMING AND RECLAMATION SEQUENCE	An outline of reclamation activities to be completed along with a time schedule for completion
RECLAMATION COSTS	Summary of reclamation costs based on the plan

This plan has been developed in such a way that reclamation operations will be carried out according to regulations required under Sections 240, 340, 540, 640, and 760. Bonding and insurance requirements are met as per Section 800 of PAP Volume 1. General concepts and intent associated with the Reclamation Plan include the following major points:

- At such time that the mining activities are completed, the Operator will close, backfill or otherwise permanently reclaim all affected (disturbed) areas and restore the hydrologic system in accordance with the R645 Rules and the approved Reclamation Plan.

- No public road was or will be relocated in conjunction with mining and reclamation activities.

- Reclamation activities will be confined to disturbed permitted areas and will not involve the disturbance or relocation of public transportation facilities or corridors.

- All utility installations associated with reclamation operations will also be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells; oil, gas, and coal-slurry pipelines, railroads; electric and telephone lines; and water and sewage lines which pass over, under, or through the Permit Area, unless otherwise approved by the owner of those facilities and the Division.

- It was the intent of the previous Operator to utilize the General Office Area and accompanying property (with associated runoff control facilities) located west of the loadout facilities and Highway 96 as an intermountain office facility which would have excluded it from reclamation activities (see Map 527 Sheet 4). If it is decided at a later date by White Oak not to utilize the property this manner or to sell or donate it to another entity which desires the facility, then the General Office Area will be reclaimed under the same guidelines agreed upon for the Loadout Facility, whereafter complete reclamation details will be provided to UDOGM.

- At present the Operator does not propose the use of cut-and-fill terraces in conjunction with the Reclamation Plan. However, as part of reclamation, benches will be incorporated into surface contouring for the purpose of enhancing vegetation and wildlife habitat.

- The White Oak No. 1 & 2 Mines (formerly known as Belina No. 1 & 2 Mines were developed by Valley Camp of Utah, Inc. and do not contain any previously mined areas within the current mine plan area which have been or are proposed to be remined. The Utah No. 2 Mine within the Loadout Facility area does however, encroach upon old Utah No. 1 Mine disturbed areas, but the Loadout facility will be reclaimed in its entirety.

- Sediment removed over time from local ponds within both the Loadout Facility Area and White Oak Complex areas will be used in the reclamation process as long as the sediment is found to be non-toxic.

- The revegetation on all disturbed land by the coal mining and reclamation operations will be done as contemporaneous as possible.

- Reclamation of each disturbed area will begin during the first appropriate season following the time when that area becomes available for such activities (unless irrigation systems are installed at the time of reclamation as is planned for the White Oak Haul Road).

- Once an area has been prepared (maximizing roughness), the Vegetation-Supporting-Material (VSM) will be redistributed as uniformly as possible as soon as ground conditions allow in the spring. All VSM, whether stored or reharvested during reclamation, will be disc or broken up prior to placement. Preparation of the "proven" VSM will not occur unless seed bed preparation, planting, fertilization (if required) and mulching conditions are favorable and can follow immediately.

- Areas occupied by support facilities will not be reclaimed until the conclusion of mining activities.

- Prior to final reclamation, the Operator, land owner and other appropriate regulatory agencies will have reviewed the disturbed areas and agreed upon a mutually acceptable Reclamation Plan. This will allow land owner(s) and appropriate agencies the opportunity to review the Reclamation Plan. At some point in time, should the land owner(s) desire to change the postmining land use to be other than full reclamation, the alternate postmining land use, landowners written request, and their letter of understanding will be submitted for approval. Once that alternate postmining land use is approved, revised drawings and cross sections will be submitted for approval. Information related to current lease agreements obtained from land owners or surface managers is available at the offices of White Oak Mining & Construction Co., Inc.

In general, reclamation of the White Oak mining operation includes:

White Oak Loadout Facility

The removal of all surface facilities, the restoration of the culverted stream emanating from the hills to the east of the facility, the regrading and shaping of the Loadout Facility, and the grading and recontouring of sedimentation ponds. Sediment Pond backfill material will consist of clean fill material which will be tested to ensure that only non acid-toxic materials are used.

White Oak Haul Road

Reclamation of the White Oak Haul Road includes the removal of the ashpalted roadway, culverts and concrete channel linings and the restoration (including reshaping and grading) of hillslopes between Eccles Canyon and the White Oak Complex. Reclamation will also include the removal of existing culverts and the restoration of natural drainage channels at 1) the bottom of the haul road at the junction with Eccles canyon and 2) at the "Big Fill".

White Oak Complex

The removal of all surface facilities, the restoration of 1) the main channel (culverted) stream entering the fill area west of the facility near the power station and 2) the side channel entering the fill area from the north near the offices and shop facilities. In addition, reclamation will include the removal of the fill pad, regrading and shaping of all disturbed areas, and the grading and recontouring of Sedimentation Pond No. 004A. Sediment pond backfill material will consist of clean fill material which will be tested to ensure that only non acid-toxic materials are used.

Reclamation design details provided as part of this submittal indicate mine disturbance boundaries which will be honored during the reclamation phase of the mining operation.

HISTORICAL OVERVIEW

Surface facilities located within the Permit Area are generally divided into one of three time periods, those facilities constructed pre-law, those constructed post law but prior to topsoil requirements and those constructed post-law with topsoil requirements. The General Office Area, Utah No. 2 mine site and VALCAM Loadout Facility (now referred to as the Loadout Facility), the White Oak No. 1 and

No. 2 mine sites (White Oak Complex) and the White Oak Haul Road were pioneered pre-law. Additional improvements at both Loadout Facility and the White Oak Complex were constructed postlaw but prior to topsoil requirements. Topsoil requirements came into play during the opening of the White Oak No. 2 Mine whereafter some topsoil substitute has been salvaged and stored for reclamation activities.

No topsoil will be required for reclamation of the General Office Area since it is the current plan that it be retained as a field office for White Oak upon completion of mining.

Since the Loadout Facility was also established prior to the topsoil requirement and no topsoil was preserved, a search for an acceptable substitute for topsoil which could be utilized during reclamation was initiated. Existing soils have proven that they will support vegetation. Some selected soils identified on site were analyzed for applicability as a substitute for topsoil, approved by UDOGM for reclamation use and harvested. This approved material has been stored at the White Oak Complex. The substitute for topsoil has been stabilized with vegetation and erosion control measures and contains approximately 975 cu. yds. of soil which came from the enlargement of the Sediment Pond 002a, near the truck scale at the Loadout Facility. The volume of soil was approximated using the Average End Area (AEA) method. As shown on the Reclamation Mapping, roads (including the railroad access road) and selected culverts found within the Loadout Facility such are currently owned or will continue to be utilized by the railroad will remain upon final reclamation.

The White Oak Haul Road however will be reclaimed wherein VSM will be needed. Although no topsoil was formally preserved, the haul road does exhibit the same natural revegetation capabilities as does the White Oak Complex and Loadout Facility areas.

Permanent runoff conveyance facilities capable of controlling the post mining 100 Year - 6 Hour precipitation event have been designed for the Loadout Facility Area, the White Oak Haul Road and the White Oak Complex. As required under the regulations, all existing siltation structures (with the exception of Sediment Pond 004A) will be 1) maintained until removal is authorized by UDOGM and the disturbed area has been regraded, stabilized and revegetated, and 2) maintained for a minimum of two years following the last augmented seeding. It is not possible to retain Sediment Pond 004A in place until all other phases of reclamation have taken place because of its location and the requirement to remove valley fill material upon which it is located. It is also understood that all culverts within the Permit Area are to be removed unless approval is given by the regulatory agency that their retention meets post mining land use requirements. Culverts to remain following reclamation are bolded as appropriate on reclamation mapping. Additional information related to timing of reclamation activities will follow.

The goal of reclamation as established herein is to re-establish to the degree possible the environment modified by mining activities. It may be found at the conclusion of mining that certain previously disturbed areas show significant stabilization wherein it might be more damaging to the environment to redisturbed and reclaim the area than it would be to leave it "as is" without further disturbance. These areas may not require further reclamation because of the natural or man assisted establishment of acceptable reclamation conditions which have transpired since the initial disturbance was made. Some potential areas where this might occur include cut and fill slopes on roads, operation pads, and outside slopes of sediment ponds. Any such areas thus disturbed early in the operational life of the mines will be re-evaluated prior to commencement of reclamation by the Operator and the Division to determine if existing stability and vegetation are adequate to preclude redisturbance. Of course no formal modification

to the Reclamation Plan as outlined hereafter will be undertaken until such a joint agreement has been reached by the regulatory agencies and legal owners of the properties involved.

POSTMINING LAND USE

Premining land use classifications for the Permit Area are as follows:

Carbon County

All of the Permit Area situated in Carbon County is zoned for Recreation, Forestry and Mining with the exception of the West half of the South West Quarter of Section 9, T13S, R7E SLB&M.

Emery County

All of the Permit Area situated in Emery County is zoned for Recreation, Forestry and Mining.

White Oak Loadout Facility

Postmining land use for the permitted areas will be consistent with pre-disturbance use. Prior to disturbance the land was primarily shrub and brush rangeland. Also included within its use was a right-of-way for the railroad (Pleasant Valley Agreement) complete with access roadways. No change from premining to postmining land use is planned.

General Office Area

It was the intent of the previous Operator to utilize the General Office Area and accompanying property (with associated runoff control facilities) located west of the loadout facilities and Highway 96 as an intermountain office facility which would have excluded it from reclamation activities (see Map 527 Sheet 4). If it is decided at a later date by White Oak not to utilize the property this manner or to sell or donate it to another entity which desires the facility, then the General Office Area will be reclaimed under the same guidelines agreed upon for the Loadout Facility, whereafter complete reclamation details will be provided to UDOGM.

White Oak Haul Road

At this time the postmining land use for the White Oak Haul Road will be a continuation of shrub and brush rangeland and wildlife habitat since the road will be removed and reclaimed. It is also possible that the area might receive some slight recreational use via foot traffic which would be similar in nature to that which transpired prior to disturbance.

White Oak Complex

Land at the White Oak Complex will return to a shrub and brush rangeland use, wildlife habitat, and grazing use. The individual from whom the mine site is leased has shown some interest in using the area as a cattle holding facility to enhance his grazing program. Any private recreational use within the presently disturbed mine area will be confined to foot traffic.

RECLAMATION REQUIREMENTS

Some of the more generalized requirements given within the regulations are more easily separated and discussed than would be if incorporated directly into the overall text. Those regulations which can be addressed quickly and efficiently are provided within this section of the Reclamation Plan.

Blasting

As required by 524.400, unscheduled blasts will be conducted only when public or Operator health and safety so requires and for emergency blasting actions. When an unscheduled surface blast incidental to the coal mining and reclamation operation occurs, the use of audible signals, will notify residents within one-half mile of the blasting site and will be recorded in the blasting records of why the unscheduled blasting was required.

Casing & Sealing of Underground Openings

As required within 551, 631 & 765; all underground openings will be permanently sealed. Permanent closure measures are designed to prevent access to the mine workings by people, livestock, wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters.

The Utah No. 2 Mine is located at the Loadout Facility just east of the D&RGW railroad and north of the crusher building and is in the Upper O'Connor coal seam. The mine was officially closed September, 1989. All portals at the Loadout Facility have caved tight near the 25' area and were considered dangerous and were barricaded as per MSHA instruction. Portals 1 through 5 were removed and the openings were backfilled approximately 25' to 30' with the aid of heavy equipment. Portal 6 was backfilled, however, the portal headwall will remain to support the highwall until such time as reclamation is accomplished. At that time Portal 6 will be removed or be covered with at least four feet of compacted material and the highwall stabilized. Entry 7 has been sealed, but Portal 7 will remain until reclamation takes place as the belt line tailpiece for the crusher building is located in the portal mouth.

All mine openings at the White Oak Complex will be sealed with block stoppings, at a depth of not less than 25 feet inby (inside) the portal mouth, or original faceup or in the case of the White Oak No. 2 Manway, sufficient stable cover outby (outside) the stopping will be backed filled to the surface. The portal closure plan will utilize a french drain. The french drain design and installation will be accomplished using the most prudent engineering practices and technology available, at the time the portal closure takes place. The approximate depth of cover to be placed over the portals is depicted on reclamation Maps 527, Sheets 1 through 14. Actual depths of cover will be verified by Certified "As-Built" Postmining Land Use Reclamation maps generated from aerial photography which will be taken upon completion of reclamation.

MAP 500. MAP INDEX
MAP 527 - SHEETS 1 THROUGH 14. RECLAMATION DETAILS

Mine closures will be accomplished in accordance with the requirements of the Division and consistent with MSHA, 30 CFR 75.1711.

All exploration drill holes have been plugged using the procedures required by the U.S. Forest Service. The drill holes were filled with drill cuttings except in specific areas of the hole requiring

concrete plugs. Concrete plugs were required, and were extended ten feet above and below any aquifer encountered, as well as being placed across all coal seams. In the vicinity of the surface, all drill holes were backfilled with at least a five foot concrete plug upon which a soil layer was added to conform to local soil conditions.

Attempts will be made at the time of mine closure to transfer ownership of all existing wells located on or utilized in conjunction with the mining operation to other interested parties. If such transfers are not realized or possible, then each well site (including the culinary water well being used by the Operator) will be reclaimed as part of mine closure and be permanently sealed as required. Upon reclamation:

- All pumps, equipment, etc. will be removed from the well.

- The well will be completely filled with sealing material such as to prevent the vertical movement of water within the well. Sealing materials may include the following:

  - Neat Cement conforming to ASTM standard C150 of sufficient weight (not less than 15 lbs/gallon) to prevent the flow of any water into the hole from any aquifer penetrated.

  - Cement grout consisting of equal parts of cement conforming to ASTM standard C150 and sand/aggregate with no more than 6 gallons of water per sack of cement.

  - Bentonite-based products specifically designed for permanent well abandonment, which are mixed and placed according to manufacturer's recommended procedures (i.e. Plug-Gel, Shur-Gel, etc.).

  - The liquid phase of the abandonment fluid shall be non-saline water containing no chemicals or toxic materials or other substances which may decompose or possibly contaminate the ground water supply.

  If bentonite-based products are utilized in the reclamation process they will not be used within the uppermost five feet of the well. Cement or cement grout are required for the uppermost five feet.

- Neat cement or cement grout used as a sealing material in abandonment operations shall be introduced at the bottom of the well or interval to be sealed (or filled) and placed progressively upward to the top of the well. All such sealing materials shall be placed by the use of a grout pipe, a tremie line, or a dump bailer, in such a way as to avoid segregation or dilution of the sealing materials.

Disposition of Site Materials

Coal and Coal Fines

At the time final reclamation of the Permit Area occurs, the coal and coal fines which are considered unsalable (stockpile bases and short term coal storage area bases, roadways, etc.) after the marketable coal has been shipped, will be placed in a controlled manner to prevent combustion, ensure stability and movement, and environmental degradation after reclamation.

Exposed Coal Seams, Acid and Toxic-Forming Materials

Exposed coal seams, acid-and toxic-forming materials and combustible materials exposed, used, or produced during mining will be adequately covered with nontoxic and noncombustible materials, or treated and will be placed in suitable fill areas with four feet of cover material to control the impact on surface and ground water in accordance with the regulations, to prevent sustained combustion, and to minimize adverse effects of plant growth and the approved postmining land use. These areas will be determined just prior to reclamation so as to select the most effective areas to ensure environmental security.

