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QUARRY RESIDUALS RI/FS SCOPING DOCUMENT

Weldon Spring Site Remedial Action Project
Weldon Spring, Missouri

OCTOBER 1991 **REV. 0**

U.S. Department of Energy
Oak Ridge Operations Office
Weldon Spring Site Remedial Action Project

MK-FERGUSON A MORRISON KNUDSEN COMPANY	Issue Date:
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Quarry Residuals RI/FS Scoping Document

Revision 0

October 1991

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for the

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1 INTRODUCTION

1.1 Background

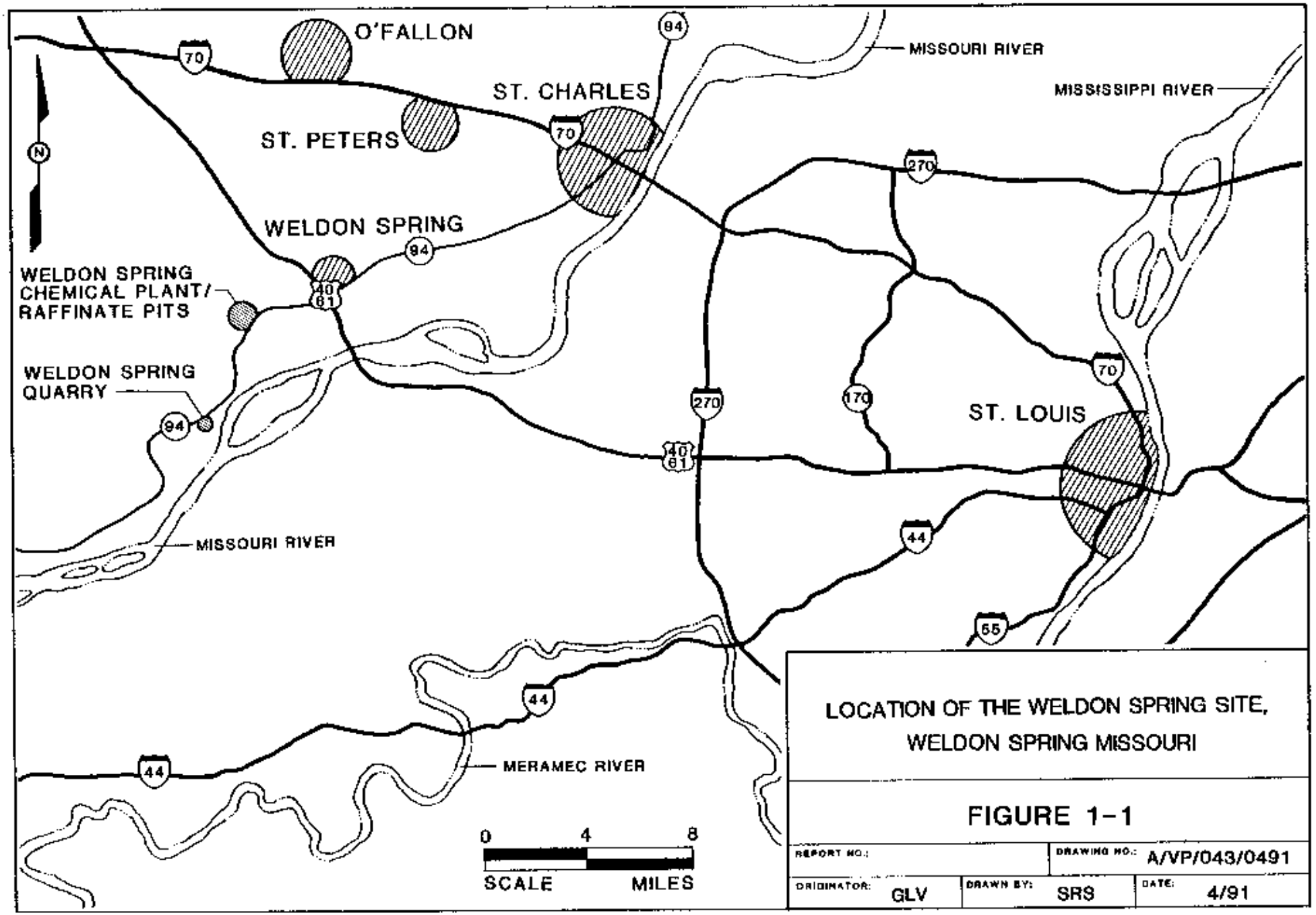
The Weldon Spring quarry (WSQ) is located near Weldon Spring, Missouri, about 48 km (30 mi) west of St. Louis on Route 94 (Figure 1-1). The 3.6 ha (9-acre) site is situated about 1.61 km (1 mi) northwest of the Missouri River and about 915 m (3,000 ft) north of the St. Charles County Municipal Well Field (Figure 1-2). The quarry residual activity work area encompasses the quarry and surrounding land including the Femme Osage Slough. The exact boundaries are to be determined during the remedial investigation studies. However, a proposed area of interest for the residual activity is shown in Figure 1-3.

Prior to 1942, the quarry was mined for limestone aggregate in construction of the Weldon Spring Ordnance Works. The Department of the Army utilized the quarry for disposal of trinitrotoluene/dinitrotoluene (TNT/DNT) contaminated residues between 1942 and 1957. Subsequently, under the ownership of the Atomic Energy Commission, natural series uranium and thorium residues were added until about 1969. Table 1-1 summarizes the known disposal activities at the quarry.

The Weldon Spring quarry was listed by the Environmental Protection Agency (EPA) on the National Priorities List (NPL) on July 30, 1987. Site cleanup is being conducted as a major system acquisition under the Surplus Facilities Management Program (SFMP) of the U.S. Department of Energy (DOE). The 1988 Work Plan (Peterson et al. 1988) identified three separate operable units at the Weldon Spring Site Remedial Action Project (WSSRAP); (1) chemical plant and raffinate pits, (2) quarry bulk waste and the focus of this document, the (3) quarry residuals. Another unit has since been added; the chemical plant site groundwater.

1.2 Purpose

The purpose of this document is to serve as a planning tool for the implementation of the *Quarry Residual Remedial Investigation/Feasibility Study* (RI/FS) process and to provide



LOCATION OF THE WELDON SPRING SITE, WELDON SPRING MISSOURI

FIGURE 1-1

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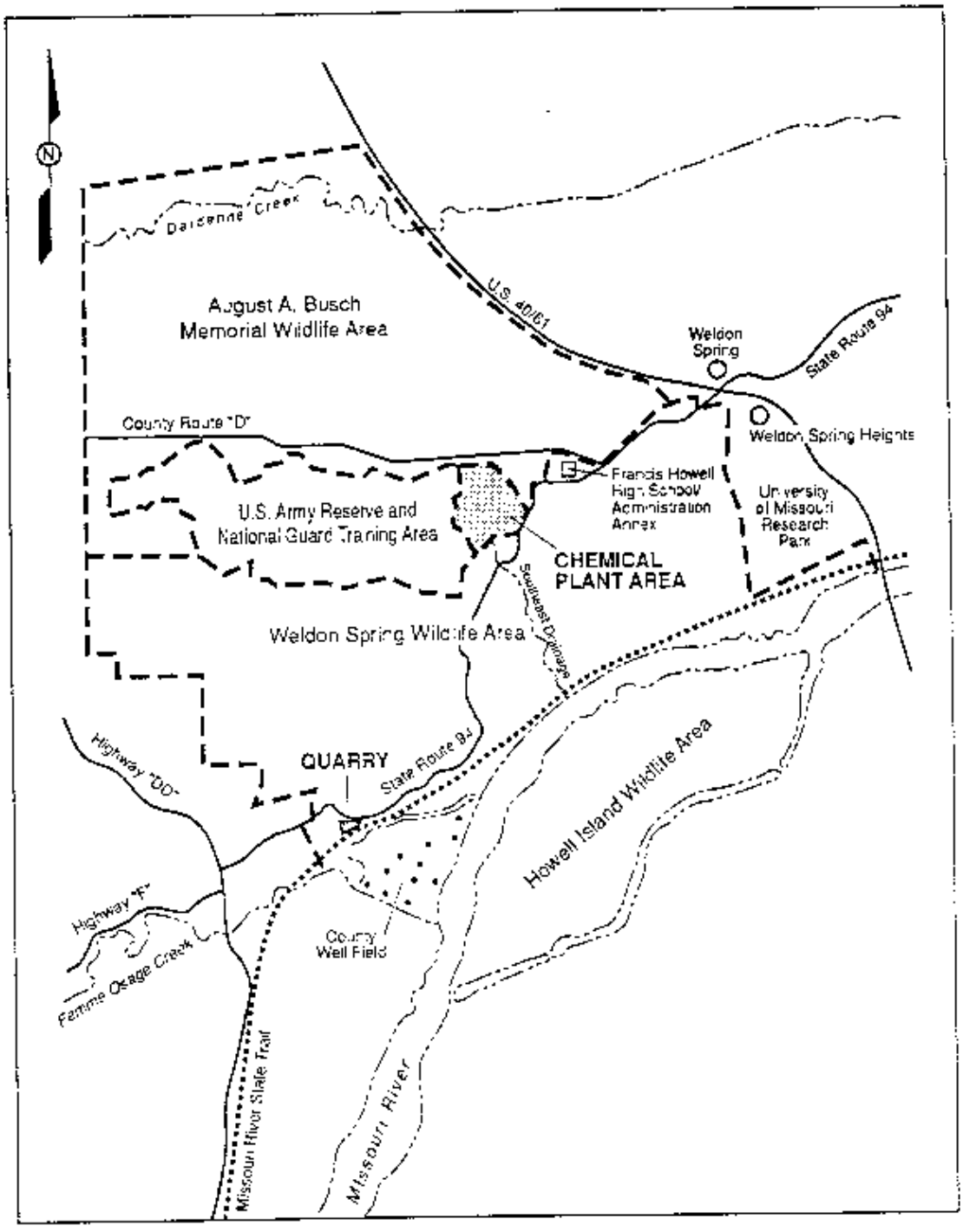

0 1/2 1 MI
0 .8 1.6 KM
SCALE

MAP OF THE WELDON SPRING
SITE AND VICINITY

FIGURE 1-2

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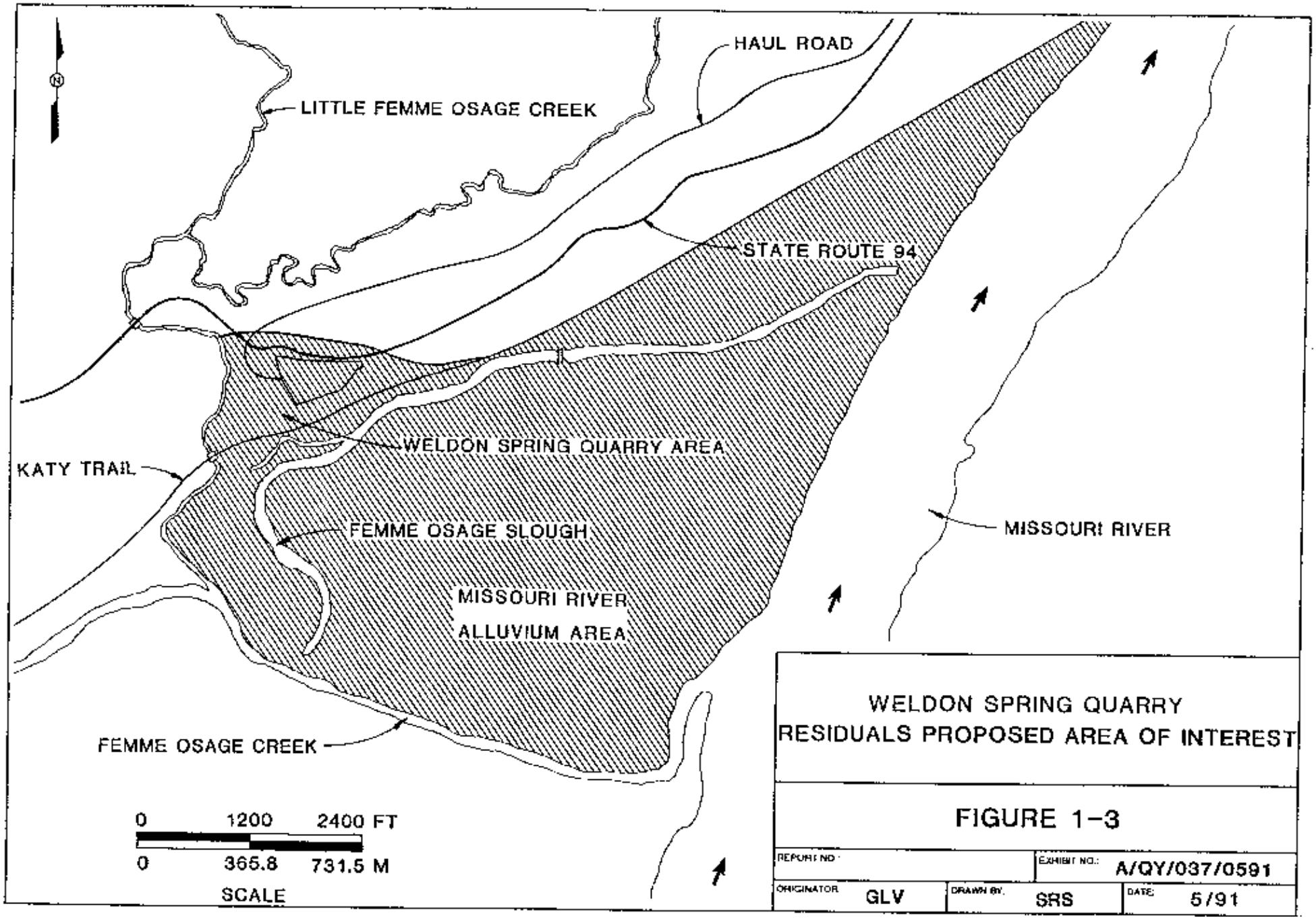

WELDON SPRING QUARRY
RESIDUALS PROPOSED AREA OF INTEREST

FIGURE 1-3

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TABLE 1-1 History of Disposal Activities at the Weldon Spring Quarry

TIME PERIOD	WASTE TYPE	ESTIMATED VOLUME[a] m^3	yd^3
1942 - 1945	TNT and DNT waste	---	---
1946	TNT and DNT waste	(b)	(b)
1946 - 1957	TNT and DNT residues and contaminated rubble from cleanup of the ordnance works (in deepest part and in northeast corner of quarry)	---	---
1959	3.8% thorium residues (drummed, currently below water level)	150	200
1960 - 1963	Uranium- and radium-contaminated rubble from demolition of the St. Louis Destrehan Street feed plant (covering 0.4 ha [1 acre] to a 9-m [30 ft] depth in deepest part of quarry)	38,000	50,000
1963 - 1966	High-thorium-content waste (in northeast corner of quarry)[c]	760	1,000
1963 - 1966	Uranium and thorium residues from the chemical plant and off-site facilities; building rubble and process equipment (both drummed and uncontained)	---	---
1966	3.0% thorium residues (drummed, placed above water level in northeast corner of quarry); TNT residues from cleanup of the ordnance works (placed to cover the drums)	460	600
1968 - 1969	Uranium- and thorium-contaminated rubble and equipment from interiors of some chemical plant buildings (101, 103, and 105)	4,600	6,000

(a) A hyphen indicates that the waste volume estimate is not available.

(b) An estimated 90 tons of TNT/DNT waste was disposed of in 1946.

(c) This was a portion of the waste originally stored at the Army arsenal in Granite City, Illinois; most of this material was subsequently removed from the quarry for the purpose of recovering rare earth elements.

direct input to revising and updating the 1988 *Work Plan for the Weldon Spring Site Remedial Action Project (WSSRAP) Remedial Investigation/Feasibility Study-Environmental Impact Statement for the Weldon Spring Site* (RI/FS-EIS) (Peterson et al. 1988) for this effort. The scoping process is intended to outline the tasks necessary to develop and implement activities in compliance with the Comprehensive Environmental Response, Compensation and Liability Act-National Environmental Policy Act (CERCLA-NEPA) process from detailed planning through the appropriate decision document. In addition to scoping the entire process, this document will serve as the primary tool for planning and accomplishing all activities to be developed in the *Quarry Residual RI/FS Work Plan*. Subsequent tasks are difficult to plan at this time.

1.3 Project Status

Waste cleanup at the WSQ has been divided into logical units. Each unit has been scoped according to a logical sequence of activities.

The first step in remediation is the management of ponded water in the quarry sump and the interstitial water dispersed throughout the bulk waste. The drawdown may reduce the hydraulic head and reverse the downstream groundwater flow toward the sump. A water treatment plant and associated engineering facilities have been designed and are currently being constructed. The environmental documentation for the water treatment plant was addressed in an *Engineering Evaluation/Cost Analysis* (EE/CA) (MacDonnel et al. 1989) report. This document and associated *Responsiveness Summary* (ANL 1989) were completed in January 1989 and June 1989, respectively. A Finding of No Significant Impact (FONSI) was issued for this action by the DOE on February 6, 1990. Operation of the water treatment plant is scheduled to begin in September 1991 and continue throughout residual remediation.

The next step involves removal of the bulk wastes present in the quarry. Bulk waste removal will alleviate the primary source of contamination in the area and will permit characterization of the quarry floor for residual contamination. The RI/FS to support bulk waste removal is complete and a *Record of Decision* (ROD) was signed by the U.S. Environmental Protection Agency (EPA) and DOE on September 28, 1990 and March 7, 1991, respectively. A FONSI was issued for this action by the DOE on November 15, 1990. Conceptual design for the excavation, transportation and temporary storage of the

waste is complete and will be followed by detailed design. Bulk waste removal is scheduled to begin in May 1992, and be concluded by November of 1994.

The final step in accomplishing long-term remediation of the quarry and surrounding area is the residual RI/FS effort addressed in this scoping document. This process includes characterization and environmental documentation to reach ultimate remedial action decisions with respect to groundwater, residual quarry contamination, and vicinity properties. While the residual RI/FS process cannot be completed until the bulk wastes have been removed, a substantial portion can be accomplished in parallel with the excavation activities.

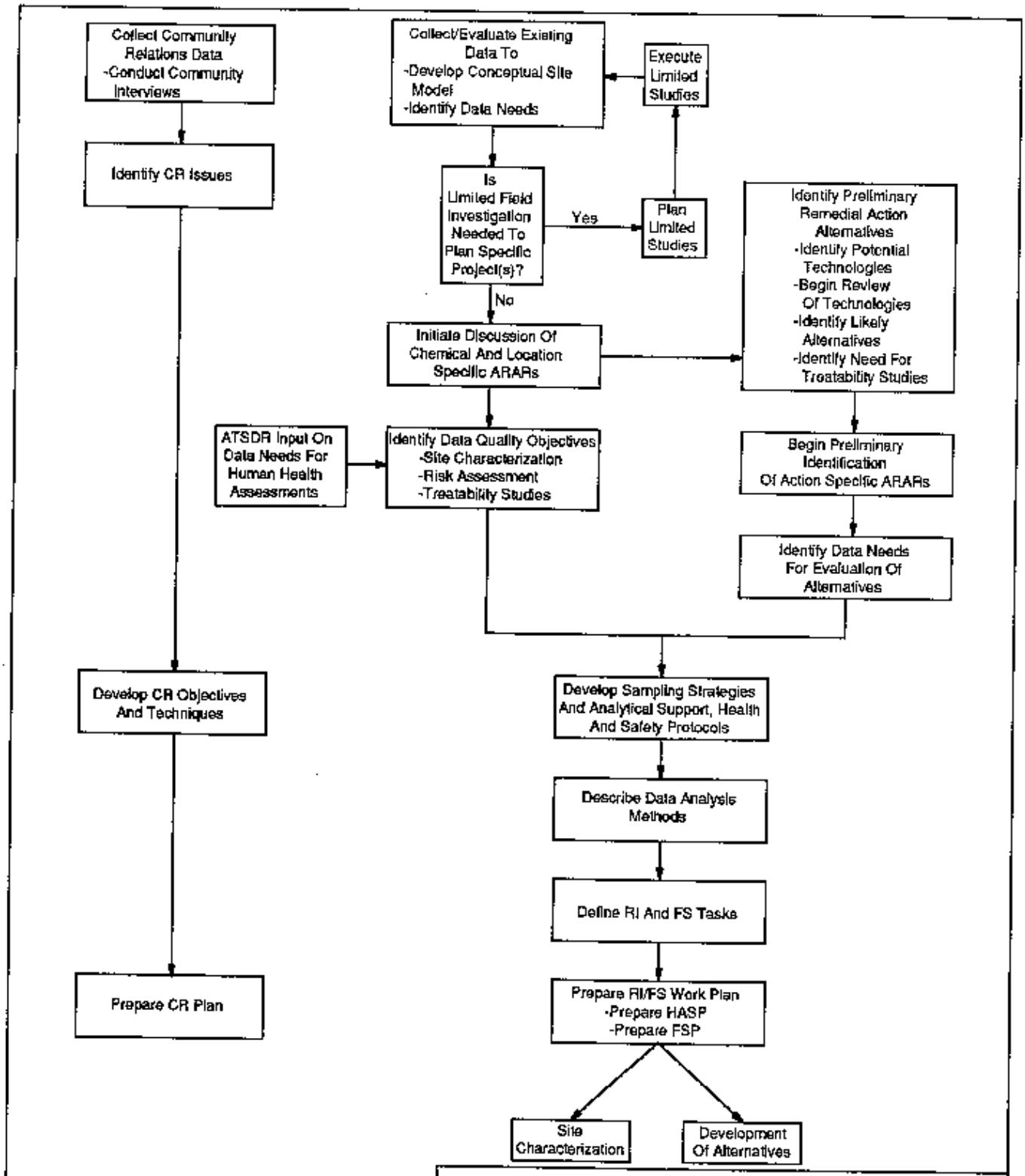
2 SITE MANAGEMENT STRATEGY

2.1 Activity Sequence

The sequence of activities necessary to reach a decision for residual remedial action and the type of action, if required, will follow the traditional approach outlined in *Environmental Protection Agency Guidance* (EPA 1988). This approach was used to obtain the *Quarry Bulk Waste Record of Decision (ROD)* and is currently being utilized for the *Chemical Plant Remedial Investigation/Feasibility Study (RI/FS)*. Details of the activities required to obtain the residual ROD will be described in the RI/FS work plan.

