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EPA PROJECT OFFICER

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PROJECT WORK PLAN
PART 1: VINYL CHLORIDE REVIEW STUDY

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PART 1: VINYL CHLORIDE REVIEW STUDY

Project Work Plan

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has contracted TRW Environmental Engineering Division to conduct a review study of the vinyl chloride emission standard. A recommendation to revise the current standard may result from this review study. The entire project, including revision if necessary, will be accomplished in two parts as follows:

- Part 1: Vinyl Chloride Review Study
- Part 2: Vinyl Chloride Standard Revision

The vinyl chloride standard was promulgated in 1976 under Section 112 of the Clean Air Act, National Emission Standards for Hazardous Air Pollutants (NESHAP), and is applicable to new and existing sources of vinyl chloride. The proposed NESHAP "Policy and Procedures for Identifying, Assessing, and Regulating Airborne Substances Posing a Risk of Cancer" (Carcinogen Policy - 40 CFR Part 61) would require that emission standards promulgated under Section 112 be reviewed at no more than 5-year intervals.

On March 25, 1980, EPA requested that a draft project work plan for review of the vinyl chloride standard be submitted by April 11, 1980. A draft work plan was submitted on that date to EPA for review. This project work plan "Part 1: Vinyl Chloride Review Study" represents the result of the EPA review and describes the work effort planned by TRW to complete a review study of the vinyl chloride emission standard.

Contingent upon the need for a revision, the initial review study will provide most of the data base necessary to revise the standard and determine the level and direction of work effort required for "Part 2: Vinyl Chloride Standard Revision." At the end of the Part 2 study, a Background Information Document (BID) will be prepared which will provide the background information for revision of the standard.

There are no published procedures presently available for the review and revision of an existing NESHAP. Therefore, TRW has developed this "Part 1: Vinyl Chloride Review Study" work plan based somewhat on the Contractor's Procedures Manual for Development of National Emission Standards and assistance from EPA personnel experienced in this area.

2.0 PROJECT OBJECTIVE AND SCOPE OF WORK

The existing vinyl chloride emission standard covers the production of ethylene dichloride (EDC), vinyl chloride monomer (VCM) and polyvinyl chloride (PVC) resin. The purpose of this study is to review the existing emission standard and collect data and information needed for revision of the standard. To accomplish this, the review study will concentrate on the following four major areas of concern:

1. Control Technology. The objective will be to review, collect data on, and assess "existing technologies" used to control known emission points covered by the standard - process, fugitive and storage emissions. An assessment will also be made to identify anything beyond this level of "existing technologies". A preliminary cost analysis will be made of these technologies and the review will take into consideration that levels of control may be different for new and existing sources of vinyl chloride. Results of these control technology assessments during Part 1 will provide most of the data base needed for determining Best Available Technology (BAT) during Part 2 of the project.

2. Existing Sources Not Covered By The Standard. Additional sources of VCM were identified during the original study, but not included under the standard. These sources, which include fabrication operations that convert PVC resin to consumer products and miscellaneous sources such as those using VCM as a chemical intermediate or producing VCM as a byproduct, will be reviewed for possible regulation by the standard.

Emphasis will be placed on the miscellaneous sources during this review study for several reasons. More data and information is available on fabrication plants from previous studies, and the PVC industry

has concentrated on more efficient removal of residual VCM from the resins, which constitutes the major source of VCM from fabrication plants.

3. New Sources Not Identified During the Original Study. An attempt will be made to identify other sources of vinyl chloride not identified in the original study conducted for promulgation of the emission standard.

4. Enforcement Experience at the Federal and State Levels. Enforcement of the vinyl chloride emission standard will be reviewed for identification of any problem areas. Included in this review will be an examination of the Federal and state permitting procedures used to implement the standard.

Based on the review and analyses, where appropriate, of the above four major areas of concern, the ultimate objective of this review study is to provide a data base that can be used for revision of the existing standard and to determine the level of effort necessary for revision. Results of the review study plus recommendations for revision will be documented in a Part 1: Vinyl Chloride Review Study report submitted to EPA at the conclusion of Part 1. Submitted with the report will be a detailed work plan for the remainder of the project, "Part 2: Vinyl Chloride Standard Revision."

3.0 PROJECT DESCRIPTION

The following sections describe the draft program plan for review of the vinyl chloride NESHAP. The approach that will be taken to fulfill the review objective will involve a step-by-step progression through specific tasks. Each of these major tasks will be further divided into subtasks.

