

Delays associated with the FY '92 Project Efforts

- Annual report:
The change from a final sitewide report to annual reports caused manpower to be diverted to preparation of the first annual report. This report was due only six months after the Final Treatability Studies Plan was issued, thus there was not a lot of time for projects to develop, nor was there manpower available to address the project needs and oversee the preparation of this report.
- * Work plans had to be written, reviewed, modified and approved. This required that statements of work be written (describing the requirements of the work plan) and submitted to procurement. The statements then went through the procurement process of bid, evaluate, and negotiate before being awarded to a sub contractor who developed the work plan.
- The work plans were then reviewed (internally, DOE and agency), and modified as required to produce the final draft of the work plan. This entire process is slow especially when the outside reviewers are not quick to turn around their comments. (For example, the Pu in Soils Treatability Studies Work Plans: TRUClean Process and Magnetic Separation was transmitted from DOE to the Agencies on 11/29/91. Comments were not received on the work plans until April 7, 1992.)
- * Once the Work plans for a project are written and approved and if the work is to be performed off-site, another procurement cycle is required to locate a vendor to conduct the treatability study. Thus, another statement of work is prepared and submitted to procurement to go through another cycle of bid, evaluate, and negotiate prior to being awarded to a sub contractor. In order to avoid this second procurement cycle some of the treatability studies are scheduled to be carried out in the treatability labs in Building 881.
- * Building 881 treatability labs. The operation of these labs has been delayed due to leaks and other problems with the process piping which carries wastes out of the building. In order to get around this problem the lab has applied for designation as a satellite storage area under RCRA guidelines. The lab, originally scheduled to be on line in the spring of 1992, is now scheduled to be operational during November 1992.
- * Facilities, both to do the treatability work and to do the required analytical work, had to be identified, audited and approved according to specific Quality Assurance standards. A problem inherent with Rocky Flats environmental materials is plutonium. Many treatability laboratory facilities do not have the appropriate approvals from NRC to handle plutonium contaminated samples. Thus, the number of facilities available to conduct treatability studies is not large .

* NEPA approvals:

Initially most of the projects were supposed to receive their NEPA approval through the site wide Environmental Assessment (EA). The EA was not approved at DOE headquarters on a timely basis and eventually this approach was abandoned.

Finally approvals were granted to the projects based on categorical exclusions for lab and bench scale projects. (A request for NEPA review and approval of the NRT soil treatability study was submitted on March 23, 1992. The final approval from DOE was granted on August 12, 1992)

* Quality Assurance reviews:

Quality assurance reviews add significant amounts of time to the overall process.

• Funding/Staffing levels:

Funding for conducting treatability studies has been and continues to be a constraint on the quantity of work that can be performed and on the scheduling of the work. Low funding levels have forced a number of efforts to be delayed beyond fiscal year '93. Uncertain budgets combined with hiring constraints and the hiring freeze from October of 1991, to March of 1992, have also been a problem in managing an efficient program. Also, staff engineers have been working primarily on OU's more than on Sitewide programs. Examples: C. D. Cowdery-OU1, instead of Adsorption-ION Exchange; O. Erlich-OU 1, instead of Tru-Clean; J. P. Koffer-OU 2, IM/IRA. etc..

To date the following studies have been completed. Some of the results from these studies were presented in the first annual report (March 1992).

• OU-1 Per Oxidation Testing (UV):

Bench-scale tests were conducted (September 1991) for treatment of OU-1 groundwater contaminated with VOCs using UV/hydrogen peroxide oxidation treatment. The purpose of the testing was to evaluate the oxidation of chlorinated solvents in groundwater using ultraviolet light and hydrogen peroxide and to determine the design and operating parameters prior to start up of the OU-1 IM/IRA.

* OU-1 VOC Contaminated Soil:

Samples were taken (Septem 1992) of OU-1 soils to be tested for VOC contamination in preparation for a treatability study. The analytical results showed there was insufficient VOC contamination to justify conducting a treatability study.

* OU-2 Activated Carbon Studies:

Bench scale tests were conducted (December 1992) on samples of OU-2 surface water contaminated with VOCs using several types of GAC in a column configuration. Results indicated that the VOCs could be removed to below detection limits for all experimental conditions tested.

Bench scale testing was also performed to evaluate coagulation/ precipitation/filtration technologies for removal of suspended solids. Results showed that direct filtration using coagulants might be feasible.

Additional testing to evaluate the removal of radionuclides and metals from surface waters using GAC, ion exchange, chemical precipitation and adsorption were not carried out due to insufficient concentrations of these constituents in the OU-2 water sample.

- Colloid Polishing Filter method - (EPA SITE - Techtran Study): Bench scale tests were conducted to evaluate the Colloid Polishing Filter Method and establish optimum treatment conditions for this process. Based on results for U, Pu 239 and Am 241 95 to 99.9 percent of the radionuclides were removed by the treatment process.
- USGS Colloid Transport and Treatment Study:
Phase I (preliminary sampling) was carried out in November 1991. Results from the Phase I study are to be reported in an USGS open file report to be completed by the end of 1992. These results will also be included in the March 1993 annual report. Phase II of this project started in May 1992 when the USGS came on plant site and obtained more water samples for analyses. Samples were processed throughout the summer and most have been submitted for analyses. Initial results are due back in November with further results due in the coming months. Work will be summarized in an open file report and may be the subject of other journal articles. Depending on the results additional sampling and test work may be carried out.

