

Byron Shark
Contracting Officer's Representative
USFS
P.O. Box 25127
Lakewood, CO 80225-0127

RE: Groundwater Contamination associated with the Nemo Work Station

Dear Shark:

Per our conversation, I have compiled an initial outline of possible activities that may be required to address the issues present at the Nemo Work Station. This outline is intended to facilitate further discussion of the necessary project requirements and support development of a specific scope of work to assist the USFS in addressing impacted soil and groundwater at the site. While these activities are preliminary, they may be useful to identify a specific project approach. Specific project objectives may include:

- identifying and implementing options to restore local individual water supplies;
- confirming the sources of groundwater contamination;
- determining the distribution of soil and groundwater contamination; and
- identify short term and long term remediation options.

Each of these activities are discussed further as follows:

Identifying And Implementing Options To Restore Local Individual Water Supplies.

Preliminary options identified include:

- providing bottled water for consumption;
- installing individual treatment facilities for domestic water supplies;
- installing central treatment systems to connected existing water supplies; and
- developing an alternative water supply outside the contaminated region.

Key factors that may influence the viability of each alternative include:

- cost and implementability of individual treatment systems;
- frost protection requirements for above ground piping;
- cost of alternative water distribution systems;
- availability of adequate alternative groundwater supplies;
- location of individual water supplies and consumption points; and
- timing and duration of proposed remedies.

EnviroSearch would be available to assist the USFS in identifying and implementing rapid and economical solutions to restoring the community water supply as well as evaluating the long term community supply needs.

Confirming The Sources Of Groundwater Contamination.

The ongoing source removal activities will be highly beneficial in confirming the active sources of soil and groundwater contamination. It may be expected that contaminated soils may be acting as a continued source of groundwater contamination. Correlating the observed groundwater contamination with source location and controlling hydrogeologic conditions will help identify anomalies that may delineate additional source areas if present. Additional sources of contamination can be confirmed through soil and groundwater investigations as discussed below.

Determining The Distribution Of Soil And Groundwater Contamination.

Site Inspection/Data Collection

An extended contamination survey is proposed to identify the distribution of soil and groundwater contamination. Prior to implementing an investigative program, key data will be required to be collected to evaluate controlling hydrogeologic conditions which may include:

- location and depth of existing water wells;
- well completion details (depth, completion interval, geologic conditions encountered, etc.);
- expected drilling conditions;
- soil depth;
- distribution of observed contamination;
- site layout as shown by existing maps or aerial photographs;
- controlling geologic conditions such as location of bedrock outcrops; and
- location of existing utility lines.

Some of this information is expected to be available through published geologic and hydrologic reports, however additional field data collection efforts are expected to be required. Some of this information can be collected during the initial site visit while inquiries through local sources can be done remotely.

Soil and Groundwater Investigation.

The investigative data collection program consists primarily of installing soil borings and groundwater monitoring wells at strategic locations to augment available information regarding the distribution and limits of contamination. This may include sampling existing water supply wells as appropriate. Evaluating soil contamination would be required to determine if the soils are continuing to release volatile organic compounds and pesticides into the groundwater. Collecting soil samples from borings placed in the suspected source areas would be used to determine if and where soil remediation may be required. Installation of monitoring wells in the shallow aquifer would be used to determine the limits of contamination and the hydrogeologic conditions affecting contaminant migration and remediation. The wells may be constructed to facilitate future cleanup if appropriate. The specific investigative approach and purpose and placement of wells could be discussed while onsite next week as appropriate. The groundwater investigation program would include measuring water levels in new and existing wells, if possible, to develop a water table map delineating the directions of groundwater flow. The hydraulic characteristics of the aquifer would also need to be evaluated to determine the rates contaminant migration and possible pumping rates required for plume capture and groundwater extraction.

A project sampling and analysis plan will be provided in the Scope of Work once site specific details and USFS desires are known.

Identify Short Term And Long Term Remediation Options.

EnviroSearch would propose to evaluate pertinent site conditions that would affect short term and long term soil and groundwater remediation. Based on the distribution of contamination and site specific hydrogeologic conditions, EnviroSearch would be available to identify and evaluate remediation options that may be required to address the soil and groundwater contamination at the site. Key factors that would influence the cleanup approach would include: contaminant distribution, aquifer characteristics, cleanup objectives and groundwater quality standards, and regulatory requirements.

The need for appropriate interim or expedited remedial measures will be evaluated. The effectiveness and cost of particular remedial technologies will be discussed once site specific conditions and USFS directives are known.

Mr. Byron Shark
October 18, 1996
Page 4 of 4

Report Preparation


EnviroSearch will document all investigative findings and project results in a comprehensive report. The Site Characterization Report will document investigative methods and results of the field program. The report will be submitted in Draft form to the USFS prior to submitting a final to the required agencies as appropriate.

Project Management

EnviroSearch will be available to support the USFS as necessary during public meetings or interactions with regulating agencies and USFS personnel.

Please provide any comments and feedback you may have on the above outline. Again it is only intended to promote discussion of a specific Scope of Work for the project. I am currently planning on arriving in Rapid City on Tuesday morning and departing Thursday morning. I am looking forward to meeting you next week and EnviroSearch appreciates the opportunity to be of service to the USFS.

Sincerely,


Richard K. Kelsey, P.E.
Senior Vice-President

cc: Bill Schleining, On-Site Coordinator

RKK/dh