The Mixed Waste Management Facility

Monthly Report
June 1995

July 1995

Lawrence Livermore National Laboratory
Environmental Programs

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

The Mixed Waste Management Facility

Monthly Report
June 1995

Ronald D. Streit

July 1995

Lawrence Livermore National Laboratory
University of California • Livermore, California • 94550

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED 85

MASTER

DISCLAIMER

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

Contents

Project Summary	iii
Project Financial Summary	vi
1.1.1 Quality Assurance	1
1.1.2 PSAR	2
1.1.3 Environmental Documentation	4
1.1.4 ES&H	6
1.1.5 Program Support	7
1.1.6 Public Participation	9
1.2.1 Conceptual Design	10
1.2.2 Plant Start-Up Management	11
1.2.3 Activation	12
1.3.1 Project Management	13
1.3.2 Project Control	15
1.3.3 Technical Systems Integration	18
1.4.1 Receiving and Shipping	20
1.4.2 Solids Feed Preparation	21
1.4.3 Liquids Feed Preparation	23
1.5.1 Mediated Electrochemical Oxidation	25
1.5.2 Molten Salt Oxidation	27
1.5.3 Wet Oxidation	31
1.5.4 UV Photolysis	32
1.5.5 Experimental Off-Gas	33
1.6.1 Process Transport and Storage	35
1.6.2 Analytical Services	37
1.6.3 Water Treatment	39
1.6.4 Final Forms	40
1.6.5 Supervisory Instrumentation and Control	42
Appendix A. Milestone/Marker Log	45

Project Summary

Overview

Good technical progress continued within the Project as engineering and design, design reviews, development activities, and procurements/contracts moved forward. Key developments were the installation of the MSO Engineering Development Unit (EDU), which is on schedule for initial operation in July, and the first system Preliminary Design Review (PDR).

Management focus during June involved the first meeting of the National Review Panel (NRP), release of the *Revised FY95 Plan*, planning for budget cuts beyond FY95, incorporating DOE comments into the Environmental Assessment (EA), and support of DOE MWMF viability study and mid-year review. Associated actions included the following:

- We held the first NRP meeting June 20, which involved a broad range of representatives from state, regulatory, environmental, and DOE organizations. Participants defined three major areas for the Project to further address: the market for alternative technologies; the economics of the technologies; and validation that the technologies are not incineration.
- Work on the revised *FY95 Plan*, reflecting the \$2M funding reduction for FY95, was completed and the document was prepared. The revised scope and schedule for FY95 tasks and milestones were developed and formally documented (along with the budget plan, see April report) in the *May Monthly Report*. The *Revised FY95 Plan* and the *May Monthly Report* were combined due to the similarity in format and to reduce costs. A letter requesting DOE/OAK approval of the *Revised FY95 Plan* will be submitted along with the combined report.
- An initial top-level integrated project schedule was developed to deal with DOE guidance for a reduced FY96 budget, flat FY budgets beyond, and to delete MEO. Several technical and cost options exist within the plan. These will be discussed with stakeholders (Project, DOE, MWMF, etc.), costed, and then iterated to accommodate DOE funding constraints and changes as the FY96 budget process proceeds through Congress. The baseline plan will be finalized as part of preparing the Project PDR (in November) and will be subsequently incorporated into a baseline change request.
- All comments received from the review at DOE/OAK were incorporated into the MWMF EA. The document is in final review and signature at LLNL, and will be sent to DOE in early July. DOE will then release the EA to the State for comment, prior to a making a final NEPA determination.
- The Project submitted input and justification for continuing the MWMF Project, as part of a review by the Mixed Waste Focus Area (MWFA) requested by DOE/HQ. The Project also provided input for the mid-year review of DOE/OAK activities by DOE/HQ.

Cost Status. The rebaseline financial plan for FY95, in response to the \$2M budget cut for FY95, was issued in the *April Monthly Report* and the BCWS in PTS was rebaselined at that time to reflect the revised plan. This was done in conjunction with DOE/OAK.

During June, expenditures occurred at about the planned rate. We continue to seek deletion of several remnant liens from Project accounts, but this has taken considerable time to contact vendors, work with LLNL Accounting and Procurement, etc.

We continue to project only minimal unencumbered carryover into FY96.

Schedule Status.

Revised tasks and milestones and the cost plan to reflect the 4/95 funding reductions for FY95 are in the *May Monthly Report and Revised FY95 Plan*.

The Project priority continues to be MSO, with the installation of EDU on schedule and good progress in the materials area. Progress has accelerated on the MSO Salt Recycle system, but work has fallen behind the rest of the MSO system due to a delayed start as a result of prior DOE spending guidance.

The most serious long-term impact on the project's budget is not the FY95 cut, but the guidance for reduced and flat funding in FY96 and beyond. Several schedule and budget scenarios are under evaluation to try to spread procurements and contracts to meet the flat-funding profile. Discussions with DOE on these options are underway prior to preparing revised cost estimates.

Significant Issues and Planned Corrective Actions

Uncertainty in funding is causing significant effort to rework plans. DOE/HQ is again reviewing the decision to fund or cancel MWMF; project effort and resources are required to help resolve this action. A revised FY95 Baseline Plan was completed in June and will be submitted to DOE/OAK for approval with the May Monthly Report. Planning for cuts to the FY96 and outyear budgets is in progress.

NEPA for MWMF poses a continued, but lessened, schedule risk for MWMF and DWTF. The key concern remains a NEPA determination by September to allow Phase I construction (and expenditure of FY95 funds) to occur, as well as Title II of Phase II in November; the former is on critical path. The MWMF EA, revised to reflect the DWTF/MWMF co-location, was submitted to DOE/OAK in February. DOE should issue the EA to the State for review in July. The September date will be tight.

While agreement exists on the revised permitting strategy, it remains to be formally accepted by DOE. A letter was issued to DOE/OAK in June requesting approval of the revised strategy.

Revision 1.2 to the MWMF Baseline Plan remains to be approved by DOE. The document was submitted to DOE/OAK for approval in April.

Summary of Accomplishments

Detailed accomplishments and milestone status are reported in the Task Summaries that follow the Project Financial Summary. All WBS areas completed input on technical scope and milestone changes to the *Revised FY95 Plan*. Directly below we highlight the major accomplishments during this reporting period:

- Preliminary design continued, with Peer Reviews for Water Treatment, DWTF, and the Control Room/Operations. A PDR for the Supervisory Control System was completed during June.

- **Systems Integration:** A series of meetings was completed between Lead Engineers and Hazards Control; design recommendations will be reported by Hazards Control. A review of the System Design Requirements (SDR) for preliminary design also began during June.
- **DWTF facility interface:** A trade-off study for steam versus electrical heating for evaporators was completed. Several meetings were held with the DWTF A&E, as Title I activity began, to review project requirements and to familiarize the A&E team with MWMF.
- **Feed Prep:** The floorplan was revised to better reflect process transport requirements. An improved blending and sampling strategy was developed. Responses to the bid for a telerobot manipulator were received and procurement action continued; preparation for installation in B272 began.
- **MEO:** Successfully concluded tests on the 1/15-scale silver recovery system, having obtained 99% yields; a report has been issued. The System Design Description was completed and the draft is being reviewed. Completed updates to Process Flow Diagram (PFD) and Piping & Instrumentation Diagram (P&ID). Only significant remaining effort to wrap up MEO is to complete steady-state testing. This should be essentially completed during July.
- **MSO:** Several vendors to produce aluminized coatings of nickel alloy vessels were found and are being evaluated. Corrosion testing using a new eutectic-melt concept began at ETEC. Checkout began on EDU, with all main systems operated. Fabrication of certain ancillary systems is nearing completion, with initial operation of EDU expected during July. Preliminary design continued, with accelerating progress on the Salt Recycle system. Twelve vendors were obtained from the CBD advertisement to participate in the Salt Recycle system, with five vendors to be visited during the week of July 10.
- **Final Forms:** After much evaluation, an extruded thermoplastic system has been selected as the baseline for immobilizing salt residues. A report evaluating immobilization technologies was issued. Work continued to address the leach-tests of Cd-containing ceramics. Work began to design the ceramics process off-gas system.
- **Water Treatment:** A Peer Review was completed during June, with no major issues identified.
- **Supervisory I&C (SIC):** A Peer Review for the control room and operations concept was held on June 13. The SIC PDR was held on June 13, with no action items identified. The SIC team attended a two-day workshop and training on Human Factors Engineering.

Project Financial Summary

Figures 1 and 2 present graphical plots of planned-versus-actual spending for OPEX and CENRTC. Table 1 presents a more detailed financial summary of the MWMF Project for June. For reference, the monthly profiles are shown for both the original (11/94 Plan) and the revised (4/95 Plan) FY95 spending plan.

During June, the project ran very near the revised plan. A total of about \$880K of liens and preliens exist; most of the liens that are expected to cost during FY95 have been included in the "FY95 Plan 4/95" budget. Other liens, which will be carried over into FY96, will begin to be placed into "FY95/96 Liens Holdback" during the last quarter of FY95 as we begin to plan for year-end closing. Work continued with LLNL accounting to remove certain liens from MWMF accounts by close of FY95 which we believe to be no longer applicable.

The first release of Management Reserve for FY95 was approved for early and cost-effective testing within Final Forms. The amount was a class 4 change and approved within the project.

Sufficient funds essentially exist in the LLNL/DOE Contract Modification to accommodate planned OPEX and CENRTC work for FY95. The Program Letter does not yet reflect the status of the Contract Modification.

TABLE 1

MWMF Project - Monthly Financial Summary for FY95
JUNE, 1995

OPEX (\$K, monthly expenditures)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Subtotal*	Undistb#	4/95 Budget*	11/94 Plan*
DOE Funds*	279	235	235	0	0	301	-120	0	0	0				930			
FY95 Plan 11/94		59	58	56	58	53	63	66	66	66	66	71	66	746	NA, for information only		
FY95 Plan 4/95		103	103	224	-87	78	-49	51	50	50	46	54	53	675		675	
Actual		103	103	224	-87	78	-49	91	-13	67				516			
Variance		0	0	0	0	0	0	40	-63	17				-6			
Actual Liens**		246	242	285	305	275	247	215	152	140				NA			
Mgmt Reserve		0	0	0	0	0	0	0	0	0				0	60	60	84
95/96 Liens holdback		0	0	0	0	0	0	0	0	0				0	80	80	100
FY95 OPEX budget =																815	930

OPEX (\$K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	279	514	749	749	749	1050	930	930	930	930			
FY95 Plan 4/95		103	206	430	343	421	372	423	473	522	568	622	675
Actual		103	206	430	343	421	372	463	450	516			
Variance		0	0	0	0	0	0	40	-23	-6			

DOE FY95 new-BA, OPEX		
budget	guidance**	delta
536	2800	-2264

CENRTC (\$K, monthly expenditures)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Subtotal*	Undistb#	4/95 Budget*	11/94 Plan*
DOE Funds*	2649	0	0	0	2000	0	2856	-850	1000	0				7655			
FY95 Plan 11/94		657	725	715	748	692	724	700	749	671	606	737	632	8358	NA, for information only		
FY95 Plan 4/95		730	188	371	602	640	662	695	629	589	733	613	741	7190		7190	
Actual		730	188	371	602	640	662	596	541	579				4908			
Variance		0	0	0	0	0	1	-98	-88	-10				-192			
Actual Liens**		86	81	85	125	961	547	470	557	457				NA			
Mgmt Reserve		0	0	0	0	0	0	0	0	15				15	313	328	605
95/96 Liens holdback		0	0	0	0	0	0	0	0	0				0	250	250	400
LDRD-CAP#		0	0	0	0	0	0	0	0	0				0	0	0	291
FY95 CENRTC budget =																7768	9654

