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Hanford Federal Facility Agreement and Consent Order Quarterly Progress Report for the Period Ending December 31, 1989

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EXECUTIVE SUMMARY

This is the third quarterly report as required by the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989), hereinafter known as the Tri-Party Agreement, established between the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology). The Tri-Party Agreement sets the plan and schedule for cleanup of nuclear weapons wastes at the Hanford Site. This report covers progress for the quarter ending December 31, 1989.

Tri-Party Agreement Status at a Glance

All 10 milestones that were scheduled for completion during the quarter ending December 31, 1989, were completed on or before schedule and are listed below:

- M-04-01: 'Provide letter to Ecology describing work scope to be included in September 1990 (tank waste treatability) report'
- M-10-03: 'Obtain 15 core samples from 2 (single-shell) tanks (reference sampling tanks)'
- M-12-07: 'Submit 100-DR-1 Operable Unit Work Plan'
- M-20-06: 'Submit Low-Level Burial Grounds Part B (permit application) to Ecology and EPA'
- M-22-00: 'Establish enforceable interim status corrective action schedules'
- M-24-00: 'Install RCRA groundwater monitoring wells at the rate of 29 in calendar year 1989...'
- M-24-01: 'Install 10 additional wells around the Low-Level Burial Grounds for a total of 45 RCRA¹ groundwater wells'
- M-24-02: 'Install 5 additional wells around B Pond for a total of 9 RCRA¹ monitoring wells'
- M-24-03: 'Install 12 wells around the SSTs² for a total of 12 RCRA¹ monitoring wells'
- M-24-04: 'Install 2 additional wells around the grout vault area to achieve a total of 7 RCRA¹ monitoring wells'.

¹RCRA is an acronym for Resource Conservation and Recovery Act of 1976.

²SST is an acronym for single-shell tank.

To date, a total of 30 milestones was scheduled for completion by December 31, 1989 (as required by the Tri-Party Agreement). All of the 30 milestones have been completed on or before schedule. The following 6 milestones are scheduled for completion in the quarter ending March 31, 1990:

- M-17-05: 'Select 300 Area Process Trench effluent treatment option and establish schedule for implementing treatment and ceasing liquid discharges'
- M-20-08: 'Submit 305-B Storage Facility Part B to Ecology and EPA'
- M-20-09: 'Submit 216-B-3 Pond (D-2-5) Closure/Postclosure Plan to Ecology and EPA'
- M-23-02: 'Resubmit Request for Part A Permit Application withdrawal for the following facilities: the 221-T Containment System Test Facility and the 324 Sodium Removal Pilot Plant'
- M-23-07: 'Complete Interim Status Corrective Actions for 222-S Storage Pad'
- M-25-00: 'Provide annual reports of studies/efforts that are in progress to identify alternatives to land disposal of radioactive mixed wastes.'

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1.0 HIGHLIGHTS

This section highlights the activities completed during the fourth quarter of calendar year 1989. A more detailed discussion of activities during the quarter is provided in the technical status section.

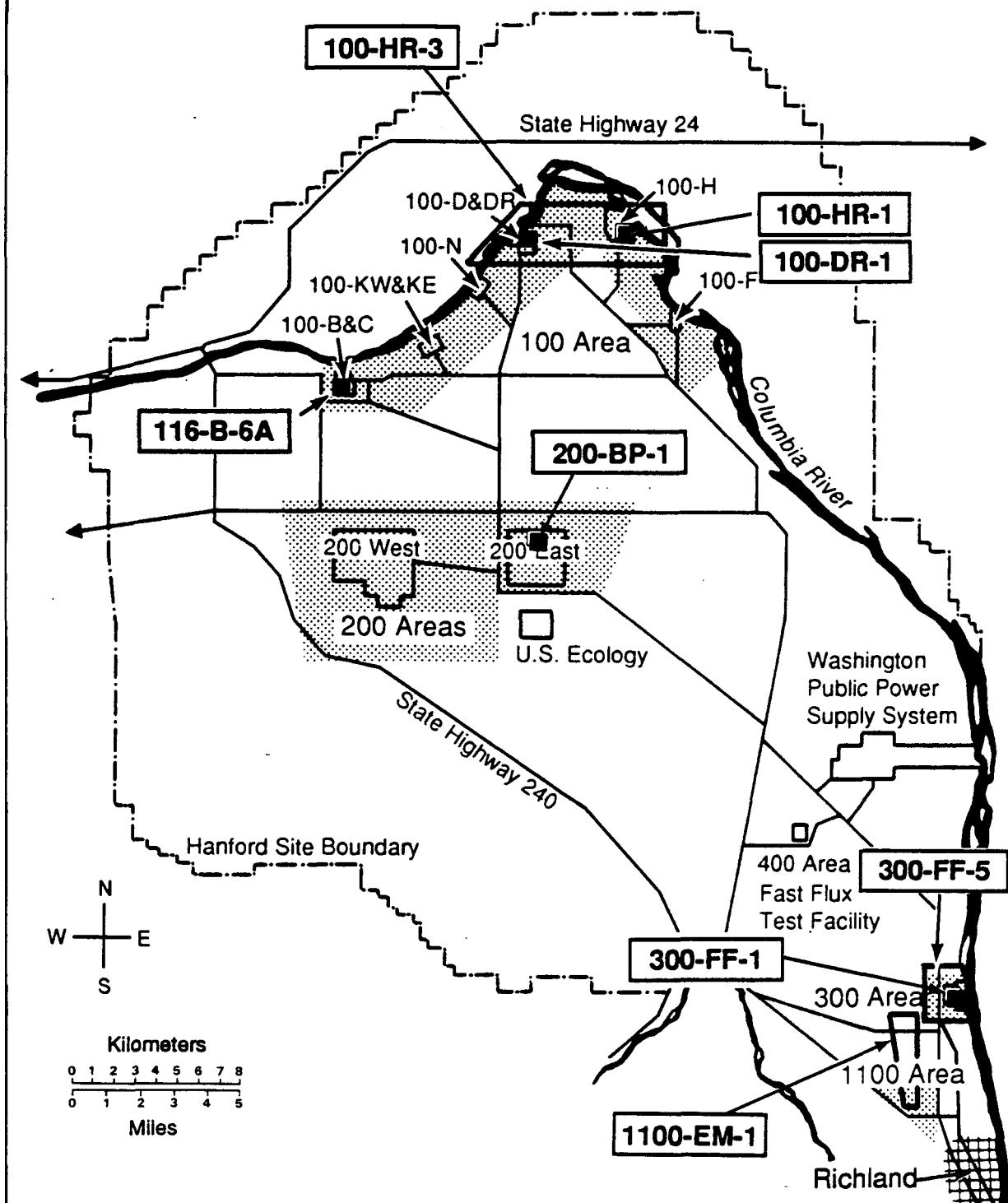
SINGLE-SHELL TANK WASTE SAMPLING. Single-shell tank sampling activity completed this quarter included obtaining the core samples (15 total) from two reference sampling tanks. The completion of this initial sampling met Milestone M-10-03, which required obtaining 15 core samples by December 31, 1989. These initial 15 samples will be used to develop statistical sampling data to guide future sampling efforts. The activity was completed ahead of schedule.

Sampling of the single-shell waste storage tanks is being performed to develop data to 1) support the timely development of tank waste retrieval technology, 2) assist in preparation of the supplemental environmental impact statement (for determining final disposal or remediation of single-shell tank wastes), and 3) prepare single-shell tank closure plans. Physically sampling the contents of the single-shell tanks is a complex process. This complexity is due to the radioactive and hazardous nature of the waste contained in the single-shell tanks, as well as the complexity of the equipment and the effects of weather. Sampling will involve the removal of at least two core samples from each of the 149 single-shell tanks, under the requirements of the Tri-Party Agreement. A tank core sample refers to the entire sample of waste, in core segments, taken from the top to the bottom of the waste contained in a particular tank; a core sample depth may vary from a few inches to more than 300 inches.

THE 100-DR-1 OPERABLE UNIT WORK PLAN. The *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-DR-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989a) was completed and submitted to EPA and Ecology for review. The submittal of the work plan met the Interim Milestone M-12-07 date of October 31, 1989.

The 100-DR-1 operable unit is located in the 100-D/DR Area of the Hanford Site, 30 miles north of Richland and adjacent to the Columbia River (see Figure 1 for location of the 100-DR-1 operable unit). The 100-D/DR Area contains two of the old reactors that are awaiting decommissioning along with their support facilities. There are also numerous waste sites within the 100-D/DR Area which were used in support of past operations. These include cribs, trenches, retention basins, septic tanks, etc. The 100-DR-1 operable unit covers the northern section of the 100-D/DR Area, where most of the liquid disposal sites are located. Nineteen waste sites are identified in the 100-DR-1 operable unit, which includes the 100-D Ponds. The 100-D Ponds currently receive liquid and are regulated as Resource Conservation and Recovery Act (RCRA) treatment storage and/or disposal units as a result of prior discharges. The 100-DR-1 operable unit is being addressed under RCRA corrective action authority. Ecology is the lead regulatory agency.

The Hanford Site



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Figure 1. Map of the Hanford Site Showing the Four National Priorities List Areas (1100, 300, 200, and 100 Areas), the First Operable Units Currently Being Worked, and the In Situ Vitrification Demonstration Site.

LOW-LEVEL BURIAL GROUNDS PART B PERMIT APPLICATION. The *Low-Level Burial Grounds Dangerous Waste Permit Application Rev. 0* (DOE-RL 1989b) was submitted to the EPA and Ecology for review. The submittal of the Part B Permit Application on schedule met the Interim Milestone M-20-06 date of December 31, 1989.

This permit application addresses the continued disposal of low-level radioactive mixed waste on the Hanford Site in RCRA qualified units. The permit application also addresses the disposal of the naval submarine reactor compartments. Currently, the majority of low-level mixed wastes generated on the Hanford Site are being stored to await construction of appropriate facilities for treatment and/or disposal.

INTERIM STATUS COMPLIANCE SCHEDULES. Treatment, storage and/or disposal facilities at the Hanford Site ultimately will undergo closure or will be permitted for operation. Until then, these facilities must come into compliance with RCRA interim status facility standards. Milestone M-22-00 required a schedule of corrective actions to be developed by December 31, 1989 for those facilities that do not yet meet interim status standards.

Negotiations were concluded to establish schedules for completion of compliance actions at interim status facilities at the Hanford Site. These schedules include interim milestones and target dates for 12 facilities. Finalization of the schedules and resulting milestones met the Milestone M-22-00 date of December 31, 1989. These interim milestones and target dates were added to the work schedule under Milestone M-23-00 as part of the annual update to the Tri-Party Agreement action plan.

RCRA GROUND WATER MONITORING WELLS. The installation of 29 RCRA monitoring wells by December 31, 1989, as required by Milestone M-24-00, has been completed.

RCRA groundwater monitoring wells are being installed at various locations on the Hanford Site to comply with RCRA groundwater monitoring requirements. Locations and installation of groundwater monitoring networks for Hanford Site facilities are prioritized based on regulatory requirements and monitoring needs. Determining well locations and priorities is accomplished during each annual update to the Tri-Party Agreement Work Schedule.

WORK SCHEDULE ANNUAL UPDATE. The first annual update to the work schedule contained in the Tri-Party Agreement was issued for public comment on December 22, 1989. The public comment period for the update ended January 30, 1990.

The annual update revised the previous work schedule by deleting calendar year 1989, providing monthly activity detail for calendar year 1990, and providing quarterly detail for calendar year 1991. A new calendar year, 1996, was added to the end of the work schedule. The annual update is in the same

format as the original work schedule. Target dates were adjusted as necessary. The milestone changes that were approved per Section 12.0 of the Tri-Party Agreement were also incorporated. Appendix B, identifying treatment, storage and disposal groups; Appendix C, identifying operable units; and Appendix E, identifying key individuals, were updated to incorporate any approved changes or other revisions agreed to by the parties. None of the changes made during the annual update resulted in delayed dates for the original milestones.

2.0 TECHNICAL STATUS

2.1 DISPOSAL OF TANK WASTES

SINGLE-SHELL TANK WASTE SAMPLING. Sampling of the single-shell waste storage tanks is being performed to develop data for the following:

- Support of the timely development of tank waste retrieval technology
- Assistance in preparation of the supplemental environmental impact statement (for determining final disposal or remediation of single-shell tank wastes)
- Preparation of single-shell tank closure plans.

Physically sampling the contents of the single-shell tanks is a complex process. This complexity stems from the radioactive and hazardous nature of the waste contained in the single-shell tanks, as well as the complexity of the equipment and the effects of weather. Sampling will involve the removal of at least two core samples from each of the 149 single-shell tanks, under the requirements of the Tri-Party Agreement. A tank core sample refers to the entire sample of waste, in core segments, taken from the top to the bottom of the waste contained in a particular tank; a core sample depth may vary from a few inches to more than 300 inches.

Single-shell tank sampling activity completed this quarter included obtaining the final core samples (15 total) from two reference sampling tanks. The completion of this initial sampling met Milestone M-10-03, which required the removal of the 15 core samples by December 31, 1989. The activity was completed ahead of schedule.

SINGLE-SHELL TANK INTERIM STABILIZATION. The single-shell tanks were used to store highly radioactive liquid wastes through the 1970's. The tanks are made of reinforced concrete with a single carbon steel liner. Eventually these tanks were taken out of service and replaced with double-shell tanks that were built in part to store liquid removed from the single-shell tanks. The free liquid in the single-shell tanks was concentrated by evaporation and pumped out, leaving (1) the liquid coating the saltcake, (2) the sludges contained within the tanks as part of operations, and (3) small, isolated pockets of freestanding liquid. An interim stabilization program is currently implementing processes for the removal of the pumpable liquid still contained within the single-shell tanks.

