The Mixed Waste Management Facility

Monthly Report
September 1994

October 1994

Lawrence Livermore National Laboratory
Environmental Programs

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the University of California nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the University of California, and shall not be used for advertising or product endorsement purposes.

This report has been reproduced
directly from the best available copy.

Available to DOE and DOE contractors from the
Office of Scientific and Technical Information
P.O. Box 62, Oak Ridge, TN 37831
Prices available from (615) 576-8401, FTS 626-8401

Available to the public from the
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Rd.,
Springfield, VA 22161

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

Mixed Waste Management Facility

Monthly Report
September 1994

Ron Streit

October 1994

LAWRENCE LIVERMORE NATIONAL LABORATORY
University of California • Livermore, California • 94550

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

at

Contents

Summary	iii
Project Financial Summary	vi
1.1.1. Quality Assurance	1
1.1.2. PSAR	2
1.1.3. NEPA/CEQA	3
1.1.4. ES&H	5
1.1.5. Program Support	6
1.1.6. Public Participation	8
1.2.1. Conceptual Design	9
1.2.2. Plant Start-Up Management	10
1.2.3. Activation	11
1.3.1. Project Management	12
1.3.2. Project Control	13
1.3.3. Technical Systems Integration	15
1.4.1. Receiving and Shipping	17
1.4.2. Solids Feed Preparation	18
1.4.3. Liquids Feed Preparation	20
1.5.1. Mediated Electrochemical Oxidation	21
1.5.2. Molten Salt Oxidation	23
1.5.3. Wet Oxidation	24
1.5.4. UV Photolysis	25
1.5.5. Experimental Off-Gas	26
1.6.1. Process Transport and Storage	27
1.6.2. Analytical Laboratory	28
1.6.3. Water Treatment	30
1.6.4. Final Forms	31
1.6.5. Supervisory Instrumentation and Control	32

**MWMF Monthly Report
September 1994**

Summary

During September, significant developments occurred that affected present and future project activities and costs.

1. A significant level of trade studies and DOE/LLNL discussions resulted in a decision to proceed with the integration of the facilities for the MWMF and Decontamination and Waste Treatment Facility (DWTF). While this positively results in cost savings due to elimination of overlapping scope, it also results in both a significant delay in MWMF project completion (about one year) and an impact on permitting strategy and overall project implementation. On September 26, DOE directed that a Baseline Change Proposal (BCP) for the DWTF reflecting the facility integration be submitted by November 4 to allow for FY96 validation. This BCP is essentially at the level of a Conceptual Design Report (CDR) for the DWTF Line Item, and requires the concerted and intensive support of the MWMF to develop detailed interfaces, shared functions, and cost revisions to the MWMF and DWTF. At the same time, DOE directed that a Revised Project Baseline (RPB) for MWMF be prepared to reflect the integration decision, fiscal year profile constraints, and an "austere" deliverable facility.
2. Several significant events also affected development of the FY95 Plan for the MWMF.
 - A DOE letter of September 29 transmitted a reduced budget guidance of \$7.6M for FY95, down from prior planning guidance of \$16.5M.
 - An unexpected reduction of \$811K to the DOE/LLNL contract for the MWMF occurred during September, due to a prior contract modification error by DOE/OAK. This presents a significant reduction in carry-over money available during FY95 and compounds the reduced budget guidance noted above.
 - The LLNL Finance Department began implementing a new cost-accounting methodology that completely restructures indirect rates for FY95. This needs to be incorporated into the budget planning for FY95. Final LLNL guidance on the new rate structure is not expected until late October.
 - LLNL year-end closing activities resulted in certain unanticipated costs appearing in September charges. One large cost item in particular (~\$85K), arose from space-recharge costs to maintain office trailer space for the delayed DOE KD-1 decision.
 - The approach used to capitalize MWMF equipment was reviewed by the Finance Department at LLNL, and certain changes in accounting may be necessary to meet current DOE guidance. This is currently under discussion.

The current impact of these changes has been to divert considerable management resources from other planned work and to delay the milestone completion for the FY95 Plan. Longer-range impacts will be determined by the MWMF Revised Project Baseline (RPB). Currently, priority has been given to preparing the RPB in response to DOE's request; the FY95 Plan will be issued after the RPB and will address the issues noted above.

Good technical progress continued, but at a reduced level, reflecting reduced project guidance that had been anticipated (see list below). The manpower was not ramped up as projected in the 7/94 Revision of the FY94 Plan, due to the pending DOE decisions and some level of anticipated budget shortfall. The Water Treatment Study requested

**MWMF Monthly Report
September 1994**

by DOE was completed and sent to DOE for review. A memo to address the findings of the Independent Cost Verification committee for the MWMF Conceptual Design Report (CDR) was issued to DOE. Revision 1 for the project baseline, which incorporated the technical downscope and FY funding guidance from the CDR, was issued to DOE/OAK during September; the changes discussed in item 1 above will require a Revision 2 to this RPB.

Permitting actions were also affected by the integration decision. The existing RD&D permit application is being modified and is projected to be submitted to DTSC in January. The existing Environmental Assessment (EA), incorporating DOE's comments from the original draft, is expected to be resubmitted to DOE in October. The Preliminary Safety Analysis Report (PSAR) that was completed for the old location of the MWMF is in final LLNL approval and will be submitted to DOE in November. Evaluation of the impact of the integrated facility will begin when further details are developed, but it is anticipated that the safety analysis for the B494 location will continue to bound the impacts.

Specific significant accomplishments during this reporting period include the following:

- In support of the DOE decision (on September 29) to integrate the DWTF and MWMF facilities:
 - developed matrix to identify and assign shared resources and to estimate cost savings by integration;
 - developed MWMF schedule to estimate schedule impact and issues due to integration;
 - developed strategy for permitting of MWMF when integrated with DWTF;
 - developed floor plan for common MWMF/liquid waste processing facility;
 - prepared briefing package for S. Cowen.
- Released Revision 1 of the MWMF Project Baseline, with request for concurrence from DOE/OAK.
- Began to prepare Revision 2 of Project Baseline to reflect integrated facilities and schedule delay.
- Began preparation of FY95 Plan:
 - developed estimating methodology to incorporate new LLNL revised accounting method;
 - developed project guidance (scope, budget, schedule) for preparing FY95 Plan, based on estimated FY94 closing and FY95 guidance.
- Began to revise portions of the RD&D permit application to reflect integrated MWMF/DWTF.
- Continued to push PSAR and EA through LLNL signature cycle.
- Issued Design Review QA Procedure.
- Prepared for first Public Participation meeting in November: briefed DOE on plans, contacted Public Advisory Panel, prepared MWMF information booklet.
- Continued activities to finalize the draft MWMF Integrated Operating Plan (IOP), as input to the final version of the RD&D permit application. A series of in-depth reviews by all Lead Engineers, LLNL Hazardous Waste Personnel, and other stakeholders was completed.