Non-coal Mine Wastes

Any non-coal waste material which is considered to be toxic or hazardous material will be disposed of in accordance with federal, state and local regulations. This includes any non-coal mine waste materials which might be encountered during reclamation. When found, such materials will be transported from the Permit Area by licensed contractors and disposed of in a State approved solid waste landfill or disposed of by another approved method available at the time of reclamation.

Refuse Materials

No refuse materials are generated as part of the White Oak mining process and therefore Section 553.250 (or other sections dealing with refuse concerns) of the regulations are not considered applicable to this plan. Therefore no permanent disposal structures for refuse will be needed or constructed within the Permit Area. Should however refuse materials be encountered in the future prior to reclamation, the requirements of appropriate regulations will be met.

Spoil and Waste

No spoil and/or waste materials are presently known to exist within the Permit Area. However, all spoil and waste materials detected or encountered at the time of reclamation will be placed in suitable locations within the affected area(s) to ensure stability and or to prevent leaching. The placement of such materials found during reclamation (if any) will depend upon the location in which the material was encountered, and will be placed in appropriate locations as determined jointly by White Oak and UDOGM.

Extended Responsibility Period

Since the precipitation is in excess of 26 inches annually, it is assumed that the five-year extended responsibility period will apply.

Fish and Wildlife Protection Plan

The fish and wildlife protection plan during reclamation includes the following.

- Construction will be limited to summertime periods thereby eliminating disturbances to big game on nearby high priority winter range. The total area of the permit is considered summer range for elk, deer, and moose. There is no winter range use with the exception of the riparian habitat areas used by moose, as well as for spring calving.

- Wildlife habitat will be enhanced through restoration of habitat features and selection of reclamation materials that will improve the quality and or quantity of forage and or cover. Ledges, boulders, logs and game trails will also be utilized.

- All riparian habitat disturbed by the Operator will be reclaimed.

- Straw bales and/or other appropriate sediment control devices will be utilized at the downstream end of all construction zones at the Loadout Facility and White Oak Complex to control stream influents.

- A bermed staging area for refueling and self contained servicing of equipment will be established by the contractor with a minimum buffer zone of 100 feet from any stream or water source.

Land Agreements

Prior to final reclamation, White Oak, the land owner and other appropriate regulatory agencies will have reviewed the disturbed areas and Reclamation Plan. Final Reclamation Plans will thus meet the needs and desires of current surface owners as well as meet the requirements of the regulations. Information related to current agreements obtained from land owners or surface managers is available at the offices of White Oak Mining & Construction Co., Inc..

Temporary Cessation of Reclamation

The Division will be notified by registered letter should it become evident that a temporary cessation of reclamation operations will extend for a period of 30 days or more occur as required under 515.320. The notification letter will contain the following required information.

- Exact number of surface acres and the horizontal and vertical extent of subsurface strata which have been in the Permit Area prior to cessation,

- Extent and kind of reclamation of surface area which will have been accomplished, and identification of the backfilling, regrading, revegetation, environmental monitoring, portal closures and water treatment activities taking place during temporary cessation.

Topsoil Storage

The Topsoil stockpile (located south of the main substation S44) is closely surrounded by dense forest exhibiting a medium amount of deadfall and heavy ground cover. This provides excellent protection against wind erosion as well as rapid snowmelt in the spring. The storage area has been bermed to prevent access by motor vehicles, as well as to prevent erosion of the material from the storage area. Straw bales are also used along the down gradient end (north end) of the storage area to assist in containment, should a slope failure of the stockpile occur. Topsoils and Substitute topsoils removed from disturbed areas during the later mining operation time period are stored in this area for reclamation use.

RECLAMATION DETAILS

Overall Reclamation Plans include an organized procedure for the removal of mine related facilities and the restoration of the environment. Included within the complete plan is 1) the removal of

all surface facilities with the exception of non-White Oak railroad lines, 2) the restoration of the land surface to a configuration which conforms as much as practical and/or possible to the undisturbed natural topography, 3) the installation of runoff control channels and/or erosion protection devices, and 4) the restoration and/or augmentation of vegetation. The following discussion identifies planned reclamation activities and concerns including demolition and cleanup, reclamation contouring, runoff conveyance control, and vegetation.

Demolition and Cleanup

All mining related structures located within disturbed areas will be demolished, salvaged or otherwise removed, all mine portals will be properly sealed, and the area cleaned up, regraded and restored to meet reclamation requirements as identified herein. All asphalt will either be hauled to a State approved disposal facility or reprocessed and donated to UDOT for use as a resource for State highways. Reclamation costs have been calculated based upon the assumption that all asphalt will be hauled to an appropriate disposal facility. The concrete will be scarified and crushed with heavy equipment and utilized to backfill the portals, used as aggregate for lean concrete to backfill the portals or placed as fill against the toe of the backslope in the first lift placed during reclamation. Specifics related to planned demolition and cleanup activities for each major category are hereafter described.

Disposal Facilities

Should a disposal facility be required during reclamation to aid in the demolition and cleanup phase, it will be designed using current prudent engineering practices and will meet the regulations set forth by the Division. The actual location for this type of facility (should it be needed) will be determined during reclamation so as to insure that the most advantageous location can be utilized. Location will take into account AOC concerns, stability of existing foundations and or abutments, weak zones and groundwater effects upon the facility. Such a facility will be approved by the Division prior the implementation.

Mine Openings

All mine openings will be sealed with block stoppings, and backfilled with either lean concrete or competent material, at a depth of not less than 25 feet inby (inside) the portal mouth, or original faceup or in the case of the White Oak No. 2 Manway, sufficient stable cover and outby (outside) from the stopping will be back filled to the surface. All portals at the Loadout Facility have caved tight near the 25 foot area, were considered dangerous, and were barricaded (backfilled) as per MSHA instruction. In addition to current backfilling, each opening will be recontoured at the time of reclamation to the approximate original contour as shown on the reclamation design drawings.

Roads

Any road not to be retained for postmining land use or is no longer needed for mining and reclamation operations will be immediately closed to public travel, whereafter all culverts will be removed and disturbed surfaces recontoured and revegetated as per this Reclamation Plan.

White Oak Loadout Facility. The existing paved road at the Loadout Facility connecting the highway with the railroad tracks by the coal stockout tube will be stripped of its oil surface and disposed of as previously mentioned, leaving the gravel road base for continued railroad access. The D&RGW

(SP) will continue to utilize the graveled road to gain access by railroad personnel to the tracks and adjacent area in the vicinity of the stockout tube. Should the operators of the railroad desire an oiled road surface rather than a gravel road at the time of reclamation, then the oiled surface will be remain.

All other roads associated with the Loadout Facility will be removed upon reclamation. Removal of the existing White Oak railroad spur (most easterly track) will allow continued north and south access along the east side of the railroad tracks. Ongoing roadbed maintenance will be the responsibility of the D&RGW (SP) railroad company.

General Office Area. Since the General Office is to remain upon reclamation, no changes will be made to existing roadways essential to its continued use. If the post mining land use changes, an amendment to the Reclamation Plan will be submitted.

White Oak Haul Road. All asphalt associated with the White Oak Haul Road will be removed upon reclamation. Asphalt product salvaged will be either 1) crushed and hauled to a State approved facility or 2) recycled and reprocessed for use in neighboring towns or by UDOT for streets or road construction purposes. All asphalt will be removed from the White Oak Haul Road during Phase I of reclamation so as to minimize impacts to the surrounding environment during the reclamation period.

White Oak Complex. All asphalt roads associated with the White Oak Complex will be reclaimed in the same fashion as those for the White Oak Haul Road.

Structures

All surface equipment, structures, or other facilities found within the White Oak Permit Area not required for continued underground mining activities and monitoring (unless approved by the Division as suitable for post mining land use or environmental monitoring) will be removed and the affected lands reclaimed. Exceptions to the removal of all structures include the roadbed associated with the operation of the railroad which traverse the Loadout Facility site, or which are associated with the office facilities located west of the Loadout Facility and Highway 96 as discussed earlier. Railroad facilities to remain consist of two railroad lines, an access road, and railroad drainage culverts. Drainage culverts which will remain meet the post mining land use requirements of the railroad since they are used to control surface water runoff.

Reclamation Contouring

Reclamation activities for the White Oak property include the stabilization of slopes, minimization of erosion, reduction of water pollution, and the supporting of approved postmining land uses. The plan included herein for backfilling, soil stabilization, compacting and grading includes contour maps, cross sections and three dimensional views exhibiting the anticipated final surface configuration of the disturbed areas, in accordance with the applicable regulations. Where reasonably possible the final reclaimed contour will match the predisturbance contour as represented on maps included with this Reclamation Plan. All maps included herein have been prepared and certified as described under Section 512 of the rules and regulations.

In general, all drainages will be restored to the degree possible to premined conditions by removing all fill material, regrading, and reshaping of the adjacent terrain. Reclamation contours will match those found naturally at the point of contact, and where possible, reclaimed contours will be constructed at

slope angles less than those found naturally. Generally speaking, all fill material placed as a result of road construction in the vicinity of local drainages will be removed, and the reclaimed drainages will be excavated (or filled) to the degree possible to local natural grades as determined in the field.

In order to develop reclamation contouring and associated volumes, both existing and future reclaimed contours have been entered into AUTOCAD for the entire disturbed area. Cut and fill volumes associated with reclamation activities were then developed utilizing Engineering Data Systems (EDS) software. Since soils which will be removed are not native undisturbed soils, but were placed during mine development, it was recommended by a professional geotechnical engineer that a compaction factor of 5% be added to the calculation of all cut materials. Calculations shown in Appendix R2 reflect this recommendation.

Once cut and fill volumes were determined, mapping was prepared to illustrate both reclaimed contours as well as computer generated renderings of final surface configurations for critical areas. Three dimensional renderings have been completed for the Loadout Facility Area, the White Oak Complex, the White Oak Haul Road, and two areas along the White Oak Haul Road including a typical view along the north slope of the lower section of the road and a view of the Big Fill area (see Figures R-1 through R-13).

FIGURE R-1. White Oak - RECLAIMED CONTOUR
FIGURE R-2. White Oak - DISTURBED 3-D VIEW
FIGURE R-3. White Oak - RECLAIMED 3-D VIEW
FIGURE R-4. White Oak Haul Road - RECLAIMED CONTOUR
FIGURE R-5. White Oak Haul Road - DISTURBED 3-D VIEW
FIGURE R-6. White Oak Haul Road - LOWER SECTION DISTURBED 3-D VIEW
FIGURE R-7. White Oak Haul Road - BIG FILL SECTION DISTURBED 3-D VIEW
FIGURE R-8. White Oak Haul Road - RECLAIMED 3-D VIEW
FIGURE R-9. White Oak Haul Road - LOWER SECTION RECLAIMED 3-D VIEW
FIGURE R-10. White Oak Haul Road - BIG FILL SECTION RECLAIMED 3-D VIEW
FIGURE R-11. White Oak Complex - RECLAIMED CONTOUR
FIGURE R-12. White Oak Complex - DISTURBED 3-D VIEW
FIGURE R-13. White Oak Complex - RECLAIMED 3-D VIEW

Because cut and fill volumes were determined via AUTOCAD, numerous cross sections typically required for hand calculation are not shown as part of the reclamation calculations. However, typical sections have been added at each of the major areas to show typical reclaimed sections. Specifically, cross sections have been developed for selected areas of the Loadout Facility, the White Oak Haul Road, and the White Oak Complex. These cross sections are included within Appendix R2.

Additional general concepts associated with reclamation contouring which have been implemented (or will be at the time of construction) into the Reclamation Plan throughout the disturbed Permit Area include:

- Areas having either undisturbed or re-established vegetation will not be disturbed upon reclamation unless it is necessary to obtain the approximate final surface configuration identified within this Reclamation Plan. Contour limits presented on reclamation drawings were developed based upon photographic and field observation of established vegetation. At the time of reclamation, representatives from both the Operator and UDOGM will concur on appropriate

field staking for undisturbed or naturally re-vegetating areas which will not be redisturbed with reclamation activities.

- Prior to any earth moving activities all areas affected by noxious weeds will be sprayed.

- Pad areas and associated cuts will be restored to the approximate original contour through the use of heavy equipment.

- All fill material shall be machine compacted where accessible and shall be placed in a controlled manner.

- Benches shall be constructed in lifts and compacted to assure integrity and stability of the embankment.

- After the coal handling areas have had the recoverable coal removed, the remaining bed material will be intermingled in a base lift near the mine portals.

- Constructed slope angles will not exceed those of the surrounding hillsides. As a general rule slope angles will not exceed 2:1 except at points of intersection where steeper slopes are required to tie into existing hillsides.

- No slope equal to or greater than 2:1 will be ripped since ripping may create a higher potential for slope failure as well as decrease the soils suitability as a firm seedbed.

- All areas to be revegetated with a slope of 3:1 or less may be ripped to a minimum depth of 14" and treated if necessary. Maximizing the roughness of the reclaimed surface will be paramount at most locations to achieve moisture retainage, enhance vegetative growth and reduce local erosion.

- The placement of large exposed boulders or deadfall within reclaimed areas will provide a varied land surface and enhance both the visual aspects of reclamation as well as local wildlife.

- Reclaimed slopes greater than 2:1 will be reviewed and a geotechnical analysis completed at the time of final reclamation in order to eliminate potential stability problems. This effort must be delayed until the time of reclamation since it is not possible at this time to precisely identify the soils to be placed at any given area.

- Small depressions may be left throughout the reclaimed area on an as needed basis to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation. The actual locations of small depressions will be decided upon during final grading. These small depressions will not be left in areas subject to erosion resulting from upgradient drainage flowpaths.

- All lifts will be overfilled, compacted and the loose material on the outslope incorporated in the next lift. This technique decreases the chance of superficial failures of the outslope and leaves the soil surface compatible for revegetation. Each lift will be keyed into the existing backslope to increase stability. The location of each keyway will be determined at the time of reclamation based upon information gathered in the field.

- Reclaimed areas will be treated with a surface bonding agent if necessary to reduce potential slippage of the material.

The following discussion presents the anticipated scope of reclamation for each disturbed area. A discussion related to projected timing for each phase of reclamation (once mining operations permanently cease) is included near the end of the Reclamation Plan.

White Oak Loadout Facility

As shown on Maps 527 Sheets 1 through 3, disturbed areas will be backfilled and graded to achieve the approximate original contour. No highwalls are planned to remain upon final reclamation within this area and all slopes will be approved by the Division prior to final abandonment. It is anticipated that no additional fill will be required for reclamation of this facility as shown by volume estimates included within reclamation Appendix R2, nor will material be moved between the Loadout Facility and the White Oak Complex at the time of reclamation.

Modifications to the land surface topography or facilities which vary from premining conditions include:

- An additional railroad spur associated with the Coastal States Energy mining operation. Upon reclamation backslopes associated with this D&RGW Railroad right-of-way will be regraded to maximize reclamation at the Loadout Facility.

- Prior to reclamation the railroad had the potential of utilizing two separate roadways for access as shown on 1973 aerial photography. The main access appeared to leave the highway just south of existing Sedimentation Pond 003A. This access road traveled to the north where it was intersected by a less traveled connecting road adjacent to existing Sediment Pond 002A. Reclaimed access is shown to be limited to a single access in the location of the existing asphalt roadway. This access is in the approximate location of the historic north access road.

  The premining access road consisted of native soils. Upon reclamation the asphalt layer will be removed from the existing roadway leaving the gravel roadbase for improved railroad accessibility. At the time of reclamation the roadway will be narrowed to accommodate a single lane of traffic so as to approach premined conditions.

