

MEMORANDUM

TO: Greg Lewis, James Bearzi, Stu Dinwiddie, Stephanie Kruse, Steve Pullen

FROM: Dave Cobrain

DATE: August 4, 1999

SUBJECT: Triassic Park – August 1999 Subsurface Explorations Field Report

August 3, 1999:

Subsurface explorations were conducted by Gandy-Marley, Inc. (GM) beginning August 3, 1999. The intended drilling program consisted of advancing nine borings in the north end of the proposed facility site and one boring ½ mile east of the site as described in the GM work plan dated July 28, 1999. I arrived on site at 10:00 AM on August 3 as the first borehole (PB-39) was being completed. The boreholes were advanced using truck-mounted air rotary drilling equipment owned and operated by Key (water) Well Drilling of Roswell, New Mexico.

The apparent contact between the Upper and Lower Dockum units was observed in boring PB-39 at approximately 90 feet below the ground surface (BGS). I observed the cuttings from the drilling of PB-39, PB-40 and PB-41 on August 3. The cuttings were collected directly from the edge of each borehole with a shovel at selected intervals. There was a distinct color change from grayish green or red to dark red or grayish purple at the apparent Upper/Lower Dockum contact. The cuttings consisted of fine sand, silt and caliche surface alluvium from the ground surface to depths of 10 to 15-20 feet BGS. The surface alluvium was underlain by interbedded Upper Dockum mudstone, siltstone and sandy siltstone to the depth of the apparent contact with the Lower Dockum. The cuttings described by Jim Bonner as being the Lower Dockum consisted of dark red or grayish-purple mudstone. The Upper Dockum directly above the apparent contact contained gray-green or red silt and clay. The Lower Dockum consisted of dark red or grayish purple clay (mudstone) to the total depths explored. The stratigraphy was relatively consistent from boring to boring with the depths to the apparent Upper/Lower Dockum contact increasing toward the east. Geophysical logging of the boreholes and borehole abandonment activities are scheduled to begin on August 4.