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1	1, 2	Env R. C. Bowman	<i>R. C. Bowman</i>	11-10-94							

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Manipulator Retrieval Arm

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Name: K. S. Tollefson

Kathleen S. Tollefson
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7. Abstract

This document describes the regulatory requirements and describes alternative strategies for obtaining permits and approvals for Project W-340, Tank 241-C-106 Manipulator Retrieval Arm

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Approved by: M. W. Cline 10/12/94
M. W. Cline
RCRA Permitting Date

Approved by: C. E. Sowa 10/17/94
C. E. Sowa
Air and Water Permitting Date

Approved by: W. J. Rued 10/17/94
W. J. Rued
NEPA and SEPA Date

Approved by: Kathy S. Tollefson 10/12/94
K. S. Tollefson
Environmental Project Services Date

Approved by: L. B. McDaniel 11-7-94
L. B. McDaniel
Tank Waste Projects Date

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EXECUTIVE SUMMARY

This document describes the permitting plan for Project W-340, 241-C-106 Manipulator Retrieval Arm. This project also is referred to as the Project W-340 Long Reach Manipulator Arm.

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 design, construction, and operation of the facility. The environmental reviews, permits, and approvals, as well the regulatory authority potentially applicable to the Project W-340 Long Reach Manipulator Arm include the following:

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

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

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

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

- *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*

- *Miscellaneous Reviews/Permits/Approvals*
 - *Preoperation Monitoring of Facilities, Sites, and Operations - U.S. Department of Energy, Richland Operations Office*
 - *Cultural Resource Review Clearance - U.S. Department of Energy, Richland Operations Office*
 - *Excavation Permit - U.S. Department of Energy, Richland Operations Office*
 - *Endangered Species Approval - U.S. Department of Energy, 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 estimated probability of success for each alternative strategy.

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LIST OF TERMS

ADM	Action Description Memorandum
BARCT	best available radionuclide control technology
CAA	<i>Clean Air Act of 1955</i>
CFR	<i>Code of Federal Regulations</i>
DNS	determination of nonsignificance
DOE	U.S. Department of Energy
DOH	State of Washington Department of Health
DS	determination of significance
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
LRM	Long Reach Manipulator (Arm)
NESHAP	National Emission Standards for Hazardous Air Pollutants
NEPA	<i>National Environmental Policy Act of 1969</i>
NOC	Notice of Construction
NOI	Notice of Intent
Part A	Part A permit application
Part B	Part B permit application
PSD	Prevention of Significant Deterioration
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RL	Richland Operations Office
SEPA	<i>State Environmental Policy Act of 1971</i>
SST	single-shell tank
TAP	toxic air pollutant
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
TWRS	Tank Waste Remediation System
USC	United States Code
WAC	<i>Washington Administrative Code</i>

**PERMITTING PLAN FOR PROJECT W-340, TANK 241-C-106
MANIPULATOR RETRIEVAL SYSTEM**

1.0 INTRODUCTION

This document describes permitting requirements for design, construction, and demonstration of waste retrieval technology from single-shell tanks (SST).

Demonstration of SST retrieval technology is currently required by Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-45-03-T02, "Complete SST Waste Retrieval Demonstration of Tank C-106." Tri-Party Agreement Milestone M-45-03-T01 is to complete a full-scale demonstration of SST retrieval technology by September 2003. This demonstration of SST retrieval technology will be considered complete when no less than 99% of the waste inventory is removed from the tank. The retrieval technologies selected for demonstration are past-practice sluicing (Project W-320) and the W-340 Long Reach Manipulator (LRM). Project W-320 will first retrieve the soft, high-heat sludge from the tank. The W-340 LRM will then be deployed to retrieve the hard sludge from the bottom of Tank 241-C-106. This system is expected to eventually support retrieval from additional SSTs.

The retrieval system developed for this study is based on an LRM operating through a new or existing tank opening. The LRM has a retrieval tool attached to the end of it that breaks up the waste. A conveyance system transports the waste into an accumulation tank above ground. The waste then is slurried with water and pumped, via a *Resource Conservation and Recovery Act of 1976* (RCRA)-compliant waste transfer pipeline, to an interim double-shell storage tank before treatment and disposal. The W-340 LRM retrieval is scheduled to start by February 2002.