Scoping represents the first step in the process (Figure 2-1). Existing data are being collected and analyzed to develop a conceptual site model. From this information, additional data needs and data quality objectives will be identified. The *Quarry Residual RI/FS Work Plan* will be developed based on these needs and objectives and will also include preliminary remedial action objectives and a preliminary applicable or relevant and appropriate requirement (ARAR) analysis. Detailed field sampling plans will be prepared for each characterization activity required to address data needs. Data quality objectives will be defined within the sampling plans and data quality assured through implementation of the *Environmental Quality Assurance Program Plan* (EQAPP) (MKF and JEG 1991c) requirements. Health and safety plans will also be prepared. The *Community Relations Plan* (MKF and JEG 1991) for the Weldon Spring Site Remedial Action Project (WSSRAP) be will updated to encompass the residuals activity.

Site characterization follows the planning activities and will support a phased RI report. Phase I of this report will focus on the area surrounding the Weldon Spring Quarry. Characterization studies for this phase will be conducted during removal of bulk waste from the quarry. Phase II activities will be conducted within the quarry area after the bulk waste has been removed. Phase II characterization will also address data gaps uncovered during Phase I. Characterization is designed to further define the physical characteristics of the site, the chemical and radiological characteristics of the contaminants, and the nature and extent of contamination. Based on the results of these additional characterization activities, it may be necessary to refine a specific work activity such as the groundwater monitoring network. The need for additional information will be addressed as characterization data are evaluated.



SCOPING AND WORK PLAN PROCESS FLOW CHART

FIGURE 2-1

SOURCE: REVISED FROM EPA 1988

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As the characterization effort nears completion, the data will be utilized to develop a comprehensive Baseline Risk Assessment (BRA). The BRA will serve as the no-action alternative to satisfy National Environmental Policy Act (NEPA) requirements. The BRA will identify the contaminants of concern, environmental fate and transport mechanisms, and potential exposure pathways and receptors. From this information, associated risks will be calculated and impacts to the environment in addition to human health risks will be addressed. The BRA results will assist in determining the need for remedial action and will then be used to guide the selection of protective alternatives in the *Feasibility Study* (FS).

Parallel with the RI and BRA, remedial alternatives will be developed and screened. The screening process will be refined as more data on the nature and extent of contamination becomes available. Remedial action options which warrant further consideration will undergo detailed analysis to select the appropriate technology for remediation of each affected medium. Environmental documentation satisfying the requirements of the NEPA will be integrated into the residual RI/FS documentation process.

The residual RI/FS process will culminate in a ROD describing the remedial action activity as agreed upon by the U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA). A schedule for the proposed RI/FS environmental documentation activities is shown in Section 5.

2.2 Interim Actions

Although the 1988 *RI/FS-Environmental Impact Statement (EIS)* work plan established various interim actions and separate operable units, it is important to refine the need for interim actions within the scope of the residual RI/FS process. These interim actions may affect groundwater, residual contamination, and/or vicinity properties. The need for interim actions will be assessed by evaluating data from characterization activities and groundwater monitoring. Because bulk waste removal will be in progress concurrent with much of the residual RI/FS characterization activity, priorities must be established such that additional monitoring or characterization data are available to support removal of the bulk waste and to allow timely decisions for interim actions that may be necessary based on new data.

Hydrogeologic characterization will provide four separate but overlapping functions: (1) data necessary to ensure the adequacy of the groundwater monitoring system designed

to assess the safety of the St. Charles County well field; (2) data necessary to establish the adequacy of the system to monitor groundwater elevations and concentrations during bulk waste removal; (3) data necessary to define the extent of groundwater contamination; and (4) data necessary to establish potential long term effects on the environment due to contaminant migration within the residual area after bulk waste removal. Additional groundwater information may be needed to support bulk waste removal. An interim characterization effort may be required to address these data needs if the overall residual RI characterization can not be accomplished in the necessary time frame.

The need for interim actions to address groundwater contamination will be continually analyzed as more information becomes available. One alternative to be evaluated during bulk waste removal is the excavation of the sump below the original quarry floor. This may be required if removal of the ponded water has not been effective in reversing groundwater flow toward the sump, and it becomes necessary to increase the radius of influence for groundwater gradient reversal. Under worst-case conditions, i.e., significant contamination in the well field, interim actions could include the identification of water resource replacement for the volume of water currently being provided by the St. Charles County well field. Treatment of contaminated groundwater could be accomplished by utilizing the existing water treatment plant at the quarry if pumping and treating were determined to be a feasible alternative. This plant has been designed to treat ponded water from the sump and interstitial bulk waste water. The contaminants of concern identified in the quarry pond water (manganese, arsenic, uranium, and 2,4-dinitrotoluene) are likely to be similar to the residual contaminants of concern since the bulk waste is the common source.

Interim actions may be required for the vicinity properties if sites are identified which pose a threat to human health or the environment. Interim actions may also be necessary to minimize health and safety risks to on-site personnel. These will be evaluated as characterization studies progress.

Interim action requiring environmental documentation will be addressed using the Engineering Evaluation/Cost Analysis (EE/CA) report format. This report will describe the specific removal action objectives and alternatives along with a description of the proposed action and an analysis of the potential impacts of implementing the proposal action. Approval of this report by the regulatory agencies will allow the removal action to commence prior to issuance of the *Residual Record of Decision*.

2.3 Streamlining Techniques

Development of the residual RI/FS documents will proceed in a manner which will minimize the amount of time spent developing and revising formal interim review deliverables. The RI/FS and BRA reports will not be considered as final stand-alone documents at the time of completion. Rather, all reports must be read jointly to present a complete picture of the RI/FS process and of the proposed remedial action program.

Interim progress reports, including results of field characterization activities, risk assessment studies, and evaluation of remedial alternatives, will be provided as the information becomes available. The interim progress reports will also assist in identifying additional data needs. As each need is identified, a work assignment will be developed to address the need. Each work assignment will have a definite scope and schedule, and a work assignment manager will be designated. Each work assignment will result in a report or paper that will be made available to all organizational units working on the project. This approach will produce needed information in the most timely manner.

A senior level review team will be assembled to assist in scoping, trouble-shooting, and to provide quality overviews. This review team will also help identify data needs and ensure that the completed reports fully support the remedial action decision.

Value Engineering (VE) studies may be utilized at various stages throughout the residual RI/FS process. VE studies can be used as a streamlining technique because sound, logical, and viable alternatives can be developed in a short period of time.

The observational approach will be utilized to provide a structural plan for handling uncertain conditions. The observational approach identifies probable conditions when uncertainty exists along with potential deviations and associated contingency plans while observations continue. This approach can be integrated into the residual characterization and environmental documentation.

The various progress and work assignment reports will serve to meet the open communications requirement of the RI/FS process. These reports will fulfill two purposes. The first is to keep the regulatory agencies abreast of progress on the project. Second, the public must be informed and involved as findings are made and conclusions developed. A

community relations plan will be developed to address specific requirements of the quarry residuals effort. A brief discussion of the community relations plan can be found in Section 4.4 of this document.

2.4 Concurrence

The residual *RI/FS Work Plan* and associated field sampling plans will be submitted to EPA Region VII, DOE-Headquarters, and the Missouri Department of Natural Resources (MDNR) for their review, comment, and approval for a 60 day review prior to issuing the document to the public for comment.

The work plan will provide the framework for initiating the quarry residuals environmental remediation documentation. EPA Region VII, DOE-Headquarters, and the MDNR will be involved in the review and approval process of all appropriate documents throughout the residual RI/FS process in accordance with the provisions of the Federal Facilities Agreement.

3 PRELIMINARY DATA ANALYSIS

This section discusses the various tasks completed during the preliminary stages of the scoping process in preparation for the residual work plan. These analyses establish a management baseline and will be revisited and updated throughout the data gathering process.

3.1 Compilation of Existing Data

Data pertaining to the Weldon Spring quarry and the surrounding residual activity area have been reviewed and entered into a computerized data management system. Currently, the data file consists of documents pertaining to the general quarry area. It will be updated as additional relevant data are encountered. A current list of the file contents can be found in Appendix A. Each item in the list includes the following information, if available.

- Type of data.
- Title.
- Date issued or published.
- Document number.
- Author.
- Keywords.
- Whether or not it is Project Management Contractor (PMC) generated data.
- Sequential file number.

3.2 Data Analysis

The existing data was reviewed to determine the quality and quantity of the existing residual information. Specific topics targeted for review were:

- Pumping test locations and results.
- Aquifer characteristics.
- Vertical head distribution.
- Water table maps.
- Stratigraphy.

- Groundwater flow data.
- Contaminant distribution.
- Recharge/discharge.
- Geochemistry.
- Biological studies.
- Surface water data.
- Soils data.
- Slough sediments.
- Creek sediments.
- Rock contaminants.
- Air quality.
- Land use.

Nearly every topic was found to have a lack of quality and/or quantity to various degrees regarding the residual *Remedial Investigation/Feasibility Study (RI/FS)* effort. Details of these findings are addressed in Section 3.4, Data Needs.

3.3 Conceptual Site Model

A preliminary conceptual site model was developed based upon the available data. The physical properties and concepts will be evaluated and revised as data collection and interpretation activities yield additional information from the quarry residuals characterization efforts. The model identifies contaminant sources, release mechanisms, migration pathways, exposure routes and receptors. Figure 3-1 is a graphic representation of the quarry residual conceptual site model.

Receptors consist of humans and biota. Human receptor scenarios are classified as individuals who live within an 8 km (5 mi) radius of the project area (resident), those who temporarily visit the wildlife area within the project area (visitor) and individuals who might climb over or under the fence surrounding the quarry and enter the contaminated area (trespasser). Biota receptors include plants and animals including avian receptors, land (terrestrial), and those within creeks, sloughs, and rivers (aquatic).

Primary Sources	Primary Release Mechanism	Secondary Sources	Secondary Release Mechanism	Pathway	Exposure Route	Human: Resident Visitor	Human: Trespass	Biota: Terrest.	Biota: Aquatic
Residual Material	Particulate Or Gaseous Emissions			Wind	Ingestion				
					Inhalation	●	●	●	●
					Dermal Contact				
				Direct Contact	Ingestion			●	●
					Inhalation			●	
					Dermal Contact			●	●
	Infiltration	Not Applicable-Water Collected And Treated							
Contaminated Soil	Infiltration/ Percolation	Groundwater	Pumping	Groundwater	Ingestion	●	●		
					Inhalation				
					Dermal Contact	●	●		
			Disch. to SW	Surface Water	Ingestion	●	●	●	●	●
					Inhalation				
					Dermal Contact	●	●	●	●	●
	Runoff	S. Water/Sed.		S. Water/Sed.	Ingestion	●	●	●	●	●
					Inhalation				
					Dermal Contact	●	●	●	●	●
	Particulate Or Gaseous Emissions			Wind	Ingestion				
					Inhalation	●	●	●	●	
					Dermal Contact				
				Direct Contact	Ingestion	●	●	●	●	
					Inhalation				
					Dermal Contact	●	●	●	●	
Groundwater	Pumping	Groundwater			Ingestion	●	●			
					Inhalation				
					Dermal Contact	●	●			
	Disch. To SW	Surface Water			Ingestion	●	●	●	●	●
					Inhalation				
					Dermal Contact	●	●	●	●	●

GRAPHIC REPRESENTATION OF THE QUARRY RESIDUAL CONCEPTUAL SITE MODEL

FIGURE 3-1

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3.4 Data Needs

Data analysis and the development of a preliminary conceptual site model have led to the establishment of various data needs for the quarry residual area of interest. These needs are outlined below.

- The horizontal and vertical extent of groundwater contamination within the Kimmswick, Decorah, and Plattin formations needs to be determined.
- Water quality measurements north and west of the quarry.
- Several aquifer characteristics need to be verified or determined within the bedrock and overburden.
- Additional elevation, recharge, and discharge information is needed to understand the hydrology of the area.
- Additional geological and geochemical data are needed, including the location of contacts between the alluvial deposits and Kimmswick Limestone and Decorah shale.
- Additional biological data are required.
- Additional chemical, radiological, and physical data on slough and creek sediments are required.
- Data pertaining to rock and soil contaminants are required.
- Air quality data for the area between the quarry bluff and the slough are needed.
- Additional data on Weldon Spring Wildlife Area land use, especially Katy Trail usage, population densities, and a local well survey.

These data needs must be reviewed in detail and appropriate data to support the BRA and RI must be obtained. Programs designed to satisfy the data needs will be outlined

in the residual work plan with details developed during Phase I and Phase II characterization planning.

Data analysis efforts and the development of the conceptual site model uncovered the need for a limited field study prior to public and agency approval of the residual work plan. The completion of several slug tests will be required prior to the initiation of quarry dewatering activities to provide an actual measurement of hydraulic conductivity values prior to pumping, i.e., while the aquifer is at equilibrium. Sampling and Quality Assurance (QA) plans are currently being developed along with the scoping and scheduling of this activity. Field work to obtain the necessary data should begin in August 1991, prior to the dewatering currently scheduled for September 1991. A sampling plan will be transmitted to the Environmental Protection Agency (EPA) Region VII and the Missouri Department of Natural Resources (MDNR) for review prior to initiating the limited field study.

3.5 Media of Concern

The following media of concern have been identified as a result of the limited data analysis and preliminary development of the conceptual site model.

- Groundwater.
- Soil.
- Surface water.
- Sediment.
- Structures (water treatment plant facilities).
- Sludges (water treatment plant facilities and quarry sump).

Air is not listed as a media of concern, although the data analysis indicated that air quality data are not available. It is assumed that the removal of bulk wastes eliminates air as a media of concern because the major source of particulate contamination and radon will be removed. Characterization studies will be conducted prior to completion of the RI and baseline risk assessment (BRA). These studies may identify air as a media of concern, and will therefore be analyzed at that time. However, air quality will be monitored during the bulk waste and residual remedial actions.

3.6 Preliminary Remedial Action Objectives and Response Actions

Remedial action objectives, general response actions, technology types and process options will be determined by media of concern as previously identified in Section 3.5. Specific remedial action objectives will be identified as a result of characterization studies. These objectives and corresponding actions will be finalized in the Feasibility Study, but developed through the RI/FS process.

3.7 Preliminary Identification of Applicable or Relevant and Appropriate Requirements

Remedial actions for the Weldon Spring quarry residual activity will be undertaken in accordance with all applicable or relevant and appropriate requirements (ARARs). The identification of ARARs is an iterative process. As the remedial action planning process moves from data gathering in the RI phase to selection of a remedial action alternative in the FS phase, the list of ARARs will be finalized to those required for implementation of the selected alternative.

Any regulation, standard, requirement, criterion, or limitation under any Federal or State environmental law may be either *applicable* or *relevant and appropriate* to a remedial action, but not both. A regulation, standard, requirement, criterion, or limitation is *applicable* if it legally applies to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance. A regulation, standard, requirement, criterion, or limitation is *relevant and appropriate* if it addresses problems or situations sufficiently similar to those encountered at the site and its use is well suited to the particular site. A requirement determined to be relevant and appropriate must be complied with to the same extent as an applicable requirement. However, a determination of relevance and appropriateness may be applied only to portions of a requirement; whereas applicability can be determined only for the requirement as a whole. Only those State laws that are more stringent than Federal laws may become ARARs.

The ARARs may be classified into three general categories:

- Contaminant-specific -- related to the level of contamination allowed for a specific pollutant in various environmental media (i.e., soil, water, and air).

- Location-specific -- related to the presence of a special geographical (e.g., floodplain or wetland) or archeological area at or near the site.

- Action-specific -- related to a method of remedial action identified as an alternative for the site (e.g., disposal requirements or incineration standards).

The ARARs are identified on a project-specific basis, i.e., site-specific contamination, proposed remedial action alternatives, and site characteristics influence the selection of ARARs. The selection of ARARs will be addressed at various stages in the RI/FS process as additional information becomes available:

- RI/FS work plan -- potential ARARs identified (contaminant-and location-specific).

- Completion of RI phase -- ARARs used to identify cleanup goals (contaminant- and location-specific).

- Development of alternatives -- alternatives evaluated with respect to ARARs (action-, contaminant- and location-specific).

For an alternative to be selected, it must meet the associated ARARs -- unless waiver conditions identified in Superfund Amendments and Reauthorization (SARA), Section 121(d)(4), are met.

Potential ARARs for the Weldon Spring quarry residuals activity are listed in Table 3-1. Additional Federal and State requirements may also be ARARs, depending upon the alternatives identified during the RI/FS process or as a result of changes in Federal or State laws. A complete list of ARARs identified for the various remedial action alternatives will be provided in the FS.

3.8 Initial Data Quality Objectives

Data quality objectives (DQOs) are qualitative and quantitative statements which specify the quality of the data required to support decisions during response activities.

TABLE 3-1 Laws and Orders Potentially Applicable or Relevant and Appropriate to the Weldon Spring Site Quarry Residuals Activity

Federal Laws

Archeological and Historic Preservation Act of 1974
Archeological Resources Protection Act of 1979
Atomic Energy Act of 1954, as amended
Clean Air Act of 1963, as amended
Clean Water Act, as amended (also referred to as Federal Water Pollution Control Act of 1972, as amended)
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
Department of Energy Organization Act of 1977
Endangered Species Act of 1973, as amended
Fish and Wildlife Coordination Act of 1934, as amended
Hazardous Materials Transportation Act of 1974, as amended
National Environmental Policy Act of 1969, as amended
National Historic Preservation Act of 1966, as amended
Noise Control Act of 1972
Noise Pollution and Abatement Act of 1970
Occupational Safety and Health Act of 1970
Safe Drinking Water Act of 1974
Soil and Water Resources Conservation Act of 1977
Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984
Superfund Amendments and Reauthorization Act of 1986
Toxic Substances Control Act of 1976
Uranium Mill Tailings Radiation Control Act of 1978

Executive Orders

Executive Order 11490, Assigning Emergency Preparedness Functions to Federal Departments and Agencies
Executive Order 11514, Protection and Enhancement of Environmental Quality
Executive Order 11543, Protection and Enhancement of the Cultural Environment
Executive Order 11738, Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans
Executive Order 11807, Occupational Safety and Health Programs for Federal Employees
Executive Order 11988, Floodplain Management
Executive Order 11990, Protection of Wetlands
Executive Order 11991, Relating to the Protection and Enhancement of Environmental Quality
Executive Order 12088, Federal Compliance with Pollution Control Standards
Executive Order 12146, Management of Federal Legal Resources
Executive Order 12580, Superfund Implementation

Department of Energy Orders

Order 1540.1	Materials Transportation and Traffic Management
Order 4240.1H	Designation of Major System Acquisition and Major Projects
Order 4320.1A	Site Development and Facility Utilization Planning
Order 4700.1	Project Management System
Order 5000.3	Unusual Occurrence Reporting System
Order 5400.1	General Environmental Protection Program
Order 5400.4	Integration of Environmental Compliance Process
Order 5400.5	Radiation Protection of Public and the Environment
Order 5440.1C	Implementation of the National Environmental Policy Act
Order 5480.1B	Environment, Safety, and Health Program for Department of Energy Operations -- Note: Chapter XI of Order 5480.1B has been amended (see Vaughan [1985] and subsequent updates of Derived Concentration Guides)
Order 5480.4	Environmental Protection, Safety, and Health Protection Standards

TABLE 3-1 Laws and Orders Potentially Applicable or Relevant and Appropriate to the Weldon Spring Site Quarry Residuals Activity (Continued)

Order 5480.11	Radiation Protection for Occupational Workers
Order 5480.14	Comprehensive Environmental Response, Compensation, and Liability Act Program
Order 5481.1	Environmental Protection, Safety, and Health Protection Information Reporting Requirements
Order 5481.1B	Safety Analysis Review System
Order 5482.1B	Environmental Protection, Safety, and Health Protection Appraisal Program
Order 5483.1A	Occupational Safety and Health Program for Government-Owned Contractor-Operated Facilities
Order 5500.2	Emergency Planning, Preparedness, and Response for Operations
Order 5700.6B	Quality Assurance
Order 5820.2	Radioactive Waste Management

Missouri State Environmental Laws

Missouri Clean Water Act
Missouri Clean Air Act
Missouri Hazardous Waste Management Law
Missouri Solid Waste Management Law
Missouri Land Reclamation Act
Governor's Executive Order 82-19 on Flood Plain Management
Missouri 401 Water Quality Certification
Missouri Wildlife Code
Missouri Radiation Regulations
Missouri Air Conservation Law; Public Health and Welfare

DQOs are determined based on the end uses of the data to be collected and are applicable to all data collection activities.