The following studies are being carried out as part of the OU-1 and OU-2 IM/IRAs. Data derived from these studies will be useful to the sitewide treatability study program.

- * Ion Exchange treatment at OU-1
- Micro and Ultra Filtration at OU-2

FY '93 Project Status:

Of the 13 technologies selected for study in the Final Treatability Studies Plan (August 1991) none have been completed. The status of each of the studies is shown below:

Soil and Sediments

- Polymerization Stabilization-Epoxy
- * Polymerization Stabilization-Polyester
- * Portland Cement Stabilization
- * Masonry Cement Stabilization

The four stabilization projects have been put on hold by DOE due to their inherent problem with volume enhancement. These projects may become viable in the future depending on the direction provided by DOE. If DOE decides that these projects should be pursued during FY '93, additional funding will need to be provided to support these projects.

- Physical Separation:
The project to evaluate the Tru/Clean (AWC) process is in the procurement stage.

Procurement estimates that the sole source contract may be in place by early November if there are no delays during the negotiation stage. A contract to sample Rocky Flats soils for this project will also be in place at about the same time. With these contracts in place the actual project work will be scheduled, most likely for some time after January 1, 1993.

- Nevada Test Site - Integrated Demo:
The NTS site underwent a DOE Operational Readiness Review (ORR) on October 9, 1992. The ORR found 9 deficiencies. The NTS lead contacted EG&G on October 26, 1992 and indicated that there is no funding in the FY '93 NTS budget to conduct test work on any soils other than NTS soils. Therefore, Rocky Flats participation in this ID is currently on hold.
- * Soil Washing:
Nuclear Remediation Technology (NRT) located in San Diego, California, will be testing their proprietary soil washing process using a sample of RF soils. Sampling for this project is scheduled for November 9 and the actual test work will probably take place December. The exact timing of the test work is dependant on the work schedule at NRT and the exact arrival of the Rocky Flats sample. Results from this testwork should be available early in 1993.
- * Magnetic Separation:
The work plan for this project has been completed and the procurement package assembled and submitted to the procurement process. Because this project is a sole source project for LANL, the package is under review by DOE (Idaho). Due to budgetary limitations this project is currently on hold and may not be carried out during FY '93.
- Plasma Melter:
EG&G Rocky Flats was contacted in early November and asked to participate in the Plasma Melter project to be carried out at Lockheed's facilities near Las Vegas. This project will require only a minimal investment of time and money from EG&G RFP. The Plasma Melter project will substitute for the magnetic separation project.
- OU-2 IM/IRA (Vapor Phase Extraction Testing):
The work plan for this project has been completed and engineering work is starting for design and construction.

Groundwater and Surface water

- Oxidation/Reduction:
The final version of the work plan has been completed. This study is scheduled to be carried out in the spring of 1993 in the 881 treatability study laboratory. This study is scheduled for the spring since that is the best time to obtain the groundwater samples. Current level of funding will allow some lab work and analytical work to be completed at a reduced level from that specified in the work plan. (Note the complete analyses of all samples as called for in the work plan would cost in the neighborhood of \$100,000 to 120,000 - all of the funding for this fiscal year - leaving no funds to pay for the actual treatability study or sampling).

* Adsorption:

The work plan for this study is being prepared. The scheduled final draft of the work plan is due early in November. This project is scheduled to be carried out in the summer of 1993 in the 881 treatability study laboratory.

* Ultrafiltration/microfiltration:

A work plan to conduct an ultrafiltration/microfiltration study at LANL was completed and submitted to DOE January 30, 1992. DOE is holding this work plan pending the results of other Ultra/microfiltration work being carried out at Rocky Flats. These other studies include OU-2 surface water IM/IRA, USGS Colloid transport and treatment studies and ultrafiltration studies conducted by the surface water division at RFP.

* Tru/clear:

Previous laboratory studies have been carried out demonstrating that the Tru/clear process (potassium ferrate ion precipitation) is effective at removing contaminants from Rocky Flats waters. Additional laboratory work is planned to further define the optimal parameters.

Future work (beyond FY '93) might also include a field demonstration depending on project funding. This process has the inherent problem of being a secondary waste generator (sludge).

* Ion Exchange:

The work plan for this study is being prepared. The scheduled final draft of the work plan is due November 13th. The actual project is scheduled for FY '94 due to funding limitations in the current budget.

TABLE I
 Funding Status and Deliverables for
 FY 1993 Sitewide Treatability Study Projects

Project Description	\$ FY 93 funding	FY 93 Deliverable
Pondcrete Process Evaluation	36,465	Report
Truclean	478,294	Treatability Study Report
Soil Washing - NRT	10,696	Treatability Study Report
Truclear	327,477	Lab testing and report
Oxidation Reduction	104,436	lab testing and report
USGS Colloidal Studies	7,780	lab studies and report
Adsorption	207,291	Work plan and begin lab work
Bioremediation	121,550	Report, statement of work
Wetlands Study	11,669	report
Radionuclide Control Discharge Plan	46,675	contribute to annual report
Filter Flow Technologies - Colloid Polishing Filter Method (EPA - SITE - TECHTRAN)	36,368	lab testing and report
Plasma Melter	15,569	testing and report
CSM Pump Study	5,834**	project planning
CU-Seep Study	3,890**	project planning
Annual Report	321,017	1993 annual report begin 1994 report
Rescoped TOTAL	1,735,000	
Pu In Soils - Integrated Demonstration		Funded under separate work package.

**Funds already expended for FY '93