Graphical representations of existing and reclaimed land surfaces are shown on Figures R-1 through R-13.

General Office Area

As indicated previously, no changes to the existing configuration of the land surface nor structures are planned as part of reclamation activities.

White Oak Haul Road

The White Oak Haul Road was originally constructed between 1975 and 1976 and subsequently widened in 1976. The great majority of the road was excavated as is evidenced by the lack of fill on road outslopes noted in the field. Any excess material obtained at the White Oak Complex will be placed along the White Oak Haul Road. The replacement of excavated road material will not generally entail the direct attempt to match upgradient and downgradient contours with even intermediate grades since

some questions have historically arisen as to the long term stability of the road under those conditions.

According to the stability analysis found in the M-K report (identified and discussed within the 1993 PAP), it is unlikely that the White Oak Haul Road would exhibit long term stability if it were put back to the original premining contour. The overall potential natural instability of the area is evidenced in the form of two small slides which occurred within the lower portions of the road below the fill lines of the constructed toe. Short term stability of the road itself however does appear to have been obtained since the road has survived an earthquake and three years of +200 percent of normal precipitation. The three years of above normal precipitation include years 1983, 1984 and 1993.

It is the intent of reclamation to achieve slope stability, minimize erosion and water pollution, and support approved postmining land use. Upon completion of mining the White Oak Haul Road will be reclaimed to a condition of stability commensurate with the surrounding slopes and should not be any more susceptible to failure than any other slopes within the adjacent area. In fact, some reclaimed surfaces may indeed be less susceptible to failure than natural slopes since their grades will be less severe than those shown to have existed historically. In addition, attempts have been made to create relatively level areas along the roadway to 1) reduce the long term potential for slope failure, 2) enhance wildlife habitat, and 3) reduce runoff potential by retaining or detaining some local waters. Various sections of the road are discussed below separately since reclamation styles will change along the length of the White Oak Haul Road.

The White Oak Haul Road is comprised of inplace materials and is for the most part, built on cut not fill. Several slope areas on the White Oak Haul Road have deciduous and conifer growing adjacent to the concrete lined ditch and shoulder of the road. All disturbed areas along the roadway will be evaluated prior to completion of reclamation efforts to verify areas which redisturbance is not desired or would be unrealistic.

Where there are well traveled game trails crossing the White Oak Haul Road, new trails will be incorporated into the recontoured slope in an effort to minimize the erosion that could occur by animals traversing the newly constructed areas at alternate locations. Where identified, game trails are shown on Maps 527 - Sheets 1 through 14.

Eccles Canyon Junction. The culvert located within Eccles Creek will be removed and the land surface re-established to the approximate original contour and alignment as shown on Map 527 Sheet 5.

White Oak Haul Road - Lower Section near Pipeline. This area of the roadway is of a critical nature due to its visibility from Eccles Canyon. The Reclamation Plan includes the installation of rock lifts at periodic intervals along the roadway to 1) minimize the potential for long term slope failure, 2) reduce overall road grade and hence erosion, 3) blend the reclaimed roadway into existing rock ledges, and 4) enhance wildlife habitat. In addition to the rock lifts, some large boulders may be placed along the route (with UDOGM approval) for use as wildlife enhancement. Available logs (deadfall) is also planned to be utilized for reclamation enhancement. A computer generated 3-D image of existing as well as reclaimed surfaces showing these rock lifts are shown on Figures R-5, R-6, R-8 and R-9.

White Oak Haul Road - Big Fill Area. The fill currently found within the "Big Fill" area will be removed and the contour re-established to approximate original contour. Some small heights of disturbed area may remain at the upper end of the reclaimed slope within the area since natural slopes are slightly greater than 2:1. It was also the desired intent to provide some flat or level areas within this

vicinity for wildlife enhancement, however, the overall steepness of the surrounding terrain made that impossible without the construction of non-acceptable post mining facilities such as concrete retaining walls. The small stream bed will be re-established at the time of reclamation as shown on reclamation Map 527 - Sheet 8, in calculation details provided in Appendix R1, and as shown topographically as existing and reclaimed 3-D views on Figures R-5, R-7, R-8 and R-10.

White Oak Haul Road - Upper Section. Reclamation contouring of the upper section of the White Oak Haul Road above the "Big Fill" consists mostly of uniform regrading and the development of minimum slopes (thereby creating benches). In many instances the existing road base has been utilized to aid in the development of these terraces. As with other areas, these terraces have been created to enhance local wildlife habitat. A graphical 3-D view of the existing and reclaimed White Oak Haul Road is shown on Figures R-5 and R-8.

White Oak Complex

Excess material excavated at the time of reclamation from the coal loadout pad will be placed appropriately either along the White Oak Haul Road or as backfill material near the White Oak Complex as shown on the reclamation drawings previously discussed. The majority of fill material used to achieve the recontouring efforts at the White Oak Complex will be obtained from the lower pad area and the embankment and foundation associated with Sediment Pond 004A. No material will be moved or transported between the Loadout Facility and White Oak Complex areas.

Recontouring of disturbed areas at the White Oak Complex has been governed through the re-establishment of approximate original premined contour along the drainage flow path and the design requirements of runoff conveyance channels. At the time of reclamation, disturbed areas will be recontoured as represented on Maps 527 - Sheets 12 through 14 in such a manner that either 1) the approximate original contour is re-established or 2) deliberate variations are incorporated to enhance local wildlife and/or vegetation. No recontouring of slopes along the power supply lines entering the White Oak Complex are planned at this time because of 1) little overall disturbance has occurred along the power line, 2) additional disturbance will only increase the potential for environmental damage, and 3) extensive natural revegetation which has been re-established over time would be destroyed.

Enhanced surface variations from premined or undisturbed conditions may include the creation of flatter areas, ledges or meadows consistent with those created along the White Oak Haul Road, or the unmodified exposure of rock outcrops such as the one found immediately southeast of the coal stockout tube. The Reclamation Plan includes these planned surface features as a method on enhancing wildlife and vegetation while at the same time providing a varied and visually attractive land surface.

Other specifics dealing with local reclamation include:

- Reclamation of UDD-4 and UDD-5 will consist of selective recontouring. Some sections of these channels have re-established themselves as a result of encroachment by adjacent vegetation. Recontouring in these areas will be conducted by either small machinery or by hand in order to preserve as much of the existing vegetation as possible.

- Postmining slopes will not exceed the angle of repose unless they meet the minimum long-term static safety factor of 1.3.

- Because much of the surface disturbances located within the Permit Area were completed prior to these regulations being enforced, little topsoil exists on the site which can be used for regrading and reshaping during reclamation. A small topsoil storage area has been dedicated for use at the White Oak Complex. Presently, the stockpile contains approximately 975 cubic yards of substitute topsoil which came from the enlargement of Sediment Pond 002A. This material met the criteria of and was approved by the Utah Division of Oil, Gas and Mining for use as a substitute topsoil material. Upon reclamation this substitute topsoil will be placed along the access road to the storage area.

- Unacceptable soil material associated with the coal loadout pad will be placed against mine openings and covered to a minimum depth of four feet.

- Since Sediment Pond 004A is located upon fill material associated with the coal loadout pad it is not possible to retain it throughout the reclamation period. Main concerns with leaving the pond in place are that 1) it is located upon fill material which thereby presents long term stability concerns, and 2) the discharge channel is excessively steep and could not adequately be design to ensure long term protection of the downstream embankment. The pond will however be retained as long as practical during reclamation until its removal is required for construction of the reclaimed Whisky Creek channel.

- Terraces are planned for areas currently associated with the stockpile yard located northeast of the bathhouse and along the bench above the upper mine portals between the current location of the power substation and the shop.

- The slope failure located on the hillside west of the bathhouse will be reclaimed as shown on Map 527 - Sheet 13.

- The access roadway to Boardinghouse Canyon across the top of the ridge west of the White Oak Complex will be used throughout the reclamation process subsequent to removal of the culvert located at the junction of the White Oak Haul Road and Eccles Canyon. This and other ancillary roads will be recontoured and regraded as equipment is removed from the mine site as part of final reclamation activities. Consent and letters of understanding or lease agreements will be obtained from the various land owners as per their requirements for White Oak to access their properties during reclamation activities and will be submitted to UDOGM prior to reclamation of the White Oak Complex or the White Oak Haul Road. This and other ancillary roads will be recontoured and regraded as part of the final stage of the reclamation activities.

Soils Replacement

During reclamation excavated materials will theoretically return the soils to the cut areas in the reverse sequence of the original excavation cycle. Harvesting the materials under this concept would place the "Pre-law topsoil and associated soils" last or at least intermingle them the lower strata soils (downcast materials) lastly, improving the cover material ("VSM") characteristics.

Those areas at the White Oak Complex and Loadout Facility areas studied by Cedar Creek Associates and depicted on Map 231.300 Sheets 1 through 4 identified as "proven" VSM, will be scalped to a depth 3" (inches) below the root zone. The area at the White Oak Complex, west of the No. 1 Conveyor Gallery (S-35) and south of the No. 1 Fan (S-40) will also be scalped to a depth of 3" (below the root

zone of the VSM). Scalped materials will be placed directly upon reclaimed areas or temporarily stockpiled and protected if it becomes necessary. The most suitable soils will be used as VSM, with the least suitable soils being used as fill material.

MAP 231.300 - SHEETS 1 THROUGH 4.
SUITABILITY OF TOPSOIL SUBSTITUTES VSM

Where possible or practical paddle wheel scrapers, dozers, and or backhoes will be used to scalp existing slopes of VSM before recontouring. Scraped material may need to be stockpiled on the lower pad area, near the No. 1 fan or on the storage yard area while recontouring takes place. The potential VSM harvested during construction of the Whisky Creek Channel will placed upon the newly configured slopes.

Once an area has been prepared (maximizing roughness), the "proven" VSM will be redistributed as uniformly as possible as soon as ground conditions allow in the spring. All VSM, whether stored or reharvested during reclamation, will be disc or broken up prior to placement. Preparation of the "proven" VSM will not occur unless seed bed preparation, planting, fertilization (if required) and mulching conditions are favorable and can follow immediately.

Test plots (required by OSM) were implemented in the late 1980's to demonstrate the suitability of in-situ materials and the necessary depth of cover needed. Results from these test plots will be utilized at least in part as well as the SCS recommendations and Division Guidelines to determine actual specifications for revegetation of the disturbed areas.

Ripping depth required for successful vegetative growth and soil stability will be determined at the time of reclamation with the aid of a soils and vegetation specialist when a more accurate determination of site specific soil conditions can be determined.

Runoff Conveyance Plan

The runoff conveyance plan for reclamation includes the re-establishment of well defined drainage channels for those channels which existed prior to mining, and the reshaping or recontouring of disturbed areas to help eliminate or control post mining runoff conditions. The reshaping and recontouring of disturbed areas is highly dependent upon stream channel design since grade control is critical to long term channel stability. Recontouring of adjacent land is secondary to the establishment of adequate and well defined drainage channels.

As required under the regulations, all ditch and culvert sections will be removed upon mine reclamation according to the Reclamation Plan provided by the Operator to the Utah Division of Oil, Gas & Mining. In general, mine reclamation as it relates to runoff control will proceed in three phases. Phase I will include the removal of ditches and culverts located upon either the Loadout Facility or White Oak Complex areas, Phase II will include the removal of the White Oak Haul Road and UPDES discharge locations 001A through 005A, and Phase III will include the removal and recontouring of the access road to the White Oak Complex from the west. During Phase I, reclamation will generally proceed from downgradient to upgradient directions with culverts being removed as reclamation proceeds. Phase II reclamation will start at Eccles Canyon and proceed to the south with culvert removal and reclamation proceeding simultaneously. Phase III reclamation will begin by 1) removing the fill (and Sediment Pond

004A) associated with the White Oak Complex, 2) constructing the reclaimed channels, and 3) removing Culvert C-40-42.

Mapping and design details associated with hydrologic mine reclamation is included within this Reclamation Plan on Maps 527 Sheets 1 through 16. As shown on the maps, surface drainage facilities have been designed where possible to convey all surface drainage waters from undisturbed areas above reclaimed mine areas, to downstream undisturbed areas. It is understood that any and all interim sediment control measures implemented as outlined below (such as straw bales or excelsior mats, etc.) will be removed subsequent to the required reclamation bonding period. It is also understood that all reclamation channels and/or structures will be renovated to the original design specification, including revegetation if required, at the termination of the reclamation bonding period.

MAP 527 - SHEETS 15 AND 16. RECLAMATION CHANNEL DETAILS

The following discussion provides a description of reclamation runoff conveyance facilities for all four general mine permitted areas, ie: the Loadout Facility, General Office, White Oak Haul Road, and White Oak Complex areas.

White Oak Loadout Facility

The long range plan for channel reclamation at the Loadout Facility includes 1) the construction of a riprap channel (RC-1) throughout much of the length of present culvert C-14-42, 2) the recontouring of disturbed areas, and 3) the removal of sedimentation structures following successful reclamation. Loadout Facility reclamation details are shown on Map 527 - Sheets 1 through 3.

Drainage areas for the reclaimed Loadout Facility are not shown on mapping submitted because 1) the general drainage area is relatively narrow with small flow path lengths, and 2) the railroad tracks provide an effective hydrologic barrier. In essence the tracks are an easterly hydrologic barrier wherein runoff water is prevented from moving from upgradient hillslopes to the east to regraded slopes west of the tracks.

The Operator and the D&RGW Railroad will concur on the inlet/outlet locations of culverts effecting their grade regarding postmining land use and the Pleasant Valley Agreement. Culverts not required for railroad right-of-way or access roads will be removed during reclamation. Culverts to remain following reclamation are shown in bold typeface on the reclamation drawings.

Hydrologic reclamation of the Loadout Facility will proceed initially with the construction of reclamation Channel RC-1. This channel is planned to be constructed first in order to divert the majority of undisturbed area waters through the reclaimed facility with minimal impact. Subsequent to the construction of this channel, the remaining area will be graded, reshaped, recontoured, and revegetated according to Reclamation Plans, details and specifications. Sediment Ponds 001A, 002A and 003A will be removed during the final stages of contour reshaping. Straw bales and the use of straw will be an integral part of sediment control until revegetation of the area has been completed. Straw bales of other sediment control measures will be placed in a staggered pattern as discussed with UDOGM, and 2) that the erosion control devices will traverse the entire reclaimed area of the Loadout Facility where contours will be regraded. Final reclamation efforts will include the removal of existing undisturbed area diversion ditch UDD-1. Additional undisturbed area diversion ditches are not planned to be constructed prior to or during reclamation.

Reclaimed channel RC-1 begins at a location approximately 300 feet east of the railroad tracks. The existing culvert passing beneath the railroad tracks will be modified in that the upstream and downstream sections will be removed, and replaced with the riprapped channel as shown in the design details. The riprapped channel design is based upon a 100 year - 6 hour precipitation event of 2.3 inches and a design flow rate of 23.0 cfs. Channel RC-1 has a five foot bottom width and uses a riprap D_{50} of 1.0 feet except at the reclaimed outlet of Culvert C-14-42 where it is 1.25 feet. All channels have a design freeboard of 0.5 feet which is essentially equal to the flow depth. Complete design details are shown on Maps 527 Sheets 1 through 3 and Sheets 12 through 16.