This permitting plan has been prepared based on the W-340 LRM functional and operational requirements document (WHC-SD-W340-FRD-001, Rev. 0, *Functional and Operational Requirements for Tank 241-C-106 Manipulator Retrieval System Project W-340*) and the engineering report for the project (WHC-SD-W340-ER-001, Rev. 0, *Tank 241-C-106 Penetration Enlargement, Sequencing, and Construction Estimate*).

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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 U.S. Department of Energy (DOE) regulations (10 *Code of Federal Regulations* [CFR] 1021, "Compliance with the National Environmental Policy Act") promulgated under NEPA were developed to assess impacts to the environment associated with specific DOE proposals or actions.

2.1 INTRODUCTION

If a proposed action is covered under an existing approved Environmental Impact Statement (EIS) or Environmental Assessment (EA), the relevant Record of Decision or finding of no significant impact (FONSI) should be examined to ensure the proposed action is adequately bounded by existing documentation.

An Action Description Memorandum (ADM) is developed if it is unclear whether the possibility exists for the proposed action to have a potentially significant impact on the environment. The ADM provides a brief but concise description of the proposed action and potentially affected environment. All ADMs are sent to the Richland Operations Office (RL), and subsequently may be transmitted to DOE, Headquarters 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. This determination will result in a decision that the proposed action is either a major action significantly affecting the environment, which would then require the preparation of an EIS, or will require the issuance of a FONSI, as necessary.

2.2 DATA/INFORMATION REQUIREMENTS SUMMARY FOR THE W-340 LRM

See Appendix A, Section A1.0, for a summary of the minimum data/information needs required for development of the NEPA documentation for the W-340 LRM.

2.3 ALTERNATIVES FOR THE W-340 LRM

Various NEPA compliance alternatives may be available in an effort to support the W-340 LRM. The probability of success (high, medium, low) will follow each listed alternative. See Figure 1 for an integrated schedule of the project.

- Alternative one is the possibility of NEPA coverage under the Tank Waste Remediation System (TWRS) EIS. (Med)
- To determine the most appropriate type of NEPA coverage, an ADM can be prepared. This would likely result in a determination that an EA is required. The desired outcome of the EA would be a FONSI, after which the project could proceed. (Med)
- Same as alternative two (second bullet) but the outcome of the EA is a requirement to prepare an EIS. (Low)

2.4 CONCLUSION

NEPA coverage under the TWRS EIS and preparation of an EA have an equal probability of success. RL will make the final decision as to which alternative to pursue.

2.5 SCHEDULE PERMITTING STRATEGY

The current schedule reflects preparation of an EA and incorporation of the project into the TWRS EIS. The schedule will be revised when RL decides which alternative to pursue.

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 implementing regulations are found in Chapter 197-11 of the *Washington Administrative Code* (WAC), "SEPA Rules."

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., hazardous waste permit, building permit) or other approval from a governmental agency before operation. At the Hanford Site, the State of Washington Department of Ecology (Ecology) is the lead agency for projects ("actions") involving permitting of hazardous waste treatment, storage, and/or disposal 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. In addition to the normal permits or approvals, SEPA compliance is required for a project.

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 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 regulations allow the lead agency to adopt a NEPA EA or EIS in lieu of doing additional review under SEPA (WAC 197-11-610). See Figure 1 for an integrated schedule for the W-340 LRM.

3.2 DATA/INFORMATION REQUIREMENTS SUMMARY FOR THE W-340 LRM

See Appendix A, Section A2.0, for a summary of the minimum data/information needs required for development of the SEPA documentation for the W-340 LRM.

3.3 ALTERNATIVES FOR THE W-340 LRM

Various SEPA avenues may be evaluated in an effort to support the W-340 LRM. The alternatives open for consideration are discussed below. The probability of success (high, medium, low) will follow each listed alternative.

- A DS by Ecology and subsequent adoption of NEPA documentation by Ecology for the W-340 LRM. (High)
- A mitigated DNS from Ecology. (Low)
- A DS from Ecology and requirement to prepare a separate state EIS. (Low)
- A DNS from Ecology. (Low)

3.4 CONCLUSION

A SEPA environmental checklist must be prepared for the W-340 LRM. This checklist should accompany the first application for approval or permit to Ecology. Ecology will probably issue a DS and, subsequently, adopt the NEPA documentation for the W-340 LRM.