- Developed a detailed revised floor plan to reflect the integrated DWTF/MWMF building as a basis for rapidly proceeding with the Revised Baselines for the DWTF and MWMF.
- Mediated Electrochemical Oxidation: Distillation measurements for acid recovery showed favorably low levels of organics. Set up a small MEO cell to begin tests on several pump seal candidates. Assembled and activated a prototype cellulose feeder for evaluation in upcoming tests. Preliminary Design (PD) activities included process control strategy, P&ID drawings, and off-gas analysis.
- Molten Salt Oxidation: Vessel material samples were sent to ETEC for testing; the injector test bench was made operational and is in use. PD activities included vessel heat transfer studies, evaluation of CBD responses for MSO acquisition strategies, and beginning local process control design.
- Receiving/shipping: Activities focused on continuing pilot characterization study of LLNL legacy wastes: real-time radiographic scans began and potential issues for sampling sludges were identified.
- Solids Feed Preparation: Initial tradeoff studies were completed to identify candidate equipment for preliminary waste sorting. Draft handling procedures and candidate equipment were identified to address control of tritium emissions.
- Final Forms: Good results were obtained from test fabrication of ceramic waste forms using MSO residual components. Recent demonstrations of polyethylene encapsulation of wastes are encouraging for immobilizing MSO salt.
- Supervisory Controls: Integration of supervisory and front-end hardware and software for prototype platforms began. Training for front-end software was completed. Database management software and hardware was received. Began evaluation of closed-circuit TV options.

MWMF Monthly Report September 1994

Project Financial Summary

Actual costs continue to run below the planned costs in the 7/94 Revision of the FY94 Plan; manpower ramp-up was not implemented due to the expected reduced budgets in FY95. Carryover is important to supplement the reduced FY95 new BA, so that the issues noted in item 2 have significant impact for FY95. All of the expected OPEX/CENRTC cost adjustments may not have fully costed during FY94 and may show up in FY95 costs. Due to the capitalization discussions noted above, certain FY94 charges that were planned for CENRTC accounts were placed on OPEX accounts, thereby skewing the balance of OPEX/CENRTC charges.

OPEX (\$K), monthly

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Cont ^a	Total
DOE funds ^b	697	50	850	500	1025	0	1000	100	0	0	500	0	NA	4722
7/94 Plan	529	404	492	488	512	564	756	249	349	-675	123	212	18	4021
Actual ^c	491	356	452	440	493	621	768	413	359	-298	-26	372	NA	4442

OPEX (\$K), cumulative

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Cont [*]	Total
DOE funds ^b	697	747	1597	2097	3122	3122	4122	4222	4222	4222	4722	4722	NA	4722
7/94 Plan	529	933	1425	1913	2425	2989	3745	3994	4343	3668	3791	4003	18	4021
Actual ^c	491	847	1299	1739	2232	2853	3621	4034	4393	4095	4070	4442	NA	NA

Current OPEX liens (Sep 94, \$K) = \$265K

CENRTC (\$K), monthly

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Cont [*]	Total
DOE funds ^b	370	0	100	0	400	200	100	200	600	4916	0	-811	NA	6075
7/94 Plan	155	121	132	131	138	124	77	196	186	1116	742	970	371	4459
Actual ^d	156	119	132	131	138	122	78	196	186	656	673	494	NA	3085

CENRTC (\$K), cumulative

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Cont [*]	Total
DOE funds ^b	370	370	470	470	870	1070	1170	1370	1970	6886	6886	6075	NA	6075
7/94 Plan	155	276	408	539	677	801	878	1074	1260	2376	3118	4088	371	4459
Actual ^d	156	275	407	538	676	798	876	1072	1258	1914	2588	3083	NA	NA

Current CENRTC liens (Sep 94, \$K) = \$102K

Notes:

a FY94 remaining Project contingency; unused funds to be carried forward to FY95.

b October funds include carry-over funds.

c From LLNL Cost Account Report.

d From LLNL Cost Account Report. Actual CENRTC charges do not include 6% LLNL LDRD set aside from DOE funds.

MWMF Monthly Report
September 1994

UCRL-ID-116187-94-9

WBS Element: 1.1.1. Quality Assurance

Task Description:

Quality Assurance provides quality assurance and safeguards support for and evaluations of the MWMF Project to ensure compliance with applicable DOE regulations, and environment, safety, health, and NEPA/CEQA requirements. This effort includes development of the Project's quality assurance documentation and oversight for conformance to the approved plan.

Summary of Monthly Activities:

The QA Manager continued to manage the QA file and attend meetings in review capacity. The QA Manager assisted in developing the requirements for the Title I design deliverables. Preliminary writing of design review procedure was accomplished. Also, preliminary QA requirements applicable to development activities tailored from the MWMF QA Plan were developed.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	11	11	8	6	3	13	10	13	10	11	11	12	119
Actual	11	11	8	6	3	13	10	13	10	8	10	3	106

Outstanding liens this month = \$0K

Major Procurements:

None

Key Milestones and Markers:

Item		Scheduled Date ⁽¹⁾	Status
L111-1	Develop and issue Quality Assurance Plan	Oct 93	Complete
L111-2	Develop and issue Document Control Procedure	Jan 94	Complete
L111-3	Issue Design Review Procedure	Sep 94	Complete

⁽¹⁾ Milestones reflect DOE guidance and 7/94 FY94 Plan revision.

MWMF Monthly Report September 1994

WBS Element: 1.1.2. PSAR

Task Description:

The PSAR provides the integration of safety input, design reviews, and safety analysis for the MWMF Preliminary Safety Analysis Report. Safety analysis includes analysis, generation of documentation, and documentation review and approval. The element includes the generation of the Preliminary Safety Analysis Report (PSAR) and follow-on analysis required prior to the generation of the Final Safety Analysis Report (FSAR). This element provides additional criticality support to resolve safety issues.

Summary of Monthly Activities:

The PSAR continued routing through the LLNL signature chain and approval; it is currently at the Associate Director level. When specifics of the DWTF/MWMF integration are known, the PSAR will be evaluated for any necessary changes. We anticipate that this PSAR will bound the integrated MWMF configuration.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	59	57	50	31	22	11	0	0	0	0	60	60	350
Actual	30	9	10	2	24	58	7	164	8	0	29	0	341

Outstanding liens this month = \$86K

Liens through September are \$86K for preparation of the PSAR. Completion of the PSAR will satisfy the first deliverable of a contract that also includes completion of a FSAR. Only a portion of the lien will be charged against this account—the B494 upgrade contains FSAR costs. The FSAR will be prepared after facility construction but prior to actual operation.

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date	Status
L112-1.1 Issue Contract	Oct 93	Complete
L112-1.2 Preliminary PSAR review	Feb 94	Complete
L112-1 PSAR to DOE for review	Dec 94 ⁽¹⁾	In signature
L113-1 PSAR approved by DOE	Dec 94 ⁽²⁾	Open ⁽²⁾

(1) Revised originally from March '94.

(2) Milestone modified to reflect that PSAR does not require DOE approval. Original date was June '94.