Planning for single-shell tank interim stabilization has been completed for fiscal year 1990. Milestone M-05-02 requires the interim stabilization of five additional tanks by September 1990. The remaining tanks in the BX tank farm (tanks 241-BX-106, 241-BX-107, 241-BX-109, 241-BX-110, 241-BX-111 and 241-BX-112) will be stabilized by September 1990.

Failures have occurred in flow meters used in the pumping of residual liquids from the single-shell tanks. These failures, combined with the long periods of time required to remove residual liquids from a tank, may potentially impact timely completion of Milestone M-05-02. Replacement of the failed equipment is receiving high priority in order to complete the milestone as planned.

SINGLE-SHELL TANK WASTE CHARACTERIZATION. The *Waste Characterization Plan for the Hanford Site Single-Shell Tanks* (Winters et al. 1989) describes the initial phase of a two-phase plan to characterize the mixed wastes stored in single-shell tanks on the Hanford Site. The waste characterization plan is based on the requirements of the RCRA and the *State of Washington Hazardous Waste Management Act*, (1976), and is used for characterizing radioactive waste under the *Atomic Energy Act of 1954*. The waste characterization plan represents an all-purpose plan to identify analytical requirements for regulatory performance assessment and technology, and some process development.

Activities related to the waste characterization plan during this quarter included providing responses to Ecology comments on the plan. Ecology has provided further comments that are currently under review. Resolution of some issues may require initiation of dispute resolution as provided for in the Tri-Party Agreement.

SINGLE-SHELL TANK CLOSURE/CORRECTIVE ACTION WORK PLAN. The single-shell tanks were used to store highly radioactive liquid wastes through the 1970's. The tanks are made of reinforced concrete with a single carbon steel liner. Eventually they were taken out of service and replaced by double-shell tanks that were built in part to store liquid removed from the single-shell tanks. During the 1970's, the volume of liquid wastes stored in the single-shell tanks was reduced by evaporating the liquids, leaving moist sludge and salt-cake in the tanks. The *Single-Shell Tanks System Closure/Corrective Action Work Plan* (DOE-RL 1989c) addresses activities associated with the final disposition of the single-shell tank operable units. This plan will serve as the basis for the more detailed documentation that will be prepared as work proceeds.

The work plan, which was originally submitted to Ecology and the EPA on September 29, 1989, is still undergoing review by the regulatory agencies. A program plan for closure of the single-shell tank operable units has been developed and is being reviewed by the DOE. This program plan will provide documentation of the required technology to support the work plan for closure of the six single-shell tank operable units. The program plan will be updated annually.

HANFORD WASTE VITRIFICATION PLANT. The Hanford Waste Vitrification Plant will immobilize pretreated high-level and transuranic waste that is stored in underground double-shell tanks on the Hanford Site. The facility will process the waste into a borosilicate glass waste form in stainless steel

canisters for temporary storage in the facility until shipment to an off-site federal geologic repository.

Preliminary design of the Hanford Waste Vitrification Plant continued as scheduled and will be completed in June 1990. The contract for the construction of the Hanford Waste Vitrification Plant has been awarded to United Engineers and Constructors.

TANK WASTE TREATABILITY STUDIES ANNUAL REPORTS. The annual reports of tank-waste-treatability studies will provide a listing (with abstracts or executive summaries) of applicable documents released to the public in the previous year. The first annual report, due in September 1990, will include documents released before the 1990 reporting year. The annual reports will also provide an annual status report of tank waste treatment activities in progress (i.e., waste minimization, saltwell pumping, pretreatment process flowsheet development, performance assessments, waste-treatability studies, etc.). The organization of the reports will be based on (1) three main classifications of tank wastes (newly generated wastes, existing double-shell-tank wastes, and existing single-shell-tank wastes) and (2) the long-term feasibility of grout or glass for disposal.

A letter was provided to Ecology with an annotated descriptive outline of the type of information that will be addressed in the September 1990 report. This action completed Interim Milestone M-04-01, which required the development and transmittal of this letter to Ecology by December 31, 1989.

2.2 CLEANUP OF PAST-PRACTICE UNITS

NATIONAL PRIORITIES LIST. The national priorities list is an ordered ranking of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. These sites were evaluated using the hazard ranking system and placed on the national priorities list in order of decreasing potential hazard. The hazard ranking system score normally establishes the priority in which remediation of the sites will be funded by the EPA. However, funding for remediation of federal national priority sites is provided by the responsible federal agencies, not the established CERCLA or "superfund".

On September 28, 1989, the EPA added all four of the Hanford Site areas to the national priorities list (as previously proposed). The addition to the national priorities list was finalized in October 1989, and consists of the 100, 200, 300 and 1100 Areas (see Figure 1 for location).

THE 1100-EM-1 OPERABLE UNIT. The 1100-EM-1 operable unit is the first of 78 operable units identified for investigation in the Tri-Party Agreement. It includes seven waste units in the southeastern corner of the Hanford Site in close proximity to the city of Richland, as shown in Figure 1. It has been used as a maintenance area, warehouse facility, and equipment storage yard in support of operations at the Hanford Site.

The following Phase 1 remedial investigation activities were completed or initiated in accordance with the approved 1100-EM-1 operable unit work plan:

- Near surface soil sampling for reconnaissance and remedial investigation has been completed at four waste units. Approximately 110 samples were collected. Results of sample analysis did not reveal any unexpected or unusual conditions for the waste units.
- Vadose zone drilling and sampling, began June 7, 1989; fifteen vadose holes were completed and approximately 145 samples were collected through December 31, 1989. Results of sample analysis did not reveal any unexpected or unusual conditions.
- Groundwater monitoring well drilling began November 11, 1989, with 8 wells completed by December 31, 1989.
- Data summaries and evaluation for risk assessment and cleanup objectives began November 4, 1989.
- Golder Associates Incorporated was selected in November as the contractor to write the Remedial Investigation Phase 1 Report and Feasibility Study Phase 1 and 2 Report. Work was begun on the feasibility study, which will identify alternatives for remedial action.

THE 200-BP-1 OPERABLE UNIT WORK PLAN. The 200-BP-1 operable unit is the first operable unit involving an investigation of waste units contaminated with radioactive substances such as tritium, cobalt, uranium, cesium, strontium, and plutonium. It is located approximately in the center of the Hanford Site, along the northern boundary of the 200 East Area (see Figure 1). The 200-BP-1 operable unit includes nine inactive cribs, as well as three unplanned release sites designated as waste units. The cribs received low-level liquid waste from U Plant uranium reclamation operations and waste storage tank condensate from the adjacent 241-BY Tank Farm. The 200-BP-1 operable unit is a high priority operable unit because of its possible contribution to groundwater contamination observed in the vicinity and because of its proximity to single-shell tanks.

The public comment period for the *Remedial Investigation/Feasibility Study Work Plan for the 200-BP-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989d) ended in early December, with no comments received from the public. However, the EPA has not yet approved the work plan, because certain items remain outstanding. These items involve revision of the work plan to include the following:

- A complete description of the laboratory quality assurance procedures that are to be followed
- The incorporation of site-wide performance assessments (that will investigate the possible results of various remedial actions)

- A revised schedule for field activities that the DOE plans to propose.

The EPA anticipates that the technical issues can be resolved in January 1990, resulting in work plan approval and initiation of field work, assuming an acceptable schedule is agreed upon.

THE 300-FF-1 WORK PLAN. Adjacent to the Columbia River, the 300-FF-1 operable unit is located in the northeastern corner of the 300 Area of the Hanford Site (see Figure 1), and is comprised of 19 waste units. These waste units include process trenches, retention basins, burial grounds, and process ponds, and received wastes from reactor fuel fabrication, laboratory operations, filter backwash from the water treatment plant, power house operation (flyash slurry), and sanitary sewers. The 300 Area process trenches will be closed, under RCRA requirements, in conjunction with a remedial investigation/feasibility study (RI/FS) work plan and subsequent remedial actions associated with the 300-FF-1 operable unit.

The *Draft Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989e) has not yet become available for public comment. The EPA anticipates that remaining issues will be resolved within the next two months, at which time the public comment period would begin. The EPA extended its review time for this work plan in November, because the DOE had submitted additional information near the end of the original review period. This information consisted of a new proposal for field screening activities and a proposed quality assurance strategy document that would apply to all operable units. The field screening method for metals, a significant contaminant in this area, appears to be appropriate in this case and should result in a significant cost reduction for the investigation. The quality assurance issues have been resolved, and the work plan has been revised accordingly. In December, the EPA requested a 60-day extension of the work plan review to synchronize schedules with the 300-FF-5 operable unit work plan. The 300-FF-5 is the groundwater operable unit that underlies the source operable units 300-FF-1, 300-FF-2, and 300-FF-3. At this time, the only remaining issues to be addressed are the integration of the source operable unit and the schedule for field activities.

THE 300-FF-5 WORK PLAN. The 300-FF-5 operable unit is a groundwater operable unit and consists of the aquifer beneath the 300-FF-1, 300-FF-2, and 300-FF-3 operable units. Ultimately, the extent of the operable unit will include all significant contamination emanating from 300-FF-1, 300-FF-2, and 300-FF-3 detected below the water table. The 300-FF-5 operable unit is located adjacent to the Columbia River, on the southeasternmost section of the Hanford Site in Benton County, Washington.

The *Draft Remedial Investigation/Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington* (DOE 1989f) is still in review. The EPA submitted its first set of comments to the DOE in late November 1989. The DOE is scheduled to respond with a revised work

plan by January 26, 1990. The EPA has suggested that the DOE scale back some of the investigative work proposed in the work plan, and that the overall schedule should be significantly shortened. Depending on the completeness of the revised document, public comment on this work plan could begin as early as mid-March.

THE 100-HR-1 AND 100-HR-3 OPERABLE UNIT WORK PLANS. The 100-HR-1 and 100-HR-3 operable units are located in the 100 Area of the Hanford Site (see Figure 1), adjacent to the Columbia River. The 100-HR-1 operable unit is situated within the 100-H Area of the Hanford Site and is comprised of 10 waste units that include percolation cribs and trenches, burial grounds, and evaporation basins. Present in these waste units are process liquid wastes, reactor exhaust stack emissions, radioactive solid wastes, sanitary liquid wastes, and reactor fuel fabrication wastes.

The 100-HR-3 unit is a 'groundwater only' operable unit (a geographic area that represents the potential extent of groundwater contamination and addresses only the groundwater contaminants) that addresses the groundwater plume(s) associated with the 100-HR-1, 100-HR-2, 100-DR-1, 100-DR-2, and 100-DR-3 operable units. Both the 100-HR-1 and 100-HR-3 operable units are being addressed under RCRA corrective action authority.

Ecology submitted its initial technical comments on the *Draft Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for the 100-HR-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989g) on October 12, 1989. The original review period was extended by Ecology, primarily because of a lack of Ecology's contractor support in assisting with technical aspects of the review. The DOE provided a response to Ecology's technical comments on December 4, 1989, but submission of the revised work plan was put on hold pending resolution of programmatic issues raised by Ecology. This is the first work plan to be developed under the RCRA process, and Ecology is working closely with the DOE and the EPA to ensure that the content of this work plan meets the technical requirements of the RCRA regulations and guidance, and that the technical content is equivalent to that of CERCLA work plans. In addition to the programmatic issue, which should be resolved very soon, Ecology expressed the same concerns about 300-FF-1 and 300-FF-5 regarding integration of activities for the source operable unit (100-HR-1) and its associated groundwater operable unit (100-HR-3).

On October 20, 1989, Ecology submitted its initial technical comments on the *Draft Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for the 100-HR-3 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989h). The work plan review status is the same as described above for the 100-HR-1, with the addition of one other issue that involves the DOE's proposed schedule for field work. Ecology believes the schedule can be shortened significantly.

THE 100-DR-1 OPERABLE UNIT WORK PLAN. The 100-DR-1 operable unit is in the 100-D/DR Area of the Hanford Site, 30 miles north of Richland and adjacent to the Columbia River (see Figure 1 for location of the 100-DR-1 operable unit). The 100 D/DR Area contains two of the old reactors currently awaiting decommissioning along with their support facilities. There are also numerous waste units within the 100-D/DR Area that were used in support of past operations. These include cribs, trenches, retention basins, and septic tanks. The 100-DR-1 operable unit covers the northern section of the 100-D/DR Area, where most of the liquid disposal sites are located. There are 19 waste units identified in the 100-DR-1 operable unit, which includes the 100-D Ponds that currently receive liquid and are regulated as RCRA treatment, storage and/or disposal units as a result of prior discharges. The 100-DR-1 operable unit is being addressed under RCRA corrective action authority. Ecology is the lead regulatory agency.

The *Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for the 100-DR-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989a) was undergoing review by the EPA and Ecology during the quarter ending December 31, 1989. Ecology will transmit its initial comments on the work plan to the DOE by April 16, 1990. The parties believe that resolving the issues with 100-HR-1 and 100-HR-3 before focusing attention on 100-DR-1 will be more productive, since many of the same concerns apply to each of the operable units.

THE 100-BC-1, 100-BC-5, 100-KR-1 AND THE 100-KR-4 OPERABLE UNIT WORK PLANS.

Work began on the preparation of the 100-BC-1, 100-BC-5, 100-KR-1, and 100-KR-4 operable unit work plans during the quarter ending December 31, 1989. Preparation of 100-BC-1 and 100-BC-5 work plans was begun in November, and the preparation of 100-KR-1 and 100-KR-4 work plans started in December 1989. These work plans are being prepared for submittal to the EPA and Ecology, per the milestones contained in the Tri-Party Agreement Work Schedule.

