

CORRES. CONTROL
OUTGOING LTR NO.

DOE ORDER #

05 RF00606



DIST.	LTR	ENC
BERARDINI, J.	X	
BRAILSFORD, M.D.		
FERRERA, D.W.	X	
FERRI, M.S.		
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GIACOMINI, J.		
HALL, L.		
MARTINEZ, L.A.		
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POWERS, K.		
SCOTT, G.K.		
SHELTON, D.C.	X	
SPEARS, M.S.		
TRICE, K.D.		
VOORHEIS, G.M.		

June 15, 2005

05-RF-00606

Mr. John Rampe, Director
Project Management Division
DOE, RFPO

WIEMELT, K.L.	X	X
THORNBURG, AMY	X	
PRIMROSE, A.	X	X

TRANSMITTAL OF THE RESPONSE TO DEPARTMENT OF ENERGY (DOE) COMMENTS ON THE DRAFT GROUNDWATER PLUME TREATMENT SYSTEMS OPERATIONS AND MAINTENANCE (O&M) MANUAL AND THE DRAFT 2003 ANNUAL REPORT FOR THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE (RFETS) GROUNDWATER PLUME TREATMENT SYSTEMS - KLW-042-05

Enclosed is a copy of the Response to DOE Comments on the Draft Groundwater Plume Treatment Systems O&M Manual and the Draft 2003 Annual Report for the RFETS Groundwater Plume Treatment Systems for your files.

COR. CONTROL	X	X
ADMN. RECORD	X	X
WASTE REC. CTR		
TRAFFIC		
PATS/130		

If you have any questions, please contact me at extension 9883.

Karen L. Wiemelt

Karen L. Wiemelt
Manager, Environmental Restoration Programs

CLASSIFICATION:		
UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

KLW:dm

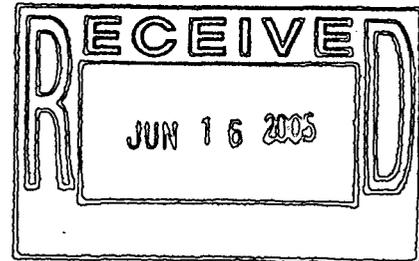
AUTHORIZED CLASSIFIER SIGNATURE	
Exemption - CEX-105-01	

Orig and 1 cc - John Rampe
cc: Norma Castaneda
Scott Surovchak

Date

IN REPLY TO RFP CC
NO:

Enclosures:
As Stated



ACTION ITEM STATUS

- PARTIAL/OPEN
- CLOSED

LTR APPROVALS:

ORIG & TYPIST INITIALS

Revision 7/04

ADMIN RECORD

0021-258
SW-A-005117

1/6

Response to Department of Energy (DOE) Comments on the Draft Groundwater Plume Treatment Systems Operations and Maintenance Manual

Comment: This manual is designed to provide site workers the information they need to operate and maintain 3 zero-valent iron based treatment systems at Rocky Flats. The manual does this very well. It is well written and clear. There are areas that lack some detail, particularly concerning H&S, but the user is cautioned to contact H&S or management for any unusual activity or findings. The text is relatively free of typos or grammatical errors. I think this could be used as is for the LM program. As it gets used, revisions will be made as needed. The as-built drawings were not in my review copy. These would be very useful - and in fact, perhaps a more schematic-type of drawing showing locations of access points, sampling points and other relevant location information would be useful.

Response: Copies of the as-builts were provided separately. The following table shows the sampling points for each system. The locations are referenced to locations on the as-builts when possible.

Sampling Locations for Groundwater Treatment Systems at Rocky Flats Environmental Technology Site

