GeoSolv, LLC

ENVIRONMENTAL AND HYDROGEOLOGICAL CONSULTING
643 Oregon Street, Sonoma, CA 95476
Phone: (707) 996-4227 **Fax: (707) 996-7882**
geosolv@vom.com

We Don't Just Work on Your Environmental Problems. We Solve Them!

May 17, 1999

Barney M. Chan
Hazardous Materials Specialist
ALAMEDA COUNTY ENVIRONMENTAL HEALTH
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-9335

Telephone: (510) 567-6765
FAX: (510) 337-9335

SUBJECT: WORKPLAN TO DEFINE THE DESIGN PARAMETERS AND OUTLINE THE IMPLEMENTATION REQUIREMENTS FOR A REMEDIAL ACTION PLAN (RAP) FOR THE CLEANUP OF SOIL AND GROUNDWATER AT THE FORMER BILL CHUN SERVICE STATION @ 2301 SANTA CLARA AVENUE, ALAMEDA, CA 94501

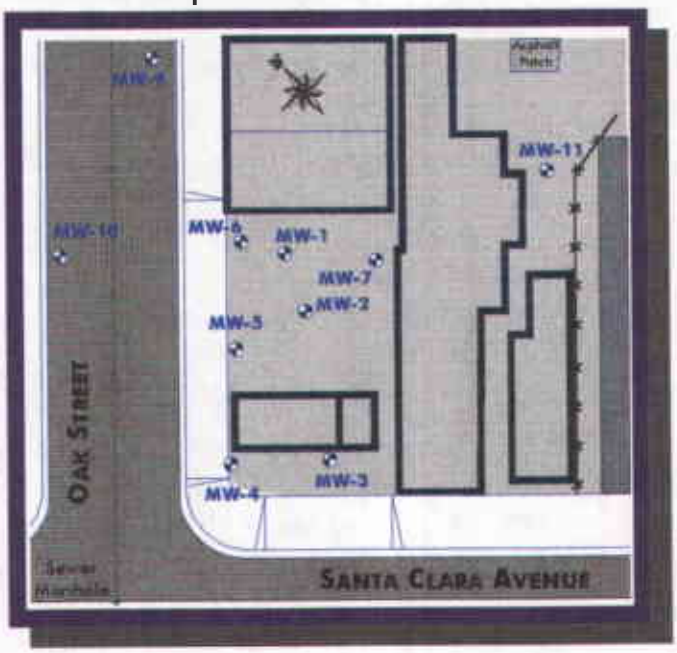
Dear Barney:

We have reviewed the pertinent environmental assessment reports associated with the aforementioned property and have collected enough information to produce a remedial action plan (RAP) for the cleanup of hydrocarbons in soil and groundwater at the site. The RAP will provide the actual design specifications and implementation schedule for the cleanup of the site. This will include design specifications for the groundwater pump and treat system, for the soil vapor extraction system, and for monitoring, telemetry and controls. It will also include the site layout with the location of wells, piping, equipment arrangement, and utility systems. In addition, it will provide a workplan for installation

of vapor extraction and groundwater extraction wells.

Prior to production of the RAP, we have written this workplan so that we find some common ground on which we can concur on the design parameters for the system, the volume of the impacted area to be addressed, the duration of the process as related to monitoring, the cleanup levels expected, and the type of post verification sampling. We believe that this exercise will prevent the execution of costly components and goals of the system which are not necessary yet will provide an effective cleanup program which is acceptable from a technical and regulatory perspective.

After the design parameters and outline for the implementation of the RAP are completed, submitted to Alameda County Health, and approved by you (Barney Chan), we will then produce the RAP.



During a recent phone conversation, you asked if I felt any additional subsurface investigation is necessary prior to development and implementation of a RAP. I reiterate that any lack of subsurface data is so insignificant compared to the abundance of existing data that it could have no practical impact on the overall outcome of the project. In addition, when the groundwater and vapor extraction wells are installed, they will most likely enlighten us as to changes in the subsurface environment which will compel us to amend our current cleanup scenario. Therefore, additional investigation at this time would be redundant as the locations of the most significantly impacted areas beneath the site have been firmly established and the proposed pattern of extraction wells within the limits of the property should make significant reductions in hydrocarbons.