IN SITU VITRIFICATION DEMONSTRATION. The in situ vitrification process was developed by Pacific Northwest Laboratories to provide significantly lower leach properties of metal ions and to degrade organic materials to reduce the hazard of contaminated soils without exhumation. An array of four electrodes is inserted into the ground and a 'starter path' of electrically conductive material is placed between the electrodes. An electric current is passed between the electrodes and through the starter path, creating temperatures high enough to melt the starter path and the soil beneath it. As the molten zone grows downward and outward to a depth of approximately 20 ft, it encompasses the contaminated soil and incorporates the radionuclides and hazardous elements into a glass-like form, while destroying organic components by pyrolysis. A hood placed over the area being treated directs the gaseous effluents to an offgas treatment system. Upon cooling, the product of in situ vitrification is a glass-like mass of high strength and enhanced chemical integrity.

Preparations continued on the in situ vitrification equipment and the 116-B-6A site (see Figure 1 for location) for the treatability test. Chemical analyses from the 116-B-6A site characterization show the presence of radionuclides and small amounts of hazardous metals (lead and chromium). The presence of these materials provides appropriate conditions to demonstrate treatment by in situ vitrification on these types of very low-level mixed wastes. Four twelve-inch-diameter electrodes were installed into the soil at the site. Three groundwater monitoring wells were also installed to verify that the test does not impact the groundwater below the site. Responses to the comments of EPA and Ecology on the test were also completed during the quarter ending December 31, 1989.

2.3 PERMITTING AND CLOSURE OF TREATMENT, STORAGE AND DISPOSAL UNITS

THE 183-H SOLAR EVAPORATION BASINS CLOSURE. The 183-H Solar Evaporation Basins are located in the 100-H Area, which is near the northern end of the Hanford Site. Four of the 100-H Area deactivated concrete basins, (formerly used for water treatment) were designated for use as solar evaporation basins in 1973. The basins were used for the storage/treatment of radioactive mixed wastes generated at the N Reactor fuel-fabrication facilities. The last shipment of wastes to the 183-H Basins took place in November 1985.

During the quarter ending December 31, the closure of the 183-H Evaporation Basins included the following activities.

- The removal/solidification of liquid waste from basins 2 and 3 was completed in October 1989.
- A total of 1,578 drums of waste was removed/solidified since the start of solidification and was shipped to the Central Waste Complex.
- Cleanup of the remaining solid material in basins 2 and 3 (estimated at 20,000 ft³) began in December 1989.
- Work continued on final revisions to the closure plan, which will be resubmitted to Ecology in April 1990.

A 216-B-3 POND CLOSURE PLAN. The 216-B-3 Pond has served as a disposal facility at the 200 East Area on the Hanford Site. The pond has received process and cooling waters from the Plutonium Uranium Extraction Plant (PUREX), B Plant, and other 200 Area facilities. The 216-B-3 Pond has also received potentially corrosive dangerous wastes from the regeneration of demineralizer columns in PUREX. These wastes were neutralized before reaching the pond by successive additions of acidic and caustic wastes.

Closure activities completed this quarter included the development of a draft closure plan that is undergoing internal review in preparation for submittal to Ecology in March 1990.

THE 305-B STORAGE FACILITY PART B PERMIT APPLICATION. The 305-B Storage Facility is a waste assembly area that services research and development operations as a 300 Area satellite storage area. Wastes are brought into the facility for storage, repackaging, and/or consolidation of wastes, generally into 55 gal drums. The storage design capacity is 30,000 gal.

A draft Part B permit application for the 305-B Storage Facility was undergoing final reviews and assembly at the end of the quarter in preparation for submittal to the EPA and Ecology in January 1990, per Interim Milestone M-20-08.

THE 242-A EVAPORATOR PART B PERMIT APPLICATION. Process waste stored in Hanford Site underground tanks has been routinely evaporated in the 242-A Evaporator to allow for more storage volume in the double-shell tanks and to reduce the volume of waste that must be disposed of eventually. The 242-A evaporator-crystallizer that is located in the 200 East Area of the Hanford Site performs the waste concentration. The facility employs a conventional forced-circulation, vacuum evaporation system to concentrate the radioactive waste solutions.

Work began on a permit application for the 242-A Evaporator. The work is centering around defining the permit application scope and strategy, particularly regarding considerations of facility design changes to accommodate liquid waste effluents (see section 2.4).

A PERMIT APPLICATION FOR THE DOUBLE-SHELL TANKS. The Hanford Site has 28 double-shell tanks to store radioactive liquid and slurry, much of which has been transferred and concentrated from single-shell tanks. The double-shell tanks are equipped with two carbon steel shells with leak detection capability for monitoring the integrity of the inner shell. Double-shell tanks have been used since 1971, but were used exclusively since 1980, when single-shell tanks were retired from service.

Work was begun for a permit application for the double-shell tanks. The work is centering around defining scope and strategy of permit applications, particularly regarding transfer lines and vaults associated with this waste management unit.

A CLOSURE PLAN FOR THE NONRADIOACTIVE DANGEROUS WASTE LANDFILL. The Nonradioactive Dangerous Waste Landfill is a waste disposal facility located approximately 2 miles southeast of the 200 East Area. The Nonradioactive Dangerous Waste Landfill was used for the disposal of dangerous wastes generated by various sources on the Hanford Site. Some of these sources

included process operations, research and development laboratories, and maintenance and transportation functions throughout the Hanford Site.

Work has been initiated on the preparation of a closure/postclosure plan for the Nonradioactive Dangerous Waste Landfill. An action plan has been developed to guide the preparation of the closure/postclosure plan for submittal to Ecology and the EPA by August 31, 1990, in fulfillment of Milestone M-20-07.

2727-S STORAGE FACILITY CLOSURE PLAN. The 2727-S Nonradioactive Dangerous Waste Storage Facility is located in the southeastern portion of the 200 West Area. It provided container storage for nonradioactive dangerous wastes generated by the research and development laboratories, process operations, and maintenance and transportation functions throughout the Hanford Site.

The DOE received a notice of deficiency on the *2727-S Nonradioactive Dangerous Waste Storage Facility Closure Plan* (DOE-RL 1988) and reviewed it with Ecology in August 1989. Responses to the notice of deficiency are being prepared for reconsideration by Ecology.

HANFORD WASTE VITRIFICATION PLANT PERMIT APPLICATION. The Hanford Waste Vitrification Plant will immobilize pretreated high-level and transuranic waste stored in underground double-shell tanks at the Hanford Site. The facility will process the waste into a borosilicate glass waste form in stainless steel canisters for temporary storage in the facility until shipment to an offsite federal geologic repository.

The first notice of deficiency on the *Hanford Waste Vitrification Plant Dangerous Waste Permit Application* (DOE-RL 1989i) was received from Ecology. Numerous comments addressing the scope and detail of the application were identified. Responses to the comments are being prepared for submittal to Ecology.

A CLOSURE PLAN FOR THE 2101-M POND. The 2101-M Pond is a U-shaped earthen pond located in the 200 East Area of the Hanford Site. The pond was constructed in 1953 to receive nondangerous waste water from the 2101-M building. Sampling has verified that no dangerous waste inventory exists at the 2101-M Pond that would require removal, transportation, treatment, storage, or disposal.

The following 2101-M closure activities occurred during the quarter ending December 31, 1989.

- The first notice of deficiency comments from Ecology were received on December 4, 1989. These notice of deficiency comments have been reviewed and the DOE response is being prepared.

- The first semiannual groundwater samples for the four 2101-M Pond monitoring wells were taken and sent for analyses during the period of November 21 through November 28, 1989. These samples are to have the 'long list' constituent analyses performed.
- The required contingent design and postclosure monitoring plans were drafted and were undergoing review.

PETITIONS TO WITHDRAW PART A AND PART B PERMIT APPLICATIONS Pursuant to Milestone M-20-45, petitions for withdrawal of Part A and Part B permit applications for five Hanford Site facilities were originally submitted to Ecology in June 1989. These facilities were never used for the treatment, storage, or disposal of hazardous or mixed waste. In August 1989, Ecology approved the withdrawal of permit applications for the following facilities.

- The 2727-WA Sodium Storage Facility is a prefabricated metal building used to store metallic sodium in 55-gal drums. Analysis of the regulations has determined that the stored sodium is not waste. There are no plans to store dangerous waste in this facility.
- The 332 Storage Facility is a prefabricated metal building used as a short-term (less than 90 days) waste storage facility. The building was never purposely operated as a long-term (more than 90 days) waste storage facility and will not be needed for long-term storage.

Accordingly, these facilities were removed from the Tri-Party Agreement Action Plan, Appendix B (listing of treatment, storage and disposal groups/units) during the annual update process.

Ecology has requested additional information to support the requests for the withdrawal of interim status for two other facilities.

- The 221-T Alkali Metal Treatment and Storage Facility is a research laboratory where experiments are performed using alkali metal compounds. The waste generated by the tests and experiments is shipped off the premises for disposal. There are no plans for waste treatment at the facility.
- The 324 Sodium Removal Pilot Plant was originally built to develop and demonstrate processes for sodium removal. Analysis of the regulations showed that sodium removal is not a waste management activity.

The Part A withdrawal requests for the two facilities (221-T and 324 facilities) are being revised and will be resubmitted in January 1990 in accordance with the new M-23-02 Interim Milestone.

The following facility is under evaluation to determine future permitting actions.

- The 1706-KE Waste Treatment Facility is a laboratory that is used to conduct water quality, filtration, and corrosion studies in support of N Reactor systems. The facility was not used for treatment of dangerous or mixed waste and there are no plans to do so.

Pursuant to Milestone M-20-46, petitions to withdraw interim status (Part A Permit application) and to manage five dangerous waste treatment facilities under treatment by generator status were originally submitted to Ecology in June 1989. Treatment by generator status facilities are those waste-generating facilities that perform some treatment of their hazardous wastes within compliant accumulation tanks or containers. Approval of facilities for treatment by generator status is determined case by case on the basis of several factors related to the safety of the treatment process. In October 1989, Ecology denied these requests, based mainly upon inadequate waste analysis data.

Pursuant to the new M-23-01 Interim Milestone, the requests will be resubmitted in June, 1990, after additional waste analysis data is gathered for the following facilities.

- The T Plant Treatment Tank 15-1 receives mixed waste generated during equipment decontamination activities at building 221-T and the adjacent building 2706-T.
- The 222-S Treatment Tanks receive mixed waste generated by (1) disposal of process and environmental samples and (2) decontamination operations.
- The PUREX Treatment Tanks receive mixed waste from fuel element decladding operations at the PUREX facility.
- The 204-AR Waste Unloading Station receives and treats wastes that are generated from operations in the 100-N Area, 300 Area, and 400 Area.

The remaining request will be resubmitted six months after operating processes at the Plutonium Finishing Plant have been restarted and additional waste samples can be obtained for the following facilities.

- The 241-Z Treatment Tank receives liquid mixed waste from the Plutonium Finishing Plant process operations, and developmental and analytical laboratories.

INTERIM STATUS COMPLIANCE. New interim milestones and target dates have been established through completion of Milestone M-22-00 and have been added to Milestone M-23-00 as part of the annual update to the Work Schedule. The annual update to the work schedule was undergoing public comment at the end

of the quarter. These new interim milestones establish schedules for completion of interim status corrective actions at treatment, storage and/or disposal facilities on the Hanford Site. In general, significant progress was made in completing environmental corrective actions identified during the self-assessments of these facilities. Over 65 percent of the potential deficiencies identified during the assessments have been corrected.

LIQUID EFFLUENT TREATMENT AND DISPOSAL (M-17-00). The current status of liquid effluent treatment and disposal activities, as compared to the plan included in the Tri-Party Agreement (Milestone M-17-00), is displayed in Appendix A.

The following describes technical progress achieved over the last quarter in liquid effluent and disposal activities.

- The T Plant Drain Header Rerouting and T Plant Chemical Sewer Neutralization System projects have been combined as previously reported. A new schedule has been developed and the Tri-Party Agreement work schedule has been revised to reflect this approach through the annual work schedule update. The upgrade will reroute floor drains that have a potential for receiving corrosive material to a sump, which will have neutralization capability installed. Construction of the project began in December 1989, and completion is expected by the end of June 1991.
- Construction of the 211-T Chemical Storage Area Upgrades began in November 1989 with completion expected by the end of September 1990.
- The B-Pond Bypass System Project construction is continuing ahead of schedule for completion of Interim Milestone M-17-01. This system will allow the early start of decommissioning the main B Pond and rerouting of the liquids directly to the B Pond lobes.
- Conceptual design for the 200 Area Treated Effluent Disposal Facility was completed in January 1990 and has begun internal review and approval. This facility will provide the required treatment of Phase II streams and any final treatment of Phase I streams before disposal. (Effluent streams have been assigned priorities for treatment and disposal system implementation. Phase I streams have a higher priority than Phase II streams.)
- Internal review of conceptual design of the 300 Area Process Sewer Effluent Treatment Facility began in December 1989. Milestone M-17-09 ("complete 300 Area waste treatment system") is currently considered to be on schedule; however, the alternatives that are being developed to meet milestones M-17-05 and M-17-06 may obviate the need for this facility. The entire treated effluent facility as designed is not expected to meet the December 1991 Milestone (M-17-06); however, a task force has been assigned to consider alternative routes to cease discharge to the 300 Area process trenches, as specified in the Tri-Party Agreement. Alternatives,

incorporating various concepts, will be reported at the end of March 1990, satisfying the Milestone M-17-05 ("select treatment option and establish schedule").

2.4 OTHER TRI-PARTY AGREEMENT ACTIVITIES AND ISSUES

WORK SCHEDULE ANNUAL UPDATE. The first annual update to the work schedules contained in the Tri-Party Agreement revised the previous work schedule by deleting calendar year 1989, providing monthly activity detail for calendar year 1990, and providing quarterly detail for calendar year 1991. A new calendar year, 1996, was added to the end of the work schedule. The annual update is in the same format as the original work schedule, with the addition and adjustment of target dates, and incorporation of approved milestone changes, if any, in accordance with Section 12 of the Tri-Party Agreement Action Plan. Appendix B (identifying treatment, storage and disposal groups), Appendix C (identifying operable units), and Appendix E (identifying key individuals) were updated to incorporate any approved changes or other revisions agreed to by the parties. None of the changes made during the annual update resulted in delayed dates for the original milestones. The annual update was made available for public comment between December 22, 1989 and January 30, 1990. No public comments were received.

