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SALT RIVER PROJECT'S PROPOSED FENCE LAKE MINE

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Abstract—Salt River Project's (SRP's) proposed Fence Lake Mine is situated in the Salt Lake coal field 14 mi northwest of Quemado, New Mexico. The coal will serve as fuel primarily for SRP's coal- fired Coronado Generating Station, located approximately 6 mi northeast of St. Johns, Arizona. Coal delivery will be provided by rail, necessitating the construction of approximately 45 mi of new line. A Surface Coal Mine Permit Application was submitted to the New Mexico Mining and Minerals Division on November 1, 1993. Initial coal production is scheduled for the end of 1997. Projected mine life is 40 years with an estimated total coal production of 81.3 million tons. The Cerro Prieto coal zone of the Moreno Hill Formation (Upper Cretaceous) will be mined. From the exploration drilling data, two previously unmapped faults have been detected.

INTRODUCTION

The proposed Fence Lake Mine is situated in the Salt Lake coal field approximately 14 mi northwest of Quemado, New Mexico, mostly in Catron County (Fig. 1). The north edge of the permit area extends slightly into Cibola County (New Mexico), and the proposed rail corridor extends from Catron County, New Mexico, into Apache County, Arizona, to the Coronado Generating Station (CGS), located approximately 6 mi northeast of St. Johns, Arizona.

SRP's objective for the Fence Lake Mine is to provide a self- owned source of coal capable of meeting the fuel demand at CGS, as a low-cost viable alternative to all other sources of coal in the regional market. CGS is wholly owned and operated by SRP, and consists of two 350 megawatt units. This coal-fired generating station began operation in 1979 and is presently supplied by Pittsburg and Midway's McKinley Mine, located near Gallup, New Mexico. Due to increased demand at CGS, coal from the Fence Lake Mine will initially serve as a supplement to the coal supply from the McKinley Mine. By the year 2006, the Fence Lake Mine may become the sole supplier of coal to CGS.

SRP's earliest exploration drilling in the Fence Lake area was in 1975. Land acquisition for the project began in 1981. By 1993, SRP had obtained full right-of-entry for a potential Logical Mining Unit (LMU) of nearly 18,000 acres (federal, state and fee holdings) and for the entire 45-mi rail corridor to CGS.

Federal Coal Leases were awarded to SRP in 1991 after a Lease by Application effort was initiated in 1988. The leasing process required an Environmental Impact Statement (EIS), which assessed the impacts of the Federal action of leasing the Federal coal and the subsequent mining of the LMU. The EIS was based on exhaustive environmental baseline studies, which have been on-going for the project since as early as 1982.

Bulk testing of the Fence Lake coal was initiated in 1985, when 12 tons of coal were extracted under an exploration permit for a pilot-scale test burn. In 1986 a surface mining permit was issued for the Fence Lake No. 1 Mine, which was opened during the first half of 1987 for the extraction of 100,000 tons of coal, for a full-scale test burn at CGS (Greenberg, 1987). The mine has been reclaimed since 1987 and the last seeding effort for establishing revegetation was in 1990. The Fence Lake No. 1 Mine is still under active permit but is closed under a temporary cessation of operations status.

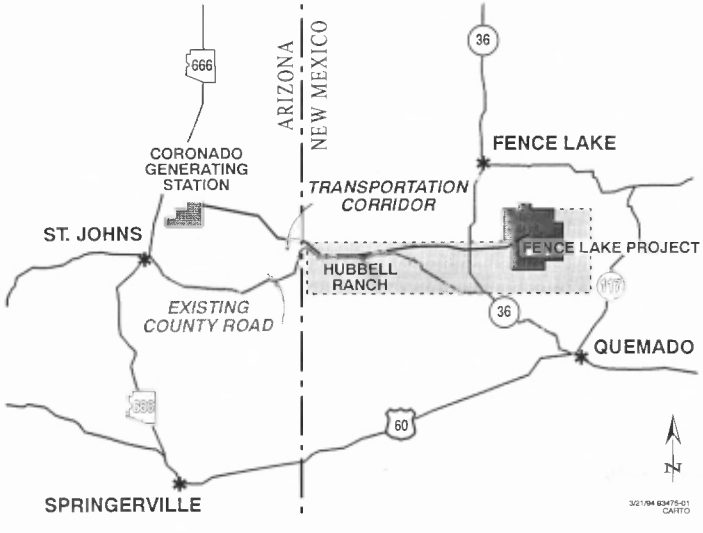

FIGURE 1. General location map of the proposed Fence Lake Mine.

