The Mixed Waste Management Facility

Monthly Report
December 1994

January 1995

Lawrence Livermore National Laboratory
Environmental Programs

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Monthly Report
December 1994

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Lawrence Livermore National Laboratory
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Project Summary

Overview

During December, technical progress continued (see "Accomplishments" below) in general accordance with the MWMF FY95 Plan. Engineering development and design continued in support of preliminary design of MWMF major subsystems. Hiring of new manpower to support these activities continues to be deferred due to the uncertainties in FY96 funding, DWTF schedule and funding, etc; however, some personnel growth will be required in the very near term to avoid schedule slips.

Management focus during December centered upon integration with DWTF, developing guidance for the MWMF rebaseline, emphasizing permitting activities, and responding to DOE requests for project impact due to a variety of funding constraints.

Safety and permitting work continued, with a focus to complete the RD&D permit application and the revised EA in January. The first complete draft for the permit application was completed in December and began detailed review. The PSAR was issued to DOE in December. Continuing discussions with, and rapid resolution of questions and concerns by, California DTSC are critical in avoiding delays in MWMF due to permitting.

The MWMF FY95 Plan was issued to DOE in December. Discussions and agreements continue to occur between MWMF and DWTF, in developing cost-reductive integration plans for overlapping functions.

Work continued to prepare the next revision of the *Project Baseline (PB)*, to reflect the schedule delay of MWMF due to the integration with DWTF. A preliminary internal revision was completed in December that was based on CDR designs but reflects the stretchout to FY98 to accommodate the DWTF/MWMF integration and DOE funding guidance. Further iteration is in progress to meet cost constraints. A second internal revision (Rev. 1.2) will address these cost constraints and will provide the basis for the FY97 Validation. A final formal baseline change (Rev. 2) will be issued to DOE after the Project PDR, when a new bottom-up estimate is available.

A key issue in completing the PB for FY97 Validation (in March) is the significant and continuing changes in DOE guidance. During December, impact analyses for three funding scenarios were requested, ranging from an FY96 budget of \$22.9M to \$10.7M. Other DOE constraints also exist in addition to FY96 funding levels: minimizing TPC; holding completion date to FY98; funding profiles and beneficial occupancy date for the MWMF-portion of DWTF. This leaves only project scope and FY97 and FY98 schedule and funding level to manage. It must be recognized so that excessive replanning and uncertainty can impact project costs and near-term milestones.

Cost Status. The expenses for December continue to run somewhat below the plan due to the limited new hiring. A significant imbalance in the OPEX/CENRTC funding split for FY95 exists (about \$2.1M). DOE/OAK received the detailed FY95 Plan during December and now has the necessary information to correct this funding plan.

Schedule Status. Critical path items are DWTF construction and NEPA/permitting (for both MWMF and DWTF). It continues to be imperative that DOE also take all actions possible to expedite the NEPA and permitting processes to avoid schedule delay.

Significant Issues and Planned Corrective Actions

Uncertainties in NEPA and permitting for both MWMF and DWTF pose a risk to the MWMF project, since they are on the MWMF critical path. Required NEPA and permitting documentation is being issued at the earliest point possible, given strategic changes in implementing both projects. Once issued, review and approval should be supported and expedited by DOE.

Large changes in post-FY95 DOE funding guidance is hampering both preparation of the revised PB (for FY97 validation) and work during FY95, as well as adding to project costs. Prior to issuing project guidance for preparing a revised baseline (in early January), we will obtain the best guidance available from DOE at that time.

The issue regarding the report by the DOE Office of Inspector General (OIG) remains unresolved to date (see October report). A response to the OIG was submitted to DOE/OAK in October, and this is being addressed by DOE; we understand that the OAT report has been resolved (see October report).

An imbalance exists in the OPEX and CENRTC FY95 BA funding guidance (see October report and MWMF FY95 Plan). The FY95 Plan was issued in December, so that DOE/OAK now has the information necessary to address this issue.

The definition of incineration, as relevant to other advanced treatment technologies such as MSO, has been an ongoing subject of discussion within the EPA, with no clear resolution to date. To proceed with the RD&D permit application, however, California DTSC (the state permitting agency) feels that they must address this relationship for themselves. California DTSC has requested clarification regarding MSO technology and incineration from LLNL. A report addressing why MSO should not be considered as incineration is being prepared for submission to DTSC.

A DOE Project Plan needs to be issued to allow the MWMF Project Management Plan to be prepared. These are both near-term project milestones. DOE/OAK plans to wait for funding, DWTF, OIG, and other issues to be resolved before issuing the DOE Project Plan. This seems appropriate and, while affecting documentation milestones, has only minor impact in reality. Currently the draft DOE and MWMF project plans, along with a close working relationship, is being used as a basis for project management.

Summary of Accomplishments

Detailed accomplishments and milestone status are reported in the Task Summaries that follow. A few of the major accomplishments during this reporting period are highlighted below.

- **Safety Analysis:** The PSAR was issued to DOE (OAK and HQ) and LLNL personnel. This included the contractor's analysis that the PSAR findings are unaffected by the relocation of MWMF from B494 to B695 (DWTF site).
- **NEPA/Permitting:** The EA, as revised per DOE comments and the relocation to B695, will be sent to DOE in January. A meeting was held with DTSC to discuss current permitting plans and public participation activities, with several action items resulting from the meeting.

- The FY95 *Plan* was issued to DOE, detailing technical scope, costs, and milestones for FY95. Following this, the monthly reports for October and November were prepared and issued. The Milestone/Marker Control Log was updated and reactivated for the FY95 *plan* and to provide project control.
- Continued training for and implementation of the MWMF Property Center.
- Public Participation: Met with DTSC to discuss details of the public participation meeting, currently planned for February. Updated public information for MWMF in LLNL Visitor Center; informational briefings were requested by interested parties.
- Water Treatment Study: Revisions were made to the Water Treatment Study, at DOE's request, following a briefing to DOE/OAK. The report was edited by TID and is in final project review. A Memorandum of Understanding (MOU) between MWMF and HWM was signed to define how water treatment will be implemented. Title I work is being held up pending DOE approval to proceed.
- Mediated Electrochemical Oxidation: Fractionating performance and material tests to support acid recycling design were conducted. Design of a Ag^{++} concentration diagnostic for system monitoring began in conjunction with an outside vendor. Equipment was selected for the prototype acid monitoring system.
- Molten Salt Oxidation: Testing of vessel-material samples at ETEC was completed and analyzed; Inconel 600 was selected for the EDU vessel. A design review for the EDU was completed; RFQs for vessel fabrication were issued. Review of the MOS design specification was completed and comments incorporated. Specification for the salt recycle crystallizer was started. Four firms responded to invitations to the Industrial Partner meeting in January.
- Final Forms: Tests to support polyethylene salt encapsulation began at Rocky Flats in coordination with work supported by other programs. Material design studies and tests on ceramic waste forms continued.

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 Project for December. Notes have been added to Table 1 to clarify the manpower summary section and prior-month values have been adjusted accordingly to reflect this.

This is the third month that the LLNL Accounting Department has used the new accounting structure to distribute and report Institutional overhead costs. Minor problems continue and it is generally expected to take several months for Accounting to identify and resolve them.

The large apparent charge for OPEX for December (and over-plan amounts for October and November) is incorrect. About \$150K charge occurred during December due to a service contract billing, whose costs will be redistributed to other appropriate accounts (most outside of MWMF). A new contract is being awarded and new accounting procedures established, which should eliminate the need for charge transfers and allow up-to-date monthly reports. This will also address a concern of DOE/OAK regarding accruals/"delayed reporting." Also, new CENRTC accounts have been set up for PSAR and permitting activities, so that prior-month FY95 charges to OPEX accounts for these activities will also be transferred.