WBS Element: 1.1.3. NEPA/CEQA

Task Description:

NEPA/CEQA provides for the preparation of input to the Environmental Assessment and all required follow-up documentation required for the NEPA/CEQA and necessary permitting. The effort includes preliminary evaluations, preparation of an implementation plan, preparation of technical information to support EA preparation, and comment resolution. This element prepares and coordinates approval of State, EPA, and local permits and supports public participation activities associated with the permits approvals.

Summary of Monthly Activities:

Revisions in the EA were made to address DOE comments and will be resubmitted to DOE in November. Permitting strategies were reviewed and revised to address the integration of the DWTF and MWMF. Work continued on portions of the RD&D permit application not directly tied to site location and floor plan. It is now anticipated that the permit application will be submitted in January, 1995. The air permit is on hold due to the absence of EPD air permit staff, but is not on the critical path. The schedule for completing both environmental evaluations and permitting in the integrated project will be reflected in the FY95 project plan.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	9	12	36	36	37	21	18	18	13	39	39	12	290
Actual	8	10	29	11	13	25	26	17	16	17	10	8	190
PRAG	3	4	5	5	4	3	4	5	6	27	25	25	116

Outstanding liens this month = None

Permitting staff costs are covered by the Permits and Regulatory Affairs Group (PRAG) accounts. These costs are shown to reflect the total project cost for MWMF NEPA/CEQA and permitting efforts.

Major Procurements:

None

**MWMF Monthly Report
September 1994****Key Milestones and Markers:**

Item	Scheduled Date	Status
L113-1 Submit EA to DOE	Jun 94 ⁽¹⁾	Complete
L113-2 Submit air permit application to BAAQMD	March 95 ^(2,6)	Open
L113-3 Submit Research, Development & Demonstration (RD&D) permit application to DTSC	Jan 95 ^(3,6)	In progress
D113-1 EA approved by DOE	Nov 94 ^(4,6)	Open
C113-2 Authority to Construct issued by BAAQMD	Nov 94 ^(5,6)	Open

(1) Revised from March '94 to match CDR progress.

(2) Revised from May '94 to match CDR progress; delayed by MWMF/DWTF integration.

(3) Revised from July '94 to match CDR progress; delayed by MWMF/DWTF integration.

(4) Revised from August '94 to match CDR progress.

(5) Revised from November '94 to match L113-3.

(6) Submittal format and date depend upon outcome of pending decisions and guidance by DOE on DWTF/MWMF integration. Milestone dates will be revised upon further guidance.

MWMF Monthly Report
September 1994

UCRL-ID-116187-94-9

WBS Element: 1.1.4. ES&H

Task Description:

ES&H provides for Environment, Safety, and Health representation to the MWMF project to ensure that all activities are conducted in a safe and environmentally sound manner and to ensure that ES&H standards have been properly applied. This element provides for conducting and/or monitoring safety-related analyses and the resultant documentation. Specific activities include preparing and implementing various assurance plans; performing hazard evaluations and safety assessments; participating in design reviews to ensure compliance with safety and environmental standards and regulations; preparing safety and environmental procedures; and preparing input for permit applications and other documentation required for compliance with Federal and/or State requirements.

Summary of Monthly Activities:

Members of the ES&H team continued to provide ongoing assistance to the MWMF Project staff on ES&H needs and requirements. This includes such activities as attending technical design meetings and reviewing drawings and proposed operations for ES&H concerns.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	8	8	8	8	9	9	9	12	12	16	15	15	129
Actual	2	10	12	13	16	16	7	13	11	13	12	11	136

Outstanding liens this month = None

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L114-1.1 Review of 30% Conceptual Design	Dec 93	Complete
L114-1.2 Review of 90% Conceptual Design	Mar 94	Complete
L114-1.3 Review 90% Preliminary Design	Jan 95 ⁽²⁾	Open
L114-2 Complete review of PSAR	Aug 94	Complete

(1) Milestone and dates reflect DOE guidelines and 7/94 FY94 Plan revision.

(2) Delayed from September '94 to reflect revised DOE KD-1 guidance.

**MWMF Monthly Report
September 1994****WBS Element: 1.1.5. Program Support****Task Description:**

Program Support provides top-level planning, control, and support of MWMF Project OPEX-funded activities. Specific activities include management of project assurances and interface with development activities. This element encompasses support for the Project Office including organization, schedule and budgeting activities, project plans and reporting, personnel hiring and housing, project operations control, Building 494 occupant relocation, and OPEX-funded technical support.

Summary of Monthly Activities:

As discussed in the Summary, management focus during September was to support the DOE tradeoff study to integrate the DWTF and MWMF facilities (see 1.3.1 for details). The development of a viable integration strategy that would provide the maximum cost savings involved numerous interfaces, tradeoffs, and cost/impact analysis and several meetings, discussions, and briefings with the MWMF, HWM, DOE/OAK, and DOE/HQ.

The final proposal selected by DOE for submittal for FY96 validation for the DWTF Line Item involves integrating several common functions and building areas between the MWMF portion of the facility (which also provides common functions for the DWTF and MWMF) and common utilities, with subsequent phases providing treatment and operational space for the MWMF. Once successfully demonstrated as BDAT in the MWMF and gaining proper regulatory approval, a treatment process (e.g., MSO) would be used in place to treat certain LLNL waste streams, as described in the LLNL Draft Site Treatment Plan. Construction and operational cost savings result from the elimination of overlapping scope; however, this overlap also results in a delay (about twelve months) in completion of the MWMF and impacts both permitting strategy and overall implementation (due to project extension).

In a letter on September 29, DOE/OAK directed that a Baseline Change Proposal (BCP) for the DWTF be submitted by November 4 to allow for FY96 budget validation. This BCP is essentially at the level of a CDR for the DWTF Line Item, and requires the concerted and intensive support of the MWMF to develop detailed interfaces, shared functions, and cost revisions to the MWMF and DWTF. At the same time, DOE directed that a Revised Project Baseline (RPB) for the MWMF be prepared to reflect the integration decision, fiscal year profile constraints, and an "austere" deliverable facility. This work has high priority during October and November, but was unplanned in the original FY94 Plan.

As a result of this work and other issues noted in 1.3.2, the milestone for delivery of the FY95 Plan is expected to be met in November. In support of the integration trade study, the following specific activities were accomplished during September:

- Developed a "Commonality Matrix" for the evaluation of MWMF and DWTF integration.

**MWMF Monthly Report
September 1994**

UCRL-ID-116187-94-9

- Developed a revised MWMF Project Schedule reflecting the integration of the MWMF and DWTF.
- Developed a strategy for MWMF permitting as integrated into the DWTF complex.
- Developed a floor plan for a common MWMF/Liquid Waste Processing Facility.
- Completed a briefing package for S. Cowen on the merger of the MWMF and DWTF.

In other work, the Water Treatment Trade Study, which was directed by DOE as part of KD-1, was completed. A copy was provided to DOE/OAK for review.