3.5 SCHEDULE PERMITTING STRATEGY

A SEPA checklist will be submitted with the toxic air pollutant application notice of construction for the W-340 LRM. It is assumed that the outcome will be adoption of the NEPA documentation by Ecology.

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/or disposed to minimize the present and future threat to human health and the environment. In Washington State, the "Dangerous Waste Regulations," WAC 173-303, are the implementing regulations.

4.1 INTRODUCTION

The "Dangerous Waste Regulations" apply to all facilities within Washington State 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 treatment, storage, and/or disposal facilities must obtain a permit, unless interim status has been granted by Ecology. Facilities that were in existence on November 19, 1980, were granted an interim status permit with the submittal of a Part A permit application (Part A) 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 (Part B) 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 of an existing interim status facility, comprising less than 50% of the existing capital investment, can proceed under interim status. Expansion to an existing interim status facility, comprising 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 Notice of Intent (NOI), the Part A, and the Part B. The Part A for the SST system has recently been revised to include waste removal as a treatment. This identified mechanical, sluicing, and other means for the removal process. Preparation of an NOI and Part B are not necessary and no further discussion of these two components will take place. See Figure 1 for an integrated schedule for the W-340 LRM.

4.1.1 Part A

The Part A consists of the Dangerous Waste Part A, Forms 3. The Part A can be submitted no earlier than 150 days after the NOI is published. The Part A preparation process (following the submittal of the NOI) requires approximately 5 months to complete, including the Westinghouse Hanford Company/RL review and certification requirements.

4.2 DATA/INFORMATION REQUIREMENTS SUMMARY FOR THE W-340 LRM

See Appendix A, Section A2.0, for a summary of the minimum data/information needs required for development of the RCRA documentation for the W-340 LRM.

4.3 ALTERNATIVES FOR THE W-340 LRM

A revision has been made to the Part A for the SST system. No further RCRA permitting is required.

4.4 CONCLUSION

An information copy of the final design package for the W-340 LRM may be requested by Ecology.

4.5 SCHEDULE PERMITTING STRATEGY

A revised Part A was prepared and submitted for the SST system, which included the scope of this project. No further RCRA permitting is required. An information copy of the final design package for the W-340 LRM may be requested by Ecology.

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.

5.1 INTRODUCTION

The W-340 LRM 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 U.S. Environmental Protection Agency (EPA), Ecology, and State of Washington Department of Health (DOH). See Figure 1 for an integrated schedule for the W-340 LRM.

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

- "National Emission Standards for Hazardous Air Pollutants" (NESHAP) (40 CFR 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. For the W-340 LRM, the project must install the "best" technology, as determined by the BARCT assessment. 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 dose equivalent from the facility to the maximally exposed offsite individual is greater than 0.1 millirem per year and when, hypothetically, no emissions control equipment is in place but operations are otherwise routine.

WAC 246-247 requires varying degrees of information dependent on the quantity of emissions. It is expected that the W-340 LRM will require the highest level of information for the WAC 246-247 application, and will require preconstruction approval under the NESHAP regulations. In addition, the W-340 LRM will require registration with the DOH.

Before starting the BARCT assessment, extensive information on the 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 and TAPs.

Criteria pollutants are those pollutants subject to the PSD program, enforced in Washington State by Ecology. Ecology has incorporated, by reference, most of the federal PSD requirements. The W-340 LRM 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 in this regulation. Because emissions of TAPs will occur during demonstration of the W-340 LRM, WAC 173-460 is applicable, and there is no de minimis level for the W-340 LRM below which preconstruction approval is not required. While WAC 246-247 requires installation of BARCT, the TAP regulations require the installation of best available control technology for toxics. Additionally, if emissions of TAPs (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 pollutants do not have 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 by WAC 173-400, the information required by the PSD process would be included in a single application to Ecology covering both TAPs and criteria pollutants. Ecology refers to these air permit applications as Notices of Construction (NOC).

5.1.3 Air Operating Permit

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

5.2 DATA/INFORMATION REQUIREMENTS SUMMARY FOR NESHAP AND WAC 246-247 PERMIT APPLICATIONS AND NOC

See Appendix A, Section A4.0, for a summary of the minimum data/information needs required for development of each of the air permit applications.