CENRTC costs for December continue to underrun, although the corrective transfers discussed above will reduce the underrun. As discussed above, the project continues to avoid long-term hiring commitments, given the budget and schedule uncertainties, so that some minor delays in FY95 milestones may result.

We did not receive additional BA funding from DOE/OAK in December.

Projections indicate that current funding levels are acceptable through January (but see the issue regarding OPEX/CENRTC imbalance). We understand that, with the issuing of the FY95 Plan, DOE/OAK plans to release most of the FY95 funding. No major procurements were initiated during December. No distribution of Management Reserve or FY95/96 carryover was made during December.

The major financial issue currently is the imbalance in the OPEX/CENRTC DOE funding levels, as shown in Table 1, versus that required to accomplish the FY95 Plan. The imbalance is approximately \$2150K. Now that the FY95 Plan is submitted, DOE/OAK should be able to address this issue.

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MWMF Project - Monthly Financial Summary for FY95

DECEMBER, 1994

OPEX (\$K, monthly expenditures)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Subtotal*	Undistrib	Total Budget
DOE Funds*	279	235	235	0										749		
FY95 Plan		59	58	56	58	53	63	66	66	61	66	71	66	746		746
Actual		103	103	224										430		
Liens**		246	242	285										NA		
Mgmt Reserve		0	0	0										0	84	84
95/96 CO		0	0	0										0	100	100
FY95 OPEX budget =															830	

OPEX (\$K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	279	514	749	749									
FY95 Plan		59	117	173	231	284	346	412	478	544	610	681	746
Actual		103	206	430									

DOE FY95 new-BA, OPEX		
budget	guidance	delta
651	2800	-2149

CENRTC (\$K, monthly expenditures)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total*	Undistrib	Total Budget
DOE Funds*	2649	0	0	0												
FY95 Plan		857	725	715	748	692	724	700	749	671	606	737	632	8358		8358
Actual		730	188	371										1289		
Liens**		86	81	65										NA		
Mgmt Reserve		0	0	0										0	605	605
95/96 CO		0	0	0										0	400	400
LD/AD-CAP#		0	0	0										0	291	291
FY95 CENRTC budget =															8654	

CENRTC (\$K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	2649	2649	2649	2649									
FY95 Plan		657	1382	2098	2846	3538	4262	4962	5712	6383	6969	7725	8358
Actual		730	918	1289									

DOE FY95 new-BA, CENRTC		
budget	guidance	delta
7005	4856	2149

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

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	2928	3163	3396	3396									
FY95 Plan		717	1499	2271	3077	3821	4608	5375	6190	6927	7599	8408	9104
Actual		833	1124	1719									

DOE FY95 new-BA, TOTAL		
budget	guidance	delta
7856	7856	0

MANPOWER SUMMARY (total project, by month)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Labor (FTE)		49	47	49									
Labor (\$K)@		409	349	322									

* DOE funds include FY94/95 carryover

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

** Relevant for current month only; sum not meaningful

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

WBS Element: 1.1.1 Quality Assurance

Task Description:

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

Summary of Monthly Activities:

- Made progress in the preparation of a Project Configuration Management Plan.
- Updated and distributed the revised (Rev. 4) Project Work Breakdown Structure.
- Updated the action item tracking system.
- Continued working with project personnel on QA issues and the QA filing system.

FY95 Budget: Spending profiles (\$34K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	3	3	3	3	3	3	3	3	3	3	3	3
Monthly actual	2	3	12									
Plan cumulative	3	6	8	11	13	17	19	22	25	28	31	34
Actual cumulative	2	5	17									
Current lien	0	0	0									

Apparent overrun is due to a mischarge.

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:

Copies of the LLNL-approved PSAR were distributed to DOE and MWMF project members. Although the document was prepared for MWMF operations as originally proposed in the *Conceptual Design Report*, the contractor determined that the analysis in the approved document continues to be valid for the MWMF operation at a new location (Building 695). The primary reasoning is that B695 is further from the nearest property boundary and the scope of technologies to be installed has been reduced from those described in the CDR. A copy of the contractor's analysis was distributed along with the PSAR.

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

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	0	0	0	0	0	0	0	0	0	0	0	0
Monthly actual	14	2	0									
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	14	16	16									
Current lien	74	73	73									

Spending profiles (\$20K, CENTRC)

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

Costs associated with the PSAR are shown as OPEX funding as the CENTRC account has not yet been opened. Once this account is opened the charges will be transferred appropriately.

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
L112-1	PSAR to DOE for review	Dec 94	Completed

WBS Element: 1.1.3 NEPA/CEQA**Task Description:**

The 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 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, and 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 permits approvals.

Summary of Monthly Activities:

- Due to a change in staffing, some delays were encountered in completing revisions to the EA. Given the delays and schedule requirements, the document will be revised to reflect the new facility location as the preferred option rather than simply addressing earlier DOE comments to create a baseline document for further revision.
- Work progressed on preparation of the RD&D permit application, with submittal to the DTSC planned for January 1995.
- A meeting was held with staff from the State, primarily the Department of Toxic Substances Control (DTSC), to discuss the current RD&D permitting strategy, public participation activities, and California Environmental Quality Act (CEQA) requirements. There was additional discussion regarding how this effort fits into other related activities such as completion of the *Site Treatment Plan* to address Federal Facility Compliance Act requirements and permitting of other existing and future waste-management units. It was concluded that the DTSC permit writer needs additional information to support why MSO should be considered an alternative to incineration, particularly as this determination will influence the level of analysis required to comply with CEQA. It was also concluded that while DTSC plans to attend public participation meetings such as the National Review Panel, they will serve as observers or information sources only rather than active members.

FY95 Budget: Spending profiles (\$31K, OPEX): NEPA

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	5	5	5	5	1	5	5	0	0	0	0	0
Monthly actual	14	12	26									
Plan cumulative	5	10	15	20	21	26	31	31	31	31	31	31
Actual cumulative	14	26	52									
Current lien	0	0	0									

Spending profiles (\$216K, CENRTC): CEQA, Permitting

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	40	40	40	40	10	8	8	8	8	6	5	5
Monthly actual	0	0	11									
Plan cumulative	40	80	120	160	170	178	185	193	200	206	211	216
Actual cumulative	0	0	11									
Current lien	0	0	0									

Costs associated with the CEQA and permitting effort under WBS 1.1.3.2 and 1.1.3.3 are shown as OPEX funding under 1.1.3.1, as the CENTRC accounts have not yet been opened. Once these accounts are opened the charges will be transferred appropriately.

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	Jan 95	In Progress
L113-3	Submit RD&D permit application to DTSC	Jan 95	In Progress
L113-2	Submit air permit to BAAQMD	Mar 95	
D113-1	EA determination by DOE	Mar 95	
C113-2	Authorization to construct issued by BAAQMD	Jul 95	
C113-1	RD&D permit issued by DTSC	Apr 96	

December 1994

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:

Ongoing ES&H support was provided to the MWMF project per the activities described above.

FY95 Budget: Spending profiles (\$162K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	14	14	14	14	14	14	14	14	14	14	14	14
Monthly actual	11	8	14									
Plan cumulative	14	27	41	54	68	81	95	108	122	135	149	162
Actual cumulative	11	19	32									
Current lien	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	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:

During the month of December, primary attention was focused on closing of the DWTF Validation issues, addressing the rebaseline for MWMF relative to the merging into the DWTF complex, and progressing on the RD&D permit.

Following the Validation meeting at DOE/HQ on 12/1/94, we continued to address integration issues associated with the BCP for DWTF. All of the action items assigned to LLNL by the validation committee were closed. Follow-on documents were reviewed and sent to the Validation team.