The Project received new FY95 funding guidance of \$7.6M very late in September, significantly reducing previous guidance of \$16.5M identified in the KD-1 letter of 6/28/94. This reduction will have significant long term schedule impacts, and will affect the immediate ability to develop the detailed FY95 Plan.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	331	161	192	135	191	206	405	49	311	-756	68	92	1385
Actual	331	161	192	135	191	206	405	49	311	-358	11	270	1904

Outstanding liens this month = \$148K

The large expenditure for September resulted from several unexpected, and in some cases incorrect, year-end closing charges: transfers associated with maintaining lease options on office and laboratory space during FY94, while awaiting KD-1 by DOE; relocation costs for consolidating the MWMF Project into one office area; year-end closing for engineering support contracts; incorrect charges for CENRTC work (will be corrected) due to recent account changes and the capitalization issue discussed in 1.3.2.

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L115-1.1 Project Management Plan (Draft)	Oct 93	Complete
L115-2 Select Project Engineers, Project Control Manager	Dec 93	Complete
L115-3 Submit FY94 Project Plan	Jan 94	Complete
L115-4 Initiate PTS and Monthly reporting	Jan 94	Complete
L115-5 Technology Selection and Implementation Plan, Part I	Feb 94	Complete
L115-6 Develop Design Basis Operations Plan	Mar 94	Complete
L115-7 Submit FY95 Project Plan (OPEX)	Nov 94 ⁽²⁾	In Progress
L163-1 Water Treatment Trade-off study	Sep 94	Complete

⁽¹⁾ Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

⁽²⁾ Revised from Sep 94; see September 1994 Monthly Report.

MWMF Monthly Report September 1994

WBS Element: 1.1.6. Public Participation

Task Description:

Public Participation provides for public input to the planning and execution phases of the MWMF Project. Included are a National Advisory Committee, a Community Newsletter and preparation and coordination of press releases and community tours.

Summary of Monthly Activities:

During August, we began preparing for a public participation meeting in late Fall. Preparation of a "facts sheet" booklet continued, and a formal letter to potential public participation organizations was prepared.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	1	0	4	0	1	1	0	0	15	15	21	58
Actual	0	1	0	4	0	1	1	0	0	5	0	0	12

Outstanding liens this month = \$28K

Manpower for LLNL Public Affairs is not directly charged. The validity of the \$28K lien is being investigated.

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L116-1.1 Form National Advisory Committee (NAC)	Nov 94	Planning
L116-2.1 Issue first public newsletter	Dec 94	Draft

⁽¹⁾ Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

WBS Element: 1.2.1. Conceptual Design

Task Description:

Conceptual Design provides the Project's technical, cost, and schedule baselines that form the basis for KD-1.

Summary of Monthly Activities:

All LLNL activities have been completed on this task. DOE issued KD-1 and funding guidance on June 28, 1994.

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	111	154	198	268	250	303	313	157	3	0	-85	0	1672
Actual	111	154	198	268	250	303	313	157	3	18	-99	81	1757

Outstanding liens this month = \$0K

Charges in September properly reflect cost adjustments within the project.

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L121-1.1 Initiate Point Design Reviews	Oct 93	Complete
L121-1.2 Complete Point Design Reviews	Nov 93	Complete
L121-1 30% CDR Review	Dec 93	Complete
L121-2 90% CDR Review	Mar 94	Complete
L121-3 Issue Conceptual Design Review	Apr 94	Complete
D121-1 Preliminary Approval and Funding to proceed into PD	Jun 94 ⁽²⁾	Complete
D121-2 KD-1/2 decision approved by DOE	Jun 94	KD-1 only

⁽¹⁾ Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

⁽²⁾ Revised from April '94.

MWMF Monthly Report September 1994

WBS Element: 1.2.2. Plant Start-Up Management

Task Description:

Plant Start-Up Management provides (1) operations and maintenance review of system designs; (2) the development of top-level plans for staffing, training, testing, and readiness review; (3) task analysis and preparation, review, and revision of site operating plan, maintenance, instrument calibration, and emergency response procedures; (4) recruiting, hiring, clearing, and providing general employee training for the plant staff; and (5) the development of training materials, training the trainers, and special technical and on-the-job training for the plant staff.

Summary of Monthly Activities:

None

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	0	0	0	0
Actual	0	0	0	0	0	0	0	0	0	0	0	0	0

Outstanding liens this month = None

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date
None	

**MWMF Monthly Report
September 1994**

UCRL-ID-116187-94-9

WBS Element: 1.2.3. Activation

Task Description:

Activation provides: (1) the preparation, review, revision, and release of all Operational Test Procedures (OTPs); (2) plant systems activation, integration, and performance of Operational Test Procedures in each of the technology areas including Operational Readiness Reviews; (3) technical support for the preparation of Operational Safety Requirements (OSR) and Facility Safety Requirements (FSR), as well as the identification and resolution of problems during plant operational testing, start-up, and activation including finalization of design documentation for equipment and process modifications; (4) maintenance support to perform equipment or process modifications during start-up, testing, and activation; (5) all operational spares and the initial stores inventory; and (6) all manpower and materials required to deliver support services (e.g., utilities, power, etc.) during construction, testing, and activation of the MWMF.

Summary of Monthly Activities:

None

FY94 Budget: Spending profiles (\$K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	0	0	0	0
Actual	0	0	0	0	0	0	0	0	0	0	0	0	0

Outstanding liens this month = None

Major Procurements:

None (or list, as appropriate)

Key Milestones and Markers:

Item	Scheduled Date
None	

MWMF Monthly Report September 1994

WBS Element: 1.3.1. Project Management

Task Description:

Project Management provides top-level Project planning, direction, and control of the MWMF Project's CENRTC-funded systems. Specific activities include Project management and support of Project Office, Project assurance (including quality assurance, safeguards, environmental, and safety oversight), management overview of information management and technical activities, and interface with DOE.

Summary of Monthly Activities:

As discussed in detail in 1.1.5, the primary management focus during September was to support a DOE tradeoff study for the integration of the DWTF and MWMF facilities. As noted, this was unplanned work for FY94; due to this work and the issues discussed in 1.3.2, the milestone for delivering the FY95 Plan has been delayed to November.

Activities during September included management of CENRTC-related work, including technical, financial, schedule, and administrative matters. In addition to the work discussed in 1.1.5, other significant specific activities included:

- Evaluated options for acquisition of the MSO system, based on CBD responses.
- Prepared and issued project guidance for the evaluation of system costs relative to DOE/OAK guidance for an "austere facility" (letter of 9-26-94).
- Initiated rebaseline activities that reflected new DOE funding guidance. This rebaseline (Revision 2) will be based on Revision 1 of the RPB submitted to DOE/OAK, and will account for schedule and budget guidance changes as well as integration efficiencies of the DWTF/MWMF merged facility.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	223	60	60	343
Actual	0	0	0	0	0	0	0	0	0	80	26	63	169

Outstanding liens this month = \$1K

Overall, for the year, the full level of estimated OPEX/CENRTC costs transfers appear not to have been costed; this will be investigated and corrected as necessary.

