

ENGINEERING CHANGE NOTICE

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Proj.
ECN

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 WHC-SD-W236B-EV-001, Rev 2 supersedes and replaces WHC-SD-W236B-EV-001, Rev 1.

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As-Found <input type="checkbox"/>	Facility Const. <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

13b. Justification Details
 This revision describes the regulatory requirements and strategies for obtaining permits for the Initial Pretreatment Module resulting from revisions to the Tri-Party Agreement.

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ENGINEERING CHANGE NOTICE

Page 2 of 2

1. ECN (use no. from pg. 1)
611458

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 Yes
 No

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ENGINEERING	CONSTRUCTION
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Savings <input type="checkbox"/> \$NA	Savings <input type="checkbox"/> \$NA

17. Schedule Impact (days)

Improvement
 Delay

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[X]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
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20. Approvals

Signature	Date	Signature	Date
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DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

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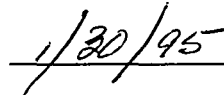
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Signature

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7. Abstract

This revision to the document describes the regulatory requirements and describes alternative strategies for obtaining permits for the Initial Pretreatment Module resulting from recent revisions to the Tri-Party Agreement

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Initial Pretreatment Module

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RCRA Permitting

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EXECUTIVE SUMMARY

This document describes the permitting plan for Project W-236-B, Initial Pretreatment Module.

The Tank Waste Remediation System pretreatment process mission is to separate high-level and low-level waste fractions. This process will produce waste feed for low-level and high-level waste immobilization. Retrieved tank waste will be pretreated and separated in the Initial Pretreatment Module. Cesium and other radionuclides will be extracted using ion exchange processes. The final low-level waste stream will be processed through the low-level waste evaporator for volume reduction and concentration before disposal to the low-level waste vitrification facility.

A comprehensive review of environmental regulations has indicated that several environmental reviews (e.g., National Environmental Policy Act of 1969,¹ State Environmental Policy Act of 1971²), permits, and approvals are required before construction and operation of the facility. The environmental reviews, permits, and approvals, as well as the regulatory authority, potentially applicable to the Initial Pretreatment Module include the following:

¹National Environmental Policy Act of 1969, 42 USC 4321 et seq.

²State Environmental Policy Act of 1971, Revised Code of Washington 43.21c, Olympia, Washington.

- *National Environmental Policy Act of 1969 - U.S. Department of Energy, Headquarters*
 - *Categorical Exclusion*
 - *Action Description Memorandum*
 - *Environmental Assessment*
 - *Environmental Impact Statement*

- *State Environmental Policy Act of 1971 - State of Washington Department of Ecology*
 - *Determination of Nonsignificance*
 - *Mitigated Determination of Nonsignificance*
 - *Determination of Significance*
 - *State Environmental Policy Act of 1971 Environmental Checklist*

- *Air Permitting (see each air program)*
 - *National Emission Standards for Hazardous Air Pollutants; Radionuclides - Approval to Construct and Notification of Startup - U.S. Environmental Protection Agency*
 - *Prevention of Significant Deterioration - State of Washington Department of Ecology*
 - *Radiation Protection - Air Emissions - State of Washington Department of Health*
 - *New Sources of Toxic Air Pollutants - State of Washington Department of Ecology*
 - *Air Operating Permit Program - State of Washington Department of Ecology and State of Washington Department of Health*

- *Dangerous Waste Permitting (see each program)*
 - *Dangerous Waste Permit - State of Washington Department of Ecology*

- *Septic System Permitting - State of Washington Department of Health or State of Washington Department of Ecology*
 - *Preliminary Report*
 - *Plans and Specifications Approved*
 - *Operations and Maintenance Manual Approval*

- *Miscellaneous Reviews/Permits/Approvals*
 - *Preoperation Monitoring of Facilities, Sites and Operations - U.S. Department of Energy, Richland Operations Office*
 - *Floodplain/Wetlands Assessment (Richland Operations Office)*
 - *Cultural Resource Review Clearance (Richland Operations Office)*
 - *Excavation Permit (Richland Operations Office)*
 - *Endangered Species Approval (Richland Operations Office)*

This document describes the environmental reviews (e.g., National Environmental Policy Act of 1969; State Environmental Policy Act of 1971), permits, and approval requirements for the project. It provides a summary of permit application data requirements, alternative strategies for permit completion and approval, as well as the probability of success for each alternative.

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LIST OF TERMS

ADM	Action Description Memorandum
BACT	best available control technology
BARCT	best available radionuclide control technology
CAA	<i>Clean Air Act of 1955</i>
CDC	conceptual design criteria
CFR	<i>Code of Federal Regulations</i>
CX	categorical exclusion
DNS	determination of nonsignificance
DOE	U.S. Department of Energy
DOH	State of Washington Department of Health
DS	determination of significance
DST	double-shell tank
EA	environmental assessment
Ecology	State of Washington Department of Ecology
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FONSI	finding of no significant impact
F&R	functions and requirements
HLW	high-level waste
HQ	Headquarters
IB	information bulletin
IPM	Initial Pretreatment Module
LLW	low-level waste
MWRF	Multifunction Waste Remediation Facility
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NEPA	<i>National Environmental Policy Act of 1969</i>
NOC	Notice of Construction
NOD	Notice of Deficiency
NOI	Notice of Intent; one for RCRA and one for NEPA
PDC	project design criteria
PSD	Prevention of Significant Deterioration
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RL	Richland Operations Office
ROD	Record of Decision
SEPA	<i>State Environmental Policy Act of 1971</i>
TAP	Toxic Air Pollutants
T-BACT	best available control technology for toxics
Tri-Party Agreement	<i>Hanford Federal Facility Consent Order and Agreement</i>
TSD	treatment, storage, and/or disposal
TWRS	Tank Waste Remediation System
USC	United States Code
WAC	<i>Washington Administrative Code</i>