COMMUNITY RELATIONS PLAN CHANGES. As required by environmental laws applicable to the cleanup of the Hanford Site, a Community Relations Plan has been developed. The Community Relations Plan lists specific community relations activities that the three parties will conduct during the cleanup and permitting at the Hanford Site. The plan also lists contacts from each of the three parties, who are available to answer questions and provide information. In addition, the Community Relations Plan describes the Hanford Site background, history of community involvement, and community concerns regarding the Hanford Site.

Proposed changes to the Community Relations Plan have been compiled and issued for public comment. The proposed changes were issued on December 22, 1989, in parallel with the 1990 annual update to the Tri-Party Agreement.

TRI-PARTY AGREEMENT CHANGES. Since the signing of the Tri-Party Agreement on May 15, 1989, several areas requiring changes have become apparent. These changes range from updating the Richland address for the administrative record to incorporating land disposal restriction compliance actions. The changes were in the development and review stage at the end of 1989. These proposed changes to the Tri-Party Agreement will be subject to public comment.

LIQUID EFFLUENT STUDY. The *Draft Liquid Effluent Study Project Plan Revision 1* (WHC 1989) provides a plan and schedule to characterize Hanford Site liquid effluents, assess waste disposal sites and groundwater

contamination in area wells, and evaluate the potential for contaminant migration within receiving soil sites (i.e., flow and transport characteristics). The project plan continues to be under consideration by Ecology and the EPA. Work on the project is proceeding in accordance with the study plan.

Additional bimonthly status reports, as specified in the project plan, were issued during the quarter ending December 31, 1989. The August/September report was issued in November 1989, and the October/November report was issued January 3, 1990.

POTENTIAL OF LISTED WASTE IN THE 242-A EVAPORATOR FACILITY. Process waste stored in Hanford Site underground tanks has been routinely evaporated to allow for more storage volume in the double-shell tanks and to reduce the volume of waste that must be disposed of eventually. The 242-A evaporator-crystallizer located in the 200 East Area of the Hanford Site is currently used for this task.

The evaporator was shut down on April 12, 1989, when it was determined that the evaporator waste feed may contain low levels of RCRA hazardous constituents. It is possible that these constituents were derived from a RCRA listed waste. In addition, the presence of ammonia has resulted in regulation of the waste stream as a toxic dangerous waste. In this case, continued discharge of condensate to the crib is precluded by RCRA statutory prohibitions against placement of liquids into hazardous waste landfills.

Operation of the evaporator is important to several Tri-Party Agreement milestones, including 1) completion of 14 grout campaigns by September 1994 (Milestone M-01-00), 2) completion of single-shell tank interim stabilization by September 1995, and 3) initiation of B Plant waste pretreatment by October 1993. Other Tri-Party Agreement milestones that may be affected are the initiation of the Hanford Waste Vitrification Plant operations by December 1999 and the initiation of a full-scale demonstration of single-shell tank waste retrieval by October 1997. These milestones are all dependent upon the availability of double-shell tank space.

The importance of the 242-A Evaporator issue was recognized before the Tri-Party Agreement was signed, and the DOE, EPA and Ecology agreed to give high priority to resolution of this issue. Currently a project is being developed to deal with the interim storage, treatment and disposal of the 242-A Evaporator process condensate, PUREX ammonia scrubber distillate, and PUREX process condensate. This project is aimed at enabling the restart of the 242-A Evaporator in order to relieve some of the impacts on the above-mentioned milestones.

DISPOSITION OF DEVELOPMENT AND PURGEWATER FROM GROUNDWATER MONITORING ACTIVITIES. Groundwater monitoring wells have been installed and are being constructed to meet groundwater monitoring requirements at wastesites regulated by RCRA and CERCLA. After the drilling process is complete, a certain amount of development water must be removed to eliminate any foreign material that was introduced during the drilling process, allowing collection

of a sample that is representative of the groundwater. The wells are pumped for a sufficient time to allow temperature, pH, and specific conductivity to equilibrate before each sampling. This purging ensures that stagnant water in the well is removed, allowing collection of a representative sample. In some locations at the Hanford Site, the groundwater may contain listed wastes or exhibit hazardous waste characteristics that prevent the disposal of untreated development water and purgewater.

Development of temporary storage facilities to handle development and sampling purgewater under a compliance plan between the DOE, EPA and Ecology, combined with measures to strictly limit the generation of purgewater, has enabled the DOE to meet Milestone M-24-00 and its associated interim milestones (see Highlights Section).

The status of interim storage and treatment are as follows.

1. Immediate Storage The 100-K West Area storage tanks (2 of 180,000 gallons capacity each) were readied for the receipt of purgewater.
2. Interim Storage The first of the planned modutanks of one million gallons capacity each was mechanically completed in December 1989. A second modutank will be ready in January 1990.
3. Treatment An engineering study that recommends solar evaporation as the treatment of choice for purgewater is in final review. Regulatory review is proceeding to determine if the modutanks could satisfactorily provide this treatment. Other treatment options are also being considered.

The following measures have been put into effect at the Hanford Site to strictly limit the generation of purgewater until treatment facilities are in place.

1. Well development pumping to remove the artifacts of drilling and prepare the well to produce a representative sample of the groundwater has been put under strict technical control. Each well is now averaging about 1,000 gallons of development water with these procedures, rather than the 5,000 gallons previously anticipated.
2. Sample purgewater procedures have been reviewed, and as a result, purging during sampling is being limited to an amount necessary for obtaining a representative sample.
3. Gross aquifer testing to determine the transport characteristics of the unconfined aquifer at RCRA well sites was suspended until adequate purgewater treatment facilities are available. Studies are in progress to review aquifer test results from the many

monitoring wells drilled during operations at the Hanford Site, and to adapt procedures to limit the amount of water pumped from the aquifer during any future aquifer tests that may be required.

3.0 ACTIVITIES PLANNED FOR THE QUARTER ENDING MARCH 30, 1989

3.1 DISPOSAL OF TANK WASTES

SINGLE-SHELL TANK INTERIM STABILIZATION. The following major single-shell tank stabilization activities are expected to be completed during the quarter ending March 30, 1990.

- The obtainment of liquid samples from each tank scheduled to be stabilized
- The refurbishment, testing, and installment of required pumping equipment to perform stabilization on selected tanks
- The conducting of "readiness reviews" for the pumping of the selected tanks
- The design of a double encased overground piping system to transport the removed liquids to the double-shell tanks
- The start of pumping liquids from the selected single-shell tanks to achieve interim stabilization.

SINGLE-SHELL TANK WASTE CHARACTERIZATION. The resolution of the issues that developed during the reviews by Ecology and the EPA may require initiation of dispute resolution as provided for in the Tri-Party Agreement. Efforts will continue to reach resolution without utilizing formal dispute resolution.

SINGLE-SHELL TANK CLOSURE/CORRECTIVE ACTION WORK PLAN. Comments on the *Single-Shell Tank System Closure/Corrective Action Work Plan* (DOE-RL 1989c) are expected back from Ecology and the EPA on the work plan. Resolution of comments will also be initiated during the quarter ending March 30, 1990.

Conceptual design of the retrieval test facility will be initiated during the quarter ending March 30, 1990. This facility will be used to test, demonstrate, and evaluate single-shell tank waste retrieval technology.

HANFORD WASTE VITRIFICATION PLANT. Detailed design of the Hanford Waste Vitrification Plant will begin during the quarter ending March 30, 1990.

3.2 CLEANUP OF PAST-PRACTICE UNITS

THE 200-BP-1 OPERABLE UNIT WORK PLAN. In February 1990, after resolution of the comments, the *Remedial Investigation/Feasibility Study Work Plan for*

the 200-BP-1 Operable Unit, Hanford Site, Richland, Washington (DOE-RL 1989d) will be resubmitted to Ecology and the EPA for approval.

THE 300-FF-1 WORK PLAN. The final comments from the EPA on the *Draft Remedial Investigation/Feasibility Study Work Plan for the 300-FF-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989e) are expected back next quarter. Public comment on the work plan was postponed until March 1990 to coincide with the review of the 300-FF-5 work plan (this is the groundwater operable unit that underlies the 300-FF-1 source operable unit).

THE 300-FF-5 WORK PLAN. Public comment is expected to take place on the *Draft Remedial Investigation/Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989f).

THE 100-HR-1 AND 100-HR-3 OPERABLE UNIT WORK PLANS. Programmatic comments are expected from Ecology in January 1990 on the *Draft Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for the 100-HR-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989g) and the *Draft Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for the 100-HR-3 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989h).

THE 100-DR-1 OPERABLE UNIT WORK PLAN. Ecology reviews will continue during the quarter ending March 30, 1990, on the *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-DR-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1989a).

THE 100-BC-1, 100-BC-5, 100-KR-1 AND THE 100-KR-4 OPERABLE UNIT WORK PLANS. Work will continue on the preparation of the 100-BC-1, 100-BC-5, 100-KR-1 and 100-KR-4 operable unit work plans during the quarter ending March 30, 1990. These work plans are being prepared for submittal to the EPA and Ecology according to the milestones contained in the Tri-Party Agreement work schedule.

IN SITU VITRIFICATION DEMONSTRATION. Work will continue on preparation of the in situ vitrification equipment and the 116-B-6A site (see Figure 1 for location) for the treatability test. The electrodes will be connected to the in situ vitrification power conditioning system, and a metal hood will be placed over the area to be treated. The hood will then be connected to the offgas treatment system. The treatability test is scheduled for February 1990, and will convert approximately 800 tons of contaminated soil into a glass-like material.

3.3 PERMITTING AND CLOSURE OF TREATMENT, STORAGE AND DISPOSAL UNITS

Work will continue during the quarter ending March 30, 1990 on the closure/postclosure plan for the Nonradioactive Dangerous Waste Landfill.

The following are permitting or closure documents planned for submittal to Ecology and the EPA during the quarter ending March 30, 1990.

- A part B permit application for the 305-B Waste Storage Facility
- A closure/postclosure plan for the 216-B-3 Pond.

Notice of deficiency responses will be provided to Ecology during the quarter ending March 30, 1990 on the following activities:

- The *2101-M Pond Interim Status Closure Plan, Rev. 2* (DOE-RL 1989j)
- The *616 Nonradioactive Dangerous Waste Storage Facility Dangerous Waste Permit Application* (DOE-RL 1989k)
- The *Hanford Waste Vitrification Plant Dangerous Waste Permit Application* (DOE-RL 1989i)
- The *Grout Treatment Facility Dangerous Waste Permit Application* (DOE-RL 1989l)
- The *Closure Plan: Simulated High Level Waste Slurry Treatment and Storage (SHLWS T/S) Unit* (PNL 1989).

The following interim status compliance actions will be completed during the quarter ending March 30, 1990 to achieve newly developed interim milestones under Milestone M-23-00 (see "Interim Status Compliance Schedules" in the Highlights Section of this report).

- Part A permit withdrawal requests will be resubmitted for the 221-T Containment System Test Facility and the 324 Sodium Removal Pilot Plant per Interim Milestone M-23-02 (note that this is an interim milestone that was added to the work schedule during the annual update).
- A waste analysis will be obtained to complete interim status compliance actions for the 222-S Storage Pad per Interim Milestone M-23-07 (note that this is an interim milestone that was added to the work schedule during the annual update).

300 AREA PROCESS TRENCHES. Final internal review of the conceptual design of the 300 Area Process Sewer Effluent Treatment Facility will be completed during the quarter ending March 30, 1990, with approval expected.

Alternatives will be reported at the end of March 1990 to meet the Milestone M-17-05 ("select treatment option and establish schedule").

3.4 OTHER TRI-PARTY AGREEMENT ACTIVITIES

WORK SCHEDULE ANNUAL UPDATE. The Public comment period on the annual update to the Tri-Party Agreement work schedule ended January 30, 1990. No public comments were received. The annual update will be finalized and approved during the quarter ending March 30, 1990.

COMMUNITY RELATIONS PLAN CHANGES. Public comment period on the revised Community Relations Plan ended January 30, 1990. No public comments were received. The revised Community Relations Plan will be finalized and approved during the quarter ending March 30, 1990.

TRI-PARTY AGREEMENT CHANGES. Development of the necessary changes to the Tri-Party Agreement will be completed during the quarter ending March 30, 1990, and made available for public comment.

ALTERNATIVES TO LAND DISPOSAL OF RADIOACTIVE MIXED WASTES. The annual report on studies and efforts that are in progress to identify alternatives to land disposal of radioactive mixed wastes will be completed. This report will be completed by March 31, 1990, to achieve Milestone M-25-00.

4.0 WORK SCHEDULE STATUS THROUGH DECEMBER 31, 1989

The status of many of the Tri-Party Agreement activities was discussed in the Highlights and Technical Status sections of this report. As of December 31, 1989, all major and interim milestones were completed on or ahead of schedule. Appendix A contains the Tri-Party Agreement work schedule, which is statused with a vertical dashed line indicating progress on milestones.

Of particular note, as pointed out in previous quarterly progress reports, are the schedule deviations reflected for Milestone M-17-00, ("Complete Liquid Effluent Treatment Facilities/Upgrades For All Phase I Streams"). Much of the effort on liquid effluent treatment over the last few months was directed toward performance of engineering studies. These studies evaluate the viable treatment alternatives and support decisions on how to proceed. As a result of these studies, some of the plans shown in the 1988 *Annual Status Report of the Plan and Schedule to Discontinue Disposal of Contaminated Liquids into the Soil Column at the Hanford Site* (Stordeur et al. 1988) have changed. The parties have worked together during the 1990 annual update to the work schedule to better reflect the revised plan. The 1995 major milestone is not affected.