3.1 Approach

The approach to be taken to meet the review objective will include seven tasks. The seven tasks, as well as a brief discussion of each, follow:

Task 1. Review Project History

This task reviews the original vinyl chloride emission standard development work effort including interviews with key personnel involved in the original project and related projects.

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Task 2. Collect and Assimilate Available Data/Information

Included in this task will be literature searches, interviews and telephone contacts with trade associations, vinyl chloride industries, and EPA regional and state enforcement agencies. Considerable time will be spent in this task to assure that all pertinent data and information is collected that will be needed for revision of the standard during Part 2.

Task 3. Preliminary Data/Information Analysis

The data and information collected during Tasks 1 and 2 will be reviewed and analyzed with regard to the following four major areas of concern given in Section 2.0:

- control technology;
- existing emission sources identified in the original study but not covered by the standard;
- new sources not identified in the original study; and
- enforcement experience at the Federal and state level.

Task 4. Additional Detailed Data/Information Gathering

Results of the Task 3 preliminary analysis will be discussed by EPA and TRW personnel to identify critical data gaps, select candidate sources for site visits and assure that the NESHAP review is targeted toward the important concerns and issues.

Following this discussion, sources will be chosen for site visits and the enforcement agencies responsible for these sources will be notified and visited. Section 114 letters will be mailed to industries as necessary. All data gaps should be filled during this task.

Task 5. Final Analysis of Data and Information Collected

This task will make a final analysis of all data and information collected during Tasks 1, 2, 3 and 4 to determine the areas in which the standard needs revision. This task also will determine the extent of those revisions.

Task 6. Submit Draft "Part 1: Vinyl Chloride Review Study" Report

The "Part 1: Vinyl Chloride Review Study" report will contain the results of the above tasks. A detailed work plan for Part 2 of the project will also be submitted with the report.

Task 7. Project Documentation

Throughout the review study, data and information will be assembled and labeled as required in a central file. A review and discussion of the pertinent items in this file will be conducted with the EPA Lead Engineer. This task will allow smooth transition to docket development.

3.2 Task Outline

Discrete subtasks and activities have been developed for each task described in the above discussion. In the following outline, these subtasks are identified and defined:

TASK OUTLINE

Task 1.0 Review Project History

- 1.1 Interview EPA personnel responsible for development of the original emission standard.
 - Gather references, reports, data, etc., from previous studies.
 - Initiate literature search, including identification of new sources, new control technology and sampling and analysis procedures for VCM.
- 1.2 Review "Standard Support and Environmental Impact Statement: Emission Standard for Vinyl Chloride", Volumes 1 and 2.
 - Other supportive documents to the EIS (e.g., A. D. Little studies on PVC fabrication, processing and miscellaneous sources, VC task force documents, etc.) will also be thoroughly reviewed.
- 1.3 Telephone interviews conducted with other EPA contractors for associated projects.
 - Same concerns as 1.1.
- 1.4 Initiate contacts with trade associations (CMA, SPI, etc.) and related government agencies (OSHA, NIOSH, etc.).
- 1.5 Identify and contact other informational sources.

Task 2.0 Collect and Assimilate Available Data/Information

- 2.1 Review and critique "in hand" data and information.
- 2.2 Review important reference materials acquired through literature searches.

2.3 Initiate industrial telephone contacts for development of the questionnaire that will be part of the Section 114 letters.

- Industries will be initially contacted by telephone and mailed a Section 114 letter, if necessary, requesting specific information for use during Task 4.

2.4 Contact pollution control system vendors.

- Request applicable information and specifications on control systems.

2.5 Initiate Federal, state, and local agency contacts.

- Review enforcement problems.
- Evaluate permitting procedures and problems.

2.6 Assimilate data.

2.7 Identify data gaps.

Task 3.0 Preliminary Data/Information Analysis

3.1 Control Technology Review

3.1.1 Review, collect data on and assess "existing technologies" for control of emissions from vinyl chloride processes, fugitive sources and storage facilities as regulated under the existing standard.

- Description of "existing technologies".
- Assess how technology has functioned if currently installed at plants.
- Compare control technologies with Best Available Control Technology (BACT) required by the standard.
- Assess feasibility of technology transfer.
- Identification of problem areas.
- Identification of present control efficiencies for VCM.
- Identification of control levels for new versus existing sources (e.g., retrofit problems).
- Preliminary assessment of control technologies beyond the "existing technologies" (e.g., those technologies in developmental stages).

