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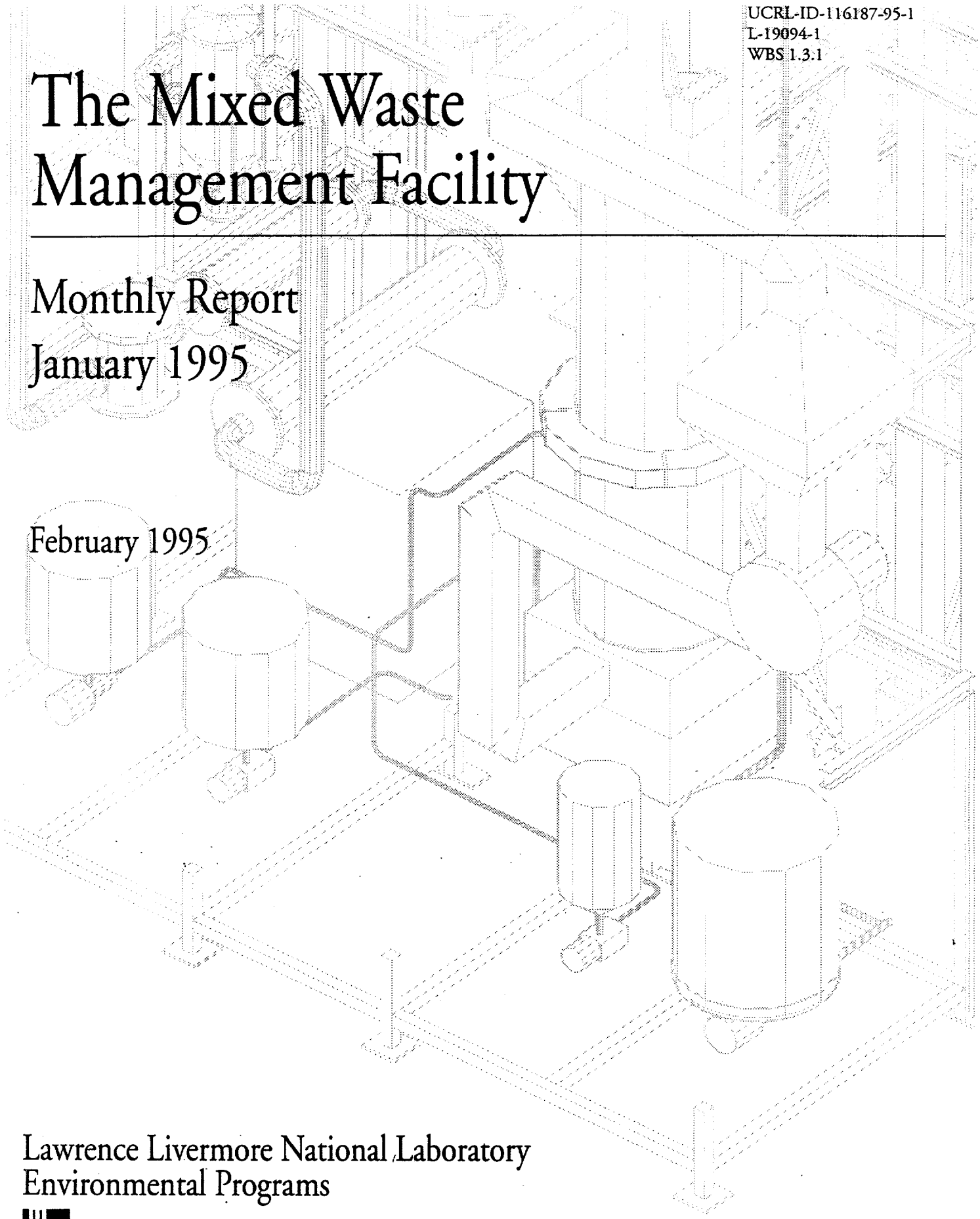
WBS 1.3.1

The Mixed Waste Management Facility

Monthly Report
January 1995

February 1995



Lawrence Livermore National Laboratory
Environmental Programs

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The Mixed Waste Management Facility

Monthly Report
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Ron Streit

February 1995

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MASTER

Contents

Project Summary

Overview

During January, 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. Certain activities are being delayed due to DOE guidance for reduced funding profiles that would not warrant new hiring, early procurements, etc. Peer reviews and system preliminary design reviews are now being scheduled for project elements. We continued pursuing integration of MWMF and DWTF functions maximize cost savings. We also expended considerable engineering effort to provide technical and cost tradeoff information for the FY97 Validation.

Management focus during January centered upon addressing the rebaseline for MWMF for FY97 Validation in March, and upon progressing with the RD&D permit. Funding baselines for preparing for FY97 Validation in March were obtained from DOE; based on the baseline, detailed scope, schedule, and budget guidance was issued to the project staff to develop Validation information. For reasons of cost-effectiveness, Validation cost estimates will be based on revised CDR estimates, since bottom-up estimates will be completed in July as part of Preliminary Design. We have directed Significant effort toward meeting the TPC and fiscal year profile costs while still maintaining the essential elements of the project.

Final review and editorial changes were completed for the RD&D permit application. Based on the meeting with DTSC in December and revised operational requirements, we held a review of the overall permitting strategy prior to routing for signature approval. A simplified strategy is under review. The revised *Environmental Assessment* (EA) is ready for release to DOE, but is being held up pending results of the permitting strategy review.

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

Schedule Status. Critical path items are DWTF construction, NEPA, and permitting (for both MWMF and DWTF). Work to secure an A&E for DWTF design began in January, following DOE release of funds in late December (about 1 month later than planned). NEPA work is effectively complete and alternative permitting strategies are being investigated.

Significant Issues and Planned Corrective Actions

Since they are on the MWMF critical path, uncertainties in NEPA and permitting for both MWMF and DWTF pose a schedule and cost risk to the MWMF project. Simplified alternative permitting strategies are being investigated, based on revised operational requirements. Once issued, review and approval of relevant documents should be supported and expedited by DOE.

Post-FY95 funding uncertainties continue to affect current planning and work during FY95. Estimates and plans for the FY97 Validation are being made, based on funding guidance from DOE for the purposes of the validation. However, more recent verbal guidance is for funding significantly below the validation values. Due to these continuing budget uncertainties, the project continues to restrain more aggressive earlier plans for completing certain work during FY95.

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, which is being addressed by DOE.

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 DOE/OAK has the information necessary to address this issue.

California DTSC has requested a technical analysis from LLNL regarding the classification of MSO technology as a Miscellateous Unit versus an incinerator. This may have other project implications (see December report). A report addressing why MSO should be categorized as a Miscellaneous Unit was prepared during January for submission to DTSC.

A DOE Project Plan (PP) needs to be issued to allow the MWMF Project Management Plan (PMP) to be finalized. Draft versions of the PP and PMP exist. DOE/OAK plans to wait for funding, DWTF, OIG, and other issues to be resolved before issuing the DOE PP. The project is proceeding to write the PMP, since management and control systems need to be established at this point in the project.