The FY95 Plan has been completed and distributed. Rebaseline planning guidance was prepared for the follow-on documentation, and will be distributed in January when the out-year funding picture is better resolved.

Discussions continued with DTSC regarding the RD&D permit application. We met with DTSC and Site Treatment Plan staff on 12/20/94 to review the strategy for our permit application, the co-location of MWMF and DWTF, as well as the planned public participation meeting. A number of issues were raised, particularly in the area of the incineration definition vs MSO. A white paper is being prepared to address this issue for submission to DTSC in January. An advance copy of the completed application was distributed to key personnel for review.

FY95 Budget: Spending profiles (\$354K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	30	29	27	29	27	33	27	31	31	29	33	29
Monthly actual	54	76	169									
Plan cumulative	30	59	86	114	141	174	201	233	264	293	326	354
Actual cumulative	54	131	300									
Current lien	140	136	179									

As with previous months, the majority of the cost overrun is attributed to OFC and other incorrect charges that will be corrected in the following. For December alone, the SAIC charges to be corrected amount to approximately \$140K. Further, all corrections for October and November have not been credited as of the December reporting period.

Significant procurements 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
L115-1	Submit Project Management Plan (Final)	Jan 95	In Progress
D115-1	DOE issues Project Plan	Jan 95	
L115-8	Technology Selection and Implementation Plan, Part II	Mar 95	
L115-9	FY97 Project Validation	Apr 95	
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 a National Review Panel (NRP)¹, a Community Newsletter, and preparation and coordination of press releases and community tours.

Summary of Monthly Activities:

- Activities continued on organizing the NRP. We received a number of responses from organizations contacted and are in the process of confirming individual participation. At the meeting with DTSC on December 20, the Public Participation plan was presented and discussed. Prior to the first public meeting, it was decided to resolve the issues regarding the classification of MSO vs incineration.
- Updated documents are in the LLNL public reading room located at the Visitor Center to include the *Draft Site Treatment Plan* identifying the technologies in MWMF as the preferred treatment option for liquid organic waste. This has received some attention, leading to a meeting in January to review the technologies with interested parties.

FY95 Budget: Spending profiles (\$96K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	8	8	8	8	8	8	8	8	8	8	8	8
Monthly actual	10	3	3									
Plan cumulative	8	16	24	32	40	48	56	64	72	80	88	96
Actual cumulative	10	12	15									
Current lien	28	28	28									

Significant procurement actions this month

None

¹ A number of names have been used in the various documents for the Public Participation review panel, including National Advisory Committee (NAC), National Advisory Panel (NAP), and National Review Panel (NRP). For consistency in all future documentation, the "official" title will be National Review Panel (NRP).

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	Jan 95	In Progress
L116-1	First meeting of NRP	Feb 95	In Progress
L116-2.1	Issue first public newsletter	Mar 95	
L116-2.2	Receive comments from NRP	Apr 95	
L116-2	Second meeting of NRP	Aug 95	
L116-3.1	Issue second newsletter	Sep 95	

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
11/95 Plan	0	0	0	0	0	0	0	0	0	0	0	0
Monthly actual	-1	-1	0									
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	-1	-2	-2									
Current lien	4	-4	4									

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 activity on this WBS element planned until April 1995.

FY95 Budget: Spending profiles (\$69K, OPEX)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	0	0	0	0	0	0	10	10	10	13	13	13
Monthly actual	0	0	0									
Plan cumulative	0	0	0	0	0	0	10	20	30	43	56	69
Actual cumulative	0	0	0									
Current lien	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
L122-1	Issue MWMF Start-Up and Activation Plan	Sep 95	

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 finalization of design documentation for equipment and process modifications; (4) maintenance support to perform equipment or process modifications during start-up, testing, and activation; (5) all operational spares and the initial stores inventory; and (6) all manpower and materials required to deliver support services (e.g., utilities, power, etc.) during construction, testing, and activation of the MWMF.

Summary of Monthly Activities:

There are no activities under this WBS element during FY95.

FY95 Budget:		Spending profiles (\$0K, OPEX)										
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	0	0	0	0	0	0	0	0	0	0	0	0
Monthly actual	0	0	0									
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	0	0	0									
Current lien	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: 1.3.1 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 Project Office, project assurance (including quality assurance, safeguards, environmental, and safety oversight), management overview of information management and technical activities, and interface with DOE.

Summary of Monthly Activities:

Project management for all elements of the Title I design of CENRTC-funded activities continued. Significant effort was focused on developing guidance for Revision 1.2 of the MWMF PB. This baseline will address adjustments resulting from the merge of the two facilities and schedule stretch-out.

As in the previous few months, we continued our support of the responses to both the report and recommendation received from the OIG on the continuation of DWTF (and therefore affecting MWMF) and the OAT on inclusion of MWMF in the LLNL *Site Treatment Plan*. Based on our current understanding, the technologies to be demonstrated in MWMF will remain as the preferred option for liquid organic waste streams. We are continuing our support of the follow-on Site Treatment Documentation, the proposed *Site Treatment Plan*, by providing information on schedule for demonstrations leading to treatment, and volumes of waste the demonstration technologies can process as a treatment system.

We have further developed our ties to ETEC for joint Engineering Development activities (see MSO, 1.5.2), and hosted C. Newman of ETEC to review mission and goals of the project relative to their involvement, in addition to the technical aspects discussed elsewhere.

Significant progress was made in reestablishing a key service contract for the project in support of Project Management and Feed Preparation systems. The service contract with SAIC was extended to the end of February (from Dec. 1994) to allow time to place the new contract with the selected vendor.

FY95 Budget: Spending profiles (\$856K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	59	56	54	56	54	65	54	101	101	92	105	60
Monthly actual	71	12	36									
Plan cumulative	59	116	169	226	279	344	398	499	599	691	796	856
Actual cumulative	71	83	119									
Current lien	0	0	0									

This month's "actual" includes the correction for G&A mischarges noted in October, but does not include facility costs incorrectly charged to WBS 1.1.5. These will be corrected in the next few months.

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	Status
		Date*	
L131-2	Input to FY95 Plan (see 115-7)	Dec 94	Complete
L131-4	Submit MWMF Rebaseline (MWMF/DWTF/ Merge)	Mar 95	In Progress
L131-1	Preliminary Design Review completed	Jul 95	
D131-2	DOE Issues KD-2	Jul 95	
L131-5	Submit Post-PDR Project Baseline	Sep 95	

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:

- The MWMF FY95 *Plan* document was issued to DOE (OAK and HQ) on December, completing a major early FY95 milestone. Following this, the *MWMF Monthly Reports* for October and November could be completed, since they are based on the format and content (budget plan, milestones, etc.) of the *FY95 Plan*. The monthly reports were expanded to include monthly manpower information requested by DOE/OAK, as well as a complete listing of the milestone/marker log for the project. The October report was finalized and issued; the November report was essentially completed and will be issued the first week of January.
- An important action for DOE to address, resulting from the issuing of the *FY95 Plan*, is the imbalance of OPEX and CENRTC planned funding, versus that budgeted and required by the project during FY95.
- Work continued to prepare the next revision of the PB, to reflect the schedule delay of MWMF due to the integration with DWTF. A preliminary internal revision was completed in December that was based on CDR designs but reflects the stretch-out to FY98 to accommodate the DWTF/MWMF integration and DOE funding guidance. Further iteration is in progress to meet cost constraints. A second internal revision (Rev. 1.2) will address these cost constraints and will provide the basis for the FY97 Validation. A final formal baseline change (Rev. 2) will be issued to DOE after the Project PDR, when a new bottom-up estimate is available.
- A key issue in completing the PB for FY97 Validation (in March) is the significant and continuing changes in DOE guidance. During December, impact analyses for three funding scenarios were requested, ranging from an FY96 budget of \$22.9M to \$10.7M. Other DOE constraints also exist in addition to FY96 funding levels: minimizing TPC; holding completion date to FY98; funding profiles and beneficial occupancy date for the MWMF-portion of DWTF. This leaves only project scope and FY97 and FY98 schedule and funding level to manage. It must be recognized that excessive replanning and uncertainty can impact project costs and near-term milestones.
- During December, a milestone to implement and document a cost-control system for the project was completed. Project controls are being implemented in an austere cost-effective manner that maintains essential control mechanisms. A concerted effort to develop and implement a similar cost-estimating system began in December.