Each sampling and analysis plan will implement the Data Quality Objective process as presented in the *Environmental Data Administration Plan* (EDAP) (MKF and JEG 1991b), to address the data quality requirements for the quarry residual activities.

The U.S. Department of Energy (DOE) and EPA will review the DQOs when evaluating each sampling and analysis plan. Objectives for the residual work plan will include parameters presently anticipated, updated, and/or revised during the preparation of the sampling plans for characterization and possibly again during the treatability studies for the feasibility studies.

4 FIELD PLANNING DOCUMENTS

The preparation of several documents will be required prior to initiating field activities during the residual activities. These plans ensure proper guidance when obtaining field data, quality assurance and quality control protocols necessary to achieve data quality objectives, and to clearly define potential health and safety problems that may be encountered during characterization activities. The documents that address these issues are the field sampling plan (FSP), the *Environmental Quality Assurance Program Plan (EQAPP)* (MKF and JEG 1991), the *Health and Safety Plan (HASP)*, and the *Community Relations Plan*.

4.1 Field Sampling Plan

The purpose of the field sampling activities is to obtain data to confirm the presence or absence of contaminants, the contaminant sources, modes of transport, direction of contaminant migration, and the effect of the contaminants on public health and the environment. Field sampling plans include a description of objectives, work tasks, specific quality assurance procedures, and level of effort required for site characterization. They provide a detailed sampling rationale--including the sampling locations and the types and number of samples--which, coupled with standard operating procedures and analytical methods/detection limits, will offer a well-defined approach. These plans are designed to permit detailed characterization of the wastes, soil, groundwater, surface water, and sediments at the quarry residuals area. Remedial measures can be identified, evaluated, and selected from these investigations. Details of the required field sampling plans will be presented in the residual work plan.

4.2 Quality Assurance Program Plan Update

The *Quality Assurance Program Plan (QAPP)* establishes the quality program for those activities performed by the Project Management Contractor (PMC) during the Weldon Spring Site Remedial Action Project (WSSRAP). This QAPP requires compliance with the criteria of ANSI/ASME NQA-1 1986, and U.S. Department of Energy (DOE) Order 5700.6C, which are required by the PMC and DOE contract document DE-AC05-86OR21548 and the MK-Environmental Services NQA-1 *Quality Assurance Manual*. The purpose of this QAPP is to assure compliance with these documents.

All criteria of NQA-1 are applicable to WSSRAP. The MK-Environmental Services NQA-1 Quality Assurance program provides guidance for the development of requisites to implement quality at WSSRAP. However, not all criteria are addressed within this QAPP; only criteria that describe Quality Assurance (QA) departmental actions are described. Compliance with the criteria not described by this QAPP is assured through performance of QA Audits, QA surveillances, and by implementation of the WSSRAP self-assessment program.

The QAPP shall be used as the generic working document to control and document the quality of work at the WSSRAP. This document requires that specific procedures and plans be generated to address Quality Level 1 and Quality Level 2 work activities and inspection criteria. These specific procedures shall detail the requirements of all applicable documents, codes, standards, and regulations.

Certain environmental compliance issues are addressed in the *WSSRAP Environmental Assurance Program Plan (EQAPP)* (MKF and JEG 1991) which addresses the specific EPA/QAMS 005-80 Quality Assurance requirements for the characterization of the WSSRAP. The EQAPP does not supersede the QAPP, but rather it expands on specific requirements required by DOE Order 5700.6C.

4.3 Health and Safety Plans

Subcontractor health and safety plans will be developed to ensure the health and safety of personnel during the performance of site characterization and response action activities. The plans include the safety standards that must be met by subcontractors during the performance of their assignments. Addressing the health and safety of on-site personnel will also serve to minimize any potential impacts to the general public and the nearby environment. Key elements of these plans are the use of appropriate protective equipment and safeguards and the performance of specific tasks under the supervision of trained technicians and safety specialists. On-site personnel are trained to be cognizant of all appropriate safety equipment and procedures, locations and types of on-site hazards, standard operating procedures, and procedures to be followed in emergency situations. Health and safety training and medical surveillance of all potentially exposed personnel are required elements of these plans.

4.4 Community Relations Plan

The *Community Relations Plan* (MKF and JEG 1991) describes the policy and procedures guiding interaction of personnel responsible for implementing the WSSRAP activities with the general public. The plan will be reviewed and revised accordingly to reflect the quarry residuals activity. The purpose of the community relations program is to ensure meaningful exchanges of information on such matters as potential health impacts, environmental issues, response action construction plans, project costs, and specific site activities.

5 ENVIRONMENTAL DOCUMENTATION SCHEDULE

5.1 Schedule and Responsibilities

Table 5-1 shows the planning schedule for completing the quarry residuals environmental documentation. The schedule indicates that the work plan begins in April of 1991 and ends with a Record of Decision in January of 1998. The table also shows the lead organization that will have the responsibly for completing each document along with the required support agencies. Document review will be required by the organizations listed in the table. The initial project schedule showing activity durations by task is shown on Table 5-2. Detailed schedules and manpower requirements will be developed as the documentation process proceeds. For example, Table 5-3 indicates the current schedule developed to show accelerated sampling plan development for input into the work plan prior to agency review.

TABLE 5-1 Quarry Residuals Environmental Documentation Schedule and Responsibilities

DOCUMENT/TASK	BEGIN	END	LEAD	SUPPORT	REVIEW
Work Plan	April 1991	December 1991	PMC	MK/JEG/ANL	ANL/DOE/Agency
Phase I Characterization Plans	November 1991	June 1992	PMC	MK/JEG	ANL/DOE/Agency
Phase I Characterization Procurement	June 1992	December 1992	PMC	PMC	PMC
Phase I Characterization	December 1992	August 1993	PMC	MK/JEG/SC	PMC
Phase I RI	August 1993	May 1994	PMC	MK/JEG	ANL/DOE/Agency
Phase I BRA	November 1993	November 1994	ANL	PMC/MK/JEG	PMC/DOE/Agency
Phase I/II FS-NEPA	April 1994	December 1994	ANL	PMC/MK/JEG	PMC/DOE/Agency
Phase II Characterization Plan	January 1994	July 1994	PMC	MK/JEG	ANL/DOE/Agency
Phase II Characterization Procurement	June 1994	September 1994	PMC	PMC	PMC
Phase II Characterization	November 1994	April 1995	PMC	MK/JEG/SC	PMC
Phase I/II RI	April 1995	October 1995	PMC	MK/JEG	ANL/DOE/Agency
Phase I/II BRA	June 1995	February 1996	ANL	PMC/MK/JEG	PMC/DOE/Agency
FS Engineering Studies	June 1995	January 1996	PMC	MK/JEG	ANL/DOE
FS-NEPA/Proposed Plan	January 1996	December 1996	ANL	PMC/MK/JEG	PMC/DOE/Agency
RS/ROD	January 1997	January 1998	ANL	PMC/MK/JEG	PMC/DOE/Agency

Acronyms/Definitions

- Document/Task
  - RI; Remedial Investigation
  - BRA; Baseline Risk Assessment
  - FS; Feasibility Study
  - NEPA; National Environmental Policy Act of 1969, as amended
  - RS; Responsiveness Summary
  - ROD; Record of Decision
- Lead/Support/Review
  - PMC; Project Management Contractor
  - ANL; Argonne National Laboratories
  - MK; Morrison-Knudsen Environmental Services (Boise/San Francisco)
  - JEG; Jacobs Engineering Group (Pasadena/Denver)
  - SC; Subcontractor (as selected by procurement process)
  - DOE; Department of Energy representatives at WSSRAP
  - Agency; EPA - Environmental Protection Agency
    MDNR - Missouri Department of Natural Resources
    DOE - Oak Ridge and Headquarters (Washington, D.C.)

TABLE 5-2 Quarry Residuals Detailed Planning Schedule

MSS-AP DE-AC05-06OR21540
NK-Ferguson
CONTRACT: 3059

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
PLANNING SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH
	TASK 1 - SCOPING/WORK PLAN		
1	COMPILE EXISTING CHARACTERIZATION DATA	1OCT90	30OCT90
2	DATA ANALYSIS	31OCT90	29NOV90
3	IDENTIFY DATA NEEDS	30NOV90	20DEC90
4	DEVELOP CONCEPTUAL SITE MODEL	31DEC90	10JAN91
5	PREPARE/ISSUE QUARRY RESIDUAL SCOPING DOCUMENT	11JAN91	11MAR91
6	PMC/ANL REVIEW OF QUARRY RESIDUAL SCOPING DOCUMENT	12MAR91	31MAR91
7	PREPARE/ISSUE QUARRY RESIDUAL WORK PLAN	1APR91	30MAY91
8	PMC REVIEW/ANL REVIEW OF QUARRY RESIDUAL WORK PLAN	31MAY91	19JUN91
9	INCORP COMMENTS/ISSUE QUARRY RESIDUAL WORK PLAN FOR AGENCY REVIEW	20JUN91	9JUL91
10	DOE-HQ/EPA/DNR REVIEW OF QUARRY RESIDUAL WORK PLAN	10JUL91	7SEP91
11	INCORP COMMENTS/ISSUE FINAL DRAFT QUARRY RESIDUAL WORK PLAN FOR PUBLIC REVIEW	8SEP91	7OCT91
12	PUBLIC REVIEW OF DRAFT QUARRY RESIDUAL WORK PLAN	8OCT91	6NOV91
13	INCORP COMMENTS/ISSUE QUARRY RESIDUAL WORK PLAN RESPONSIVENESS SUMMARY	7NOV91	6DEC91
14	PREPARE/ISSUE FINAL QUARRY RESIDUAL WORK PLAN	7DEC91	11DEC91
	PHASE I CHARACTERIZATION - UPDATE QAPP		
15	REVISE RIQAPP DOCUMENT	15FEB92	15MAR92
16	EPA/DNR REVIEW OF REVISED SITE RIQAPP	16MAR92	14MAY92
17	INCORP COMMENTS/REVISE RIQAPP BASED EPA/DNR COMMENTS	15MAY92	14JUN92
18	ISSUE REVISION "2" OF SITE RIQAPP	15JUN92	15JUN92
	HYDROGEOLOGICAL SAMPLING PLAN - PHYSICAL		
19	WRITE HYDROGEOLOGICAL SAMPLING PLAN	17NOV91	15JAN92
20	PMC/COF REVIEW OF HYDROGEOLOGICAL SAMPLING PLAN	16JAN92	14FEB92
21	REVISE/FINAL DRAFT OF HYDROGEOLOGICAL SAMPLING PLAN	15FEB92	15MAR92
22	EPA/DNR REVIEW OF HYDROGEOLOGICAL SAMPLING PLAN	16MAR92	14MAY92
23	REVISE/INCORP COMMENTS FINALIZE PLAN	15MAY92	14JUN92
24	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92
	PHASE I CHARACTERIZATION - GEOPHYSICAL INVESTIGATIONS		
25	DEVELOP DRAFT GEOPHYSICAL INVESTIGATIONS SPECIFICATIONS	16JUN92	14AUG92
26	PMC REVIEW OF DRAFT GEOPHYSICAL INVESTIGATIONS SPECS	15AUG92	15SEP92

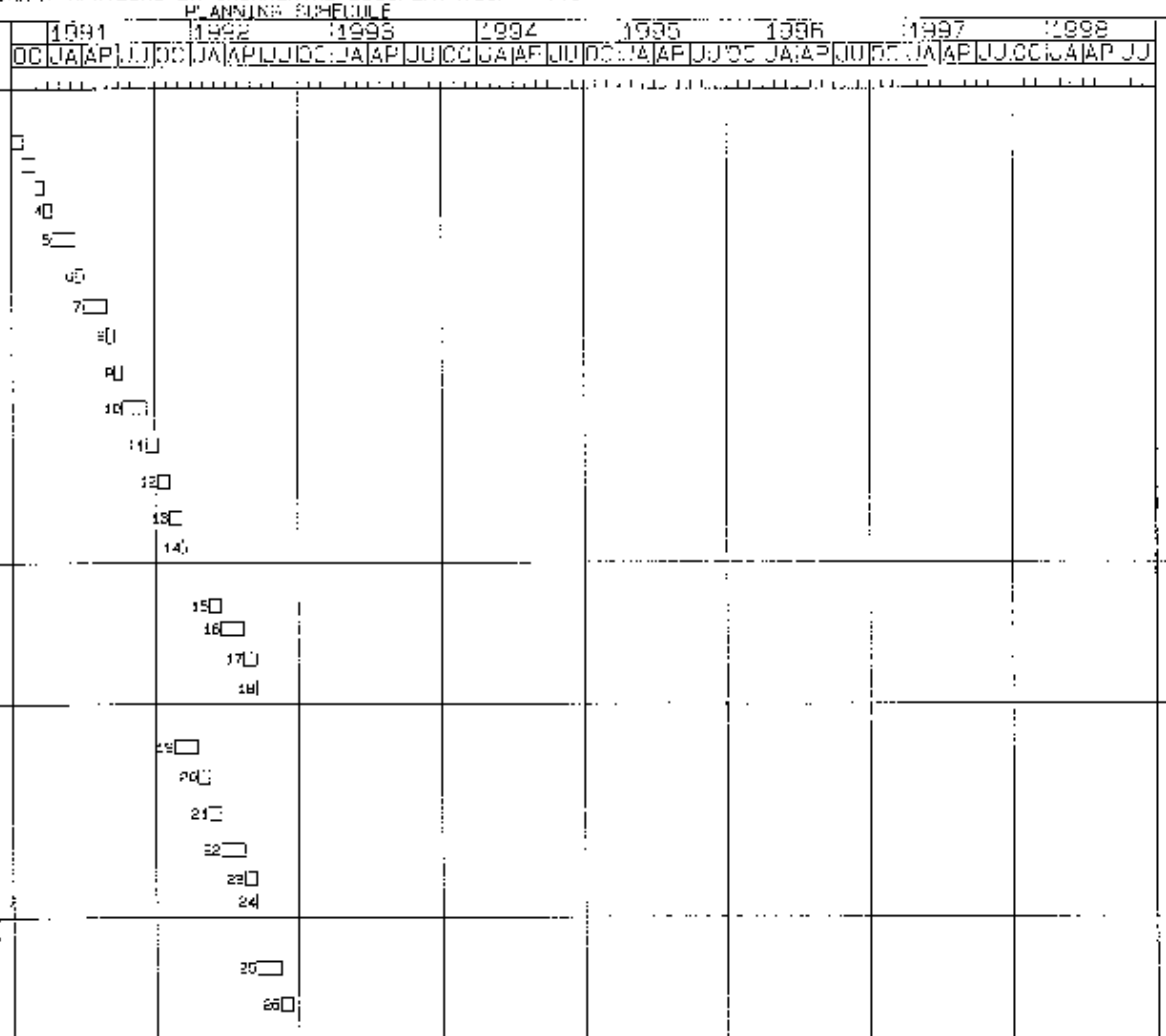

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TABLE 5-2 Quarry Residuals Detailed Planning Schedule (Continued)

MOTRAP DE-AC09-89SR18148
MK-Ferguson
CONTRACT: 2501

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
PLANNING SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH
	PHASE I CHARACTERIZATION - GEOPHYSICAL INVESTIGATIONS		
27	INCORP/REVISE GEOPHYSICAL INVESTIGATIONS SPECIFICATIONS	15SEP92	13OCT92
28	GEOPHYSICAL INVESTIGATIONS - RFD/AWARD	14OCT92	10DEC92
29	GEOPHYSICAL INVESTIGATIONS	16DEC92	19MAY93
30	GEOPHYSICAL INVESTIGATIONS ANALYSIS/REPORT	20MAY93	14JUL93
	PHASE I CHARACTERIZATION - PUMP WELL/PUMP TEST		
31	DEVELOP DRAFT PUMP WELL/PUMP TEST SPECIFICATIONS	16JUN92	14AUG92
32	PMC REVIEW OF DRAFT PUMP WELL/PUMP TEST SPECIFICATIONS	15AUG92	15SEP92
33	INCORP/REVISE PUMP WELL/PUMP TEST SPECIFICATION	16SEP92	12OCT92
34	PUMP WELL/PUMP TESTS - RFD/AWARD	14OCT92	10DEC92
35	PERFORM PUMP WELL/PUMP TESTS	16DEC92	19MAY93
36	PUMP WELL/PUMP TESTS - ANALYSIS/REPORT	20MAY93	14JUL93
	CONTAMINANTS SAMPLING PLAN		
37	WRITE CONTAMINANTS SAMPLING PLAN	17NOV91	15JAN92
38	REVISE/FINAL DRAFT OF CONTAMINANTS SAMPLING PLAN	15JAN92	15MAR92
39	PMC/DOE REVIEW OF CONTAMINANTS SAMPLING PLAN	16JAN92	14JAN93
40	EPA/DNR REVIEW OF CONTAMINANTS SAMPLING PLAN	16MAR92	15MAY92
41	REVISE-INCORP COMMENTS FINALIZE PLAN	16MAY92	14JUN92
42	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92
	PHASE I CHARACTERIZATION - MONITORING WELL INSTALLATION		
43	DEVELOP DRAFT DRILLING/MONITORING WELL SPECIFICATIONS	16JUN92	14AUG92
44	PMC REVIEW OF DRILLING/MONITORING WELL SPECIFICATIONS	15AUG92	15SEP92
45	INCORP/REVISE DRILLING/MONITORING WELL SPECIFICATIONS	16SEP92	13OCT92
46	DRILLING/MONITORING WELL - RFD/AWARD	14OCT92	10DEC92
47	DRILLING/INSTALL MONITORING WELLS	16DEC92	19MAY93
48	DRILLING/MONITORING WELL - ANALYSIS/REPORT	20MAY93	14JUL93
	PHASE I CHARACTERIZATION - SOILS DRILLING		
49	DEVELOP DRAFT SOILS-DRILLING SPECIFICATIONS	16JUN92	14AUG92
50	PMC REVIEW OF SOILS-DRILLING SPECIFICATIONS	15AUG92	15SEP92
51	INCORP/REVISE SOILS-DRILLING SPECIFICATIONS	16SEP92	13OCT92
52	SOILS-DRILLING: RFD/AWARD	14OCT92	10DEC92
53	DRILLING - SOILS	16DEC92	19MAY93
54	DRILLING-SOILS - ANALYSIS/REPORT	20MAY93	14JUL93