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L131-2 Submit FY95 Project Plan (CENRTC)	Nov 94 ⁽²⁾	Open

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from Sept 94 original date; see September, 1994 Monthly Report

WBS Element: 1.3.2. Project Control

Task Description:

Project Control provides for the Project integration, configuration management, cost and schedule control, and administration of the CENRTC-funded systems. It develops and maintains the management systems used to monitor progress against the established baselines and to ensure configuration control (drawings, documents, etc.).

Summary of Monthly Activities:

Revision 1 of the Project Baseline, in response to the KD-1 guidance from DOE/OAK, was issued to DOE/OAK in September for review and concurrence. The most significant changes in this revision included:

- Deletion of WOX and UVP from the project scope, at DOE request.
- Extension of the project to meet fiscal year funding guidance by DOE. This resulted in a two-phase completion of the project (to minimize extension costs) and a 4 and 6 month delay, respectively, for the two phases of the project.

This revision will be superceded by another (*Revised Project Baseline* (RPB), *Revision 2*) in response to the decision to integrate common facilities in the DWTF and MWMF (see item 1 in *Summary*).

Schedules were developed to assess the impact of integrating the DWTF and MWMF facilities, particularly addressing the delay in receiving building beneficial occupancy and permitting strategies. Support of the DOE tradeoff study and discussions took considerable time during September.

Preparation of the FY95 Plan began, with several issues raised that could not be addressed for several weeks (see item 2 in *Summary*). The significant reduction in FY95 funding guidance from \$16.5M to \$7.6M issued on September 29 presents a significant challenge in this regard. Initial guidance for the FY95 Plan, based on our best estimate of how these issues would be resolved, was issued to MWMF Project Lead Engineers to allow early planning. Implementation of the Business Planning System (BPS) to provide a cost planning and control system for the project continued; new estimating procedures were developed for the BPS to incorporate the revised LLNL accounting structure. Due to the issues noted above and the DOE priority for delivering the DWTF BCP and MWMF RPB, the milestone for delivering the FY95 Plan and implementation of the BPS system was delayed until about November (see milestones below).

Management and support of fiscal year-end closing activities at the laboratory occurred during September. These closing activities identified and addressed many items. A negative-value LLNL/DOE contract modification for the MWMF contract was traced to a prior error by DOE/OAK that was corrected in September, but had never been identified or brought to the attention of the project. Several unexpected costs appeared during year-end closing, arising from prior agreements to hold open office trailers for the MWMF project while the KD-1 decision by DOE was pending.

MWMF Monthly Report
September 1994

Discussions were initiated with the LLNL Finance Department to develop capitalization procedures for CENRTC systems and to resolve proper distribution of OPEX and CENRTC costs in accordance with recent DOE capitalization guidance.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	66	30	40	136
Actual	0	0	0	0	0	0	0	0	0	65	38	54	157

Outstanding liens this month = \$0K

\$32K mischarges to this account, made in August and September, will be corrected.

Major Procurements:

None

Key Milestones and Markers:

	Item	Scheduled Date ⁽¹⁾	Status
L132-1	Implement cost planning/tracking systems	Nov 94 ⁽²⁾	In progress
L132-4	Prepare FY95 Project Plan	Nov 94 ⁽²⁾	In progress

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from Sep 94 original date; see September 1994 Monthly Report.

WBS Element: 1.3.3. Technical Systems Integration

Task Description:

Technical Systems Integration provides the oversight and performance studies intended to verify or document system integration performance, system analysis, special process diagnostics, and planning and analysis of the process aspects of integrated tests. It also includes the responsibility for assuring that the systems aspects of the overall processes are adequately addressed in the integrated design. Includes System Engineering Management Plan and System Design Requirements coordination. Specific topics include the integration of waste-treatment processes and facility, risk assessment, accountability, safety, radiation exposure, and availability.

Summary of Monthly Activities:

- A DWTF/MWMF commonality assessment was made to clarify the cost and scope effects of combining the two projects on a common site. A combined DWTF/MWMF floor plan was designed for a new building designated as B695. A significant cost savings was realized, due to decreased floor space required, based on sharing common facility functions. The A&E design contractor for the facility, Ralph Parsons Company, was visited to clarify MWMF requirements.
- Activities continued on the MWMF draft Integrated Operating Plan (IOP).
- Two CAD workstations for MWMF designers were configured and tied into the network.
- A draft Waste Requirements document was written.
- The Tritium feed acceptance limit for primary treatment process was calculated and documented.

Due to the priority of delivering the DWTF BCP and MWMF RPB, milestone L133-1.4 is delayed until November (see 1.3.2) . The integration budget was underspent this month partly because of the late arrival of a chemical engineer who was to support system modeling. The engineer (a new hire) will start on October 1.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	64	35	45	144
Actual	0	0	0	0	0	0	0	0	0	65	31	11	107

Outstanding liens this month = None

Major Procurements:

None

**MWMF Monthly Report
September 1994****Key Milestones and Markers:**

	Item	Scheduled Date ⁽¹⁾	Status
L133-1.2	Issue MWMF development plan	Jul 94	complete
L133-1.3	Complete MWMF floor plan	Jul 94	complete
L133-1.4	Prepare FY95 Plan	Nov 94 ⁽²⁾	in progress

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from Sep 94; see September 1994 Monthly Report.

WBS Element: 1.4.1. Receiving and Shipping

Task Description:

The principal objective of the Receiving and Shipping system is to provide for the receiving, logging, identification and characterization of all incoming waste containers and to determine the acceptability for processing the waste. Receiving and Shipping provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of Receiving and Shipping equipment, Title III inspection, and acceptance test procedures (ATP). Receiving and Shipping includes both receiving and shipping equipment and systems integration.

Summary of Monthly Activities:

Activities this month focused on continuation of a pilot characterization study of LLNL legacy wastes expected to be used in MWMF demonstrations. Evaluation of solid containers including real-time radiographic scanning of the drum has begun. Additional meetings with HWM have identified potential permit issues for sampling sludges in liquid containers; these issues are being addressed. Material and operational flow information was generated in support of the Integrated Operations Plan and permitting activities.

Meetings with DWTF personnel identified potential areas for consolidation of operations. These areas will continue to be pursued during Title I to minimize duplication of resources in the MWMF and DWTF.

The characterization effort completion date was changed to agree with the extended project schedule.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	30	23	23	76
Actual	0	0	0	0	0	0	0	0	0	3	5	23	30

Outstanding liens this month = None

Major Procurements:

None

Key Milestones and Markers:

	Item	Scheduled Date ⁽¹⁾	Status
L141-1.1	Complete pilot characterization studies	Dec 94 ⁽²⁾	In Progress

⁽¹⁾ Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

⁽²⁾ Revised from Sep 94.

MWMF Monthly Report September 1994

WBS Element: 1.4.2. Solids Feed Preparation

Task Description:

The principal objective of the Solids Feed Preparation system is to provide for the receipt, characterization, preparation for processing, and handling of homogeneous and heterogeneous solids received from storage and other processes in the facility. This includes segregating the incoming waste stream into combustible solids, heterogeneous solids, homogeneous inorganic solids and metals, and liquids not previously identified. Solids Feed Preparation provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of Solids Feed Preparation equipment, Title III inspection, and acceptance test procedures (ATP). Solids Feed Preparation includes both solids feed preparation equipment and systems integration.