- Other significant activities and accomplishments during December:
 - The Milestone/Marker Log for the project was reactivated and revised to reflect the FY95 Plan and for project performance control.
 - The Action Item tracking system was reviewed and revised to reflect a new series of action items arising from peer reviews occurring during preliminary design.
 - Began preparation of a Configuration Control Plan for MWMF.
 - Received training in Micro Planner software.
 - Began development of cost-estimation spreadsheet for input to Primavera schedule software; investigated Excel/Primavera electronic interfaces.
 - Continued training for, and implementation of, the MWMF Property Center as required by directorate policy. A filing system was established, appropriate forms were ordered, necessary computer services were established, and certain property was excessed.

FY95 Budget: Spending profiles (\$486K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	42	40	37	39	37	45	37	43	43	39	45	39
Monthly Actual	44	9	22									
Plan cumulative	42	82	119	158	195	240	277	320	363	402	447	486
Actual cumulative	44	53	76									
Current lien	0	0	0									

Certain costs planned for WBS 1.3.2 were incorrectly charged to other accounts. These costs will be transferred, hopefully next month. This month's "actual" includes the correction for G&A mischarges noted in October.

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 Plan (see 155-7)	Dec 94	Complete
L132-1	Implement cost planning/tracking systems (document)	Dec 94	Complete
L132-5	Issue Configuration Control System Document	Jan 95	
L132-6.1	Input to MWMF Project Management Plan (see L115-1)	Feb 95	
L132-7	Performance Management System documented	Apr 95	
L132-9.1	Records Control Procedure	Apr 95	
L132-8.1	Complete support of Project PDR (see L131-1)	Jun 95	
L132-9.2	Assessment/Surveillance Procedure	Jul 95	
L132-9	Complete QA Self Assessment	Aug 95	
L132-10.1	Input to FY96 Plan (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 systems interfaces are addressed in the integrated design, including interfaces with LLNL Hazardous Waste Management and facility engineering. The element coordinates the System Design Requirements, the MWMF floor plan, and the Integrated Operating Plan.

Summary of Monthly Activities:

- MWMF draft *Integrated Operating Plan* (IOP) underwent final review.
- The LSED Sketch and Level 1 Drawing Procedure was reviewed. This procedure, being developed for Division-wide use, will impact MWMF decisions on formal drawing requirements. A pending MWMF signature and drawing format policy awaits final review and approval of this LSED procedure, so that the two are consistent.
- A draft version of the Title I *System Design Requirements* (SDRs) for each level-3 WBS was created and preliminary comments were exchanged among Lead Engineers and Principal Investigators. The Title I SDRs will include all updated information obtained since the MWMF CDR.

FY95 Budget: Spending profiles (\$328K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	28	26	26	26	26	30	26	29	29	26	30	26
Monthly actual	51	-1	10									
Plan cumulative	28	54	80	106	132	162	188	217	246	272	302	328
Actual cumulative	51	50	60									
Current lien	2	0	2									

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
L133-1.4	Input to FY95 Plan (see 115-7)	Nov 94	Complete
L133-2	Issue Integrated Operations Plan	Jan 95	In Progress
L133-3	Issue Title I System Design Requirements	Feb 95	In Progress
L133-4	Issue Metrication Plan	Feb 95	Complete
L133-5	Input to FY96 Plan (see 115-10)	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. Receiving and Shipping provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of Receiving and Shipping equipment, Title III inspection, and acceptance test procedures (ATP). Receiving and Shipping includes both receiving and shipping equipment and systems integration.

Summary of Monthly Activities:

- Activities this month focused on completion of a pilot-characterization study of LLNL legacy wastes expected to be used in MWMF demonstrations. Real-time radiography (RTR) and digital radiography were performed on 102 waste drums selected by Hazardous Waste Management. The real-time video data obtained while rotating the drums provides a perspective of drum contents from all viewing angles and was used to identify drum contents. Drums can also be tilted during digital radiography to demonstrate detection of liquids in containers. The digital radiographs provide frame-integrated still views of the top and bottom section of each drum. Estimates of the fraction of combustible material in each drum were made from the digital radiographs, and selected objects were tentatively identified. From this data, the drums were separated into four groups: (1) drums more than 90% full of combustible materials, (2) drums more than 50% full of combustible materials, (3) drums less than 50% full of combustible materials, and (4) drums containing liquids. The group of less than 50% combustible materials also includes drums with glassware and other items that could be compacted to allow consolidation of drums. A report was issued by the LLNL NDE section.
- Meetings with DWTF personnel continued to be pursued to minimize duplication of resources in MWMF and DWTF.

FY95 Budget: Spending profile (\$175K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	18	17	16	17	16	19	14	15	15	9	10	9
Monthly actual	21	2	4									
Plan cumulative	18	35	51	68	84	103	117	132	147	156	166	175
Actual cumulative	21	23	27									
Current lien	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	Status
		Date*	
L141-1.1	Complete pilot characterization studies	Dec 94	Complete
L141-1.2	Identify equipment and define floor plan	Mar 95	Open
L141-1.3	RAS LI&C System Functional Requirements Document complete	Jun 95	Open
L141-1.4	RAS LI&C System Preliminary Design review complete	Jul 95	Open
L141-1	RAS System Preliminary Design Review	Jul 95	Open

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

Summary of Monthly Activities:

- Engineering development activities focused on demonstration of the telerobotics system to HWM and MWMF team members, prototyping the graphics-user interface including the Robline application operator interface, performance tests on the telerobotic control loop (including the operator), and development of the collision-avoidance module. Work in support of the collision-avoidance module included development of a model-based collision-compliance search architecture and a fast-search strategy, and testing it on simple workcell models. The native Robline collision-detection system takes approximately 20 seconds to detect a collision. In comparison, the system that has been developed takes approximately one second and is expected to improve another order of magnitude. The telerobotics performance studies were conducted over a range of parameter settings to determine the response-limiting element(s) in the system. It was found that the Puma robot and its controller are the limiting elements because the speed of response is slower than can be imposed/demanded by the operator via the hand control and telerobot controller. Preparation of the specifications and supporting purchase requisition paper work for the Engineering Development robot and force-reflection hand control was completed.
- Clean, representative mixed-waste organic samples were sent to a commercial shredding manufacturer to evaluate performance capabilities of size-reduction equipment. The samples consisted of plastic squeeze bottles, glove-box port covers and gloves, plastic booties, Kimwipes, machine shop rags, PVC tubing, scrap pieces of thin Fiberglass sheets and Kylar, and miscellaneous packing materials. Samples were placed in plastic bags and sealed with plastic tape. These bags were then placed in the shredder as is (without opening the bags), which used a 1-mm screen during the shredding operation. The results indicate that the knife shredder with a 1-mm screen did an excellent job in size reducing the samples. However, rags and paper products that were size-reduced acceptably did cotton ball during discharge from the pneumatic system.
- A comment version of the revised tritium handling strategy has been completed and is being reviewed by representatives of the LLNL tritium facility.