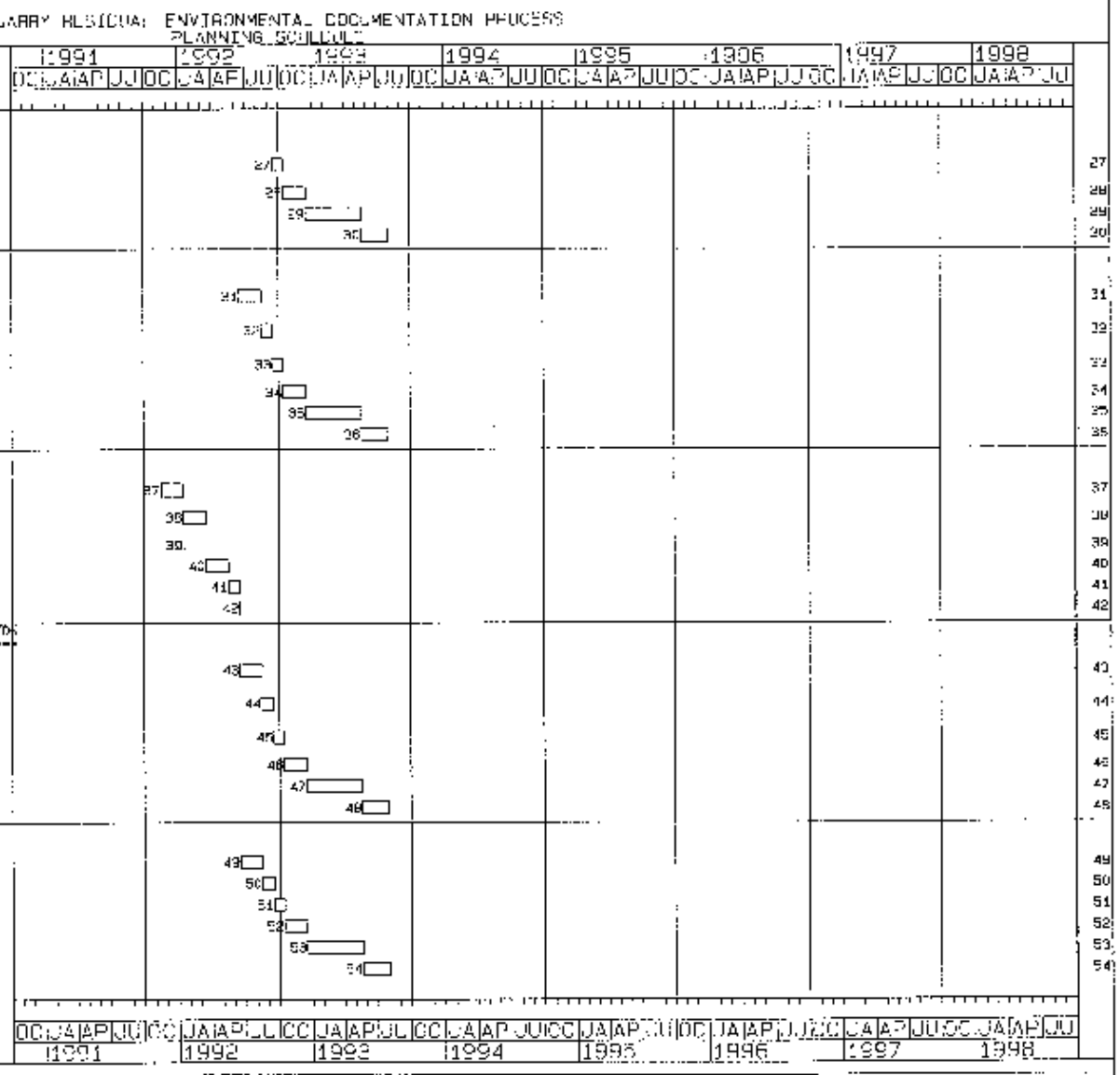

TABLE 5-2 Quarry Residuals Detailed Planning Schedule (Continued)

NSSRAP DE-AC05-062R61540
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CONTRACT 2559

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
PLANNING SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH
	ECOLOGICAL SAMPLING PLAN		
55	WRITE ECOLOGICAL SAMPLING PLAN	17NOV91	15JAN92
56	PMO/DOE REVIEW OF ECOLOGICAL SAMPLING PLAN	16JAN92	14FEB92
57	REVISE/FINAL DRAFT OF SAMPLING PLAN	15FEB92	15MAR92
58	EPA/DNR REVIEW OF SAMPLING PLAN	16MAR92	14MAY92
59	REVISE INCORP COMMENTS/FINALIZE PLAN	15MAY92	14JUN92
60	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92
	PHASE I CHARACTERIZATION - ECOLOGICAL (WILDLIFE USE) STUDY		
61	DEVELOP DRAFT ECOLOGICAL STUDY SPECIFICATIONS	16JAN92	14AUG92
62	PMO REVIEW OF ECOLOGICAL STUDY SPECIFICATIONS	15AUG92	15SEP92
63	INCORP/REVISE ECOLOGICAL STUDY SPECIFICATION	16SEP92	13OCT92
64	ECOLOGICAL STUDY SID/AWARD	14OCT92	15DEC92
65	CONDUCT ECOLOGICAL (WILDLIFE USE) STUDY	16DEC92	19MAY93
66	ECOLOGICAL STUDY : ANALYSIS/REPORT	20MAY93	1AUG93
	LAND USE/DEMOGRAPHICS SAMPLING PLAN		
67	WRITE LAND USE/DEMOGRAPHICS SAMPLING PLAN	17NOV91	15JAN92
68	PMO/DOE REVIEW OF LAND USE/DEMOGRAPHICS SAMPLING PLAN	16JAN92	14FEB92
69	REVISE/FINAL DRAFT OF LAND USE/DEMOGRAPHICS SAMPLING PLAN	15FEB92	15MAR92
70	EPA/DNR REVIEW OF SAMPLING PLAN	16MAR92	14MAY92
71	REVISE-INCORP COMMENTS/FINALIZE PLAN	15MAY92	14JUN92
72	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92
	PHASE I CHARACTERIZATION - LAND USE/DEMOGRAPHICS STUDY		
73	CONDUCT LAND USE/DEMOGRAPHICS STUDY / DRAFT REPORT	16JAN92	1AUG93
	TASK 5 -QUARRY BULK WASTE REMOVAL		
74	QUARRY BULK WASTE REMOVAL	22MAY92	13NOV94
	TASK 6 PHASE I REMEDIAL INVESTIGATIONS		
75	DRAFT QUARRY RESIDUAL REMEDIAL INVESTIGATION (RI) REPORT	2AUG93	2NOV93
76	PMO/AAL REVIEW OF DRAFT QUARRY RESIDUAL RI REPORT- PHASE I	3NOV93	17DEC93
77	INCORP COMMENTS/REVISE DRAFT QUARRY RESIDUAL RI REPORT - PHASE I	18DEC93	31JAN94
78	EPA/DNR REVIEW OF QUARRY RESIDUAL RI REPORT - PHASE I	1FEB94	1APR94
79	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON RI REPORT - PHASE I	2APR94	31MAY94

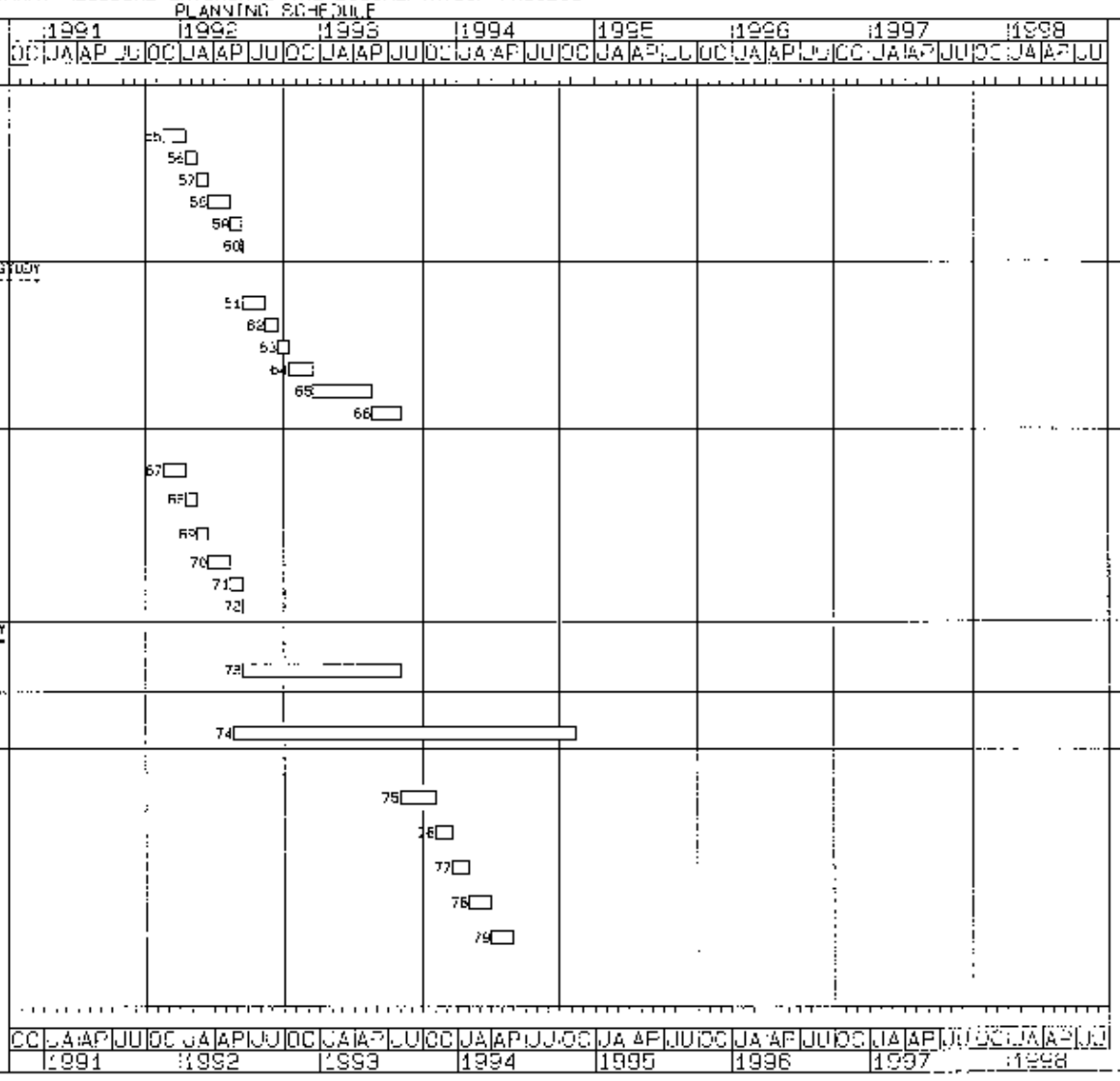

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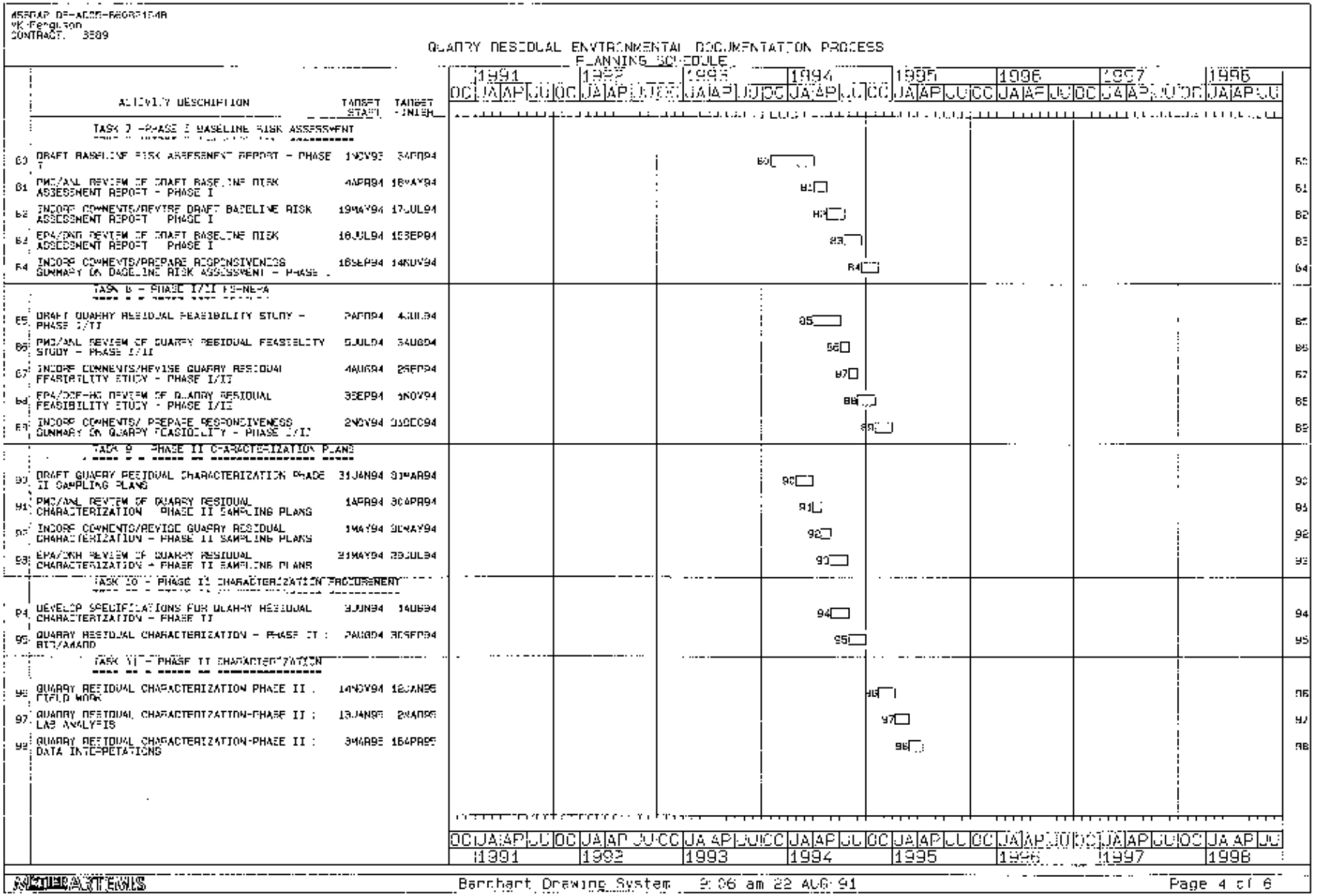
TABLE 5-2 Quarry Residuals Detailed Planning Schedule (Continued)



	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH
	TASK 7 -PHASE I BASELINE RISK ASSESSMENT		
60	DRAFT BASELINE RISK ASSESSMENT REPORT - PHASE I	1NOV93	24FEB94
61	PMC/ANL REVIEW OF DRAFT BASELINE RISK ASSESSMENT REPORT - PHASE I	4APR94	18MAY94
62	INCORP COMMENTS/REVISE DRAFT BASELINE RISK ASSESSMENT REPORT PHASE I	19MAY94	17JUL94
63	EPA/IDNR REVIEW OF DRAFT BASELINE RISK ASSESSMENT REPORT PHASE I	18JUL94	15SEP94
64	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON BASELINE RISK ASSESSMENT - PHASE I	16SEP94	14NOV94
	TASK 8 - PHASE I/II FS-NEPA		
65	DRAFT QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	24FEB94	4JUL94
66	PMC/ANL REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	5JUL94	24AUG94
67	INCORP COMMENTS/REVISE QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	4AUG94	26SEP94
68	EPA/IDNR REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	26SEP94	1NOV94
69	INCORP COMMENTS/ PREPARE RESPONSIVENESS SUMMARY ON QUARRY FEASIBILITY - PHASE I/II	2NOV94	30DEC94
	TASK 9 - PHASE II CHARACTERIZATION PLANS		
90	DRAFT QUARRY RESIDUAL CHARACTERIZATION PHASE II SAMPLING PLANS	31JAN94	31MAR94
91	PMC/ANL REVIEW OF QUARRY RESIDUAL CHARACTERIZATION PHASE II SAMPLING PLANS	1APR94	30APR94
92	INCORP COMMENTS/REVISE QUARRY RESIDUAL CHARACTERIZATION - PHASE II SAMPLING PLANS	1MAY94	30MAY94
93	EPA/IDNR REVIEW OF QUARRY RESIDUAL CHARACTERIZATION - PHASE II SAMPLING PLANS	31MAY94	30JUL94
	TASK 10 - PHASE II CHARACTERIZATION PROCUREMENT		
94	DEVELOP SPECIFICATIONS FOR QUARRY RESIDUAL CHARACTERIZATION - PHASE II	3JUN94	14JUL94
95	QUARRY RESIDUAL CHARACTERIZATION - PHASE II : BID/AWARD	24JUL94	30SEP94
	TASK 11 - PHASE II CHARACTERIZATION		
96	QUARRY RESIDUAL CHARACTERIZATION PHASE II : FIELD WORK	14NOV94	12JAN95
97	QUARRY RESIDUAL CHARACTERIZATION-PHASE II : LAB ANALYSIS	13JAN95	2MAR95
98	QUARRY RESIDUAL CHARACTERIZATION-PHASE II : DATA INTERPRETATIONS	3MAR95	15APR95

TABLE 5-2 Quarry Residuals Detailed Planning Schedule (Continued)

NSBAP DF-ACOS-FRCS2104B
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QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
PLANNING SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH
	TASK 12- PHASE II REMEDIAL INVESTIGATIONS		
99	DRAFT QUARRY RESIDUAL REMEDIAL INVESTIGATION (RI) REPORT - PHASE II	17APR95	15JUN95
100	PRC/AAL REVIEW OF QUARRY RESIDUAL RI REPORT - PHASE II	19JUN95	15JUL95
101	REVISE QUARRY RESIDUAL RI REPORT - PHASE II	18JUL95	17AUG95
102	EPA/DOR REVIEW OF QUARRY RESIDUAL RI REPORT - PHASE II	18AUG95	15OCT95
103	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY - RI REPORT - PHASE II	17OCT95	17DEC95
	TASK 13 - BASELINE RISK ASSESSMENT		
104	DRAFT QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	17JUN95	23AUG95
105	PRC/AAL REVIEW OF QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	21AUG95	15SEP95
106	INCORP COMMENTS/REVISE QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	20SEP95	19OCT95
107	EPA/DOR REVIEW OF QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	20OCT95	15DEC95
108	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON BASELINE RISK ASSESSMENT - PHASE II	19DEC95	16FEB96
	TASK 14 - FS ENGINEERING STUDIES		
109	BEGIN SCOPING FOR QUARRY RESIDUAL ENGINEERING STUDIES	17JUN95	15JUL95
110	PRC/AAL REVIEW OF QUARRY RESIDUAL ENGINEERING SCOPING STUDIES	17JUL95	15AUG95
111	INCORP COMMENTS/PERFORM QUARRY RESIDUAL ENGINEERING STUDIES	16AUG95	15JAN96
	TASK 15 - FS-NEPA / PROPOSED PLAN		
112	DRAFT QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	17JAN96	15APR96
113	PRC/DOE REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	16APR96	15MAY96
114	INCORP COMMENTS/REVISE QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	16MAY96	14JUN96
115	EPA/DOE-HQ REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	15JUN96	17AUG96
116	CONCUR ON CHANGES/INCORP COMMENTS IN QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	14AUG96	3DEC96
117	PUBLIC REVIEW OF QUARRY RESIDUAL FS REPORT	05DEC96	31DEC96
	TASK 16 - RESPONSIVENESS SUMMARY/RECORD OF DECISION		
118	REVIEW WRITTEN COMMENTS/ORGANIZE/INCORP COMMENTS ON DRAFT FS-NEPA	1JAN97	28MAR97
119	PREPARE RESPONSIVENESS SUMMARY/RECORD OF DECISION	27MAR97	17MAY97

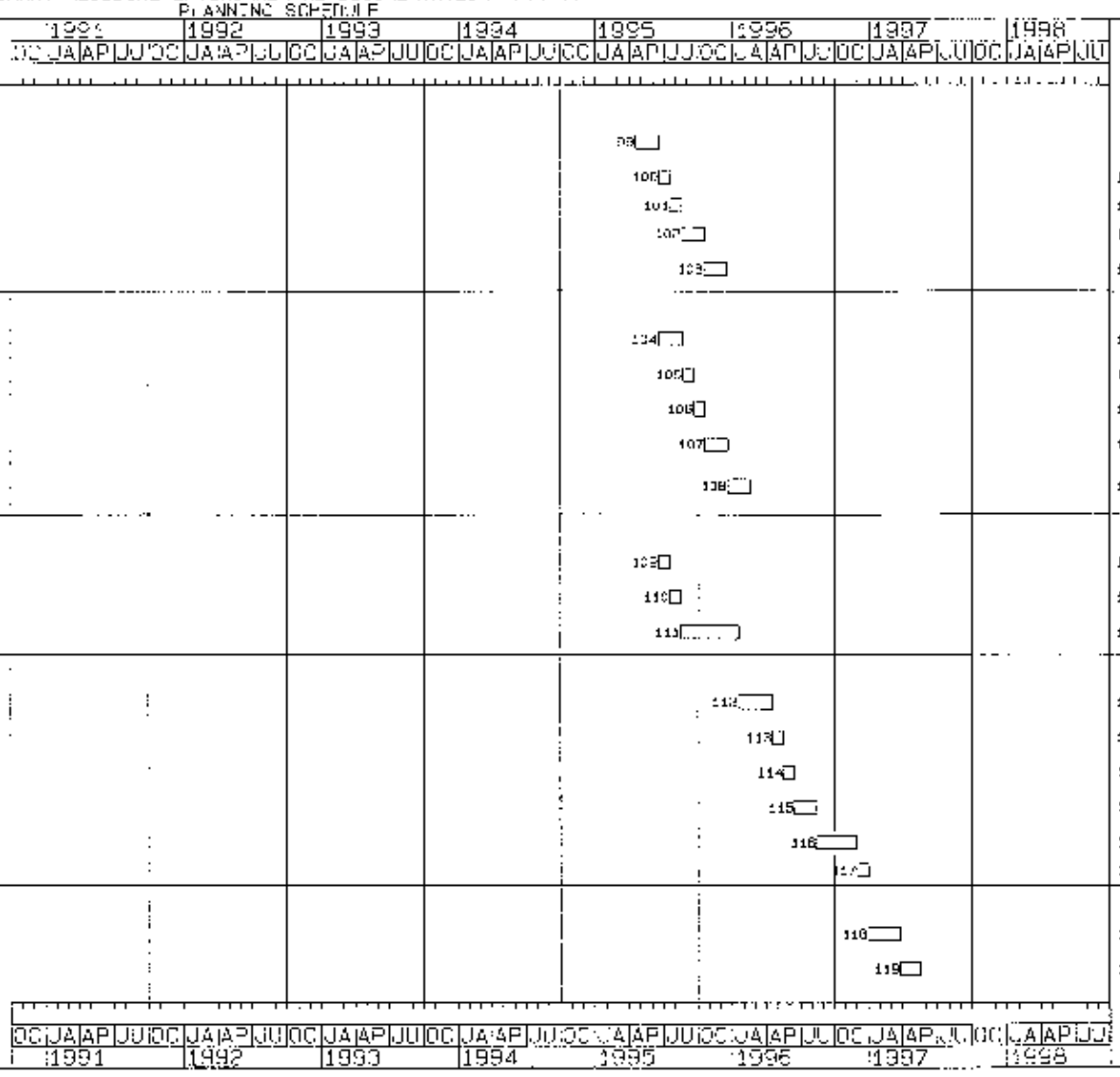


TABLE 5-2 Quarry Residuals Detailed Planning Schedule (Continued)