Location Name	Location Description
Mound Plume Treatment System	
MOUND R1-O	Mound Plume Treatment System Influent - Sampled at the collection sump (refer to Figure 1 of the Mound Plume Treatment System As-Builts)
MOUND R2-E	Mound Plume Treatment System Effluent - Sampled at the flowmeter flume (Refer to metering manhole on Figures 3 and 4 of Mound Plume Treatment System As-Builts)
East Trenches Plume Treatment System	
ETPTS ET INF	East Trenches Plume Treatment System Influent – Sampled at the Collection Sump (Refer to Drawing 51615-0104 of the East Trenches Plume Treatment System As-Builts)
ETPTS ET EFF	East Trenches Plume Treatment System Effluent – Sampled at the flowmeter flume (Refer to metering manhole on Drawing 51615-0401 of East Trenches Plume Treatment System As-Builts)
ETP-WT-INF	West Tank Influent - Sampled from the top of the west tank (reactor cell #1) (Refer to Figure 1-1 included with East Trenches Plume Treatment System As-Builts)
ETP-WT-IRON	West Tank Well Point - Sampled from a well point in the zero valent iron bed in the west tank (reactor cell #1) (Refer to Figure 1-1 included with East Trenches Plume Treatment System As-Builts)
ETP-WT-EFF	West Tank Effluent - Sampled from the siphon break coming out of the west treatment cell. (Refer to Figure 1-1 included with East Trenches Plume Treatment System As-Builts)
Solar Ponds Plume Treatment System	
SPPTS SPPMM02	Solar Ponds Plume Influent – Sampled from piezometer 71099 in collection trench (Refer to annual groundwater treatment report Figure 14)
SPPTS SPPMM01	Solar Ponds Effluent - Sampled from flowmeter flume in metering manhole (Refer to Drawing 51649-0105 of the Solar Ponds Plume Treatment System as-builts).
SPPTS SPP Discharge Gallery	Discharge Gallery - Sampled from outflow from the gallery (Refer to Drawing 51649-0108 of the Solar Ponds Plume Treatment System as-builts).

Response to DOE Comments on the Draft 2003 Annual Report for the Rocky Flats Environmental Technology Site Groundwater Plume Treatment Systems

(1) **Comment:** Data are provided to help evaluate the performance of the treatment cells. However, the concentration data is provided as ranges in one table rather than the specific values of individual samples. It is not clear even how many samples were analyzed (if only 2, it would be easy to present both).

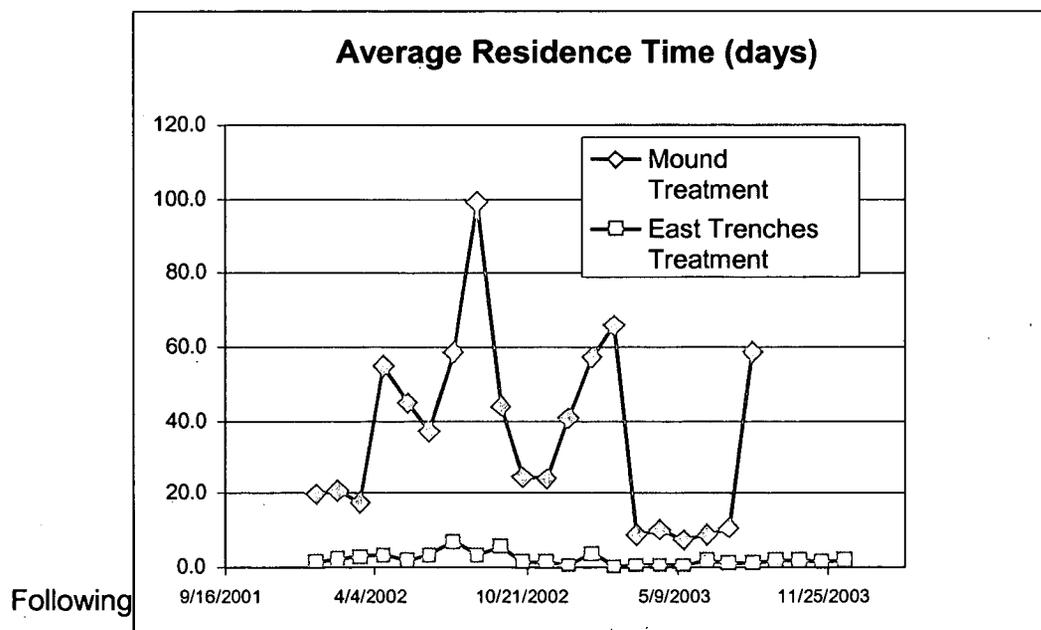
Any thoughts on whether 2 samples is sufficient to characterize the system performance. It may not be appropriate to use chemical results from a few samples to represent the entire year - need to provide some defense of this by looking at the variability of the data from closer spaced samplings.