Summary of Monthly Activities:

Initial trade-off studies were completed to identify candidate equipment for preliminary waste sorting. The trade-off studies will initially be used to select equipment necessary for establishing and validating design parameters as part of engineering development in support of Title I design. Some engineering development is expected to continue into Title II.

Draft handling procedures and candidate equipment have been identified to address control of tritium emissions during handling of tritium-contaminated mixed wastes. Meetings with hazards control and the tritium facility are continuing in order to bring the issue to closure.

The characterization effort completion dates were changed to agree with the extended project schedule.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	174	55	153	382
Actual	0	0	0	0	0	0	0	0	0	22	160	-24	158

Outstanding liens this month = \$28K

September costs reflect corrections for incorrect distribution of contract charges in August. Costs under budget reflect delayed engineering development and procurements resulting from delayed and reduced staffing for some activities.

Major Procurements:

None

Key Milestones and Markers:

	Item	Scheduled Date ⁽¹⁾	Status
L142-1.1	Define surrogate feeds	Aug 94	Complete ⁽²⁾
L142-1.2	Identify initial suite of characterization equipment	Dec 94 ⁽³⁾	In progress
L142-1.3	Complete validation of characterization, isolation and segregation methods	Jan 95 ⁽³⁾	Open

⁽¹⁾ Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

⁽²⁾ Surrogate feeds for solids feed to the treatment processes and for evaluation of specific feed prep equipment have been selected to follow the MWIP surrogates suggested for thermal treatment of low-level mixed waste. Additional surrogates will be defined that challenge the remaining feed prep equipment as the equipment is defined in greater detail.

⁽³⁾ Revised from Sep 94; see September 1994 Monthly Report.

MWMF Monthly Report September 1994

WBS Element: 1.4.3. Liquids Feed Preparation

Task Description:

The principal objective of the Liquids Feed Preparation system is to provide for the receipt, characterization, preparation for processing and handling of homogeneous and heterogeneous liquids and solids/liquids mixtures from storage and other processes in the treatment system. This includes segregating the incoming waste stream into aqueous with Trimsol, chlorinated organic liquids, oils, scintillation cocktails and solvents. Liquids Feed Preparation provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of Liquids Feed Preparation equipment, Title III inspection, and acceptance test procedures (ATP). Liquids Feed Preparation includes both liquids feed preparation equipment and systems integration.

Summary of Monthly Activities:

Design, trade off, and studies for LFP continue with equipment layouts, costs, and sizing being compared to the system design requirements. The second phase of the liquid/liquid separation plan has been completed and is being reviewed by the Principal Investigator for LFP prior to being implemented. The liquid/solid separation development plan is formalized and a detailed plan is being written. Due to the extended project schedule, documentation for surrogate feeds has yet to be completed.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	12	5	1	0	1	8	11	18	24	73	51	51	255
Actual	12	5	1	0	1	8	11	18	24	17	17	28	142

Outstanding liens this month = \$7K

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L143-1.1 Define surrogate feeds	Nov '94 ⁽²⁾	In Progress

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from Sep '94.

WBS Element: 1.5.1. Mediated Electrochemical Oxidation

Task Description:

The principal objective of Mediated Electrochemical Oxidation (MEO) is to receive appropriately characterized mixed waste streams, and completely convert the organic portions to CO₂ and water, to recycle acid and silver, and to remove ash containing the radioactive constituents. The MEO Project element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of the MEO equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities:

During Sept. 1994, the following activities took place:

- Set-up and made operational a small lab-scale MEO cell to perform material compatibility tests on several pump seal candidates for the MWMF MEO system. Tests are ready to be initiated on Silicon Carbide, Tungsten Carbide, Carbon and "John Crane" Chemical Grade Carbon. These materials are common to virtually all standard mechanical shaft seals.
- Determined by experiment that 200 ppm of residual organics were present in spent MEO anolyte after running "Trimsol" in the B161 bench-scale system at high coulombic efficiency. An experimental distillation of this spent anolyte was performed to simulate the recovery of the spent anolyte in the MWMF MEO acid recovery system. It was determined that <1ppm of organics would be passed into the distillate, which is well below the allowable discharge to sewer.
- Obtained an unused XRF unit from the LLNL NDE section. Wrote a specification and placed a Purchase Order to ASOMA Instruments to refit the unit for silver detection service on the bench-scale MEO system in B161.
- Assembled and made operational prototype cellulose feeder in preparation for upcoming tests.
- Design effort included the following:
 1. Provided verbal and written input to the MWMF operations plan.
 2. Continued development of the process control strategy and accompanying P&ID drawings.
 3. Initiated planning for off-gas analysis during MWMF MEO operations.
- Markers L151-1.1 and L151-1.5 are delayed due to higher-priority work activities taking precedence.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	57	56	70	54	47	45	24	64	56	94	84	65	716
Actual	57	56	70	54	47	45	24	64	56	105	74	65	717

Outstanding liens this month = \$4K

Major Procurements:

None

**MWMF Monthly Report
September 1994****Key Milestones and Markers:**

	Item	Scheduled Date ⁽¹⁾	Status
L151-1.1	Complete tests on turbo-aerator for nitrous-acid conversion	Dec 94 ⁽²⁾	Writing Report
L151-1.2	Initiate steady-state flow, chemistry balance tests	Apr 94	Complete
L151-1.3	Initiate instrumentation and control system design	Aug 94	Complete
L151-1.4	Summarize silver recovery chemistry results to date	Dec 94 ⁽²⁾	Writing Report
L151-1.5	Fabricate and set-up prototype cellulose feeder	Dec 94 ⁽²⁾	Complete

⁽¹⁾ Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

⁽²⁾ Revised from Sep 94; see September 1994 Monthly Report.

WBS Element: 1.5.2. Molten Salt Oxidation

Task Description:

The principal objectives of Molten Salt Oxidation (MSO) are to receive appropriately characterized mixed waste streams and completely convert the organic portions to CO₂ and water, to remove ash containing the radioactive constituents, and to recycle/process the spent salt. The MSO Project element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of the MEO equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities:

Development activities continued.

- Vessel material samples have been sent to ETEC for testing.
- The injector test bench is operational and in use.
- The flow visualization model is being fabricated.

Preliminary design status is as follows:

- Vessel heat transfer studies started on two concepts.
- Responses to the CBD are being evaluated.
- Local Process I&C and process engineering development activities began.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	16	12	6	18	22	27	15	22	15	103	180	151	587
Actual	16	12	6	18	22	27	15	22	15	93	103	89	438

Outstanding liens this month = \$0K

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L152-1 Complete bench-scale rubber destruction tests	Dec 93	Complete
L152-2.1 Advertise in the CBD	Jun 94 ⁽²⁾	Complete
L152-3.1 Initiate preliminary Process Flow Diagram	Sep 94 ⁽³⁾	Complete
L152-3.2 Initiate Preliminary Design	Jul 94	Complete
L152-4 Start Development Activities	Aug 94	Complete

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from April '94, per 7/94 revision.