WSSRAP DE-AC05-BLOR21542
NK-Ferguson
CONTRACT: 3050

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
PLANNING SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH
	TASK 16 - RESPONSIVENESS SUMMARY/RECORD OF DECISION		
120	EPA/ODE REVIEW OF RESPONSIVENESS SUMMARY/RECORD OF DECISION	18MAY97	1JUL97
121	CONCUR ON CHANGES/INCORP COMMENTS/REDRAFT RESPONSIVENESS SUMMARY-RECORD OF DECISION	8JUL97	29SEP97
122	EPA/ONR COMMENT AGDIT- DISPUTE TRIGGER RESOLUTION	30SEP97	10NOV97
123	EPA/ODE SIGNATURE OF RECORD OF DECISION	14NOV97	12JAN98
124	ISSUE RECORD OF DECISION FOR QUARRY RESIDUAL	13JAN98	13JAN98

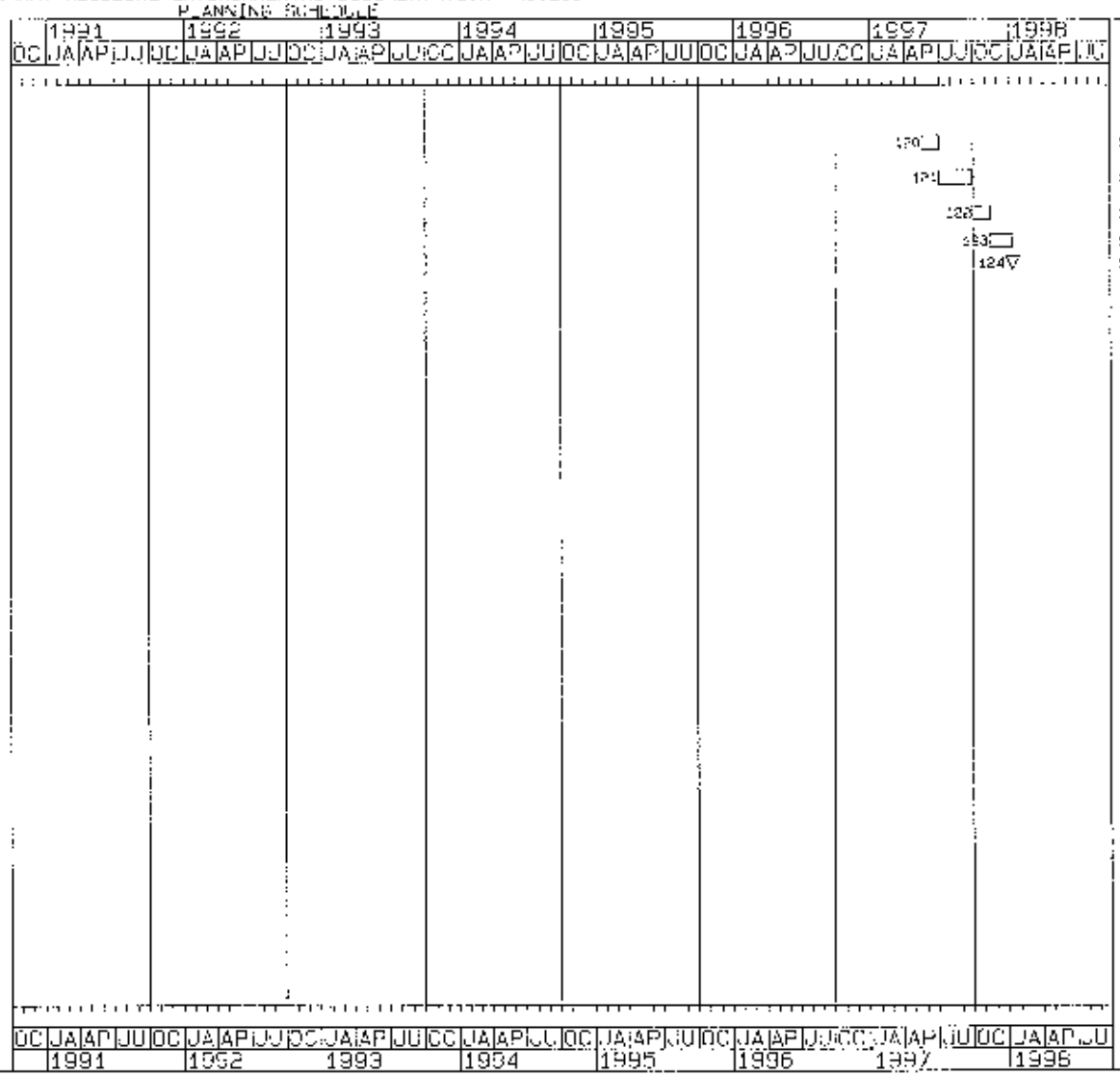


TABLE 5-3 Quarry Residuals Environmental Documentation Process

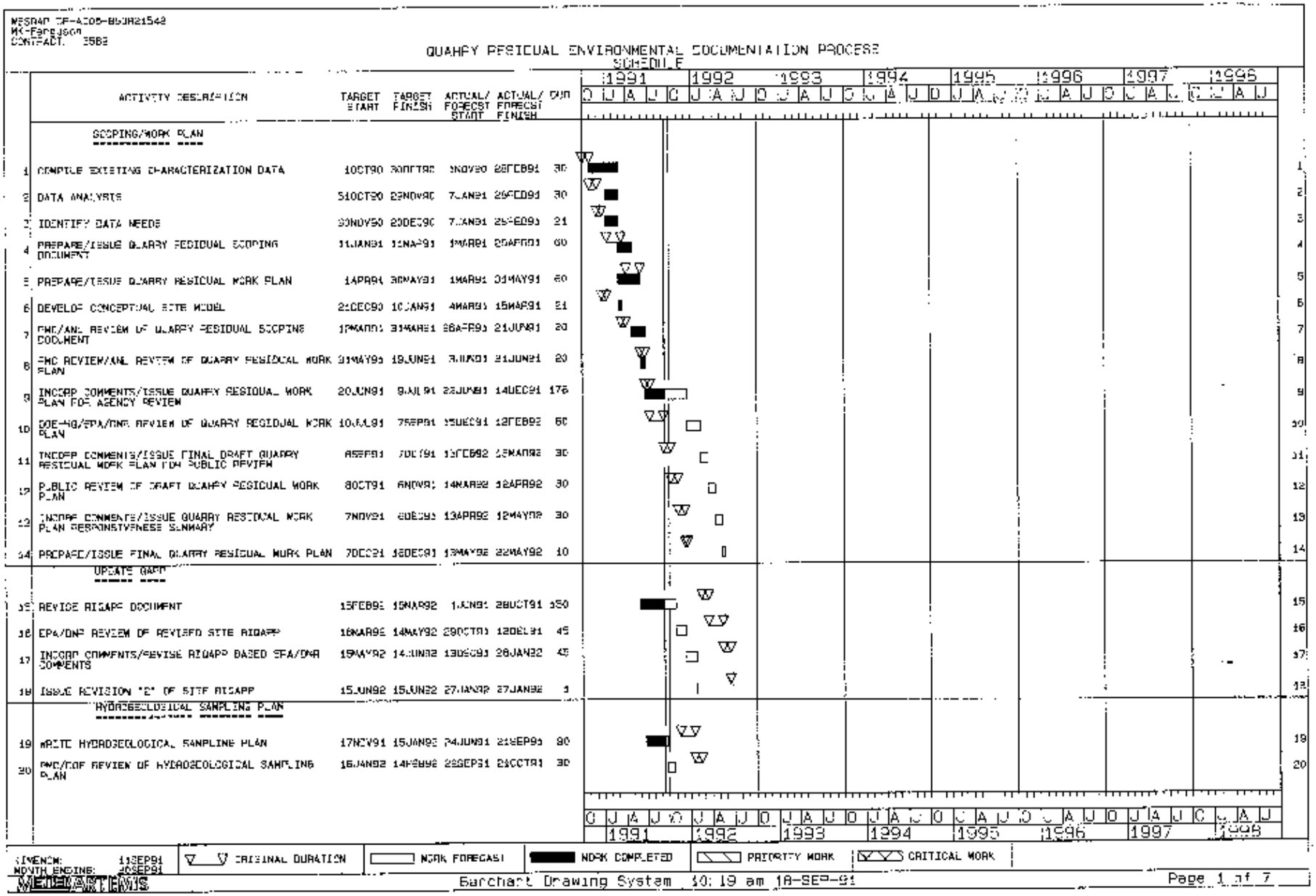
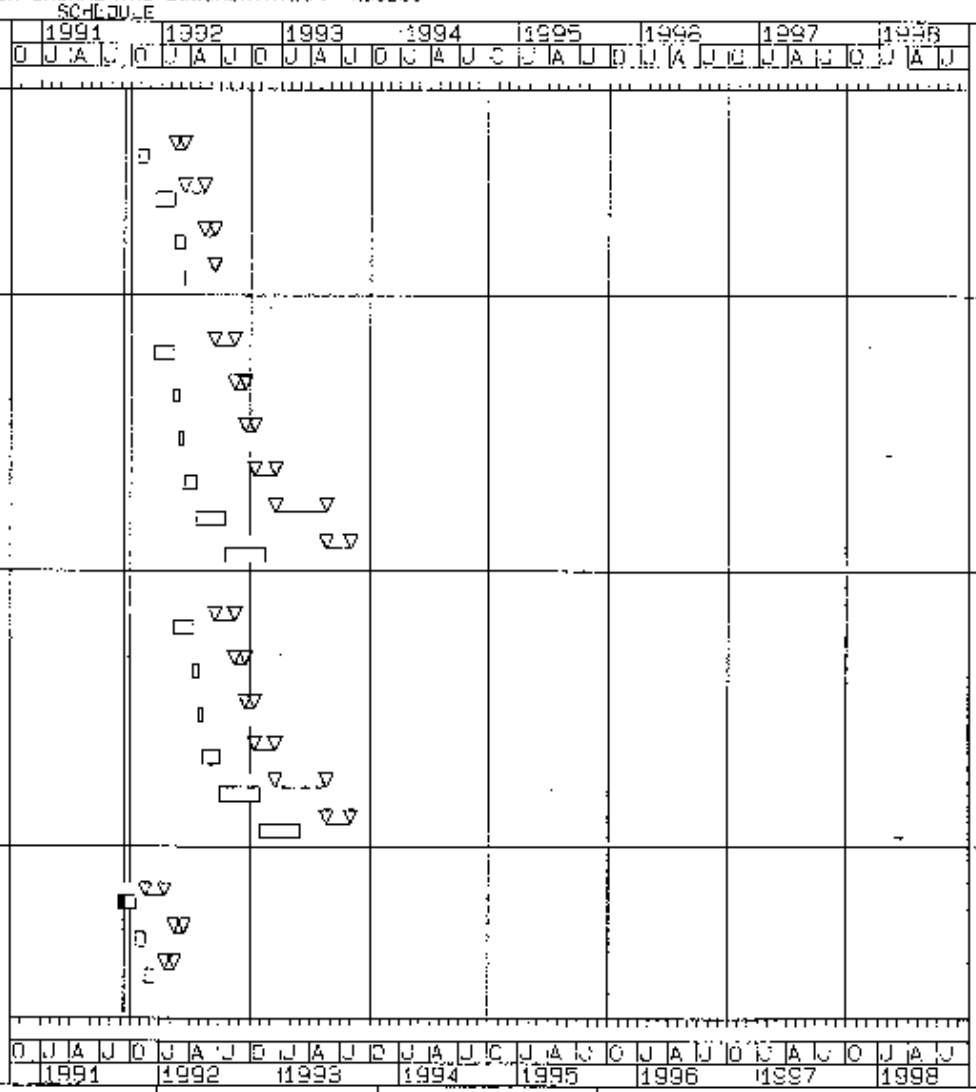


TABLE 5-3 Quarry Residuals Environmental Documentation Process (Continued)

WSSRAP DE-AC05-86OR21548
MK-Ferguson
CONTRACT: 1599

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH	ACTUAL/ FORECST START	ACTUAL/ FORECST FINISH	O/F
	HYDROGEOLOGICAL SAMPLING PLAN					
21	REVISE/FINAL DRAFT OF HYDROGEOLOGICAL SAMPLING PLAN	15FEB92	15MAR92	22OCT91	20NOV91	30
22	EPA/DNR REVIEW OF HYDROGEOLOGICAL SAMPLING PLAN	15MAR92	14MAY92	15DEC91	12FEB92	60
23	REVISE/INCORP COMMENTS FINALIZE PLAN	15MAY92	14JUN92	13FEB92	13MAR92	30
24	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92	14MAR92	14MAR92	1
	GEOPHYSICAL INVESTIGATIONS					
25	DEVELOP DRAFT GEOPHYSICAL INVESTIGATIONS SPECIFICATIONS	16JUN92	14AUG92	15DEC91	12FEB92	60
26	PMC REVIEW OF DRAFT GEOPHYSICAL INVESTIGATIONS SPECS	15AUG92	15SEP92	13FEB92	28FEB92	14
27	INCORP/REVISE GEOPHYSICAL INVESTIGATIONS SPECIFICATIONS	16SEP92	13OCT92	27FEB92	11MAR92	14
28	GEOPHYSICAL INVESTIGATIONS . BID/AWARD	14OCT92	15DEC92	15MAR92	12APR92	25
29	GEOPHYSICAL INVESTIGATIONS	16DEC92	19MAY93	19APR92	17JUL92	90
30	GEOPHYSICAL INVESTIGATIONS ANALYSIS/REPORT	20MAY93	1AUG93	18JUL92	14NOV92	120
	PUMP WELL/PUMP TESTS					
31	DEVELOP DRAFT PUMP WELL/PUMP TEST SPECIFICATIONS	16JUN92	14AUG92	13FEB92	12APR92	60
32	PMC REVIEW OF DRAFT PUMP WELL/PUMP TEST SPECIFICATIONS	15AUG92	15SEP92	13APR92	26APR92	14
33	INCORP/REVISE PUMP WELL/PUMP TEST SPECIFICATION	16SEP92	13OCT92	27APR92	10MAY92	14
34	PUMP WELL/PUMP TESTS . BID/AWARD	14OCT92	15DEC92	11MAY92	2JUL92	53
35	PERFORM PUMP WELL/PUMP TESTS	16DEC92	19MAY93	3JUL92	30OCT92	120
36	PUMP WELL/PUMP TESTS ANALYSIS/REPORT	20MAY93	1AUG93	31OCT92	27FEB93	120
	CONTAMINANTS SAMPLING PLAN					
37	WRITE CONTAMINANTS SAMPLING PLAN	17NOV91	15JAN92	26AUG91	15OCT91	51
38	PMC/DOE REVIEW OF CONTAMINANTS SAMPLING PLAN	15FEB92	15MAR92	16OCT91	14NOV91	30
39	REVISE/FINAL DRAFT OF CONTAMINANTS SAMPLING PLAN	16JAN92	14FEB92	15NOV91	14DEC91	30



TIMENOW: 11SEP91
MONTH ENDING: 30SEP91

ORIGINAL DURATION | WORK FORECAST | WORK COMPLETED | PRIORITY WORK | CRITICAL WORK

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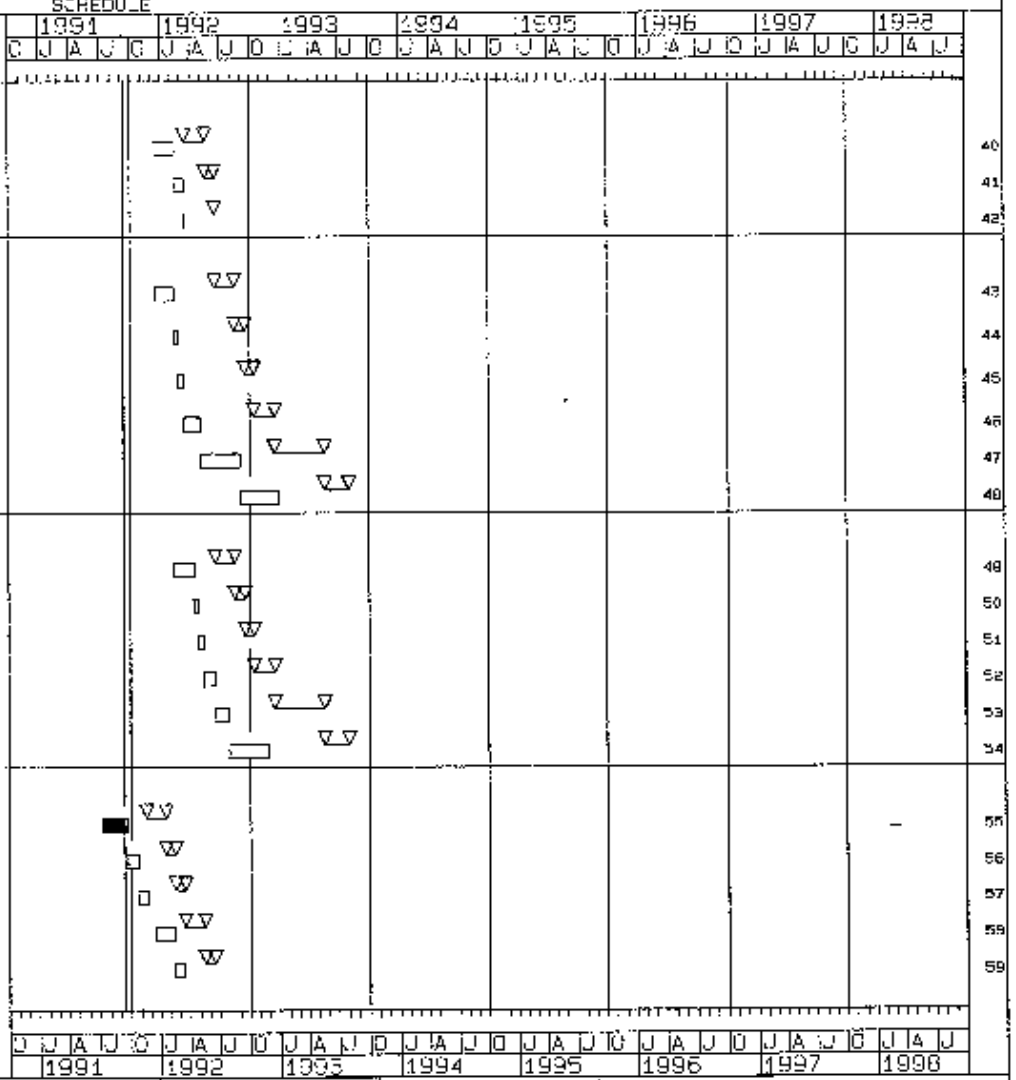
Barchart Drawing System 10.22 am 19-SEP-91

TABLE 5-3 Quarry Residuals Environmental Documentation Process (Continued)