FY95 Budget: Spending profiles (\$954K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	95	91	86	91	87	104	87	100	100	36	41	36
Monthly actual	83	31	31									
Plan cumulative	95	186	272	363	450	554	641	741	841	877	918	954
Actual cumulative	83	114	144									
Current lien	21	0	0									

Costs have not yet been distributed from a central account to the appropriate WBS elements. The distribution will be reflected in future cost reports.

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
L142-1.2	Identify initial suite of characterization equipment	Jan 95	In progress
L142-1.3	Complete validation of characterization, isolation and segregation methods	Feb 95	Open
L142-1.4	Complete preliminary operator control station design	Mar 95	Open
L142-1.5	Process Vision/Robline bilateral communication link demonstrated	Feb 95	Open
L142-1.6	Process Vision/Robline bilateral message handling demonstrated	Mar 95	Open
L142-1.7	SFP workcell control architecture designed	May 95	Open
L142-1.8	SFP LI&C System Functional Requirements Document complete	Jun 95	Open
L142-1.9	SFP LI&C System Preliminary Design review complete	Jul 95	Open
L142-1	SFP System Preliminary Design Review	Jul 95	Open

WBS Element: 1.4.3. Liquids Feed Preparation

Task Description:

The principal objective of the Liquids Feed Preparation system is to provide for the receipt, characterization, preparation for processing, and handling of homogeneous and heterogeneous liquids and solids/liquids mixtures 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. Liquids Feed Preparation provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of Liquids Feed Preparation equipment, Title III inspection, and acceptance test procedures (ATP). Liquids Feed Preparation includes both liquids feed preparation equipment and systems integration.

Summary of Monthly Activities:

Design, cost and technical trade-off studies for LFP continue with a strong effort to finalize floor-plan layouts. This is being done in conjunction with Solids Feed Preparation to integrate functions and reduce costs between the solid and liquid feed preparation areas. The trade-off studies are being scrutinized for completeness. Equipment, personnel, and laboratory space are being organized to begin liquid/liquid separation experimental work. Requests for changes in the SDRs have been received and are being evaluated for their effects on the LFP scope and budget.

FY95 Budget: Spending profiles (\$390K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	38	36	34	36	34	41	34	40	40	18	21	18
Monthly actual	37	6	14									
Plan cumulative	38	74	108	144	178	219	253	293	333	351	372	390
Actual cumulative	37	43	57									
Current lien	0	0	0									

Major Procurements:

Blank on purpose?

Milestones and Markers:

	Item	Scheduled Date	Status
L143-1.1	Define surrogate feeds	Nov 94	Complete
L143-1.3	Complete validation of characterization and segregation methods	Mar 95	Open
L143-1	90% Preliminary Design Review	Jul 95	Open

WBS Element: 1.5.1. Mediated Electrochemical Oxidation**Task Description:**

The principal objective of Mediated Electrochemical Oxidation (MEO) System 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:

- Determined in a nitric-acid fractionating column that NO₂ (generated by boiling the nitric bottoms) is completely absorbed by the column reflux, but NO is released by the reaction at the rate of one NO per 3 NO₂ absorbed. NO_x carry-up is being investigated to determine the limit of pH in the distillate.
- Distillate obtained in a fractionating column test is pH 2.5 HNO₃, indicating 4 theoretical plates for 24" columns, or 8" per plate plus the boiler. This did not compare to the packing vendor literature of ~2" / plate. After a discussion with the vendor, Scientific Development Co., packing support is being modified and the test will be rerun.
- Materials testing in boiling concentrated HNO₃ is in progress.
 - Ryton is no good.
 - PEEK and carbon may be acceptable, based on one shift of exposure. Extended tests are continuing.

Design effort included the following:

1. Worked with UOP Guided Wave Inc. under a previously signed non-disclosure agreement to modify a UOP-guided Wave light absorption probe to make it chemically compatible with Ag⁺⁺. The probe will be used in MEO to monitor the Ag⁺⁺ concentration during operation.
2. Selected equipment to construct a prototype acid-monitoring system. This equipment will be ordered next month after review by the analytical chemists.
3. Ordered metering pumps for steady-state flow simulation of MEO in B161.

FY95 Budget: Spending profiles (\$1,023K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	79	98	94	113	102	91	81	73	73	73	73	73
Monthly actual	103	32	68									
Plan cumulative	79	177	271	384	486	577	658	731	804	877	950	1023
Actual cumulative	103	136	203									
Current lien	22	21	14									

This month's "actual" includes the correction for G&A mischarges noted in October.

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	Writing Report
L151-1.4	Summarize silver recovery chemistry results to date (document)	Jan 95	Writing Report
L151-1.6	Report on NaOH-AgCl recovery (document)	Feb 95	In Progress
L151-1.7	Computer simulation of the combined MEO and Acid Recovery control systems (document)	Feb 95	In Progress
L151-1.8	Final Report on steady-state flow and chemistry balance tests (document)	Apr 95	
L151-1.9	Demonstrate prototype cellulose feeder (document)	Jun 95	
L151-1.12	LI&C Functional Requirements Document complete	Aug 95	
L151-1.10	P&ID drawings (document)	Sep 95	
L151-1.11	Layout drawings of major equipment items (document)	Sep 95	
L151-1.13	LI&C System Preliminary Design review	Sep 95	
L-151-2	MEO System Preliminary Design review	Sep 95	

December 1994

WBS Element: 1.5.2. Molten Salt Oxidation**Task Description:**

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

Summary of Monthly Activities:**Development activities continued:**

- Second set of vessel material samples completed in a salt test at ETEC. All samples were evaluated and the most promising were photomicrograph. Inconel 600 was selected for the EDU vessel.
- A survey for vendors was made for the EDU vessel and RFQs sent out.
- A design review was conducted for the Engineering Development Unit. Action items were identified and assigned.

Preliminary design:

- The review of the Design Specification for the MSO system was completed and comments integrated.
- Design specification for salt recycle crystallizer started.
- Received four responses to Industrial Partner meeting on Jan 5.

FY95 Budget: Spending profiles (\$2428K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	140	147	194	210	209	196	235	221	153	202	279	242
Monthly actual	139	27	83									
Plan cumulative	140	287	481	691	900	1096	1331	1552	1705	1907	2186	2428
Actual cumulative	139	166	249									
Current lien	3	36	47									

This month's "actual" includes the correction for G&A mischarges noted in October.

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	Completed
L152-2.2	Complete Design Specification	Dec 94	Open
L152-2.3	Conduct Industrial Partner meeting	Dec 94	Open
L152-3.5	LI&C Functional Requirements Document complete	May 95	Open
L152-3.6	LI&C System Preliminary Design review	Jun 95	Open
L152-2	Select Industrial Participation method	Jun 95	Open
L152-3.4	Install development unit	Jun 95	Open
L152-3	MSO System MWMF PDR	Jun 95	Open
L152-5	Start Title II design	Jul 95	Open

WBS Element: 1.5.3 Wet Oxidation**Task Description:**

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

Summary of Monthly Activities:

This activity has been closed out. No FY95 activities.

FY95 Budget: Spending profiles (\$0K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	0	0	0	0	0	0	0	0	0	0	0	0
Monthly actual	0	0										
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	0	0										
Current lien	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 Project element provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, and installation of the UVP equipment, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

Summary of Monthly Activities:

This activity has been closed out. No FY95 activities

FY95 Budget: Spending profiles (\$0K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	0	0	0	0	0	0	0	0	0	0	0	0
Monthly actual	0	0										
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	0	0										
Current lien	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 the 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 project 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. The XOGT will be backed by the Facility off-gas system.