Wagel

- Preliminary cost analysis of existing standard (BACT) and other "existing technologies."
- 3.1.2 Analyze emission monitoring and compliance testing techniques.
 - Review emission sampling methods, instrumentation and analytical procedures for VCM.
 - Determine stack sampling methods for compliance testing.
 - Costs of VCM sampling and analysis.
- 3.1.3 Review regulations for control of aqueous and solid waste discharges from VC and PVC plants.
 - Review and update experience with measuring residual VCM in water, slurry, resin, wet coke, and latex.
- 3.1.4 Assess historical and projected growth rate for the vinyl chloride industry.
 - General description of the industry.
 - Industry growth since promulgation of standard.
 - Projected growth of industry for next 5 years.
- 3.2 Review of Existing Sources Identified But Not Covered By the Standard.
 - 3.2.1 Polyvinyl chloride fabricating plants.
 - Review emissions for significance and control by standard.
 - Determine levels of residual VCM in PVC resins.
 - 3.2.2 Miscellaneous sources of vinyl chloride.
 - Analyze emission sources from plants using vinyl chloride as an intermediate and those that produce vinyl chloride as a byproduct.
 - Review control technologies at these plants.
 - Determine growth in these industries and total estimated emissions.
 - Assess need for regulatory control.
- 3.3 New sources of vinyl chloride not identified in original study.
 - Identify sources of vinyl chloride other than those discussed above.
 - Determine significance of emissions and need for control.

3.4 Enforcement Experience at the Federal and state levels.

3.4.1 Review enforcement history and identify problem areas.

- For example, enforcement problems and difficulties have occurred with safety valve relief discharges.

3.4.2 Federal and state approaches to enforcement of NESHAPs.

- Procedures for determining applicability of NESHAPs to new and existing sources.
- EPA regional approach for control of NESHAP pollutants.
- State approach for control where EPA has delegated authority to the state (e.g., Permit to Construct, Permit to Operate, etc.).
- Enforcement effectiveness through permitting systems.
- Compliance requirements, reporting and effectiveness.
- Review sampling techniques and analytical methods required for compliance determination.

3.4.3 Review permitting of existing sources versus new sources.

- Identify problem areas.

Task 4.0 Additional Detailed Data/Information Gathering.

4.1 Meet with EPA for review of preliminary analysis.

- Discuss data base.
- Identify data gaps.
- Review project scope to determine if "on track" regarding review study objective.

4.2 Select candidate industrial sites for field surveys.

- Screen plants with guidance from EPA.
- Contact industries by telephone.
- Determine need for field sampling.
- Send Section 114 letters to selected plants.
- Select plants and conduct field surveys.

4.3 Enforcement office visits.

- Coordinate field surveys to plants with visits to regulatory agencies responsible for these plants.

4.4 Develop an outline for the report to be submitted at the conclusion of Part 1.

- The outline will be submitted to EPA for review and comment.
- Outline will be finalized.

Task 5.0 Final Analysis of Gathered Data and Information.

5.1 Determine if new control technologies exist for the vinyl chloride industry.

- Preliminary environmental impacts of new technologies.
- Preliminary economic impact of new technologies.

5.2 Other sources of vinyl chloride requiring control.

- Determine same impacts as 5.1.
- Recommend need for control or additional NSPS/NESHAP development work.

5.3 Discussion of existing enforcement problems.

- Determine how revision of the standard would solve current enforcement problems or ease future problems.

5.4 Identify data gaps and special problems or issues that have arisen during the review study or since promulgation of the standard.

- Recommend ways to address these items during Part 2 of the project.

5.5 Develop detailed work plan for "Part 2: Vinyl Chloride Standard Revision."

- The work plan will outline the level of effort necessary for preparation of a Background Information Document (BID) that will provide background information for revision of the vinyl chloride emission standard.

Task 6.0 Submit Draft Part 1: Vinyl Chloride Review Study Report - the report will follow the generalized outline below:

1.0 SUMMARY

- Conclusions reached and recommendations for revision of standard and additional work.

2.0 INTRODUCTION

- Description of project, objective and scope including a discussion of the NESHAP program and proposed Carcinogen Policy.