CENRTC (\$K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	2649	2649	2649	2649	4649	4649	7505	6655	7655	7655			
FY95 Plan 4/95		730	917	1289	1890	2530	3192	3886	4515	5104	5837	6450	7190
Actual		730	918	1289	1891	2530	3193	3789	4330	4909			
Variance		0	0	0	0	0	1	-98	-185	-195			

DOE FY95 new-BA, CENRTC		
budget	guidance**	delta
5119	4856	263

PROJECT TOTAL (\$K, monthly expenditures)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Subtotal*	Undistb#	4/95 Budget*	11/94 Plan*
DOE Funds*	2928	235	235	0	2000	301	2736	-850	1000	0				8585			
FY95 Plan 11/94		717	783	772	806	744	787	767	815	737	672	807	698	9104	NA, for information only		
FY95 Plan 4/95		833	291	595	515	718	613	746	678	638	780	666	794	7865		7865	
Actual		833	291	595	515	718	613	687	528	645				5425			
Variance		0	0	0	0	0	1	-59	-150	7				-201			
Actual Liens**		331	323	370	430	1236	794	685	709	597				NA			
Actual Preliens**								373	192	201				NA			
Mgmt Reserve		0	0	0	0	0	0	0	0	15				15	373	388	689
95/96 Liens holdback		0	0	0	0	0	0	0	0	0				0	330	330	500
LDRD-CAP#		0	0	0	0	0	0	0	0	0				0	0	0	291
FY95 TOTAL budget*** =																8583	10584

TOTAL PROJECT EXPENDITURES (\$K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	2928	3163	3398	3398	5398	5699	8435	7585	8585	8585			
FY95 Plan 4/95		833	1124	1719	2234	2951	3564	4310	4988	5626	6405	7071	7865
Actual		833	1124	1719	2234	2952	3565	4252	4780	5425			
Variance		0	0	0	0	0	1	-58	-208	-201			

DOE FY95 new-BA, TOTAL		
budget	guidance**	delta
5655	7656	-2001

MANPOWER SUMMARY (total project, by month)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Labor (FTE)		49.1	46.9	49.1	47.2	46.0	49.3	48.6	48.4	46.9			
Labor (\$K)@		409	349	322	390	415	450	436	440	424			

* DOE funds include FY94/95 carryover (source: LLNL Contract Modification)

** Relevant for current month only; sum not meaningful

*** Includes budgeted amounts for management reserve, liens holdback, LDRD

Undistributed remaining budget; CE/LDRD values assume 6% of new-BA budget

@ Labor \$K value includes non-FTE labor costs (small cost amount); Dec has mischarge corrected.

^ "4/95 Budget" is current FY95 Plan; "11/94 Plan" is prior FY95 baseline plan

^^ As identified in the most recent program letter

WBS Element 1.1.1 Quality Assurance**Task Description**

Quality Assurance (QA) provides quality assurance support to the MWMF Project. This effort includes development and implementation of the project's QA program and oversight for conformance to the approved plan and other quality and ES&H requirements. This WBS element covers only a fraction of the OPEX QA effort, with the CENRTC portion contained under WBS 1.3.2, Project Control.

Summary of Monthly Activities

- Completed and sent out for review and comment, a draft of QA procedure, QP-4, "QA Surveillance/Verification."
- Attended a QA training class, "Overview of ISO-9000."
- Continued updating the action item tracking system/list and attended various peer and preliminary design review meetings.
- Worked with Project personnel on QA issues and the QA filing system.

FY95 Budget**Spending profiles (OPEX)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	3	3	3	3	3	3	3	3	3	3	3	3
4/95 Plan ²	Used actual costs through March						3	3	3	3	3	3
Monthly actual	2	3	12	-4	3	5	0	0	3			
11/94 Plan cumulative ¹	3	6	8	11	13	17	19	22	25	28	31	34
4/95 Plan cumulative ²	Used actual costs						23	26	29	32	35	38
Actual cumulative	2	5	17	13	16	21	21	21	24			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation.

ID No.	Milestone/Marker	Scheduled Date*	Status
None	Level of effort activity		

WBS Element 1.1.2 PSAR

Task Description

The *Preliminary Safety Analysis Report* (PSAR) provides the integration of safety input, design reviews, and safety analysis for Phases I and II of the integrated MWMF/DWTF Project. Safety analysis includes analysis, generation of documentation, and documentation review and approval. The element includes the generation of the PSAR, which must be completed prior to major procurements and follow-on analysis required for the generation of the *Final Safety Analysis Report* (FSAR). The FSAR is required after construction and prior to operation.

Summary of Monthly Activities

There were no significant activities during May on the PSAR as the document was completed and distributed in 1994.

FY95 Budget

Spending profiles (OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						0	0	0	0	0	0
Monthly actual	14	2	0	-16	0	0	0	0	10			
11/94 Plan cumulative ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan cumulative ²	Used actual costs						0	0	0	0	0	0
Actual cumulative	14	16	16	0	0	0	0	0	10			
Current lien	74	73	73	73	73	73	73	73	64			

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan ¹	5	5	3	2	2	2	1	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						0	0	0	0	0	0
Monthly actual	0	0	2	15	0	0	0	-1	0			
11/95 Plan cumulative ¹	5	10	13	15	17	19	20	20	20	20	20	20
4/95 Plan cumulative ²	Used actual costs							16	16	16	16	16
Actual cumulative	0	0	2	16	16	16	16	15	15			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None.

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

<u>ID No.</u>	<u>Milestone/Marker</u>	<u>Scheduled Date*</u>	<u>Status</u>
L112-1	PSAR to DOE for review	Dec 94	Completed

WBS Element 1.1.3 Environmental Documentation

Task Description

The National Environmental Policy Act (NEPA) portion of this WBS provides for the preparation of the *Environmental Assessment* (EA) and all required follow-up documentation required by DOE to make a determination about impacts. The effort includes preliminary evaluations, preparation of technical information, EA preparation, and comment resolution.

The California Environmental Quality Act (CEQA) and permitting portion of this WBS provide for the preparation of permit applications and associated environmental analysis to support the regulatory agency permitting and CEQA review process. The effort includes preliminary evaluations, preparation of technical information to support the agency CEQA document and permit evaluation, and comment resolution. This element prepares and coordinates approval of State and local permits and supports public participation activities associated with the permit approvals.

Summary of Monthly Activities

- We revised the EA to address additional comments on the May version of the document from DOE.
- Submittal of the RD&D permit application remained on hold in May. MWMF Project members and DOE staff prepared and submitted information to DTSC to support their CEQA evaluation of the Site Treatment Plan. This information was requested during the May meeting permit strategy meeting.

FY95 Budget

Spending profiles (OPEX): NEPA

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	5	5	5	5	1	5	5	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						3	0	0	0	0	0
Monthly actual	14	12	26	-32	7	3	17	10	3			
11/94 Plan cumulative ¹	5	10	15	20	21	26	31	31	31	31	31	31
4/95 Plan cumulative ¹	Used actual costs						33	33	33	33	33	33
Actual cumulative	14	26	52	20	27	30	47	56	60			
Current lien	0	0	0	0	0	0	0	0	0			

Spending profiles (CENRTC): CEQA, Permitting

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	40	40	40	40	10	8	8	8	8	6	5	5
4/95 Plan ²	Used actual costs through March						15	8	8	6	5	5
Monthly actual	0	0	11	109	34	15	7	-56	5			
11/94 Plan cumulative ¹	40	80	120	160	170	178	185	193	200	206	211	216
4/95 Plan cumulative ²	Used actual costs						185	192	200	206	211	216
Actual cumulative	0	0	11	121	155	170	177	120	125			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L113-4	Submit revised EA to DOE	Feb 95	Completed
L113-3	Submit RD&D permit application to DTSC	Feb 95	On hold
D113-1	EA determination by DOE	Aug 95	
L113-2	Submit air permit to BAAQMD	Apr 96	
C113-1	RD&D permit issued by DTSC	Apr 96	
C113-2	Authorization to construct issued by BAAQMD	Jul 96	

WBS Element 1.1.4 ES&H**Task Description**

ES&H provides for on-going Environment, Safety, and Health (ES&H) representation to the MWMF Project by ES&H specialists 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.

Summary of Monthly Activities

We provided on-going ES&H support to the MWMF Project as described above.

FY95 Budget**Spending profiles (OPEX)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	14	14	14	14	14	14	14	14	14	14	14	14
4/95 Plan ²	Used actual costs through March						14	14	14	14	14	14
Monthly actual	11	8	14	6	12	12	9	8	19			
11/94 Plan cumulative ¹	14	27	41	54	68	81	95	108	122	135	149	162
4/95 Plan cumulative ²	Used actual costs						76	89	103	116	130	143
Actual cumulative	11	19	32	38	51	62	72	80	99			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
None	Level of effort activity		

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, facility technical support, and OPEX-funded technical support.

Summary of Monthly Activities

In addition to the general oversight and program support management for OPEX-funded activities, four specific areas were addressed during June: National Review Panel (NRP) meeting, concerns raised by DOE in the draft *Environmental Assessment*, potential project reorganization, and briefings to Directorate review committees.

The NRP had its first meeting as reported in WBS Element 1.1.6. The meeting was proactive, covering a program overview, technical description of the technology selection and of the selected technologies, and the permitting strategy. A number of issues were raised that are now being addressed.

Comments on the Draft Environmental Assessment from DOE were received and reviewed. A number of changes were made to the document to close out the identified issues. The EA will be resubmitted early in July.

As a result of a number of budget cuts and reduction in scope, we have been reevaluating the project organization in an effort to reduce management and administrative costs. Possible organizational structure changes will be discussed with DOE along with their impacts prior to instituting such changes.

Lastly, as part of the DOE to UC performance measures, each directorate must be evaluated for the quality of its work in five primary areas: quality of science and technology, management of construction, operation of major facilities, support of the major programs, and national importance. The MWMF Project was highlighted for both the Environmental Programs Directorate and for the Engineering Directorate. In both reviews, the directorates did outstanding - specifically in areas in which the MWMF was focused i.e., project management, and quality of science and technology.

FY95 Budget

Spending profiles (OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	30	29	27	29	27	33	27	31	31	29	33	29
4/95 Plan ²	Used actual costs through March						27	25	25	25	25	25
Monthly actual	54	76	169	-48	44	-76	60	-36	18			
11/94 Plan cumulative ¹	30	59	86	114	141	174	201	233	264	293	326	354
4/95 Plan cumulative ²	Used actual costs						247	272	297	322	347	372
Actual cumulative	54	131	300	251	296	220	280	243	261			
Current lien	140	136	179	198	169	143	111	48	46			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L115-7	Submit FY95 Plan	Dec 94	Complete
D115-1	DOE issues Project Plan	Jan 95	Open
L115-8	Technology Selection and Implementation Plan, Part II	Apr 95	Complete
L115-9	FY97 Project Validation	Apr 95	Complete
L115-1	Submit Project Management Plan (Final)	May 95	Complete
L115-10	Submit FY96 Plan	Oct 95	

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 the National Review Panel (NRP), the MWMF Letter (a community bulletin), and preparation and coordination of press releases and community tours. The first MWMF Letter is being prepared for August release.

Summary of Monthly Activities

The first NRP meeting was held June 20. Participants had three major issues: the market for alternative technologies, the economics of investment and implementation, and the assurance that the technologies are alternatives to incineration. The next meeting will be held to review the Environmental Assessment for subsequent approval and release by DOE. Although the second NRP meeting is shown in November, pending progress on the EA review, this meeting may be held as early as August. The first MWMF letter awaits release in August.