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:

- Project staff provided input and support for an institutional briefing and tour, for interested community groups, of technologies identified in the LLNL Draft Site Treatment Plan.
- System Design Requirements (SDRs) were updated by all MWMF systems as part of Title I work. A final review was postponed, pending scope changes specified in the planning for FY97 Validation.
- MEO: Acid recovery distillation tests determined that the design pH can be achieved in a single fractionating column with the addition of air. Modifications in the experimental unit have also achieved the predicted packing performance.
- MSO: An industrial participation day was held for companies expressing interest in partnerships in MSO technology. Four firms attended; currently, one letter of interest has been received. LLNL representatives visited ETEC to coordinate development activities. Orders were placed for the Engineering Development Unit (EDU) vessel and stand and off-gas monitoring systems.
- Final Forms: Based on EM-50–supported polyethylene microencapsulation of salt at Rocky Flats, further measurements of improving the dispersion of fine-grained salts by chemical additives are being planned. Phase measurements continue on ceramic waste forms.

- Supervisory I&C: A significant milestone to complete activation of the Engineering Development System was completed. Design of an engineering prototype for an integrated system—including feed preparation, treatment system, process/safety monitoring, and supervisory system—was started. Studies to determine the most cost-effective level of I&C task automation and communication networks were completed; reports are being written.

Project Financial Summary

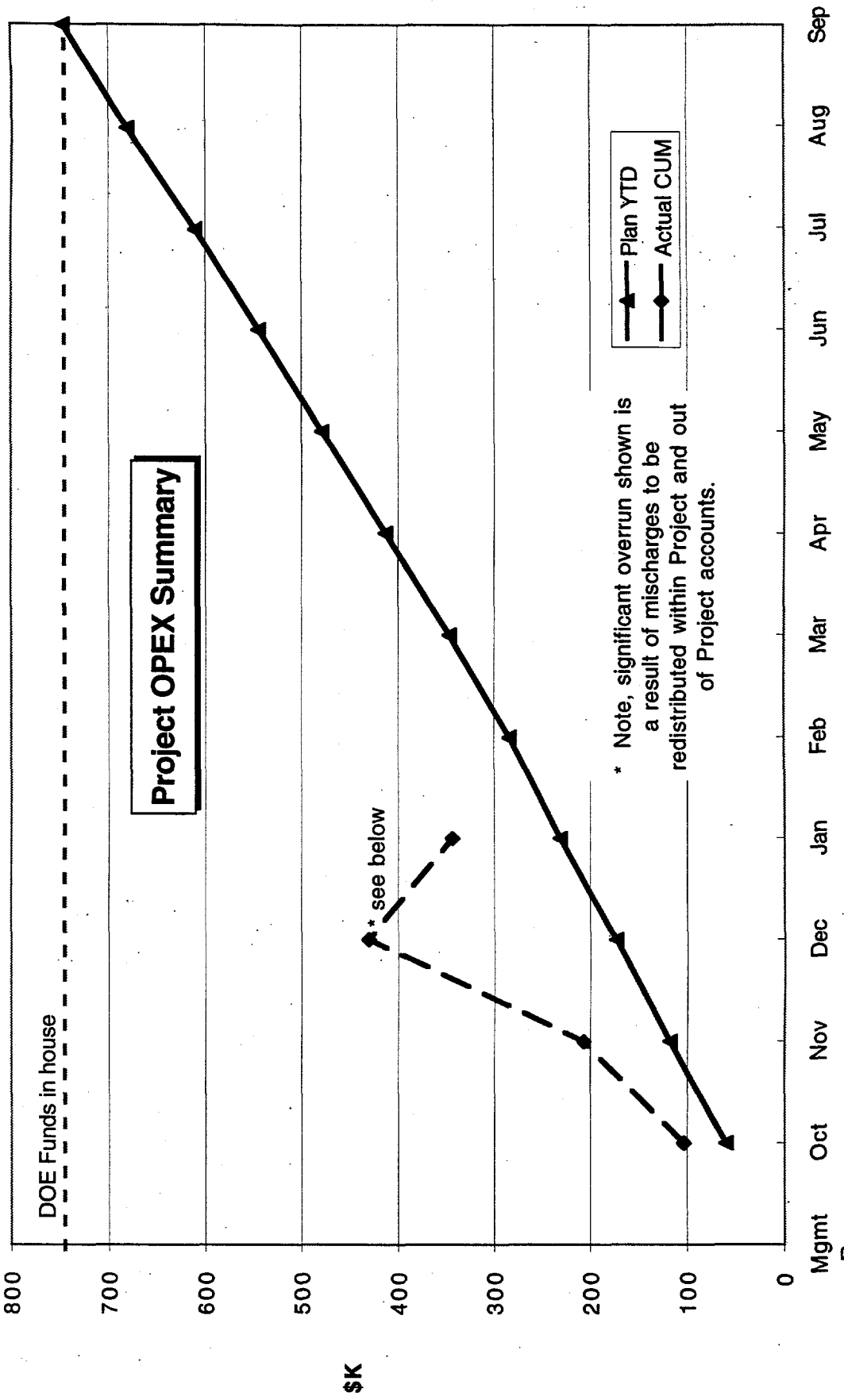
Figures 1 and 2 present graphical plots of planned versus actual spending for OPEX and CENRTC. Table 1 presents a more detailed financial summary of the Project for the month of January.