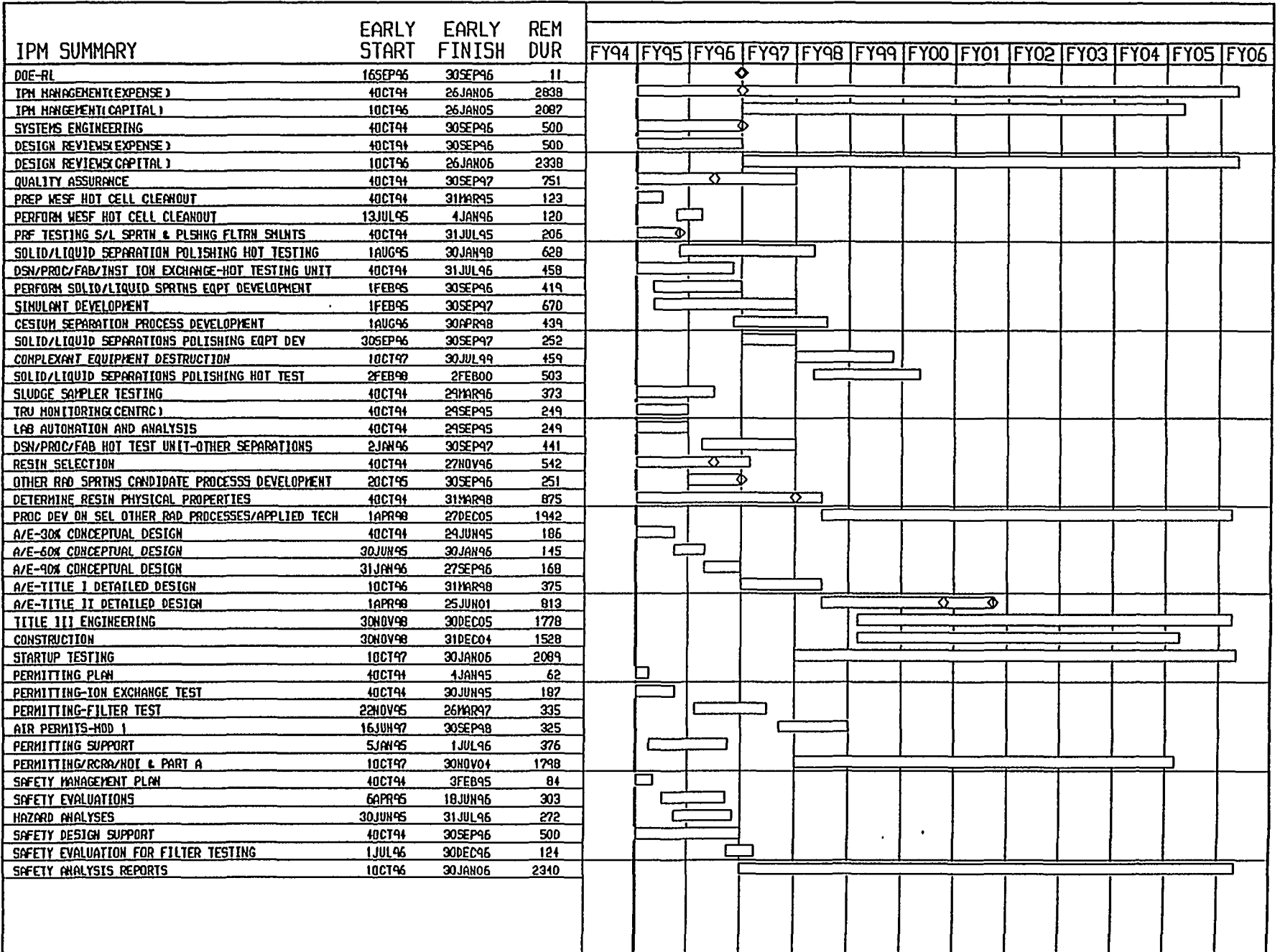
**PERMITTING PLAN FOR PROJECT W-236B
INITIAL PRETREATMENT MODULE**

1.0 INTRODUCTION

This document describes permitting requirements for the construction and operation of the Initial Pretreatment Module (IPM). High-level radioactive waste currently is stored in the underground storage double-shell tanks (DST) and single-shell tanks in the 200 East and West Areas at the Hanford Site. The tank waste contains a mixture of sludge, salt cake, and supernatant liquids. The insoluble sludge fraction of the waste consists of metal oxides and hydroxides and contains the bulk of many radionuclides such as the transuranic components and strontium-90. Organic salts, ferrocyanides, hydrogen gas generation, and high heat have been identified as critical issues associated with continued storage of waste in the watch list tanks.

The U.S. Department of Energy (DOE), Richland Operations Office (RL), the U.S. Environmental Protection Agency (EPA), and the State of Washington Department of Ecology (Ecology) renegotiated the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) in January 1994. The new Tri-Party Agreement basis for the Tank Waste Remediation System (TWRS) is to pretreat tank waste (removal of cesium and other radionuclides) to produce feed for low-level waste (LLW) immobilization. The high-level waste (HLW) fraction will provide feed for the HLW vitrification facility. Tri-Party Agreement milestones have been established for construction and hot operation of the facility.

This permitting plan has been prepared based on the IPM functions and requirements (F&R) document. It should be noted that the regulations of concern, as well as the design of the facility, are likely to change before the actual permit applications are submitted. Several process options are currently being explored for organic destruction. Because the regulatory requirements for the IPM do not change significantly for each of the various options, separate discussions of each option are not included. Figure 1 presents a summary level project schedule.



2

Plot Date 11JAN95 Data Date 1OCT94 Project Start 1OCT93 Project Finish 30JAN06		0013 Westinghouse Hanford Company IPM FY95-97 W/ OUT YEARS IPM SUMMARY BAR CHART	Sheet 1 of 1 <table border="1"> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	Date	Revision	Checked	Approved								
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2.0 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

The *National Environmental Policy Act of 1969* (NEPA), 42 United States Code (USC) 4321 et seq, was enacted to ensure that environmental matters are considered before initiation of federal actions that may affect the quality of the human environment. The DOE regulations, 10 *Code of Federal Regulations* (CFR) 1021, "Compliance with the National Environmental Policy Act," promulgated under NEPA were developed to assess the environmental impacts to the environment associated with specific DOE proposals or actions.

2.1 INTRODUCTION

If a proposed action may be covered under an existing approved Environmental Impact Statement (EIS) or Environmental Assessment (EA), the relevant Record of Decision (ROD) or finding of no significant impact (FONSI) could be revised to reflect the proposed action.

If RL determines that a proposed action is not covered by existing environmental documentation, an evaluation would be required to determine whether the proposed action falls within one of the categorical exclusions (CX). If the proposed action is covered by a CX, an information bulletin (IB) is prepared that summarizes the proposed action and its background. In addition, a justification of why the action may be categorically excluded is needed.

If the proposed action is not covered by a CX, an Action Description Memorandum (ADM) is developed. The ADM provides a brief but concise description of the proposed action and potentially affected environment. All ADMs are sent to RL, and subsequently may be transmitted to DOE, Headquarters (HQ) to determine if the proposed action warrants an EA or an EIS.

The EA is developed to discuss the environmental consequences of the proposed action and the alternatives to that action, including the consequences of accidents and routine operations, and the cumulative and long-term impacts. A discussion of the relationship of the proposed action to federal, state, and local land use plans, policies, and regulations is also discussed in the EA. EAs are submitted to RL for review, with final determination authority in RL made by the head Field Officer for most EAs. Because of the complexity of some EAs, these are transmitted to HQ for final determination made by the Assistant Secretary for Environmental Safety and Health. The final determination will result in a decision that the proposed action is a major action significantly affecting the environment, thereby requiring an EIS or issuance of a FONSI.

An EIS may be required because of the significance or type of action that is proposed. The size (cost) of the project may categorize the proposed action as an MSA (major systemes acquisition), which typically requires preparation of an EIS.

2.2 SUMMARY OF DATA/INFORMATION REQUIREMENTS FOR THE IPM

The minimum data/information requirements for the IPM before NEPA preparation are discussed below.

- F&R, functional and operational requirements, project design criteria (PDC), CDC, and/or equivalent design information
- Preliminary Safety Evaluation, including a "source term" to determine health effects and accident scenarios
- Other engineering, safety, or waste evaluation documents that would be helpful in NEPA preparation.

2.3 DISCUSSION OF ALTERNATIVES FOR THE IPM




Various NEPA compliance alternatives may be available in an effort to support the IPM. The alternatives open for consideration are discussed below. The probability of success (high, medium, low) will follow each listed alternative. Tied to the various NEPA compliance alternatives are the technologies that would be selected for the IPM. The current schedule for issuance of the TWRS EIS ROD is late 1996. Figures 2 through 6 present generic schedules pertaining to development and processing of compressed and normal ADMs and EAs and an EIS.

- This project may be included within the scope of the TWRS EIS. The public scoping meetings for this EIS are in process. Completion of this TWRS EIS with an ROD is targeted for late 1996, allowing start of Title II design. (High)
- An interim action determination during the ADM process may allow preparation of an EA. The desired outcome of the EA would be a FONSI. (Med)
- Same as Alternative 1 (first bullet) except that permission may be granted from HQ to start Title II design before issuance of the final ROD. (Low)

2.4 CONCLUSION

The NEPA strategy for the IPM is to include the project in the TWRS EIS. The Notice of Intent (NOI) for the TWRS EIS has been prepared, and the first phase of public scoping has been completed. The draft TWRS EIS is currently being prepared. The current TWRS EIS schedule will meet the schedule of the IPM.