3.0 RESULTS OF REVIEW STUDY

3.1 Control Technology Review

3.2 Review of Sources Not Covered by Original Standard

3.3 New Sources of Vinyl Chloride

3.4 Enforcement Experience with Existing Standard

4.0 REFERENCES

APPENDICES - Detailed work plan for Part 2 plus supportive data and information.

As mentioned in subtask 4.4, this outline will be developed further after all available information and data have been gathered.

Task 7.0 Project Documentation.

7.1 Assemble and label information as required.

7.2 Review and discuss pertinent items with EPA Lead Engineer.

7.3 Develop project docket.

3.3 Project Critical Pathway

Figure 3-1 shows the critical pathway for the "Part 1: Vinyl Chloride Review Study" and indicates the interrelationship between tasks discussed in the Task Outline of the previous section. Also shown in Figure 3-1 are major EPA decision points where approvals are needed before the project can continue. Not indicated are the more frequent communications that will be maintained with the EPA Lead Engineer to report project status and acquire approvals from the EPA Lead Engineer.

3.4 Project Schedule and Milestones

Figure 3-2 shows the project schedule and delivery dates for the following four major milestones:

1. "Part 1: Vinyl Chloride Review Study" project work plan.
2. Draft report outline.
3. Draft Part 1: Vinyl Chloride Review Study report.
4. Final Part 1: Vinyl Chloride Review Study report.

Also shown are the approximate time periods to be spent on each of the tasks and related activities listed.