5.3 ALTERNATIVES FOR THE W-340 LRM

The W-340 LRM may require submittal of all listed applications. The length of the permitting process is dependent on the quantity of emissions and facility inventory. See Figure 1 for an integrated schedule for the W-340 LRM. The probability of successfully approving all air permit applications is high.

5.4 CONCLUSION

The W-340 LRM 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. The probability of successfully approving the air permit applications is high. The length of time shown in the normal air permitting schedule may be shortened if information crucial to permit application preparation is provided as soon as possible. A modification to the air operating permit will be required pursuant to WAC 173-401. It is expected that the W-340 LRM will require the highest level of information for the WAC 246-247 and the NESHAPs applications. The W-340 LRM is not expected to have emissions exceeding the trigger levels for criteria pollutants. Preconstruction approval will be required under WAC 173-460 (TAPs). If any criteria pollutant exceeds its significance 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 modification to the Hanford Site air operating permit will be required. The probability of successfully approving the air permit applications is high.

5.5 SCHEDULE PERMITTING STRATEGY

The following assumptions were made to support development of the air permitting schedule for the W-340 LRM. The assumptions are: air emissions will not exceed the trigger levels for PSD pollutants; preconstruction approval will be required under WAC 173-460 (TAPs); a modification to the air operating permit will be required; WAC 246-247 and NESHAPs applications for approval to construct will be required; and information required to prepare the air permitting applications will be available when requested.

6.0 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.

6.1 CULTURAL RESOURCE REVIEW

A cultural resource review shall be performed before initiating any potential surface disturbing activities onsite (36 CFR 800, "Protection of Historical and Cultural Properties"). The regulatory agency is RL. The cultural resource review shall be submitted with the EA to RL.

6.2 EXCAVATION PERMIT

An excavation permit is required before initiating any potential surface disturbing activities onsite (36 CFR 800). The regulatory agency is RL. This permit will be prepared before construction of any tank farm interfaces.

6.3 ENDANGERED SPECIES ACT OF 1973 COMPLIANCE

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. For onsite construction, a biological survey is performed by Westinghouse Hanford Company.

6.4 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. This monitoring shall be started at least 1 year before W-340 LRM demonstration.

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Figure 1. Project W-340, 241-C-106 Long Reach Manipulator Arm Schedule. (4 sheets)