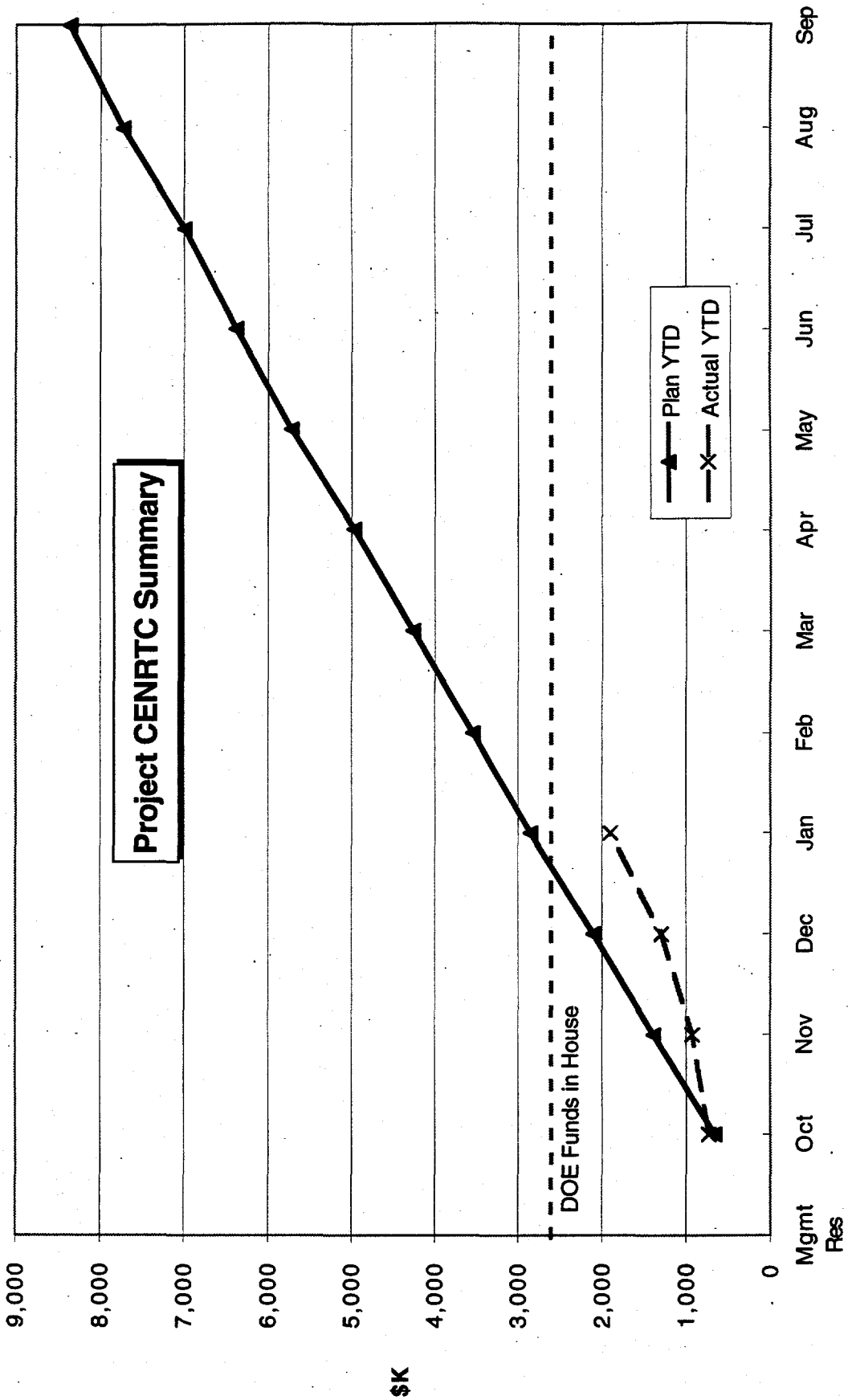
During January several major corrective cost transfers occurred, as had been discussed in previous monthly reports. This is most evident in OPEX expenses for January. The cumulative expenses are still above plan, but further corrective transfers are expected that will bring actual spending closer to the plan. CENRTC expenses for January are accordingly higher due to corrective cost transfers.

We received additional CENRTC BA funding from DOE/OAK in January, although not the full amount expected to cover the remainder of FY95 (less holdback). To receive this, the Project had to directly call the DOE/OAK budget office. Projections indicate that current funding levels are adequate through about April.

The task summaries identify major procurements initiated during January. No distribution of Management Reserve or FY95/96 carryover was made during December.

The major financial issue for FY95 continues to be 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. The *FY95 Plan* was submitted in December, so that DOE/OAK has sufficient information to address this issue.


Project OPEX Summary
DOE Funds in house
* see below
* Note, significant overrun shown is a result of mischarges to be redistributed within Project and out of Project accounts.
Plan YTD
Actual CUM
$K
800
700
600
500
400
300
200
100
0
Mgmt Res
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Project CENRTC Summary
Plan YTD
Actual YTD
DOE Funds in House
$K
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Mgmt Res
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

MWMF Project - Monthly Financial Summary for FY95

JANUARY, 1995

OPEX ($K, monthly expenditures)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Subtotal*	Undistb#	Total Budget
DOE Funds*	279	235	235	0	0									749		
FY95 Plan		59	58	56	58	53	63	66	66	66	66	71	66	746		746
Actual		103	103	224	-87									343		
Liens**		246	242	285	305									NA		
Mgmt Reserve		0	0	0	0									0	84	84
95/96 CO		0	0	0	0									0	100	100
														FY95 OPEX budget =		930

OPEX ($K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	279	514	749	749	749								
FY95 Plan		59	117	173	231	284	346	412	478	544	610	681	746
Actual		103	206	430	343								

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*	Undistb#	Total Budget
DOE Funds*	2649	0	0	0	2000									4649		
FY95 Plan		657	725	715	748	692	724	700	749	671	606	737	632	8358		8358
Actual		730	188	371	602									1891		
Liens**		86	81	85	125									NA		
Mgmt Reserve		0	0	0	0									0	605	605
95/96 CO		0	0	0	0									0	400	400
LDRD-CAP#		0	0	0	0									0	291	291
														FY95 CENRTC budget =		9654

CENRTC ($K, cumulative to date)

	CO*	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DOE Funds*	2649	2649	2649	2649	4649								
FY95 Plan		657	1382	2098	2846	3538	4262	4962	5712	6383	6989	7725	8358
Actual		730	918	1289	1891								

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	3398	3398	5398								
FY95 Plan		717	1499	2271	3077	3821	4608	5375	6190	6927	7599	8406	9104
Actual		833	1124	1719	2234								

DOE FY95 new-BA, TOTAL		
budget	guidance	delta
7656	7656	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	47								
Labor ($K)@		409	349	322	390								

* DOE funds include FY94/95 carryover

** Relevant for current month only; sum not meaningful

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

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

TABLE 1

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
- Created a draft of the Project Configuration Management Plan.
- 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	-4								
Plan cumulative	3	6	8	11	13	17	19	22	25	28	31	34
Actual cumulative	2	5	17	13								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

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

WBS Element 1.1.2 PSAR

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

Summary of Monthly Activities
There were no significant activities during January on the PSAR as the document was completed and distributed in 1994.

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	-16								
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	14	16	16	0								
Current lien	74	73	73	73								

Spending profiles ($20K, CENRTC)

	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	15								
Plan cumulative	5	10	13	15	17	19	20	20	20	20	20	20
Actual cumulative	0	0	2	16								
Current lien	0	0	0	0								

A CENTRC account was opened and the OPEX charges from the first quarter were 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

- The EA was 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. Final revisions are being made as appropriate to correspond with the permitting strategy.
- Final review and editorial changes were completed on preparation of the RD&D permit application to submit to the DTSC. After meeting with the State in December and reviewing the final RD&D permit application, MWMF staff initiated a final review of the overall permitting strategy versus anticipated actual operational needs. Submittal of the permit application is being held pending completion of this review.
- A paper was written for submittal to DTSC to provide the permit writer with needed additional information to support MSO's categorization as Miscellaneous Unit.

