



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500

DEC 20 1990 DENVER, COLORADO 80202-2405

Ref: 8HWM-FF

Mr. Robert M. Nelson, Jr., Manager
Department of Energy
Rocky Flats Area Office
P. O. Box 928
Golden, CO 80402-0928

Re: Review and Comment on draft
Treatability Study Plan

Dear Mr. Nelson:

Please find attached EPA and EPA contractor comments pertaining to the draft Treatability Study Plan (TSP) submitted September 21, 1990. EPA expects DOE to address these comments and the State of Colorado comments to be submitted by the State under separate cover, to the satisfaction of EPA.

DOE must recognize that although the proposed Interagency Agreement (IAG) is not as yet final, the language and requirements within the proposed IAG were negotiated in good faith. EPA fully expects DOE to meet the commitments within the proposed IAG. The draft TSP does not fulfill DOE's obligations as directed by the proposed IAG. We are concerned that DOE is presently only planning to test feasible, implementable, cost effective and practical alternatives. The purpose of the TSP is to also evaluate innovative and emerging technologies which may offer advantages presently unknown to DOE.

If you should have any questions concerning these comments please contact Martin Hestmark or Arturo Duran of my staff at (303) 294-1134 and (303) 294-1133, respectively.

Sincerely,

A handwritten signature in cursive script that reads "Louis W. Johnson".

Louis W. Johnson, Chief
Federal Facilities Remedial Branch

Attachment

cc with Attachment:

Frazer Lockhart, DOE
Gary Baughman, CDH
Tom Greengard, EG&G
Joe Palomba, CDH-RFPU
Martin Hestmark, 8HWM-FF
Bill Fraser, 8HWM-FF

ADMIN RECORD

A-SW-000021

Comments on Site-wide Draft Treatability Studies Plan
Submitted 21 September 1990

GENERAL COMMENTS

As indicated in verbal comments provided during the meeting held November 27, 1990, the separation of the Treatability Study Plan (TSP) into two documents is inconsistent with the IAG requirements. A plan for identifying, testing and evaluating innovative and alternative technologies must be incorporated in this document. This should include both innovative technologies which show a potential to address problems for which conventional treatment options do not exist and technologies which may offer improved performance or cost advantages over those currently in use. Preparation of the plan must include a thorough review of available literature and ongoing work within DOE and elsewhere. Results of efforts completed at RFP for other purposes (such as TARs) should be incorporated as appropriate.

Various sections of the TSP discuss Future Treatability Study Workplans, Treatability Study Workplans, Executable-Level Plans, and Scopes of Work. These terms are not clearly defined or consistently used, so it is unclear what documentation will be prepared before work begins on a particular study. The TSP should define this clearly and propose a means by which EPA can participate in the scoping and planning process for each study.

The discussion of the role of the sitewide program and its interface with OU-specific treatability studies provided in the Program Objectives is not reflected in later sections. The objectives indicate the sitewide program will reduce, often eliminate, the need for OU-specific studies. The scopes of work provided for the five studies identified appear to defer everything beyond rudimentary jar testing to the OU-specific studies, this is not necessary or appropriate. Any testing, including bench and pilot scale, which addresses a problem reasonably expected to occur in more than one OU should be conducted under the sitewide program.

Several sections of the TSP address the question of compliance with and preparation of other program documents. In many instances the terminology used is inconsistent and the text provided indicates general confusion over how all these documents fit together. These passages must be revised in accordance with verbal comments provided for the TSP, and written comments provided on the SOPs and QAPjP, all treatability testing must be performed within the SOP/QAPjP framework, and test-specific documentation (SOPAs/QAAs) provided as needed.

The schedule information provided is incomplete and internally contradictory in some respects. A detailed schedule must be provided to show the various studies to be performed and

the sequence of events leading to meeting established deliverable deadlines. Use of a larger scale and inclusion of more detail on the bar charts would help a great deal

After discussing the technology selection process that will be used (Section 5.1), the TSP jumps directly to the technologies that were selected (Table 5-3). The actual selection process, which should be a major element of this presentation, is never directly addressed. The descriptions of what the technologies are and how they work can be adequately covered by data sheets such as those provided in Appendix C. The text should concentrate on presenting the how and why of the selection. Tabular and graphical formats can be used very effectively to present this information in a concise form. Much of the other material presented here is valuable supporting information, but badly needs reorganization to present a coherent argument.

Specific Comments.

