DOE/OR/21548-528
CONTRACT NO. DE-AC05-86OR21548

EXPLANATION OF SIGNIFICANT DIFFERENCE FOR THE CHEMICAL PLANT AREA RECORD OF DECISION

Weldon Spring Site Remedial Action Project
Weldon Spring, Missouri

JANUARY 1996 **REV. 0**

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

Prepared by MK-Ferguson Company and Jacobs Engineering Group

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Revision 0

January 1996

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for the

U.S. DEPARTMENT OF ENERGY
Oak Ridge Operations Office
Under Contract DE-AC05-86OR21548

MK-FERGUSON A MORRISON KNUDSEN COMPANY Weldon Spring Site Remedial Action Project Contract No. DE-AC05-86OR21548	Rev. No. 0
PLAN TITLE: Explanation of Significant Difference for the Chemical Plant Area Record of Decision	

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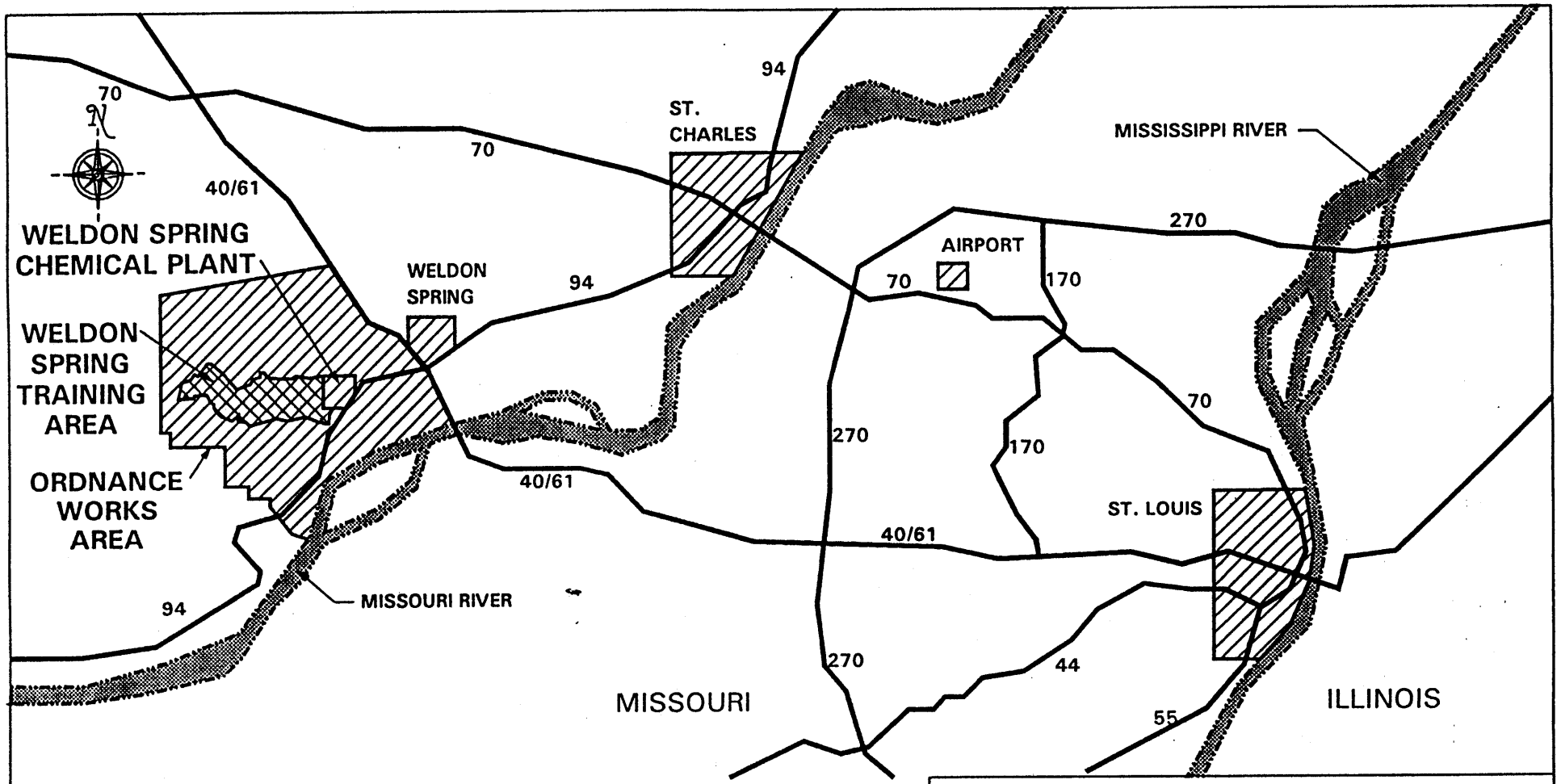
1 INTRODUCTION

The U.S. Department of Energy (DOE) and the U.S. Department of Defense (DOD) are performing environmental cleanup activities at the Weldon Spring Chemical Plant and the Weldon Spring Ordnance Works respectively, which were contaminated as a result of previous manufacturing activities. The Weldon Spring Ordnance Works, located west of St. Louis, Missouri in western St. Charles County, encompasses 6,974 ha (17,232 acres). The Weldon Spring Chemical Plant is located on 88 ha (217 acres) which were originally part of the ordnance works (Figure 1-1). It is situated about 3.2 km (2 mi) southwest of the junction of Missouri (State) Route 94 and U.S. Route 40/61.