Notes are provided on the work schedule to explain the significant deviations. Also included as part of the work schedule (see Appendix B) is Table D-4 of the Tri-Party Agreement Action Plan which reflects the status of interim status compliance actions. This table will be removed from the next quarterly progress report because the remaining actions have now been incorporated into the new work schedule as interim milestones under Milestone M-23-00. Those items shown as AR (action required) will be statused next quarter as part of the new work schedule.

5.0 REFERENCES

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APPENDIX A

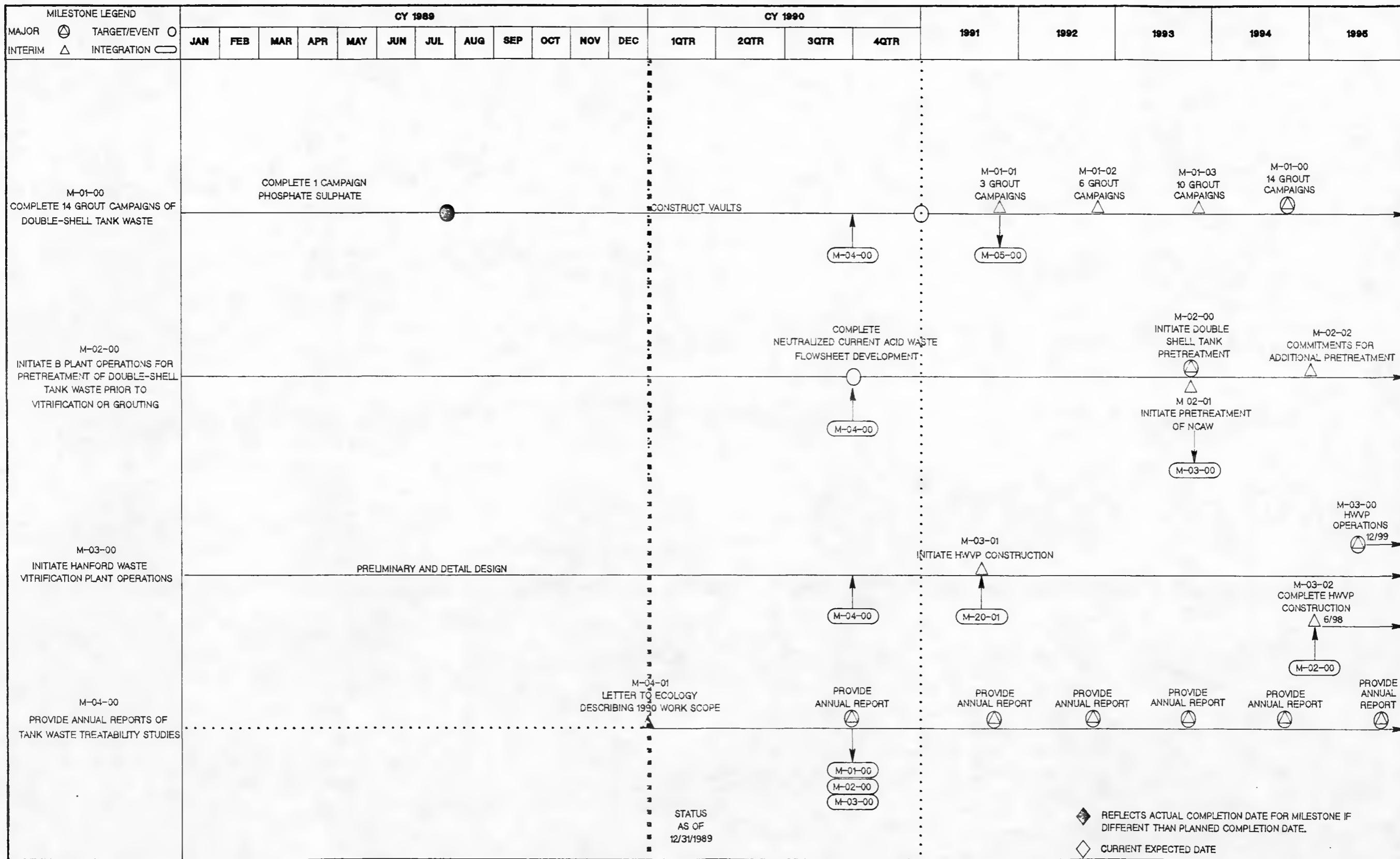
**THE HANFORD FEDERAL FACILITY AGREEMENT AND
CONSENT ORDER ACTION PLAN WORK SCHEDULES**

The following schedules include status lines to show the progress of activities toward the respective milestone or target date. The vertical status lines show actual progress as of December 31, 1989. Movement of the line to the left indicates work behind schedule, and movement to the right indicates work ahead of schedule. Notes have been included in some cases to explain a particular status.

FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

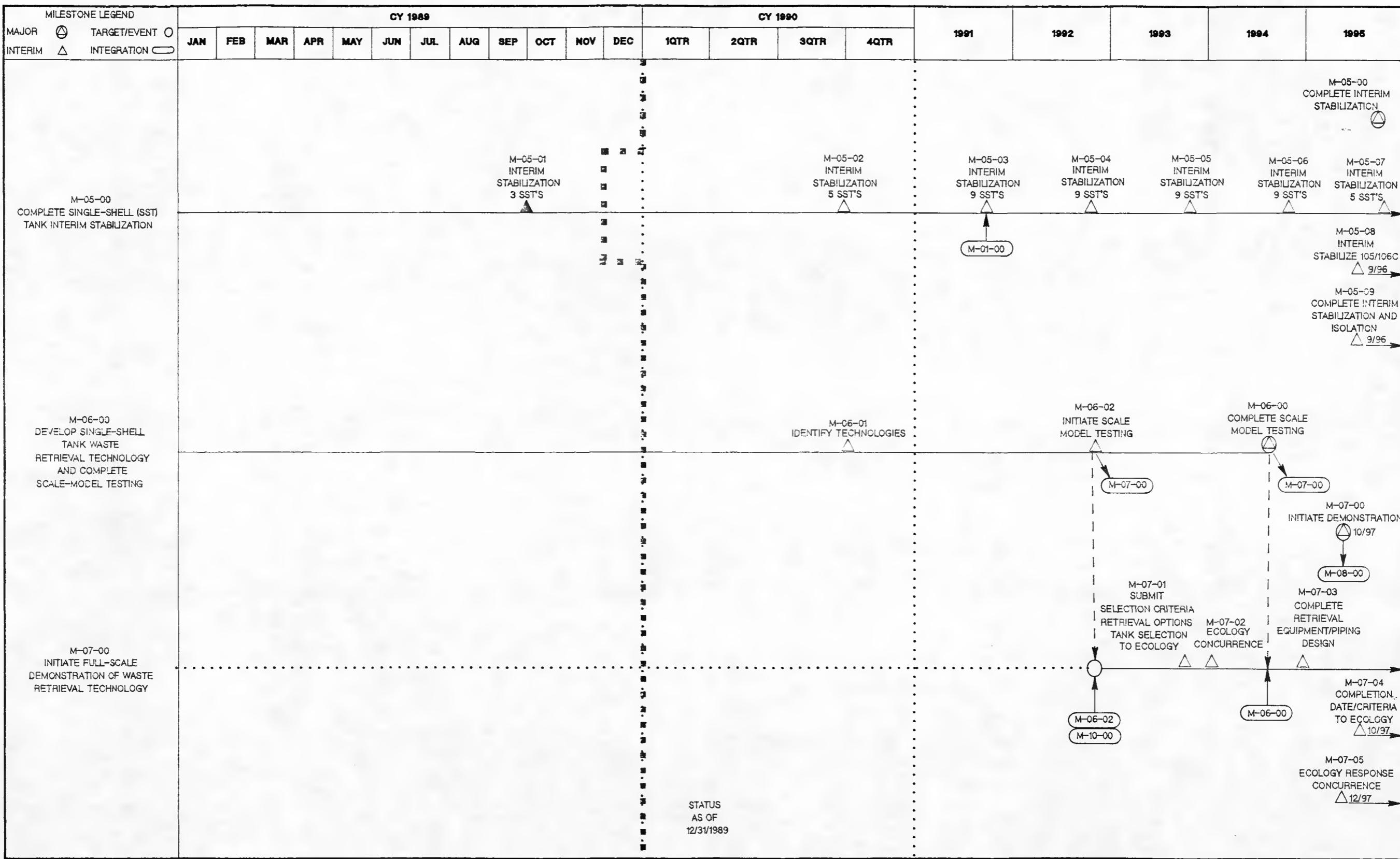
ACTION PLAN WORK SCHEDULE

DOE/RL 90-0006



FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

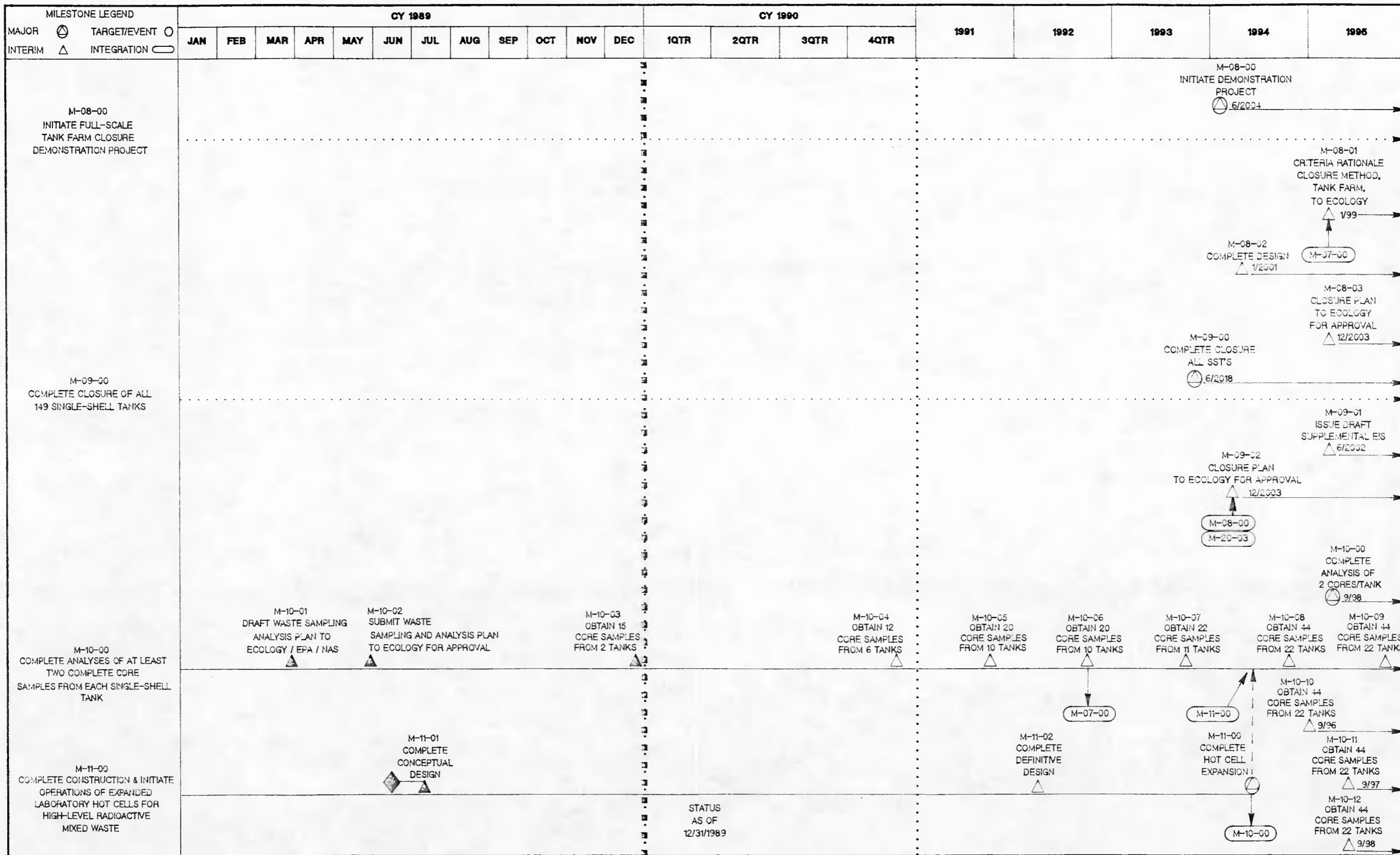
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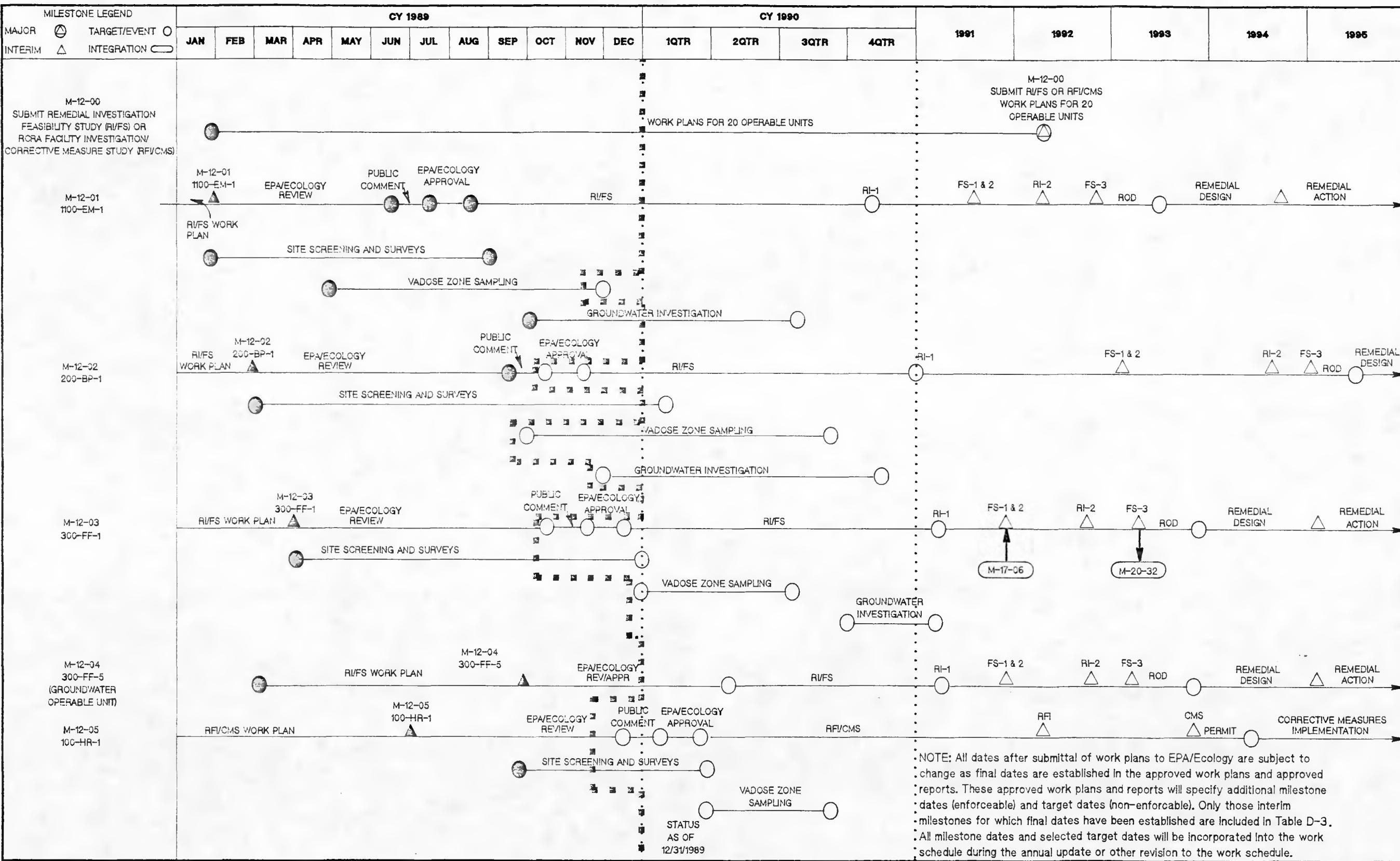
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