(3) Revised from June '94, per 7/94 revision.

**MWMF Monthly Report
September 1994**

WBS Element: 1.5.3. Wet Oxidation

Task Description:

The principal objective of Wet Oxidation (WOX) is to demonstrate treatment of organic mixed wastes using a wet oxidation process to convert the organic portions to CO₂, water, and inorganic ions, leaving ash, salts, metals, and radionuclides in a residual solution/slurry. The WOX Project element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of the WOX equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities:

No activity this report period.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	21	8	5	10	6	7	1	7	14	17	7	0	103
Actual	21	8	5	10	6	7	1	7	14	16	3	0	98

Outstanding liens = None

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L153-1.1 Complete and document work to date	Jul 94	Complete

(1) Milestones reflect DOE KD-1 guidance.

MWMF Monthly Report
September 1994

UCRL-ID-116187-94-9

WBS Element: 1.5.4. UV Photolysis

Task Description:

The principal objective of UV Photolysis (UVP) is to demonstrate ultraviolet-driven treatment of the hazardous and toxic organic constituents in the condensate from the Wet Oxidation process (WBS 1.5.3) to produce a sewerable water stream. The UVP Project element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of the UVP equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities:

No activity this period.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	3	3	2	-2	0	0	0	5	7	6	4	0	28
Actual	3	3	2	-2	0	0	0	5	7	4	2	0	24

Outstanding liens = None

Major Procurements:

None

Key Milestones and Markers:

Item		Scheduled Date ⁽¹⁾	Status
L154-1	Complete and document work to date	Jul 94	Complete

(1) Milestones reflect DOE KD-1 guidance.

MWMF Monthly Report

September 1994

WBS Element: 1.5.5. Experimental Off-Gas

Task Description:

The objective of the Experimental Off-Gas (XOG) treatment system is to demonstrate advanced, more effective off-gas treatment technologies that minimize secondary waste. These are improved Selective Catalytic Reduction (SCR) of NO_x to nitrogen in gaseous phase; conversion of NO_x to nitrogen in aqueous urea; and use of cleanable metal HEPA filters. The XOG project element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of XOG equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities. XOG will be backed by the process off-gas system representing best available control technology (BACT).

Summary of Monthly Activities:

- We conducted a series of experiments on SCR of NO with ammonia using FT-IR spectroscopy. Consistent with the literature, the analysis revealed significant amounts of N₂O forming over the mixed oxide (Russian) catalyst. N₂O is probably regulated, but no standard EPA test can detect or monitor it.
- We successfully tested the aerator assembly and are now proceeding with the design of the entire MWMF scale contactor.
- Markers L155-1.1 and L155-2.1 have been delayed due to the need to close action items resulting from the urea DeNO_x peer review.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	9	7	4	2	4	-1	0	8	1	32	12	50	128
Actual	9	7	4	2	4	-1	0	8	1	35	24	16	108

Outstanding liens this month = None

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L155-1.1 Fabricate prototype gas-liquid contactor for acidic urea NO _x destruction	Jan 95 ⁽²⁾	In Progress
L155-2 Urea DeNO _x : peer review	Aug 94 ⁽³⁾	Complete
L155-2.1 Initiate instrumentation and control system test	Feb 95 ⁽²⁾	Open

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from Sep 94; see September 1994 Monthly Report.

(3) Milestone descriptions modified in 8/94 to reflect original intent of peer review.

WBS Element: 1.6.1. Process Transport and Storage

Task Description:

The principal objective of the Process Transport and Storage system is to collect, transfer, deposit, store and handle containers, discrete items, dry and wet bulk materials, slurries, and liquids. Process Transport and Storage provides management, system analysis and support, design (Title I, II, and III) engineering, procurement, installation of Process Support Systems equipment, Title III inspection, and acceptance test procedures (ATP). Process Transport and Storage includes both process transport and storage equipment and systems integration.

Summary of Monthly Activities:

Due to changes in project scope, primarily related to water treatment, all material transport will now occur in containerized batches. To minimize duplicate efforts across systems needing containers, PT&S will be responsible for all container interface and design, procurement or fabrication, and all container operations, including selection of the appropriate container based on material compatibility, container maintenance, and cleaning. Due to budget restrictions and schedule extension, PT&S Title I activities will be delayed until late in the MWMF Title I process to allow all interfacing systems to develop more detailed transport and storage requirements based on their Title I designs. The FY95 plan will reflect the change in milestones, schedules and spending profile.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	47	38	38	123
Actual	0	0	0	0	0	0	0	0	0	2	15	10	26

Outstanding liens this month = None

Delayed personnel ramp-up (and the use of a DOE intern) have resulted in costs below estimate.

Major Procurements:

None

Key Milestones and Markers:

	Item	Scheduled Date ⁽¹⁾	Status
L161-1.1	Select standard transport container designs	May 95 ⁽²⁾	Open

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision. Marker date will be revised based on new schedule and budget guidance, as noted in September 1994 Monthly Report.

(2) Revised from Sep 94; see September 1994 Monthly Report.

MWMF Monthly Report **September 1994**

WBS Element: 1.6.2. Analytical Laboratory

Task Description:

The principal objective of the Analytical Laboratory is to provide analysis for process control, material control, and regulatory requirements. Analytical Laboratory provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of Analytical Laboratory equipment, Title III inspection, and acceptance test procedures (ATP). Analytical Laboratory includes Analytical Laboratory Equipment, Local Process I&C, and Process Off-Gas.

Summary of Monthly Activities:

- Off-gas measurement needs have been identified for support of MEO.
- Discussion regarding analysis requirements for MSO have been initiated.
- Personnel have been identified to provide experimental support for chemical analysis concerns associated with MEO.
- Potential cost savings in the Analytical Laboratory resulting from the combination of the DWTF and MWMF have been identified. The MWMF will take the lead in the Analytical Laboratory for the combined MWMF/DWTF.
- A minimum suite of compounds for facility off-gas monitoring have been identified; additional compounds may be required as a result of the permitting process.
- Milestone markers L-1.6.2-2 and L-1.6.2-3 have slipped due to process acceptance criteria not yet defined for all waste treatment processes, and RD&D permit requirements have not yet been defined for off-gas monitoring.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	43	10	12	65
Actual	0	0	0	0	0	0	0	0	0	13	16	6	36

Outstanding liens this month = \$1.9K

Planned cost adjustments submitted for FY94 which did not appear in July and August costs, and which were expected to appear in September costs did not appear. Additional cost adjustments from FY94 are anticipated for FY95 October costs .