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	-32								
Plan cumulative	5	10	15	20	21	26	31	31	31	31	31	31
Actual cumulative	14	26	52	20								
Current lien	0	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	109								
Plan cumulative	40	80	120	160	170	178	185	193	200	206	211	216
Actual cumulative	0	0	11	121								
Current lien	0	0	0	0								

Large variances from monthly plan reflect corrective cost transfers as discussed in prior 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
L113-4	Submit revised EA to DOE	Feb 95	In Progress
L113-3	Submit RD&D permit application to DTSC	Feb 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	

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	6								
Plan cumulative	14	27	41	54	68	81	95	108	122	135	149	162
Actual cumulative	11	19	32	38								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

ID no.	Milestone/Marker	Scheduled Date*	Status
None	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 January, attention focused on addressing the rebaseline for MWMF for Project Validation, and on progressing with the RD&D permit. A new project guidance was distributed in January detailing the requirements of the rebaseline effort (Rev. 1.2). As previously stated, this rebaseline will reflect a modification to the existing Project Baseline and not an independent bottom-up estimate. A bottom-up revised baseline (Rev. 2.0) is planned following Preliminary Design Review. Rebaseline 1.2 will be based on CDR cost estimates with an FY96 budget of $15.3M. Significant effort has been directed toward meeting the cost guidance while still maintaining the essential elements of the project. The Rev 1.2 Rebaseline will be completed and reflected in the FY97 Project Validation, scheduled for March, 1995.
- As discussed in WBS element 1.1.3, the EA and permitting continued to be a major activity. The RD&D permit application was essentially completed (in TID for final edit revisions) and awaits the LLNL approval chain. An MSO white paper was prepared to address the categorization of MSO as a Miscellaneous unit. The differences, both technical and regulatory, between this and incineration were identified. This paper will be distributed early in February.
- Work began on the final Project Management Plan (PMP). Usually, this document follows the completion of the DOE Project Plan (PP) and addresses how LLNL will meet the goals of the PP. Due to the number of rebaselining efforts and the uncertainty in budgets, the PP has not been completed. We have decided to complete the PMP based on available project guidance to formalize project management plans and activities.

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	-48								
Plan cumulative	30	59	86	114	141	174	201	233	264	293	326	354
Actual cumulative	54	131	300	251								
Current lien	140	136	179	198								

A significant number of cost transfers were completed on this account due to mischarges and planned redistribution of costs. Until LLNL's new accounting system

has been fully exercised, continuing cost adjustments with respect to personnel, procurements, and facility charges can be expected.

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)	Mar 95	In Progress
D115-1	DOE issues Project Plan	Jan 95	Open
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) a Community Newsletter, and preparation and coordination of press releases and community tours.

Summary of Monthly Activities
- As part of the decision from the 12/20/94 meeting with the DTSC, effort has continued in support of the MSO White Paper detailing both technical and regualtory issues leading to the recommended classification of the unit as a Miscellaneous Unit.
- A meeting was conducted to present the technologies identified in the *Draft Site Treatment Plan* to interested parties. This meeting included a technical brief of MSO and MEO, as well as a tour of the test facilities. Additional information as to how these technologies fold into the LLNL plans as identified in the *Site Treatment Plan* were also discussed.
- It was determined that scheduled dates for NRP activities should be slipped. This is necessary to allow resolution of key regulatory issues relative to MSO and finalization of detailed strategy for NEPA/CEQA.

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	8								
Plan cumulative	8	16	24	32	40	48	56	64	72	80	88	96
Actual cumulative	10	12	15	23								
Current lien	28	28	28	29								

Significant procurement actions this month
None

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L116-1.1	NRP formed	Apr 95	In Progress
L116-1	First meeting of NRP	May 95	
L116-2.1	Issue first public newsletter	Jun 95	
L116-2	Second meeting of NRP	Nov 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 activitiy 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	0								
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	–1	–2	–2	–2								
Current lien	4	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	0								
Plan cumulative	0	0	0	0	0	0	10	20	30	43	56	69
Actual cumulative	0	0	0	0								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

ID no.	Milestone/Marker	Scheduled Date*	Status
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	0								
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	0	0	0	0								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

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

WBS Element 1.3.1 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. Guidance for Revision 1.2 of the MWMF Project Baseline (PB) was developed and distributed based on an FY96 budget plan of $15.3M. This baseline will address adjustments resulting from co-locating MWMF with DWTF and schedule stretch-out. Additional cost savings associated with further integrating the operations of the MWMF with DWTF will be addressed as part of the Preliminary Design.

An industrial participation day was held for companies expressing an interest in MSO technology. From this meeting we anticipate joint participation for the development and demonstration of the MSO system. The preferred interaction is via a CRADA in which the industrial partner obtains key licensing agreements on the technology, whereas the DOE benefits from co-funding the engineering design and development phases.

During January, R. Streit and M. Adamson visited with ETEC. This was a follow-on meeting to ETEC's visit to LLNL in December. Both LLNL and ETEC's MSO programs were reviewed and tours were conducted of ETEC's MSO systems. An agreement was reached to cooperate on engineering design and development activities as appropriate and within budget constraints. An additional meeting is planned to coordinate possible future interactions.

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	37								
Plan cumulative	59	116	169	226	279	344	398	499	599	691	796	856
Actual cumulative	71	83	119	156								
Current lien	0	0	0	0								

This month's "actual" includes the correction for certain cost adjustments from the first quarter. Until LLNL's new accounting system has been fully exercised, continuing cost adjustments with respect to personnel and facility charges can be expected.

Significant procurement actions this month
None

Milestones and Markers

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L131-2	Input to *FY95 Plan* (see 115-7)	Dec 94	Complete
L131-4	Submit MWMF Rebaseline (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

- DOE/OAK needs to address the imbalance of the OPEX and CENRTC planned funding, versus that budgeted and required by the project during FY95. This action remains following the issuing of the *MWMF FY95 Plan* document in December, 1994.
- We developed a plan for accomplishing in a value-added manner the FY97 Validation in March and the Project Preliminary Design (PD) in July. Validation cost estimates will reflect modifications of existing estimates, since new bottom-up estimates will be required within several months as preliminary designs are completed and since DOE has indicated that budget guidance is likely to change in the near future. A simplified validation package format was also developed.
- We began detailed work to prepare for the FY97 project validation in March, based on DOE guidance of $15.3M in FY96, a one-year delay in project completion due to DWTF/MWMF integrated facilities, and a downscoped "austere" project that still supports the essential mission. A memo identifying scope, schedule, and budget guidance was issued to Cost Account Managers by the project office as a basis for revising current plans. Working sessions were held to review and integrate the proposed changes. A first schedule and cost roll-up were completed during January, and are being integrated to meet DOE parameters.
- We continued work on developing management controls and preparing for PD. An initial schedule for peer reviews and system PD was developed and is being modified to spread out the reviews in time. A draft of the Excel estimation sheet for bottom-up estimates was completed and is being tested. Electronic transfer to Primavera, to minimize transcription errors, is also being studied.
- We restarted work to prepare a PMP, even in the absence of a DOE PP. While project controls have been/are being implemented, and in spite of significant changes in project scope, schedule, and budget, it is important to establish and document management plans at this point in the project.
- Other significant activities and accomplishments during January:
  - The DOD RMWPAT committee, dealing with cleanup of military bases, was briefed on potential applications of LLNL and MWMF technologies.
  - Startup and Activation costs were re-estimated, based on integration with HWM. Estimates for other WBS elements were revised for input to FY97 Validation.
  - QA: A draft configuration control plan was developed. A near-term project review schedule was prepared.
  - Facilities: Attended training for facility managers; completed "idle property" walkthrough; coordinated several office moves and repairs.