FY95 Budget**Spending profiles (OPEX)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	8	8	8	8	8	8	8	8	8	8	8	8
4/95 Plan ²	Used actual costs through March						5	8	8	5	5	5
Monthly actual	10	3	3	8	11	5	7	5	14			
11/94 Plan cumulative ¹	8	16	24	32	40	48	56	64	72	80	88	96
4/95 Plan cumulative ²	Used actual costs						44	51	59	64	69	74
Actual cumulative	10	12	15	23	34	38	46	51	65			
Current lien	28	28	28	29	28	28	28	28	28			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L116-1.1	National Review Panel (NRP) formed	Apr 95	Complete
L116-1	First meeting of NRP	Jun 95	Complete
L116-2.1	Issue first public newsletter	Aug 95	In Progress
L116-2.2	Receive comments from NRP	Apr 95	Deleted
L116-2	Second meeting of NRP	Nov 95	
L116-3.1	Issue second newsletter	Jan 96	

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

Conceptual design activity is complete. No further activities remain in this WBS element.

FY95 Budget**Spending profiles (\$0K, OPEX)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						0	0	0	0	0	0
Monthly actual	-1	-1	0	0	0	2	-2	-2	-2			
11/94 Plan cumulative ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan cumulative ²	Used actual costs						0	0	0	0	0	0
Actual cumulative	-1	-2	-2	-2	-2	0	-2	-2	-2			
Current lien	4	4	4	4	4	3	3	3	3			

Charges were transfers from FY94.

Significant procurement actions this month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
None	No activity		

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

No activities this month. All work has been effectively deferred due to FY95 funding reduction.

FY95 Budget**Spending profiles (OPEX)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	0	0	0	0	0	10	10	10	13	13	13
4/95 Plan ²	Used actual costs through March						0	0	0	0	7	7
Monthly actual	0	0	0	0	0	0	0	0	0			
11/94 Plan cumulative ¹	0	0	0	0	0	0	10	20	30	43	56	69
4/95 Plan cumulative ²	Used actual costs						0	0	0	0	7	14
Actual cumulative	0	0	0	0	0	0	0	0	0			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

¹ Estimated date only

ID No.	Milestone/Marker	Scheduled Date*	Status
L122-1	Issue MWMF Start-Up and Activation Plan	Feb 96 ¹	

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 OTPs in each of the technology areas including Operational Readiness Reviews (ORRs); (3) technical support for the preparation of Operational Safety Requirements (OSRs) and Facility Safety Requirements (FSRs), as well as the identification and resolution of problems during plant operational testing, start-up, and activation, including finalizing 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 (utilities, power, etc.) during construction, testing, and activation of the MWMF.

Summary of Monthly Activities

There are no activities under this WBS element during FY95.

FY95 Budget**Spending profiles (OPEX)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						0	0	0	0	0	0
Monthly actual	0	0	0	0	0	0	0	0	0			
11/94 Plan cumulative ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan cumulative ²	Used actual costs						0	0	0	0	0	0
Actual cumulative	0	0	0	0	0	0	0	0	0			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	- Scheduled Date*	Status
None	No activity		

WBS Element 1.3.1 Project Management**Task Description**

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

Summary of Monthly Activities

Project management for all elements of the Title I design of CENRTC-funded activities continued.

Technical progress continued in general accordance with the *Revised MWMF FY95 Plan*. Engineering development and design continued in support of preliminary design (PD) of MWMF major subsystems. Peer Reviews continued in preparation for system PD reviews.

We continued to implement rampdown activities necessary for the FY95 funding reduction and to assess the technical impact of the funding reductions for FY96 and beyond. The May 16 Program Letter contained formal DOE direction to implement the \$2M funding rescission for FY95 and to delete MEO from the scope of the project. The revised plan for FY95 was integrated into the *May Monthly Report* (completed in June), and coordinates the cost reduction financial plan shown in the *April Monthly Report*.

As part of the close out of MEO, the MEO staff were directed to complete a "System Design Description" document that will document the status of the design through Title I. It will include many of the advances accomplished as a result of the Engineering Development effort, e.g., acid regeneration and silver recovery, as well as the Title I engineering design to the time of MEO close-out.

Further, due to the FY95 budget cuts and caution regarding project ramp-up in the early part of the fiscal year, the Project Preliminary Design Review has been delayed to November. A number of the elements will have completed System Preliminary design prior to this time and will initiate "Advanced Title I analysis" until formal KD-2 is issued by DOE.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	59	56	54	56	54	65	54	101	101	92	105	60
4/95 Plan ²	Used actual costs through March						55	65	55	55	80	80
Monthly actual	71	12	36	37	44	44	41	66	45			
11/94 Plan cumulative ¹	59	116	169	226	279	344	398	499	599	691	796	856
4/95 Plan cumulative ²	Used actual costs						299	364	419	474	554	634
Actual cumulative	71	83	119	156	200	244	285	351	396			
Current lien	0	0	0	0	111	37	37	35	33			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L131-2	Input to FY95 Plan (see 115-7)	Dec 94	Complete
L131-4	Submit MWMF Rebaseline (Revision 1.2, MWMF/DWTF Merge)	May 95	Complete
L131-1	Preliminary Design Review completed	Nov 95	
D131-2	DOE Issues KD-2	Nov 95	
L131-5	Submit Post-PDR Project Baseline	Jan 96	

WBS Element 1.3.2 Project Control**Task Description**

Project Control provides for the project integration, configuration management, cost and schedule control, quality assurance (see WBS 1.1.1), 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

- We completed the *Revised FY95 Plan* document, in response to the \$2M budget cut for FY95, as discussed last month. The revised budget plan was formulated and implemented in the *April Monthly Report*. The revised scope and schedule for FY95 tasks and milestones (along with the budget plan) were formally documented in the *May Monthly Report*. The *Revised FY95 Plan* and the *May Monthly Report* were combined due to the similarity in format and to reduce costs. A letter requesting DOE/OAK approval of the *Revised FY95 Plan* will be submitted along with the combined report.
- The funding level and viability of the project remains under question. The Mixed Waste Focus Area (MWFA) Implementation Team was chartered by DOE to evaluate the value of MWMF to the national plan, and MWMF was asked to response to related questions during June.
- We completed an initial top-level integrated project schedule to deal with DOE guidance for a reduced FY96 budget, flat FY budgets beyond, and to delete MEO. Several key objectives, as well as technical and cost options, exist within the plan. The initial plan involves significant changes in project strategy and implementation, and is strongly supportive of DOE objectives for early evaluation of advanced treatment processes. These objectives and options will be discussed with stakeholders (project, DOE, MWMF, etc.) to define a baseline plan and schedule, which can then be costed. Iterations will be necessary to accommodate DOE funding constraints and changes as the FY96 budget process proceeds through Congress. The baseline plan will be finalized as part of preparing the project Preliminary Design Review (PDR) (in November) and will be subsequently incorporated into a baseline change request. An initial version of the plan is required to complete the *FY96 Plan* (in October).
- The first release of Management Reserve for FY95 was requested and approved during June. Final Forms (WBS 1.6.4) requested a \$15K increase for early tests at Rocky Flats on polymer microencapsulation.
- We completed a procurement requisition for engineering services manpower to continue to support project scheduling and control activities. A new contract must be in place by October.
- Good progress continued on the integrated cost/schedule estimating process. The process is being tested for several WBS elements on cost estimates associated with the most-recent baseline change. The process then remains to be documented and personnel trained on its use.

- Ongoing support to property management, facility maintenance, and office management continued. Several potential sites for relocation of the MWMF Project, driven by other LLNL space requirements, were investigated.
- The QA manager completed a draft of the *QA Surveillance and Verification* procedure, due next month. He updated the action item list and design review schedule, attended/supported project design reviews, and reviewed project documents submitted as QA records. He completed a training class for ISO-9000. A "lessons learned" meeting was held with project engineers, after the first system PDR, to review project procedures for any necessary changes; only minor clarifications were felt necessary.
- Other significant activities and accomplishments include the following:
 - Issued the DOE PTS monthly report
 - Issued the *May Monthly Report*
 - Began investigating several liens for possible removal from project accounts.
- Key issues:
 - Developing plan to respond to DOE FY96 and outyear funding guidance
 - Tracking of FY95 costs and liens.

FY95 Budget Spending profiles (\$471K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	42	40	37	39	37	45	37	43	43	39	45	39
4/95 Plan ²	used actual costs through March						37	43	43	39	45	39
Monthly Actual	44	9	22	45	66	38	41	42	46			
11/94 Plan cumulat. ¹	42	82	119	158	195	240	277	320	363	402	447	486
4/95 Plan cumulat. ²	used actual costs						225	262	305	348	387	432
Actual cumulative	44	53	76	121	187	225	266	308	354			
Current lien	0	0	0	42	42	38	26	26	11			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

The lien is for manpower support services (project scheduling).

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L132-4	Input to FY95 <i>Plan</i> (see 155-7)	Dec 94	Complete
L132-1	Implement cost planning/tracking systems (document)	Dec 94	Complete
L132-5	Issue Configuration Control System Document Complete	Mar 95	
L132-6.1	Input to MWMF <i>Project Management Plan</i> (see L115-1)	Apr 95	Complete
L132-7	Performance Management System documented	Aug 95	
L132-9.1	Records Control Procedure	Apr 95	Complete
L132-8.1	Complete support of Project PDR (see L131-1)	Nov 95	
L132-9.2	Assessment/Surveillance Procedure	Jul 95	
L132-9	Complete QA Self Assessment	Aug 95	
L132-10.1	Input to FY96 <i>Plan</i> (see L115-10)	Oct 95	

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 covers technical issues that affect all primary and support processes. It also includes the responsibility for assuring that the integrated design addresses systems interfaces, including interfaces with LLNL Hazardous Waste Management and facility engineering. The element coordinates the System Design Requirements (SDRs), the MWMF floor plan, and the Integrated Operating Plan.

Summary of Monthly Activities

- Lead engineers updated HVAC and electrical utility requirements.
- A trade off between using steam vs. electrical heating for the evaporator in MSO salt recycle is being made which affect the facility requirements.
- Equipment arrangements were updated the on MWMF floor plan.
- The series of meetings with Hazards Control have been completed for the feed prep, MSO, MEO, and FF areas. As a result, a breathing air supply for the MWMF is being considered.
- Meetings were held at Parsons' (DWTF A&E contractor) headquarters in Pasadena, where MWMF process information was presented. Hard piped utilities were identified, as well as areas for temporary connections to skid mounted equipment. Parsons personnel visited LLNL and toured existing MEO and MSO development areas.

FY95 Budget Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	28	26	26	26	26	30	26	29	29	26	30	26
4/95 Plan ²	Used actual costs through March						27	27	27	27	27	27
Monthly actual	51	-1	10	18	30	18	19	20	17			

	28	54	80	106	132	162	188	217	246	272	302	328
11/94 Plan ¹	Used actual costs						154	181	208	235	262	289
4/95 Plan ²	51	50	60	78	108	127	146	166	183			
Current lien	2	0	2	0	1	3	2	1	1			

Significant Procurement Actions this month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

Note: Milestones have been added this month for DWTF interface activities, which are costed and reported under WBS 1.3.3.