Major Procurements:

None

Key Milestones and Markers:

	Item	Scheduled Date ⁽¹⁾	Status
L162-1	Complete preliminary floor-plan layout	Jun 94	Complete
L162-2	Define analysis tests based on process acceptance criteria	Jan 95 ⁽²⁾	Partial
L162-3	Define facility off-gas monitoring requirements	Feb 95 ⁽²⁾	Partial

⁽¹⁾ Dates and milestones reflect revised task description and revised KD-1 guidance.

⁽²⁾ Revised from Sep 94; see September 1994 Monthly Report.

MWMF Monthly Report September 1994

WBS Element: 1.6.3. Water Treatment

Task Description:

The principal objectives of Water Treatment are to manage aqueous streams to meet discharge requirements and address future waste water management regulations that would affect an operating mixed waste treatment facility. The Water Treatment Project element provides the management, system analysis and support, design (Title I, II, III), engineering, procurement, and installation of the Water Treatment equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities:

Activity in this area was charged to WBS 1.1.5.4.10, *Treatment Process Support (Water)*, pending the decision on Title I scope decision for Water Treatment.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	0	0	0	0	0	0	0	0	0	25	0	0	25
Actual	0	0	0	0	0	0	0	0	0	11	27	-6	31

Outstanding liens this month = None

The September charge is a correction for previous erroneous charges.

Major Procurements:

None

Key Milestones and Markers:

No milestones for FY94. Trade study milestone and budget transferred to WBS 1.1.5, *Program Support*.

WBS Element: 1.6.4. Final Forms

Task Description:

The Final Forms task will immobilize the residues from treatment of the mixed waste input streams. The waste form for primary treatment residues will be a high durability ceramic. Final Forms will also condition the wastes resulting from secondary support processes that are integral to the primary treatment processes.

Summary of Monthly Activities:

- Fabrication of ceramic waste form is not adversely affected by residence of the components in the MSO bath: an excellent ceramic was obtained in recent experiments.
- Microencapsulation of waste in polyethylene, using screw extrusion, was recently demonstrated at the pilot-plant scale at Brookhaven National Laboratory. This technology, which is a prime candidate for immobilizing MSO salt, can now be regarded as quite mature.
- Apparatus for determining volatility losses during caclining has been fabricated.
- The immobilization evaluation due date has changed to agree with the extended project schedule.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	18	9	19	38	36	21	20	40	38	59	41	35	374
Actual	18	9	19	38	36	21	20	40	38	55	35	38	367

Outstanding liens this month = \$0.4K

Major Procurements:

None

Key Milestones and Markers:

Item	Scheduled Date ⁽¹⁾	Status
L164-1.1 Complete preliminary process flow diagram	Jul 94	Complete
L164-1.2 Complete preliminary equipment layout	Aug 94	Complete
L164-1.3 Report status of immobilization evaluations	Dec 94 ⁽²⁾	Open

(1) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(2) Revised from Sep 94; see September 1994 Monthly Report.

WBS Element: 1.6.5. Supervisory Instrumentation and Control

Task Description:

Instrumentation and Control (I&C) systems will provide and integrate controls to develop, demonstrate, test, and evaluate mixed waste destruction technologies in a safe, environmentally acceptable, reliable, and cost-effective manner. I&C systems provide the management, system analysis and support, design (Title I, II, III) engineering, procurement, equipment installation, Title III inspection, and acceptance test procedures (ATP) covering equipment and system integration activities for Central Monitoring and Control, Safety Control Systems, Standard Process I&C, Analytical Laboratory I&C, and intercom communication, surveillance CCTV, and telepresence systems.

Summary of Monthly Activities:

- The Control Room floor plan is now applicable to the new DWTF/MWMF building.
- System integration activities for the SCADA and FEP hardware and software are in progress. Initial testing of the computer platforms identified several problems, ranging from improperly seated assemblies (presumably precipitated by rough shipping/handling) to an unreliable Pentium processor (marginally operable at 66 MHz). The computer platforms now appear to be reliable, and activities are proceeding in preparation for phase 2A and 2B (FEP/SCADA communications and SCADA/DBMS communications respectively) testing. All configuration data and test results are documented.
- As reported last month, our FEP PLC5/40E processors are not scheduled to be shipped by Allen-Bradley until November 11th. We have been successful in borrowing a single PLC5/40 processor, which will allow some preliminary testing. However, marker L165-1.9, "Rapid prototype Engineering Development system integrated," which is now due, *will not be formally completed until December 15th*. Efforts will be made to proceed with subsequently scheduled Engineering Development activities as appropriate.
- Training for the FEP ICOM software was accomplished in mid-September.
- The DBMS software, and most of the hardware has been received. A purchase order was placed to acquire the SCADA/database driver and database tools required to meet our needs for Engineering Development rapid-prototype testing.
- We began investigating digital CCTV and created a single-monitor simulated display for evaluation. Digital CCTV has the potential for significant cost savings to the Project as follows:
 - Reduced cabling (installation, termination, conduit, etc.).
 - Networked video signals can be routed to *any location* for remote viewing using software viewing tools on PCs, Macs, and Unix computers.
 - Multiple imaging (up to 8 images on a single 20" computer monitor with current technology) eliminates individual analog video monitors and their associated cost. Because individual surveillance monitors are primary consumers of console rack space, the elimination of video monitors combined with the use of 100% computerized process control may allow for the total elimination of bulky and

expensive conventional consoles. The control room can potentially be equipped with office furniture, thereby eliminating console installation costs, etc.

—Digitized video lends itself to rapid and effortless reconfiguration.

- Design activities have been continued to extend the MWMF Instrumentation & Equipment Database to support LLNL's Documentation Image Retrieval System (IRS). The IRS will make all project documents immediately available in both electronic and hardcopy form, and eliminate the need for Engineering Records Center services. A Mosaic-based front-end user interface has been developed and demonstrated.
- Marker L165-1.9 slipped due to unexpected hardware/software incompatibilities and late delivery of some hardware and software.

FY94 Budget: Spending profiles (\$K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
7/94 Plan	19	21	25	11	22	17	6	32	31	60	112	247	603
Actual	19	21	25	11	22	17	6	32	31	71	98	123	476

Outstanding liens = \$48.2K

Major Procurements:

Process Control System front-end-processor hardware/software, rapid prototype: \$70K

Supervisory Control System hardware/software, rapid prototype components: \$65K

Data Base Management System hardware/software, rapid prototype: \$65K

Key Milestones and Markers:

	Item ⁽¹⁾	Scheduled Date ⁽²⁾	Status
L165-1.1	Complete general arrangement plan	Mar 94	Complete
L165-1.2	Process Control System FEP hardware/ software selected	Apr 94	Complete
L165-1.3	Supervisory Control System hardware/ software selected	Apr 94	Complete
L165-1.8	Database Management System hardware/ software selected	Jul 94	Complete
L165-1.9	Rapid prototype Engineering Development system integrated	Dec 94 ⁽³⁾	In progress

(1) Several markers have been transferred to Solids Feed Preparation (WBS 1.4.2).

(2) Dates and milestones reflect DOE guidance and 7/94 FY94 Plan revision.

(3) Revised from Sep 94.