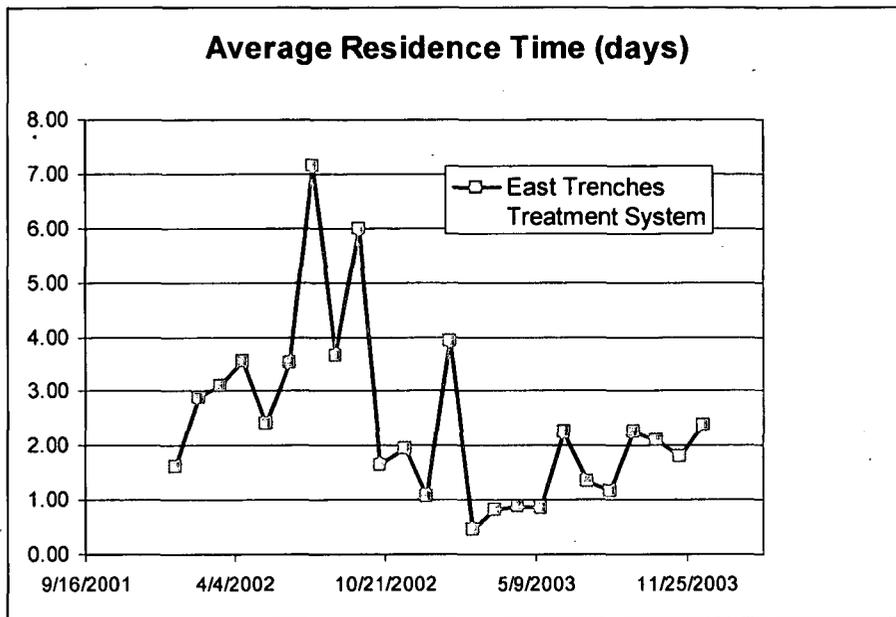
Treatment efficiency of VOC by ZVI is rate controlled and therefore it is critical that we know the rate of fluid movement through the ZVI. This is best expressed as residence time. I assume that there are some residence time requirements built into the design. These are likely based on laboratory treatability studies and should be updated by data from the treatment cells. In summary, residence times associated with each set of data should be reported.

Response: The format for tables was based on the format used in past reports. In 2003, the Mound Plume Treatment System was sampled twice. The East Trenches Plume Treatment System influent was sampled twice in 2003 and the effluent was sampled four times. The Solar Ponds Plume Treatment System influent was sampled monthly. The effluent on the Solar Ponds Plume Treatment System was scheduled for monthly sampling; however, sometimes there was insufficient flow at the sampling point to get a sample.

The sampling frequency is in accordance to the Interim Measure/Interim Remedial Action decision documents for each system. This frequency is sometimes increased to evaluate system performance.

Residence times for the Mound Plume and East Trenches treatment systems for both 2002 and 2003 are shown below, except for the end of 2003 when little flow due to the drought.



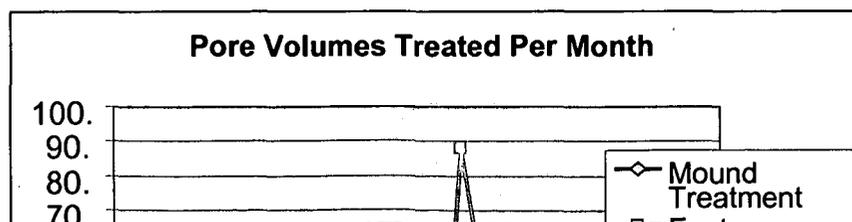


(2) Comment: Are any chemical data other than the contaminants collected? Values of pH, ORP, alkalinity, Ca, DO etc. would be useful in understanding the pore plugging issues. If these data are available they should be reported and interpreted. If not, consideration should be given to collecting some.