Executive Summary. The Treatability Studies Plan (TSP) must present a scheme for evaluating the effectiveness of both innovative and emerging technologies as well as practical technologies which have a potential application to Rocky Flats. The intent behind the language requiring delivery of the TSP within the proposed Interagency Agreement (IAG) is to utilize the literature to identify both practical and innovative technologies which have potential applicability to Rocky Flats problems. The purpose of testing both innovative and practical technologies is to narrow the focus of the site specific treatability tests and support the site specific feasibility studies. All technologies potentially applicable should have been preliminarily identified through a search of the literature. Preliminary selection of potentially advantageous technologies should be predicated upon advantages in implementability, fewer adverse impacts than other available approaches, less process waste, or lower costs for similar levels of performance, in addition to the standard selection criteria of cost, effectiveness and implementability. The preliminary screening should have been completed as a prerequisite to developing this plan and should have included an evaluation of all emerging and innovative technologies as well as the practical and proven technologies. The proposed IAG does not anticipate more than this submittal.

After developing this preliminary list of emerging and practical technologies, all technologies identified must then be carried through the screening process defined within this TSP.

Section 1 0, page 1-4 Fig. 1-1 separates the treatability studies into two phases This is not coordinated with the requirements of the IAG in which only one document was anticipated to define a sitewide Treatability Study. Treatability studies for both practical and innovative/emerging

technologies must be included in this document.

Section 1.0, page 1-5 Fig. 1-2 presents a schedule for sitewide treatability studies and OU specific feasibility studies. It is important to acknowledge that treatment activities ongoing for a specific OU, may have application in more than one particular OU and may impact the direction taken within the sitewide treatability studies plan.

Section 3.0, page 3-1. Treatability studies may also identify data voids which need to be filled through implementation of RFI/RI workplans in order to quantitatively evaluate the effectiveness of a technology preliminarily evaluated within the scope of the TSP.

Treatability study workplans for each treatability study to be conducted should also include a section addressing the potential for additional work needed to fill any site characterization data gaps. In other words, information on additional field sampling work and quality assurance potentially necessary to fully evaluate an applicable technology should be included within the treatability study work plan so that the RFI/RI Workplans can be modified or focused to present the proper supporting information.

Section 3.0, page 3-2. Any specific field or quality assurance activities required to conduct the treatability studies should be incorporated by the use of a mechanism that does not require modification of the Sitewide Sampling and Analysis Plan (SAP) or the Sitewide Quality Assurance Project Plan (QAPjP), since these are generic documents. One way to do this, is to include the required addenda within the treatability study workplans and then incorporate them into the Sitewide SAP and QAPjP by reference.

The FSP and the QAPjP are not conducted within the sitewide treatability studies program and they should not be modified to meet the needs of each treatability study.

The meaning of the third item in the dot-list is not clear, since the documents referenced are not "conducted within" the subject program. The final, and overall, objective is to prepare a comprehensive Sitewide Treatability Study report for use as a basic reference document in the completion of Feasibility Studies

Section 3.1, page 3-3. Given the extended timeframe between approval of this plan and the required submittal of the Treatability Studies Report, it seems that the TSP schedules could be adapted to provide information pertinent to the priority OUs and that preliminary reports could be published to provide the important information to the preparer of the CMS/FS reports

for those OUs which are scheduled to get to the CMS/FS stage sooner than others

Section 4 0, page 4-1. The data presented in this section needs to be updated to present the most recent sampling and analyses. This is important as much of the data collected prior to 1988 is of questionable validity and may in fact not represent contamination at the site.

The data presented within the tables must not be prejudiced by unsupported conclusions regarding the presence or non-presence of various constituents whose presence is still a point of contention.

Section 5 0, Page 5-3. The text indicates an interest only in laboratory and bench-scale testing; this is only a small part of the treatability testing program that needs to be described. Reference is also made to "other databases" showing results differing from those included here. A better description is required of where the data came from and how it was manipulated.

Section 5.0, Page 5-4. In the paragraph beginning "The technology evaluations" it is not at all clear how the approach described in the second sentence facilitates accomplishment of the goal stated in the first.

Section 5.1, page 5-5. The technology assessment report identified within this section must be submitted with the TSP as this report documents the selection process. Submittal of this report will aid an evaluation as to whether all the available options have been considered and to justify selection of the to be tested alternatives.