As shown on Map 527 Sheets 1 through 3, culverts C-1-32, C-4-42, C-14-42 and C-15-24 will remain in place as required for continued drainage of the railroad right-of-way. At the time of reclamation, a riprap pad will be installed at the outlet of all three culverts. The riprap pad design will be similar in nature to other adjacent railroad culverts not installed or owned by White Oak. The only exception to this will be that Culvert C-4-42 will be extended to Mud Creek in order to eliminate erosion on the reclaimed contour.

General Office Area

Because the office and related facility will remain upon reclamation (as discussed prevoiusly), no runoff modifications are planned. Checks were made however of the hydrologic capacities of the two culverts located adjacent to the office. Hydrologic calculations show that the culverts will pass the 100 Year - 6 Hour runoff event with a portion of the flow overtopping the culvert as sheet flow. This sheet flow is a planned part of design and will not negatively impact the integrity of the culvert.

White Oak Haul Road

In determining appropriate reclamation activities at each of the culverts along the White Oak Haul Road it should be remembered that the culverts may have differing functions. Some of the existing culverts found along the road are located to divert road runoff water while others have been placed at channel crossings in order to convey channelized runoff water across the White Oak Haul Road. During road reclamation those culverts currently conveying channelized runoff water from the upgradient watershed will be replaced with an erosion resistant channel as described hereafter. Culverts currently diverting road runoff water will not be replaced with designed channels because the post mining contours have generally been designed so that flow will not travel parallel to the road cut. Reclaimed contours will generally create sheet flow, not concentrated channelized flow where channel design would be required.

Based upon the above mentioned observations, options for reclamation at existing culvert locations are 1) restore hillslope contour to create sheet flow by filling excavated road areas to approximated natural grades with road fill materials, or 2) where natural channelization occurs design an erosion resistant channel.

It has been determined through observations made during site visits and through available data and mapping that culverts C-22-24, C-23-24, and C-27-24 do not require reclamation channel design because they are located in areas where reclaimed contours will develop local sheet flow. Culverts C-25-36 and C-28-24 will however require riprapped channel design, and culverts C-24-24, C-26-24, and C-26A-24 will require a "non riprap" erosion resistant channel design.

Existing culvert C-21-48 will be reclaimed to match natural grades and road fill grades as much as practical. Design has been completed for this channel reach as presented in Appendix R1.

Culvert No. C-25-36 at the "Big Fill", which carries the drainage from the Big Fill Area, will also be removed and the stream channel reconstructed (as shown on reclamation mapping) to the natural ground as much as possible. The majority of the fill is to be removed and utilized during reclamation at other reclamation sites within the Permit Area.

Channel Design Using Riprap. Two reclamation channels, RC-4 and RC-5 to be constructed along the White Oak Haul Road using riprap as the erosion protection medium. Channels RC-4 and RC-5 are located along the drainage channels currently occupied by culverts C-25-36 (often referred to as the "Big Fill" or the "Bowl" culvert) and C-28-24 respectively. At some point in the future if other more efficient methods of erosion protection become practical, the designs for both reclaimed channels should be re-evaluated.

The drainage occupied by culvert C-28-24 (reclaimed channel RC-5) has a total tributary area of 35 acres, an overall channel gradient of 34%, and a 100 year - 6 hour storm runoff design event of 7.84 cfs. A reclaimed riprap channel has been designed for the channel using the OSM "Steep Channel Riprap Design" criteria. Utilizing this design method for a 6 foot channel width; an average riprap size (D_{50}) of 0.75 feet and a total channel depth of 1.25 feet was calculated as being required. Design calculations are shown in Appendix R1 with plan and cross section details being shown on Map 527 Sheets 12 through 16.

The drainage occupied by culvert C-25-36 (reclaimed channel RC-4) has a channel gradient of 31.6%, a watershed of approximately 140 acres, and a 100 Year - 6 Hour precipitation event of approximately 34 cfs. Using the OSM "Steep Channel Riprap Design" method, a D_{50} of 1.5 feet and a channel bottom width of 6.0 feet was found to be adequate. Complete plan and cross section details are shown on Map 527 Sheets 12 through 16 with design calculations being presented in Appendix R1.

Channel Design using Vegetative Matting. Reclaimed channels C-24-24, C-26-24, and C-26A-24 are relatively small drainage channels located on steep sidehills. Flows predicted for each of the channels are 1.2, 2.5, and 1.24 cfs with estimated slopes of 54, 57, and 48 percent respectively. The design of these flows on steep embankments is limited by 1) the ability of the channel to control the flow without flow concentration and erosion, 2) the physical ability to construct the channel on the steep slope sections, and 3) by the long term stability of both the embankment and riprap. Even if riprap were adequately designed and could be placed effectively, concerns related to a potential slope failure subsequent to construction are important considerations.

In an effort to eliminate some of these concerns, an alternate method of erosion protection has been devised to protect the hillside and reduce the failure potential. Vegetative matting will be installed within the disturbed bottom portions of the newly formed reclaimed channels at the above mentioned locations. This vegetative matting is shown in Appendix R1 in schematic form. Note from the design details provided that the uppermost section of matting be buried two feet, with all upstream layers overlying downstream layers where joints are required. The downstream section would be buried at depth of one foot and all sides would be staked to prevent movement. As an added measure, trees will be planted within all matted sections to aid in the long term stabilization of the channel. At least two trees (either deciduous or conifer) per 10 foot length of each matted section. Through time, channel stabilization will occur through vegetative growth from seeds within the matting itself as well as through root structure

growth from natural or planted trees. Aspen or other rapid growth native vegetation are planned for use under these conditions.

White Oak Complex

Activities to be completed during reclamation are the removal of fill associated with the coal loadout pad; the removal of Sediment Pond 004A; the regrading, reshaping, and revegetation of the general mine area; and the reconstruction of Whisky Creek and the side drainage presently passing through the shop area. The removal of Sediment Pond 004A at the start of reclamation is necessary at the mine site because of general local topography and the pond's location. The pond is located within a relatively narrow canyon at the downstream end of the coal loadout pad. In order to prepare a reclamation design plan which would consider adequately the long term protection of the environment, the pond was removed. Main concerns with leaving the pond in place were that 1) it is located upon fill material, and 2) the discharge channel is excessively steep and could not adequately be design to ensure long term protection of the downstream embankment.

Whisky Creek is currently diverted beneath the coal loadout pad and sedimentation pond via a 42 inch corrugated metal culvert. Upon reclamation, the coal loadout pad will be removed and a new stream channel will be constructed. No culverts will remain subsequent to reclamation within the White Oak Complex area. Reclaimed channel RC-2 (as shown on Map 527 Sheets 12 through 14) extends from the undisturbed channel presently located at the inlet to Culvert C-40-42 to the downstream undisturbed sections of Whisky Creek. Reclaimed channel RC-3 joins channel RC-2 from the south after collecting surface water runoff from the area behind the shop facility. The general hydrologic drainages for the White Oak Complex area are relatively simple in nature and are therefore not shown on the detailed reclamation mapping. Showing the drainage boundaries on reclamation mapping is also difficult since they extend beyond the limits of the maps presented. Drainage areas utilized during reclamation design as well as design calculations are however presented as part of Appendix R1.

The reclamation channels as presented on the design detail sheets have been designed to provide for the required conveyance of the 100 Year - 6 Hour precipitation event with a freeboard of 0.5 feet. The flow rate calculated for the entire White Oak Complex area is 32.2 cfs. This flow rate was used for the lower section of channel RC-2 below the confluence with channel RC-3. The upper section of RC-2 was calculated to have a design flow rate of 13.4 cfs. A design flow rate of 3.1 cfs was calculated and used in the design for channel RC-3. Reclaimed channel design calculations are included within Appendix R1 as required by the agency. With channel flow depths in the range of 0.5 feet, an additional freeboard depth of 0.5 feet provides adequate channel capacity for runoff design, and to protect against overtopping.

The maximum size riprap which is required for use in the reclamation channels has a D_{50} of 1.5 feet (Average diameter of 1.5 feet). This maximum riprap size was determined based upon the design criteria given by the average channel slope between undisturbed upgradient and downgradient channel sections. Maximum channel slopes at the White Oak Complex are approximately 12% and 33% for channels RC-2 and RC-3 respectively. Complete channel plan and cross section details are shown on Maps 527 Sheets 1 through 16.

Sediment Pond 004A will remain intact as long as practical during the reclamation phase of the mine area. As reclamation proceeds, excavation of the coal loadout pad material will reach a point where the pond will have to be removed. At this point in time reclaimed channels RC-2 and RC-3 will be constructed. Existing culvert C-40-42 will remain during construction of RC-2 in order to safely bypass

undisturbed area waters from Whisky Creek through the area. Upon completing construction of the reclaimed channels, the culvert will be removed and the adjacent hillsides will be 1) graded to the approximate final contour patterns shown on Map 527 Sheets 12 through 14, 2) revegetated and 3) protected against excessive erosion through the installation of alternate sediment control devices such as straw bales, etc.. The approximate locations of straw bales and/or other erosion protection devices to be installed for the White Oak Complex area are shown on the above referenced maps. Note that the erosion control devices have been placed in a herringbone fashion using relatively short fence sections. The short sections are utilized in an effort to minimize the potential for a general fence failure due to wind or to another natural event. Because it is not possible to retain Sediment Pond 004A throughout the normal revegetation period, straw bales will be placed on regraded slopes throughout the reclaimed area. At the termination of the reclamation period, undisturbed area bypass ditches UDD-2 through UDD-5 will be regraded to conform to the overall Reclamation Plan.

Water Quality Impacts of Runoff Conveyance Plan

The effects upon the surface water system due to reclamation activities is anticipated to be generally confined to increased sediment loadings during heavy construction periods. As required, all surface water sedimentation ponds found within the Loadout Facility area will remain in place until final reclamation in order to collect and retain disturbed area water. As a result, the majority of heavily sediment laden runoff will be contained within the respective sediment pond. Sediment Pond 004A located at the White Oak Complex must be removed within the initial portions of reclamation as discussed above. It is recognized that increased sediment loadings do occur with construction activities, and therefore increases in sediment loadings may occur until the area is regraded and vegetative growth is re-established. Attempts to mitigate these normal increases in sediment loadings the Reclamation Plan includes a timely revegetation program and the installation of straw bales (or other approved erosion control devices) downstream of all disturbed areas. Specifics related to reclamation timing and activities are found in a following section entitled "Timing and Reclamation Sequence".

Vegetation Requirements

Vegetation requirements required for reclamation are as outlined below. It is important to note that revegetation will generally require a 12 to 18 month delay between the time vegetation is ordered and the time it is ready for delivery. This delay indicates that vegetation required for reclamation should be ordered at the time reclamation begins during the initial period of structure removal so that it will be ready for planting upon completion of resurfacing operations.

Due to the nature of the topography and inaccessibility of Whisky Canyon an irrigation system will be important to the successful revegetation of recontoured areas along the White Oak Haul Road. Without irrigation it would be difficult to meet the regulations concerning planting should unfavorable climatic conditions occur at the time of reclamation. Irrigation will allow the establishment of seed producing container stock to be utilized and aid in the assurance that germination of grasses and forbs will occur.

Test Plot Studies

All results from test plot studies are contained in the following reports located in Appendix 341.300 of the PAP submitted in 1993.

- "Cover and Productivity Analysis of Temporary Revegetation Sites at Valley Camp of Utah, Inc.'s Utah #2 and Belina Operations", 1986, prepared by Cedar Creek Associates, Inc.

- "1988 Results of Vegetation Sampling and Test Plot Monitoring", and "Summary of Vegetation Monitoring For The Utah & Belina Test Plots, 1988 - 1992", prepared by Mt. Nebo Scientific Research and Consulting.

- Letters from Paul Baker, UDOGM Reclamation Biologist, dated August 31, 1992, and October 9, 1992. See Map 231.300 Sheets 1 through 4 for the locations of areas discussed in these letters.

Soil Characteristics

Soil characteristics are described in Section 200 of the "Operation Plan". Vegetation success resulting from interim reclamation suggests that the disturbed area materials are suitable for use as (VSM). The reseeded cut/fill slopes, some with and some without topsoil, are supporting vegetation after two years of 200%+ of normal precipitation followed by several dry years. During this period the reseeded slopes received no additional treatment. Natural vegetation is encroaching on the perimeters of the slopes. The only cut slopes which are not supporting vegetation are those which are nearly vertical. Map 231.300 Sheets 1 through 4, Suitability of Topsoil Substitutes, shows the reseeded slope areas. Areas where natural vegetation has encroached on reseeded areas will be field identified concurrently with the Division just prior to, or at the time of reclamation.

Areas containing "proven soil" are shown on Map 231.300, Sheets 1 through 4. The previous operator, Valley Camp of Utah, Inc., requested that the Soil Conservation Service evaluate Permit Area soils to determine the suitability of disturbed area materials as VSM. If the SCS determines that a soil survey is required then the Operator will furnish the SCS with necessary mapping. The results of the soil survey will be submitted to the Division for placement in the Reclamation Plan and a copy will also be submitted in the "Annual Summary".

During reclamation, recontouring will take place as required and the recontoured surfaces will be scarified. Any areas not containing "proven soils" will be sampled to determine suitability as a VSM. The samples will be tested for pH, texture, soluble Ca, Na, Mg, cation exchange capacity, nitrate-nitrogen, phosphorus, potassium, boron, selenium, acid/toxic forming potential, oil and grease, gasoline and diesel and associated benzene, toluene, ethylene, xylene, and naphthalene. All tests will be conducted according to EPA Guidelines. Acid/toxic forming material detected by the sampling and testing program, if any, will be replaced to prevent any detrimental effects to the environment. If required fertilizers, nutrients, and soil conditioners will be applied using acceptable methods and under favorable conditions as practicable.

Plant Type, Density, and Planting Procedures

The objective of the Reclamation Plan is to establish a permanent, effective, and diverse vegetative cover, capable of self-regeneration and plant succession for use as rangeland and wildlife habitat. The vegetative cover will be comprised of native species, or of introduced species which are compatible with the postmining land use and with the natural plant and animal species of this area. The Operator will comply with all applicable State and Federal regulations regarding seeds, poisonous and

noxious plants, and introduced species. The Reclamation Plan will be accomplished in four phases described as follows:

1. Earthwork to prepare a stable seedbed.

2. Planting of grasses and forbs to control erosion and to enhance habitat.

3. Planting of seedlings to further stabilize the soil and further enhance habitat.

4. Planting of riparian zones.

Earthwork. All areas to be reclaimed will be graded to the reclamation contours shown on Maps 527 Sheets 1 through 14. Surfaces with slopes less than 10h:1v will be disc and harrowed. Surfaces with slopes greater than 10h:1v and less than 3h:1v will be mulched with straw or other inert organic material. Surfaces with slopes greater than 3h:1v will be hydro-mulched. If required, pinned hemp matting will be installed on the steeper slopes.

During earthwork every effort will be made to minimize disturbance to surrounding areas and existing vegetation. If disturbance is necessary the disturbed soil and vegetation will be relocated together as clumps if possible.

After the earthwork has been completed the soils will be tested as described above in the soils section and fertilizers, nutrients, and conditioners will be applied as needed. At this time it is anticipated that mulch will be applied at the rate of 2,000 to 3,000 pounds per acre, with approximately 60 pounds of tac per acre if needed. Fertilizer will be applied at the following rates in either granular or liquid forms:

N	30 pounds per acre.
P20	100 pounds per acre.
K20	100 pounds per acre.