Action Description Memorandum (ADM) Compressed Schedule

Name	Month 1	Month 2	Month 3	Month 4
Draft ADM (WHC)	 1 month			
Review (RL)		 .5 month		
Resolve Comments (WHC/RL)			 1 month	
EA Decision (RL)			◆	

6

Project: ADM
Date: 2/22/93
Prepared by: GH Londeen

Scheduled  Milestone ◆

Action Description Memorandum (ADM) Normal Schedule

Name	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11
Draft ADM (WHC)	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Review (RL)	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Resolve Comments (WHC/RL)	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Review (RL)	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Review (HQ)	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
EA Decision (HO)	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨

Project: ADM
Date: 2/18/93
Prepared by: GH Landeen

Scheduled  Milestone 

Environmental Assessment (EA) Compressed Schedule

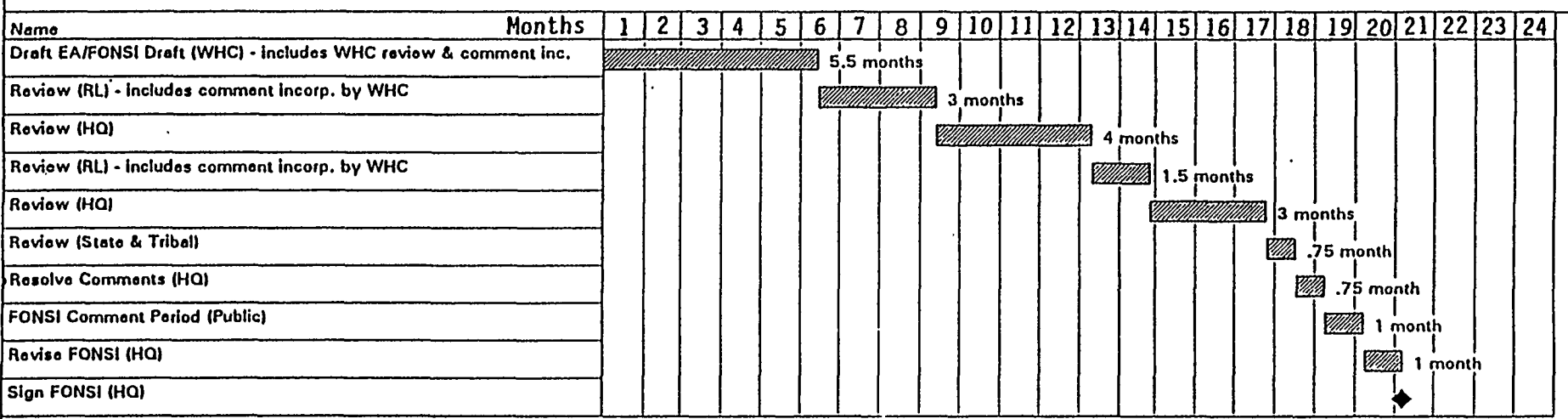
Name	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14
Draft EA/FONSI Draft (WHC) - includes WHC review & comment inc.	3 months													
Review (RL) - includes comment incorp. by WHC				2 months										
Review (HQ)						2 months								
Review (RL) - includes comment incorp. by WHC								1.25 months						
Review (HQ)									1.5 months					
Review (State & Tribal)											.5 month			
Resolve Comments (HQ)												.5 month		
FONSI Comment Period (Public)												1 month		
Revise FONSI (HQ)													.5 month	
Sign FONSI (HQ)														◆

CO

Project: EA
Date: 2/18/93
Prepared by: GH Landean

Scheduled Milestone

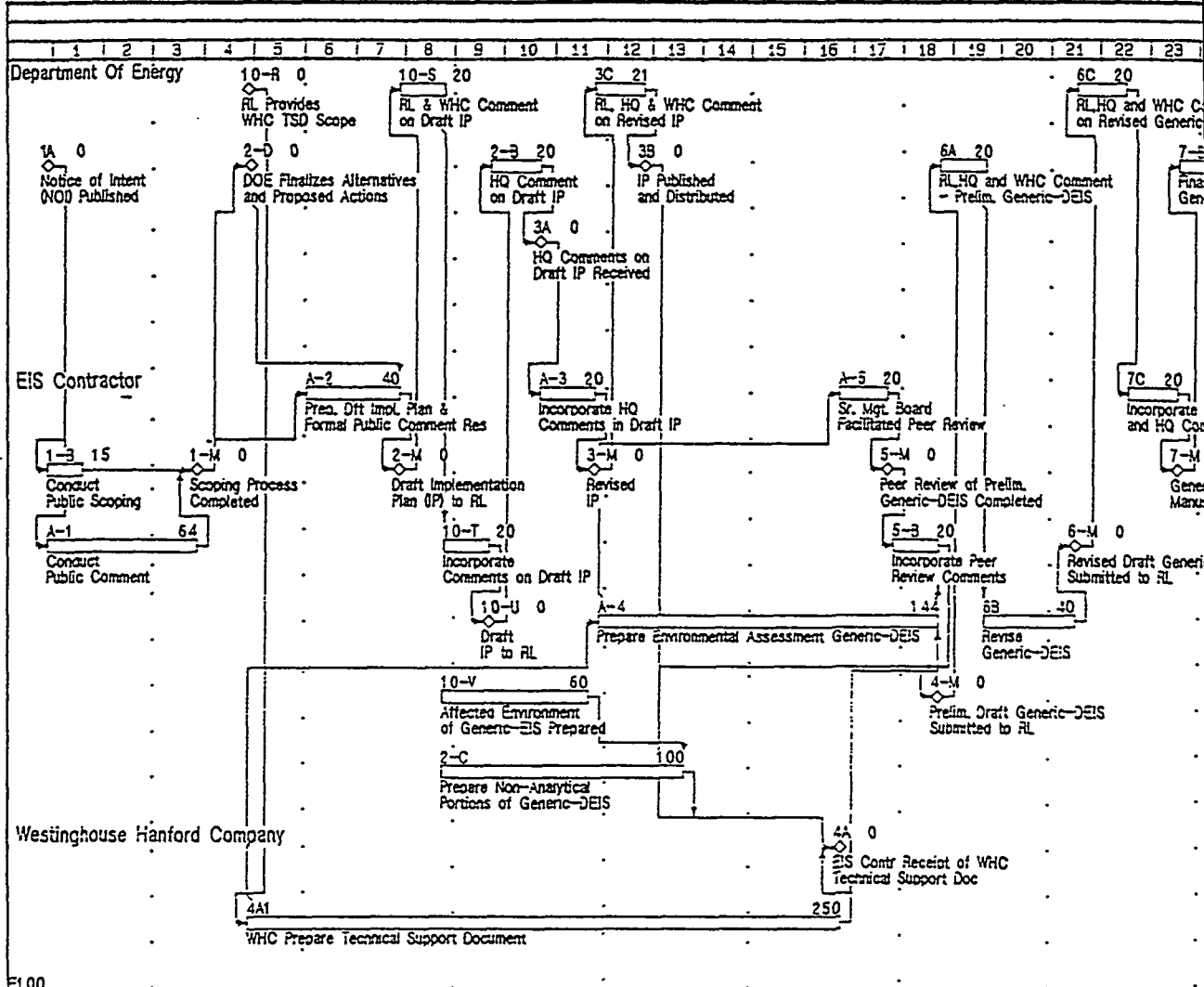
Environmental Assessment (EA) Normal Schedule