ID No.	Milestone/Marker	Scheduled	Status
		Date*	
L133-1.4	Input to <i>FY95 Plan</i> (see 115-7)	Nov 94	Complete
L133-2	Issue Integrated Operations Plan	Jan 95	Complete
L133-4	Issue Metrication Plan	Feb 95	Complete
L133-3	Issue Title I System Design Requirements	Aug 95	In Progress
L133-5	Input to <i>FY96 Plan</i> (see 115-10)	Oct 95	
L133-10.1	Identify emissions for air permit	Jun 95	Complete
L133-10.2	Review floorplan layout and personnel egress	Jul 95	In Progress
L133-10.3	Review facility Process Flow Diagrams	Aug 95	
L133-10.4	Facility preliminary design (20%)	Aug 95	
L133-10.5	Title 1 Design Review (80%)	Sep 95	
L133-10.6	LLNL Review Title 1 Design	Oct 95	

WBS Element 1.4.1 Receiving and Shipping**Task Description**

The principal objective of the Receiving and Shipping (RAS) 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. RAS 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). RAS includes both receiving and shipping equipment and systems integration.

Summary of Monthly Activities

Activities this month continued with the coordination of the design efforts for the RAS areas of the MWMF and DWTF. We are drafting a letter describing the proposed recommendations. We are developing layouts showing the revised RAS areas and how they would fit into the facility. Local I&C has increased pace in the design activities in preparation for the upcoming 90% System PDR.

FY95 Budget**Spending profile (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	18	17	16	17	16	19	14	15	15	9	10	9
4/95 Plan ²	Used actual costs through March						11	7	7	7	5	5
Monthly actual	21	2	4	12	4	11	5	9	4			
11/94 Plan cumulative ¹	18	35	51	68	84	103	117	132	147	156	166	175
4/95 Plan cumulative ²	Used actual costs						65	72	79	86	91	96
Actual cumulative	21	23	27	40	44	54	59	68	72			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L141-1.1	Complete pilot characterization studies	Dec 94	Complete
L141-1.2	Identify equipment and define floor plan	Mar 95	Complete
L141-1.3	RAS LI&C System Functional Requirements Document complete	Sep 95	
L141-1.4	RAS LI&C System PDR complete	Sep 95	
L141-1	RAS System Preliminary Design Review	Sep 95	

WBS Element 1.4.2 Solids Feed Preparation**Task Description**

The principal objective of the Solids Feed Preparation (SFP) 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. SFP provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of SFP equipment, Title III inspection, and acceptance test procedures (ATP). SFP includes both solids feed preparation equipment and systems integration.

Summary of Monthly Activities

- Activities this month focused on another revised floor plan. This new layout provides a more flexible layout by using the area that was previously removed from RAS. This change addresses concerns related to support equipment and process transport and storage requirements by providing adequate space for these operations.
- Additional details for the drum venting and opening operation were developed. Efforts are directed towards providing the most cost-effective method, using commercially available equipment where possible. Detailing of the equipment and vendor inquiries to firm up cost estimates are in progress.
- Some of the processing functions have been relocated from the SFP area to the newly created process storage area. These functions include blending (solids and liquids) of prepared feed materials and sampling of the batches prior to sending them to the treatment areas via the transport function. By locating the blending operation in a new area, all blending and sampling will be accomplished in one area and will be the responsibility of the Process Transport and Storage (PT&S) WBS. Costs associated with the blending equipment in SFP will be transferred to the PT&S WBS in the cost estimates for PDR.
- Drum handling concepts were addressed; an initial design was completed to adapt the manipulator gripper for handling a wider range of object sizes.
- Completed review of responses from the request for quote on the manipulator system. Schilling Development, Inc. was the only responder to the RFQ and their questions were discussed and clarifications made. Procurement is continuing and expected delivery is 90 to 120 days. Planning for installation of the manipulator in Building 272 is underway.
- Completed Marker L142-1.7—SFP workcell control architecture designed, formal documentation and review by appropriate line management. Local Instrumentation and Control design activities have increased pace in preparation for the upcoming 90% Ssystem PDR.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	95	91	86	91	87	104	87	100	100	36	41	36
4/95 Plan ²	Used actual costs through March						52	57	105	232	42	167
Monthly actual	83	31	31	76	92	85	44	38	125			
11/94 Plan cumulative ¹	95	186	272	363	450	554	641	741	841	877	918	954
4/95 Plan cumulative ²	Used actual costs						449	506	611	843	885	1,052
Actual cumulative	83	114	144	220	312	397	441	479	604			
Current lien	21	0	0	0	639	275	275	307	228			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

We released the contract for the engineering development arm (~194K).

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L142-1.2	Identify initial suite of characterization equipment	Jan 95	Complete
L142-1.5	Process Vision/Robline bilateral communication link demonstrated	Feb 95	Complete
L142-1.6	Process Vision/Robline bilateral message handling demonstrated	Mar 95	Complete
L142-1.3	Complete validation of characterization, isolation and segregation methods	Apr 95	Complete
L142-1.4	Complete preliminary operator control station design	Apr 95	Complete
L142-1.7	SFP workcell control architecture designed	May 95	Complete
L142-1.8	SFP LI&C System Functional Requirements Document complete	Sep 95	
L142-1.9	SFP LI&C System Preliminary Design review complete	Sep 95	
L142-1.10	Locate user interface stations and required functionality	Aug 95	
L142-1.11	Draft FP control console layout	Aug 95	
L142-1	SFP System Preliminary Design Review	Sep 95	
L142-2	Telerobotics Preliminary Design Review	Sep 95	

WBS Element 1.4.3 Liquids Feed Preparation

Task Description

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

Summary of Monthly Activities

- Continued LFP equipment layouts based upon the revised floor plan generated during April '95.
- Continued acquiring further information for PDR trade-off matrix.
- Continued efforts on generating the following documents; System Design Description, System Operation Description and Hazards Analysis Matrix for LFP.
- Continued working issues of liquid/liquid interface detection and liquid/solid interface detection using ultrasonic transducers. Also evaluating the use of gamma sources for the same function.
- Defined the utility requirements for LFP and forwarded them to personnel responsible for facility interface.
- A memorandum of understanding between LFP and PT&S (yet to be finalized) was agreed upon as to batch sizes and how they are mixed prior to delivery to the destruction processes.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	38	36	34	36	34	41	34	40	40	18	21	18
4/95 Plan ²	Used actual costs through March						22	20	20	14	14	14
Monthly actual	37	6	14	22	28	22	22	20	20			
11/94 Plan cumulative ¹	38	74	108	144	178	219	253	293	333	351	372	390
4/95 Plan cumulative ²	Used actual costs						152	172	192	206	220	234
Actual cumulative	37	43	57	79	108	130	152	172	192			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

ID No.	Milestone/Marker	Scheduled	Status
		Date	
L143-1.1	Define surrogate feeds	Nov 94	Complete
L143-1.3	Complete validation of characterization and segregation methods	Apr 95	Complete
L143-1.4	LFP LI&C System Functional Requirements document	Sep 95	
L143-1.5	LFP LI&C System Preliminary Design Review	Sep 95	
L143-1	90% Preliminary Design Review	Sep 95	

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 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

- The Automated Diluter is being tested in B161. The Cavo computer-controlled syringe pump and smart valve have been programmed using the DOS test software that was supplied with them to go through an automated sequence that measures out acid and buffer solution and adds it to DI water. The Rosemount pH probe is also installed in the Automated Diluter and has been tested for accuracy and other performance issues. The first results look promising.
- We have concluded tests on the 1/15-scale silver recovery system in B161. The yields were over 99%, slightly better than the 98 to 99% yields obtained in the lab-scale tests. The results have been documented and are referenced in the MWMF LURMS system as L-19707-1.
- Design effort included the following:
 - Rough draft of the System Design Description documenting the MEO design and development to this point has been completed. The draft is currently being reviewed and will be published shortly. This description is sufficiently complete for MEO to be reactivated in two years without significant loss of design information.
 - Completed updating of preliminary PFDs to provide internally consistent documentation of the MEO design at this point in time. The results will be documented with LLNL triple A drawing numbers for reference. The drawing numbers are listed in the System Design Description.
 - Completed updating of preliminary P&IDs to provide internally consistent documentation of the MEO design at this point in time. The results will be documented with LLNL triple A drawing numbers for reference. The drawing numbers are listed in the System Design Description.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	79	98	94	113	102	91	81	73	73	73	73	73
4/95 Plan ²	Used actual costs through March						81	73	73	53	25	25
Monthly actual	103	32	68	76	82	91	75	71	48			
11/94 Plan cumulative ¹	79	177	271	384	486	577	658	731	804	877	950	1023
4/95 Plan cumulative ²	Used actual costs						534	607	680	733	758	783
Actual cumulative	103	136	203	279	361	453	527	598	647			
Current lien	22	21	14	9	6	7	13	3	3			

¹ Original FY95 Plan shown for information only

² Current FY95 Plan (April, '95) uses actual costs through March

Significant procurement actions this month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L151-1.1	Complete tests on turbo-aerator for nitrous-acid conversion (document)	Jan 95	Complete
L151-1.4	Summarize silver recovery chemistry results to date (document)	Apr 95	Complete
L151-1.6	Report on NaOH-AgCl recovery (document)	Apr 95	Complete
L151-1.7	Computer simulation of the combined MEO and Acid Recovery control systems (document)	Mar 95	Complete
L151-1.8	Final Report on steady-state flow and chemistry balance tests (document)	Aug 95	In Progress
L151-1.9	Demonstrate prototype cellulose feeder (document)	Jun 95	deleted
L151-1.12	LI&C Functional Requirements Document complete	Aug 95	
L151-1.10	P&ID drawings (document)	Sep 95	Complete
L151-1.11	Layout drawings of major equipment items (document)	Sep 95	Complete
L151-1.13	LI&C System Preliminary Design review	Sep 95	deleted
L-151-2	MEO System Preliminary Design review	Sep 95	deleted
L-151-3	MEO System Design Description document	July 95	In Progress

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 element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of the MSO equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities

- **Two major milestones were completed:**

L152-2 - *Select Industrial Participation method for Primary Unit*

L152-3.4 - *Install development unit*

- **Materials Development and Evaluation:**

Aluminized coatings of nickel alloy

Three commercial providers of aluminized coatings, Alon, HiTempco, and Sermatech, were visited and found to be highly qualified and eager to produce nickel aluminide coatings for our test and evaluation. Each vendor has unique coatings capabilities of interest to us. Alon uses a packed bed (CVD) process and can coat a full-size MSO vessel and its weldments in a single run. HiTempco and Sermatech use two-stage "coat and diffuse" processes and are better suited to coat components of the vessel or vessel system, and to repair leaks in the vessel *in situ*. During the visits, we collaborated with each in creating a sample test plan. Test samples have been obtained from HiTempco.

Bare Inconel 600 (in collaboration with ETEC)

Corrosion testing was begun in the Na₂CO₃ - NaCl eutectic (45/55 mol%, respectively) salt at four temperatures, 750, 800, 850, and 900°C.

Corrosion test furnace at LLNL (with guidance from ETEC)

Most of the air/CO₂/moisture injection system (required for more prototypic testing) has been assembled. We expect to complete the assembly of the entire system by Aug. 4.

- **Engineering Demonstration Unit (EDU):**

The field wiring is complete and checked through to the PLC logic for all original components. Wiring, PLC logic and MMI (man machine interface) programming is in progress for the salt sucker controls (two valves, key switch, heater zone 8 for heating the salt extraction pipe). Workcell programming is 95% complete; tasks remaining include alarm monitoring and completion of trend configurations. PLC programming is complete. The workcell computer has been moved to the EDU area (B241). Integrated control system testing is in progress. All 7 heater zones have been energized in both manual and PID control modes at low temperature (<100°C). A problem occurred during heat-up to 500°C when all seven heater zones were run at 100% power. After about 15 minutes the main breaker for the heater circuits tripped off. After some investigations it was

determined that there was no failure; the cause was due to undersized components in the main heater electrical feed. An additional circuit will be added to solve the problem; installation is in progress. Shake down of the system, including full power heat-up of the vessel, is scheduled to resume during the week of July 10.