These rates may be revised based on testing. With the approval of the Division available natural material such as brush, downed trees, rocks, etc. will be placed on the recontoured surfaces to achieve a more natural appearance and to enhance the habitat. It is not anticipated that husbandry practices will be employed at White Oak.

Grasses and Forbs. Hydroseeding, broadcasting, and drill seeding will be used to plant grasses and forbs on reclaimed areas. The amount of seed applied will be dependent on the seeding method used. The amount of seed applied by hydroseeding and broadcast seeding will be twice the amount applied by drill seeding. The types of grasses and forbs to be planted and the application rates for drill seeding are shown in Table R-1. If possible seeds will be gathered from areas adjacent to the reclaimed areas. Seeds not able to be gathered locally will be purchased from a certified supplier and will be warranted for use at reclamation sites.

On surfaces with slopes less than 10h:1v broadcast seeding will be used. If the slopes are greater than 10h:1v but less than 5h:1v hand broadcast seeding will be used. Hand broadcast seed will be buried by raking or another acceptable method. Surfaces with slopes greater than 3h:1v will not be hydroseeded. Where practical, hydroseeding may be used on any surface regardless of

slope. All seeded areas will be hydromulched. No seeding will be attempted on surfaces of exposed rock or where rock is so close to the surface that seeding is impractical.

Seedlings. Seedlings will be planted during the spring following the establishment of sufficient vegetation to provide the grazing needs of wildlife and livestock. On surfaces with slopes greater than 5h:1v where no topsoil will be applied, small basins will be constructed and filled with topsoil material. Seedlings will be planted in these basins. The types and planting rates of permanent seed mixtures to be used to reclaim mining facilities are shown in Table R-1.

Where possible revegetation stock will be harvested from areas adjacent to the areas being revegetated. If seedling stock cannot be gathered locally seedlings will be purchased from a certified supplier and shall be warranted for use at reclaimed sites. All stock will be properly stored and prepared prior to transplanting.

Following initial planting, additional seedlings will be planted if required in order to make the reclaimed areas match the surrounding undisturbed areas.

Riparian Zones. All natural riparian habitat disturbed by mining operations will be reclaimed to premining condition. Riparian zones will be established 5 feet on either side of the top width of reclaimed channels. These zones will be planted with willow slips and clumps gathered from adjacent areas, and appropriate sedges, shrubs and trees.

Removal Of Sedimentation Structures. Sedimentation ponds within the Permit Area will be removed and reclaimed at the end of reclamation contouring with the exception of Sediment Pond 004A which will be removed prior to recontouring. Excavation of the coal loadout pad at the mine will require removal of Culvert C-40-42 and Sediment Pond 004A. At this point channels RC-2 and RC-3 will be constructed to carry undisturbed runoff through the area. Following construction of the channels the adjacent hillsides will be graded to approximate final configuration as represented by the contours shown on Map 527 Sheets 12 through 14, and then revegetated. Because Sediment Pond 004A will not be retained during the reclamation period straw bales (or other acceptable erosion control devices) will be installed in a herringbone patter to prevent excessive erosion and minimize the potential for, and effects of partial failure. At the end of the reclamation period, bypass ditches UDD-2 through UDD-5 and all erosion control devices will be removed.

TABLE R-1.
APPROVED RECLAMATION GRASSES, WILDFLOWERS AND FORBS, LEGUMES, TREES AND SHRUBS PERMANENT SEED MIXTURES

SPECIES	PLS LBS/AC
WHITE OAK LOADOUT FACILITY	
GRASSES: Any 5 species of approved grasses listed below will be planted.	
Agropyron smithii - Western wheatgrass	4.0
Agropyron dasystachyum - Thickspike wheatgrass	4.0
Bromus marginatus - Mountain brome	5.0
Elymus cinereus - Basin Wild rye	2.0
Poa pratensis - Kentucky bluegrass	0.2
Stipa comata - Needle and Thread grass	1.0
FORBS: Any 5 species of approved forbs listed below will be planted.	
Artemisia ludoviciana - Prairie sage	0.1
Aster glaucodes - Blueleaf aster	0.5
Astragalus cicer - Cicer milkvetch	1.0
Hedysarum boreale - Utah sweetvetch	1.0
Linum lewisii - Blue flax	1.0
Melilotus officinalis - Yellow sweetclover	1.0
Medicago sativa - Ladak alfalfa	1.0
Penstemon strictus - 'Bandera' Rocky Mountain penstemon	0.5
SHRUBS:	
Artemisia tridentata vaseyana - Mountain big sagebrush	0.1
Chrysothamnus nauseosus - Rubber rabbitbrush	0.5
SHRUBS: (Hand sets/acre)	
Amelanchier alnifolia - Saskatoon Serviceberry	300
Purshia tridentata - Bitterbrush	300
Rosa Woodsii - Woods rose	300
Symphoricarpos oreophilus - Mountain snowberry	300
TREES: (Hand sets/acre) Any combination of 2 species of hand sets shrubs will be planted	
Abies Concolor - White fir	50
Populus tremuloides - Quaking aspen	250
NOTE: Seed application is calculated for a broadcast application.	

SPECIES	PLS LBS/AC
RIPARIAN AREAS	
Riparian areas within the Permit Area (1.5 ac. max.) will have the following shrubs and trees supplemented to the regular mixtures. In the spring of 1993 when the regrowth has progressed adaquately to evaluate, White Oak/UDOGM will do a field overview of the riparian area disturbance and catalog species to further assist in the approved species selection. After the channel(s) have been reconstructed, further consideration will be made by White Oak/UDOGM collectively, to adjust species and count if necessary.	
SHRUBS: (Hand sets/acre)	
Mahonia repens - Creeping Oregon grape	300
Rubus idaeus sachalinenis - American red raspberry	300
Symphoricarpos albus - Common snowberry	2,000
TREES: (Hand sets/acre)	
Salix rigida - Willow (cuttings)	300
Total (Pending)	2,900
WHITE OAK COMPLEX AND UPPER AND LOWER SECTIONS OF THE WHITE OAK HAUL ROAD	
(SOUTH-WEST FACING ASPECTS)	**PLS LBS/AC**
GRASSES: Any 5 species of approved grasses listed below will be planted.	
Agropyron riparium - Streambank wheatgrass	3.0
Agropyron dasystachyum - Thickspike wheatgrass	3.0
Agropyron smithii - Western wheatgrass	4.0
Agropyron trachycaulum - Slender wheatgrass	2.0
Bromus marginatus - Mountain brome	4.0
Poa Canbyi - Canby bluegrass	0.5
Poa pratensis - Kentucky bluegrass	0.1
Stipa columbiana - Columbia needlegrass	1.0
FORBS: Any 6 species of approved forbs listed below will be planted.	
Achillia millefolium - Yarrow	0.2
Artemisia ludoviciana - Prairie Sage	0.1
Aster chilensis - Pacific aster	0.5
Astragalus cicer - Cicer milkvetch	1.0
Linum lewisii - Blue flax	1.0
Lupinus sericeus - Silky lupine	2.0
Melilotus officinalis - Yellow sweetclover	2.0
Penstemon strictus - 'Bandera' Rocky Mountain penstemon	0.8

SPECIES	PLS LBS/AC
SHRUBS:	
Artemisia tridentata vaseyana - Mountain big sagebrush	0.2
Chrysothamnus nauseosus - Rubber rabbitbrush	0.4
SHRUBS: (Hand sets/acre) Any combination of 3 species of hand set shrubs will be planted.	
Amelanchier alnifolia - Saskatoon Serviceberry	300
Ribes cereum - Blue currant	300
Rosa woodsii - Woods rose	300
Sambucus racemosa - Red elderberry	300
Symphoricarpos oreophilus - Mountain snowberry	300
TREES: (Hand sets/acre)	
Populus tremuloides - Quaking aspen (Aspen will be placed on 5' to 6' centers in 1/4 - 1/2 acre clumps/acre)	400
(NORTH-EAST FACING ASPECTS)	
GRASSES: Any 5 species of approved grasses listed above will be planted.	
Agropyron smithii - Western wheatgrass	4.0
Agropyron spicatum - Bluebunch wheatgrass	3.0
Agropyron trachycaulm - Slender wheatgrass	3.0
Bromus marginatus - Mountain brome	5.0
Poa Canbyi - Canby bluegrass	0.4
Poa Pratensis - Kentucky bluegrass	0.25
Stipa columbiana - Columbian needlegrass	1.0
Stipa lettermannii - Letterman's needlegrass	1.0
FORBS: Any 6 species of approved forbs listed below will be planted.	
Archillia millefolium - Yarrow	0.2
Aster engelmannii - Engelmann aster	0.5
Astragalus cicer - Cicer milkvetch	1.0
Hedysarum boreale - Northern sweetvetch	1.0
Lupinus sericeus - Silky lupine	2.0
Melilotus officinalis - Yellow sweetclover	2.0
Osmorhiza occidentalis - Sweet anise	1.0
Penstemon strictus - 'Bandera' Rocky Mountain penstemon	0.5
SHRUBS: (Handsets/acre) Any combination of 3 species of hand set shrubs will be planted.	
Pachystima myrsinites - Mountain lover	300
Physocarpus malvaceus - Mallow ninebark	300
Ribes cereum - Blue currant	300
Rosa Woodsii - Woods rose	300
Symphoricarpos oreophilus - Mountain snowberry	300
Sambucus coerulea - Blue elderberry	300

SPECIES	PLS LBS/AC
TREES: (Hand sets/acre)	
Abies Concolor - White fir	200
Picea englemannii - Englemann spruce	150
Picea pungens - Blue spurce	200

MONITORING AND MAINTENANCE

During Reclamation

The Reclamation Plan includes continued monitoring and maintenance of constructed facility throughout the reclamation period by qualified individuals who can certify as to the current status of conditions or facility. All surface features included within the plan are covered by this monitoring and maintenance plan including wholly or partially constructed items including runoff conveyance channels, erosion control devices, and revegetated areas.

Construction Observation

Personnel will be assigned to observe ongoing construction related activities throughout the reclamation period. These activities will include the observation of all construction operations. Initial observation activities will consist of reviews of the removal of surface related facility whereafter excavation, recontouring, channel construction and revegetation will be observed.

Environmental Observation

Stockpiled topsoil material excavated from fill areas which will not be placed during the construction season in which it was removed will be stabilized with seed during the first normal period favorable for planting. In should placement not be planned during the construction season. and erosion control measures will be implemented. These actions will protect the pile from environmental degradation.

The effects upon the surface water system due to reclamation activities is anticipated to be generally confined to increased sediment loadings during heavy construction periods. As required, all surface water sedimentation ponds will remain in place (except for Sedimentation Pond 004A) until final reclamation in order to collect and retain disturbed area water. As a result, the majority of heavily sediment laden runoff will be contained within the respective sediment pond. It is recognized however that increased sediment loadings do occur with construction activities, and therefore increases in sediment loadings may occur until the area is regraded and vegetative growth is re-established.

Water Quality Monitoring

Water quality sampling will continue throughout the reclamation period as required under Section 700 hydrology regulations according to the approved analytical schedule shown in the MRP in Table 731.211a. Water quality data collected during this period will be reviewed and compared to data collected during baseline and operational monitoring periods to identify impacts related to ongoing reclamation activities. Current plans include a proposal to drop operational and baseline water monitoring stations which lie outside surface disturbance areas within the first five years subsequent to the cessation of mining. However, the water monitoring program as accepted at the time of reclamation will be followed until a formal request for monitoring program modification has been submitted to, and accepted by the regulatory agency.

Post Reclamation

Prior to abandoning the Permit Area or seeking bond release, an aerial survey will be completed and used to generate final configuration contour maps ("Certified as-built maps") as evidence that all temporary facility have been removed, all areas have been reclaimed, and that all permanent structures exhibit stability. Specific monitoring and maintenance plans include:

Erosion Protection

Erosion pins will be placed on slopes at the time of reseeding operations using a table of random numbers to determine location. These pins will then be used as a guide to overall erosion characteristic of the reclaimed area. All rills or gullies which form in areas that have been regraded and topsoiled and which either; disrupt the approved postmining land use or the reestablishment of the vegetative cover, or cause or contribute to a violation of water quality standards for receiving streams will be filled, regraded, or otherwise stabilized; topsoil will be replaced; and the areas will be reseeded or replanted. All slopes will be monitored for such failures and corrected within 60 days of detection (unless environmental conditions limit restoration under which condition correction will occur at the earliest period feasibly possible).

The effectiveness of in place erosion control devices and practices will be based upon the "Erosion Condition Classification System - Technical Note - Method for Evaluation of Erosion of Reclaimed Coal Lands in Western United States" (Office of Surface Mining, 1990) or another definable method agreed upon by both the Division and the Operator.

Adequate siltation structures to help prevent or control erosion will be maintained until the site has been vegetated and stabilized and either approved to be left or removal is authorized by the Division. If these structures are removed the affected area will be revegetated in accordance with this Reclamation Plan.

Annual site visits planned in conjunction with the Division of Oil, Gas & Mining will review erosional conditions and document possible problem areas.

Subsidence Monitoring

The Subsidence Monitoring Plan outlined within Section 525 of the "Operation Plan" will continue for at least five years following reclamation of the mined area.

Water Quality Monitoring

The post reclamation water quality monitoring program will continue at all White Oak Complex and Loadout Facility monitoring stations as either currently outlined within Section 700 of the "Operation Plan" or then approved by the regulatory agency. Monitoring will continue throughout the mine reclamation time period and bond release. Sampling will continue at both existing upgradient and downgradient water quality monitoring stations in order to obtain data which will reflect changes in water quality from reclaimed sites. These samples will provide water quality documentation necessary for bond release.

Vegetation Monitoring

Vegetation monitoring will use approved methodologies and will be completed during the middle of each growing season during which time it is most feasible to conduct cover and composition studies. Annual monitoring will occur over the entire reclamation area during the first 5 years of the reclamation period whereafter monitoring will be selectively reduced. Final acceptance and or modification to the monitoring program will be based upon a 90% statistical standard of reclaimed cover and composition to undisturbed cover and composition. In areas in which a cover of 90 percent of reference area cover is achieved, monitoring will be reduced to once every 5 years until bond release. Areas will be reevaluated for which a cover less than 90% is achieved within the initial 5 year period. Modification to revegetation efforts or other corrective action will be taken if the reevaluation so indicates that such measures are warranted. If corrective action is warranted and/or taken, annual monitoring will continue for an additional five year time period, until bond release, or until 90% of reference cover is obtained.

Techniques used to determine percent cover and composition of revegetated areas will be consistent with those recommended by the Division or is standard monitoring practice at the time of reclamation. Transplant survival will be monitored for the first 3 years. Data regarding cover, productivity, and woody plant density, will be collected, using acceptable statistical techniques, for reclaimed areas and reference areas during the last 2 years of the reclamation period.

Success of revegetation will be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the extent of cover of the respective reference area or other approved success standard, and the General Requirements of Section 353. Reference areas for each reclaimed surface will be taken as those undisturbed areas found adjacent to the reclaimed surface. Undisturbed reference areas are defined herein as those areas devoid of mans activities which have a minimum of a 100 foot buffer zone from disturbed areas. Specific reference areas will be chosen using a statistically based method from a grid of areas in proximity to the disturbed area which have similar characteristics such as elevation, slope and aspect typical of the reclaimed surface. Reference areas will come from those areas shown in Table R-2.