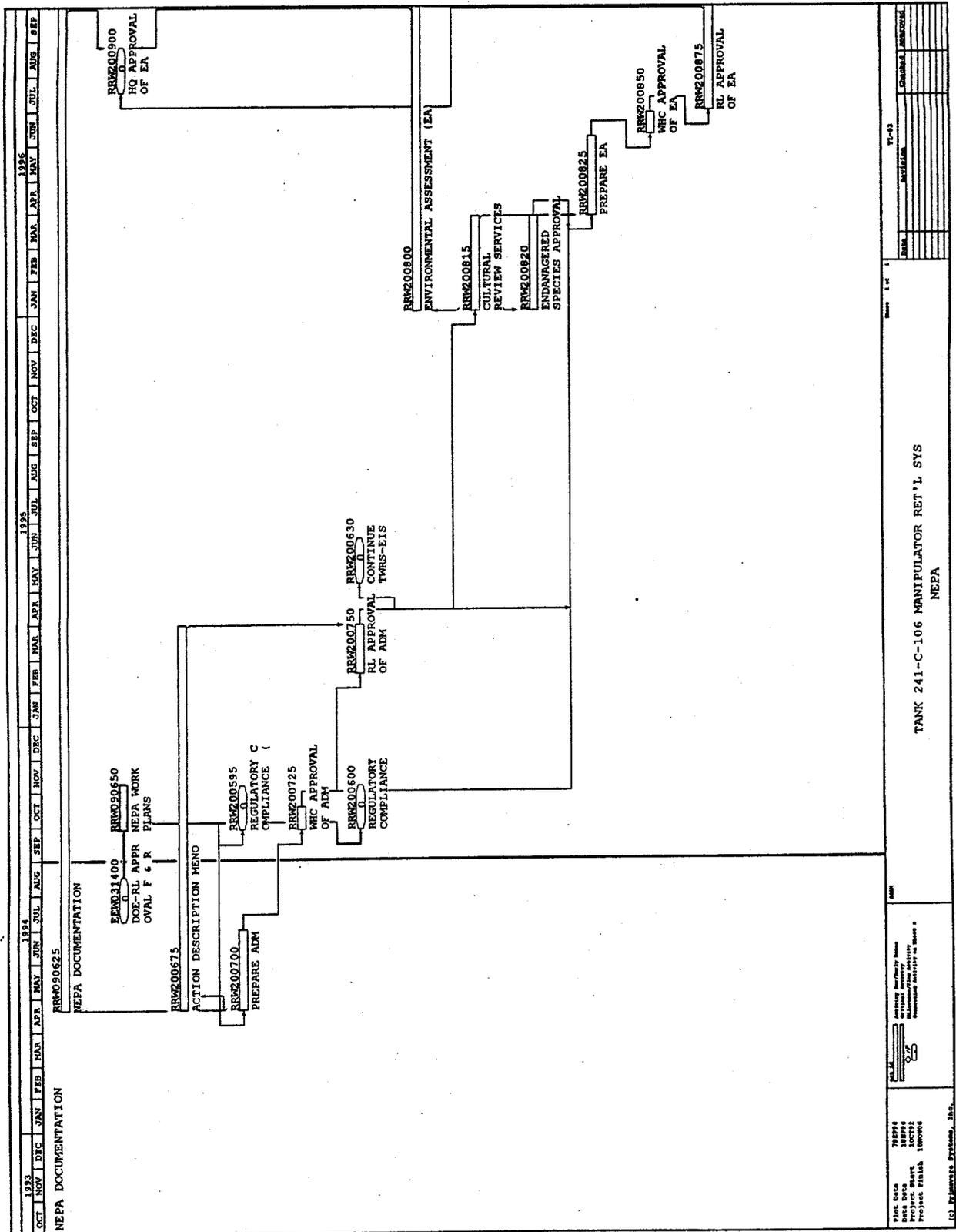
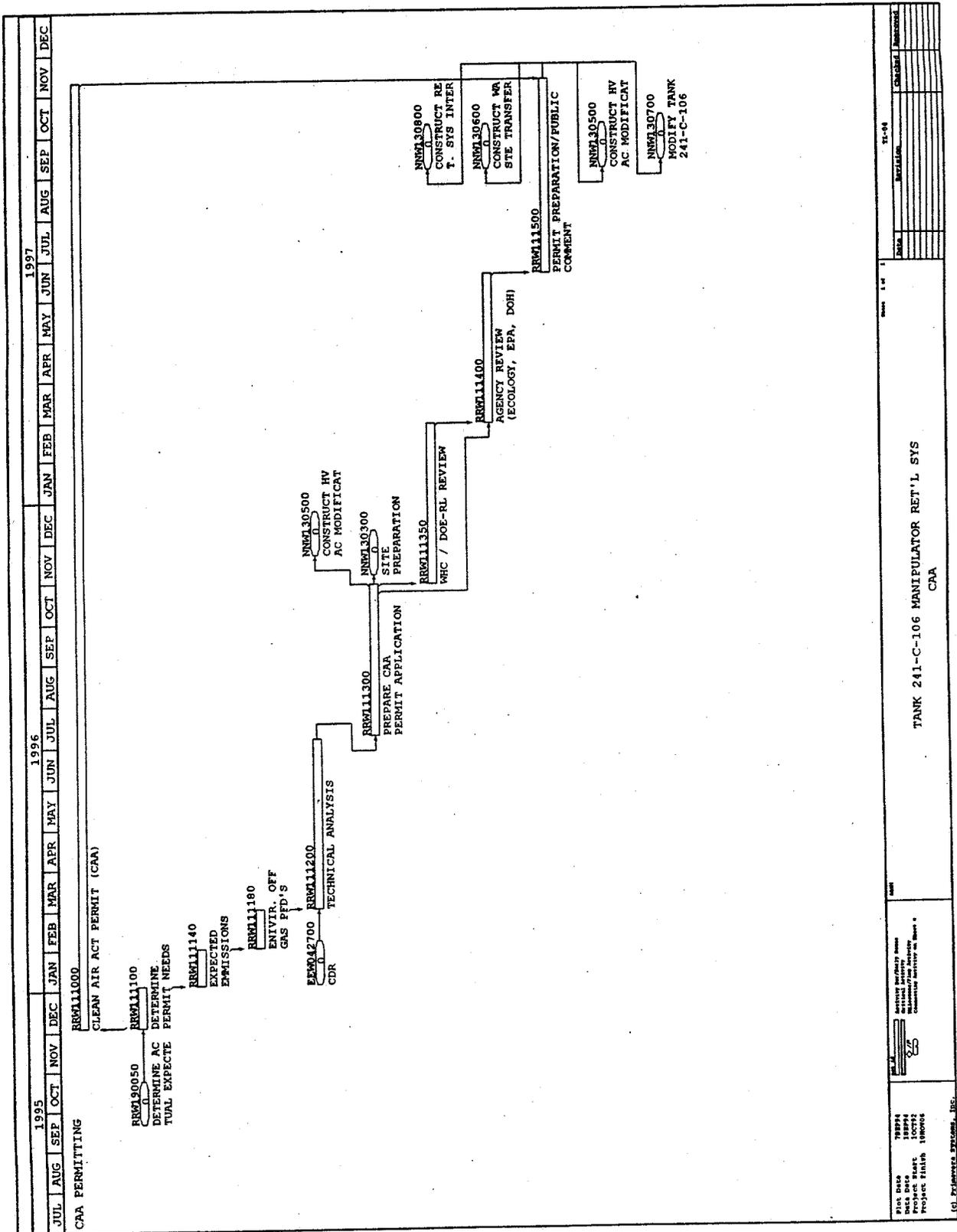