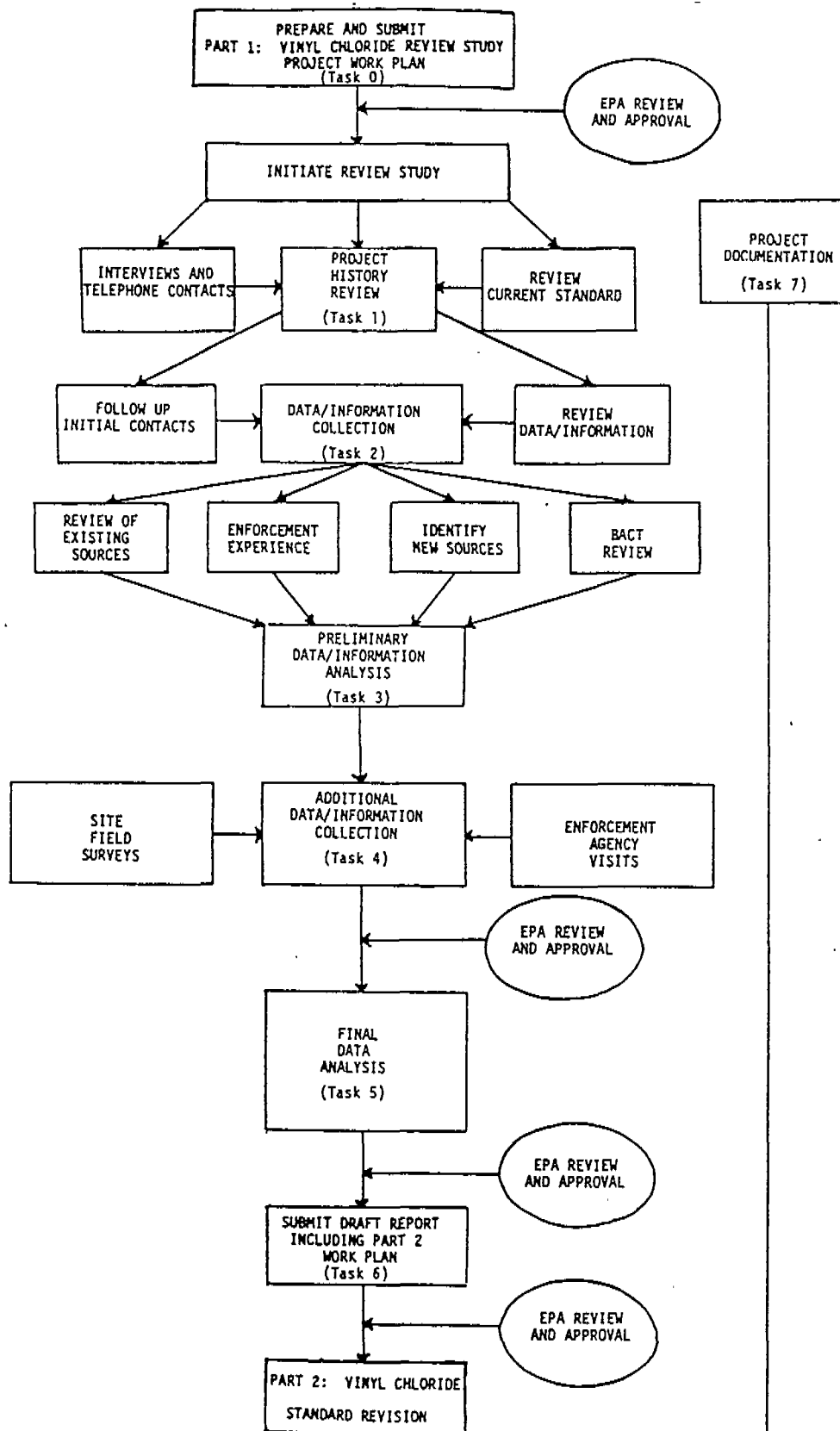
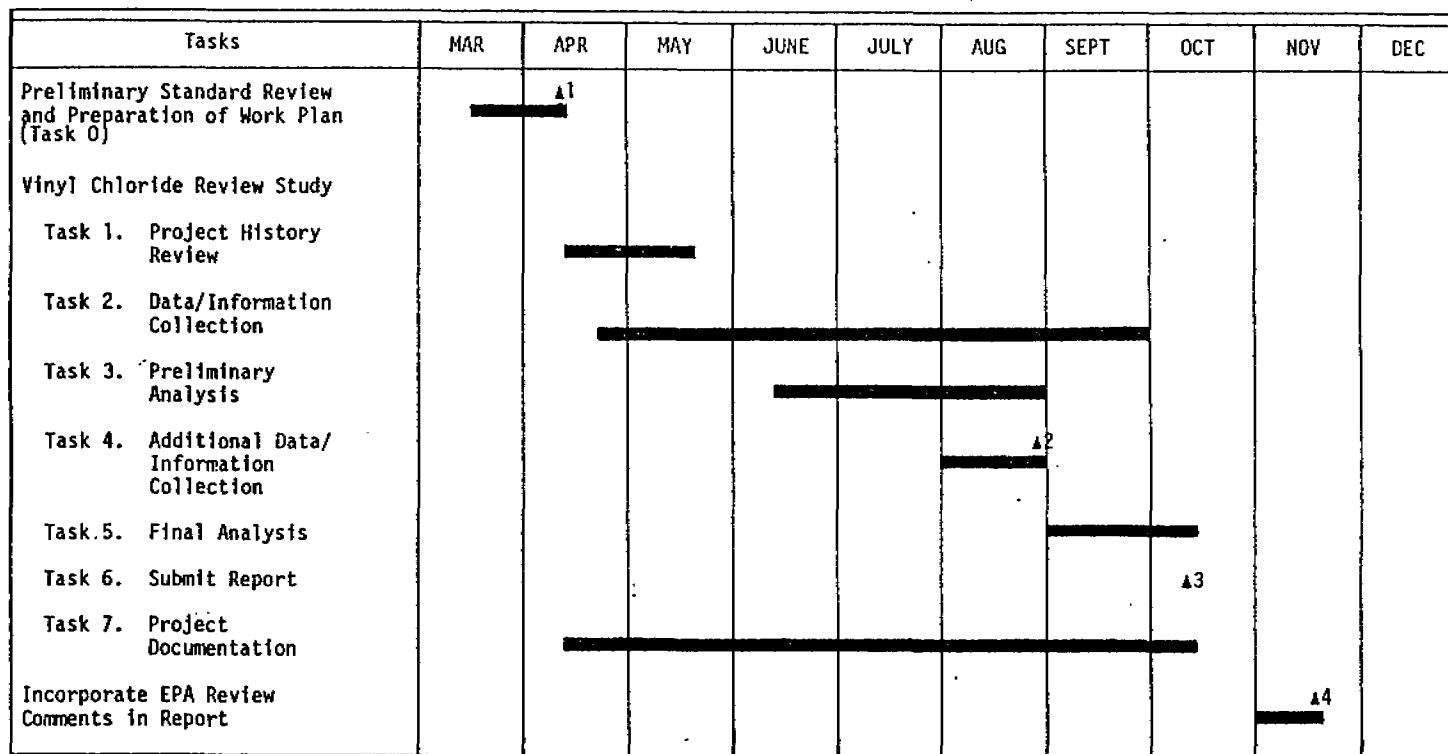


Figure 3-1. Project critical pathway.