The Horiba gas analyzer system has been installed and is functional. The operator has become familiarized with the system. Acceptable accuracy has been demonstrated by introducing a known sample gas and verifying the PPM concentration of gases in the mixture.

Fabrication and assembly of the salt sucker system is 85% complete. The vacuum ballast tank was positioned at the south side of B24, secured and evacuated for the first time. Final assembly of the salt receiver should be complete by mid-July to allow operation before the end of the month.

- **Injector Development:**

Two injector flanges were made for the EDU vessel check out. One with an air injection tube will be used in a NO_x generation test with an empty heated vessel. The second has both an air injection tube for NO_x tests in a full hot vessel and a salt drain pipe for evaluating salt drain valves.

A spreadsheet was generated to calibrate the EDU flow meters for various feed materials, flow rates and air ratios.

As an action item from the Peer Review, a study was initiated to look at injector configurations that permit removal without draining the vessel

- **Primary Unit Design:**

The most recent facility requirements for the MSO reactor system have been provided to the facility interface engineer. This includes estimates on enclosure heat loads, enclosure size, electrical power, and cooling water requirements.

System interface design requirements are being discussed, evaluated and defined. This includes the primary unit and its interfaces with the off-gas system, salt drain/recycle system, salt supply, and enclosures.

Reactor thermal calculations are being reviewed to properly size the cooling system. Operation and instrumentation of EDU reactor vessel will provide a data point for the thermal model.

- **Process Off-Gas:**

Preliminary sizing of the combined heat exchanger and condenser unit has been completed and a cost estimate obtained. Initially, a heat exchanger was sized to cool the off-gas from 525°C to 100°C and a condenser was sized to further cool the off-gas from 100°C to 2°C and condense out the water vapor. The combined unit cools the off-gas and condenses the water vapor in one operation.

The combined unit is a shell and tube arrangement with the off-gas flowing through the tubes and the ethylene glycol (30% mixture with water) flowing through the shell. As a result, the unit must be installed vertically so the condensate can be separated from the gas stream and contained. There is, however, some concern about how much moisture remains in the off-gas when it exits the combined unit. Calculations show that there is a 5% carry-over when the off-gas exits the condenser at 2°C. Several vendors who were contacted did

not know what the actual carry-over percentage was for their units. They only knew their calculated value.

Cost estimates for the dust valve have been obtained. The double dump gate valve (dust valve) will transfer the trapped salt from the gas solid separation (GSS) filter to a 55-gallon drum or pneumatic conveyer. The dust valve is driven by a pneumatic cylinder and is capable of withstanding temperatures up to 1315°C (2400°F).

- **Salt Recycle:**

Extensive discussions with LLNL procurement led to development of a procurement plan for salt recycle. The procurement includes two phases. Phase one is pilot plant work which will consist of pilot scale process development and demonstration in a vendor's pilot equipment facility. Phase two will be design, fabricate, test, install, and startup of the salt separation system for MWMF. The procurement plan includes a plan for qualifying vendors to be on the bidders list.

A draft statement of work for treatability/pilot studies was developed. The specification draft was revised to be in accordance with the Peer Review.

Seven vendors responded to the CBD and indicated their interest in providing services or equipment for salt recycle. We used trade literature and advertisements to identify five additional vendors. We screened these 12 potential vendors by reviewing their literature and with telephone conversations. Five vendors appear to offer significant capabilities. Visits have been scheduled to these as part of the bidder qualification effort during the week of July 10.

The prediction of fractional crystallization phase behavior by thermodynamic modeling has begun. The LLNL-developed code, EQ3/6, has been selected. It calculates phase equilibria using either the Pitzer model, the B-dot model, or the Debye-Huckel model, depending on the case being studied. Four complicated salt mixtures are being defined that will serve as modeling and experimental baselines for separation design.

Laboratory work continued in June to characterize amounts of salt remaining in ash residues and the amounts of rinsing water required to reduce that salt remaining. A model salt mixture containing 10 wt% ash was mixed from known amounts of NaCl and Na₂CO₃, and laboratory separations were demonstrated for ash filtration and a subsequent two-stage crystallization process. It was found that about 2 cc rinsing water per 1 g ash is required to reduce the salt residues to the acceptance levels for Final Forms.

Process flow diagrams (PFDs) continued. There are three sheets of PFDs for salt recycle. The first one illustrates salt freezing, salt solids size reduction, transport, and storage. The second sheet explains salt dissolution, filtration, and separation of high-ash salts. The final sheet depicts processes for the separation of high-chloride, low-ash salt. Process equipment has been given a name and tag number along with some preliminary process information.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	140	147	194	210	209	196	235	221	153	202	279	242
4/95 Plan ²	Used actual costs through March						285	221	153	202	279	242
Monthly actual	139	27	83	101	124	222	221	245	190			
11/94 Plan cumulative ¹	140	287	481	691	900	1,096	1,331	1,552	1,705	1,907	2,186	2,428
4/95 Plan cumulative ²	Used actual costs						981	1,202	1,355	1,557	1,836	2,078
Actual cumulative	139	166	249	350	474	696	917	1,163	1,352			
Current lien	3	36	47	52	154	154	110	181	181			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate

ID No.	Milestone/Marker	Scheduled Date*	Status
L152-3.3	Initiate vessel material study	Oct 94	Complete
L152-2.2	Complete Design Specification	Jan 95	Complete
L152-2.3	Conduct Industrial Partner meeting	Jan 95	Complete
L152-3.5	LI&C Functional Requirements Document complete	Oct 95	
L152-3.6	LI&C System Preliminary Design complete	Oct 95	
L152-2	Select Industrial Participation method for Primary Unit	Jun 95	Complete
L152-3.4	Install development unit	Jun 95	Complete
L152-3	MSO System MWMF PDR	Oct 95	
L152-5	Start Title II design	Nov 95	
L152-6	Select Industrial Participation method for Salt Recycle	Nov 95	

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 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

This activity has been closed out. No FY95 activities.

FY95 Budget**Spending profiles (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						0	0	0	0	0	0
Monthly actual	0	0	0	0	0	1	-1	-1	-1	0	0	0
11/94 Plan cumulative ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan cumulative ²	Used actual costs						0	0	0	0	0	0
Actual cumulative	0	0	0	0	0	1	0	0	0			
Current lien	0	0	0	0	0	0	0	0	0			

Significant procurement actions this month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
None	No activity		

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 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

This activity has been closed out. No FY95 activities.

FY95 Budget**Spending profiles (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan ²	Used actual costs through March						0	0	0	0	0	0
Monthly actual	0	0	0	0	0	0	0	0	0			
11/94 Plan cumulative ¹	0	0	0	0	0	0	0	0	0	0	0	0
4/95 Plan cumulative ²	Used actual costs						0	0	0	0	0	0
Actual cumulative	0	0	0	0	0	0	0	0	0			
Current lien	0	0	0	0	0	0	0	0	0			

Significant procurement actions this month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
None	No activity		

WBS Element 1.5.5 Experimental Off-Gas**Task Description**

The principal objective of Experimental Off-Gas Treatment (XOGT) 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, acidic urea DeNO_x scrubbing, and advanced metal filters. The second objective is to demonstrate feasibility and effectiveness of off-gas treatment at or near to the source of the gas where the treatment can be tailored to that specific source. The XOGT element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of XOGT equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities. XOGT will be backed by the facility off-gas system.

In January 1995, FY95 activities for this element were downscoped to reflect future-year budget reductions. Activities are to be leveled out in June 1995 and restarted late in the Project. The milestones have been updated to reflect this.

Summary of Monthly Activities

The gas-liquid contactor for destruction of NO_x with acidic urea is undergoing final testing, and minor corrections are being made.

FY95 Budget**Spending profiles (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	13	13	12	13	12	15	12	14	14	13	14	13
4/95 Plan ²	Used actual costs through March						6	6	6	6	0	0
Monthly actual	18	12	19	9	6	2	21	6	3			
11/94 Plan cumulative ¹	13	26	38	51	63	78	90	104	118	131	145	158
4/95 Plan cumulative ²	Used actual costs						72	78	84	90	90	90
Actual cumulative	18	29	49	58	63	66	86	93	95			
Current lien	0	1	0	4	0	17	2	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L155-1.1	Fabricate prototype gas-liquid contactor for acidic urea DeNO _x scrubbing	Jun 95	Complete
L155-3.2	Initiate systematic catalysts testing	Jan 95	Deleted
L155-2.1	Initiate instrumentation and control system test	Feb 95	Deleted
L155-3.3	I&C Functional Requirements Document complete	May 95	Deleted
L155-1	Summarize Gas Liquid Contactor Tests (document)	Jul 95	
L155-3.4	LI&C System Preliminary Design review	Jun 95	Deleted
L155-3	XOG System Preliminary Design review	Jun 95	Deleted
L155-3.1	Summarize NO _x -urea chemistry to date (document)	Aug 95	

WBS Element 1.6.1 Process Transport and Storage**Task Description**

The principal objective of the Process Transport and Storage (PTS) system is to collect, transfer, deposit, store, and handle containers, discrete items, dry and wet bulk materials, slurries, and liquids. PTS 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). PTS includes both process transport and storage equipment and systems integration.

Summary of Monthly Activities

- Feed sampling and blending (solids and liquids) functions have been relocated from the SFP area to PTS to increase flexibility and reduce analytical costs during operations. By locating the blending operation in PTS, all blending and sampling will be accomplished in one area and will be the responsibility of the Process Transport and Storage WBS. Costs associated with the blending equipment in SFP will be transferred to the PT&S WBS in the cost estimates for PDR. The WBS dictionary will be updated to reflect these changes.
- We completed a number of new PTS floorplan and equipment layouts reflecting the new blending scope and integrated them with the existing Feed Prep areas.
- Utility requirements needed by the AE for the facility design have been supplied to the facility interface engineer.

FY95 Budget**Spending profiles (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	6	6	5	6	8	10	9	10	10	6	7	6
4/95 Plan ²	Used actual costs through March						9	6	6	6	6	6
Monthly actual	15	6	3	4	4	-1	9	4	7			
11/94 Plan cumulative ¹	6	12	17	23	31	41	50	60	70	76	83	89
4/95 Plan cumulative ²	Used actual costs						40	45	51	57	63	69
Actual cumulative	15	21	24	27	31	30	39	43	50			
Current lien	0	0	0	0	0	5	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

<u>ID No.</u>	<u>Milestone/Marker</u>	<u>Scheduled Date*</u>	<u>Status</u>
L161-1.1	Select standard transport container designs	Jul 95	In Process
L161-1.2	Floor plan layout complete	Aug 95	In Process
L161-1.3	LI&C Functional Requirements Doc. complete	Sep 95	
L161-1.4	PTS LI&C System Preliminary Design review	Sep 95	
L161-1	PTS System Preliminary Design Review	Sep 95	

WBS Element 1.6.2 Analytical Services**Task Description**

The principal objective of Analytical Services is to provide chemical analysis support for process control and characterization, material control, and regulatory requirements. Analytical Services 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 Services includes Analytical Laboratory Equipment, Local Process I&C, and Process Off-Gas.