Summary of Monthly Activities:

- The design of MWMF-scale advanced gas-liquid contactor for destruction of NO_x with acidic urea has been completed and is being prepared for bids.
- The temperature probe assembly has been received. The separate enclosure in B161 for the Urea DeNO_x and for the catalytic DeNO_x units is being readied.
- The common design and scale-up procedure for acidic urea DeNO_x scrubbing and conversion of nitrous acid to nitric involving the use of advanced gas-liquid contactor has been completed and submitted to TID to issue as a UCRL-ID report.

FY95 Budget: Spending profiles (\$158K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	13	13	12	13	12	15	12	14	14	13	14	13
Monthly actual	18	12	19									
Plan cumulative	13	26	38	51	63	78	90	104	118	131	145	158
Actual cumulative	18	29	49									
Current lien	0	1	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
L155-1.1	Fabricate prototype gas-liquid contactor for acidic urea DeNO _x scrubbing	Jan 95	In Process
L155-3.2	Initiate systematic catalysts testing	Jan 95	
L155-2.1	Initiate instrumentation and control system test	Feb 95	
L155-3.3	I&C Functional Requirements Document complete	May 95	
L155-1	Summarize Gas Liquid Contactor Tests (document)	Jun 95	
L155-3.4	LI&C System Preliminary Design review	Jun 95	
L155-3	XOG System Preliminary Design review	Jun 95	
L155-3.1	Summarize NO _x -urea chemistry to date (document)	Sep 95	

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

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

Summary of Monthly Activities:

- Systems Chemistry Inc. brought representatives from Hydrodyne to LLNL for a follow-on meeting to explore bagless-transfer concepts and generate ideas for simplification of the container-interface sealing system. The sealing system is the most complex (and expensive) component in the interface. Hydrodyne has broad experience in seal design from the aerospace industry and is teaming with Systems Chemistry in the hazardous materials handling area.
- The majority of the Title I design activities will begin in March.

FY95 Budget: Spending profiles (\$89K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	6	6	5	6	8	10	9	10	10	6	7	6
Monthly actual	15	6	3									
Plan cumulative	6	12	17	23	31	41	50	60	70	76	83	89
Actual cumulative	15	21	24									
Current lien	0	0	0									

This month's "actual" includes the correction for G&A mischarges noted in October. Another erroneous charge that also occurred at that time will be similarly corrected.

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
L161-1.1	Select standard transport container designs	May 95	In process
L161-1.2	Floor plan layout complete	Jun 95	
L161-1.3	LI&C Functional Requirements Document complete	Jun 95	
L161-1.4	PTS LI&C System Preliminary Design review	Jul 95	
L161-1	PTS System Preliminary Design Review	Jul 95	

WBS Element: 1.6.2. Analytical Laboratory

Task Description:

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

Summary of Monthly Activities:

- Reviewed updated SDRs for other WBS elements and made changes as appropriate from other WBS reviews of the Analytical Lab SDR. Many other WBS elements do not specifically call out analysis of samples by the Analytical Laboratory; we will be working closely with these WBS elements to help them specify their analysis needs, so that we can scale the Analytical Laboratory functions appropriately.
- Began closer investigation of facility off-gas monitoring requirements. Continuous emissions monitoring of the facility off-gas is not expected to be required; rather, grab sampling on a regular basis with analysis for specific pollutants is expected. We have begun identifying the analysis procedures that may be required, and are obtaining copies of the procedures.
- We have made an initial definition of the requirements for a Laboratory Information Systems (LIMS) database with respect to instrument interface and types of chemical analysis tests. As analysis requirements are further defined by the primary MWMF and DWTF processes, the LIMS requirements will be updated.
- Met with Gary Souza of Rosemount Analytical regarding off-gas monitoring equipment for use by MSO; representatives of MSO present were Dave Peterson and Dave Hipple. Because of data handling and accessing capabilities, Rosemount is a recommended off-gas monitoring equipment vendor for the MWMF. We have asked for a quotation for budgetary purposes for a mobile off-gas monitoring system capable of analysis for VOCs, O₂, CO, CO₂, NO/NO_x, SO_x, and NH₃.

FY95 Budget: Spending profiles (\$140K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	10	9	9	9	9	11	9	10	10	9	27	18
Monthly actual	19	-2	8									
Plan cumulative	10	19	28	37	46	57	66	76	86	95	122	140
Actual cumulative	19	16	24									
Current lien	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
L162-2	Define analysis tests based on process acceptance criteria	Jan 95	Partial
L162-5	Define MSO on-line analysis requirements	Jan 95	In Progress
L162-4	Define MEO on-line analysis requirements	Feb 95	Partial
L162-3	Define facility off-gas monitoring requirements	Feb 95	Partial
L162-6	Define DWTF analysis requirements	Feb 95	Partial
L162-7.1	LI&C Functional Requirements Document complete	Jul 95	
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 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. The Water Treatment element provides the management, system analysis and support, design and engineering (Title I, II, III), procurement, and installation of the Water Treatment 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:

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

- The DOE letter authorizing Title I design for MWMF requested a trade-off study to evaluate the alternative of transporting aqueous waste to HWM for treatment, instead of treating all aqueous streams by WBS 1.6.3 within MWMF. A revision to the trade-off study was drafted during November. MWMF management comments to the draft were solicited, received, and incorporated during December. The report draft was submitted to TID for editing prior to release.
- The MOU with HWM was approved by HWM and MWMF.

FY95 Budget: Spending profiles (\$126K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	0	14	13	14	13	16	13	15	5	5	10	8
Monthly actual	0	0	2									
Plan cumulative	0	14	27	41	54	70	83	98	103	108	117	126
Actual cumulative	0	0	2									
Current lien	0	0	0									

This month's "actual" includes erroneous charges that belong on WBS 1.1.5.4.10.

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	Jan 95	In Progress
L163-2	Memorandum of Understanding with HWM	Jan 95	Completed
163-3.1	LI&C Functional Requirements Document complete	Jun 95	
L163-3.2	LI&C System Preliminary Design review	Jul 95	
L163-3	Water Treatment System Preliminary Design Review	Jul 95	
L163-4	Begin Final Design	Jul 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 ash residues, (2) polymer microencapsulation for salt, and (3) sulfur-polymer microencapsulation for volatile inorganic solids.

Summary of Monthly Activities:

- Initial revisions of the WBS 1.6.4 cost estimates and schedule were made in support of the ongoing BP revision.
- The WBS 1.6.4 SDRs are being updated in coordination with the SDRs of those other WBS that interface with Final Forms.
- The OFC (facility) charges of the Chemistry and Materials Science Department have changed several times this fiscal year but are expected to stabilize at the December rates. Adjustments to the WBS 1.6.4 budget and/or activities for FY95 may be necessary.
- Experiments supporting Final Forms' design of polyethylene microencapsulation of salt have begun at EG&G Rocky Flats under an ICO. Goals include elucidation of the effect of the salt preparation method (especially drying technology, which affects particle size and morphology) on waste-form fabrication and quality, selection of MWMF equipment, and process optimization. This work is partly funded by a separate project "Molten Salt Oxidation R&D" (EM-50, #SF2410-03). A complementary study of extrusion optimization is being carried out by EG&G Rocky Flats and the Colorado School of Mines. Coordinating the three studies enhances overall cost effectiveness.
- Continuing technical work on ceramic waste-form material design includes the following: Immobilization of "MWIP 3111: Ash" (cf. 9/94) containing high loadings of selected RCRA metals; vaporization of inorganic compounds during calcining and sintering; partitioning behavior of Nd (our Pu surrogate); and the effect of high concentrations of P on the phases formed.