TABLE R-2.
VEGETATION REFERENCE AREAS

Permit Area	Reference Area	Comment
White Oak Loadout Facility	Slopes above White Oak Loadout Facility	Reference area will apply to reclaimed slopes (except for areas immediately adjacent to Mud Creek)
	Land Adjacent to Mud Creek	Reference area will apply to reclaimed areas immediately adjacent to Mud Creek
General Office	N/A	No reclamation is planned
White Oak Haul Road	Whisky Canyon	Reference areas lie immediately upgradient of reclaimed road sections
White Oak Complex	Whisky Canyon	Reference areas lie immediately upgradient of the reclaimed area

TIMING AND RECLAMATION SEQUENCE

The timing and reclamation sequence are an integral part of the Reclamation Plan since each phase of reclamation is dependent upon other phases. An overall sequence for reclamation includes Demolition and Cleanup, Scalping of Slopes for VSM's, Construction of Runoff Control Channels, Recontouring of Slopes, and Revegetation. The speed at which each of these activities can be accomplished varies greatly depending upon the area to be reclaimed. For example, the Loadout Facility can be reclaimed much more easily and quickly than can the White Oak Complex simply because of location and accessibility.

The overall operational sequence for reclamation will span several years and will include the activities outlined in the following reclamation time table. Specifics regarding each activity follow Table R-3.

TABLE R-3.
RECLAMATION TIME TABLE

ACTIVITY	YEAR					
	1	2	3	4	5	Period until Bond Release
WHITE OAK LOADOUT FACILITY						
Demolition and Cleanup (Salvage Operations)						
Harvest Vegetation-Supporting Material[1] (VSM)						

ACTIVITY	YEAR					
	1	2	3	4	5	Period until Bond Release
Construction of Runoff Control Channels[1,2]						
Slope Recontouring[1,2]						
Revegetation[1,3]						
Monitoring and Maintenance[4]						
GENERAL OFFICE AREA						
N/A No reclamation planned	General Office to Remain.					
WHITE OAK HAUL ROAD						
Remove asphalt, road base, guard rails[5] and culverts.						
Slope Recontouring[6]						
Construction of Runoff Control Channels[7]						
Revegetation[8]						
Monitoring and Maintenance[4]						
WHITE OAK COMPLEX						
Demolition and Cleanup (Salvage Operations)						
Harvest Vegetation-Supporting Material[9] (VSM)						
Construction of Runoff Control Channels[2]						
Slope Recontouring[2,10]						
Revegetation[8,10]						
Monitoring and Maintenance[4]						

NOTES:

1. Timing of reclamation activities may vary slightly due to the possibility of the loadout area being used as a temporary storage facility for reclamation materials such as riprap. If upon reclamation it is found that the area is not needed for storage, then reclamation recontouring will begin in year 2. If it is needed, then recontouring will begin during year 4.
2. The construction of runoff control facility and the construction of recontoured slopes may occur simultaneously within the reclamation area.
3. Slopes will be revegetated at the earliest time in which establishment of growth will be most promising as dictated by seed and plant suppliers.

4. All aspects of reclamation will be monitored according to the schedule previously discussed.
5. Road must remain during first year of reclamation to facilitate the removal of all surface facility and or the delivery of equipment and supplies required for reclamation.
6. Recontouring efforts will begin at the lower end of the White Oak Haul Road and proceed upgradient to allow for the importation of rock and fill material from the excavation of the White Oak Complex.
7. The construction of runoff control channels will proceed as reclamation of the road progresses upgradient.
8. Because of limited access once reclamation has been completed, the White Oak Haul Road will be revegetated in segments. Revegetation will follow localized resurfacing efforts.
9. Scalped or scraped White Oak Complex materials may require stockpiling for later use. Storage location options include the upper and/or lower pad areas. The potential VSM harvested during construction of the Whisky Creek Channel will be placed upon adjacent newly configured slopes or along the Haul Road.
10. Final regrading, recontouring and revegetation of access roadways may be delayed upon the completion of all other reclamation activities in order to provide continued access to the property should maintenance be required prior to bond release.

White Oak Loadout Facility

Surface reclamation of the Loadout Facility all occur with relative ease due to the general nature of the facility and property access. Reclamation activities will begin with the removal and salvage of all surface facility located on the site with the exception of two railroad lines not associated with the Loadout Facility and an access roadway to the railroad. During year 1 it is planned that all surface facility will be removed with the exception of those facility discussed. Sediment Ponds 001A, 002A and 003A will be removed during the final phases of recontouring whereafter alternative sediment control measures will be implemented according to best technology currently available at the time of reclamation. The sediment ponds will be removed as part of the recontouring effort since 1) the ponds are too high to receive reclaimed area surface runoff water, 2) natural runoff characteristics (including premining railroad culvert locations) will not allow for concentration of flows to existing sediment pond locations, and 3) if left, a significant area would require redisturbance upon final pond reclamation thereby destroying several years of vegetative growth.

As indicated as a footnote to Table R-3 there is a possibility that the Loadout Facility will be required as a holding or storage area for reclamation materials including such items as machinery or channel riprap. If requested by the reclamation contractor, restoration of the surface of the Loadout Facility area will be postponed until it is no longer needed. Surface drainage facility capable of diverting runoff waters away from disturbed areas as well as those required to capture and treat disturbed area waters will be maintained throughout this period. Recontouring of the Loadout Facility will be begin as soon as it is no longer needed for reclamation activities or storage.

General Office Area

No reclamation is planned for the General Office Area consistent with its planned post mining land use.

White Oak Haul Road

Reclamation of the White Oak Haul Road will begin during year 2. The road will remain open during year 1 to allow the removal of surface facility associated with the White Oak Complex. At the beginning of year 2 or 3, the culvert in Eccles Canyon will be removed thereby requiring future access to the White Oak Complex area via Boardinghouse Canyon. Reclamation of the road must begin at the bottom and work to the top because fill materials being used will be generated from fill currently at the

mine site. Timing and sequence of reclamation operations will be coincident with those occurring at the White Oak Complex as shown in Table R-3.

White Oak Complex

Surface reclamation of the White Oak Complex will begin in year 1 with the removal and salvage of all surface facility located on the site with the possible exception of the well located near the bottom of Sediment Pond 004A and associated power supply lines. The Reclamation Plan included herein will potentially use the well to supply water for an irrigation system to be installed along the White Oak Haul Road to aid in the re-establishment of vegetation. Water which could be used for revegetation purposes could include the well, water directly from Whisky Creek, or water found within Sediment Pond 004A (as long as the pond remains and as long as water quality is acceptable for irrigation purposes). Sediment Pond 004A will likely be removed during the initial phases of reclamation since it is located upon fill material to be used along the haul road as well as the White Oak Complex. Because the sediment pond must be removed in order to reclaim the mine site, a variance from Section 763.100 must be granted. Upon removal, the sedimentation pond site will be regraded and revegetated in accordance to this plan.

Reclamation to begin in year 2 will consist of the initial phases of fill removal and the construction of runoff control channels. It may be possible that excavation could proceed on both ends of the Whisky Creek reclamation channel simultaneously thereby expediting channel construction. At any rate, it is anticipated that existing culvert C-40-42 will remain in place until completion of all reclamation channel work whereafter the culvert will be removed and the area recontoured and revegetated. Because of limited construction seasons and the fact that removal of fill an proceed only as fast as fill can be utilized on the White Oak Haul Road, it is anticipated that channel construction and recontouring may require an approximate two to three year time period as shown in Table R-3.

At this point in time it is projected that backfilling efforts will initially be concentrated within the south western portions of the disturbed mine area including the topsoil stockpile, electrical power substation, and the upper mine portal pad areas (as well as along the White Oak Haul Road). As removal of the coal loadout pad proceeds, backfilling and regrading of the upper pad in the area of the mine shop and southeast storage yard will be completed if the areas are not needed for the storage of channel riprap or other reclamation materials. When recontoured, these areas will be revegetated and protected against erosion through the use of alternative erosion control devices in a timely manner subsequent to final grading. It is planned that all existing undisturbed area bypass ditches will remain in place as throughout the reclamation construction period. These ditches will help reduce the amount of surface runoff water which will traverse the area thereby reducing the potential for damage to newly reclaimed hillsides.

Regrading and recontouring of remaining access roads will be completed at the termination of reclamation and subsequent to a determination that revegetation and erosion control activities have been successful. The delay in reclamation of access roadways is necessary to prevent additional disturbance should additional work be required at the mine site prior to bond release.

RECLAMATION COSTS

Reclamation cost estimates have been developed for major tasks including the removal of buildings, the removal of facility, earthwork, and revegetation. A summary breakdown of estimated costs developed for each category is included within Table R-4. Methods used to determine costs are identified along with calculation details in Appendix R3.

TABLE R-4.
RECLAMATION COST SUMMARY

ITEM	COST
Buildings	$718,700.00
Facility	$1,012,480.00
Earthwork	$1,132,636.00
Revegetation	$1,392,094.00
Reclamation Cost Subtotal:	$4,255,910.00
Maintenance & Monitoring (10%)	$425,591.00
Contingency & Engineering (10%)	$425,591.00
Mobilization & Demobilization (2.5%)	$106,398.00
Subtotal:	$5,213,490.00
1993 Dollars (2.5% Inflation, Rounded):	$5,346,746.00
TOTAL:	$5,347,000.00

REFERENCES

Bentley, R.G., Jr., K.O. Eggleston, D. Price, E.R. Frandsen, and A.R. Dickerman. 1978. The Effects of Surface Disturbance on the Salinity of Public Lands in the Upper Colorado River Basin - 1977 Status Report. U.S. Bureau of Land Management. Denver, Colorado.

Bonham C.D., L.L. Larson, and A. Morrison 1980. A survey of techniques for measurement of herbaceous and shrub production, cover, and diversity on coal lands in the West. Draft mss. prepared for the Office of Surface Mining. 81 pp.

Brater, Ernest F., and Horace Williams King. 1976. Handbook of Hydraulics for the Solution of Hydraulic Engineering Problems. McGraw-Hill Book Company. New York, New York.

Cedar Creek Associates. 1984. Seep and Spring Inventory and Proposed Seep and Spring Monitoring Program. Fort Collins, Colorado.

Cedar Creek Associates. 1986. Cover and Productivity Analysis of Temporary Revegetation Sites at Valley Camp of Utah, Inc.'s Utah #2 and Belina Operations. Fort Collins, Colorado.

Cordova, R.M. 1964. Hydrogeologic Reconnaissance of Part of the Headwaters Area of the Price River, Utah. Utah Geological and Mineralogical Survey Water Resources Bulletin No. 4. Salt Lake City, Utah.

Craig, G.D. and J.G. Rankl. 1977. Analysis of Runoff from Small Drainage Basins in Wyoming. USGS Open File Report 77-727. Cheyenne, Wyoming.

Curtis, J. 1956. Plant Ecology Workbook. Minneapolis: Burgess Publishing Co.

Danielson, T.W., M.D. Remellard, and R.H. Fuller. 1981. Hydrology of the Coal-Resource Areas in the Upper Drainages of Huntington and Cottonwood Creeks, Central Utah. U.S. Geological Survey Open-File Report 81-539. Salt Lake City, Utah.

Daubenmire, R. 1959. A canopy coverage method of vegetation analysis. Northwest Science 33: 43-64.

Doelling, H.H. 1972. Wasatch Plateau Coal Fields. In Doelling, H.H. (ed.). Central Utah Coal Fields; Sevier-Sanpete, Wasatch Plateau, Book Cliffs and Emery. Utah Geological and Mineralogical Survey Monograph Surveys No. 3. Salt Lake City, Utah.

Golder Associates. 1980. Surface Facility Grading Plan Belina Mine Area. Valley Camp of Utah. Denver, Colorado.

Haan, C.T., and B.J. Barfield. 1978. Hydrology and Sedimentology of Surface Mined Lands. College of Engineering, University of Kentucky. Lexington, Kentucky.

Hansen, V.E.. 1979. Mines Prevent Deterioration in Water Quality. Paper presented at the American Water Resources Association Symposium: Water Resource Management in a Changing Society. Las Vegas, Nevada.

Hansen, Allen & Luce, Inc. 1989. Analysis of Sediment Pond Design and Hydrologic Analysis of Undisturbed Area Bypass Channels and Small Exemption Areas. Valley Camp of Utah, Inc. Salt Lake City, Utah.

Harper, K. T. 1980. Personal Communication.

Hem, J.D. 1970. Study and Interpretation of the Chemical Characteristics of Natural Water. U.S. Geological Survey Water-Supply Paper 1473. Second Edition. Washington D.C.

Israelsen, C. Earl, Joel E. Fletcher, Frank W. Haws, and Eugene K. Israelsen. 1984. Erosion and Sedimentation in Utah: A Guide for Control. Hydraulics and Hydrology Series - UWRL/H-84/03. Utah Water Research Laboratory, College of Engineering, Utah State University. Logan, Utah.

Jeppson, R.W., G.L. Ashcroft, A.L. Huber, G.V. Skogerboe, and J.M. Bagley. 1968. Hydrologic Atlas of Utah. Utah Water Research Laboratory and State of Utah Department of Natural Resources. PRWG35-1. Utah State University. Logan, Utah.

Johnson, Wm. M. 1975. Soil Taxonomy, a basic system of soil classification for making and interpreting soil surveys. Supt. of Doc. S.C.S. Washington, D.C.

Krebs, C. J. 1972. Ecology. The experimental analysis of distribution and abundance. Harper & Row. New York. 694 pp.

Morrison-Knudsen Co., Inc. 1983. Geotechnical Investigation of Cut Slopes at the Belina Mine Complex and Haul road, Carbon South, Utah. Boise, Idaho.

Mt. Nebo Scientific Research and Consulting. 1988. Results of Vegetation Sampling and Test Plot Monitoring. Springville, Utah.

Mt. Nebo Scientific Research and Consulting. 1988 - 1992. Summary of Vegetation Monitoring For The Utah & Belina Test Plots. Springville, Utah.

Mundoff, J.C. 1972. Reconnaissance of Chemical Quality of Surface Water and Fluvial Sediment in the Price River Basin, Utah. Utah Department of Natural Resources, Division of Water Rights. Technical Publication No. 39. Salt Lake City, Utah.

Office of Surface Mining. 1990. Erosion Condition Classification System - Technical Note - Method for Evaluation of Erosion of Reclaimed Coal Lands in Western United States. Western Support Center, Office of Surface Mining Reclamation and Enforcement.

Price, D., and T. Arnow. 1974. Summary Appraisals of the Nation's Ground Water Resources - Upper Colorado Region. U.S. Geological Survey Professional Paper 813-C. Washington D.C.

Price, D., and K.M. Waddell. 1973. Selected Hydrologic Data in the Upper Colorado River Basin. U.S. Geological Survey Hydrologic Investigations Atlas HA-477. Washington, D.C.

Rapin, D.L.. 1977. Soil Resource Inventory, Ferron-Price Planning Unit, Manti-LaSal National Forest. USDA Forest Service. Manti-LaSal National Forest. Price, Utah.

Richardson, E.A. 1971. Estimated Return Periods for Short - Duration Precipitation in Utah. Department of Soils and Biometeorology Bulletin No. 1. Utah State University. Logan, Utah.

Shacklette et al. 1971. Elemental composition of surficial materials in the conterminous United States. US Geol. Survey Professional paper 547-D.

Snedecor, G. W. and W. G. Cochran. 1967. Statistical methods. Iowa State University Press. 593 pp.

Southeastern Utah Association of Governments. 1977. Waste Water Quality Management Planning Program (208) for Emery, Carbon, and Grand Counties, Utah. Price, Utah.