Project: EA
Date: 2/18/93
Prepared by: GH Londeen

Scheduled Milestone

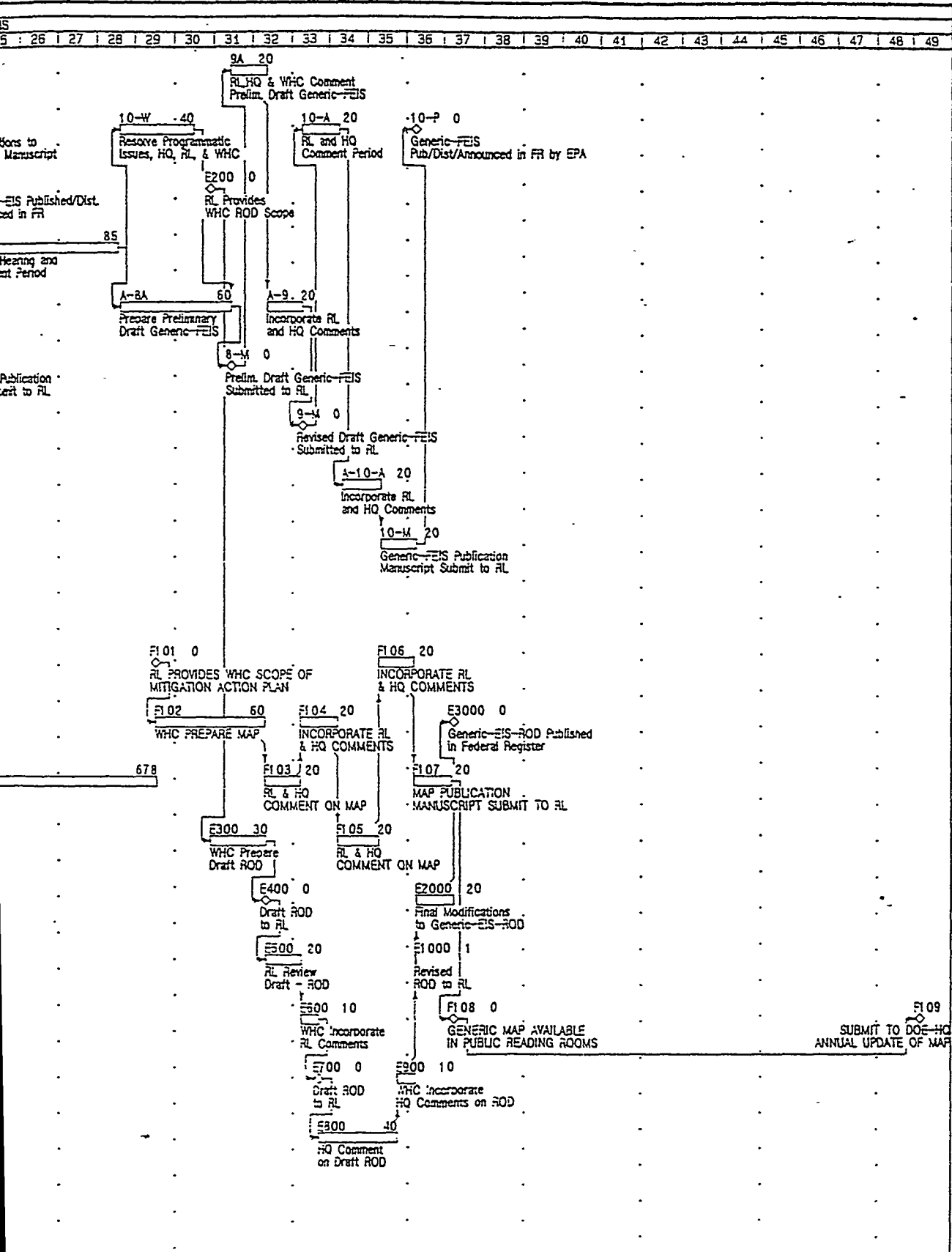
6



E1.00
 WHC Level of Effort

WHC-SD-W236B-EV-001
 Figure 6 Environmental Impact Statement Schedule

Rev. 2



3.0 STATE ENVIRONMENTAL POLICY ACT OF 1971

The *State Environmental Policy Act of 1971* (SEPA), Chapter 43.21c *Revised Code of Washington*, is legislation that requires evaluation of environmental impacts associated with a project or an agency action before approval. The "SEPA Rules," Chapter 197-11, *Washington Administrative Code* (WAC), are the implementing regulations.

3.1 INTRODUCTION

One agency is identified as the lead agency for each project. The lead agency is responsible for ensuring that SEPA compliance is completed before approving the proposed project. SEPA compliance is required for any project or proposal that meets the definitions of "action" in the "SEPA Rules" (WAC 197-11-704). This includes projects that require a permit (e.g., a hazardous waste or building permit) or other approval from a governmental agency before operation. At the Hanford Site, Ecology is the lead agency for projects ("Actions") involving permitting of hazardous waste treatment, storage, and/or disposal (TSD) facilities.

The SEPA process for a given project is completed before the lead agency approves the project. At the Hanford Site, a SEPA environmental checklist is prepared before submittal of the first permit application to Ecology. The SEPA environmental checklist must accompany the permit application. The permit/approval may be conditioned or denied based on information in the SEPA environmental checklist. SEPA compliance, in addition to the normal permits or approvals for a project, is required.

When SEPA compliance is required for a project, the responsible official of the lead agency must make a threshold determination by deciding if a project is likely to have probable significant adverse impacts on the environment. If a project may have significant adverse impacts, a determination of significance (DS) will be issued, and a state EIS may be required. If the project will not have significant adverse impacts, or if the impacts can be mitigated, a determination of nonsignificance (DNS) or mitigated DNS will be issued. Normally the threshold determination is based on the environmental checklist completed for the project and any information that the lead agency has on file.

The SEPA regulation allows the lead agency to adopt a NEPA EA or EIS in lieu of doing additional review under SEPA (WAC 197-11-610).

3.2 SUMMARY OF DATA/INFORMATION REQUIREMENTS FOR THE IPM

The minimum data requirements for preparation of the SEPA environmental checklist for the IPM are discussed below.

- The F&R, PDC, CDC, or equivalent design information
- Any NEPA documentation that has been prepared or will be prepared for the IPM

- Any other related engineering, safety, or waste evaluation documents that would be helpful in SEPA environmental checklist preparation.

3.3 ALTERNATIVES FOR THE IPM

Various SEPA avenues may be evaluated in an effort to support the IPM. The alternatives under consideration for the IPM are listed below. The probability of success (high, medium, low) will follow each listed alternative. See Figure 6 for a generic schedule of the SEPA process.

- DS by the state and subsequent adoption of NEPA documentation by the state for the IPM. (High)
- A mitigated DNS from the state for the IPM. (Med)
- A DNS from the state for the IPM. (Low)
- DS from the state and requirement to prepare separate state EIS. (Low)

3.4 CONCLUSION

A SEPA environmental checklist must be prepared for the IPM. The state will probably issue a DS for the IPM and adopt the NEPA documentation.

State Environmental Policy Act (SEPA) Normal Schedule

Name	Month 1	Month 2
Submit SEPA Checklist (included with first permit application)	▶	
Threshold Determination	▨ .5 month	
Issuance of DNS (with comment period)	▨ .5 month	
Begin Detail Design (if DNS issued, SEPA complete) *		◆

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Project: SEPA
Date: 3/2/93
Prepared by: GH Landeen

Scheduled ▨ Milestone ◆

* If a determination of significance (DS) is issued, Ecology could adopt the NEPA documentation or require a State EIS (2 yrs.). To date, no State EIS for Hanford Site.

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4.0 RESOURCE CONSERVATION AND RECOVERY ACT OF 1976

RCRA was enacted as a comprehensive national program to mandate that hazardous waste be treated, stored, and disposed to minimize the present and future threat to human health and the environment. In the state of Washington, the "Dangerous Waste Regulations," WAC 173-303, are the implementing regulations.

4.1 INTRODUCTION

The "Dangerous Waste Regulations" apply to all Washington State facilities that treat, store, and/or dispose of dangerous waste. These regulations are equivalent to, or more stringent than, the federal hazardous waste regulations. Under the dangerous waste program all TSD facilities must obtain a permit. Facilities that were in existence on November 19, 1980, were granted an interim status permit with the submittal of a Part A permit application identifying their intent to treat, store, and/or dispose of dangerous waste. Interim status ends after final administrative disposition of a Part B permit application is completed and a final status permit is either denied or granted. All new construction requires that a final status permit be granted before initiating construction, defined by Ecology as ground breaking.

Expansion to an existing interim status facility, comprising of less than 50% of the existing capital investment, can proceed under interim status. Expansion to an existing interim status facility, comprising of 50% or more of the existing capital investment, requires a final status permit before initiating construction. Once a facility has been granted a final status permit, expansion or modification to that facility requires a modification to the final status permit in accordance with WAC 173-303-830.

An application for a dangerous waste management permit consists of three collective submittals. Each submittal consists of various levels of detailed information concerning the facility. The three submittals are the NOI, the Part A permit application, and the Part B permit application.