Summary of Monthly Activities

- Initiated chemical analysis of samples from six drums of waste in support of LFP. Samples will be analyzed to determine rad, inorganic and organic compounds, both RCRA and non-RCRA, as well as various chemical and physical parameters of interest to LFP for process design.
- Continued with preparations for the Peer Review to be held in July.
- The first draft of the LI&C functional requirements document was prepared and has been circulated for review.

FY95 Budget**Spending profiles (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	10	9	9	9	9	11	9	10	10	9	27	18
4/95 Plan ²	Used actual costs through March						9	10	10	9	10	10
Monthly actual	19	-2	8	8	9	9	9	10	5			
11/94 Plan cumulative ¹	10	19	28	37	46	57	66	76	86	95	122	140
4/95 Plan cumulative ²	Used actual costs						60	70	80	89	99	109
Actual cumulative	19	16	24	32	41	51	60	71	76			
Current lien	0	0	0	0	0	0	0	0	0			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L162-4	Define MEO on-line analysis requirements	Feb 95	Complete
L162-3	Define facility off-gas monitoring requirements	Feb 95	Complete
L162-6	Define DWTF analysis requirements	Mar 95	Complete
L162-2	Define analysis tests based on process acceptance criteria	Aug 95	Partial
L162-5	Define MSO on-line analysis requirements	Mar 95	Complete
L162-7.1	LI&C Functional Requirements Document complete	Jul 95	Partial
L162-7.2	LI&C System Preliminary Design review	Aug 95	
L162-7	Analytical Lab System Preliminary Design review	Aug 95	

WBS Element 1.6.3. Water Treatment**Task Description**

Water Treatment (WTR) is an integral part of treatment train demonstrations, continuing treatment of aqueous byproducts as part of demonstration tests to produce solid residuals suitable for Final Forms and fully treated water that meets treatment standards and sewer limits. WTR provides the management, system analysis and support, design and engineering (Title I, II, III), procurement, and installation of the WT equipment necessary to demonstrate treatment trains, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities

- The HWM design team continued Title I design work on the MWMF WTR process equipment selection and specification. Flow diagrams were prepared. The WTR Peer Review was held in June. Six action items and six design issues were identified for resolution during the balance of Title I design for WTR.

FY95 Budget**Spending profiles (CENRTC)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	0	14	13	14	13	16	13	15	5	5	10	8
4/95 Plan ²	Used actual costs through March						13	15	5	5	5	5
Monthly actual	0	0	2	3	3	2	3	2	3			
11/94 Plan cumulative ¹	0	14	27	41	54	70	83	98	103	108	117	126
4/95 Plan cumulative ²	Used actual costs						22	37	42	47	52	56
Actual cumulative	0	0	2	5	7	9	12	14	16			
Current lien	0	0	0	0	0	0	0	0	0			

Significant procurement actions this month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L163-1.1	Water Treatment Trade-off Study Revision	Feb 95	Complete
L163-2	Memorandum of Understanding with HWM	Jan 95	Complete
163-3.1	LI&C Functional Requirements Document complete	Jun 95	
L163-3.2	LI&C System Preliminary Design review	Nov 95	
L163-3	WT System Preliminary Design Review	Nov 95	
L163-4	Begin Final (Title II) Design	Nov 95	

WBS Element 1.6.4 Final Forms

Task Description

The Final Forms task is to immobilize the residues from the treatment of the mixed waste input streams by the primary processes, and residue resulting from secondary support processes that are integral to the primary treatment processes. The Final Form types are (1) ceramics for mineral residues, (2) polymer microencapsulation for salt, and (3) sulfur-polymer microencapsulation for volatile inorganic solids.

Summary of Monthly Activities

- After months of re-evaluations, we have firmly decided upon a major change in an immobilization technology selection: The polymer microencapsulation technology to be used for immobilizing salt residues will be extruded thermoplastic (namely, low-density polyethylene) rather than a cast thermosetting polymer system. The reasons, which were detailed in a memorandum (L-19692-1), are as follows: (1) Thermoplastic extrusion is a mature technology involving negligible project risks, while cast thermosets present high risks. (2) Although extruded thermoplastics will involve an estimated increase in Final Forms' direct costs of ~\$120K, thermosets involve indirect costs at the MWMF project level which would offset much of this. (3) The extruded-thermoplastic waste form is more in keeping with stakeholder interests.
- A memorandum, *Final Forms evaluations of immobilization technologies* (L-19718-1), was completed in fulfillment of Milestone L164-1.
- As reported in May, a complex ceramic containing a wide variety of elements was fabricated and found to be generally satisfactory, with a single important exception: leach resistance for Cd was unsatisfactory. We are actively investigating this failure by re-evaluating our previous Cd-containing ceramics and by preparing additional formulations. The intent is to elucidate the behavior of Cd in our increasingly complex ceramic designs.
- Some chlorides, oxychlorides, fluorides, and oxyfluorides of the actinides are likely to be volatile under Final Forms' ceramic processing conditions. We expect to receive very little of such compounds but are nonetheless initiating experiments using lanthanide surrogates and ^{238}U . Addition of phosphates to the formulation may minimize the problem, since lanthanide—and by inference, actinide—phosphates are relatively stable and non-volatile.
- We are actively designing the ceramics process off-gas system, which had been in abeyance for some time. This includes collection of vaporized inorganic solids,
- The scope and costs of the planned polyethylene microencapsulation work to be performed at Rocky Flats have been settled. Placing the ICO has been slow because of the changed organization there.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	34	33	33	33	33	34	33	33	33	33	33	34

4/95 Plan ²	Used actual costs through March						33	33	33	33	33	34
Monthly actual	59	13	23	26	38	35	32	33	30			
11/94 Plan cumulative ¹	34	67	100	133	166	200	233	266	299	332	365	399
4/95 Plan cumulative ²	Used actual costs						226	259	292	325	358	392
Actual cumulative	59	72	95	120	158	193	224	257	286			
Current lien	1	1	2	1	1	1	1	1	1			

¹ Original FY95 Plan shown to illustrate changes

² Current FY95 Plan (April '95) uses actual costs through March

Significant Procurement Actions this Month

None

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L164-1.3	Report status of immobilization evaluations	May 95	Complete
L164-2.1	Final Forms subsystem design status peer review	May 95	Complete
L164-1	Evaluations of immobilization technologies done	Jun 95	Complete
L164-2.2	LI&C Functional Requirements Document done	Aug 95	
L164-2.3	LI&C System Preliminary Design review	Aug 95	
L164-2	Final Forms System Preliminary Design review	Aug 95	
L164-3	Report: Design of polymer microencapsulation system	Oct 95	
L164-4.1	Report: Volatile residue components and the design of ceramic waste form system	Sep 95	
L164-4.2	Report: Interim status of ceramic waste form compositions and process parameters	Sep 95	

WBS Element 1.6.5 Supervisory Instrumentation and Control (SI&C)**Task Description**

Supervisory Instrumentation and Control (I&C) systems will be provided and integrated to 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: Facility database management, safety control, process I&C standards, supervisory control, and ancillary systems and equipment including the instrumentation and equipment database, intercom communication, process and surveillance CCTV, cable and power distribution and grounding, and control room facilities.

Summary of Monthly Activities

- We continued activities to answer action items identified during the *ICS Peer Review* of March 9th, the *Safety Control System Issues Peer Review* of May 23rd, and the *Control Room and Operations Concept Peer Review* of June 13th.
- We conducted the *SI&C System 90% Preliminary Design Review*. No action items were identified.
- The I&C team attended a two-day on-site workshop on Human Factors Engineering (HFE).
- Technical meetings were held with representatives from Comdale Technologies, Inc. (CTI) and MinnovEX Technologies, Inc.
- Testing of the SCADA user interface on the MSO EDU installation has identified a video display problem. Additional VRAM will be ordered shortly. Testing of PLC PID features on the MSO EDU system have been challenging - contact has been made with other LLNL experts, and Allen-Bradley factory representatives.
- We continued other ICS testing activities at a low level due to preparation activities for the *SI&C System 90% PDR*. Difficulties have been encountered with the SCADA *archival-to-tape* feature. CTI has been contacted and is working on the problem.
- B695 grounding requirements were revised. The *MWMF Grounding Guidelines* document has been completed. It is currently in the signature review cycle.
- We revived activities to complete the *Functional Requirements Document for the MWMF CCTV System*. The document will be completed in July.
- We continued activities directed toward marker L165.1-12—*SI&C Functional Requirements Document complete*. The document will not be completed until September due to manpower dilution caused by competing, more immediate LI&C needs.

FY95 Budget

Spending profiles (CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/94 Plan ¹	50	94	60	43	40	38	48	38	38	40	37	45
4/95 Plan ²	Used actual costs through March						40	38	38	40	37	44
Monthly actual	70	41	35	43	75	68	50	30	32			
11/94 Plan cumulative ¹	50	144	204	247	287	325	373	411	449	489	526	571
4/95 Plan cumulative ²	Used actual costs						372	410	448	488	525	569
Actual cumulative	70	112	146	189	264	332	381	411	443			
Current lien	37	23	19	18	8	11	5	3	0			

¹ Original FY95 Plan shown for information only

² Current FY95 Plan (April '95) uses actual costs through March

Significant procurement actions this month
None.

Milestones and Markers

*See "Milestone/Marker Log" for original dates and reconciliation, if appropriate.

ID No.	Milestone/Marker	Scheduled Date*	Status
L165-1.9	Engineering Development System operational	Jan 95	Complete
L165-1.10	Rapid prototype Engineering Development testing complete, report written	Feb 95	Complete
L165-1.11	Integrated control system design peer review	Mar 95	Complete
L165-2.1	Instrumentation and Equipment Database operational	Apr 95	Complete
L165-1.12	SI&C Functional Requirements Document complete	Sep 95	In Progress
L165-1	SI&C System 90% Preliminary Design Review	Jun 95	Complete
L165-1.13	Engineering Development tasks complete, documented	Sep 95	
L165-1.14	Preliminary Design activities complete, documented	Sep 95	
L165-2.2	Process I&C Standards established	Sep 95	