— MWMF Property Center (PC): Negiotiated assignment of items to MWMF PC; completed set-up of files and documents; input property information into LLNL property control system.
— The DOE PTS monthly report was issued
— The November Monthly report was issued, with additions as requested by DOE/OAK.

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	45								
Plan cumulative	42	82	119	158	195	240	277	320	363	402	447	486
Actual cumulative	44	53	76	121								
Current lien	0	0	0	42								

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

Significant procurement actions this month
Two computer systems were ordered to replace a loaned system and for Resource Manager support.

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	Feb 95	In Progress
L132-6.1	Input to MWMF *Project Management Plan* (see L115-1)	Feb 95	In Progress
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

- The MWMF *Integrated Operating Plan* (IOP) was approved, and was sent to TID for publication.
- A facility off-gas integrator was selected. Joe McIntyre will be responsible for off-gas interfaces and requirements definition between the MWMF processes and the facility. His expertise in air permitting will be especially valuable.
- A general facility interface person was selected. Paul Densley, who is also Lead Engineer for Solids Feed Preparation, will be responsible for all interfaces between MWMF and the facility. He will be the point contact with the A&E contractor. Joe McIntyre will work closely with Paul.
- Title I *System Design Requirements* (SDRs) were updated. A final review of these SDRs was postponed pending scope changes specified in the version 1.2 rebaseline.
- Integration meetings were held to support team efforts in rescoping subsystems to meet the goals of the 1.2 rebaseline.
- The Title I and II design contract for the DWTF A&E company was reviewed.

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	18								
Plan cumulative	28	54	80	106	132	162	188	217	246	272	302	328
Actual cumulative	51	50	60	78								
Current lien	2	0	2	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
L133-1.4	Input to *FY95 Plan* (see 115-7)	Nov 94	Complete
L133-2	Issue Integrated Operations Plan	Jan 95	Complete
L133-3	Issue Title I System Design Requirements	Feb 95	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 coordination of the design efforts for the RAS areas of MWMF and DWTF. Kick-off meetings with the lead DWTF personnel were held and copies of the CDR portion and SDR for the MWMF were provided. At first glance, it appears there will be minimal impacts on the design required to provide common use of the area by both projects. Revised costing of the MWMF RAS based upon providing only design support was accomplished. A revised floor plan showing the reduced scope of the MWMF RAS area was also generated and will be used as a platform for continuing discussions.

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	12								
Plan cumulative	18	35	51	68	84	103	117	132	147	156	166	175
Actual cumulative	21	23	27	40								
Current lien	0	0	0	0								

Significant procurement actions this month

None

Milestones and Markers

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

ID no.	Milestone/Marker	Scheduled Date*	Status
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. SFP provides the management, system analysis and support, design (Title I, II, III) engineering, procurement, installation of SFP equipment, Title III inspection, and acceptance test procedures (ATP). SFP includes both solids feed preparation equipment and systems integration.

Summary of Monthly Activities

- Engineering development activities focused on identifying support equipment and areas to be evaluated for the telerobotic work.
  - —Sandia National Laboratory has agreed in principle to supply and support the SMART system for our telerobotics development effort. A work statement for this effort was prepared, but agreement on the cost and schedule is still coming to closure. It is estimated their support will cost $75K. This will be important in development of a robust teleoperational capability.
  - —The model-based collision detection system prototype was completed for collision compliance. The detection algorithm runs off a volume-pixel (voxel) tree structure. It typically runs at 1/30 second for each position of the robot arm with grasped object. The workcell walls, floor, objects, and robot arm perimeter boxes for the voxeltree are derived from the their ROBLINE CAD representations. The path planning algorithm is currently being developed, which will be important in autonomous path programming. This algorithm will also provide a means to demonstrate the collision detection algorithm for the ANS tour groups.
  - —An order was placed with Cybernet for their per FORCE force reflection (bilateral) hand control. Delivery is expected within 90 days. While awaiting for the Cybernet FRHC, we will transition from the force ball now being used in our telerobotics system to the RSI non-force reflection (unilateral) hand control.
  - —Key material for a peer review of robot specifications was prepared for engineering development and operational system implementation. This review is planned to occur after the ANS conference.
- Activities this month focused on rebaselining of the feed preparation area to meet revised guidelines. Additional layouts were provided and reviewed by feed preparation personnel. A general consensus was reached that this should be the layout used for Title I. This layout has been reviewed informally with upper management, but no formal review has taken place. This layout includes the characterization equipment as presently envisioned. In progress is the detailing of the equipment and vendor inquiries to firm up cost estimates.
- 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	76								
Plan cumulative	95	186	272	363	450	554	641	741	841	877	918	954
Actual cumulative	83	114	144	220								
Current lien	21	0	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
Force hand controller ($65K)

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L142-1.2	Identify initial suite of characterization equipment	Jan 95	Complete
L142-1.3	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 (LFP) system is to provide for the receipt, characterization, preparation for processing, and handling of homogeneous and heterogeneous liquids and solids/liquids mixtures received from storage and other processes in the facility. This includes segregating the incoming waste stream into aqueous with Trimsol, chlorinated organic liquids, oils, solvents and scintillation cocktails. LFP provides the management, system analysis, and support, design (Title I, II, III) engineering, procurement, installation of LFP equipment, Title III inspection, and acceptance test procedures (ATP). LFP includes both liquids feed preparation equipment and systems integration.

Summary of Monthly Activities

- 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 SFP to integrate functions and reduce costs between the solid and liquid feed preparation areas. The trade-off studies are being scrutinized for completeness.
- Liquid/liquid separation experimental work is 90 % complete.
- A vendor-supplied centrifuge was used to evaluate centrifuge effectiveness in liquid/solid separation. This experimental work is complete and the results are being analyzed in the lab to determine centrifuge effectiveness.
- Requests for changes in the SDRs have been received and are being evaluated for their effects on the LFP scope and budget. Cost rebaseline 1.2 has been completed and the budget direction has been met.

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	22								
Plan cumulative	38	74	108	144	178	219	253	293	333	351	372	390
Actual cumulative	37	43	57	79								
Current lien	0	0	0	0								

Significant procurement actions this month

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 CO_2 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

- We determined the maximum pH distillate that can be achieved in a single fractionating column for acid recovery with 13*M* nitric in the reboiler is 2.5. NO_X carry-up from the reboiler seems to be the cause. Addition of air to the reboiler at approximately one tenth of the vapor rate appears to oxidize the NO portion to NO_2, allowing it to be reabsorbed by the water at a lower point in the column, making distillate of pH 4.5 attainable. This would meet the SDR goal of distillate pH = 4 or greater.
- Modifications of the packing support in the B161 experimental acid recovery distillation unit appear to have improved the packing performance greatly. The observed packing performance now appears to be in fairly close agreement with the manufacturer's published value of 2" per theoretical plate (i.e., distillation cycle).
- In small-scale tests for silver recovery, the amount of silver in the NaCl waste stream was measured. It was found to be 100 ppm (Ag in NaCl) when the aqueous solution was used only once, and increased approximately linearly to 400 ppm when the solution was reused four times. Thus, multiple reuse of silvery recovery solution seems possible and would have beneficial impact on the overall process. Since Ag is an RCRA metal, however, the impact of residual metal on final forms and disposal is being studied.