▲ - Milestones

- (1) Submit project work plan.
- (2) Submit report outline.
- (3) Submit draft Part 1: Vinyl Chloride Review Study.
- (4) Submit final Part 1: Vinyl Chloride Review Study.

Figure 3-2. Project schedule and milestones.

Based on this project schedule for the "Part 1: Vinyl Chloride Review Study" and the typical time period required for an NSS Phase II as outlined in the Contractor's Procedures Manual for Development of National Emission Standards, TRW feels a new standard for vinyl chloride would be proposed during the 3rd quarter of fiscal year 1982 with promulgation probably occurring during the 3rd quarter of fiscal year 1983.



4.0 PROJECT ORGANIZATION

Figure 4-1 shows the TRW project team selected for the "Part 1: Vinyl Chloride Review Study". Additional TRW personnel will be used in a supportive role as needed.

5.0 COST SCHEDULE

Tables 5-1 and 5-2 indicate the projected labor hours and dollars, respectively, for the "Part 1: Vinyl Chloride Review Study". These labor hours and dollars are shown for each task and major activity and are exclusive of fee.

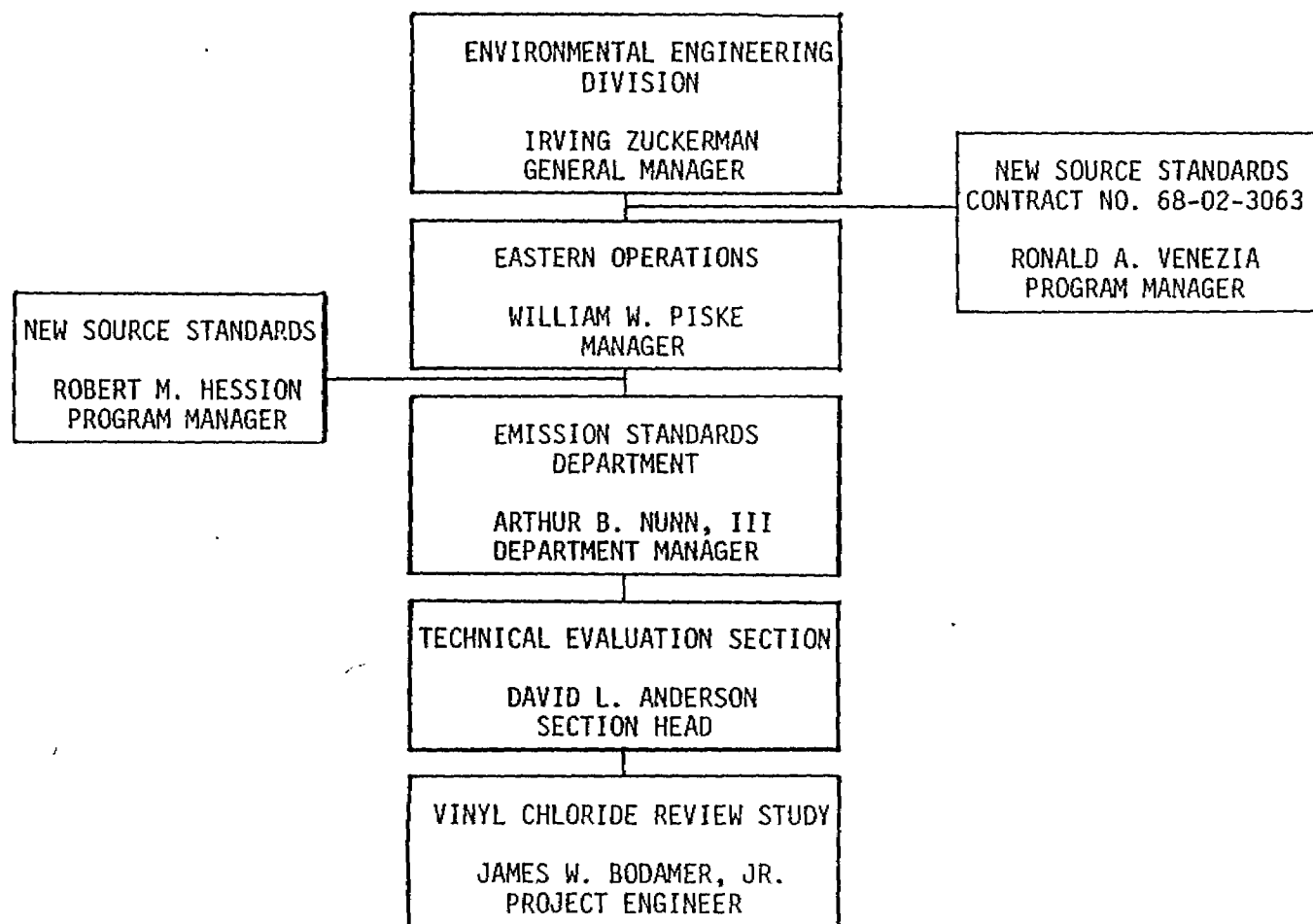


Figure 4-1. Project organization.

TABLE 5-1

COST/SCHEDULE BASELINE (WP-2)

Contractor: <u>TRW, Inc.</u>		Contractor project manager name, title <u>R.A. Venezia</u>		Revision No. _____	
<u>Environmental Engineering Division</u>		<u>Vinyl Chloride</u>		Date <u>4-11-80</u>	
EPA project officer: <u>Thomas M. Bibb</u>		Signature _____		_____	
Contract No. <u>68-02-3063</u>		Task No. _____		Approval by EPA project officer ^a _____	

(1) Work breakdown structure		(2) Cumulative cost to date (\$1000's) ^b	(3) Monthly budgeted cost of work scheduled (PCWS) ^{b,c} (\$1000's)																(4) Total budget ^b (\$1000's)
No.	Noun description		Mo.		Yr.		Mo.		Yr.		Mo.		Yr.		Mo.		Yr.		
			3	80	4	80	5	80	6	80	7	80	8	80	9	80	10	80	
Task 0	Prepare Work Plan		0.9	1.8															2.7
Task 1	Review Project History		1.8	8.3		7.6													17.7
Task 2	Data/Information Collection					3.1		7.9		3.0									14.0
Task 3	Preliminary Data/ Information Analysis									6.8		1.5							8.3
Task 4	Additional Data/ Information Collection											8.8							8.8