Appendix A

Milestone/Marker Log

MWMF Milestone/Marker Log

For Jun 95 Monthly Report - Sorted by Number

Number	Item	PTS	Orig. Date	Date	Status	Comments
	Rev. Date: 7/18/95; Doc. Resp. Person: M. Hussey, A. Throop(alt.)					
X	= changes in this revision					
C113-1	RD&D permit issued by DTSC	X		Apr-96		date required by DWTF schedule. Better est. after DTSC review applic.
C113-2	Authorization to construct issued by BAAQMD	X	Oct-94	Jul-96		Schedule change as a result of permitting strategy change.
D112-1	PSAR Approved by DOE	X	Jun-94	Nov-94	deleted	facility categorized Low Hazard; DOE approval not req'd
D113-1	EA determination by DOE	X	Aug-94	Aug-95		EA draft submitted. Rev. due to MWMF/DWTF merge. Rev. EA 2/95. Aug-95 is earliest date for EA review and FONSI issue per DOE Compliance Office.
D115-1	DOE issue Project Plan	X		Jan-95	Open	No revised date available from DOE. LLNL preparing PMP w/o PP.
D121-1	Preliminary approval and funding for Preliminary Design	X	Apr-94	Jun-94	complete	delayed decision by DOE
D121-2	KD 1/2 Approval by DOE	X		Jun-94	complete	received KD-1 only
D131-2	DOE issues KD-2	X	Jun-94	Nov-95		Delayed due to reduced DOE funding.
L111-1	Develop and issue Quality Assurance Plan			Oct-93	complete	
L111-2	Develop and issue Document Control Plan			Jan-94	complete	
L111-3	Issue Design Review Procedure			Sep-94	complete	
L112-1	PSAR to DOE for Review	X	Mar-94	Dec-94	complete	delayed to include CDR information and due to DOE decision to merge MWMF & DWTF
L112-1.1	Issue PSAR Contract			Oct-93	complete	
L112-1.2	Preliminary PSAR Review			Feb-94	complete	
L113-1	Environmental Assessment (EA) submitted to DOE	X	Mar-94	Jun-94	complete	delayed to include CDR information, draft submitted
L113-2	Submit air permit to BAAQMD	X	May-94	Apr-96		Schedule change as a result of permitting strategy change.
L113-3	Submit RD&D permit application to DTSC	X	Jul-94	Feb-95	on hold	Draft application complete. Permit application may not be submitted if revised strategy is approved.
L113-4	Submit revised EA to DOE (for MWMF/DWTF merge)	X	Dec-94	Feb-95	complete	Delayed to allow coordination with permitting efforts (L113-3).
L114-1.1	ES&H review of 30% CDR			Dec-93	complete	
L114-1.2	ES&H review of 90% CDR			Mar-94	complete	
L114-1.3	ES&H review of 90% PDR		Sep-94	Jan-95	deleted	changed to reflect level of effort work
L114-2	Complete review of PSAR			Aug-94	complete	
L115-1	Submit Project Management Plan (Final)	X	Jan-95	May-95	complete	Delayed due to unavailability of DOE Project Plan.
L115-1.1	Project Management Plan (Draft)			Oct-93	complete	
L115-10	Submit FY96 Plan	X		Oct-95		
L115-2	Select Project Engineers and Project Control Manager			Dec-93	complete	
L115-3	Submit FY94 Plan	X		Jan-94	complete	
L115-4	Initiate PTS and Monthly reporting			Jan-94	complete	
L115-5	Technology Selection and Implementation Plan	X		Feb-94	complete	
L115-6	Develop Design Basis Operations Plan			Mar-94	complete	
L115-7	Submit FY95 Plan	X	Sep-94	Dec-94	complete	delayed due to LLNL accounting changes and higher DOE priorities
L115-8	Technology Selection and Implementation Plan, Part II		Mar-95	Apr-95	complete	Document in TID for publication. Release expected in Apr-95.
L115-9	FY97 Project Validation			Apr-95	complete	
X L116-1	First meeting of NRP	X	Feb-95	Jun-95	complete	Delayed while key regulatory issues were resolved and the detail strategy for NEPA and CEQA finalized. Now scheduled for 6/20/95.

MWMF Milestone/Marker Log

For Jun 95 Monthly Report - Sorted by Number

	Number	Item	PTS	Orig. Date	Date	Status	Comments
	L116-1.1	National Review Panel (NRP) formed		Dec-94	Apr-95	Complete	Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
	L116-2	Second meeting of NRP		Aug-95	Nov-95		Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
X	L116-2.1	Issue first public newsletter		Mar-95	Aug-95		Date changed to allow time to prepare and publish newsletter following NRP meeting.
	L116-2.2	Receive comments from NRP			Apr-95	Deleted	Comments and action items will be received as part of NRP meeting minutes.
X	L116-3.1	Issue second newsletter		Sep-95	Jan-96		Date changed to allow time to prepare and publish newsletter following NRP meeting.
	L121-1	30% CDR Review			Dec-93	complete	
	L121-1.1	Initiate Point Design Reviews			Oct-93	complete	
	L121-1.2	Complete Point Design Reviews			Nov-93	complete	
	L121-2	90% CDR Review			Mar-94	complete	
	L121-3	CD Report issued	X		Apr-94	complete	
	L122-1	Issue MWMF Start-Up and Activation Plan		Sep-95	Feb-96		Delayed due to 4/95 budget cut.
	L131-1	Preliminary Design Review (Overall Project) completed	X	Sep-94	Nov-95		Delayed due to reduced DOE funding.
	L131-2	Input to FY95 Plan (see 115-7)	X	Sep-94	Dec-94	complete	delayed due to LLNL accounting changes and higher DOE priorities
	L131-3	Submit MWMF Rebaseline (KD-1)	X		Sep-94	complete	
	L131-4	Submit MWMF Rebaseline (MWMF/DWTF Merge)	X	Mar-95	May-95	complete	Delayed due to FY97 field submittals and other higher priority work.
	L131-5	Submit Post-PDR Project Baseline	X	Sep-95	Jan-96		Delayed due to reduced DOE funding.
	L132-1	Implement Cost planning/tracking systems (document)		Sep-94	Dec-94	complete	activity stretched-out due to reduced funding guidance
	L132-10.1	Input to FY96 Plan (see L115-10)			Oct-95		
	L132-2	Implement Technical baseline control system		May-94	Nov-94		see 132-7
	L132-3	Implement Schedule control/tracking system			Aug-94		see 132-7
	L132-4	Input to FY95 Plan (see L115-7)		Nov-94	Dec-94	complete	delayed due to LLNL accounting changes and higher DOE priorities
	L132-5	Issue Configuration Control System Document		Jan-95	Mar-95	complete	Delayed to allow discussion and review and due to higher priorities.
	L132-6.1	Input to MWMF Project Management Plan (see L115-1)		Feb-95	Apr-95	complete	Delayed due to higher priority work.
	L132-7	Performance Management System documented		Apr-95	Aug-95		Delayed due to requests for unplanned work from DOE.
	L132-8.1	Complete support of Project PDR (see L131-1)		Jun-95	Nov-95		Delayed due to reduced DOE funding.
	L132-9	Complete QA Self Assessment			Aug-95		
	L132-9.1	Records Control Procedure issued			Apr-95	complete	
	L132-9.2	Assessment/Surveillance Procedure issued			Jul-95		
	L133-1.1	Draft System Engineering Management Plan			Sep-94	deleted	information in other documents
	L133-1.2	Issue MWMF development plan			Jul-94	complete	
	L133-1.3	Complete MWMF floor plan			Jul-94	complete	
	L133-1.4	Input to FY95 Plan (see 115-7)			Nov-94	complete	
	L133-2	Issue Integrated Operations Plan			Jan-95	complete	
	L133-3	Issue Title I System Design Requirements		Feb-95	Aug-95	In Progress	Delayed due to reduced DOE funding.
	L133-4	Issue Metrication Plan			Feb-95	complete	
	L133-5	Input to FY96 Plan (see 115-10)			Oct-95		
X	L133-10.1	Identify emissions for air permit			Jun-95	complete	New marker

MWMF Milestone/Marker Log

For Jun 95 Monthly Report - Sorted by Number

	Number	Item	PTS	Orig. Date	Date	Status	Comments
X	L133-10.2	Review floorplan layout and personnel egress			Jul-95	In Progress	New marker
X	L133-10.3	Review facility Process Flow Diagrams			Aug-95		New marker
X	L133-10.4	Facility preliminary design (20%)			Aug-95		New marker
X	L133-10.5	Title I Design Review (80%)			Sep-95		New marker
X	L133-10.6	LLNL Review Title I Design			Oct-95		New marker
	L141-1	RAS System Preliminary Design Review		Sep-94	Sep-95		Delayed due to reduced DOE funding.
	L141-1.1	Complete pilot characterization studies		Jun-94	Dec-94	complete	activity stretched-out due to reduced funding guidance
	L141-1.2	Identify equipment and define floor plan		Sep-94	Mar-95	complete	activity stretched-out due to reduced funding guidance
	L141-1.3	RAS LI&C System Functional Requirements Document complete		Jun-95	Sep-95		Delayed due to reduced DOE funding.
	L141-1.4	RAS LI&C Preliminary Design Review		Jul-95	Sep-95		Delayed due to reduced DOE funding.
	L142-1	SFP System Preliminary Design Review		Jul-95	Sep-95		Delayed due to reduced DOE funding.
	L142-1.1	SFP surrogate feeds defined			May-94	complete	
	L142-1.2	Identify initial suite of characterization equipment		Jun-94	Jan-95	complete	Delayed due to later than scheduled completion of pilot characterization studies and reduced manpower and funding guidance received after original schedule was established.
	L142-1.3	Complete validation of characterization, isolation, and segregation methods		Sep-94	Apr-95	complete	Delayed by late completion of pilot characterization studies, reduced manpower/funding guidance, rebaselining activities, and project delay of procurements of engineering development equipment.
	L142-1.4	Complete preliminary operator control station design		Mar-95	Apr-95	complete	Delayed due to project rebaseline activities.
	L142-1.5	Process Vision/Robline bilateral communication link demonstrated			Feb-95	complete	
	L142-1.6	Process Vision/Robline bilateral message handling demonstrated			Mar-95	complete	
	L142-1.7	SFP workcell control architecture designed			May-95	complete	
	L142-1.8	LI&C Functional Requirements Document complete		Jun-95	Sep-95		Delayed due to reduced DOE funding.
	L142-1.9	LI&C Preliminary Design Review		Jul-95	Sep-95		Delayed due to reduced DOE funding.
X	L142-1.10	Locate user interface stations and required functionality			Aug-95		New marker
X	L142-1.11	Draft FP control console layout			Aug-95		New marker
	L142-2	Telerobotics Preliminary Design Review			Sep-95		New milestone.
	L143-1	LFP System Preliminary Design Review		Jul-95	Sep-95		Delayed due to reduced DOE funding.
	L143-1.1	Define surrogate feeds		May-94	Nov-94	complete	date changed to agree with extended project schedule
	L143-1.2	LFP general arrangement plan finalized		Jul-94	Dec-94	deleted	
	L143-1.3	Complete validation of characterization and segregation methods		Sep-94	Apr-95	complete	Delayed by technical difficulties which have since been resolved.
	L143-1.4	LI&C Functional Requirements Document complete		Jun-95	Sep-95		
	L143-1.5	LI&C Preliminary Design Review		Jul-95	Sep-95		Delayed due to reduced DOE funding.
	L151-1.1	Complete tests on turbo-aerator for nitrous acid conversion (document issued)		Mar-94	Jan-95	complete	Release of report delayed due to slower than expected review cycle.
X	L151-1.10	P&ID drawings (document)			Sep-95	complete	Incorporated into L151-3.
X	L151-1.11	Layout drawings of major equipment items (document)			Sep-95	complete	Incorporated into L151-3.
	L151-1.12	LI&C Functional Requirements Document complete			Aug-95		
	L151-1.13	LI&C Preliminary Design Review			Sep-95	deleted	Replaced by L151-3.
	L151-1.2	Initiate steady-state flow and chemistry balance tests			Apr-94	complete	
	L151-1.3	Initiate instrumentation and control system tests for MEO			Aug-94	complete	