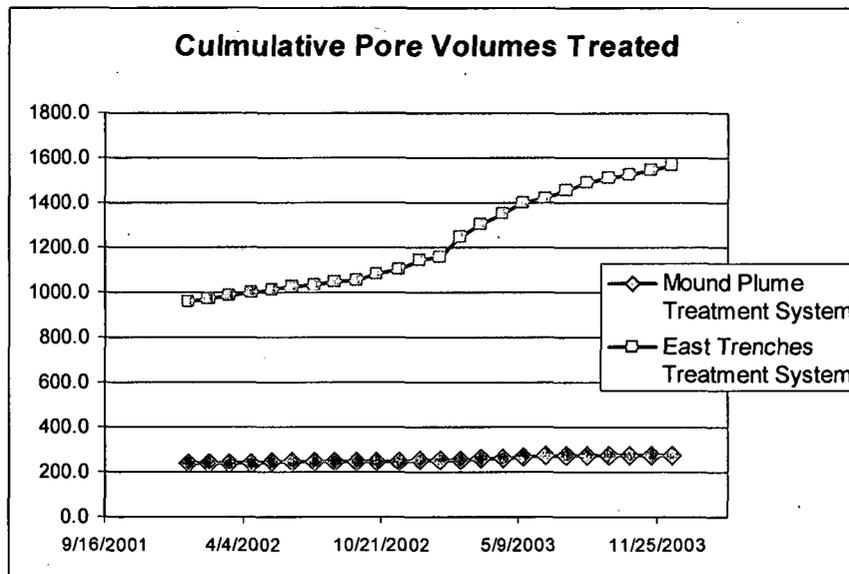
Response: These data are collected and recorded in the SWD. These can be queried using the sample locations in the table above.

(3) Comment: History of operation. Although this report only covers year 2003, it would be useful to have a diagram or table that provides historical information about the treatment cells (when was ZVI changed out?, any unusual events?, any design changes such as use of different types of ZVI etc). A plot of date/time on X axis and volume treated (best expressed as pore volumes to make easy comparison to other ZVI projects)

Response: A maintenance log was provided separately. In addition, quarterly and annual reports are attached that cover all of the years of operation prior to 2003. Pore volumes treated per month as well as cumulative pore volumes have been plotted for 2002 and 2003 and are presented below:



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(4) Comment: Timing. Seems like this should be out earlier so that any recommendations could be implemented the following year. Is there a 2004 report coming out soon?

Response: The report was recently revised to include both 2003 and 2004 data.

(5) Comment: The report indicates that the treatment cells are working very well. In fact, it seems almost too good to be true. Are all the operational issues being thoroughly addressed. It is particularly important to have any "lessons learned" reported so that we can realistically evaluate whether these should be used on other LM sites.

Response: The maintenance log already provided documents the maintenance problems encountered. In addition, copies of previous years quarterly and annual reports have been attached to provide further details.

(6) Comment: More details on flow measurements are needed. How often are they taken. Is there a totalizer or are they just instantaneous measurements. A graph of the flow (both

instantaneous and averaged) would be useful. The flow meter is calibrated frequently - is this because it often errors or is it just best management practice? Calibration data should be included in the report.

Response: The flowmeters take continuous level measurements and log the average levels every 5 minutes. The data is then evaluated (and corrected if needed based on field observations by site surface water personnel who have expertise in these types of flowmeters. Fifteen-minute flow rates are calculated from the corrected average fifteen-minute levels. Daily and monthly average flows are provided for the annual report. Electronic versions of this data including hydrographs were provided separately.

The flowmeters are checked at least twice a month to ensure that the flumes are free of debris and cleaned. Aside from cleaning the flume and making sure the system is in good operating order, the flowmeter is checked monthly for drift by comparing the height of liquid in the flume measured by the flow meter to the actual height of liquid in the flume. If there is a difference, the offset is adjusted to bring the flow meter back into calibration. Although the flowmeter calibration is checked monthly, it is only adjusted if it has drifted. Other components of the flowmeter calibration (i.e., slope) are factory set and therefore are not adjusted in the field. Because much of the calibration is set at the factory and only the offset is adjusted as needed, the actual calibration data is minimal and has not been included.

(7) Comment: Where are the samples collected? Are they from immediately out of the treatment cell or at the distribution point?

Response: A table was provided above.

(8) Comment: Has there been any thought to installing a flow meter and/or transducer and have data sent by telemetry to central location - to allow malfunctions to be recognized and corrected as soon as possible?

Response: RFETS surface water personnel have considered the use of telemetry and have suggested its use after September 2005 when additional equipment currently in use could be available.

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