GeoEngineers

October 3, 1988

Consulting Geotechnical
Engineers and Geologists

Unocal
P.O. Box 76
Seattle, Washington 98111

Attention: Mr. Leigh Carlson

Gentlemen:

Interim Status Report
Subsurface Vapor Extraction Program
Service Station 5353
Seattle, Washington
File No. 0161-13-4

This interim status report summarizes vapor recovery progress and our proposed changes to the operation of the vapor recovery system at Unocal Station 5353 in Seattle, Washington. Our Progress Report No. 1 summarizes the design of the system and its operation from June 24 through July 20, 1988. We also plan on issuing a second progress report covering the period of operation from July 21 through mid-November, 1988.

Progress Report No. 1 summarizes recovery progress for gasoline and methane. These values are computed based upon measured concentrations in the recovered vapors and the vapor flow rate. Since that report, we estimate that additional recovery of gasoline vapors and methane through September 24, 1988 account for an additional equivalent of approximately 1,100 gallons of gasoline and 10,390 cubic feet of methane. This brings the total equivalent recovery to 1,450 gallons of gasoline and 63,750 cubic feet of methane for a total operational period of about 90 days. We are presently evaluating analytical methods to determine if the methane is derived from anaerobic degradation of gasoline.

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Once the vapor recovery system became operational, we evaluated the long-term operational costs for the system as it was planned to be operated. The proposed operation of the system called for the transition of the vapor destruction process from the initial thermal incinerator to a catalytic reactor once hydrocarbon concentrations in the vapors dropped to levels that the catalytic reactor could handle without incurring catalyst damage. In comparing costs between the two systems, it became apparent that the cost for continued operation of the thermal incinerator was less than that for the conversion to the catalytic reactor. The lower operational costs are primarily the result of low natural gas costs in Seattle. Other benefits of remaining on the thermal incineration process (as opposed to the catalytic reactor) for vapor destruction include: (1) greater vapor destruction efficiency, (2) no additional installation or training costs, and (3) no increased monitoring costs during transition.

We recommend that the system continue to be operated in its current thermal incineration mode. The thermal incineration unit was initially planned to be a short-term rental unit. Purchase of the system will realize a cost savings over the expected life of the project. We have discussed the purchase price with King, Buck & Associates, the incinerator manufacturer. The cost of the system, including credit applied to the lease of the unit, is $22,845. This price includes the blower unit, the incinerator, an additional flame arrestor, and instrumentation for continual recording of system operation and vapor flow rates.

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We appreciate the opportunity to assist you with this project. Please call if you have any questions about this letter or the continued operation and monitoring of the vapor recovery system.

Yours very truly,

GeoEngineers, Inc.

Stephen C. Perrigo/by JAM

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Two copies submitted