MWMF Milestone/Marker Log

For Jun 95 Monthly Report - Sorted by Number

	Number	Item	PTS	Orig. Date	Date	Status	Comments
	L151-1.4	Summarize silver recovery chemistry results to date (document)		Sep-94	Apr-95	complete	Release of report delayed because PI was involved with higher priority tasks. Task has been assigned to another engineer.
	L151-1.5	Fabricate and set-up cellulose Feeder		Sep-94	Dec-94	complete	activity stretched-out due to reduced funding guidance
	L151-1.6	Report on NaOH-AgCl recovery (document)		Feb-95	Apr-95	complete	Delayed to allow patent disclosure to be filed. Document is in review cycle with release expected in Apr-95.
	L151-1.7	Computer simulation of the combined MEO and Acid Recovery control systems (document)		Feb-95	Mar-95	complete	Delayed due to higher priority tasks.
	L151-1.8	Final Report on steady-state flow and chemistry balance tests (document issued)		Apr-95	Aug-95		Delayed due to budget uncertainty.
	L151-1.9	Demonstrate prototype cellulose feeder (document)			Jun-95	deleted	Deleted per Rebaseline 1.2 as cost savings measure.
	L151-2	MEO System Preliminary Design Review			Sep-95	deleted	Replaced by L151-3.
	L151-2.1	Preliminary Process Flow Diagram for MEO			Jun-94	complete	
	L151-2.2	Preliminary equipment layout for MEO			Sep-94	complete	
	L151-3	MEO System Design Description (document)			Jul-95	In Progress	New milestone. Replaces L151-1.13 and L151-2.
	L152-1	Complete MSO bench scale rubber destruction tests			Dec-93	complete	
X	L152-2	Select Industrial Participation method for Primary Unit			Jun-95	complete	
	L152-2.1	MSO advertise in the CBD		Apr-94	Jun-94	complete	delayed due to funding limitations per DOE guidance
	L152-2.2	Complete Design Specification		May-94	Jan-95	complete	delayed for incorporation of reviewer's comments
	L152-2.3	Conduct Industrial Partner meeting		Jul-94	Jan-95	complete	Delayed due to funding limitations per DOE guidance and unavailability of participants due to holidays. Scheduled for January 5th.
	L152-3	MSO System MWMF PDR		Jun-95	Oct-95		Delayed due to reduced DOE funding.
	L152-3.1	Preliminary Process Flow Diagram complete for MSO		Jun-94	Sep-94	complete	
	L152-3.2	Initiate MSO Preliminary Design			Jul-94	complete	
	L152-3.3	Initiate vessel material study			Oct-94	Complete	
X	L152-3.4	Install development unit			Jun-95	Complete	
	L152-3.5	LI&C Functional Requirements Document complete		May-95	Oct-95		Delayed due to reduced DOE funding.
	L152-3.6	LI&C Preliminary Design Review		Jun-95	Oct-95		Delayed due to reduced DOE funding.
	L152-4	Start Development Activities			Aug-94	complete	
	L152-5	Start Title II design		Jul-95	Nov-95		Delayed due to reduced DOE funding.
X	L152-6	Select Industrial Participation method for Salt Recycle			Nov-95		New Milestone
	L153-1	Award WOX contract			Sep-94	deleted	WBS element deleted per DOE guidance
	L153-1.1	Complete and document work to date			Jul-94	complete	
	L153-1.2	Issue RFQ for WOX treatment unit w/ completed specification			Jun-94	deleted	WBS element deleted per DOE guidance
	L153-2	30% Preliminary Design Review for WOX			Sep-94	deleted	WBS element deleted per DOE guidance
	L153-2.1	WOX dispersion system test and design recommendation complete			May-94	deleted	WBS element deleted per DOE guidance
	L153-2.2	Preliminary WOX treatability tests complete			Jun-94	deleted	WBS element deleted per DOE guidance
	L153-2.3	Preliminary WOX Process Flow Diagram complete			Jun-94	deleted	WBS element deleted per DOE guidance
	L153-2.4	Preliminary P&ID for WOX Support System complete			Jul-94	deleted	WBS element deleted per DOE guidance
	L154-1	Complete and document UVP work to date			Jul-94	complete	
	L154-2	UVP System Preliminary Design Review			Sep-94	deleted	WBS element deleted per DOE guidance
	L154-2.1	UVP Process Flow Diagram			Jul-94	deleted	WBS element deleted per DOE guidance
	L154-2.2	P&ID for UVP Support System			Jul-94	deleted	WBS element deleted per DOE guidance

MWMF Milestone/Marker Log

For Jun 95 Monthly Report - Sorted by Number

	Number	Item	PTS	Orig. Date	Date	Status	Comments
	L154-2.2	EOG preliminary Equipment Layout			Sep-94	deleted	WBS element deleted per DOE guidance
	L154-2.3	UVP Equipment Layout			Aug-94	deleted	WBS element deleted per DOE guidance
	L155-1	Summarize Gas Liquid Contactor Tests (document)		Jun-95	Jul-95	In progress	Delayed due to vacation schedule.
X	L155-1.1	Fab prototype gas-liquid contactor for acidic urea NOx destruction		Jun-94	Jun-95	complete	Delayed due to DOE stretchout & peer review action item(s). Design/fabrication package currently out for bid.
	L155-1.2	Complete XOG tests on urea and SCR DeNOx			Jul-94	deleted	break up into other markers
	L155-2	Urea DeNOx: peer review			Aug-94	complete	
	L155-2.1	Initiate instrumentation and control system test		Aug-94	Feb-95	deleted	Deleted from scope due to budget reductions. (1/95)
	L155-3	XOG System Preliminary Design Review		Sep-94	Jun-95	deleted	Deleted from scope due to budget reductions. (1/95)
	L155-3.1	Summarize NOx-urea chemistry to date (document)		Sep-95	Aug-95		Was to be included in L155-1. Delayed from 7/95 to 8/95 due to later than anticipated start in testing.
	L155-3.2	Initiate systematic catalysts testing			Jan-95	deleted	Deleted from scope due to budget reductions. (1/95)
	L155-3.3	LI&C Functional Requirements Document complete			May-95	deleted	Deleted from scope due to budget reductions. (1/95)
	L155-3.4	LI&C Preliminary Design Review			Jun-95	deleted	Deleted from scope due to budget reductions. (1/95) Title correction.
	L161-1	Process Transport & Storage System Preliminary Design Review		Sep-94	Sep-95		Delayed due to reduced DOE funding.
	L161-1.1	Select standard transport container designs		Jun-94	Jul-95		Delayed due to reduced DOE funding.
	L161-1.2	Floor plan layout complete		Jul-94	Aug-95		Delayed due to reduced DOE funding.
	L161-1.3	LI&C Functional Requirements Document complete		Jun-95	Sep-95		Delayed due to reduced DOE funding.
	L161-1.4	PTS LI&C System Preliminary Design review		Jul-95	Sep-95		Delayed due to reduced DOE funding.
	L162-1	Complete preliminary floor plan layout			Jun-94	complete	
	L162-1.1	Select ATS standard transport container designs			Jun-94	deleted	WBS content revised to "Analytical Lab"
	L162-1.2	Finalize ATS transport handling capacity			Jun-94	deleted	WBS content revised to "Analytical Lab"
	L162-1.3	Finalize ATS transport equipment selection			Aug-94	deleted	WBS content revised to "Analytical Lab"
	L162-2	Define analysis tests based on process acceptance criteria		Sep-94	Aug-95	partial	Delayed due to reduced DOE funding.
	L162-3	Define facility off-gas monitoring requirements		Sep-94	Feb-95	complete	Completed for preliminary design.
	L162-4	Define MEO on-line analysis requirements		Dec-94	Feb-95	complete	Completed for preliminary design.
	L162-5	Define MSO on-line analysis requirements		Jan-95	Mar-95	complete	Waiting for salt analysis to be defined. Completion expected in Mar-95.
	L162-6	Define DWTF analysis requirements			Feb-95	complete	Completed for preliminary design.
	L162-7	Analytical Lab System Preliminary Design review			Aug-95		
	L162-7.1	LI&C Functional Requirements Document complete			Jul-95		
	L162-7.2	LI&C Preliminary Design Review			Aug-95		
	L163-1	Water Treatment trade-off study		Jun-94	Sep-94	complete	
	L163-1.1	Water Treatment trade-off study revision		Dec-94	Feb-95	complete	Delayed due to previously unplanned decision to have TID edit document. Presently out for signatures. Release expected in Feb 95.
	L163-2	Memorandum of Understanding with HWM			Jan-95	complete	
	L163-3	WTR System Preliminary Design Review		Jul-95	Oct-95		Delayed due to reduced DOE funding.
	L163-3.1	LI&C Functional Requirements Document complete		Jun-95	Oct-95		Delayed due to reduced DOE funding.
	L163-3.2	LI&C Preliminary Design Review		Jul-95	Oct-95		Delayed due to reduced DOE funding.
	L163-4	Begin Final Design		Jul-95	Oct-95		Delayed due to reduced DOE funding.
X	L164-1	Evaluations of immobilization technologies complete		May-95	Jun-95	complete	Delayed pending decision on most cost effective technology for the project.

MWMF Milestone/Marker Log

For Jun 95 Monthly Report - Sorted by Number

	Number	Item	PTS	Orig. Date	Date	Status	Comments
	L164-1.1	Preliminary process flow diagram complete for FF			Jul-94	complete	
	L164-1.2	Preliminary equipment layout complete for FF			Aug-94	complete	
	L164-1.3	Report status of immobilization evaluations		Sep-94	May-95	complete	Delayed until after peer review of polymer microencapsulation. Peer Review activities finalized on 4/24/95. Report expected in May 95.
	L164-2	Final Forms System Preliminary Design Review		Jun-95	Aug-95		Delayed due to reduced DOE funding.
	L164-2.1	Final Forms subsystem design status peer review		Feb-95	May-95	complete	Peer Review activities finalized on 4/24/95. Report to be completed in May 95.
	L164-2.2	LI&C Functional Requirements Document complete		May-95	Aug-95		Delayed due to higher priority work and reduced DOE funding.
	L164-2.3	LI&C Preliminary Design Review		Jun-95	Aug-95		Delayed due to reduced DOE funding.
	L164-3	Report: Design of polymer microencapsulation system		Jun-95	Oct-95		Delayed due to reduced DOE funding.
	L164-4.1	Report issued: Volatile residue components and the design of ceramic waste form system		Jul-95	Sep-95		Delayed due to reduced DOE funding.
	L164-4.2	Report issued: Interim status of ceramic waste form compositions and process parameters		Aug-95	Sep-95		Delayed due to reduced DOE funding.
X	L165-1	SI&C System Preliminary Design Review		May-95	Jun-95	complete	Delayed due to scheduling conflicts.
	L165-1.1	I/C general arrangement plan complete			Mar-94	complete	
	L165-1.10	Rapid prototype Engineering Development testing complete and report written		Jan-95	Feb-95	complete	Delayed because of late delivery of MinnovEX DBMS software driver. See Jan 95 WMMF Monthly Report.
	L165-1.11	Integrated control system design peer review		Feb-95	Mar-95	complete	Completion expected in early Mar 95. Key participants are unavailable in February.
	L165-1.12	SI&C Functional Requirements Document complete		Apr-95	Sep-95	In progress	Delayed due to reduced DOE funding.
	L165-1.13	Engineering Development tasks complete, documented		Jun-95	Sep-95		Delayed due to reduced DOE funding.
	L165-1.14	Preliminary Design activities complete, documented		Jun-95	Sep-95		Delayed due to reduced DOE funding.
	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	
	L165-1.4	Handling Systems open architecture controller selected			Jul-94	deleted	to WBS 1.4.2
	L165-1.5	Analytical laboratory LIMS selected			Jul-94	deleted	LIMS may not be used in system design
	L165-1.6	Telerobotics platform selected			Aug-94	deleted	to WBS 1.4.2
	L165-1.7	Teleoperator controller selected			Sep-94	deleted	to WBS 1.4.2
	L165-1.8	Database Management System hardware/software selected			Jul-94	complete	
	L165-1.9	Engineering Development System operational		Dec-94	Jan-95	complete	Delayed because of late delivery of MinnovEX DBMS software driver.
	L165-2.1	Instrumentation and Equipment Database operational		Mar-95	Apr-95	complete	Delayed pending I&C design team review scheduled for 4/7/95.
	L165-2.2	Process I&C Standards established			Sep-95		
	end						