Spieker, E.M. 1931. The Wasatch Plateau Coal Field, Utah, U.S. Geological Survey Bulletin No. 819. Washington D.C.

Storey, H.C., R.L. Hobba, and J.M. Rosa. 1964. Hydrology of Forest Lands and Rangelands. V.T. Chow. Handbook of Applied Hydrology. McGraw-Hill Book Company. New York, New York.

Tiedemann, Authur R. and James O. Klemmedson. 1973. Nutrient availability in desert grassland soils. Soil Sci. Soc. of Am. Proc. Vol. 37, No. 1.

U.S Bureau of Reclamation. 1977. Design of Small Dams. U.S. Government Printing Office. Washington, D.C.

USDA 1937. Soil Survey Manual, Agricultural Research Administration USDA.

USDA 1951. Soil Survey Manual, Agricultural Research Administration USDA.

USDA 1970. Forest Service Handbook. Revised 2209.21. US Gov't Printing Office.

USDA Forest Service General Technical Report INT-68 Nov. 1979. User Guide to Soils, Mining and Reclamation in the West.

USDA Forest Service General Technical Report INT-64 Nov. 1979. User Guide to Vegetation.

U.S. Geological Survey. 1979. Development of Coal Resources in Central Utah, Final Environmental Statement. Salt Lake City, Utah.

U.S. Soil Conservation Service. 1972. SCS National Engineering Handbook - Section 4: Hydrology. Washington, D.C.

U.S. Soil Conservation Service. 1975. Erosion, Sediment, and Related Salt Problems and Treatment Opportunities. Special Projects Division. Golden, Colorado.

Utah Division of Water Resources. 1975. Hydrologic Inventory of the Price River Basin. Utah Department of Natural Resources. Salt Lake City, Utah.

Vaughn Hansen Associates, Inc. 1980. Hydrologic Inventory and Baseline Study of the Valley Camp Lease Area, Carbon and Emery Counties, Utah. Salt Lake City, Utah.

Vaughn Hansen Associates, Inc. 1983. Hydrology Update. Valley Camp of Utah, Inc. Salt Lake City, Utah.

Waddell, K.M., J.E. Dodge, D.W. Darby, and S.M. Theobald. 1983. Hydrology of the Price River Basin, Utah with Emphasis on Selected Coal-Field Areas. U.S. Geological Survey Open-File Report 83-208. Salt Lake City, Utah.

Welsh, S. L., N. D. Atwood, and J. L. Reveal. 1975. Endangered, threatened, extinct, endemic, and rare or restricted Utah vascular plants. Great Basin Naturalist 35: 327-376.

Welsh, S.L. 1976. Endangered and threatened plant species of Central Coal Lands, Utah. Final Report, Interagency Task Force on Coal. US Geological Survey. 415 pp.

Welsh, S. L. 1978. Endangered and threatened plants of Utah: a re-evaluation. Great Basin Naturalist 38: 1-18.

Welsh, S. L., Leah Juarros, Joseph R. Murdock, and Elizabeth Neese, 1980. Report of Vegetation, Plant Community Analysis, Threatened and Endangered Plant Species, Soils, and Reclamation Plans for Valley Camp of Utah, Inc., Lease Area, and Proposed Conveyor Corridor CarbonEmery Counties, Utah. Endangered Plant Studies, Inc.

Wilson, LeMoyne, Marvin E. Olsen, Theron B. Hutchings, Alvin R. Southard, and Austin J. Erickson. 1975. Soils of Utah. Agricultural Experiment Station Bulletin 492. Utah State /University. Logan, Utah.

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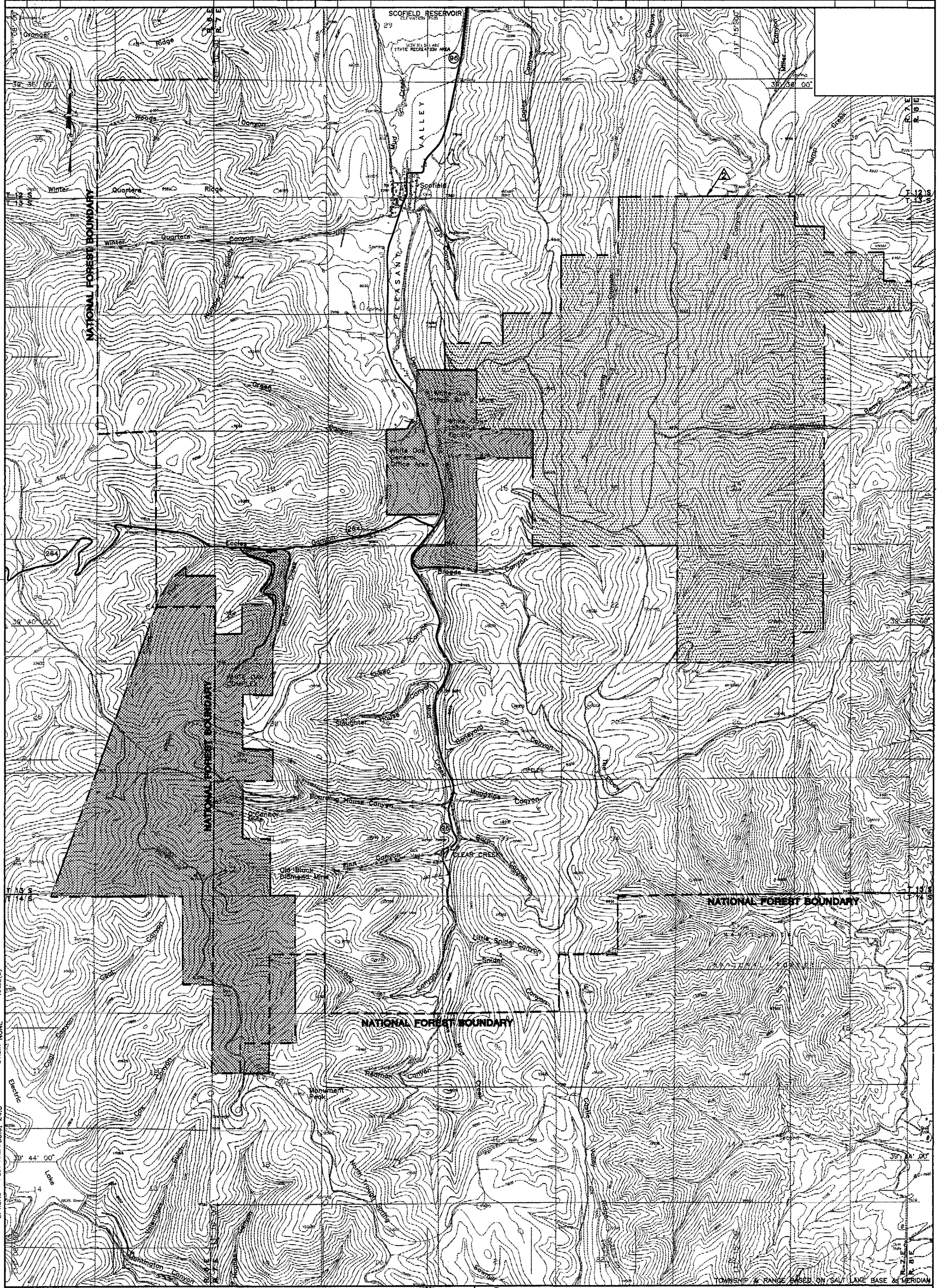
2	8/94	ADDED MINE PERMIT BOUNDARY NO. 2															



LEGEND:

- MINE PERMIT BOUNDARY NO. 1
- MINE PERMIT BOUNDARY NO. 2
- NATIONAL FOREST BOUNDARY

CERTIFICATION STATEMENT

I Certify that the information provided hereon is to the best of my knowledge true and correct as reflected by previous mapping and available data provided from either the coal operator or public files at the time of its preparation.

REGISTERED PROFESSIONAL ENGINEER #7888 DAVID E. HANSEN STATE OF UTAH 11/9/94

WHITE OAK MINING & CONSTRUCTION CO., INC.

SCOFIELD ROUTE, HELPER, UTAH 84526

PREPARED BY HANSEN ALLEN & LUCE

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TITLE: R645-301-100 PERMIT AREA BASE MAP

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APPROVAL: DATE:
DRAWING NO.
SCALE: 1" = 2000'
SHEET: 1 of 1

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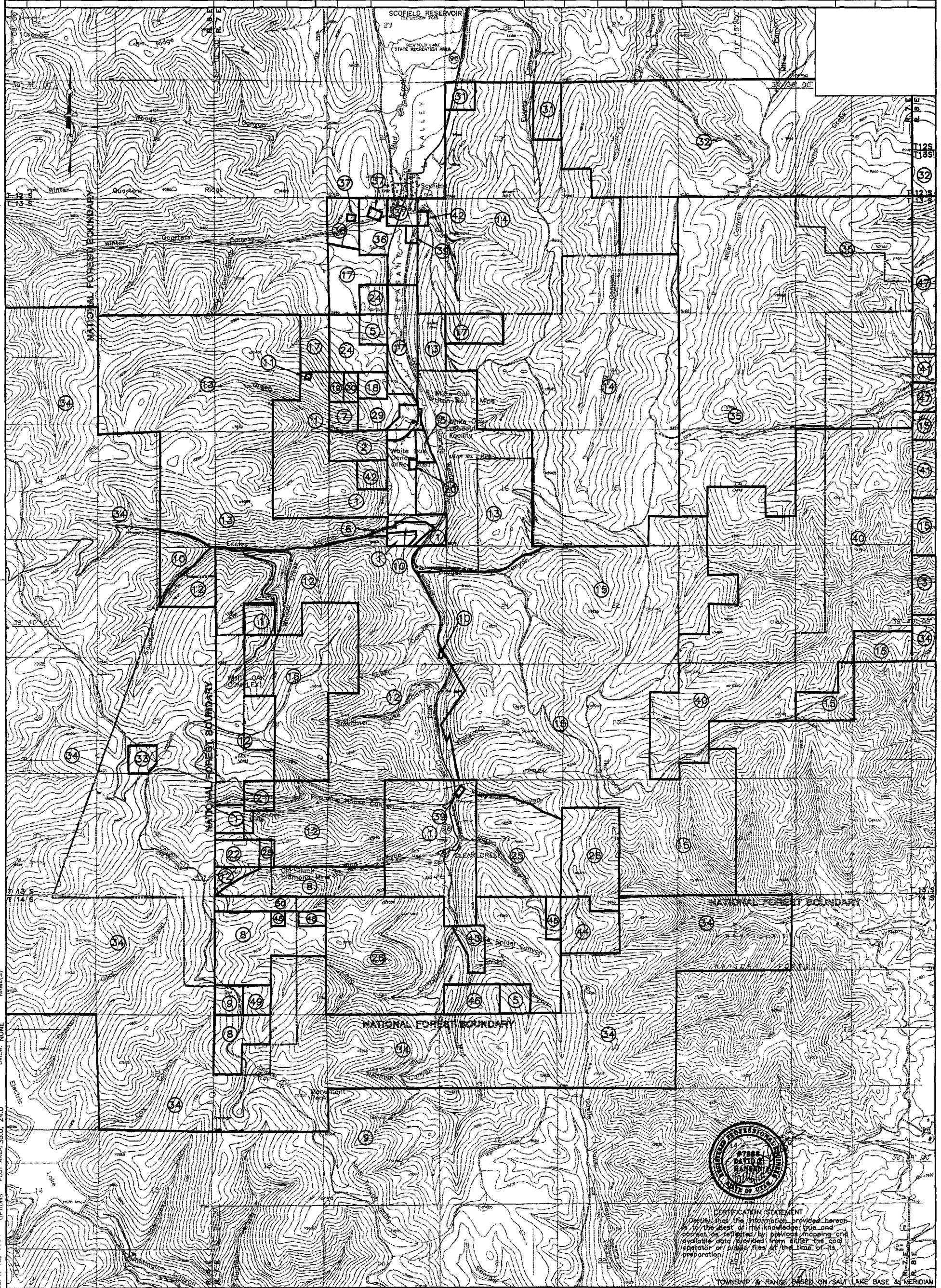

CERTIFICATION STATEMENT
I certify that the information provided hereon is to the best of my knowledge true and correct as reflected by previous mapping and available data provided from either the coal operator or public files at the time of its preparation.

REGISTERED PROFESSIONAL ENGINEER #7888 DAVID E. HANSEN STATE OF UTAH

LEGEND:

1. WHITE OAK
2. ALPINE SCHOOL DISTRICT
3. PIERCE & KENNICK
4. UTAH NATURAL GAS CO.
5. L.D.S. CHURCH
6. HELLENIC CHURCH
7. LUTHERAN HIGH SCHOOL
8. DAVE CUNNINGHAM
9. ALBERT BAILEY
10. COASTAL STATES
11. MTN. STATES TELEPHONE
12. MILTON OMAN
13. MARAKIS & LIODAKIS
14. E. GEORGE TELONIS, ET.AL.
15. J. MARK & JAMES G. JACOB
16. DELLA MADSEN
17. R & E RADAKOVICH
18. ALEXANDER & BAWDEN
19. STILSON & MILLER
20. LOUIS & ANNA KOSEC
21. JACK OTANI
22. LARRY & IVA BAER
23. ANTHONY THEIS
24. MARY L SEAMONS
25. MARGIE JACOB
26. CALVIN J. JACOB TR, ET AL.
27. PAUL & MARGIE JACOB
28. CLEGG
29. CARBON CO. SCH. DIST.
30. JACK L. JENSEN, ET AL.
31. BILL B. JONES
32. ARTHUR J. ANDERSON
33. QUESTAR PIPE LINE CO.
34. FOREST SERVICE
35. K.T. HIGGINSON & CO., INC.
36. FRED & SHEILA JENSEN
37. TOWN OF SCOFIELD
38. WILLIAM A. & MATTIE CORNABY
39. UTAH POWER & LIGHT
40. NIELSON LTD.
41. ROBERT & LINDA JEWKES
42. STILSON & MILLER
43. OTANI & TANNER
44. PAUL E. JACOB TR.
45. KENETH & JENVA OLSEN
46. PAUL BARTON & MARGIE & CALVIN JACOB
47. STAMATAKIS & KELLY
48. C. TEERLINK
49. STERLING BOWEN
50. RESCUE MED

WHITE OAK MINING & CONSTRUCTION CO., INC.
SCOFIELD ROUTE, HELPER, UTAH 84526

PREPARED BY HANSEN ALLEN & LUCE

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TITLE: R645-301-112.500 SURFACE OWNERSHIP