4.1.1 Notice of Intent

The NOI identifies an applicant's intent to construct and operate a TSD facility in accordance with WAC 173-303-281. In addition, an NOI can identify the expansion of an existing TSD facility. The NOI contains preliminary information concerning the proposed facility and/or expansion. The NOI requires a general process description, operating capacities, waste type, a topographic map, and a statement of environmental conditions.

In accordance with WAC 173-303-281, the NOI must be submitted to Ecology and the public reading rooms, and a public notification published in a local daily newspaper at least 150 days before submittal of the Part A permit application. The NOI process normally requires approximately 11 months to

complete, which at the completion of the public review period, the Part A permit application is submitted.

4.1.2 Part A Permit Application

The Part A permit application consists of the dangerous waste management Part A permit application, Forms 1 and 3. The Part A permit application can be submitted no earlier than 150 days after the NOI is published. The Part A permit application can be submitted concurrently with the Part B permit application; however, in most instances the Part A permit application is filed in advance of the Part B permit application. The Part A permit application preparation process (following the submittal of the NOI) requires approximately 5 months to complete, including the Westinghouse Hanford Company/RL review and certification requirements.

4.1.3 Part B Permit Application

The Part B permit application consists of detailed design, technical, operational, maintenance, engineering, training, closure, and other relevant information concerning the waste management facility, in accordance with the Part B checklist provided by Ecology. The information is presented in a narrative format, often using extensive figures, tables, and design media.

The Part B permit application is evaluated by the agencies for completeness and technical adequacy. The latter includes plausibility, general detail of plans and procedures, and protection of the environment. For any item deemed incomplete or technically inadequate, Ecology issues a Notice of Deficiency (NOD) to the applicant. The applicant responds to the NOD and, if accepted by Ecology, modifications are made to the Part B permit application as necessary. The "NOD/response" iterative phase takes a minimum of 330 days and often longer depending on the agency's manpower resources, acceptance of the application concept, or if regulatory requirements change in the interim.

When satisfied with the Part B permit application, Ecology prepares a draft permit. The draft permit enforces permit provisions and may reference sections of the final Part B permit application. This draft permit is published for public and interagency review. Upon acceptance by the public and other agencies, the draft Hanford Facility Permit is amended to include the particular unit. At this time, construction of management facilities may commence. Generally, preparation of a Part B permit application requires approximately 14 months, through the first certification cycle, and the total duration may last approximately 6 years.

The 40 CFR 264, Subpart X, "Miscellaneous Unit" classification applies to all systems that do not fit into the standard TSD classification of tank system, incinerator, land fill, surface impoundment, waste pile, etc. Specifically, the regulators have stated that thermal treatment units (e.g., calcination, Hanford Waste Vitrification Plant melter, steam stripping, distillation) will be considered Miscellaneous Units. The "Miscellaneous Unit" classification allows the regulators to choose those requirements from the standard TSD classification deemed most appropriate for the treatment

being permitted. In most cases this includes tank and incinerator requirements. The incinerator requirements require the applicant to demonstrate process efficiencies for organics and heavy metals in a Trial Burn Plan. Preliminary information on the IPM indicates that the technologies under consideration will fall into the "Miscellaneous Unit" classification.

In some cases, as with the IPM, Ecology and EPA have granted interim status expansion for construction, which removes the constraint of issuance of the permit from the start of construction. This requires negotiation with the agencies, and is not always approved. A Part A permit application should be submitted before construction; a Part B permit application should be obtained before operation of the IPM.

4.2 SUMMARY OF DATA/INFORMATION REQUIREMENTS FOR THE IPM

The minimum data/information requirements for the IPM are discussed below.

4.2.1 NOI and Part A Permit Application

- General nature of the process, capacities, volumes, and flow rate is required for preparation of the NOI.
- Preparation of the Part A requires a CDC or equivalent design information.

4.2.2 Part B Permit Application

- Waste Minimization Plan
- Building Emergency Plan
- Tank Integrity Assessment (if applicable)
- Waste Analysis Plan
- Process Plan
- Contingency Plan
- Waste Characterization Plan
- Trial Burn Plan
- Training requirements
- Closure and Postclosure Plan
- Conceptual Design Report (or equivalent information)

- 80% Design for submittal to regulators
- Final "Approved for Construction" Design (signed by a professional engineer licensed in the state of Washington) for public review.

Additionally, air permits require approval before issuance of the permit.

4.3 DISCUSSION OF ALTERNATIVES FOR THE IPM

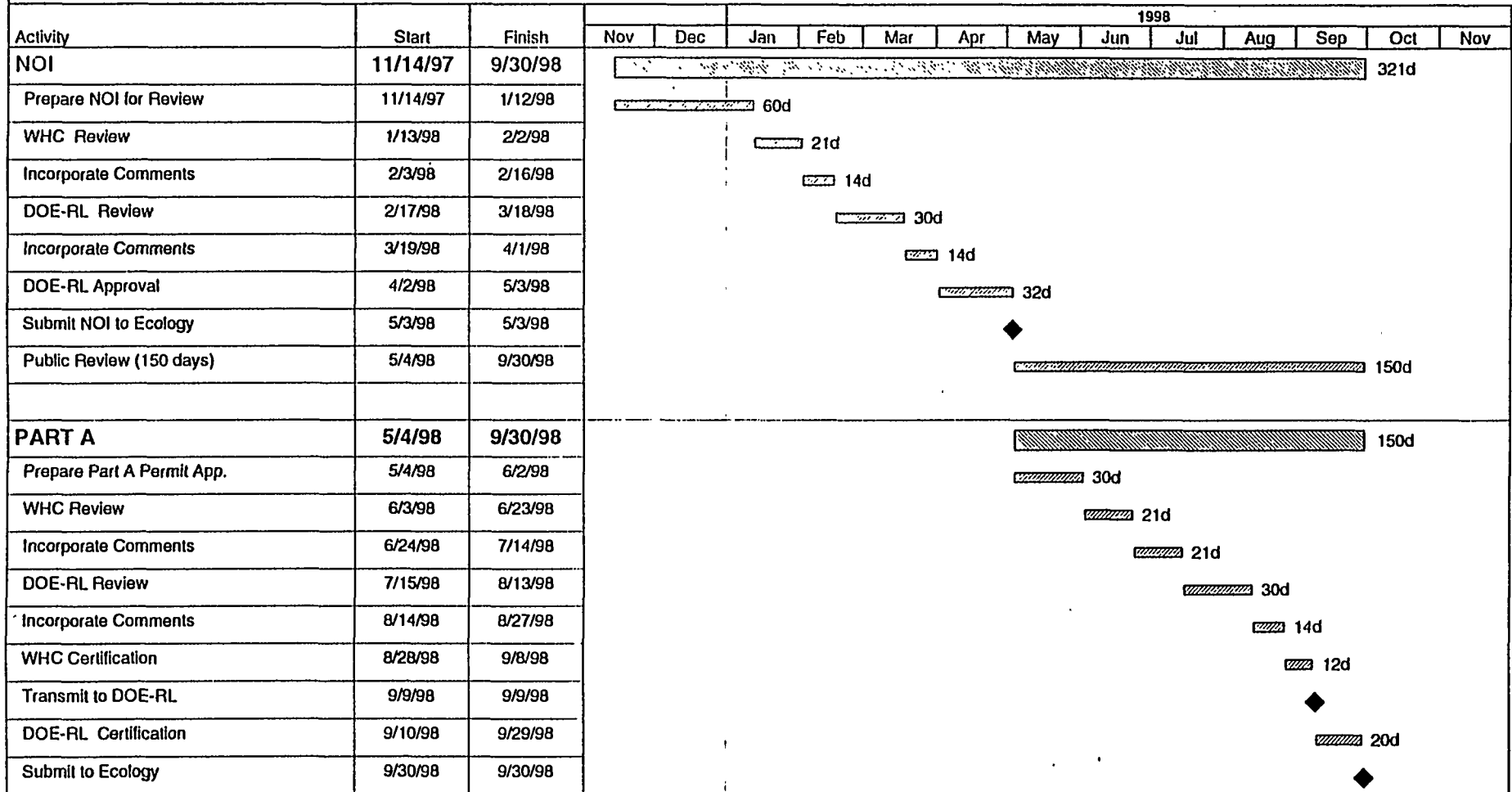
Various avenues may be evaluated in an effort to support the IPM. The alternatives open for consideration are discussed below. See Figure 7 for a NOI, Part A permit application, and Part B permit application schedule. The probability of success (high, medium, low) will follow each listed alternative.