TENTATIVE MINE DEVELOPMENT SCHEDULE

For the proposed Fence Lake Mine, a Surface Coal Mine Permit Application was submitted to the New Mexico Mining and Minerals Division on November 1, 1993. Approximately two years have been blocked out in the mine development schedule for securing all of the necessary permits and environmental clearances. Construction (preceded by archaeological mitigation) for both the mine infrastructure and the railroad, is scheduled for 1996 and 1997, and the first coal production is scheduled for the end of 1997.

DESCRIPTION OF PROPOSED OPERATION

The estimated mine life is 40 years, with production rates ranging from 1.8 to 3.2 million tons of coal per year, for a total estimated production of 81.3 million tons. Actual production rates may vary depending on electrical demands at CGS.

The surface mining method will incorporate a combination of area mining and contour mining, extracting coal from an area up to a maximum highwall height of approximately 200 feet. Most of the overburden and some of the interburden will be drilled and blasted for initial fracturing, and subsequently removed with an electric-powered dragline, with possible truck and shovel support where greater overburden thickness is encountered; further assistance will be provided by dozers, scrapers and castblasting. Coal removal will chiefly utilize trucks and shovels or loaders.

From the central loadout in the mine area, coal haulage will be by rail, requiring the construction of approximately 45 mi of new line to complete a rail link to the existing rail spur at CGS. The proposed rail corridor basically parallels the natural drainage pattern in the area, following the general course of Nations Draw, Largo Creek and Carrizo Wash, mostly involving an overall descent from the mine area to the station.

TRIBAL CONSIDERATIONS

SRP has closely coordinated the development of the mining project with five major southwestern tribal groups, including the Acoma, Hopi, Navajo, Ramah Navajo and Zuni. Although none of the land in the project area is tribal in ownership, extensive research has been conducted to establish the ethnohistory and the ancestral interests of each of the tribes in the area.

GEOLOGIC SETTING

The coal-bearing strata in the mine area are of the Moreno Hill Formation (Upper Cretaceous; formerly mapped as the Mesaverde Group). The particular coal seams of economic interest which occur in the lower member of the formation belong to the Cerro Prieto coal zone (Fig. 2). The primary seam, referred to as the ABC, splits variably into as many as three coal beds. This seam typically contains a white tonstein parting approximately 3 in. thick throughout much of the reserve. Where the seams have coalesced into one body, the bed attains a maximum thickness of 13 ft. The next coal horizon lower in the stratigraphic section is the Tejana seam, which in some parts of the reserve area is too thin to mine. This seam attains a maximum thickness of 6.5 ft and is separated from the coal bed(s) of the ABC seam by interburden varying in thickness from about 10 ft to as much as 50 ft.

Two significant faults or fault zones have been detected in the mine area and are well displayed in the drilling data. The dominant fault (which forms the southeastern boundary for the surface coal reserve; see Fig. 3) displays a northeasterly trend with a maximum vertical displacement of approximately 110 ft. The second fault zone displays a northwesterly trend coincident with Tejana Draw, with a maximum vertical displacement of approximately 70 feet. Lesser faults have been noted in the mine area and likely more will be revealed as the mine development continues.

