

TEC 25

GEOHERMAL BRANCH

INTER-OFFICE MEMORANDUM

SUBJECT: Information Regarding Proposed Deep Thermal Gradient Holes at Cove Fort, Utah DATE: May 23, 1980

TO: John King, Andy Pfaff, Percy Wicklund, Harry Olson and John Deymonaz

FROM: H. D. Pilkington

Four possible deep thermal gradient hole locations have been proposed for the Cinder Crater area (see attached map). The proposed drill holes should allow us to test the geothermal model of the Cove Fort area. Previous drilling history in the vicinity of Cinder Crater has been discouraging. Lost circulation problems caused the abandonment of most holes at depths of 100 feet or less. The use of a churn drill to drill through Cinder Crater has been suggested as a possible technique to accomplish our objectives.

In order to provide some guidelines to help establish the "specs" for drilling contracts, the following geologic data may be useful. The volcanics of Cinder Crater are the youngest igneous rocks in the area, and a brief geologic history will provide data needed for making the projections of thicknesses to be expected in the drill holes. About one million years ago flood basalts poured out onto the floor of the Cove Fort graben. The flood basalts represent thin flows, approximately 5 meters thick, which extend as much as 30 kilometers. Previous drilling indicates the flood basalts can be drilled by rotary methods. The flood basalts were then covered by a thin veneer of lake sediments composed of gypsiferous sands. The sands are approximately 4.5 meters thick and are overlain by 12-18 meters of poorly consolidated alluvial gravels made up of rhyolites and andesitic clasts from the volcanic rocks exposed in the Tushar Mountains. The clasts are in a matrix composed of sand silt and clay sized materials. Since the gypsum bearing sands were deposited in a lake, the elevation of the top of that unit makes a good reference datum. The gypsiferous beds are 100-200 meters above the highest level of Lake Bonneville at 1,575 meters. In the Cinder Crater area the gypsum sands are coarse. Alluvial sediments are overlain by the volcanics of the Cinder Crater volcano.

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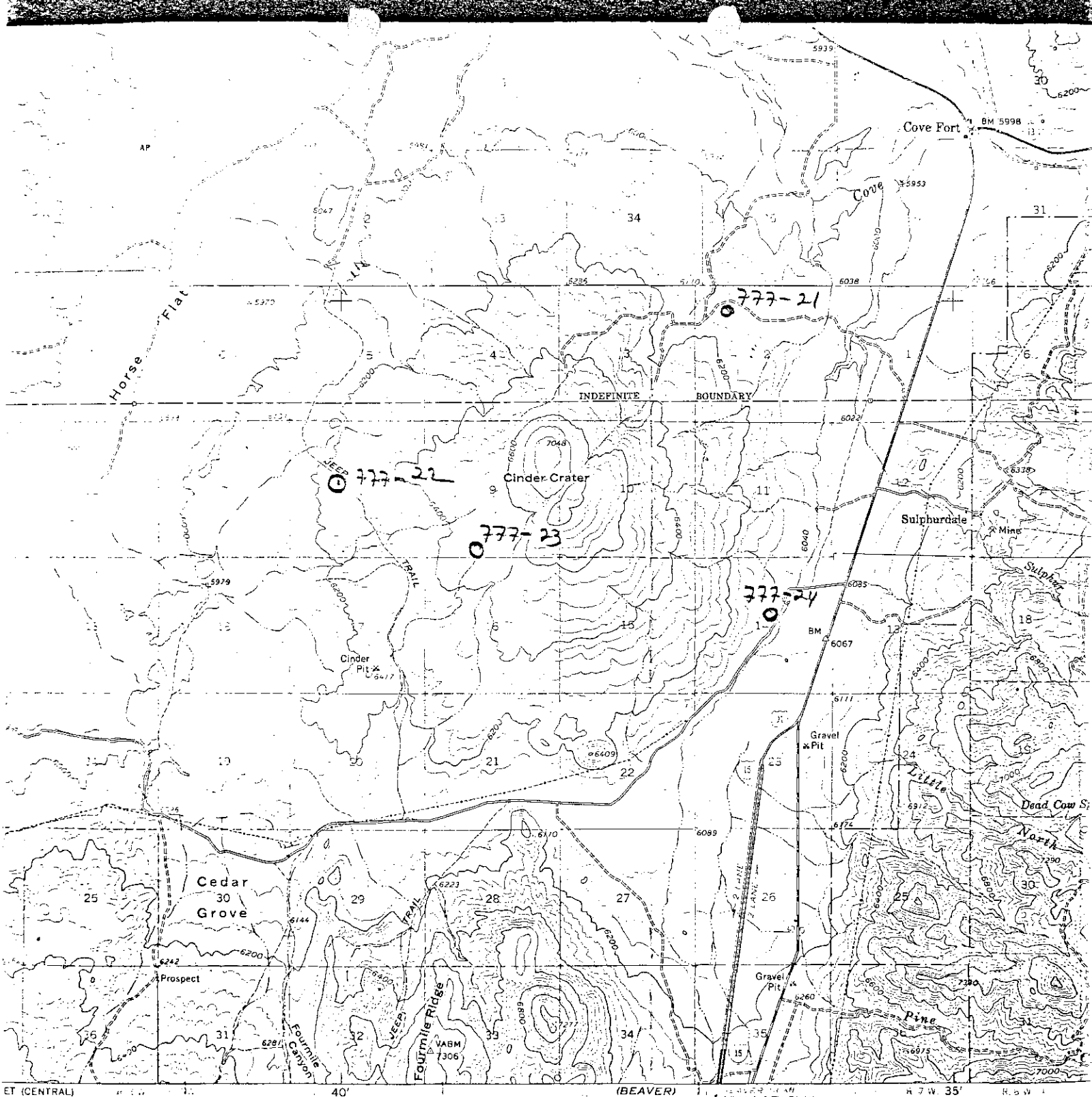
The estimated thicknesses of the Cinder Crater volcanics at each proposed drill site is as follows:

<u>Hole #</u>	<u>Surface Elev.</u>	<u>Elev. Top Gypsum</u>	<u>Thickness of Cinder Crater Volcanics Strat Thickness to Top Gypsum-20 meters</u>
777-21	6140'	5750'	300-400 feet
-22	6250'	5610'	500-600 feet
-23	6490'	5645'	700-800 feet
-24	6050'	5750'	200-300 feet

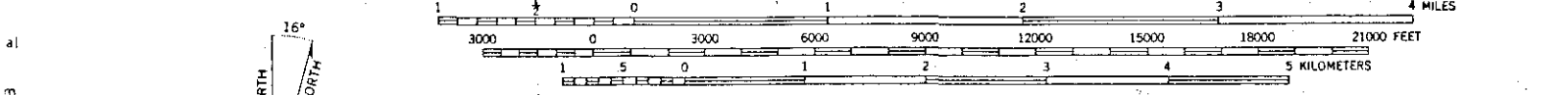


H. D. Pilkington

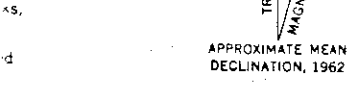
HDP/c



ET (CENTRAL) 40' (BEAVER) CEDAR CITY 21 MI. R. 7 W. 35' R. 35 W.



CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

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