- Interim status has been granted for construction by the Tri-Party Agreement. A Part A permit application would be prepared before construction of the IPM and a Part B permit obtained before operation. (High)
- Pursue interim status under the DST Part A permit application. See Figure 7 for the permitting strategy schedule. Construction could commence once the Part A permit application has been received by the regulators and interim status granted. Approval of the Part B permit application would proceed in parallel with construction of the plant. (Med)

4.4 CONCLUSION

Prepare a Part A permit application for the IPM before construction, and obtain a Part B permit for operation of the IPM.

Initial Pretreatment Module (IPM) Notice of Intent and Part A Permit Application Proposed Schedule



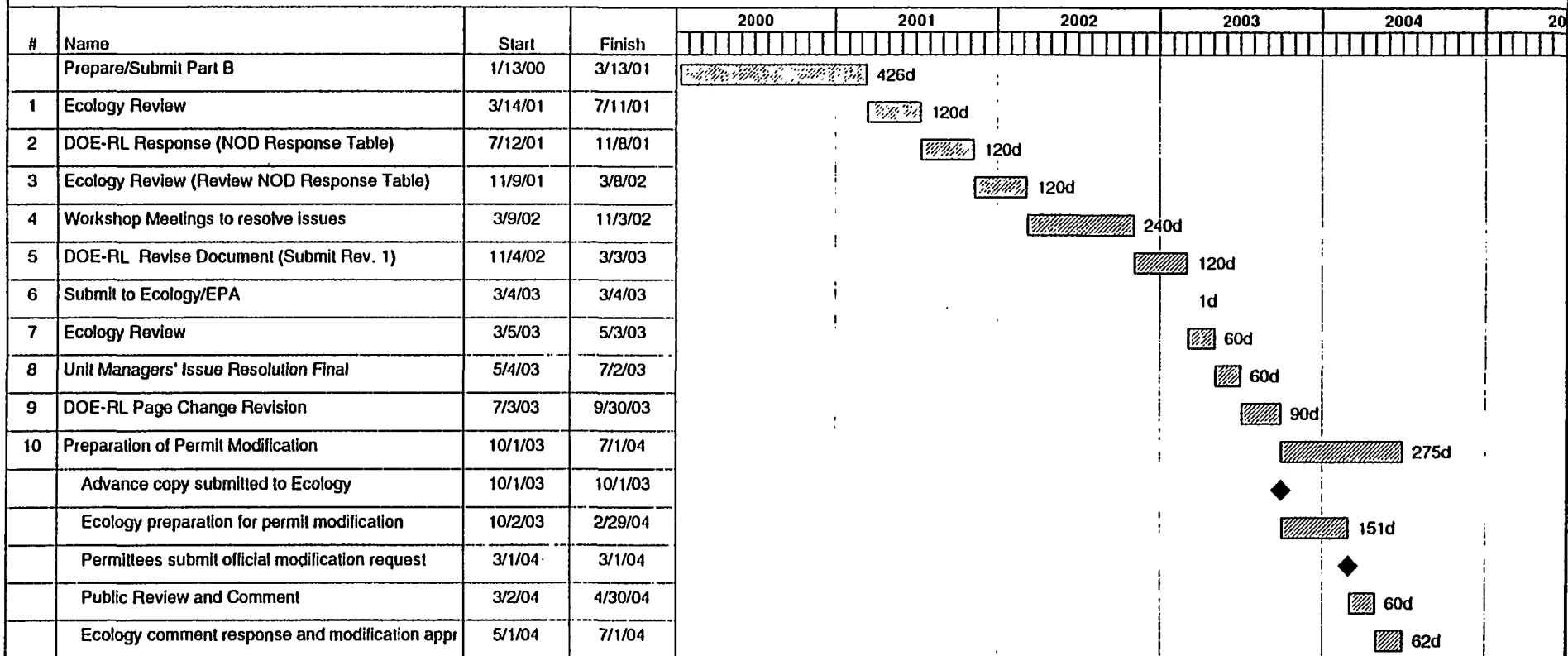
19

File: IPMNOIA.MPW
Date: 1/24/95
Permitting Lead: JF Williams Jr.

Subactivities Milestone
Activities Completed

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Initial Pretreatment Module (IPM) Part B Permit Application Preparation Schedule



File: IPM-B.MPW
Date: 1/24/95
Permitting Lead: M. W. Cline

Scheduled [hatched box] Milestone [diamond]

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5.0 CLEAN AIR ACT OF 1955

The federal *Clean Air Act of 1955* (CAA), 42 USC 7401 et seq., was enacted in 1970, heavily amended in 1977, and overhauled and greatly expanded in 1990. The CAA requires all federal facilities to comply with all applicable federal, state, and local clean air regulations.

5.1 INTRODUCTION

The IPM will require several permits and approvals before construction, treatment, and disposal of the influent waste stream. These permits and approvals will be issued by several regulatory agencies, including the EPA, Ecology, and State of Washington Department of Health (DOH).

Permitting and emission standards administered by these agencies are contained in the following regulations:

- "National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities" (NESHAP) (40 CFR Part 61, Subpart H)
- "Prevention of Significant Deterioration of Air Quality" (PSD) and "General Regulations for Air Pollution Sources" standards (40 CFR 52.21 and WAC 173-400)
- "Radiation Protection - Air Emissions" (WAC 246-247)
- "Controls for New Sources of Toxic Air Pollutants" (TAP) (WAC 173-460)
- "Air Operating Permit Program" (WAC 173-401).

5.1.1 Radioactive Emissions

Radioactive air emissions are currently regulated by both the EPA, pursuant to 40 CFR 61, Subpart H, and the DOH, pursuant to WAC 246-247. Both regulations require preconstruction approval from the respective agencies. Additionally, the DOH requires extensive information on the technologies chosen to control radioactive air emissions, including an assessment of all known control technologies. This assessment, referred to as a best available radionuclide control technology (BARCT) assessment, evaluates the universe of available control technologies. The IPM must install the "best" technology, as determined by the BARCT assessment and as approved by the DOH. The EPA also requires the sampling and monitoring system to meet specific criteria. These criteria, including requirements on the placement and number of sample probes, are applicable if the estimated effective dose equivalent from the facility to the hypothetical maximally exposed offsite individual is greater than 0.1 mrem/yr (i.e., any 12-month period), assuming no emissions control equipment is in place but operations are otherwise normal.

Towards gaining approval from the DOH the WAC 246-247 requires varying degrees of information dependent on the quantity of radionuclide inventory to be involved. It is, therefore, expected that the IPM will require the highest degree of information for the WAC 246-247 application. The IPM will require registration with the DOH. The IPM will also require preconstruction approval under the NESHAP regulations.

Before starting the BARCT assessment required as part of the WAC 246-247 application, a precise description of the IPM processes and expected emissions from those processes must be developed. This information is required to perform an adequate BARCT assessment. Information not normally available until definitive design (particularly concerning sampling equipment and expected emissions) is crucial to the preparation of the permit applications.

5.1.2 Nonradioactive Emissions

Nonradioactive air emissions of concern are expected to fall into one of two categories: criteria pollutants or TAPs.

Criteria pollutants are those pollutants subject to the PSD program, enforced in the State of Washington by Ecology. Ecology has incorporated by reference most of the federal PSD requirements. The IPM is not expected to have emissions exceeding the trigger levels for criteria pollutants.