MSSHAP DE-A205-86OR21548
MK-Ferguson
CONTRACT 3582

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH	ACTUAL/ FORECST START	ACTUAL/ FORECST FINISH	DUR
	CONTAMINANTS SAMPLING PLAN					
40	EPA/DNR REVIEW OF CONTAMINANTS SAMPLING PLAN	16MAR92	15MAY92	15DEC91	12FEB92	60
41	REVISE-INCORP COMMENTS FINALIZE PLAN	16MAY92	14JUN92	13FEB92	13MAR92	30
42	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92	14MAR92	14MAR92	1
	MONITORING WELL INSTALLATION					
43	DEVELOP DRAFT DRILLING/MONITORING WELL SPECIFICATIONS	16JUN92	14AUG92	15DEC91	12FEB92	60
44	PMC REVIEW OF DRILLING/MONITORING WELL SPECIFICATIONS	15AUG92	15SEP92	13FEB92	26FEB92	14
45	INCORP/REVISE DRILLING/MONITORING WELL SPECIFICATIONS	16SEP92	13OCT92	27FEB92	11MAR92	14
46	DRILLING/MONITORING WELL : BID/AWARD	14OCT92	15DEC92	12MAR92	3MAY92	53
47	DRILLING/INSTALL MONITORING WELLS	16DEC92	19MAY93	4MAY92	31AUG92	120
48	DRILLING/MONITORING WELL : ANALYSIS/REPORT	20MAY93	1AUG93	1SEP92	29DEC92	120
	SOILS- DRILLING					
49	DEVELOP DRAFT SOILS-DRILLING SPECIFICATIONS	16JUN92	14AUG92	13FEB92	17APR92	60
50	PMC REVIEW OF SOILS-DRILLING SPECIFICATIONS	15AUG92	15SEP92	13APR92	26APR92	14
51	INCORP/REVISE SOILS-DRILLING SPECIFICATIONS	16SEP92	13OCT92	27APR92	10MAY92	14
52	SOILS-DRILLING: BID/AWARD	14OCT92	15DEC92	11MAY92	14JUN92	35
53	DRILLING - SOILS	16DEC92	19MAY93	15JUN92	29JUL92	45
54	DRILLING-SOILS : ANALYSIS/REPORT	20MAY93	1AUG93	30JUL92	26NOV92	120
	ECOLOGICAL SAMPLING PLAN					
55	WRITE ECOLOGICAL SAMPLING PLAN	17NOV91	15JAN92	8JUL91	21SEP91	78
56	PMC/DOE REVIEW OF ECOLOGICAL SAMPLING PLAN	16JAN92	14FEB92	22SEP91	21OCT91	30
57	REVISE/FINAL DRAFT OF SAMPLING PLAN	15FEB92	15MAR92	22OCT91	20NOV91	30
58	EPA/DNR REVIEW OF ECOLOGICAL SAMPLING PLAN	16MAR92	14MAY92	15DEC91	12FEB92	60
59	REVISE-INCORP COMMENTS/FINALIZE PLAN	15MAY92	14JUN92	13FEB92	13MAR92	30



TIMENOW 11SEP91
MONTH ENDING 30SEP91

ORIGINAL DURATION | WORK FORECAST | WORK COMPLETED | PRIORITY WORK | CRITICAL WORK

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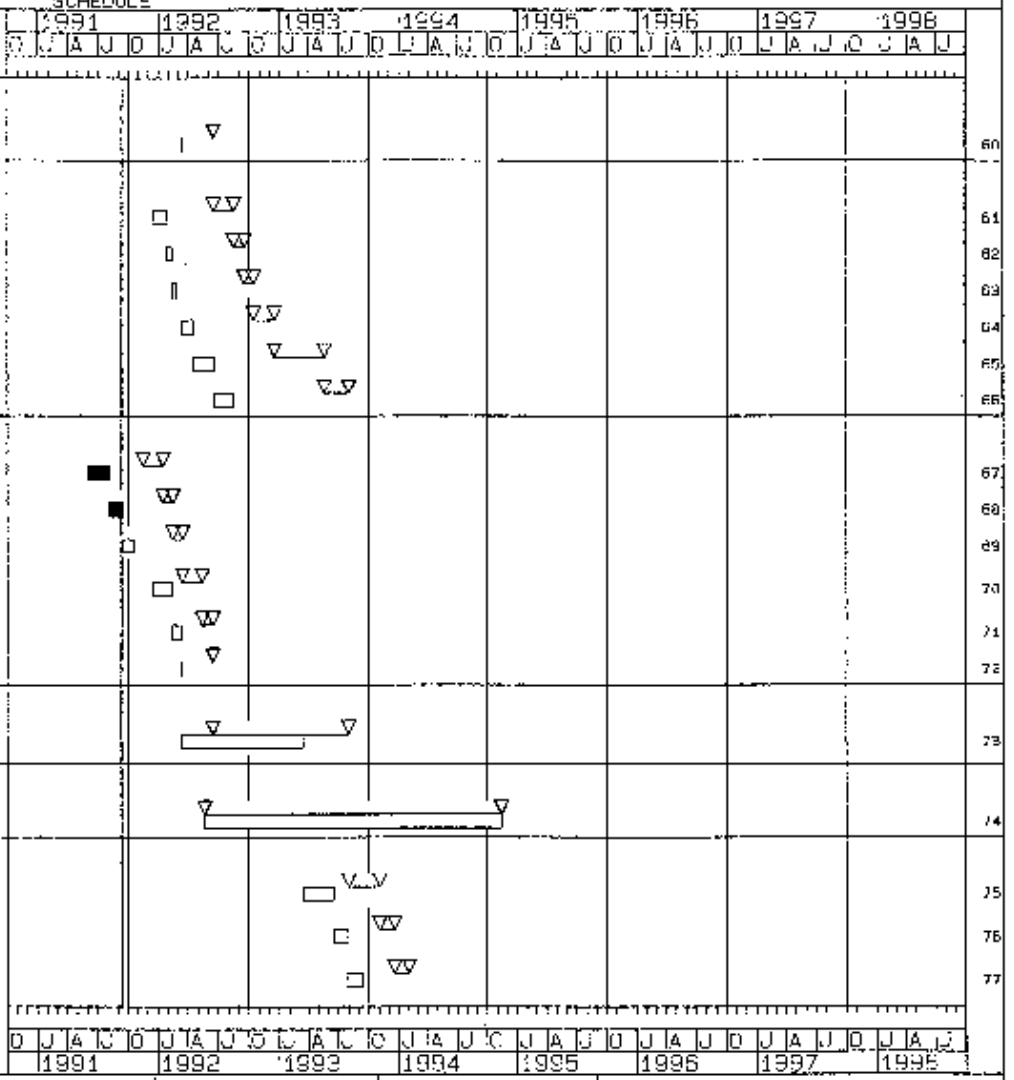
TABLE 5-3 Quarry Residuals Environmental Documentation Process (Continued)

NSSRAP DE-AC05-86OR21549
MK-Ferguson
CONTRACT 2582

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH	ACTUAL/ FORECST START	ACTUAL/ FORECST FINISH	CUR
	ECOLOGICAL SAMPLING PLAN					
60	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92	14MAR92	14MAR92	1
	ECOLOGICAL (WILDLIFE USE) STUDY					
61	DEVELOP DRAFT ECOLOGICAL STUDY SPECIFICATIONS	16JUN92	14AUG92	15DEC91	28JAN92	45
62	PMC REVIEW OF ECOLOGICAL STUDY SPECIFICATIONS	15AUG92	15SEP92	29JAN92	11FEB92	14
63	INCORP/REVISE ECOLOGICAL STUDY SPECIFICATION	16SEP92	13OCT92	12FEB92	25FEB92	14
64	ECOLOGICAL STUDY . BID/AWARD	14OCT92	15DEC92	15MAR92	18APR92	35
65	CONDUCT ECOLOGICAL (WILDLIFE USE) STUDY	16DEC92	19MAY93	19APR92	17JUN92	60
66	ECOLOGICAL STUDY . ANALYSIS/REPORT	20MAY93	1AUG93	16JUN92	16AUG92	60
	SOCIAL/LAND USE SAMPLING PLAN					
67	WRITE SOCIAL/LAND USE SAMPLING PLAN	17NOV91	15JAN92	3JUN91	2AUG91	74
68	PMC/DOE SOCIAL/LAND USE SAMPLING PLAN	16JAN92	14FEB92	3AUG91	16SEP91	45
69	REVISE/FINAL DRAFT SOCIAL/LAND USE SAMPLING PLAN	15FEB92	15MAR92	17SEP91	16OCT91	30
70	EPA/DNR REVIEW OF SOCIAL/LAND USE SAMPLING PLAN	16MAR92	14MAY92	15DEC91	12FEB92	60
71	REVISE/INCORP COMMENTS/FINALIZE PLAN	15MAY92	14JUN92	13FEB92	13MAR92	30
72	ISSUE FINAL PLAN TO EPA/DNR	15JUN92	15JUN92	14MAR92	14MAR92	1
	SOCIAL/LAND USE STUDY					
73	CONDUCT SOCIAL/LAND USE STUDY - DRAFT/FINAL REPORT	16JUN92	1AUG93	15MAR92	14MAR93	365
	QUARRY BULK WASTE REMOVAL					
74	QUARRY BULK WASTE REMOVAL	22MAY92	13NOV94	22MAY92	13NOV94	906
	PHASE I REMEDIAL INVESTIGATIONS					
75	DRAFT QUARRY RESIDUAL REMEDIAL INVESTIGATION (RI) REPORT	2AUG93	2NOV93	15MAR93	15JUN93	93
76	PMC/ANL REVIEW OF DRAFT QUARRY RESIDUAL RI REPORT- PHASE I	3NOV93	17DEC93	16JUN93	30JUL93	45
77	INCORP COMMENTS/REVISE DRAFT QUARRY RESIDUAL RI REPORT - PHASE I	18DEC93	31JAN94	31JUL93	13SEP93	45



TIMENOW 11SEP91
MONTH ENDING 30SEP91

ORIGINAL DURATION | WORK FORECAST | WORK COMPLETED | PRIORITY WORK | CRITICAL WORK

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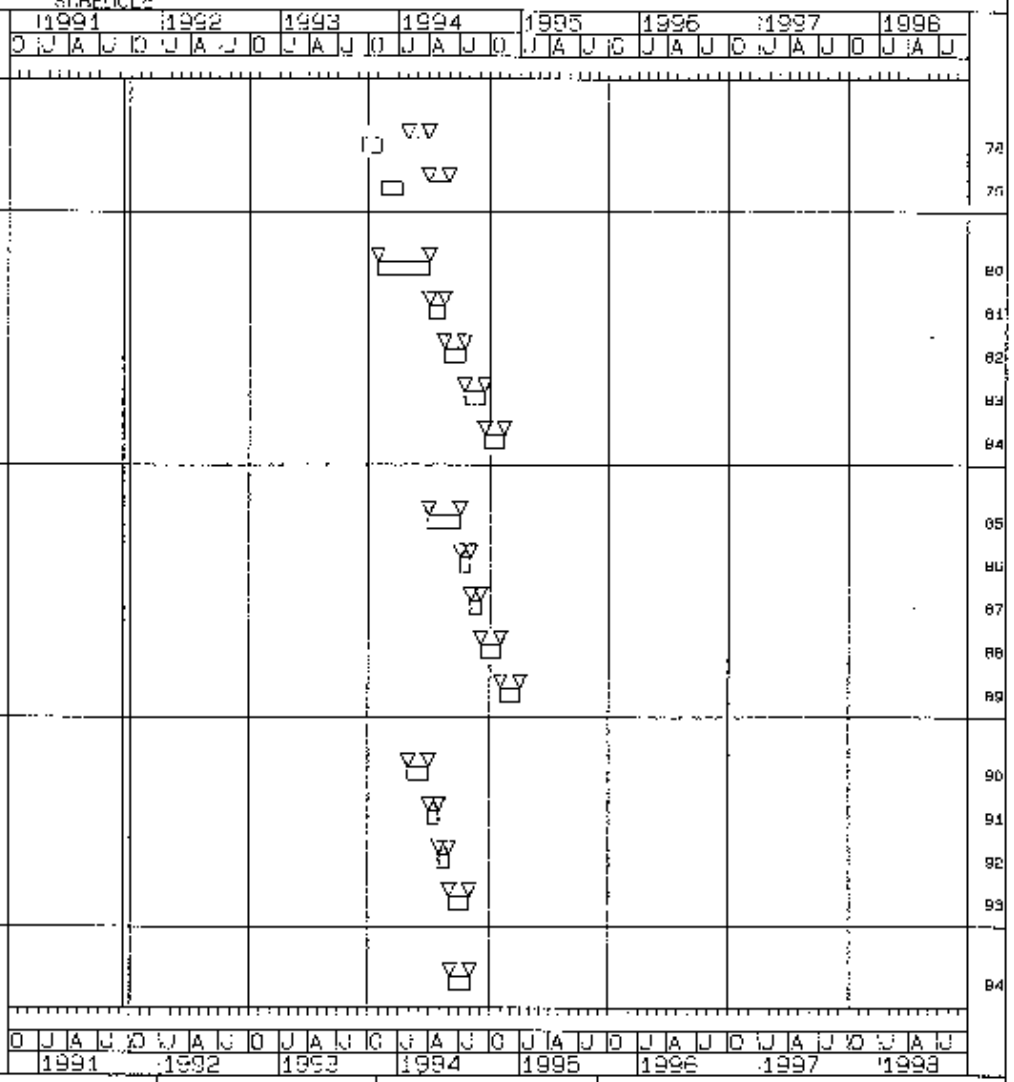
Barchart Drawing System 10:27 am 18-SEP-91

TABLE 5-3 Quarry Residuals Environmental Documentation Process (Continued)

MESRAP DE-AC05-88OR21548
Mk Ferguson
CONTRACT: 0509

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH	ACTUAL/ FORECST START	ACTUAL/ FORECST FINISH	DUR
	PHASE I REMEDIAL INVESTIGATIONS					
78	EPA/DNR REVIEW OF QUARRY RESIDUAL RI REPORT - PHASE I	1FEB94	1APR94	14SEP93	12NOV93	60
79	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON RI REPORT - PHASE I	3APR94	31MAY94	13NOV93	11JAN94	60
	PHASE I BASELINE RISK ASSESSMENT					
80	DRAFT BASELINE RISK ASSESSMENT REPORT - PHASE I	1NOV93	3APR94	1NOV93	3APR94	154
81	PMC/ANL REVIEW OF DRAFT BASELINE RISK ASSESSMENT REPORT - PHASE I	4APR94	18MAY94	4APR94	18MAY94	45
82	INCORP COMMENTS/REVISE DRAFT BASELINE RISK ASSESSMENT REPORT - PHASE I	19MAY94	17JUL94	19MAY94	17JUL94	60
83	EPA/DNR REVIEW OF DRAFT BASELINE RISK ASSESSMENT REPORT - PHASE I	18JUL94	15SEP94	18JUL94	15SEP94	60
84	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON BASELINE RISK ASSESSMENT - PHASE I	16SEP94	14NOV94	16SEP94	14NOV94	60
	PHASE I/II FS-NEPA					
85	DRAFT QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	2APR94	4JUL94	2APR94	4JUL94	94
86	PMC/ANL REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	5JUL94	3AUG94	5JUL94	3AUG94	30
87	INCORP COMMENTS/REVISE QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	4AUG94	2SEP94	4AUG94	2SEP94	30
88	EPA/DOE-HQ REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE I/II	3SEP94	1NOV94	3SEP94	1NOV94	60
89	INCORP COMMENTS/ PREPARE RESPONSIVENESS SUMMARY ON QUARRY FEASIBILITY - PHASE I/II	2NOV94	31DEC94	2NOV94	31DEC94	60
	PHASE II CHARACTERIZATION PLANS					
90	DRAFT QUARRY RESIDUAL CHARACTERIZATION-PHASE II SAMPLING PLANS	31JAN94	31MAR94	31JAN94	31MAR94	60
91	PMC/ANL REVIEW OF QUARRY RESIDUAL CHARACTERIZATION - PHASE II SAMPLING PLANS	1APR94	30APR94	1APR94	30APR94	30
92	INCORP COMMENTS/REVISE QUARRY RESIDUAL CHARACTERIZATION - PHASE II SAMPLING PLANS	1MAY94	30MAY94	1MAY94	30MAY94	30
93	EPA/DNR REVIEW OF QUARRY RESIDUAL CHARACTERIZATION - PHASE II SAMPLING PLANS	31MAY94	29JUL94	31MAY94	29JUL94	60
	PHASE II CHARACTERIZATION PROCUREMENT					
94	DEVELOP SPECIFICATIONS FOR QUARRY RESIDUAL CHARACTERIZATION - PHASE II	3JUN94	1AUG94	3JUN94	1AUG94	60



TIMENOW: 11SEP91
MONTH ENDING: 30SEP91

▽ ORIGINAL DURATION | WORK FORECAST | WORK COMPLETED | PRIORITY WORK | CRITICAL WORK

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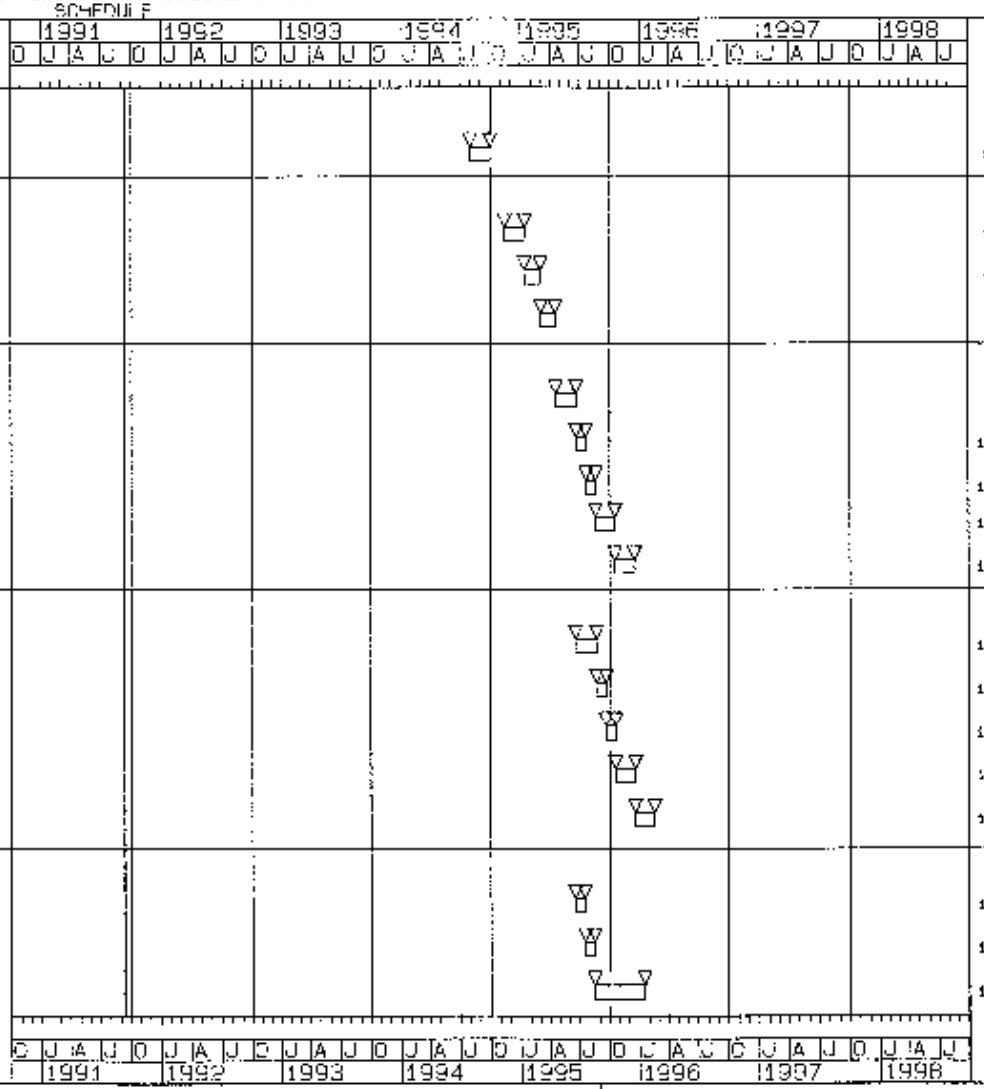
Barchart Drawing System 10:29 am 18-SEP-91

TABLE 5-3 Quarry Residuals Environmental Documentation Process (Continued)