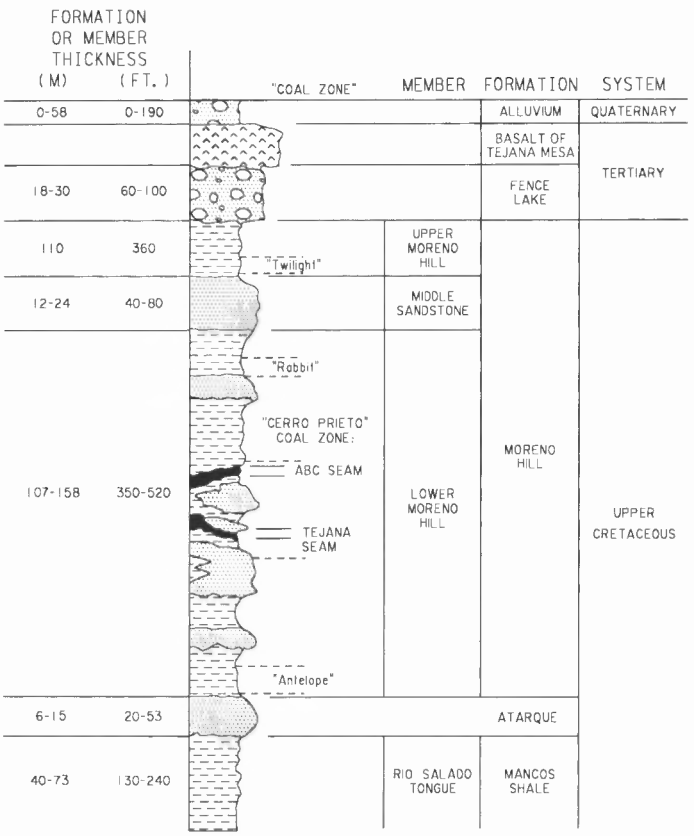

FIGURE 2. Generalized coal stratigraphy of the Fence Lake region.

REFERENCES

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Greenberg, M. A., 1987, Large-scale combustion test of Fence Lake coal at the Coronado Generating Station: New Mexico Bureau of Mines and Mineral Resources, Bulletin 121, p. 79-83.