TAPs are a separate class of emissions, regulated pursuant to WAC 173-460 by Ecology. Over 500 carcinogenic and toxic pollutants are addressed by this regulation. Because the IPM will be a new stationary source regulated under Section 112 of the CAA, WAC 173-460 is applicable, and there is no de minimis level below which preconstruction approval is not required. While WAC 246-247 requires installation of BARCT, the TAPs regulations require the installation of best available control technology for toxics (T-BACT). Additionally, if emissions of pollutants (after controls) exceed the small quantity emission rates included in the regulations, modeling must be performed to demonstrate that the offsite concentration of each pollutant of concern does not exceed the acceptable source impact levels. Some specified air toxins are not assigned small quantity emission rates, and modeling is required for any level of emission.

If any criteria pollutant could potentially be emitted at levels exceeding the significance levels specified in the WAC 173-400, the information required by the PSD process would be included in a combined TAPs/PSD application to Ecology. Ecology refers to these air permit applications as Notices of Construction (NOC).

5.1.3 Radioactive and Nonradioactive Emissions

The air operating permit program was promulgated on October 4, 1993, and requires all major sources to have air operating permits for their facilities. These permits will address air emissions from all units that emit any of the criteria pollutants listed in the federal CAA (e.g., NO_x, SO_x) or any of the 189 hazardous air pollutants listed in the federal CAA (including radionuclides). The permit will establish emission limits and operational

restrictions for all Hanford Site operational units. If a unit becomes operational after the permit is issued by the state, an application to modify the permit will be required.

5.2 SUMMARY OF DATA/INFORMATION REQUIREMENTS FOR NESHAP AND WAC 246-247 PERMIT APPLICATIONS AND NOTICE OF CONSTRUCTION

Detailed information on the treatment process, the emissions abatement system, the gaseous effluent monitoring system, and the nature of all gaseous emissions to the atmosphere is required for submissions made pursuant to the CAA. The information listed below is an abridged summary of the data/information needs for the NESHAP and WAC 246-247 permit applications and the NOC.

5.2.1 Radioactive Emissions

5.2.1.1 NESHAP Approval. 40 CFR 61.07 requires the application for approval to construct to include the following information:

- Precise technical description of the facility and its operations
- Size and location of the source
- Design and operating capacity of the source
- Method of operation (include process flow diagram)
- Nature of all emissions to the atmosphere
 - If a modification, the precise nature of the modification and estimates of emissions before and after completion
- Technical description of emissions control system, including release rates and offsite doses.

5.2.1.2 WAC 246-247 Permit. WAC 246-247 requires the application for approval to construct to include the following information:

- Facility information
 - Description of facility operations
 - Facility identification must be the same as it appears on source registration forms
- Identification and listing of all sources consistent with the source registration identification
- Description of the source(s)
 - System function and area exhausted

- Effluent system layout
- Efficiency values of each control device for removal of radioactivity
- Means and frequency of testing and inspecting effluent treatment system
- Operating mode (continuous or batch)
- Chemical and physical nature of the emissions
- Stack or release point data
- Stack diameter and height
- Building height, width, and length
- Annual ambient average stack and ambient air temperatures
- Annual wind rose
- Chi/Q data
- Annual average volumetric flow rate
- Annual average release rates
- Fraction of facility's inventory available for potential release to the air
- Description of the effluent sampling/monitoring systems
 - Stack flow measuring system
 - Sample probes (isokinetic)
 - Number and location of sampling points
 - Sample lines
 - Diameters, lengths, materials, bends, entry points into the effluent line, angle of entry into the effluent
 - Sample flow regulation
 - Sampling media
 - Frequency of sampling (continuous or batch)
 - Frequency of sample collection
 - Calibration and audit schedules

- Environmental sampling monitoring system
 - Sampling network (location, number, distance from release points)
 - Media sampled/monitored for the air pathway
 - Equipment used for sampling/monitoring, including sampler flow rate and collection media
 - Frequency of sampling/monitoring
 - Calibration and audit frequency
- Hanford Site requirements for effluent sampling/monitoring system designs, procedures, and quality assurance standards (appropriate standards and description of how they are used)
- Effluent sample analyses including: methodology, procedure references, detection limits, quality assurance (including internal audit schedule and results)
- Environmental sample analysis including methodology, procedure references, detection limits, quality assurance
- Data from effluent and environmental monitoring programs, including background or local control data
- Demonstration of compliance
 - Methodology used to demonstrate compliance
 - Input data used
 - Source terms, release height, inhalation rate, maximally exposed individual, meteorology
 - Results of method (effective dose equivalent for whole body and relevant organs)
 - Description of internal standards used to ensure compliance with applicable state and federal laws and regulations.

5.2.2 Nonradioactive Air Emissions

5.2.2.1 PSD Permit. WAC 173-400 requires the application for approval to construct to include such information as:

- Project location and emission source(s)
- Design and operating parameters
 - Hours of operation

- Normal and maximum production rates
- Fuel requirements
- Raw material requirements
- Emissions control system
- Emissions - type and quantity
 - Representative emissions from the existing source (for modification) over the most recent 2-year period of operation
 - Projected actual controlled emissions at anticipated production rates and operating schedule for each pollutant at each emission point
 - Projected potential controlled emissions; emission rate when equipment is operating at maximum capacity 24 hours/day, 365 days/year, taking air pollution control equipment into account
- Best available control technology (BACT) assessment
 - Literature search
 - Control alternatives: comparison of efficiencies; energy, environmental, and economic impact analyses
 - Summary
- Analysis of current air quality at the proposed source location
 - Presently existing ambient levels of the constituents being reviewed (from Pacific Northwest Laboratory data)
- Analysis of the impact of the proposed source on ambient air quality
 - Model description
 - AIRDOS or other EPA-approved code
 - Meteorological data (wind speed, direction, temperature)
 - Modeling results (includes unabated and abated emissions)
 - Offsite dose
- Demonstration that the proposed emission will not cause a violation of state or national ambient air quality standards
 - Direct comparison of modeling results with national ambient air quality standards

- Discussion of potential effects of the proposed project on factors influenced by air quality, such as residential or commercial growth, vehicular traffic, vegetation, soils, acid deposition, visibility in sensitive areas, PSD increments
- Construction schedule.

5.2.2.2 Notice of Construction. WAC 173-400 and 173-460 require the application for approval to construct to include the following information:

- SEPA checklist
- NOC form
- Description of proposed source
 - Bid specifications, rated capacity, inputs, outputs, and byproducts generated
 - Bid specifications, control efficiency, and operational requirements of the pollution control equipment
 - Process flow diagram
 - Estimate of stack emissions, including criteria and TAPs
- Estimate of fugitive (nonstack) emissions
- BACT/T-BACT analysis
- Modeling.