MSSDAP DE-AC05-86OR21549
MK-Ferguson
CONTRACT: 3569

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS
SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH	ACTUAL/ FORECST START	ACTUAL/ FORECST FINISH	DUR
	PHASE II CHARACTERIZATION PROCUREMENT					
95	QUARRY RESIDUAL CHARACTERIZATION - PHASE II BID/AWARD	24UG94	30SEP94	24UG94	30SEP94	50
	PHASE II CHARACTERIZATION					
96	QUARRY RESIDUAL CHARACTERIZATION-PHASE II : FIELD WORK	14NOV94	12JAN95	14NOV94	12JAN95	50
97	QUARRY RESIDUAL CHARACTERIZATION-PHASE II : LAB ANALYSIS	13JAN95	2MAR95	13JAN95	2MAR95	42
98	QUARRY RESIDUAL CHARACTERIZATION PHASE II : DATA INTERPRETATIONS	3MAR95	16APR95	3MAR95	16APR95	45
	PHASE II REMEDIAL INVESTIGATIONS					
99	DRAFT QUARRY RESIDUAL REMEDIAL INVESTIGATIONS (RI) REPORT - PHASE II	17APR95	18JUN95	17APR95	18JUN95	65
100	PMC/ANL REVIEW OF QUARRY RESIDUAL RI REPORT - PHASE II	19JUN95	19JUL95	19JUN95	19JUL95	30
101	REVISE QUARRY RESIDUAL RI REPORT - PHASE II	19JUL95	17AUG95	19JUL95	17AUG95	30
102	EPA/DNR REVIEW OF QUARRY RESIDUAL RI REPORT - PHASE II	18AUG95	16OCT95	18AUG95	16OCT95	60
103	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON RI REPORT - PHASE II	17OCT95	15DEC95	17OCT95	15DEC95	60
	PHASE II BASELINE RISK ASSESSMENT					
104	DRAFT QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	17JUN95	20AUG95	17JUN95	20AUG95	65
105	PMC/ANL REVIEW OF QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	21AUG95	19SEP95	21AUG95	19SEP95	30
106	INCORP COMMENTS/REVISE QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	20SEP95	19OCT95	20SEP95	19OCT95	30
107	EPA/DNR REVIEW OF QUARRY RESIDUAL BASELINE RISK ASSESSMENT - PHASE II	20OCT95	18DEC95	20OCT95	18DEC95	60
108	INCORP COMMENTS/PREPARE RESPONSIVENESS SUMMARY ON BASELINE RISK ASSESSMENT - PHASE II	19DEC95	16FEB96	19DEC95	16FEB96	50
	FS ENGINEERING STUDIES					
109	BEGIN SCOPING FOR QUARRY RESIDUAL ENGINEERING STUDIES	17JUN95	16JUL95	17JUN95	16JUL95	30
110	PMC/ANL REVIEW OF QUARRY RESIDUAL ENGINEERING SCOPING STUDIES	17JUL95	15AUG95	17JUL95	15AUG95	30
111	INCORP COMMENTS/PERFORM QUARRY RESIDUAL ENGINEERING STUDIES	16AUG95	16JAN96	16AUG95	16JAN96	154



TIMENON. 11SEP91
MONTH ENDING 30SEP91
ORIGINAL DURATION
WORK FORECAST
WORK COMPLETED
PRIORITY WORK
CRITICAL WORK

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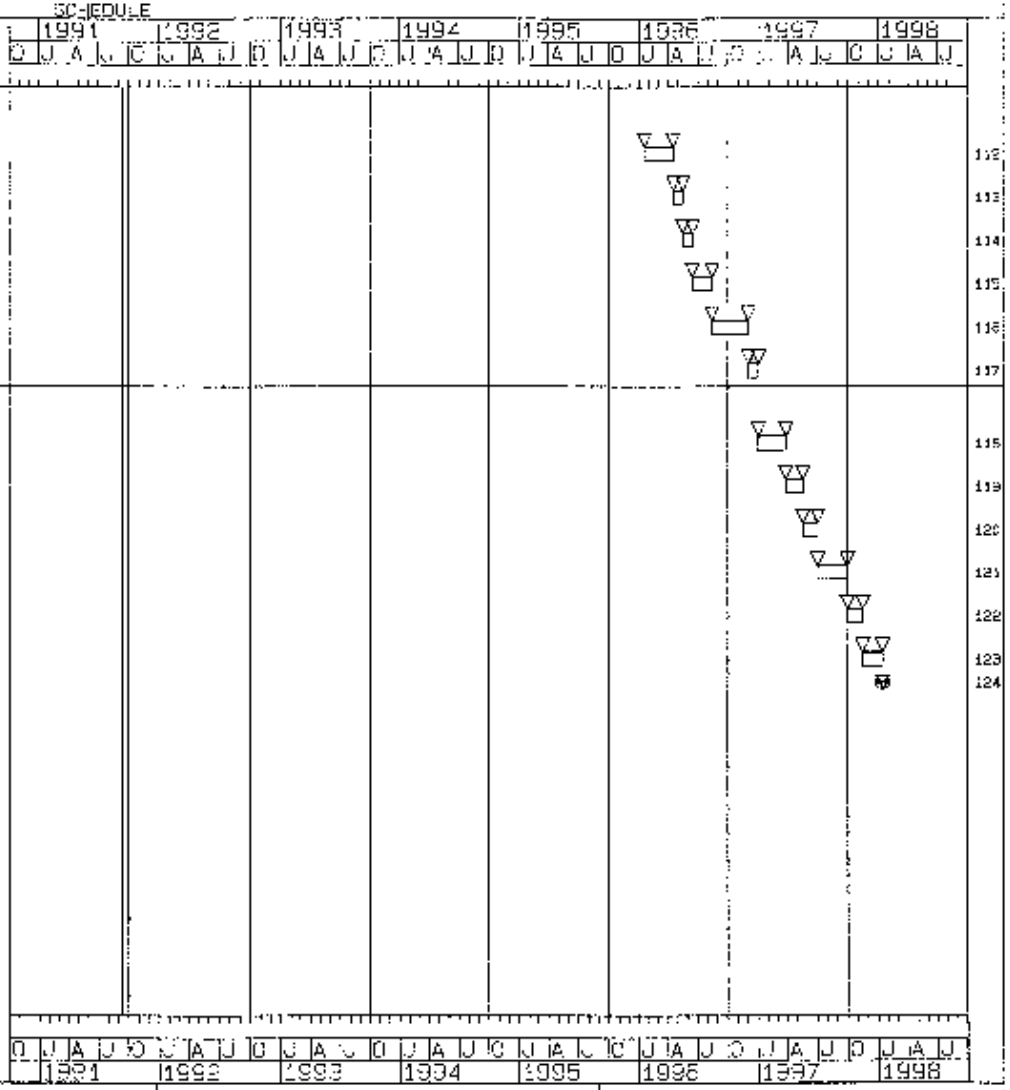
TABLE 5-3 Quarry Residuals Environmental Documentation Process (Continued)

WESGRAF ID: A205-360F21546
MS-Fmt:J90
CONTRACT: 2589

QUARRY RESIDUAL ENVIRONMENTAL DOCUMENTATION PROCESS

SCHEDULE

	ACTIVITY DESCRIPTION	TARGET START	TARGET FINISH	ACTUAL/ FORECAST START	ACTUAL/ FORECAST FINISH	DUR
	FS-NEPA/PROPOSED PLAN					
112	DRAFT QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	17JAN95	15APR96	17JAN95	15APR96	90
113	PWG/COE REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	15APR96	15MAY96	16APR95	15MAY96	30
114	INCORP COMMENTS/REVISE QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	16MAY96	14JUN96	16MAY96	14JUN96	30
115	EPA/COE-HQ REVIEW OF QUARRY RESIDUAL FEASIBILITY STUDY - PHASE III	15JUN96	13AUG96	15JUN96	12AUG96	60
116	CONCUR ON CHANGES/INCORP COMMENTS ON QUARRY RESIDUAL FEASIBILITY STUDY- PHASE III	14AUG96	10DEC96	14AUG96	9DEC96	110
117	PUBLIC REVIEW OF QUARRY RESIDUAL FS REPORT	2DEC96	31DEC96	2DEC96	31DEC96	30
	RESPONSIVENESS SUMMARY/RECORD OF DECISION					
118	REVIEW WRITTEN COMMENTS/ORGANIZE/INCORP COMMENTS ON DRAFT FS-NEPA	1JAN97	26MAR97	1JAN97	26MAR97	85
119	PREPARE RESPONSIVENESS SUMMARY/RECORD OF DECISION	27MAR97	17MAY97	27MAR97	17MAY97	52
120	EPA/COE REVIEW OF RESPONSIVENESS SUMMARY/RECORD OF DECISION	18MAY97	1JUL97	18MAY97	1JUL97	45
121	CONCUR ON CHANGES/INCORP COMMENTS/REDRAFT RESPONSIVENESS SUMMARY-RECORD OF DECISION	2JUL97	29SEP97	2JUL97	29SEP97	90
122	EPA/ONR COMMENT AUDIT- DISPUTE TRIGGER RESOLUTION	30SEP97	13NOV97	30SEP97	13NOV97	45
123	EPA/COE SIGNATURE OF RECORD OF DECISION	14NOV97	12JAN98	14NOV97	12JAN98	60
124	ISSUE RECORD OF DECISION FOR QUARRY RESIDUAL	13JAN98	13JAN98	13JAN98	13JAN98	1



TIMENOW: 11SEP91
MONTH ENDING: 30SEP91

ORIGINAL DURATION | WORK FORECAST | WORK COMPLETED | PRIORITY WORK | CRITICAL WORK

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MKF and JEG, see MK-Ferguson Company and Jacobs Engineering Group.

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APPENDIX A
CURRENT CONTENTS OF THE RESIDUALS COMPUTERIZED DATA MANAGEMENT SYSTEM

TYPE	DOCUMENT
TITLE	NOTEBOOK II
DATE_ISSUED/PUBLISHD	00/00/89
DOCUMENT_NUMBER	
AUTHOR	PRO/TEM
KEYWORDS	SOFTWARE MANUAL
PMC?	N
FILE_NUMBER	1

TYPE	DOCUMENT
TITLE	NOTEBOOK II PLUS WORKBOOK: A TUTORIAL
DATE_ISSUED/PUBLISHD	00/00/90
DOCUMENT_NUMBER	
AUTHOR	OBERON RESOURCES
KEYWORDS	SOFTWARE MANUAL
PMC?	N
FILE_NUMBER	2

TYPE	DOCUMENT
TITLE	REMEDIAL INVESTIGATIONS FOR QUARRY BULK WASTES
DATE_ISSUED/PUBLISHD	12/00/89
DOCUMENT_NUMBER	DOE/OR/21548-066
AUTHOR	MKF - JEG
KEYWORDS	GEOLOGY -- FRACTURES/JOINTING, GEOLOGY -- LITHOLOGY, HYDROGEOLOGY, CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SEDIMENT, CHEMISTRY -- SOIL, CHEMISTRY -- SURFACE WATER, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SEDIMENT, RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SURFACE WATER, TOPOGRAPHY
PMC?	Y
FILE_NUMBER	3

TYPE	DOCUMENT
TITLE	ANNUAL SITE ENVIRONMENTAL REPORT 1989 REV. 1
DATE_ISSUED/PUBLISHD	11/00/90
DOCUMENT_NUMBER	DOE/OR/21548-129
AUTHOR	MKF - JEG
KEYWORDS	CHEMISTRY -- SURFACE WATER, CHEMISTRY -- GROUNDWATER, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER, RADIOLOGICAL -- AIR, GEOLOGY -- FRACTURES/JOINTING, GEOLOGY -- LITHOLOGY, HISTORY, METEOROLOGY, TOPOGRAPHY
PMC?	Y
FILE_NUMBER	4

TYPE	DOCUMENT
TITLE	QUARRY DETECTION MONITORING WELLS SUBCONTRACT DOCUMENTS WP-166 REV. 0
DATE_ISSUED/PUBLISHD	08/00/90
DOCUMENT_NUMBER	

AUTHOR	MKF - JEG
KEYWORDS	GEOLOGY -- LITHOLOGY
PMC?	Y
FILE_NUMBER	5

TYPE	DOCUMENT
TITLE	WSSRAP QUARRY FOCUSED REMEDIAL INVESTIGATION/FEASIBILITY STUDIES DRAFT
DATE_ISSUED/PUBLISHD	07/08/88
DOCUMENT_NUMBER	5121R-302-B
AUTHOR	MORRISON-KNUDSEN ENGINEERS, INC. SAN FRANCISCO
KEYWORDS	BIOLOGY -- ECOLOGY, CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SEDIMENT, CHEMISTRY -- SOIL, CHEMISTRY -- SURFACE WATER, CONTAMINANT TRANSPORT/MIGRATION, GEOLOGY -- FRACTURES/JOINTING, GEOLOGY -- LITHOLOGY, HISTORY, HYDROGEOLOGY -- AQUIFER PROPERTIES, HYDROGEOLOGY -- LOCAL, HYDROGEOLOGY -- WATER LEVELS, METEOROLOGY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SEDIMENT, RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SURFACE WATER, SOIL -- SCS TYPE, TOPOGRAPHY
PMC?	Y
FILE_NUMBER	6

TYPE	DOCUMENT
TITLE	ANNUAL ENVIRONMENTAL MONITORING REPORT 1988
DATE_ISSUED/PUBLISHD	06/00/89
DOCUMENT_NUMBER	DOE/OR/21548-079
AUTHOR	MKF - JEG
KEYWORDS	CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SEDIMENT, CHEMISTRY -- SURFACE WATER, GEOLOGY -- FRACTURES/JOINTING, GEOLOGY -- LITHOLOGY, HISTORY, METEOROLOGY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SEDIMENT, RADIOLOGICAL -- SURFACE WATER, TOPOGRAPHY
PMC?	Y
FILE_NUMBER	7

TYPE	DOCUMENT
TITLE	ANNUAL ENVIRONMENTAL MONITORING REPORT WELDON SPRING, MISSOURI CALENDER YEAR 1987
DATE_ISSUED/PUBLISHD	00/00/88
DOCUMENT_NUMBER	DOE/OR/21548-015
AUTHOR	MKF - JEG
KEYWORDS	CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SURFACE WATER, GEOLOGY -- FRACTURES/JOINTING, GEOLOGY -- LITHOLOGY, HISTORY, METEOROLOGY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER, TOPOGRAPHY
PMC?	Y
FILE_NUMBER	8

TYPE	DOCUMENT
TITLE	REPORT ON GROUND-WATER MONITORING WELL REHABILITATION AND RADIOLOGICAL CHARACTERIZATION DRILLING, WELDON SPRING QUARRY
DATE_ISSUED/PUBLISHD	12/00/85
DOCUMENT_NUMBER	DOE/OR/20722-63
AUTHOR	BECHTEL NATIONAL, INC.
KEYWORDS	GEOLOGY -- LITHOLOGY
PMC?	N
FILE_NUMBER	9

TYPE	DOCUMENT
TITLE	CHEMICAL CHARACTERIZATION REPORT FOR THE WELDON SPRING QUARRY
DATE_ISSUED/PUBLISHD	08/00/87
DOCUMENT_NUMBER	DOE/OR/20722-176
AUTHOR	BECHTEL NATIONAL, INC.
KEYWORDS	CHEMISTRY -- SOIL, CHEMISTRY -- SEDIMENT
PMC?	N
FILE_NUMBER	10

TYPE	DOCUMENT
TITLE	RESPONSIVENESS SUMMARY FOR THE ENGINEERING EVALUATION/COST ANALYSIS FOR THE PROPOSED MANAGEMENT OF CONTAMINATED WATER IN THE WELDON SPRING QUARRY
DATE_ISSUED/PUBLISHD	06/00/89
DOCUMENT_NUMBER	NOT APPLICABLE
AUTHOR	ENERGY AND ENVIRONMENTAL SYSTEMS DIVISION
KEYWORDS	BIOLOGY -- RISK ANALYSIS, ENGINEERING
PMC?	N
FILE_NUMBER	11

TYPE	DOCUMENT
TITLE	REPORT ON PRELIMINARY GEOLOGICAL, HYDROLOGICAL AND RADIOLOGICAL SURVEY AT THE WELDON SPRING QUARRY DURING 1976 AND 1977
DATE_ISSUED/PUBLISHD	12/14/78
DOCUMENT_NUMBER	NOT APPLICABLE
AUTHOR	E. A. HUEY (NATIONAL LEAD COMPANY OF OHIO)
KEYWORDS	GEOLOGY -- LITHOLOGY, CHEMICAL -- GROUNDWATER, RADIOLOGICAL -- GROUNDWATER
PMC?	N
FILE_NUMBER	12

TYPE	DOCUMENT
TITLE	CHARACTERIZATION AND ASSESSMENT FOR THE WELDON SPRING QUARRY LOW-LEVEL RADIOACTIVE WASTE STORAGE SITE
DATE_ISSUED/PUBLISHD	09/00/84
DOCUMENT_NUMBER	DOE/OR-853 (DE85005424)
AUTHOR	BERKELEY GEOSCIENCES ASSOCIATES
KEYWORDS	GEOLOGY, HYDROGEOLOGY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SEDIMENT, GEOCHEMICAL
PMC?	N

FILE_NUMBER |13

TYPE |IOC
TITLE |IOC, MONITORING WELL AND BENCHMARK VALIDATION
|***(SUPERCEDES ALL PRIOR TO 12/17/90)***
DATE_ISSUED/PUBLISHD |12/17/90
DOCUMENT_NUMBER |NOT APPLICABLE
AUTHOR |MKF (FRED FRY)
KEYWORDS |TOPOGRAPHY
PMC? |Y
FILE_NUMBER |14

TYPE |IOC
TITLE |TRIP REPORT
DATE_ISSUED/PUBLISHD |04/25/88
DOCUMENT_NUMBER |NOT APPLICABLE
AUTHOR |HARVIN V. DAMM (MKF-BOISE)
KEYWORDS |RADIOLOGICAL -- GROUNDWATER
PMC? |Y
FILE_NUMBER |15

TYPE |DOCUMENT
TITLE |WELDON SPRING SITE (WSS) ENVIRONMENTAL MONITORING REPORT
|CALENDER YEAR 1981
DATE_ISSUED/PUBLISHD |05/00/83
DOCUMENT_NUMBER |EV-0005
AUTHOR |BECHTEL NATIONAL, INC.
KEYWORDS |CHEMSTRY -- SURFACE WATER, HISTORY, RADIOLOGICAL -- SOIL,
|RADIOLOGICAL -- SURFACE WATER
PMC? |N
FILE_NUMBER |16

TYPE |DOCUMENT
TITLE |WELDON SPRING SITE (WSS) ENVIRONMENTAL MONITORING REPORT
|CALENDER YEAR 1982
DATE_ISSUED/PUBLISHD |06/00/83
DOCUMENT_NUMBER |EV-0008
AUTHOR |BECHTEL NATIONAL, INC.
KEYWORDS |CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SURFACE WATER, HISTORY,
|METEOROLOGY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER,
|RADIOLOGICAL -- SURFACE WATER
PMC? |N
FILE_NUMBER |17

TYPE |DOCUMENT
TITLE |WELDON SPRING SITE ENVIRONMENTAL MONITORING REPORT CALENDER YEAR 1984
DATE_ISSUED/PUBLISHD |07/00/85
DOCUMENT_NUMBER |DOE/OR/20722-58
AUTHOR |BECHTEL NATIONAL, INC.
KEYWORDS |CHEMISTRY -- SURFACE WATER, HISTORY, METEOROLOGY, RADIOLOGICAL --

	AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER
PMC?	N
FILE_NUMBER	18

TYPE	DOCUMENT
TITLE	WELDON SPRING SITE ANNUAL SITE ENVIRONMENTAL MONITORING REPORT CALENDER YEAR 1985
DATE_ISSUED/PUBLISHD	09/00/86
DOCUMENT_NUMBER	DOE/OR/20722-101
AUTHOR	BECHTEL NATIONAL, INC.
KEYWORDS	HISTORY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SEDIMENT, RADIOLOGICAL -- SURFACE WATER
PMC?	N
FILE_NUMBER	19

TYPE	DOCUMENT
TITLE	THE CONTAMINATION OF GROUND AND SURFACE WATERS BY LIQUID WASTES FROM THE WELDON SPRING ORDNANCE WORKS, MISSOURI
DATE_ISSUED/PUBLISHD	01/00/44
DOCUMENT_NUMBER	23-17
AUTHOR	U.S. DEPT. OF INTERIOR, GEOLOGICAL SURVEY
KEYWORDS	GEOLOGY -- LITHOLOGY, HISTORY, HYDROGEOLOGY -- REGIONAL, HYDROGEOLOGY -- WATER LEVELS
PMC?	N
FILE_NUMBER	20

TYPE	DOCUMENT
TITLE	WELDON SPRING SITE ENVIRONMENTAL MONITORING REPORT, CALENDER YEAR 1983
DATE_ISSUED/PUBLISHD	06/00/84
DOCUMENT_NUMBER	DOE/OR/20722-16
AUTHOR	BECHTEL NATIONAL, INC.
KEYWORDS	HISTORY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER
PMC?	N
FILE_NUMBER	21

TYPE	DOCUMENT
TITLE	ANNUAL ENVIRONMENTAL MONITORING REPORT, WELDON SPRING, MISSOURI, CAL. YEAR 1986
DATE_ISSUED/PUBLISHD	00/00/87
DOCUMENT_NUMBER	
AUTHOR	MKF - JEG
KEYWORDS	HISTORY, RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER
PMC?	Y
FILE_NUMBER	22

TYPE	DOCUMENT

TITLE	PRELIMINARY INVESTIGATIONS OF GROUND-WATER OCCURRENCES IN THE WELDON SPRING AREA, ST. CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD	12/00/51
DOCUMENT_NUMBER	00102
AUTHOR	US DEPT. OF THE INTERIOR, GEOLOGICAL SURVEY
KEYWORDS	GEOLOGY -- FRACTURES/JOINTING, GEOLOGY -- LITHOLOGY, HYDROGEOLOGY -- WATER LEVELS
PMC?	N
FILE_NUMBER	23

