043812

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Environmental Restoration Contractor **ERC Team**

Meeting Minutes

Job No. 22192
Written Response Required? N0
Closes CCN: N/A
OU: 200-ZP-2
TSD: N/A
ERA: CCI4
Subject Code: 4170; 4170

SUBJECT 200-ZP-1 and 200-ZP-2 Status

TO Distribution

FROM V. J. Rohay

DATE March 18, 1997

ATTENDEES

V. J. Rohay H9-11
J. R. Freeman-Pollard H9-12
M. A. Buckmaster H0-19
A. C. Tortoso H0-12
D. A. Faulk B5-01

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Attendees
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A meeting on the above subject was held on March 17, 1997, at Sigma II, Cougar Room. The agenda is included as Attachment 1.

200-ZP-2 Rebound Study

V. J. Rohay provided a graph illustrating the maximum carbon tetrachloride rebound concentration, as of 3/11/97, at each monitoring point as a function of depth (Attachment 2). During the first four months of the rebound study, carbon tetrachloride concentrations have remained less than 5 ppmv at monitoring points between the ground surface and approximately 10 m depth in the area remediated using soil vapor extraction. The highest carbon tetrachloride concentrations, between 100 and 700 ppmv, have been observed at wells and monitoring probes between approximately 26 and 40 m below ground surface, near the Plio-Pleistocene fine-grained soils and "caliche layer." Carbon tetrachloride vapor concentrations near the water table, between 56 and 64 m below ground surface, have not exceeded 40 ppmv. Concentrations at some monitoring locations exhibit fluctuations which appear to be related to fluctuations in barometric pressure.

During February 1997, all wells and soil gas probes identified for use in the rebound study were monitored once per month. In addition, 15 wells/probes with widely fluctuating carbon tetrachloride concentrations were monitored twice per month. Carbon tetrachloride monitoring during March 1997 will follow the same monthly/semimonthly schedule.

V. J. Rohay discussed which issues identified through the Data Quality Objectives process could be adequately addressed with the current Rebound Study data and which issues require additional data. Operation of the soil vapor extraction systems as the final phase of the rebound study is needed to convert the observed concentrations into kilograms removed (DQO issue #1) and to optimize current soil vapor extraction system operations (DQO issue #5).

V. J. Rohay identified five "mini-tests" (lasting two to three weeks each) that could be implemented between April and June to address data gaps in the Rebound Study. Each mini-test would support at least one of the seven DQO issues. Three mini-tests include collection and analysis of additional field data; two mini-tests involve only analysis of previously collected field data. The costs, priority, and rationale for each mini-test are being evaluated by the 200-ZP-2 project team; the tests will be implemented upon approval from the project engineer and the DOE-RL project manager, in agreement with EPA.

In conjunction with the mini-tests, and pending approval from the project engineer and the DOE-RL project manager, in agreement with EPA, monitoring will be continued at selected Rebound Study wells and probes. The reasons for continued monitoring are: to evaluate carbon tetrachloride rebound; to confirm that carbon tetrachloride is not impacting ambient air or groundwater; and to evaluate concentrations for soil vapor extraction system restart. If available, additional deep wells will be monitored to establish a carbon tetrachloride baseline prior to 200-ZP-1 Phase III operations at the Z-9 site.

In response to a question from the previous status meeting (2/10/97) regarding soil heating, V. J. Rohay summarized the discussions of steam injection contained in the 1991 EE/CA and of soil heating technologies contained in a 1996 200-ZP-2 report (Attachment 3). Both reports conclude that sufficient technical data are not available to evaluate and apply soil heating enhancements at the scale and depth of target soils at the 200-ZP-2 site.

V. J. Rohay presented a draft schedule for 200-ZP-2 field operations for the remainder of FY 1997 (Attachment 4). Based on this schedule, the soil vapor extraction systems would be operated in July per the test plan to conclude the Rebound Study. The systems would then be operated in August and September to remediate the unsaturated zone. Operation in August and September would also allow the 200-ZP-2 soil vapor extraction systems to be used to evaluate the impact of full-scale 200-ZP-1 Phase III operations at the Z-9 site.

Delaying operation of the soil vapor extraction systems until August requires a change to the current TPA milestone for soil vapor extraction system restart. The proposed revision to the milestone would extend the restart date from April 30, 1997 to August 1, 1997.