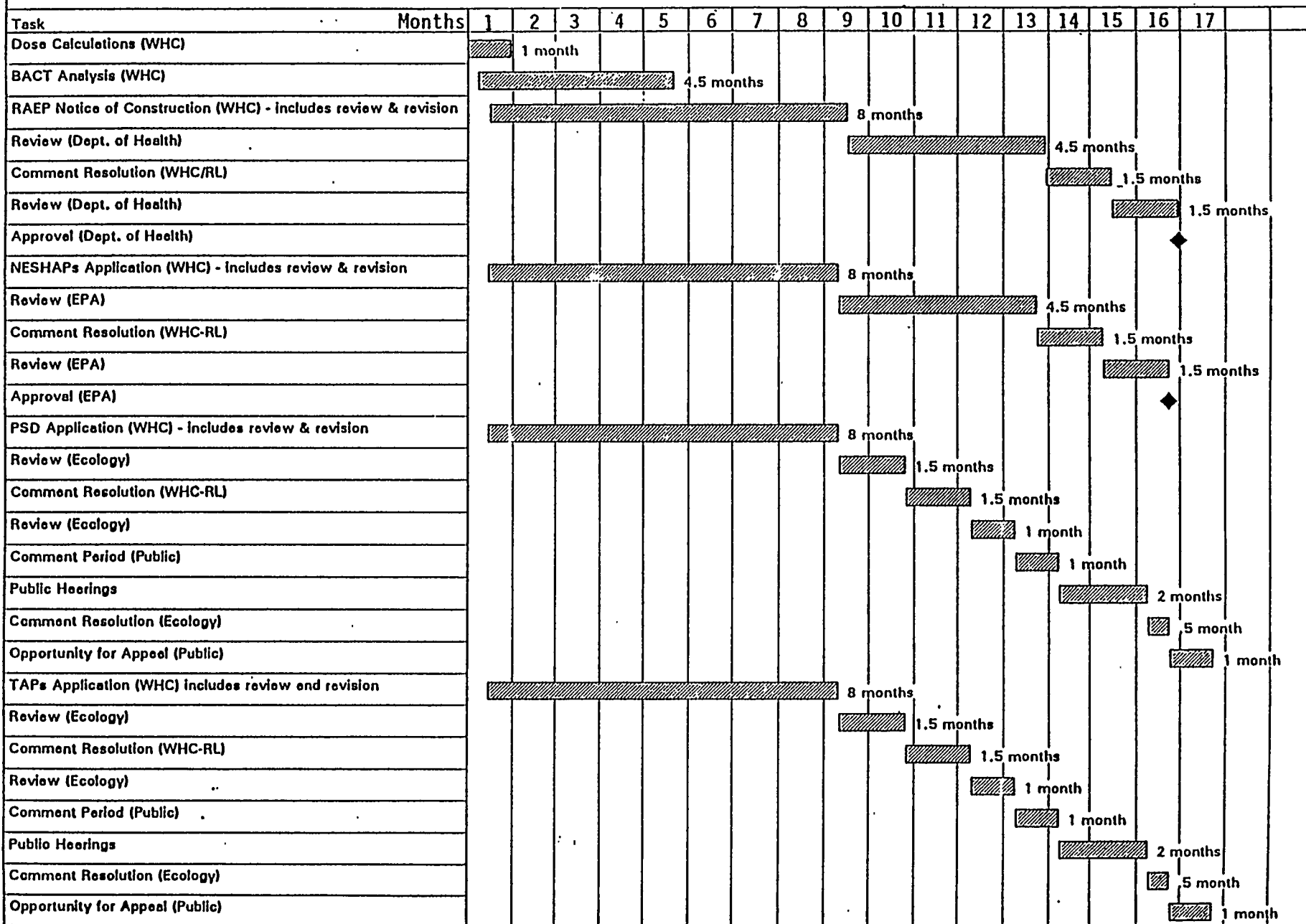
5.3 DISCUSSION OF ALTERNATIVES FOR THE IPM

The IPM may require submittal of the listed applications. The length of the permitting process is dependent on the quantity of emissions and facility inventory. See Figure 8 for a typical air permitting schedule. The probability for approval of all air permit applications is high.

5.4 CONCLUSION

It is expected that the IPM will require the highest level of information for the WAC 246-247 and NESHAPs applications. The IPM is not expected to have emissions exceeding the trigger levels for PSD criteria pollutants. Preconstruction approval will be required under WAC 173-460 (TAPs). If any criteria pollutant approaches its trigger level, the information required by the PSD process would be included in a single TAPs/PSD application to Ecology. Ecology refers to these air permit applications as NOCs. A source registration for the DOH may also be required. The probability for approval of the air permit applications is high. A modification to the Hanford Site air operating permit will be required.

Air Permitting Normal Schedule



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6.0 SANITARY WASTEWATER PERMITTING

The domestic wastewater generated at the IPM will be disposed to a permitted septic system. The permitting requirements for septic systems with a design capacity of less than 54,888 L/day (14,500 gal/day) are found in WAC 246-272, "On Site Sewage Disposal."

6.1 INTRODUCTION

The regulations require that plans and specifications for the sanitary sewer system be submitted to DOH for approval before construction. After installation, a professional engineer registered in the state of Washington must certify that the sewer system has been installed in accordance with the plans and specifications approved by DOH. Also, an operation and maintenance manual must be submitted to DOH.

6.2 SUMMARY OF DATA/INFORMATION REQUIREMENTS FOR SEPTIC SYSTEM PERMITTING

- Description of site, project description, disposal and treatment concept, number of occupants, and location of water supply are required for preparation of the preliminary report.
- Design criteria and calculations, schematic flow diagram, and detailed construction drawings are required for submittal of the application for "approval to construct" to the DOH.
- Catalog cuts, final drawings and specifications, and certification by a professional engineer that the system was installed per the approved drawings, as well as maintenance and operating procedures are required for final approval to operate by the DOH.

6.3 ANALYSIS OF ALTERNATIVES FOR IPM

There are three basic alternatives for the IPM sanitary wastewater system. Figure 9 shows a normal septic system permitting schedule. The alternatives and probability of success include:

- Construction of a new system sized to accommodate the facilities supporting the IPM (High)
- Tying into an existing sanitary wastewater system, if one is close by and if there is additional permitted capacity (Med)
- Providing piping to tie into the collection system supporting the 200 Area Sanitary Waste Water System, if constructed. This project is currently in the developmental stage and has not been validated yet. (Med)

Septic System Normal Schedule

Name	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7
Preliminary Report, Site Inspection, Sieve Analysis		1 month					
Submit Plans to DOH, Respond to Comments					2.5 months		
Plan Approval (DOH)				◆			
Submit Final Report, Respond to Comments *							2 months
Approval to Construct (DOH)						◆	

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Project: Septic Sys.
Date: 3/2/93
Prepared by: GH Landeen

Scheduled Milestone ◆

* After Construction end final site inspection by DOH, an operations and maintenance manual and a certification form must be submitted to Ecology. This requires 2.5 months.

6.4 CONCLUSION

The alternatives for disposal of sanitary wastewater for the IPM include construction of a new system sized at less than 54,888 L/day (14,500 gal/day). This alternative has a higher probability of success, although it may be more cost-effective to either tie into an existing system or provide piping to tie into the collection system for the 200 Area Sanitary Wastewater System, if these options are available. The decision on whether to construct the 200 Area Sanitary Wastewater System should have been made by the time the Title II design is ready to begin.

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7.0 MISCELLANEOUS ASSESSMENTS, PERMITS, AND APPROVALS

In addition to the major regulatory programs discussed in this permitting plan, several miscellaneous assessments/permits/approvals need to be addressed.

7.1 FLOODPLAIN/WETLAND ASSESSMENT

A floodplain/wetland assessment applies to all proposed floodplain/wetland actions per 10 CFR 1022, "Compliance with the National Environmental Policy Act." The proposed action shall be so designed as to minimize potential harm to or within a floodplain. The assessment should be performed within the NEPA process (10 CFR 1022). The regulatory agency is RL.

7.2 CULTURAL RESOURCE REVIEW CLEARANCE

A cultural resource review/clearance shall be performed before initiating any potential surface disturbing activities onsite per 36 CFR 800, "Protection of Historic and Cultural Properties." The regulatory agency is RL.

7.3 EXCAVATION PERMIT

An excavation permit is required before initiating any potential surface disturbing activities onsite (36 CFR 800, "Protection of Historic and Cultural Properties"). The regulatory agency is RL.

7.4 ENDANGERED SPECIES APPROVAL

A site assessment should be made to determine whether any planned activities have the potential to disturb any habitat used by wildlife before construction or habitat modification (50 CFR 402.6, "Interagency Cooperation Endangered Species Act of 1973"). The regulatory agency is the U.S. Fish and Wildlife Service.

7.5 FACILITY FIRE PROTECTION STANDARDS

The facility shall comply with standards in DOE Order 5480.7, *Safety of Nuclear Facilities*, to appropriately prevent loss (DOE Order 5400.5, *Radiation Protection of the Public and the Environment*). The regulatory agency is RL.

7.6 PREOPERATION MONITORING OF FACILITIES, SITES, AND OPERATIONS

An environmental study must be conducted before startup of a new site, facility, or process that has the potential for significant adverse environmental impact (DOE Order 5400.1, *General Environmental Protection Program*). The regulatory agency is RL.

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