Figure 1. Project W-340, 241-C-106 Long Reach Manipulator Arm Schedule. (4 sheets)



APPENDIX A

**DATA/INFORMATION REQUIREMENTS SUMMARY FOR
THE W-340 LONG REACH MANIPULATOR ARM**

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**DATA/INFORMATION REQUIREMENTS SUMMARY FOR
THE W-340 LONG REACH MANIPULATOR ARM**

A1.0 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

The minimum data/information requirements for *National Environmental Policy Act of 1969* (NEPA) documentation preparation are:

- Conceptual or equivalent design information
- Preliminary Safety Evaluation, including a "source term" to determine health effects and accident scenarios
- Any other related engineering, safety, or waste evaluation documents that would be helpful in NEPA preparation.

A2.0 STATE ENVIRONMENTAL POLICY ACT OF 1971

The minimum data requirements for preparation of the *State Environmental Policy Act of 1971* (SEPA) environmental checklist include:

- Conceptual or equivalent design information
- Any NEPA documentation that has been prepared or will be prepared for the W-340 Long Reach Manipulator (Arm) (LRM)
- Any other related engineering, safety, or waste evaluation documents that would be helpful in SEPA environmental checklist preparation.

**A3.0 RESOURCE CONSERVATION AND
RECOVERY ACT OF 1976**

Information normally required for this section is not included because the Part A revision to the SST system has been completed. An information copy of the final design package may be requested by the State of Washington Department of Ecology (Ecology).

A4.0 CLEAN AIR ACT OF 1955

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 *Clean Air Act of 1955*. The following information is an abridged summary of the data/information needs for the National Emission Standards for Hazardous Air Pollutants (NESHAP) and *Washington Administrative Code (WAC) 246-247* permit applications and Notice of Construction.

A4.1 RADIOACTIVE EMISSIONS

A4.1.1 National Emissions Standards for Hazardous Air Pollutant Approval

The 40 Code of Federal Regulations (CFR) 61.07 requires the application for approval to construct to include the following information:

- 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 gaseous 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.

A4.1.2 WAC 246-247 Approval

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

- Facility information
 - Description of facility operations
 - Identification must be the same as that which 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.

A4.2 NONRADIOACTIVE AIR EMISSIONS

A4.2.1 Prevention of Significant Deterioration Approval

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 per day, 365 days per 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 - EPA
 - Meteorological data (wind speed, direction, temperature)
 - Modeling results
 - 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, Preventional of Significant Deterioration increments
- Construction schedule.

A4.2.2 Notice of Construction

WAC 173-400 and 173-460 require the application for approval to construct to include the following information:

- SEPA checklist
- Notice of Construction 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 toxic air pollutants
- Estimate of fugitive (nonstack) emissions
- BACT/best available control technology (T-BACT) analysis
- Modeling.