Design effort included the following:

1. Developed cost and schedule information for rebaseline of the MWMF project. More detailed impact of feed rate reduction to 0.5 kg/h is currently being assessed
2. Developed in conjunction with EEs a plan for the detailed information content to be included on the P&ID drawings.
3. Began research of boiler equipment to power the MEO distillation unit.

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	76								

Plan cumulative	79	177	271	384	486	577	658	731	804	877	950	1023
Actual cumulative	103	136	203	279								
Current lien	22	21	14	9								

Significant procurement actions this month
None

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L151-1.1	Complete tests on turbo-aerator for nitrous-acid conversion (document)	Jan 95	Complete
L151-1.4	Summarize silver recovery chemistry results to date (document)	Feb 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	

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 CO_2 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:

- Started salt dissolution and filtration studies for salt recycle.
- Placed the Engineering Development Unit (EDU) vessel order with the low bidder—under budget.
- Received components for small-materials evaluation furnace.

Preliminary design:

- Completed and issued the review of the Design Specification for the MSO system.
- Selected and ordered the plant off-gas monitoring instrumentation. It will be demonstrated and evaluated on the EDU.
- Hosted an industrial participation meeting with four organizations to discuss ways of commercializing MSO.
- Received a letter of interest from an organization interested in forming a CRADA.

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	101								
Plan cumulative	140	287	481	691	900	1096	1331	1552	1705	1907	2186	2428
Actual cumulative	139	166	249	350								
Current lien	3	36	47	52								

Significant procurement actions this month

- EDU vessel and stand ($32K)
- EDU off-gas instrumentation ($50K)

Milestones and Markers

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

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

WBS Element 1.5.3 Wet Oxidation

Task Description
The principal objective of Wet Oxidation (WOX) is to demonstrate treatment of organic mixed wastes using a wet oxidation process to convert the organic portions to CO_2, 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	0	0								
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	0	0	0	0								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

ID no.	Milestone/Marker	Scheduled Date*	Status
None	No activitiy		

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	0	0								
Plan cumulative	0	0	0	0	0	0	0	0	0	0	0	0
Actual cumulative	0	0	0	0								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

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

WBS Element 1.5.5 Experimental Off-Gas

Task Description

The principal objective of 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 MWMF-scale advanced gas-liquid contactor for destruction of NO_x with acidic urea is being fabricated.
- The separate enclosure in B161 for the Urea $DeNO_x$ system is being readied.
- The report on 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 published (UCRL-ID-119563).

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	9								
Plan cumulative	13	26	38	51	63	78	90	104	118	131	145	158
Actual cumulative	18	29	49	58								
Current lien	0	1	0	4								

Significant procurement actions this month

None

Milestones and Markers

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L155-1.1	Fabricate prototype gas-liquid contactor for acidic urea DeNO$_x$ scrubbing	Jun 95	In Process
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

- A draft rebaseline plan was developed, consistent with shifts in project scope and objectives.
- Initial meetings were held with Lead Engineers of the waste destruction and stabilization areas to determine preliminary requirements for batch material delivery. These requirements will be coupled with functional requirements to drive preliminary design of the PT&S interface.
- 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	4								
Plan cumulative	6	12	17	23	31	41	50	60	70	76	83	89
Actual cumulative	15	21	24	27								
Current lien	0	0	0	0								

An erroneous charge has been identified and will be 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

- The primary activity this month was the rebaselining of costs.
- We reviewed Bay Area Air Quality Management District requirements for source testing and continuous emission monitoring. We are in the process of estimating the maximum levels of hazardous air pollutants that might be released by the MWMF, based on current mixed waste inventory and analysis results, and assuming complete release to the atmosphere.
- We reviewed analysis requirements for shipment of treated wastes by DWTF to Envirocare of Utah. We are in the process of obtaining copies of all tests specified as required for acceptance of material for disposal at Envirocare, for review.
- We completed an outline of the *Analytical Laboratory Functional Requirements Document* based on MWMF guidelines. Many details related to system specifics need to be gathered. This information is being gathered by meeting with other members of the project and collecting information from various sources. A list of analytical instruments to be associated with internal analytical capability has been completed. Some of the instruments have already been purchased. Their computer hardware and software needs must be evaluated.
- At the request of Dave Petersen (MSO I&C), we met with Thomas Hess of Horiba regarding off-gas monitoring equipment for use by MSO. Reviewed procurement specifications/sole source documentation prepared for MSO's purchase of a Horiba off-gas monitoring system.
- We issued a document describing the off-gas analysis capabilities required in support of MEO.

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	8								
Plan cumulative	10	19	28	37	46	57	66	76	86	95	122	140
Actual cumulative	19	16	24	32								
Current lien	0	0	0	0								

Significant procurement actions this month
None

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

ID no.	Milestone/Marker	Scheduled Date*	Status
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
L162-2	Define analysis tests based on process acceptance criteria	Mar 95	Partial
L162-5	Define MSO on-line analysis requirements	Mar 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 (WT) 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 WT element provides the management, system analysis and support, design and engineering (Title I, II, III), procurement, and installation of the WT equipment necessary to demonstrate treatment trains, Title III inspection, and acceptance test procedures (ATP) covering both equipment and system integration activities.

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

- 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. The report was signed by MWMF management and submitted to HWM management for final signature review.

The WT SDR was revised to match the recommendations of the trade-off study. Review of WT interfaces with other MWMF systems was begun as part of an effort to update all SDRs.

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	3								
Plan cumulative	0	14	27	41	54	70	83	98	103	108	117	126
Actual cumulative	0	0	2	5								
Current lien	0	0	0	0								

Significant procurement actions this month
None

Milestones and Markers

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L163-1.1	Water Treatment Trade-off Study Revision	Feb 95	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:

- Revisions of the WBS 1.6.4 cost estimates and schedule continue. It is expected that the revised Baseline Plan will omit waste form (3) above.
- The choice of polymer type (thermoset versus thermoplastic) is again in question. The tradeoffs are complicated, involving cost, technical and regulatory issues.
- The polyethylene microencapsulation of salt at EG&G Rocky Flats, funded by MWMF and EM-50 under an ICO, is continuing (see 12/94 report). The EM-50 work is complete and has been documented in a final report. The remaining experiments are directed at improving the dispersion of fine-grained salts by using chemical additives. (Good dispersion and small particle size optimize the loading achievable with acceptable waste form performance.) These studies will be complete by 4/30/95. No further work on this waste form is needed until Title III.
- Continuing technical work on ceramic waste form material design includes the following: The "MWIP 3111: Ash" (*cf.* 9/94) ceramic work is complete, the ceramic having proved satisfactory. Experiments on vaporization of inorganic compounds during calcining and sintering, on the partitioning behavior of Nd (Pu surrogate), and on the effect of high concentrations of P on the phases formed are continuing without difficulty. The zirconolite phase is usually rather coarse, evidently owing to agglomeration of the zirconia that forms during calcining. We are trying to alleviate this by adjusting our process conditions. Mercury porosimetry has revealed a small degree of interconnected porosity in the specimens examined. We will continue to collect data on this but are taking no further action at this time. The potential performance improvement is small.