Section 5.1 3, page 5-9 Final decisions regarding the implementability or effectiveness of a selected technology which has application to more than one OU, should also be considered in a subsequent step internal to the sitewide treatability studies program and not just in the individual OU CMS/FS.

Section 5 1 5, page 5-13 This section states that innovative technologies were not considered due to the limited site characterization data currently available. Site characterization data needed to fill data gaps can be collected during the RI/FS Treatability Studies process. Therefore, innovative technologies should also be considered at this stage of the treatability studies.

Section 5.2, page 5-14 This section presents the results of the technology selection process for practical technologies. Documentation of the process used to select the alternatives is essential to approving this document. It is also mentioned that a similar technology assessment report will be issued for

innovative technologies. This report must be a part of the TSP.

The document must justify the selection of only five technologies. What were their advantages over the others?

Section 5.2.3.1, page 5-27 In section 5.1.2 it was mentioned that chemical specific ARARs will be used as another screening tool. However this section only considered three criteria: effectiveness, implementability and cost. At this stage of the screening process chemical specific ARARs must be also considered.

Section 5.2.3.2, page 5-28. Where is the documentation of the selection process? Why were only five technologies selected and not more? The process of applying the selection criteria which the first sentence here says took place is what must be presented, completely and in detail. The "rationale for the selection or elimination" presented in the next few subsections is the only support the document provides for the selection decisions. It is vague, unsubstantiated, and incomplete. No mention at all is made of at least half the candidate technologies listed in Table 5-2.

Table 5-3 does not present any technologies to be tested to evaluate treatment for organics in water. It is true that there are technologies available that have been proven successful for removing organics in water. However, this is not a valid reason for not considering treatability studies on innovative/emerging technologies to address this problem. It is possible that a new technology may offer a higher level of performance, at less cost, or may generate less waste streams than the technologies available at this moment.

Section 5.2.3.3, page 5-30. It is important to mention which proven technologies are planned to be used at Rocky Flats. For example, carbon adsorption and membrane processes have been already selected as an IM/IRA for OU 2.

Section 5.2.3.4, page 5-33 This section states that in-situ biological treatment will not be considered for treatability studies at this time because more specific site hydrogeologic data needs to be collected. This technology should not be eliminated from consideration for this reason. There exists hydrogeologic data for some of the OUs, for example, the solar ponds, OU 2 and OU 1.

Section 5.2.3.5, page 5-33. Oxidation/reduction methods for inorganics, metals and radionuclides in water were selected in this initial stage of treatability studies. This is not presented in Table 5-4 on page 5-34. This inconsistency must be corrected.

Table 5-4, Page 5-34. The information displayed here does not agree with the text or with Table 5-3. Also the classification of "Stage I" studies as opposed to "Future" doesn't carry over to the next section, where "Future" apparently means something else

Section 6.0, Page 6-1 The assertion made in the first sentence of this section is false, some "Statements of Work" are presented, along with guidelines for Work Plans. The workplans themselves do not appear, nor should they. The "Scopes of Work" are so skeletal as to be of little use, and it is not clear what purpose they serve in this context.

Section 6.1, page 6-1. FSP and QA/QC procedures specific to the treatability studies to be conducted must be included in the treatability studies workplan and as addenda to the generic FSP and QA/QC procedures.

Section 6.1.1.1, page 6-2. The level of treatability studies (laboratory, bench or pilot scale studies) must be justified. For example, in this case, bench scale was selected to be appropriate because the chemistry of the process was to be studied.

Section 6.1.1.3, page 6-3. It would help to present the reactions expected to take place for each of the oxidation and reduction processes in order to fully understand the chemistry. This will help in evaluating if the expected reactions are likely to occur, and will also allow evaluation of whether any adverse reactions may occur.

Section 6.1.1.3, page 6-4. The chemistry of plutonium is very complicated. It would help to list in the reference section the sources used to gather this information.

Section 6.1.3.3, page 6-10. Why is the third phase to be conducted as part of a CMS/FS for a specific OU? This is a technology that has application to more than one OU. The treatability studies should be conducted as part of the sitewide treatability studies.

Section 6.2, Page 6-19. The guidelines provided will require some revision to reflect verbal comments on incorporating and/or amending SOP/QAPjP requirements. A detailed, annotated standard outline should be provided for Treatability Study Work Plans. Interim reports on specific studies will be reviewed if provided by DOE, but the final result of this program as required by the IAG is a comprehensive report, for which an outline (based on Table 6-2) should be provided