INITIAL RISK ASSESSMENT

A complete sensitive receptor survey including all subsurface utilities, nearby supply wells, and surface drainages, as well as onsite and neighboring property usages will be performed to establish Site Specific Target Levels for Soil and groundwater cleanup. The site has an abundance of data which can be used to establish statistically valid cleanup goals for the site.

OUTLINE OF TREATMENT SYSTEM ENGINEERING AND DESIGN

1) Design Basis for Cleanup of Contaminants

Define how much, and which chemical contaminants in soil and groundwater (e.g. dissolved and free-product [if any]) should be incorporated into the cleanup. Estimate the volume, quantity, and location of each constituent to be addressed. Provide a qualitative technical justification for the proposed treatment methodology (i.e. vapor extraction/groundwater pump-&-treat w/filtration).

VET - does & appears effective

2) Mechanics of Remediation System Design

- **Groundwater Pump & Treat**

Pump test has not been done, however, a slug test was

Provide groundwater extraction well designs based upon previously determined hydrogeologic parameters (e.g. hydraulic conductivity based upon slug tests and published data) as well as Geosolv, LLC's interpretation of existing data and determining of the zone of effective drawdown). Include well permitting and offsite variance activities. Justify well location strategy. Provide the design for the pumped water collection system. Detail the contaminant removal method with an estimate of its capacity relative to the volume and quantity of contaminants to be removed. Provide a plan for treated waste water disposal including permitting activities.

- **Soil Vapor Extraction**

Provide vapor extraction well designs based upon previously determined soil vapor parameters (e.g. soil vapor pilot test and published data) as well as Geosolv, LLC's interpretation of existing data and determination of vapor well radius of influence). Include well permitting and offsite variance activities. Justify well location strategy. Provide the design for the soil vapor collection system. Detail the contaminant vapor destruction methodology along with a design of the system as well as estimate of its capacity relative to the volume and quantity of contaminants to be removed.

- **Monitoring, Telemetry, and Controls**

Provide engineering design plans for groundwater and soil vapor treatment to monitor system effectiveness.

LOCATION AND ARRANGEMENT OF REMEDIATION EQUIPMENT

The remediation project will be displayed on plans with construction details

1) General Site Layout

Provide engineering design plans showing well locations and piping relative to remediation equipment

2) Proposed Equipment Arrangement Plan

Provide engineering design plans showing utility systems including electrical, natural gas, and phone connections as well as treated water disposal systems and piping

REMEDIATION SYSTEM CONSTRUCTION SCHEDULING

The remediation project will be scheduled for each phase of the work to be completed. It will include an estimated start date, duration, and stop date (e.g. using the Critical Path Method) so that cost estimates can be factored in later. The activities to be scheduled are as follows:

1) Installation of Groundwater Pump and Treat Wells

2) Installation of Soil Vapor Extraction Wells

3) Final Groundwater Pumping Test

4) Installation of Groundwater Pump and Treat System

Includes collection system piping, surface treatment equipment, and power and system telemetry system hookups

5) Soil Vapor Extraction Pre-test to calibrate the system

6) Installation of Soil Vapor Extraction System

Includes collection system piping, surface treatment equipment, power and gas utility hookups, and telemetry system

SITE SAFETY PLAN

A site safety plan summary will be provided which address contingency plans regarding safety issues which could arise as a result of the operation of the proposed system.

1) **Overview of Monitoring and Hazard Prevention Systems**

2) **Remote and Local Shutdown Systems**

POST VERIFICATION SAMPLING

A discussion of the type of soil, groundwater, and vapor sampling which will be acceptable to verify that the site is clean based upon health risk, the beneficial uses of groundwater, and applicable fate and transport analyses.

Sincerely,

Franklin J. Goldman
State Registered Geologist No. 5557
State Certified Hydrogeologist No. 466
CEO/GeoSolv, LLC

George T. Pavlov
Principal Geophysicist
Field Supervisor