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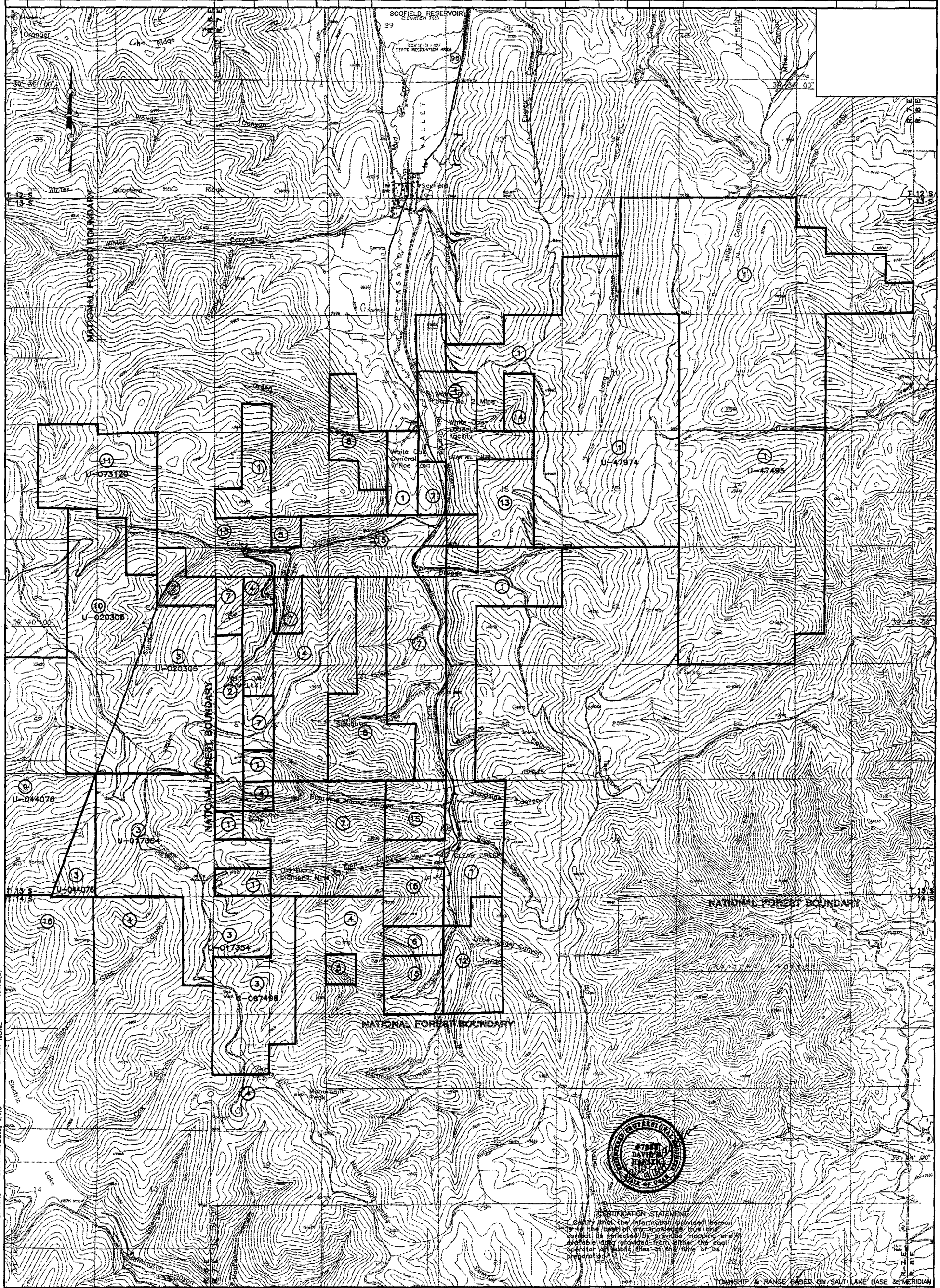


LEGEND:

1. WHITE OAK
2. WHITE OAK, COUNTY
3. WHITE OAK, FEDERAL
4. FEDERAL OPEN
5. COUNTY OPEN
6. STATE OPEN
7. STAGSTEAD INC.
8. NOAL TANNER
9. COASTAL STATES ENERGY CO.
10. COASTAL STATES ENERGY CO.
11. COASTAL STATES ENERGY CO.
12. TOE INVESTMENT CO.
13. WESTERN RESERVE COAL CO., INC.
14. GEORGE TELONIS
15. KAISER STEEL CORP.
16. UTAH POWER & LIGHT

WHITE OAK MINING & CONSTRUCTION CO., INC.

SCOFIELD ROUTE, HELPER, UTAH 84526

PREPARED BY HANSEN ALLEN & LUCE INC.

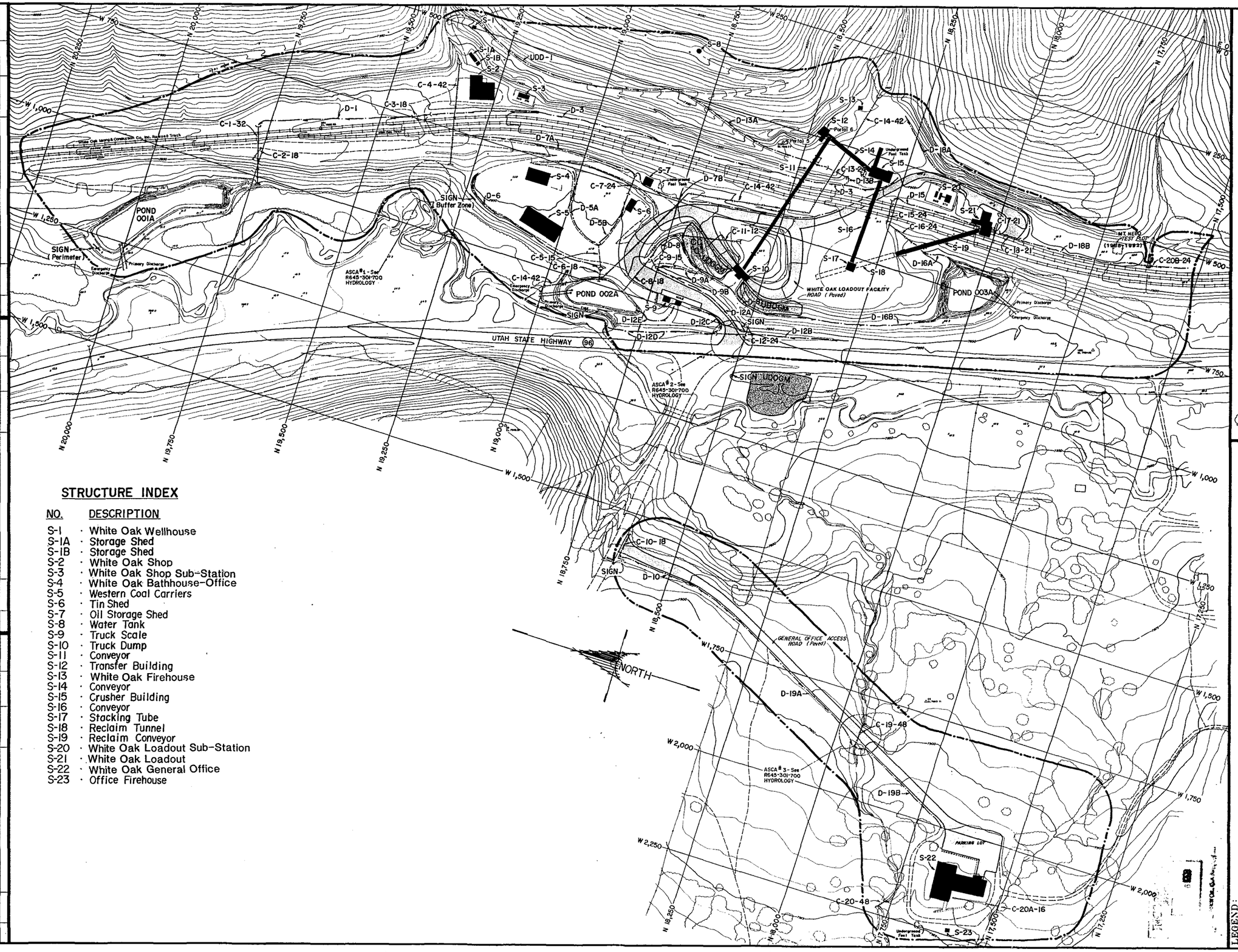
VERIFY SCALE 0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

TITLE: R645-301-112.600 COAL OWNERSHIP

DRAWN BY: Ed Sanderson
DATE: Aug. 15, 89
APPROVAL:
DATE:
DRAWING NO.
SCALE: 1" = 2000'
SHEET: 1 of 1

FILE NAME: Z:\CAD\125\07-100\TOPO\112-600.DWG
FILE DATE: SEPT. 07, 1994
PLOT OPTIONS: PLOT IN = DWG UNITS:1 = 1 PLOT AREA: 35.0, 24.0
ORIGIN: 0,0,0 DVIEW: NONE
XREF FILE NAME(S): Z:\CAD\125\07-100\WO-TITLE.DWG

7/94



STRUCTURE INDEX

NO.	DESCRIPTION
S-1	White Oak Wellhouse
S-1A	Storage Shed
S-1B	Storage Shed
S-2	White Oak Shop
S-3	White Oak Shop Sub-Station
S-4	White Oak Bathhouse-Office
S-5	Western Coal Carriers
S-6	Tin Shed
S-7	Oil Storage Shed
S-8	Water Tank
S-9	Truck Scale
S-10	Truck Dump
S-11	Conveyor
S-12	Transfer Building
S-13	White Oak Firehouse
S-14	Conveyor
S-15	Crusher Building
S-16	Conveyor
S-17	Stacking Tube
S-18	Reclaim Tunnel
S-19	Reclaim Conveyor
S-20	White Oak Loadout Sub-Station
S-21	White Oak Loadout
S-22	White Oak General Office
S-23	Office Firehouse

NO.	DATE	WHITE OAK ACT/007/001 REVISION DESCRIPTION	INCORPORATED INTO MRP BY DOGM REF. NO.	DATE	INITIALS
1	9/94	CHANGE IN OWNERSHIP			

NO.	DATE	WHITE OAK ACT/007/001 REVISION DESCRIPTION	INCORPORATED INTO MRP BY DOGM REF. NO.	DATE	INITIALS

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WHITE OAK MINING & CONSTRUCTION CO., INC.
SCOFIELD ROUTE, HELPER, UTAH 84526

Drawn by: Ed Sonderson — Date: 3/93
Approval: — Date:
Drawing No. R645-301-231.300 — Rev. 1 3/93

TITLE: R645-301-231.300 SUITABILITY OF TOPSOIL SUBSTITUTES - VSM

PREPARED BY HANSEN & FOUST

SAND DESIGN & GRAPHICS

SCALE: 1" = 100' — SHEET 1 of 4

REGISTERED PROFESSIONAL ENGINEER No. 5323 EDWIN BROOKSHIRE FOUST STATE OF UTAH

LEGEND:
- Structure
- White Oak Roads (Paved)
- Culvert
- Ditch
- Disturbed Area Boundary
- Cedar Creek 1986
- UDOGM-VC 1992
- Proven Soil To be harvested

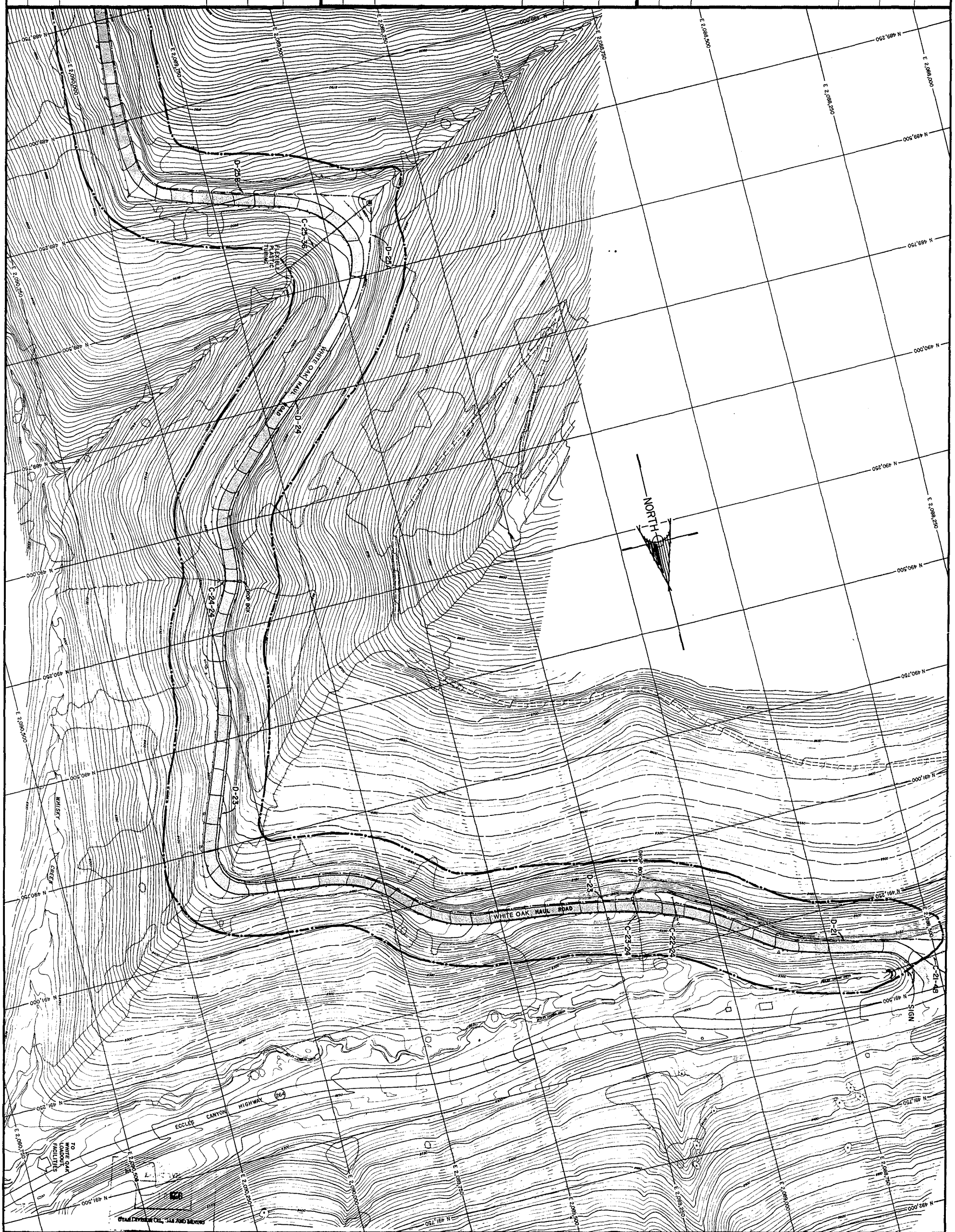
NOTES:
1. For all Hydrology information and structures see HYDROLOGY SECTION (700)

ETS:5/49

WHITE OAK ACT/007/001 REVISION			INCORPORATED INTO MRP BY DOGM		
NO.	DATE	DESCRIPTION	REF. NO.	DATE	INITIALS
1	9/94	CHANGE IN OWNERSHIP			

WHITE OAK ACT/007/001 REVISION			INCORPORATED INTO MRP BY DOGM		
NO.	DATE	DESCRIPTION	REF. NO.	DATE	INITIALS

WHITE OAK ACT/007/001 REVISION			INCORPORATED INTO MRP BY DOGM		
NO.	DATE	DESCRIPTION	REF. NO.	DATE	INITIALS



LEGEND:

Note: See Sheet 1

REGISTERED PROFESSIONAL ENGINEER
No. 5323
EDWIN BROOKSHIRE FOUST
Mr 93
STATE OF UTAH

WHITE OAK MINING & CONSTRUCTION CO., INC.

SCOFIELD ROUTE, HELPER, UTAH 84526

PREPARED BY HANSEN ALLEN & LUCE INC.

TITLE:
R645-301-231.300
SUITABILITY OF TOPSOIL SUBSTITUTES-VSM

Drawn by: Ed Sanderson	Date: 3/93
Approval:	Date:
Drawing No. R645-301-231.300	Rev. 1 3/93

SAND DESIGN & GRAPHICS

SCALE: 1" = 100'

SHEET 2 of 4

ETS-5-89