GEOLOGICAL REPORT

OF

PROPOSED COAL CREEK UNIT

SAN JUAN COUNTY, NEW MEXICO

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Exhibits

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I. Purpose

This report is written for the purpose of briefly summarizing the geological reasons for forming a 17.5 section Federal Unit to drill a 4500' Morrison wildcat test in Section 24, Township 23 North, Range 13 West, San Juan County, New Mexico.

II. Location

The proposed Coal Creek Unit is located five miles north of Tsaya and eight miles west of Tanner Trading Post (Exhibit A). The tentative drillsite is located in the southwest-quarter of Section 24, Township 23 North, Range 13 West. Estimated ground level elevation is 5980'.

The proposed unit area contains 11,225.11 acres and includes the south half of Section 18 and all of Sections 19, 20, 28, 29, 30, 31, 32 and 33, Township 23 North, Range 12 West. It also contains the south half of Sections 13 and 14 and all of Sections 23, 24, 25, 26, 27, 34, 35 and 36, Township 23 North, Range 13 West. The terrain consists of arroyos dissecting mesas and buttes. The vegetation is sparse and of the semi-arid to arid type. The unit area is easily accessible by a gravel road from Bisti to Tsaya.

III. Geology - Dakota Formation

A. General Discussion.

The Coal Creek Unit is located on the south flank of the San Juan Basin in an area geographically known as the Chaco Slope. Approximately 10,500' of Cretaceous, Jurassic, Triassic, Permian, Mississippian and Devonian sediments are present in the area. The proposed wildcat will penetrate

and test all of the Cretaceous sediments at a depth of 4500'. Anticipated formation tops are:

Lewis formation	Surface
Point Lookout	2061'
Mancos	2273'
Gallup	3117'
Greenhorn	4017'
Dakota "A"	4105'
Dakota "B"	4177'
Dakota "C"	4322'
Morrison	4353'

B. Stratigraphy.

The primary objective is the Dakota B_2 sands. Cross-section A-A' (Exhibit C) has been prepared using the top of the Graneros shale as a datum. This datum was used in interpreting the structural attitude of the Dakota formation in the Coal Creek Unit Area (Exhibit B). The structure map indicates generally an east-west strike and a dip gradient to the north of approximately 100' to the mile. In the area of the Coal Creek Unit there exists a structural nose plunging to the north.

Cross-section A-A' (Exhibit C) illustrates the lack of reservoir quality sands in the Dakota B_2 interval both to the north and south of the Apache #1 Ashcroft well in Section 26, Township 23 North, Range 12 West. As depicted on the attached Structure - Isopachous map (Exhibit B) the Dakota B_2 sand is an elongated marine bar deposited parallel to the structural strike with an east-west trending permeability barrier updip and downdip from the bar deposit. In the Apache #1 Ashcroft there was 14 feet of Dakota B_2 sand developed with 9 feet of good porosity. A drill stem test recovered gas to surface in 18 minutes. The volume was too small to measure. Fluid recovery was 186 feet of oil and 3069 feet of salt water. A completion was not attempted. Tesoro Petroleum drilled up-dip from the Apache #1 Ashcroft in the SE/4 SE/4 of Section 28, Township 23 North, Range 12 West and encountered 9 feet of sand in the Dakota B_2 zone and 4 feet of porosity. A drill stem test of the sand interval recovered gas to surface in 24 minutes at a gauged rate of 11 MCFGPD. Fluid recovery was 440 feet of gas cut mud, 900 feet of mud and gas cut oil and 180 feet water. Tesoro Petroleum attempted a completion of the B_2

sand. After 5 days of swabbing, the water cut increased to 85%. It was felt that the water was coming from 5 feet of lower B_2 sand and could not be shut off. The well was plugged and abandoned. The Coal Creek Unit location is projected to be above the oil/water contact in the Dakota B_2 sand and should be structurally 210 feet higher than the Tesoro Petroleum well in Section 28. The majority of the prospective producing area will be contained within the proposed Coal Creek Unit.

Summary

The Coal Creek Unit is a Dakota B_2 oil prospect. The unit is located where an elongated marine sand bar crosses a north plunging structural nose. This sand bar is limited to the south (up-dip) by marine shale.

The primary objective of this unit is to encounter clean Dakota B_2 sand structurally high to the Tesoro Petroleum Coal Creek Federal #1 well in Section 28 and the Apache Ashcroft #1 in Section 26, Township 23 North, Range 12 West.

Bennett L. Price
Geologist