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	26								
Plan cumulative	34	67	100	133	166	200	233	266	299	332	365	399
Actual cumulative	59	72	95	120								
Current lien	1	1	2	1								

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

- SI&C input to the Revised Baseline Plan Revision 1.2 has been completed.
- MWMF/DWTF integration discussions have been initiated with HWM personal.
- Evaluation testing (Engr. Dev. Phase 2A: Test FEP/SCADA communications) of the ProcessVision-to-PLC software driver was completed.
- The ProcessVision-to-DBMS software driver was delivered by the third-party provider (MinnovEX, Inc.) in late January (8 weeks late). The driver has been installed, and evaluation testing (Engr. Dev. Phase 2B) has been started. Marker *L165-1.9—Engineering Development System operational* is now complete. Marker *L165-1.10—Rapid prototype Engineering Development testing complete, report written* is late due to the late start of Engineering Development Phase 2B testing.
- Design of an engineering prototype/strawman integrated system was started. Functional components will include one feed preparation system, one treatment system, and one process facility safety/monitoring and supervisory control system.
- Progress toward marker *L142.5 — ProcessVision/Robline bilateral communications link demonstrated* continued. Several difficulties have been encountered and overcome.
- Began creation of the MWMF Database in preparation for Instrumentation and Equipment Database use and Engineering Development activities.
- Discussions have been initiated to determine suitability of the LLNL/HWM Total Waste Management System (TWMS) in meeting MWMF Inventory Tracking System requirements.
- An evaluation of the appropriate level of automation to implement at the facility supervisory level was completed. It was determined that a minimum level of automation, such as schedule checking, is required for the initial operation of the MWMF. It was also determined that the system design should not preclude a significantly higher level of automation, such as coordination of activities among workcells. A report on this evaluation is in preparation.
- A technical evaluation of communication networks to employ at the various levels of the MWMF control system architecture has been completed and documented.
- A decision tree that pictorially documents the system architecture and various system components was completed. A document summarizing the results of all trade-off studies supporting I&C subsystem component selection is in preparation.

- The effort to justify facility surveillance CCTV was continued from November. Contacts have been made with operators of various facilities at LLNL to determine personnel safety needs, etc. A summary of findings is in preparation.

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

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
11/95 Plan	50	94	60	43	40	38	48	38	38	40	37	45
Monthly actual	70	41	35	43								
Plan cumulative	50	144	204	247	287	325	373	411	449	489	526	571
Actual cumulative	70	112	146	189								
Current lien	37	23	19	18								

Significant procurement actions this month:
None.

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

ID no.	Milestone/Marker	Scheduled Date*	Status
L165-1.9	Engineering Development System operational	Jan 95	Complete
L165-1.10	Rapid prototype Engineering Development testing complete, report written	Feb 95	In Progress
L165-1.11	Integrated control system design peer review	Mar 95	In Progress
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:

Milestone/Marker Log

	MWMF Milestone / Marker Log			Sorted by number			For Jan. 95 Report
	Number	Item	PTS	Orig. Date	Date	Status	Comments
	Doc. Resp. Person: M. De Micco, A. Throop (alt.); Rev. date: 2/27/95						
X = changes in this revision							
	C113-1	RD&D permit issued by DTSC	X		Apr-96		date required by DWTF schedule. Better est. after DTSC review applic.
	C113-2	Authorization to construct issued by BAAQMD	X	Oct-94	Jul-95		permit submission delayed pending rebaseline
	D112-1	PSAR Approved by DOE	X	Jun-94	Nov-94	deleted	facility categorized Low Hazard; DOE approval not req'd
	D113-1	EA determination by DOE	X	Aug-94	Mar-95		EA draft submitted. Rev. due to MWMF/DWTF merge req'd.
X	D115-1	DOE issue Project Plan	X		Jan-95	Open	No revised date available from DOE. LLNL preparing PMP w/o PP.
	D121-1	Preliminary approval and funding for Preliminary Design	X	Apr-94	Jun-94	complete	delayed decision by DOE
	D121-2	KD 1/2 Approval by DOE	X		Jun-94	complete	recieved 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	
	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
X	L113-3	Submit RD&D permit application to DTSC	X	Jul-94	Feb-95	In progress	Delayed to allow a final evaluation of permitting needs/strategy.
X	L113-4	Submit revised EA to DOE (for MWMF/DWTF merge)	X	Dec-94	Feb-95	in progress	Delayed to allow coordination with permitting efforts (L113-3).
	L114-1.1	ES&H review of 30% CDR			Dec-93	complete	
	L114-1.2	ES&H review of 90% CDR			Mar-94	complete	
	L114-1.3	ES&H review of 90% PDR		Sep-94	Jan-95	deleted	changed to reflect level of effort work
	L114-2	Complete review of PSAR			Aug-94	complete	
X	L115-1	Submit Project Management Plan (Final)	X	Jan-95	Mar-95	In Progress	Delayed due to unavailability of DOE Project Plan.
	L115-1.1	Project Management Plan (Draft)			Oct-93	complete	
	L115-10	Submit FY96 Plan	X		Oct-95		
	L115-2	Select Project Engineers and Project Control Manager			Dec-93	complete	
	L115-3	Submit FY94 Plan	X		Jan-94	complete	
	L115-4	Initiate PTS and Monthly reporting			Jan-94	complete	
	L115-5	Technology Selection and Implementation Plan	X		Feb-94	complete	
	L115-6	Develop Design Basis Operations Plan			Mar-94	complete	
	L115-7	Submit FY95 Plan	X	Sep-94	Dec-94	complete	delayed due to LLNL accounting changes and higher DOE priorities
	L115-8	Technology Selection and Implementation Plan, Part II			Mar-95		
	L115-9	FY97 Project Validation			Apr-95		
X	L116-1	First meeting of NRP	X	Feb-95	May-95		Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
X	L116-1.1	National Review Panel (NRP) formed		Dec-94	Apr-95	In Progress	Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
X	L116-2	Second meeting of NRP		Aug-95	Nov-95		Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
X	L116-2.1	Issue first public newsletter		Mar-95	Jun-95		Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
X	L116-2.2	Receive comments from NRP			Apr-95	Deleted	Comments and action items will be received as part of NRP meeting minutes.

