

(Waite)

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10

007351



Hanford Project Office
Federal Building, Rm. 178
P.O. Box 550, A7-70
Richland, Washington 99352

June 28, 1989

REPLY TO
ATTN OF: A7-70

K. M. Thompson
Hydrogeologist
U.S. Department of Energy
P.O. Box 550, A6-50
Richland, Washington 99352



Dear Mr. Thompson:

We appreciated the opportunity to meet with you and your contractors on June 1, 1989, to discuss the Department of Energy's (DOE's) well drilling program and drilling methods used at the Hanford Site. The ability of DOE to install groundwater monitoring wells, piezometers, and vadose borings in an efficient and expeditious manner remains a major concern to both the Washington State Department of Ecology and the U.S. Environmental Protection Agency. The June 1st meeting was informative, and as a result of the meeting, we recognize that DOE and the Westinghouse Hanford Company (WHC) are making efforts to expedite the drilling process. The meeting, however, did not fully answer all of our questions, nor did it allay our major concerns. The meeting left us with the impression that the effort to increase drilling capacity is not being pursued as aggressively as is warranted.

At least 30 new wells are presently scheduled for installation at Hanford CERCLA sites and an additional 30 wells are scheduled for installation at Hanford RCRA sites during the next year. An equal or greater number of additional wells are anticipated to be installed each year for the foreseeable future. The need to accommodate these increased drilling requirements has been known for nearly a year. However, in discussions concerning the review of the first two CERCLA operable units, 1100-EM-1 and 200-BP-1, constraints imposed by limited drilling capacity have been noted each time as a reason for the protracted drilling schedule and for potential delays in completing the RI/FS. The anticipated schedule for completion of each RI/FS is already longer than desirable and any delays resulting in noncompletion within the agreed upon schedule will be unacceptable. We suggest that the present schedule can be compressed and future delays avoided by applying a more efficient drilling technique than the cable-tool method presently employed and planned for future use at Hanford. We also suggest that a more efficient drilling technique would reduce man power requirements for experienced drillers (who are in short supply) and support personnel and, consequently, reduce the overall drilling costs.

As noted in our June 1st meeting, several drilling methods have already been tried at Hanford and have been rejected for one reason or another. In the description of these trials, it appeared that some methods may not have been suitably applied and were consequently unfairly rejected. For instance, contaminants were found in a well installed using the ODEX method. However, as opposed to standard practice, the air circulated down the hole to remove the drilling cuttings was not filtered and likely served as a conduit for contaminating the well. This problem could be easily rectified, and we therefore, conclude that rejection of the ODEX method for use at Hanford may have been hasty--especially since it apparently proved to be an effective and efficient drilling method in which the temporary casing was easily recovered.

Assuming the issue of containment of the contaminated cuttings is resolved, the primary shortcoming of the air-rotary system was described as the difficulty in withdrawing the driven temporary casing. However, it was also noted that this same problem has been encountered with the use of the cable-tool rig; causing the loss of at least one hole and possibly others. No answer was given to the question raised as to exactly how many wells have been installed at Hanford using an air-rotary rig in which a temporary casing was driven, and of those, how many had serious problems (resulting in the loss of the hole) and how these numbers compare to the failure rate of wells installed using a cable-tool rig.

We also raised the question as to whether the standard cable-tool practice of adding water down the hole to create a slurry and remove cuttings with a bailer would compromise the collection of soil-moisture samples. We were assured that water is not used because a core barrel is used exclusively in cable-tool drilling at Hanford. Further investigation indicates that this assurance may not have been fully accurate and that the hard-tool and water slurry are used to penetrate obstructions, conglomerate, or other resistant strata. We, therefore, repeat our concern over the appropriateness of using a cable-tool to drill holes from which samples will be taken for vadose-zone characterization.

We fully support the upcoming test of the dual-wall percussion (Becker) method. It was apparent from the material presented in the meeting that this technique may be highly appropriate for the installation of observation wells at Hanford. We suggest that the trial of the method be as rigorous, realistic, and complete as possible so that all questions concerning its ability to meet actual requirements under field conditions will be answered on the first pass. This would include a full evaluation of the containment device to be used for contaminated cuttings. Last fall, we were told that this device would be constructed and available for use with a standard air-rotary rig by Spring 1989. The schedule has now slipped by several months, without notification or explanation to EPA or Ecology. This device appears

to be an integral factor, from a health and safety standpoint, in accelerating drilling activities at the Hanford Site. If this is the case, it is of utmost importance that it be tested and that multiple units be placed in service as soon as possible.

We are particularly concerned that "triple-wall drilling" be tested in this trial. A 4-inch diameter well is usually the maximum that can be installed using the standard double-wall technique. However, a minimum diameter of six to eight inches will be required for observation wells in which hydraulic testing will be conducted. A 6-inch well can be installed using the Becker method, but an outside casing (the triple wall) has to be driven to accommodate the larger well size. Because withdrawal of temporary casing has proven to be a problem at Hanford in the past, the facility of driving and withdrawing temporary casing using the Becker method must be established before it can be seriously recommended for operational use. The test well must be constructed in accordance with CERCLA, RCRA, and Washington State standards. A full suite of soil and water samples, equivalent to those proposed for the investigation of CERCLA sites, must be taken for analysis.

It is our understanding that while the Becker method may be very suitable for conditions at Hanford, the drilling equipment is currently in very limited supply. Due to the pressing need to add additional drilling capacity and the large lead time required for the procurement of any sizeable contract or equipment at Hanford, we recommend that preliminary procurement or contracting procedures be conducted during the next few months to expedite the procurement of the appropriate equipment if the Becker method proves successful during the summer trials. We also suggest that preliminary work be done to further investigate alternate drilling techniques, such as revisiting the ODEX or air-rotary methods, in case the Becker method proves unsuccessful or to supplement the Becker method.

One additional comment on an agenda item for this meeting deserves special attention, and it concerns the quality assurance study on existing groundwater monitoring wells. As specifically noted in our letter to you dated May 22, 1989, we requested a status report on this very important study. To our disappointment, we learned that this study, which EPA and Ecology had previously been told would be completed in Spring 1989, had been delayed "last year", due to "scheduling and budget" considerations. Ecology and EPA were not notified of this delay until the June 1 meeting.

The RI/FS Work Plans which have been prepared and are in various stages of review are based, in part, on information obtained from these wells. Before any Work Plan approval, RCRA closure plan approval, or RCRA permit determination can be made,

any existing wells on which the EPA or Ecology must base a decision must be evaluated to determine whether they meet the appropriate construction standards.

During the June 1 meeting, we asked that you submit the methodology for evaluation of these wells. In addition, we asked for a detailed plan of the schedule for completion of this study, including what work has been completed to date. We will not consider the lack of information on the adequacy of any given existing well(s) as a basis for extension of a schedule. Therefore, we suggest that priority be given to evaluation of those existing wells that have been referenced in Work Plans, closure plans, or permit applications. We also suggest that the Work Schedule (Appendix D to the Action Plan) form the basis for prioritization of additional well evaluations.

As we have stated on previous occasions, the need for additional drilling capacity and the evaluation of existing well information at Hanford are problems of immediate importance that warrant aggressive approaches in developing solutions. Please let us know if there is anything we can do to assist in these matters.

Sincerely,



Paul T. Day
Hanford Project Manager
U.S. Environmental
Protection Agency

Sincerely,



Larry Goldstein
CERCLA Coordinator
Washington State Department
of Ecology

cc: C. Cline, Ecology
G. Hofer, EPA
W. Staubitz, USGS
J. Waite, WHC
R. Freeberg, DOE