FY95 Budget: Spending profiles (\$399K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	34	33	33	33	33	34	33	33	33	33	33	34
Monthly actual	59	13	23									
Plan cumulative	34	67	100	133	166	200	233	266	299	332	365	399
Actual cumulative	59	72	95									
Current lien	1	1	2									

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	Feb 95	In Progress
L164-2.1	Final Forms subsystem design status peer review	Feb 95	
L164-1	Evaluations of immobilization technologies complete	May 95	
L164-2.2	LI&C Functional Requirements Document complete	May 95	
L164-2.3	LI&C System Preliminary Design review	Jun 95	
L164-2	Final Forms System Preliminary Design review	Jun 95	
L164-3	Report: Design of polymer microencapsulation system	Jun 95	
L164-4.1	Report: Volatile residue components and the design of ceramic waste form system	Jul 95	
L164-4.2	Report: Interim status of ceramic waste form compositions and process parameters	Aug 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:

- System integration activities for the SCADA and FEP hardware and software continued in December. The local area network (LAN) was bridge connected to LLNL's Open Lab Net in preparation for marker L142.5—*ProcessVision/Robline bilateral communications link demonstrated*. The ProcessVision-to-PLC software driver has been received and installed, and is currently undergoing evaluation testing (Engr. Dev. Phase 2A). A hardware anomaly in one of the computers was tracked to a defective motherboard. The board was subsequently replaced. All hardware is now fully operational. Pentium processors are operating at 60 MHz.
- All Database Management System applications tools have been received. However, delivery of the ProcessVision-to-DBMS software driver is now six weeks late. As a result marker L165-1.9—*Engineering Development System operational* was not completed in December. The third-party provider (MinnovEX, Inc.) has set January 16, 1995 as a new delivery date.
- Continued integrated MWMF I&C System design activities. A decision tree was constructed to pictorially document the system architecture and various system components selected. A trade-off study to determine the appropriate level of process automation to be implemented in the MWMF is now in progress. Balance among engineering design and installation costs, operating and maintenance costs, and operational and technical risk will be optimized.
- Software that allows the viewing of graphical documentation contained in the database has been received and installed. The first demonstration of the Information Retrieval System (IRS) was conducted on December 9, 1994.
- Standards have been established for coax, multiconductor, and paired instrumentation and control cables to be used in the MWMF. These standards are consistent with those proposed for LLNL's revised "approved" list and will therefore be made readily available through LLNL Stores or blanket order.

FY95 Budget: Spending profiles (\$571K, CENRTC)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	30	94	60	43	40	38	48	38	38	40	37	45
Monthly actual	70	41	35									
Plan cumulative	50	144	204	247	287	325	373	411	449	489	526	571
Actual cumulative	70	112	146									
Current lien	37	23	19									

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	In Progress
L165-1.10	Rapid prototype Engineering Development testing complete, report written	Jan 95	In Progress
L165-1.11	Integrated control system design peer review	Feb 95	
L165-2.1	Instrumentation and Equipment Database operational	Mar 95	
L165-1.12	SI&C Functional Requirements Document complete	Apr 95	
L165-1	SI&C System Preliminary Design Review	May 95	
L165-1.13	Engineering Development tasks complete, documented	Jun 95	
L165-1.14	Preliminary Design activities complete, documented	Jun 95	
L165-2.2	Process I&C Standards established	Sep 95	

Appendix A

MWMF Milestone / Marker Log			Sorted by number			For Dec 94 Report
Number	Item	PTS	Orig. Date	Date	Status	Comments
Doc. Resp. Person: M. De Micco, A. Throop (alt.); Rev. date: 1/20/95						
X = changes in this revision						
C113-1	RD&D permit issued by DTSC	X		Apr-95		date required by DWTF schedule. Better est. after DTSC review apprc.
C113-2	Authorization to construct issued by BAAQMD	X	Oct-94	Jul-95		permit submission delayed pending rebaseline
D112-1	PSAR Approved by DOE		Jun-94	Nov-94	deleted	facility categorized Low Hazard; DOE approval not req'd
D113-1	EA determination by DOE	X	Aug-94	Mar-95		EA draft submitted. Rev. due to MWMF/DWTF merge req'd.
D115-1	DOE issue Project Plan	X		Jan-95		
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	Jul-95		Delayed due to reduce funding guidance by DOE
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	
X 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	Mar-95		date changed to agree with extended project schedule
L113-3	Submit RD&D permit application to DTSC	X	Jul-94	Jan-95	in progress	date changed to agree with extended project schedule
X L113-4	Submit revised EA to DOE (for MWMF/DWTF merge)	X	Dec-94	Jan-95	in progress	delayed to incorporate changes due to MWMF relocation from B494 to B695 along with earlier DOE comments.
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	Project Management Plan (Final)	X		Jan-95		1 month after DOE Project Plan (D115-1)
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	
X 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		
L115-9	FY97 Project Validation			Apr-95		
L116-1	First meeting of NAC	X		Feb-95	In Progress	delayed pending DOE confirmation of project scope/schedule
X L116-1.1	National Advisory Council (NAC) formed		Dec-94	Jan-95	In Progress	Letters have been sent to prospective members. Follow up delayed during holiday season.
L116-2	Second meeting of NAC			Aug-95		
L116-2.1	Issue first public newsletter			Mar-95		
L116-2.2	Receive comments from NAC			Apr-95		
L116-3.1	Issue second newsletter			Sep-95		
L121-1	30% CDR Review			Dec-93	complete	

MWMF Milestone / Marker Log			Sorted by number			For Dec 94 Report
Number	Item	PTS	Orig. Date	Date	Status	Comments
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		
L131-1	Preliminary Design Review (Overall Project) completed	X	Sep-94	Jul-95		delayed due to funding limitations per DOE guidance
X 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	in progress	
L131-5	Submit Post-PDR Project Baseline	X		Sep-95		
X L132-1	Implement Cost planning/tracking systems (document)		Sep-94	Dec-94	complete	activity stretched-out due to reduced funding guidance
X L132-10.1	Input to FY98 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
X 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		
L132-6.1	Input to MWMF Project Management Plan (see L115-1)			Feb-95		
L132-7	Performance Management System documented			Apr-95		
L132-8.1	Complete support of Project PDR (see L131-1)			Jun-95		
L132-9	Complete QA Self Assessment			Aug-95		
L132-9.1	Records Control Procedure issued			Apr-95		
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	In Progress	
L133-3	Issue Title I System Design Requirements			Feb-95	In Progress	
L133-4	Issue Metrics Plan			Feb-95	Complete	
L133-5	Input to FY96 Plan (see 115-10)			Oct-95		
L141-1	RAS System Preliminary Design Review		Sep-94	Jul-95		PDR delayed due to funding limitations per DOE guidance
X 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		activity stretched-out due to reduced funding guidance
L141-1.3	RAS L&C System Functional Requirements Document complete			Jun-95		
L141-1.4	RAS L&C Preliminary Design Review			Jul-95		
L142-1	SFP System Preliminary Design Review			Jul-95		
L142-1.1	SFP surrogate feeds defined			May-94	complete	
X L142-1.2	Identify initial suite of characterization equipment		Jun-94	Jan-95	in progress	Delayed due to later than scheduled completion of pilot characterization studies and reduced manpower and funding guidance received after original schedule was established.
X L142-1.3	Complete validation of characterization, isolation, and segregation methods		Sep-94	Feb-95		Delayed due to later than scheduled completion of pilot characterization studies and reduced manpower and funding guidance received after original schedule was established.
L142-1.4	Complete preliminary operator control station design			Mar-95		
L142-1.5	Process Vision/Robline bilateral communication link demonstrated			Feb-95		