ACTION PLAN WORK SCHEDULE



FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

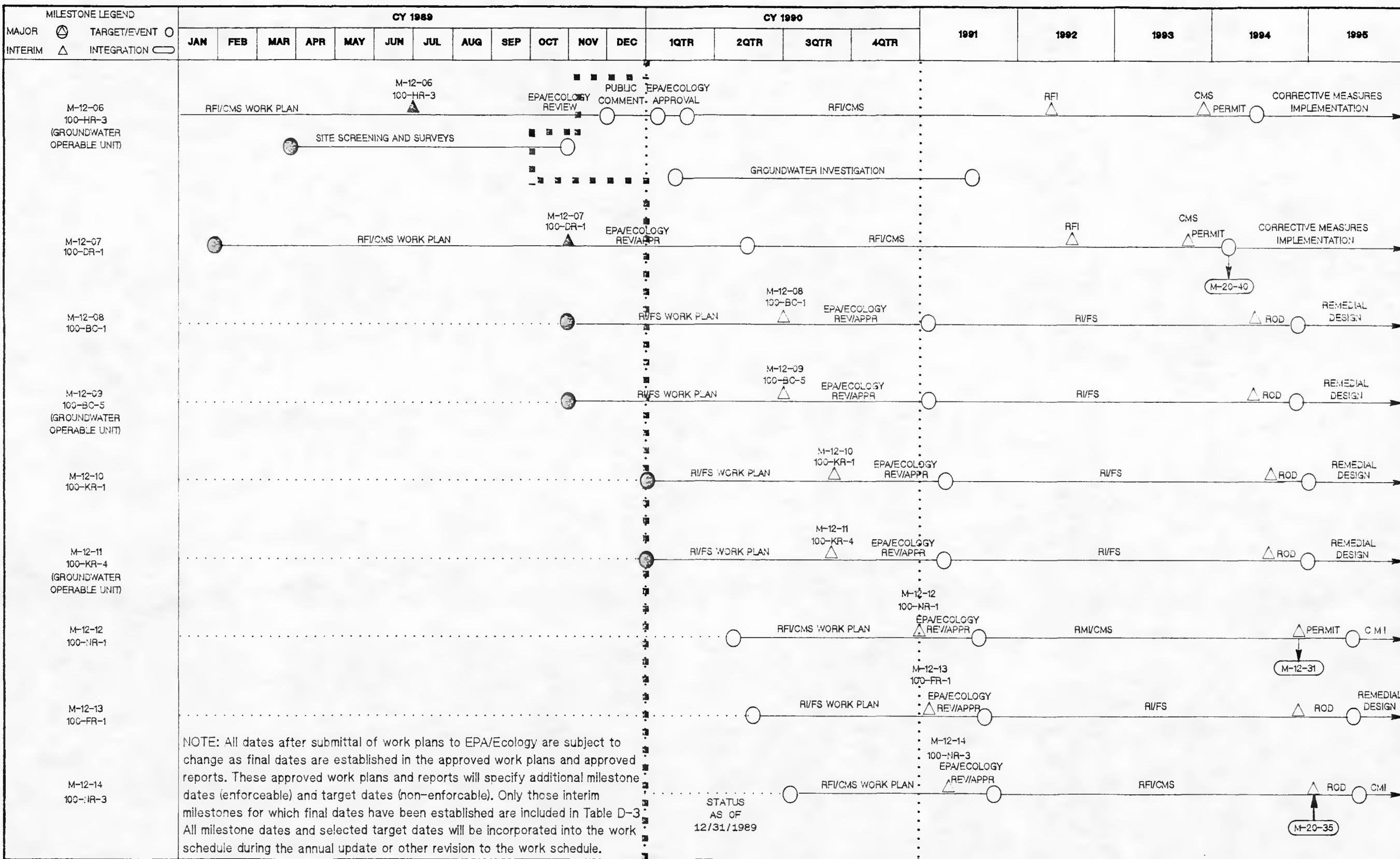
ACTION PLAN WORK SCHEDULE



FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

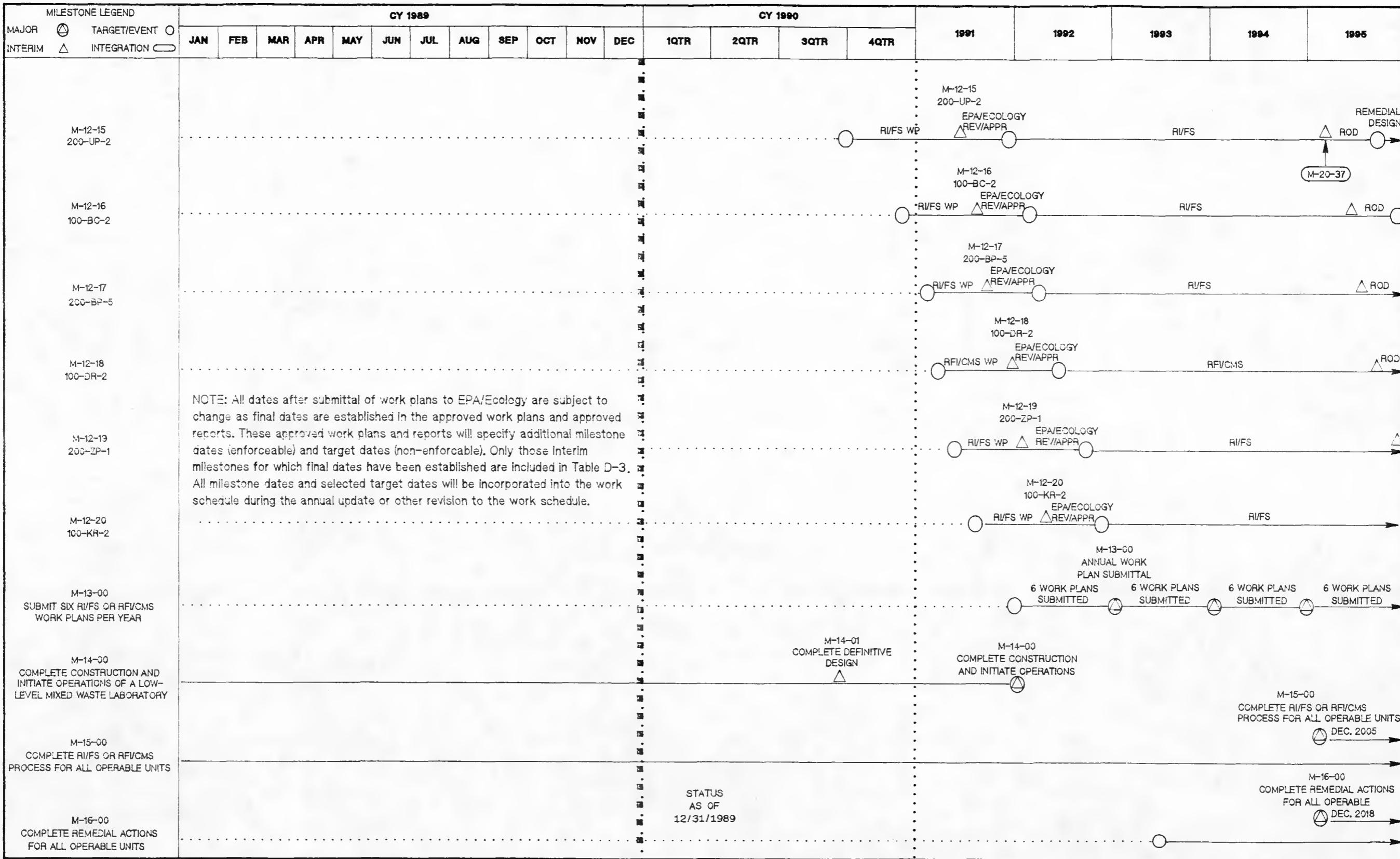
DOE/RL 90-0006

ACTION PLAN WORK SCHEDULE

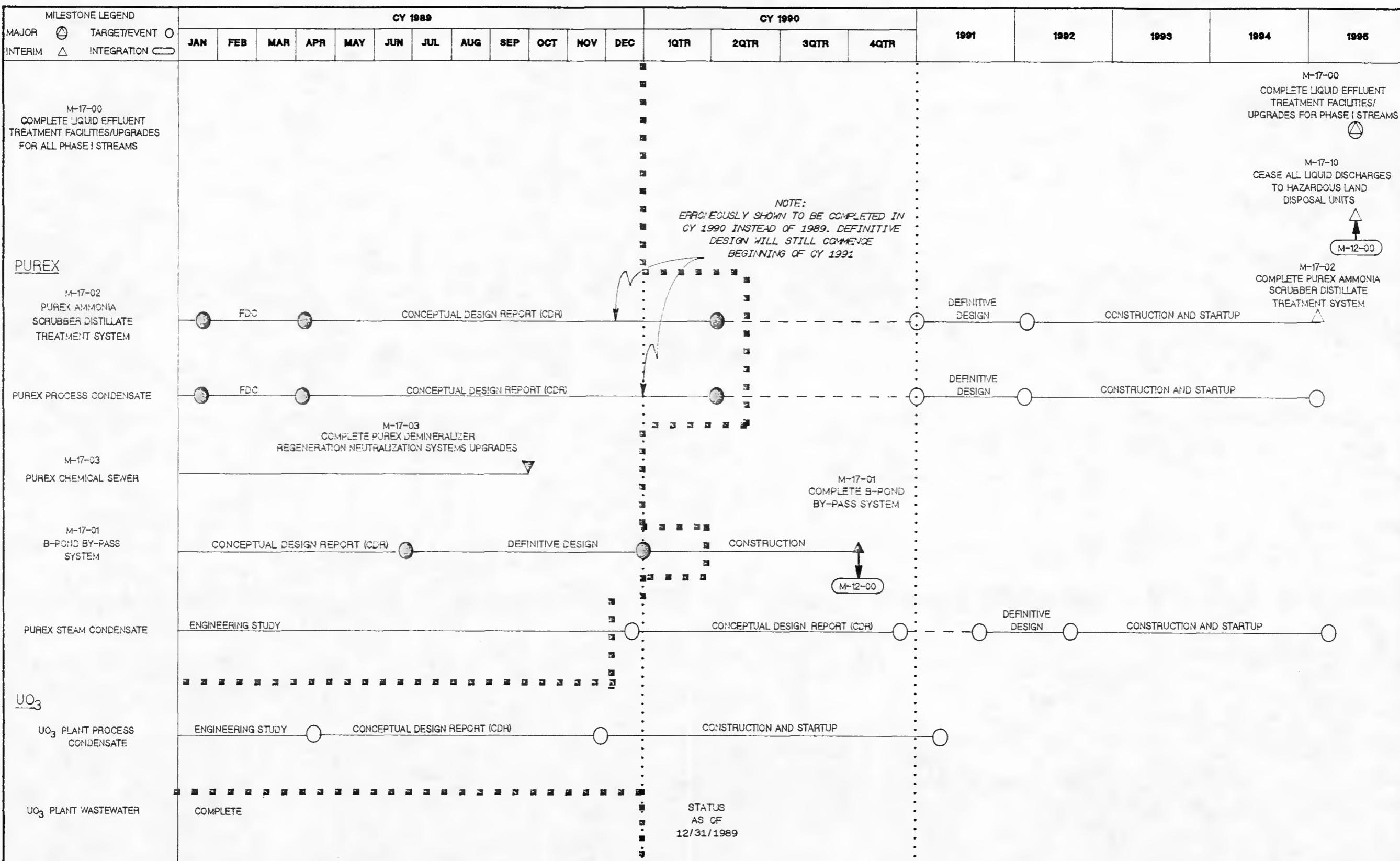


FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

ACTION PLAN WORK SCHEDULE

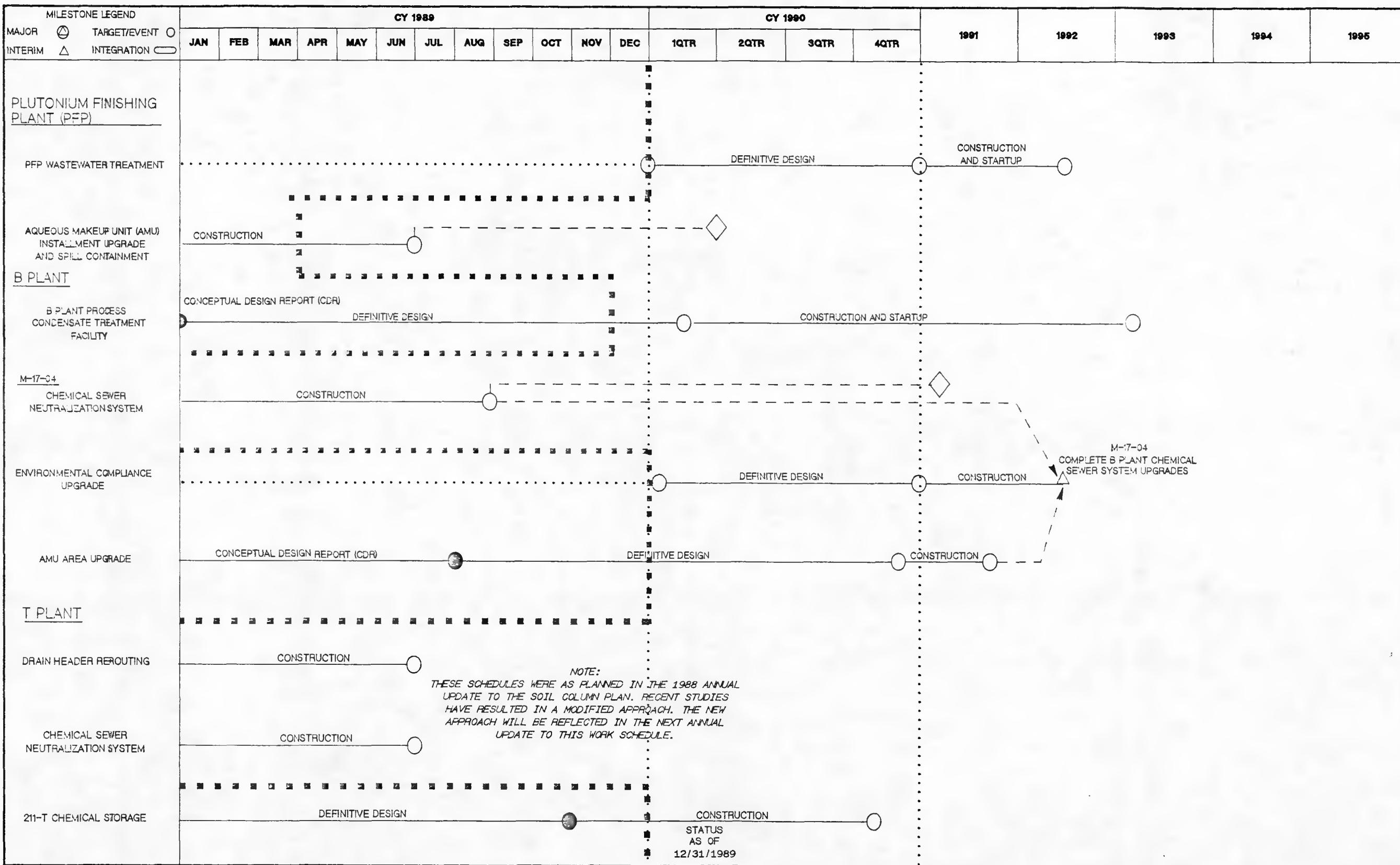


FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
ACTION PLAN WORK SCHEDULE

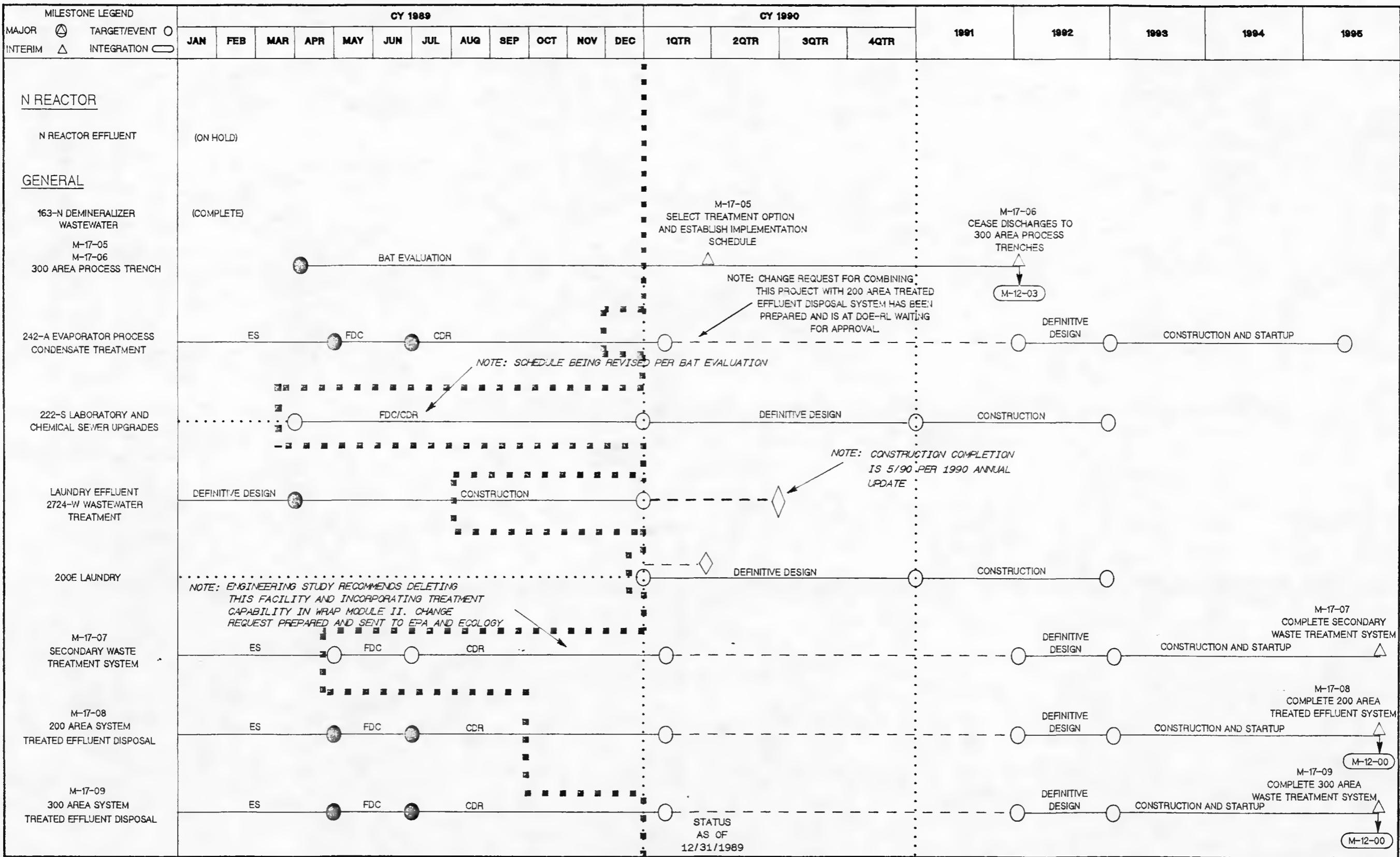


FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

ACTION PLAN WORK SCHEDULE

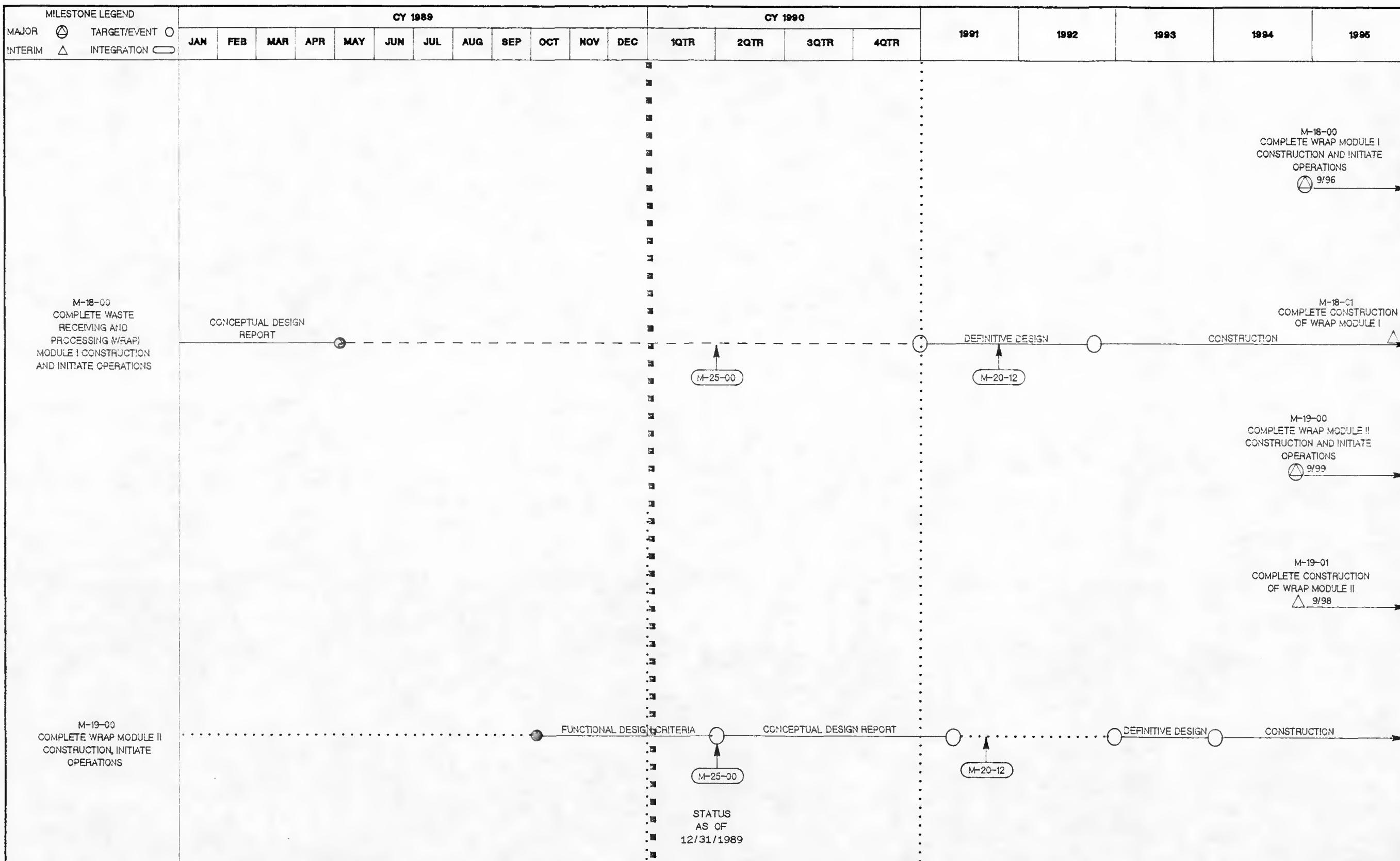


FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
ACTION PLAN WORK SCHEDULE



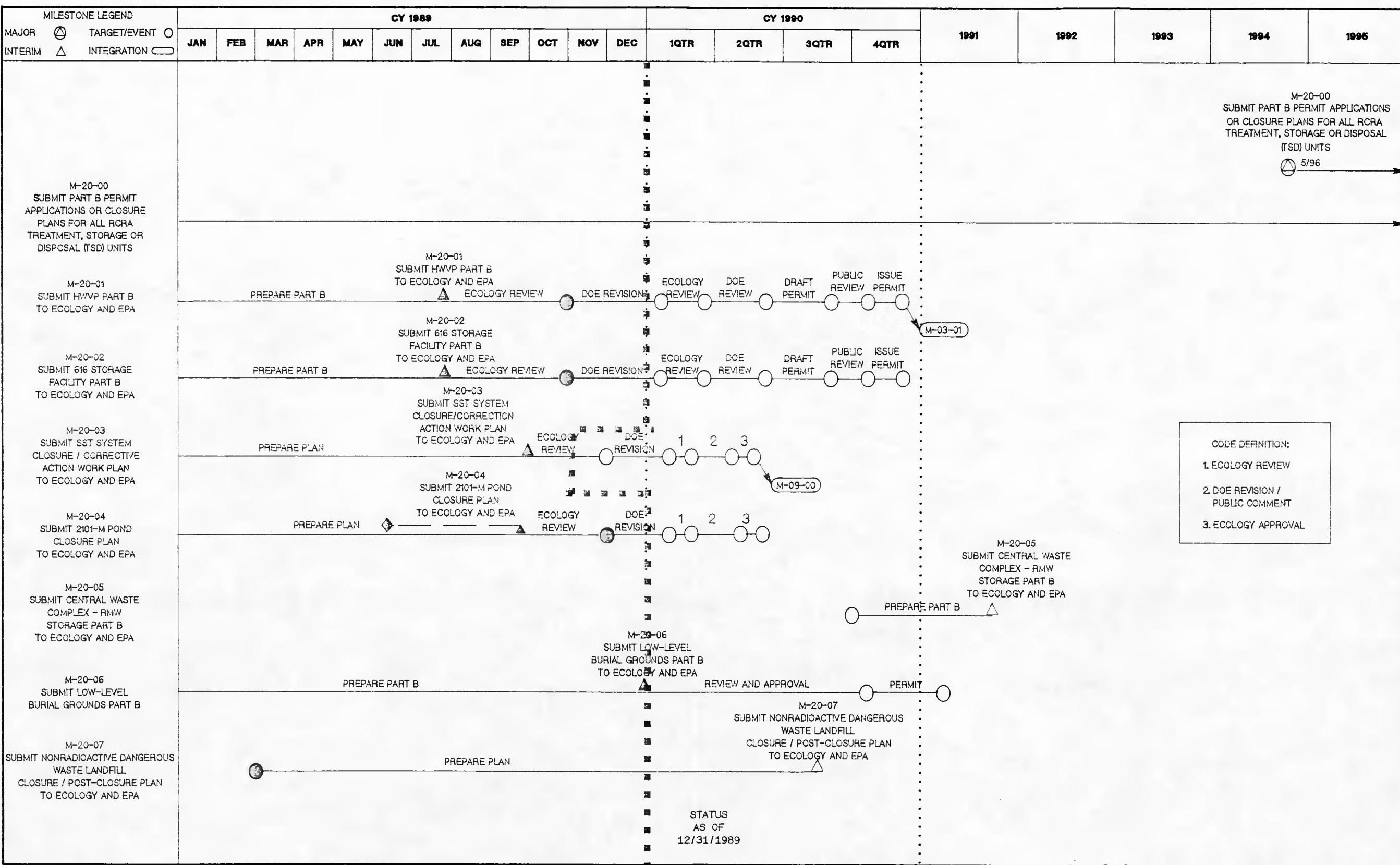
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