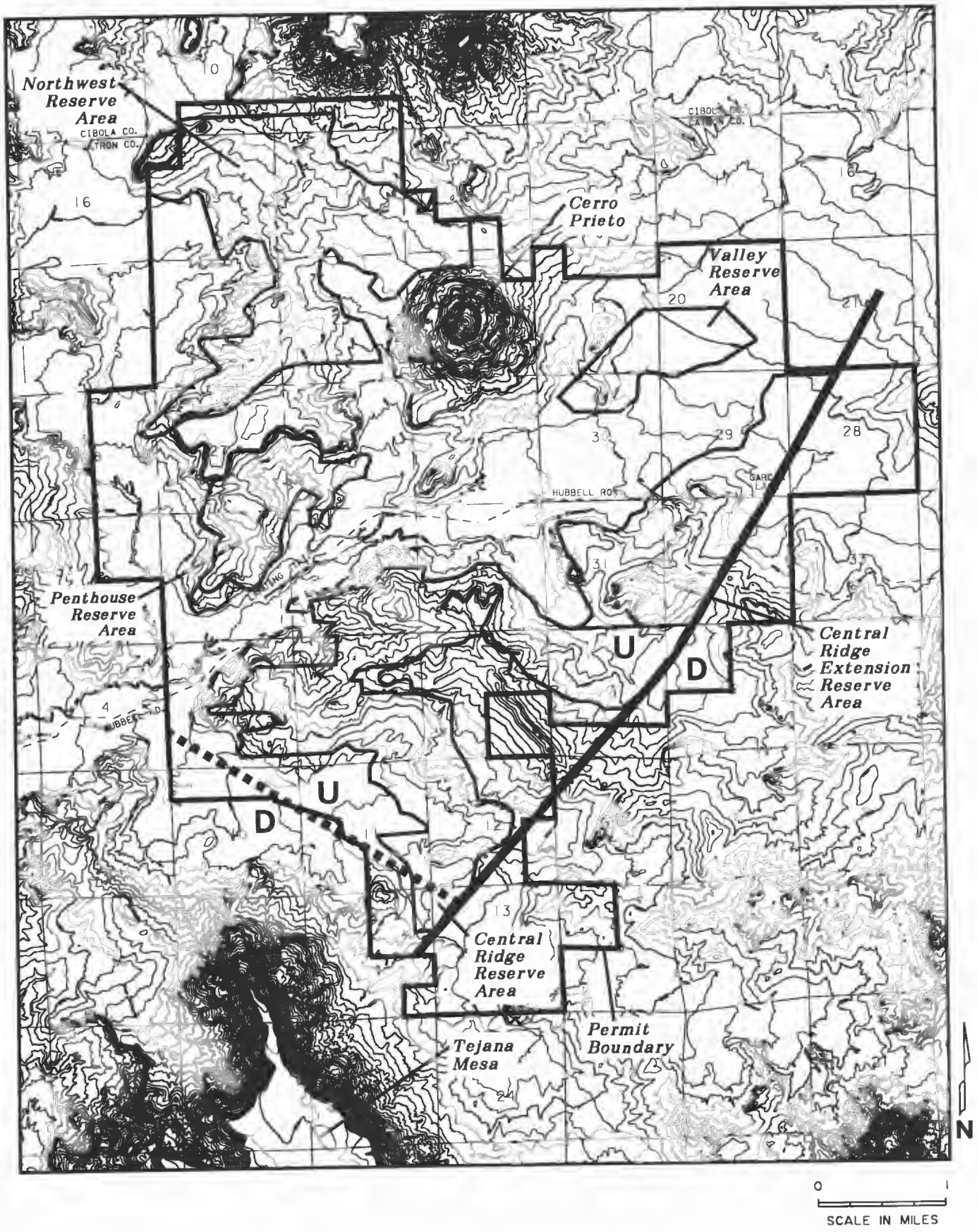
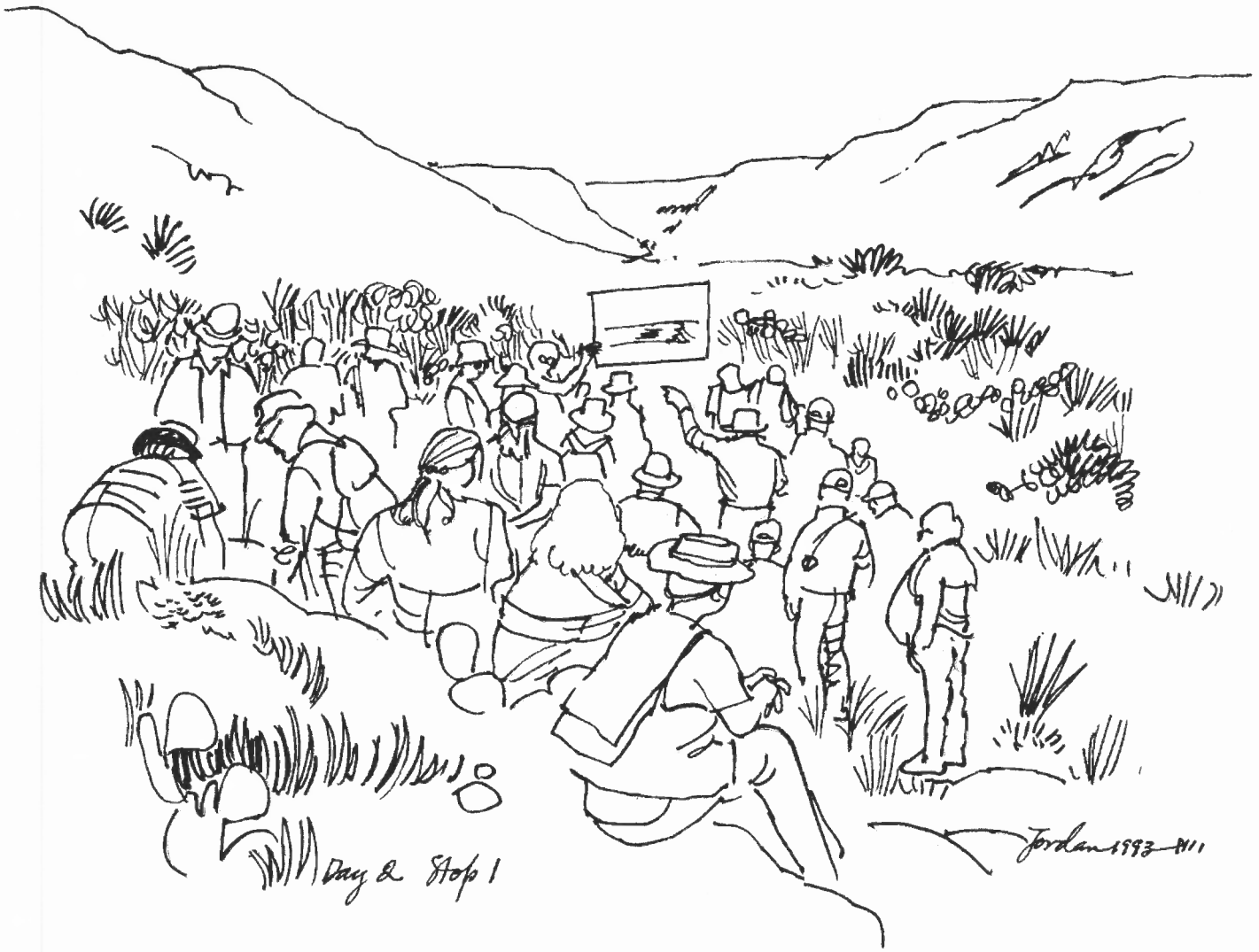


FIGURE 3. Major reserve areas and fault locations.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