200-ZP-1

M. A. Buckmaster provided an update on the 200-ZP-1 pump-and-treat remediation (Attachment 5). To date, the 200-ZP-1 Treatment System has removed 382 kg of carbon tetrachloride. During the past week, the flow rate from the three extraction wells averaged 154 gallons per minute, or 1.6 million gallons per week; and current (3/13/97) carbon tetrachloride influent concentrations (Tank T-01) averaged 2900 ppb. The 200-ZP-1 system availability was 100% for the past week. Field work is progressing on installation of the piping system for Phase III operations. All of the injection piping has been installed, and electrical wiring is being completed. Trenching for the extraction piping is nearly complete. Construction of the extraction manifold building is starting this week. The last three extraction wells are scheduled to be on-line by August 31, 1997 to complete initiation of 200-ZP-1 Phase III operations.

Future Status Meetings

The next status meeting on the 200-ZP-1 and 200-ZP-2 projects has not been scheduled yet, pending approval to the changes in the 200-ZP-2 operating schedule.

Attachment 1

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AGENDA
200-ZP-1 and 200-ZP-2 STATUS
MARCH 17, 1997

200-ZP-2 Rebound Study

- Review of Rebound Study Data
- Status of Rebound Study Data Quality Objective Issues
- Review of Proposed Rebound Study "Mini-Tests"
- Selected Wells and Probes for Continued Monitoring
- 200-ZP-2 Field Operations Schedule
- Status of TPA Milestone for Soil Vapor Extraction Restart

200-ZP-1 Pump-and-Treat Remediation

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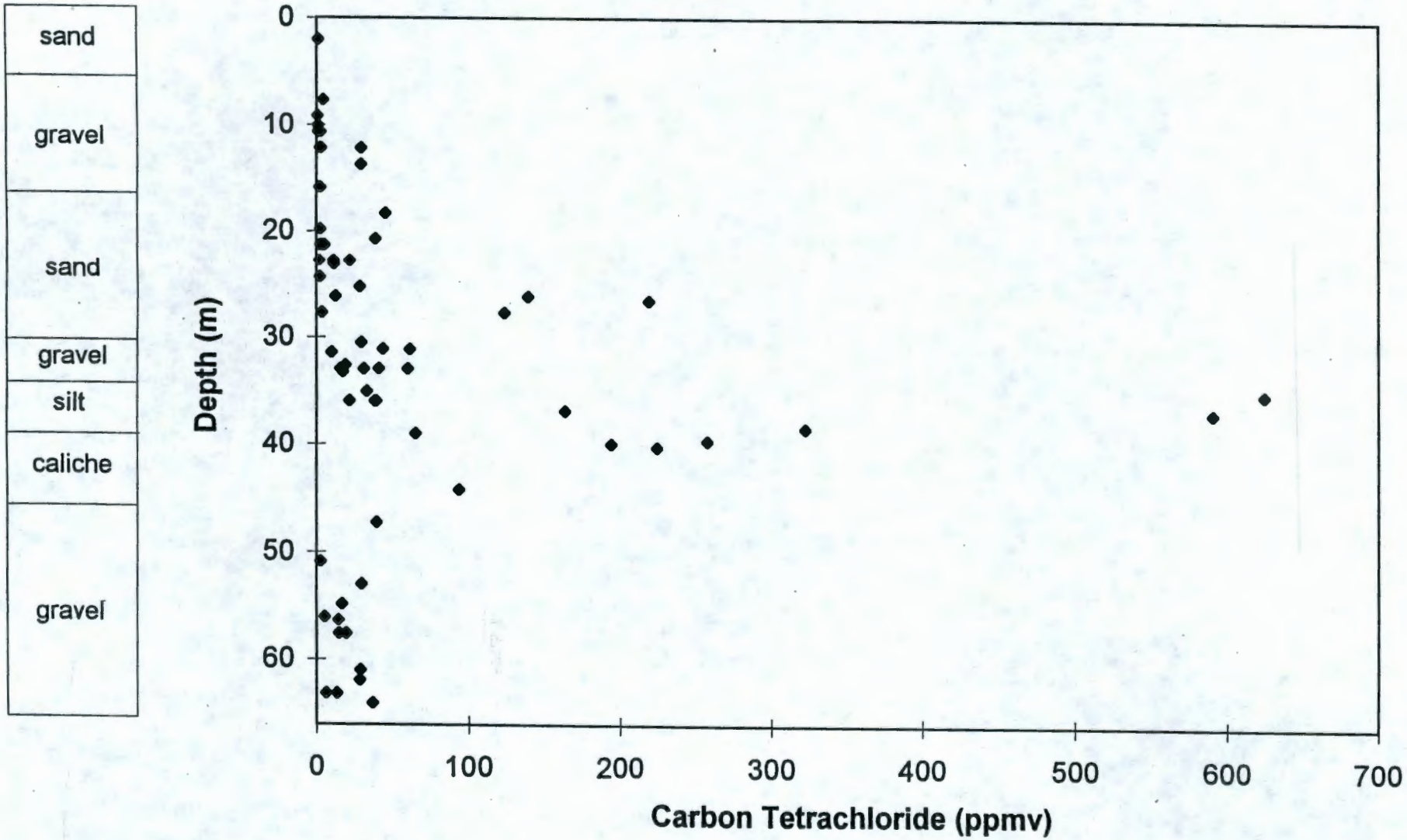
Maximum Carbon Tetrachloride Rebound 11/4 - 3/11