ACTION PLAN WORK SCHEDULE



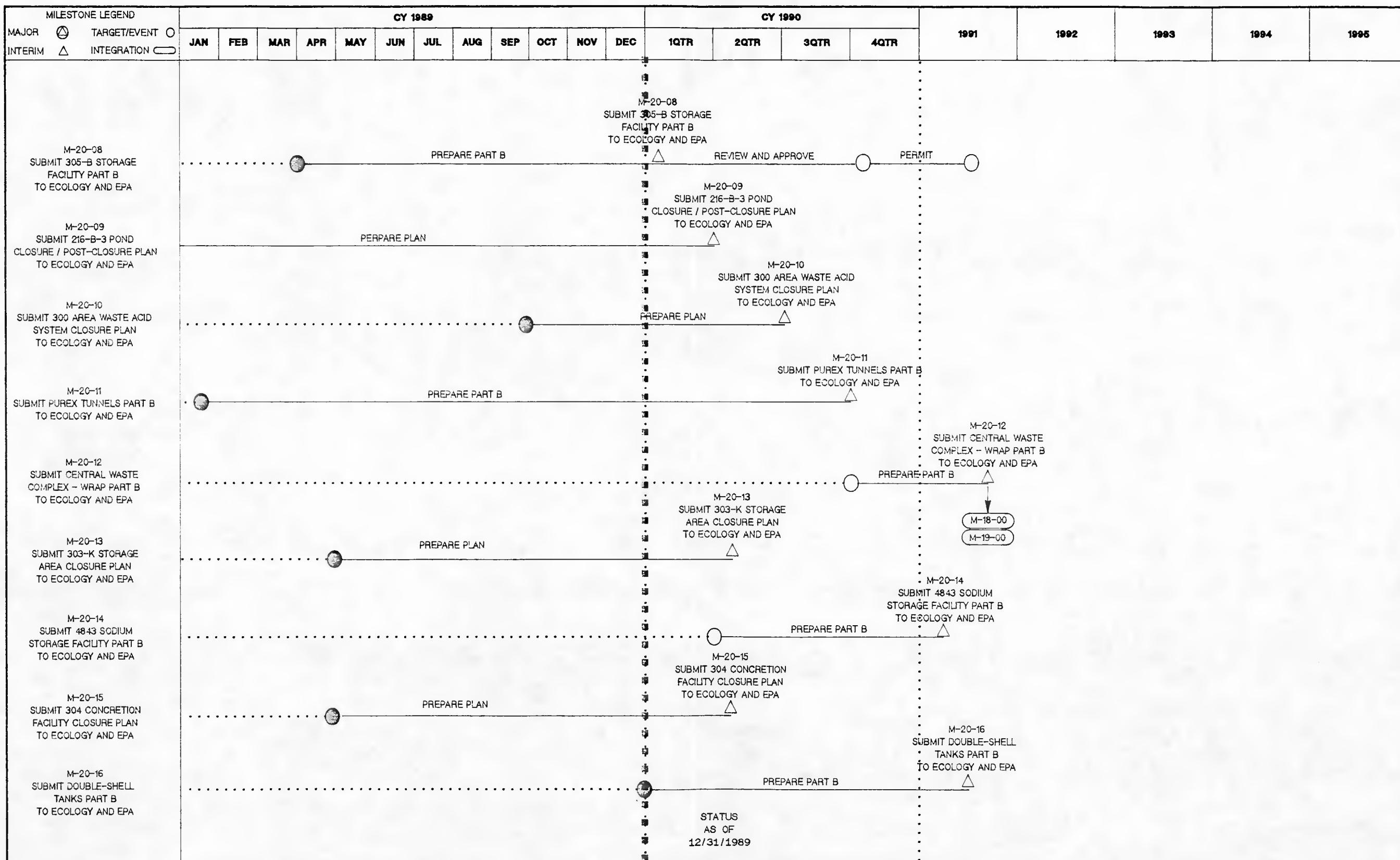
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ACTION PLAN WORK SCHEDULE

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FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

ACTION PLAN WORK SCHEDULE



FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

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FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

ACTION PLAN WORK SCHEDULE

MILESTONE LEGEND	CY 1989												CY 1990				1991	1992	1993	1994	1995		
	MAJOR INTERIM	①	TARGET/EVENT INTEGRATION	○	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1QTR	2QTR	3QTR	4QTR			
	△	●	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
M-20-26 SUBMIT ASHPIT DEMOLITION SITE CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-26 SUBMIT ASHPIT DEMOLITION SITE CLOSURE PLAN TO ECOLOGY AND EPA			
M-20-27 SUBMIT HEXONE STORAGE AND TREATMENT CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-27 SUBMIT HEXONE STORAGE AND TREATMENT CLOSURE PLAN TO ECOLOGY AND EPA			
M-20-28 SUBMIT E-8 BORROW PIT DEMOLITION SITE CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-28 SUBMIT E-8 BORROW PIT DEMOLITION SITE CLOSURE PLAN TO ECOLOGY AND EPA			
M-20-29 SUBMIT MASF PART B TO ECOLOGY AND EPA																				M-20-29 SUBMIT MASF PART B TO ECOLOGY AND EPA			
M-20-30 SUBMIT 303-M OXIDE FACILITY PART B TO ECOLOGY AND EPA																				M-20-30 SUBMIT 303-M OXIDE FACILITY PART B TO ECOLOGY AND EPA			
M-20-31 SUBMIT 1301-N/1325-N CLOSURE PLAN / POST CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-31 SUBMIT 1301-N/1325-N CLOSURE PLAN / POST CLOSURE PLAN TO ECOLOGY AND EPA			
M-20-32 SUBMIT 300 AREA PROCESS TRENCHES CLOSURE / POST CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-32 SUBMIT 300 AREA PROCESS TRENCHES CLOSURE / POST CLOSURE PLAN TO ECOLOGY AND EPA			
M-20-33 SUBMIT 216-A-10 CRIB CLOSURE / POST CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-33 SUBMIT 216-A-10 CRIB CLOSURE / POST CLOSURE PLAN TO ECOLOGY AND EPA			
M-20-34 SUBMIT 216-A-36B CRIB CLOSURE / POST-CLOSURE PLAN TO ECOLOGY AND EPA																				M-20-34 SUBMIT 216-A-36B CRIB CLOSURE / POST-CLOSURE PLAN TO ECOLOGY AND EPA			
																				STATUS AS OF 12/31/1989			

FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
ACTION PLAN WORK SCHEDULE

MILESTONE LEGEND

MAJOR	○	TARGET/EVENT	○
	△	INTEGRATION	○
INTERIM	△		

CY 1989 CY 1990

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1QTR	2QTR	3QTR	4QTR	1991	1992	1993	1994	1995
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M-20-35
SUBMIT 1324-N/1324-NA
CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-36
SUBMIT 216-A-29 DITCH
CLOSURE / POST CLOSURE
TO ECOLOGY AND EPA

M-20-37
SUBMIT 216-U-12 CRIB
CLOSURE / POST CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-38
SUBMIT 216-B-53
TRENCH CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-39
SUBMIT 216-S-10 POND
AND DITCH CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-40
SUBMIT 100-D
PONDS CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-41
SUBMIT 105-DR
CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-42
SUBMIT THERMAL
TREATMENT PART B
TO ECOLOGY AND EPA

M-20-43
SUBMIT PHYSICAL / CHEMICAL
TREATMENT PART B
TO ECOLOGY AND EPA

M-20-35
SUBMIT 1324-N/1324-NA
CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-36
SUBMIT 216-A-29 DITCH
CLOSURE / POST CLOSURE
TO ECOLOGY AND EPA

M-20-37
SUBMIT 216-U-12 CRIB
CLOSURE / POST CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-38
SUBMIT 216-B-53
TRENCH CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-39
SUBMIT 216-S-10 POND
AND DITCH CLOSURE PLAN
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M-20-40
SUBMIT 100-D
PONDS CLOSURE PLAN
TO ECOLOGY AND EPA

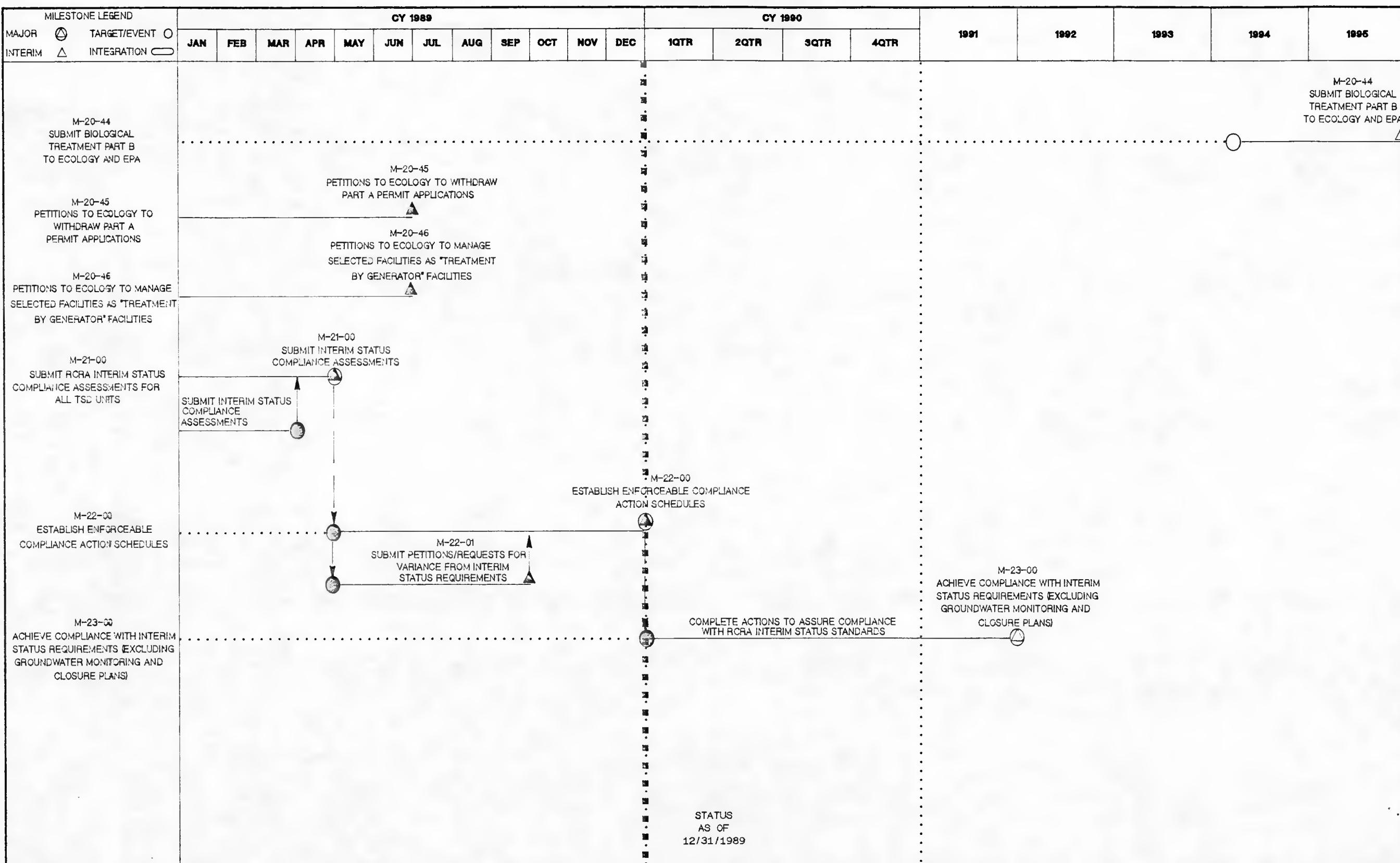
M-20-41
SUBMIT 105-DR
CLOSURE PLAN
TO ECOLOGY AND EPA

M-20-42
SUBMIT THERMAL
TREATMENT PART B
TO ECOLOGY AND EPA

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SUBMIT PHYSICAL / CHEMICAL
TREATMENT PART B
TO ECOLOGY AND EPA

STATUS
AS OF
12/31/1989

FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
ACTION PLAN WORK SCHEDULE



FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
ACTION PLAN WORK SCHEDULE