MWMF Milestone / Marker Log			Sorted by number			For Dec 94 Report	
Number	Item	PTS	Orig. Date	Date	Status	Comments	
L142-1.6	Process Vision/Robline bilateral message handling demonstrated			Mar-95			
L142-1.7	SFP workcell control architecture designed			May-95			
L142-1.8	LI&C Functional Requirements Document complete			Jun-95			
L142-1.9	LI&C Preliminary Design complete			Jul-95			
L143-1	LFP System Preliminary Design Review			Jul-95			
L143-1.1	Define surrogate feeds		May-94	Nov-94	complete		date changed to agree with extended project schedule
X 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	Mar-95			date changed to agree with extended project schedule
L143-1.4	LI&C Functional Requirements Document complete			Jun-95			
L143-1.5	LI&C Preliminary Design complete			Jul-95			
X L151-1.1	Complete tests on turbo-aerator for nitrous acid conversion (document issued)		Mar-94	Jan-95	writing report		Release of report delayed due to slower than expected review cycle.
L151-1.10	P&ID drawings (document)			Sep-95			
L151-1.11	Layout drawings of major equipment items (document)			Sep-95			
L151-1.12	LI&C Functional Requirements Document complete			Aug-95			
L151-1.13	LI&C Preliminary Design Review			Sep-95			
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		
X L151-1.4	Summarize silver recovery chemistry results to date (document)		Sep-94	Jan-95	writing report		Release of report delayed because PI was working on higher priority tasks.
L151-1.5	Fabricate and test 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	In progress		
L151-1.7	Computer simulation of the combined MEO and Acid Recovery control systems (document)			Feb-95	In progress		
L151-1.8	Final Report on steady-state flow and chemistry balance tests (document issued)			Apr-95			
L151-1.9	Demonstrate prototype cellulose feeder (document)			Jun-95			
L151-2	MEO System Preliminary Design Review			Sep-95			
L151-2.1	Preliminary Process Flow Diagram for MEO			Jun-94	complete		
L151-2.2	Preliminary equipment layout for MEO			Sep-94	complete		
L152-1	Complete MSO bench scale rubber destruction tests			Dec-93	complete		
L152-2	Select Industrial Participation method			Jun-95			
L152-2.1	MSO advise in the CBD		Apr-94	Jun-94	complete		delayed due to funding limitations per DOE guidance
X L152-2.2	Complete Design Specification		May-94	Jan-95	In progress		delayed for incorporation of reviewer's comments
X L152-2.3	Conduct Industrial Partner meeting		Jul-94	Jan-95	In progress		due to holidays participants couldn't attend the industrial participation day until January 5th
L152-3	MSO System MWMF PDR			Jun-95			
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		
L152-3.4	Install development unit			Jun-95			
L152-3.5	LI&C Functional Requirements Document complete			May-95			
L152-3.6	LI&C Preliminary Design Review			Jun-95			
L152-4	Start Development Activities			Aug-94	complete		
L152-5	Start Title II design			Jul-95			
L153-1	Award WOX contract			Sep-94	deleted		WBS element deleted per DOE guidance

MWMF Milestone / Marker Log			Sorted by number			For Dec 94 Report
Number	Item	PTS	Orig. Date	Date	Status	Comments
L153-1.1	Complete and document work to date			Jul-94	complete	
L153-1.2	Issue RFO 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
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 Contactors Tests (document)			Jun-95	In progress	
L155-1.1	Fab prototype gas-liquid contactor for acidic urea NOx destruction		Jun-94	Jan-95	In progress	delayed due to DOE stretchout & peer review action item(s)
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		delayed due to DOE stretchout & peer review action item(s)
L155-3	XOG System Preliminary Design Review		Sep-94	Jun-95		PDR delayed due to funding limitations per DOE guidance
L155-3.1	Summarize NOx-urea chemistry to date (document)			Sep-95		
L155-3.2	Initiate systematic catalysts testing			Jan-95		
L155-3.3	LMC Functional Requirements Document complete			May-95		
L155-3.4	LMC Preliminary Design complete			Jun-95		
L161-1	Process Transport & Storage System Preliminary Design Review			Sep-94	Jul-95	PDR delayed due to funding limitations per DOE guidance
L161-1.1	Select standard transport container designs			Jun-94	May-95	activity stretched-out due to reduced funding guidance
L161-1.2	Floor plan layout complete			Jul-94	Jun-95	activity stretched-out due to reduced funding guidance
L161-1.3	LMC Functional Requirements Document complete			Jun-95		
L161-1.4	PTS LMC System Preliminary Design review			Jul-95		
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	Jan-95	partial	date changed to agree with extended project schedule
L162-3	Define facility off-gas monitoring requirements		Sep-94	Feb-95	partial	date changed to agree with extended project schedule
X L162-4	Define MEO on-line analysis requirements		Dec-94	Feb-95	partial	Document completed and out for review. Release expected in Feb-95.
L162-5	Define MBO on-line analysis requirements			Jan-95	In progress	
L162-6	Define DWT analysis requirements			Feb-95		
L162-7	Analytical Lab System Preliminary Design review			Aug-95		
L162-7.1	LMC Functional Requirements Document complete			Jul-95		
L162-7.2	LMC Preliminary Design Review			Aug-95		
X L163-1.1	Water Treatment trade-off study		Jun-94	Sep-94	complete	
	Water Treatment trade-off study revision		Dec-94	Jan-95	In progress	Delayed due to previously unplanned decision to have TID edit document.
L163-2	Memorandum of Understanding with HWM			Jan-95	In progress	
L163-3	WTR System Preliminary Design Review			Jul-95		was L163-2.1

MWMF Milestone / Marker Log			Sorted by number			For Dec 94 Report	
Number	Item	PTS	Orig. Date	Date	Status	Comments	
L163-3.1	LI&C Functional Requirements Document complete			Jun-95		was L163-2	
L163-3.2	LI&C Preliminary Design Review			Jul-95		was L163-2.2	
L163-4	Begin Final Design			Jul-95		was L163-2.3	
L164-1	Evaluations of immobilization technologies complete			May-95			
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		
X L164-1.3	Report status of immobilization evaluations		Sep-94	Feb-95	in progress	Lead engineer temporarily diverted to urgent MSO work.	
L164-2	Final Forms System Preliminary Design Review			Jun-95			
L164-2.1	Final Forms subsystem design status peer review			Feb-95			
L164-2.2	LI&C Functional Requirements Document complete			May-95			
L164-2.3	LI&C Preliminary Design complete			Jun-95			
L164-3	Report: Design of polymer microencapsulation system			Jun-95			
L164-4.1	Report issued: Volatile residue components and the design of ceramic waste form system			Jul-95			
L164-4.2	Report issued: Interim status of ceramic waste form compositions and process parameters			Aug-95			
L165-1	SI&C System Preliminary Design Review			May-95			
L165-1.1	VC general arrangement plan complete			Mar-94	complete		
L165-1.10	Rapid prototype Engineering Development testing complete and report written			Jan-95	in progress		
L165-1.11	Integrated control system design peer review			Feb-95			
L165-1.12	SI&C Functional Requirements Document complete			Apr-95			
L165-1.13	Engineering Development tasks complete, documented			Jun-95			
L165-1.14	Preliminary Design activities complete, documented			Jun-95			
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		
X L165-1.9	Engineering Development System operational		Dec-94	Jan-95	in progress	Delayed because delivery of Process Vision-to-DBMS software driver is now six weeks late.	
L165-2.1	Instrumentation and Equipment Database operational			Mar-95			
L165-2.2	Process I&C Standards established			Sep-95			
end							