	MWMF Milestone / Marker Log			Sorted by number			For Jan. 95 Report
	Number	Item	PTS	Orig. Date	Date	Status	Comments
X	L116-3.1	Issue second newsletter		Sep-95	Dec-95		Activity delayed while key regulatory issues relative to MSO are resolved and the detail strategy for NEPA and CEQA finalized.
	L121-1	30% CDR Review			Dec-93	complete	
	L121-1.1	Initiate Point Design Reviews			Oct-93	complete	
	L121-1.2	Complete Point Design Reviews			Nov-93	complete	
	L121-2	90% CDR Review			Mar-94	complete	
	L121-3	CD Report issued	X		Apr-94	complete	
	L122-1	Issue MWMF Start-Up and Activation Plan			Sep-95		
	L131-1	Preliminary Design Review (Overall Project) completed	X	Sep-94	Jul-95		delayed due to funding limitations per DOE guidance
	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		
	L132-1	Implement Cost planning/tracking systems (document)		Sep-94	Dec-94	complete	activity stretched-out due to reduced funding guidance
	L132-10.1	Input to FY96 Plan (see L115-10)			Oct-95		
	L132-2	Implement Technical baseline control system		May-94	Nov-94		see 132-7
	L132-3	Implement Schedule control/tracking system			Aug-94		see 132-7
	L132-4	Input to FY95 Plan (see L115-7)		Nov-94	Dec-94	complete	delayed due to LLNL accounting changes and higher DOE priorities
X	L132-5	Issue Configuration Control System Document		Jan-95	Feb-95	in progress	delayed to allow discussion and review.
	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	
X	L133-2	Issue Integrated Operations Plan			Jan-95	complete	
	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		
	L141-1	RAS System Preliminary Design Review		Sep-94	Jul-95		PDR delayed due to funding limitations per DOE guidance
	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 LI&C System Functional Requirements Document complete			Jun-95		
	L141-1.4	RAS LI&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	complete	Delayed due to later than scheduled completion of pilot characterization studies and reduced manpower and funding guidance received after original schedule was established.
	L142-1.3	Complete validation of characterization, isolation, and segregation methods		Sep-94	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.

	MWMF Milestone / Marker Log			Sorted by number			For Jan. 95 Report
	Number	Item	PTS	Orig. Date	Date	Status	Comments
	L142-1.4	Complete preliminary operator control station design			Mar-95		
	L142-1.5	Process Vision/Robline bilateral communication link demonstrated			Feb-95		
	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
	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	complete	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	Feb-95	writing report	Release of report delayed because PI continues to be involved with higher priority tasks.
	L151-1.5	Fabricate and set-up cellulose Feeder		Sep-94	Dec-94	complete	activity stretched-out due to reduced funding guidance
	L151-1.6	Report on NaOH-AgCl recovery (document)			Feb-95	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 advertise 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	complete	delayed for incorporation of reviewer's comments
X	L152-2.3	Conduct Industrial Partner meeting		Jul-94	Jan-95	complete	Delayed due to funding limitations per DOE guidance and unavailability of participants due to holidays. Scheduled for January 5th.
	L152-3	MSO System MWMF PDR			Jun-95		
	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	

	MWMF Milestone / Marker Log			Sorted by number			For Jan. 95 Report
	Number	Item	PTS	Orig. Date	Date	Status	Comments
	L152-5	Start Title II design			Jul-95		
	L153-1	Award WOX contract			Sep-94	deleted	WBS element deleted per DOE guidance
	L153-1.1	Complete and document work to date			Jul-94	complete	
	L153-1.2	Issue RFQ for WOX treatment unit w/ completed specification			Jun-94	deleted	WBS element deleted per DOE guidance
	L153-2	30% Preliminary Design Review for WOX			Sep-94	deleted	WBS element deleted per DOE guidance
	L153-2.1	WOX dispersion system test and design recommendation complete			May-94	deleted	WBS element deleted per DOE guidance
	L153-2.2	Preliminary WOX treatability tests complete			Jun-94	deleted	WBS element deleted per DOE guidance
	L153-2.3	Preliminary WOX Process Flow Diagram complete			Jun-94	deleted	WBS element deleted per DOE guidance
	L153-2.4	Preliminary P&ID for WOXSupport 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 Contactor Tests (document)			Jun-95	In progress	
X	L155-1.1	Fab prototype gas-liquid contactor for acidic urea NOx destruction		Jun-94	Jun-95	In progress	Delayed due to DOE stretchout & peer review action item(s). Design/fabrication package currently out for bid.
	L155-1.2	Complete XOG tests on urea and SCR DeNOx			Jul-94	deleted	break up into other markers
	L155-2	Urea DeNOx: peer review			Aug-94	complete	
	L155-2.1	Initiate instrumentation and control system test		Aug-94	Feb-95		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	LI&C Functional Requirements Document complete			May-95		
	L155-3.4	LI&C 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	LI&C Functional Requirements Document complete			Jun-95		
	L161-1.4	PTS LI&C 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"
X	L162-2	Define analysis tests based on process acceptance criteria		Sep-94	Mar-95	partial	Waiting for process acceptance criteria to be finalized. Completion expected in Mar-95.
	L162-3	Define facility off-gas monitoring requirements		Sep-94	Feb-95	partial	date changed to agree with extended project schedule
	L162-4	Define MEO on-line analysis requirements		Dec-94	Feb-95	partial	Document completed and out for review. Release expected in Feb-95.
X	L162-5	Define MSO on-line analysis requirements		Jan-95	Mar-95	partial	Waiting for salt analysis to be defined. Completion expected in Mar-95.
	L162-6	Define DWTF analysis requirements			Feb-95		
	L162-7	Analytical Lab System Preliminary Design review			Aug-95		
	L162-7.1	LI&C Functional Requirements Document complete			Jul-95		
	L162-7.2	LI&C Preliminary Design Review			Aug-95		
	L163-1	Water Treatment trade-off study		Jun-94	Sep-94	complete	

	MWMF Milestone / Marker Log			Sorted by number			For Jan. 95 Report
	Number	Item	PTS	Orig. Date	Date	Status	Comments
X	L163-1.1	Water Treatment trade-off study revision		Dec-94	Feb-95	In progress	Delayed due to previously unplanned decision to have TID edit document. Presently out for signatures. Release expected in Feb 95.
X	L163-2	Memorandum of Understanding with HWM			Jan-95	complete	
	L163-3	WTR System Preliminary Design Review			Jul-95		was L163-2.1
	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	
	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: Volitile residue components and the design of creamic 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	I/C general arrangement plan complete			Mar-94	complete	
X	L165-1.10	Rapid prototype Engineering Development testing complete and report written		Jan-95	Feb-95	In progress	Delayed because of late delivery of MinnovEX DBMS software driver. See Jan 95 WMMF Monthly Report.
X	L165-1.11	Integrated control system design peer review		Feb-95	Mar-95	In progress	Completion expected in early Mar 95. Key participants are unavailable in February.
	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	complete	Delayed because of late delivery of MinnovEX DBMS software driver.
	L165-2.1	Instrumentation and Equipment Database operational			Mar-95		
	L165-2.2	Process I&C Standards established			Sep-95		
	end						