TYPE	DOCUMENT
TITLE	A PHASE I SURVEY AND EVALUATION OF THE WELDON SPRING QUARRY POTABLE WATERLINE PROJECT AND PHASE II TESTING OF ARCHAEOLOGICAL SITES 23SC80, 23SC81, AND 23SC83, ST. CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD	10/05/89
DOCUMENT_NUMBER	
AUTHOR	TRIAD RESEARCH SERVICES, GARY REX WALTERS
KEYWORDS	ARCHAEOLOGICAL
PMC?	N
FILE_NUMBER	24

TYPE	DOCUMENT
TITLE	WELDON SPRING EEA ADDENDUM ALTERNATIVE #3A (REV 2)
DATE_ISSUED/PUBLISHD	08/29/84
DOCUMENT_NUMBER	21745
AUTHOR	BECHTEL
KEYWORDS	ENGINEERING
PMC?	N
FILE_NUMBER	25

TYPE	DOCUMENT
TITLE	FATE AND TRANSPORT OF CONTAMINANTS IN THE VADOSE ZONE
DATE_ISSUED/PUBLISHD	08/24/89
DOCUMENT_NUMBER	GE-0028
AUTHOR	MICHAEL E. BEDAN
KEYWORDS	CHEMISTRY -- SOIL, CONTAMINANT TRANSPORT/MIGRATION, GEOCHEMICAL
PMC?	N
FILE_NUMBER	26

TYPE	DOCUMENT
TITLE	PRELIMINARY DRAFT: RADIOLOGICAL, HYDROGEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL ASSESSMENT OF THE WELDON SPRING QUARRY, MISSOURI DISPOSAL SITE
DATE_ISSUED/PUBLISHD	01/00/80
DOCUMENT_NUMBER	LBID-152
AUTHOR	EARTH SCIENCES DIVISION, LAWRENCE BERKELEY LAB.
KEYWORDS	BULK WASTE, CHEMISTRY -- GROUNDWATER, GEOLOGY -- FRACTURE/JOINTING, GEOLOGY -- LITHOLOGY, HISTORY, HYDROGEOLOGY -- REGIONAL, HYDROGEOLOGY -- WATER LEVELS, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SOIL

PMC? |N
FILE_NUMBER |27

TYPE |DOCUMENT
TITLE |POSSIBLE USE OF QUARRY AT MALLINCKRODT CHEMICAL WORKS, WELDON SPRING,
|MISSOURI, FOR THE DISPOSAL OF URANIUM CONTAMINATED BUILDING DEBRIS
|AND RUBBLE AND RESIDUES CONTAINING THORIUM AND URANIUM
DATE_ISSUED/PUBLISHD |06/00/60
DOCUMENT_NUMBER |4887
AUTHOR |U. S. GEOLOGICAL SURVEY, OAK RIDGE, TENN.
KEYWORDS |BULK WASTE, HISTORY, HYDROGEOLOGY -- WATER LEVELS
PMC? |N
FILE_NUMBER |28

TYPE |DOCUMENT
TITLE |HYDROLOGIC DATA FOR THE WELDON SPRING RADIOACTIVE WASTE-DISPOSAL
|SITES, ST. CHARLES COUNTY, MISSOURI
|1984-1986
DATE_ISSUED/PUBLISHD |00/00/86
DOCUMENT_NUMBER |OPEN FILE REPORT 86-488
AUTHOR |U. S. GEOLOGICAL SURVEY, OPEN-FILE REPORT 86-488
KEYWORDS |CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SURFACE WATER, RADIOLOGICAL --
|GROUNDWATER, RADIOLOGICAL -- SURFACE WATER
PMC? |N
FILE_NUMBER |29

TYPE |DOCUMENT
TITLE |CHEMICAL CHARACTERIZATION REPORT FOR THE WELDON SPRING QUARRY, ST.
|CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD |09/00/87
DOCUMENT_NUMBER |DOE/OR/20722-176
AUTHOR |BECHTEL NATIONAL, INC.
KEYWORDS |CHEMISTRY -- SOIL, GEOLOGY -- LITHOLOGY
PMC? |N
FILE_NUMBER |30

TYPE |DOCUMENT
TITLE |HYDROLOGY AND WATER QUALITY AT THE WELDON SPRING RADIOACTIVE
|WASTE-DISPOSAL SITES, ST. CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD |00/00/87
DOCUMENT_NUMBER |REPORT 87-4169
AUTHOR |U. S. GEOLOGICAL SURVEY
KEYWORDS |GEOLOGY -- LITHOLOGY, HYDROGEOLOGY -- AQUIFER PROPERTIES,
|HYDROGEOLOGY -- POTENTIOMETRIC SURFACE RADIOLOGICAL -- SURFACE WATER
PMC? |N
FILE_NUMBER |31

TYPE |DOCUMENT
TITLE |COMPILATION AND PRELIMINARY INTERPRETATION OF HYDROLOGIC DATA FOR THE
|WELDON SPRING RADIOACTIVE WASTE-DISPOSAL SITES, ST. CHARLES

	COUNTY,MISSOURI A PROGRESS REPORT
DATE_ISSUED/PUBLISHD	00/00/86
DOCUMENT_NUMBER	REPORT 85-4272
AUTHOR	U. S. GEOLOGICAL SURVEY
KEYWORDS	BULK WASTE, CHEMISTRY -- GROUNDWATER, GEOLOGY -- LITHOLOGY, HISTORY, HYDROGEOLOGY -- AQUIFER PROPERTIES, HYDROGEOLOGY -- REGIONAL, RADIOLOGICAL -- SURFACE WATER
PMC?	N
FILE_NUMBER	32

TYPE	DOCUMENT
TITLE	RESPONSIVENESS SUMMARY FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY FOR MANAGEMENT OF THE BULK WASTES AT THE WELDON SPRING QUARRY, WELDON SPRING, MISSOURI
DATE_ISSUED/PUBLISHD	08/00/90
DOCUMENT_NUMBER	DOE/OR/21548-135
AUTHOR	ARGONNE NATIONAL LABORATORY
KEYWORDS	SUPPORTING DOCUMENTATION -- RI, SUPPORTING DOCUMENTATION -- FS
PMC?	N
FILE_NUMBER	33

TYPE	DOCUMENT
TITLE	RECORD OF DECISION FOR THE MANAGENENT OF THE BULK WASTES AT THE WELDON SPRING QUARRY
DATE_ISSUED/PUBLISHD	09/00/90
DOCUMENT_NUMBER	
AUTHOR	MKF - JEG
KEYWORDS	SUPPORTING DOCUMENTATION -- RI, SUPPORTING DOCUMENTATION -- FS
PMC?	Y
FILE_NUMBER	34

TYPE	DOCUMENT
TITLE	GROUNDWATER HYDROLOGY INVESTIGATION, WELDON SPRING, MO, VOLUME 1
DATE_ISSUED/PUBLISHD	01/08/86
DOCUMENT_NUMBER	
AUTHOR	LAYNE WESTERN COMPANY, INC.
KEYWORDS	CHEMISTRY -- GROUNDWATER, GEOLOGY -- LITHOLOGY, HYDROGEOLOGY -- AQUIFER PROPERTIES, HYDROGEOLOGY -- LOCAL, HYDROGEOLOGY -- POTENTIOMETRIC SURFACE, HYDROGEOLOGY -- RECHARGE/DISCHARGE, HYDROGEOLOGY -- WATER LEVELS, RADIOLOGICAL -- GROUNDWATER
PMC?	N
FILE_NUMBER	35

TYPE	DOCUMENT
TITLE	THE MCW URANIUM DIVISION 1959 ANNUAL OFF-SITE ENVIRONMENTAL MONITORING REPORT
DATE_ISSUED/PUBLISHD	00/00/60
DOCUMENT_NUMBER	24388
AUTHOR	MALLINCKRODT CHEMICAL WORKS, URANIUM DIV.
KEYWORDS	RADIOLOGICAL -- AIR, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL --

	SURFACE WATER, RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SEDIMENT
PMC?	N
FILE_NUMBER	36

TYPE	DOCUMENT
TITLE	INITIAL ASSESSMENT OF THE EFFECT OF DROUGHT CONDITIONS ON CONTAMINATION MIGRATION FROM THE WELDON SPRING QUARRY, REV 0
DATE_ISSUED/PUBLISHD	11/00/88
DOCUMENT_NUMBER	DOE/OR/21548-036
AUTHOR	MKF - JEG
KEYWORDS	RADIOLOGICAL -- GROUNDWATER, HYDROGEOLOGY -- WATER LEVELS
PMC?	Y
FILE_NUMBER	37

TYPE	DOCUMENT
TITLE	THE EFFECT OF A ZERO-CONCENTRATION SINK ON CONTAMINANT TRANSPORT AND REMEDIAL-ACTION DESIGNS FOR THE WELDON SPRING QUARRY, WELDON SPRING, MO (DRAFT)
DATE_ISSUED/PUBLISHD	04/00/88
DOCUMENT_NUMBER	
AUTHOR	U. S. DOE, OAK RIDGE
KEYWORDS	HYDROGEOLOGY -- AQUIFER PROPERTIES
PMC?	N
FILE_NUMBER	38

TYPE	DOCUMENT
TITLE	THE RESOURCES OF ST. CHARLES COUNTY, MISSOURI LAND, WATER, AND MINERALS
DATE_ISSUED/PUBLISHD	04/00/77
DOCUMENT_NUMBER	GR-51
AUTHOR	MISSOURI GEOLOGICAL SURVEY, DEPT. OF NAT. RESOURCES
KEYWORDS	GEOLOGY -- LITHOLOGY, HYDROGEOLOGY -- REGIONAL
PMC?	N
FILE_NUMBER	39

TYPE	DOCUMENT
TITLE	RADIOLOGIC CHARACTERIZATION OF THE WELDON SPRING, MISSOURI, REMEDIAL ACTION SITE
DATE_ISSUED/PUBLISHD	02/00/88
DOCUMENT_NUMBER	DOE/ID/12584-22
AUTHOR	UNC GEOTECH, INC.
KEYWORDS	RADIOLOGICAL --SOIL
PMC?	N
FILE_NUMBER	40

TYPE	DOCUMENT
TITLE	WELDON SPRING SITE REMEDIAL ACTION PROJECT VICINITY PROPERTIES, FEMME OSAGE SLOUGH SPECIAL STUDY
DATE_ISSUED/PUBLISHD	06/09/89
DOCUMENT_NUMBER	5121-VP:EN-R-01-0064-A

AUTHOR	MK-F, SAN FRANCISCO
KEYWORDS	HYDROGEOLOGY - WATER LEVELS, HYDROGEOLOGY - AQUIFER CHARACTERISTICS, RADIOLOGICAL - SOIL, RADIOLOGICAL - SEDIMENT, RADIOLOGICAL - SURFACE WATER, CHEMISTRY - GROUNDWATER, RADIOLOGICAL - GROUNDWATER
PMC?	Y
FILE_NUMBER	41

TYPE	MEMORANDUM
TITLE	REGARDING QUARRY AS DISPOSAL OF RADIOLOGICAL WASTE FOR MALLINCKRODT
DATE_ISSUED/PUBLISHD	11/07/60
DOCUMENT_NUMBER	
AUTHOR	R.M. RICHARDSON, U.S. DEPT. OF THE INTERIOR GEOLOGICAL SURVEY
KEYWORDS	HYDROGEOLOGICAL - AQUIFER CHARACTERISTICS
PMC?	N
FILE_NUMBER	42

TYPE	MEMORANDUM
TITLE	POSSIBLE USE OF QUARRY AT MALLINCKRODT CHEMICAL WORKS, WELDON SPRING, MISSOURI, FOR THE DISPOSAL OF URANIUM CONTAMINATED BUILDING DEBRIS AND RUBBLE AND RESIDUALS CONTAINING THORIUM AND URANIUM
DATE_ISSUED/PUBLISHD	06/00/60
DOCUMENT_NUMBER	
AUTHOR	R.M. RICHARDSON, U.S. GEOLOGICAL SURVEY
KEYWORDS	HYDROGEOLOGY - REGIONAL, GEOLOGY, TOPOGRAPHY
PMC?	N
FILE_NUMBER	43

TYPE	DOCUMENT
TITLE	WELDON SPRINGS QUARRY ENGINEERING EVALUATION PROGRAM PLAN
DATE_ISSUED/PUBLISHD	07/17/81
DOCUMENT_NUMBER	SAI-148-055
AUTHOR	HUGH E. COTHRAN, JR., AND ROBERT G. LEBO
KEYWORDS	HISTORY, ENGINEERING
PMC?	N
FILE_NUMBER	44

TYPE	DOCUMENT
TITLE	EXPLOSIVE HAZARD REVIEW FOR THE WELDON SPRING SITE REMEDIAL ACTION PROJECT QUARRY EXCAVATION
DATE_ISSUED/PUBLISHD	06/00/90
DOCUMENT_NUMBER	A08300-5Z0-03
AUTHOR	MK-F
KEYWORDS	HISTORY, ENGINEERING
PMC?	Y
FILE_NUMBER	45

TYPE	DOCUMENT
TITLE	PHASE II TESTING AND EVALUATION OF ARCHAEOLOGICAL SITE 23SC21, ST. CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD	07/31/89

DOCUMENT_NUMBER	GR-0054
AUTHOR	TRIAD RESEARCH SERVICES
KEYWORDS	ARCHAEOLOGICAL
PMC?	N
FILE_NUMBER	46

TYPE	DOCUMENT
TITLE	PRELIMINARY RISK ASSESSMENT OF THE WELDON SPRING ROCK QUARRY
DATE_ISSUED/PUBLISHD	09/00/79
DOCUMENT_NUMBER	SAI-OR-79-135-01
AUTHOR	SCIENCE APPLICATIONS, INC
KEYWORDS	RADIOLOGICAL - GROUNDWATER, HYDROGEOLOGICAL - REGIONAL, RADIOLOGICAL - AIR, ENGINEERING
PMC?	N
FILE_NUMBER	47

TYPE	DOCUMENT
TITLE	AN ENGINEERING EVALUATION OF WASTE DISPOSAL OPTIONS AT WELDON SPRING QUARRY
DATE_ISSUED/PUBLISHD	12/01/81
DOCUMENT_NUMBER	SAI-148-WSQ
AUTHOR	HUGH E. COTHRAN
KEYWORDS	HISTORY, ENGINEERING, SUPPORTING DOCUMENTATION -- FS
PMC?	N
FILE_NUMBER	48

TYPE	DOCUMENT
TITLE	WORK PLAN FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY-ENVIRONMENTAL IMPACT STATEMENT FOR THE WELDON SPRING SITE, WELDON SPRING, MISSOURI
DATE_ISSUED/PUBLISHD	08/00/88
DOCUMENT_NUMBER	DOE/OR/21548-033
AUTHOR	MK-F, JEG
KEYWORDS	HISTORY, ENGINEERING, SUPPORTING DOCUMENT -- RI, SUPPORTING DOCUMENT -- FS, RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER, CHEMISTRY -- GROUNDWATER, CHEMISTRY -- SURFACE WATER
PMC?	Y
FILE_NUMBER	49

TYPE	DOCUMENT
TITLE	WELDON SPRING ORDNANCE WORKS COMPLETION REPORT
DATE_ISSUED/PUBLISHD	NOT AVAILABLE
DOCUMENT_NUMBER	
AUTHOR	WELDON SPRING ORDNANCE WORKS
KEYWORDS	HISTORY
PMC?	N
FILE_NUMBER	50

TYPE	MEMORANDUM
TITLE	STATUS REPORT ON SURVEYS OF WELDON SPRINGS VICINITY PROPERTIES

DATE_ISSUED/PUBLISHD |09/27/84
DOCUMENT_NUMBER |
AUTHOR |ORAU
KEYWORDS |RADIOLOGICAL -- SOILS
PMC? |N
FILE_NUMBER |51

TYPE |DOCUMENT
TITLE |RADIOLOGICAL SURVEY, US ARMY RESERVE PROPERTY, WELDON SPRING SITE,
|ST. CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD |JANUARY, 1986
DOCUMENT_NUMBER |
AUTHOR |ORAU
KEYWORDS |RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SURFACE WATER, RADIOLOGICAL --
|GROUNDWATER, RADIOLOGICAL -- SEDIMENT
PMC? |N
FILE_NUMBER |52

TYPE |DOCUMENT
TITLE |RADIOLOGICAL SURVEY OF THE AUGUST A. BUSCH AND WELDON SPRING WILDLIFE
|AREAS, WELDON SPRING SITE, ST. CHARLES COUNTY, MISSOURI
DATE_ISSUED/PUBLISHD |APRIL, 1986
DOCUMENT_NUMBER |
AUTHOR |ORAU
KEYWORDS |RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SURFACE WATER, RADIOLOGICAL --
|GROUNDWATER, RADIOLOGICAL -- SEDIMENT
PMC? |N
FILE_NUMBER |53

TYPE |DOCUMENT
TITLE |RADIOLOGICAL SURVEY REPORT FOR THE WELDON SPRING QUARRY
DATE_ISSUED/PUBLISHD |09/85
DOCUMENT_NUMBER |DOE/OR/20722-70
AUTHOR |BECHTEL NATIONAL, INC
KEYWORDS |RADIOLOGICAL -- GROUNDWATER, RADIOLOGICAL -- SURFACE WATER,
|RADIOLOGICAL -- SOIL, RADIOLOGICAL -- SEDIMENT
PMC? |N
FILE_NUMBER |54

TYPE |DOCUMENT
TITLE |RECREATIONAL USE OF WELDON SPRING WILDLIFE AREA 1989-1990
DATE_ISSUED/PUBLISHD |JUNE 1991
DOCUMENT_NUMBER |
AUTHOR |MISSOURI DEPARTMENT OF CONSERVATION
KEYWORDS |HISTORY
PMC? |NO
FILE_NUMBER |55

TYPE |DOCUMENT
TITLE |WELDON SPRING STORAGE SITE ENVIRONMENTAL MONITORING REPORT, 1979 AND

	1980
DATE_ISSUED/PUBLISHD	APRIL 19, 1982
DOCUMENT_NUMBER	
AUTHOR	R.B. WEIDNER & M. W. BOBACK
KEYWORDS	HISTORY, RADIOLOGICAL -- SURFACE WATER, CHEMICAL -- SURFACE WATER
PMC?	NO
FILE_NUMBER	56

TYPE	DOCUMENT
TITLE	QUARTERLY REPORT, ST. CHARLES COUNTY WELL FIELD MONITORING PROJECT
DATE_ISSUED/PUBLISHD	APRIL, MAY AND JUNE, 1991
DOCUMENT_NUMBER	
AUTHOR	STANLEY M. REMINGTON
KEYWORDS	RADIOLOGICAL -- GROUNDWATER, CHEMICAL -- GROUNDWATER
PMC?	NO
FILE_NUMBER	57

TYPE	DOCUMENT
TITLE	STUDY OF RADIOACTIVE WASTE STORAGE AREAS AT ERDA-WELDON SPRING SITE
DATE_ISSUED/PUBLISHD	AUGUST, 1981
DOCUMENT_NUMBER	
AUTHOR	NATIONAL LEAD COMPANY OF OHIO
KEYWORDS	RADIOLOGICAL -- SURFACE WATER, CHEMICAL -- SURFACE WATER, GEOLOGY
PMC?	NO
FILE_NUMBER	58

TYPE	DOCUMENT
TITLE	ERDA-WELDON SPRING DECOMMISSIONING STUDY
DATE_ISSUED/PUBLISHD	JUNE 20, 1975
DOCUMENT_NUMBER	
AUTHOR	NATIONAL LEAD COMPANY OF OHIO
KEYWORDS	HISTORY, ENGINEERING
PMC?	NO
FILE_NUMBER	59

TYPE	DOCUMENT
TITLE	ERDA-WELDON SPRING DECOMMISSIONING STUDY, QUARRY SUPPLEMENT
DATE_ISSUED/PUBLISHD	SEPTEMBER 10, 1975
DOCUMENT_NUMBER	
AUTHOR	NATIONAL LEAD COMPANY OF OHIO
KEYWORDS	HISTORY, ENGINEERING
PMC?	NO
FILE_NUMBER	60

TYPE	DOCUMENT
TITLE	ECONOMICAL AND SAFE DISPOSAL OF T.N.T. WASTE WATERS AT WELDON SPRING ORDNANCE WORKS
DATE_ISSUED/PUBLISHD	JULY, 1942
DOCUMENT_NUMBER	
AUTHOR	DR. F.W. MOHLMAN

KEYWORDS	HISTORY, ENGINEERING
PMC?	NO
FILE_NUMBER	61

TYPE	DOCUMENT
TITLE	DRAFT: VICINITY PROPERTIES CONCEPTUAL DESIGN REPORT
DATE_ISSUED/PUBLISHD	APRIL, 1989
DOCUMENT_NUMBER	DOE/DR/21548-001
AUTHOR	NKF-JEG
KEYWORDS	ENGINEERING
PMC?	YES
FILE_NUMBER	62