Task 5	Final Data Analysis													10.6					10.6
Task 6	Prepare Report															10.6			10.6
Task 7	Project Documentation		0.3	0.6						0.6				0.8		0.9			3.2
	ODCs		0.5	0.5		0.5		6.3		0.8		1.0		1.5		1.5			12.6
General and administrative																			
Management reserve																			
Total			3.5	11.2		11.2		14.2		11.2		11.3		12.9		13.0			88.5
Cumulative total cost (excluding fee)			3.5	14.7		25.9		40.1		51.3		62.6		75.5		88.5			

^a Once the cost/schedule baseline has been approved, the figures may not be changed without the approval of the EPA project officer.

^b All costs shown are exclusive of fee.

^c Monthly budgeted costs for entire contract—
Additional sheets if necessary

TABLE 5-2

MANPOWER BASELINE

Contractor: <u>TRW, Inc.</u>		Contract project manager name, title <u>R.A. Venezia</u>		Revision No. _____	
<u>Environmental Engineering Division</u>		Date <u>4-11-80</u>			
EPA project officer: <u>Thomas M. Bibb</u>		Signature _____			
<u>68-02-3063</u>		Date _____		Approval by EPA project officer _____	
Contract No. _____					

(1) Work breakdown structure		(2) Cumulative hrs to date	(3) Monthly budgeted hrs of work scheduled (BCWS)																(4) Total Hrs.
No.	Noun description		Mo.		Yr.		Mo.		Yr.		Mo.		Yr.		Mo.		Yr.		
			3	80	4	80	5	80	6	80	7	80	8	80	9	80	10	80	
Task 0	Prepare Work Plan		36		60														96
Task 1	Review Project History		90		270		250												610
Task 2	Data/Information Collection						100		430			100							630
Task 3	Preliminary Data/ Information Analysis											230		50					280
Task 4	Additional Data/ Information Collection													300					300
Task 5	Final Data Analysis														370				370
Task 6	Prepare Report																370		370
Task 7	Project Documentation		10		20							20				30		30	110
General and administrative																			
Management reserve																			
Total			136		350		350		430			350		350		400		400	2766
Cumulative total manhours			136		486		836		1266			1616		1966		2366		2766	

Once the manpower baseline has been approved, the figures may not be changed without the approval of the EPA project officer.