Attachment 2

EPA question 2/10/97 regarding soil heating:

In the EE/CA, remediation alternatives included vapor extraction alone or in conjunction with injection of air or steam. It was noted that (a) injection could result in unexpected preferential migration pathways (e.g., highly permeable gravel) that decrease the rate/volume of carbon tetrachloride removal; (b) no application of injection in radiologically-contaminated soils was known; and (c) steam injection could cause condensation of water in the well and soil, leading to reduced air pathways, uncontrolled infiltration, and potential migration of radiological contaminants toward groundwater. "In view of the lack of comparison data, and the apparent effectiveness of removal without injection, this alternative is not attractive during the initial stages of extraction." (p. 48)

In Preliminary Evaluation of Soil-Heating Technologies for the 200-ZP-2 Carbon Tetrachloride Expedited Response Action (BHI-00880), available literature indicated that most of the testing/applications of soil-heating technologies at other sites has been limited to relatively shallow applications (< 15 m depth), and the scale of the systems has been relatively small. "Extrapolation of the experiences at other sites to a Hanford application poses large technical and cost uncertainties, primarily because of the much greater depths and larger volumes of soil that require remediation at Hanford. Reducing these uncertainties would require substantial efforts in field treatability/demonstration testing before a full-scale system could be confidently applied." (p. 18)

We could open selected wells to allow passive injection of ambient air at no econonmic cost and very low risk of environmental impact.

March 1997

Draft Schedule for 200-ZP-2 Field Operations in FY97

Mar - Jun	Conduct rebound study "mini-tests"
	Monitor selected wells and probes to evaluate carbon tetrachloride rebound; to confirm that carbon tetrachloride is not impacting groundwater or ambient air; and to evaluate concentrations for SVE system restart strategy
	Monitor selected deep wells to establish a carbon tetrachloride baseline prior to ZP-1 Phase III operations
Jul	Operate SVE systems at Z-9 and Z-1A per Test Plan to conclude Rebound Study
	Continue to monitor selected deep wells prior to ZP-1 Phase III operations
	Monitor selected wells and probes in those areas where SVE systems are not operating (e.g., Z-18) to confirm that carbon tetrachloride is not impacting groundwater or ambient air
Aug - Sep	Operate SVE systems to remediate unsaturated zone
	Monitor selected deep wells during ZP-1 Phase III operations to evaluate impact of ZP-1 Phase III on carbon tetrachloride concentrations in unsaturated zone; to evaluate unsaturated zone-saturated zone transport; and to optimize carbon tetrachloride removal using SVE systems
	Continue to monitor selected deep wells if ZP-1 Phase III wells taken off-line to evaluate impact on unsaturated zone of interrupting ZP-1 Phase III operations

200-ZP-1
WEEKLY OPERATION SUMMARY

System Runtime (hrs)	Avg. Flow (gpm)	Avg. Flow (gpm)	Avg. Flow (gpm)	Weekly Process (gals)	Avg. RH (%)	Avg. Airflow (scfm)	Avg Air Temp (F)	CCl_4 Removed kg/ (lbs)	Sys. Avail Week Total (%)	Sys. Avail Oct.TD Total (%)	Sys. Avail 8/5/96 TD Total (%)	CCl_4 8/5/96 TD Total kg/ (lbs)	Groundwater Treated 8/5/96 TD Total (gals)
168.0	WE01 29.7	WE02 42.9	WE03 81.4	1,552,320	32.2	502	68.8	17.1/ (37.6)	100	83.1	80.4	382.1/ (840.7)	34,698,645

Attachment 5

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200-ZP-1
WEEKLY SAMPLING SUMMARY

Sample Date	WE01 W15-33 Conc. (ppb)	WE02 W15-34 Conc. (ppb)	WE03 W15-35 Conc. (ppb)	T-01 Ext Tank Conc. (ppb)	V-01 Stripper Conc. (ppb)	T-02 Inj. Tank Conc. (ppb)	H-01 Inf. Vapor Conc. (ppm)	A-3 Eff. Vapor Conc. (ppm)
3-13-97	4100 CCl4 15 TCM 3 TCE	2500 CCl4 10 TCM 5.0 TCE	2600 CCl4 14 TCM <2 TCE	2900 Ccl4 12 TCM 2.0 TCE	<2 CCl4 <4 TCM <2 TCE	<2 CCl4 <4 TCM <2 TCE	16	<1