The DOE is the lead agency for the remediation of the Weldon Spring Chemical Plant, while the DOD has been designated the lead agency for the Weldon Spring Ordnance Works. The United States Environmental Protection Agency Region VII (EPA) and the State of Missouri Department of Natural Resources (MDNR) are the agencies providing oversight for these two Superfund remedial action projects.

Much of the production history of these adjacent facilities includes common activities. They are listed individually on the Superfund National Priority List primarily because they are under separate Federal agency jurisdiction. Both the chemical plant and ordnance works areas are chemically contaminated from trinitrotoluene production activities during the 1940's. Remedial actions at both sites include permanent disposal in an on-site engineered facility as part of the final remedy. Currently, planning and construction are underway at the chemical plant area for a facility that will contain approximately 1.35 million cu yd of waste. Planning is also underway for the ordnance works project, although construction has not yet been initiated.

Given the similarity of waste to be disposed of, the proximity of the facilities, the more stringent landfill design requirements at the chemical plant, the environmental benefit of one facility versus two, and economic considerations, it is proposed that approximately 60,000 cu yd of lead contaminated soil, incinerator ash product and construction debris from the ordnance works be placed in the chemical plant area disposal facility. A chemical stabilization/ solidification (CSS) process will be used to treat all lead-contaminated soils from the ordnance works. Prior to disposal, any ash product that does not pass the toxicity characteristic leachate procedure will also be treated through the CSS process until it is no longer characteristically



0 4 8 MI

0 6.4 12.8 KM

SCALE

LOCATION OF
WELDON SPRING ORDNANCE WORKS
AND
WELDON SPRING CHEMICAL PLANT

FIGURE 1-1

REPORT NO.:	DOE/OR/21548-528		EXHIBIT NO.:	A/VP/012/0395	
ORIGINATOR:	JB	DRAWN BY:	GLN	DATE:	3/13/95

hazardous. This proposal eliminates the need for two disposal facilities in the same geographic location. The waste material from the ordnance works remedial activities represents less than 5% of the total waste volume expected to be generated by remedial activities at the chemical plant.

This Explanation of Significant Difference (ESD) has been prepared by the DOE to identify a significant change to the remedial action documented in the *Record of Decision for the Chemical Plant Area of the Weldon Spring Site, DOE/OR/21548-376, September 1993* (ROD), as required under the *Comprehensive Environmental Response, Compensation and Liability Act* section 117(c). The ESD presents for public review, a modification to the remedial action allowing for the placement of a small volume of additional waste material from the ordnance works area in the disposal facility located at the chemical plant. Several small areas of the ordnance works are already defined as chemical plant vicinity properties where contaminated soils will be excavated and placed in the chemical plant facility.

This ESD will become a part of the Administrative Record for the Weldon Spring Chemical Plant Area, and will be available for public inspection as required under *Comprehensive Environmental Response, Compensation and Liability Act* section 117 (d). The Administrative Record file for the Weldon Spring Chemical Plant Area is located in the public reference area at the Weldon Spring Site, 7295 Highway 94 South, St. Charles, Missouri. The reference area is open to the public 8:00 a.m to 4:30 p.m., Monday through Friday. Copies of the ESD will also be available in information repositories located at Francis Howell High School, and at three branches of the St. Charles City/County Library: Kathryn M. Linneman, Spencer Creek, and Kisker Road.

2 SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

The Weldon Spring Ordnance Works was constructed by the Army during the 1940s to produce the explosives trinitrotoluene and dinitrotoluene. In 1955, the 88 ha (217 acre) chemical plant area was transferred to the Atomic Energy Commission (predecessor to the DOE) for construction and operation of a uranium processing facility. This facility was operational through the 1960s. Radioactively and chemically contaminated waste was disposed of at the chemical plant area during this period.

The radiological contaminants of concern, as presented in the Chemical Plant ROD, are radium-226, radium-228, thorium-230, thorium-232, and uranium-238. The chemical contaminants of concern are arsenic, chromium, lead, thallium, polyaromatic hydrocarbons, polychlorinated biphenyls, and trinitrotoluene.

The *Record of Decision*, which was signed by the U.S. Department of Energy and the U.S. Environmental Protection Agency in September 1993, addresses the various contaminated media at the chemical plant area including soils, sludge, sediment, and materials placed in short-term storage as a result of previous response actions. Groundwater investigations are presently being conducted as a separate operable unit. The selected remedy utilizes treatment by chemical stabilization/solidification and on-site disposal to address the principal threats at the site. The major components of this remedy are:

- Dredging sludge from the raffinate pits, excavating sediment from Frog Pond and Ash Pond and three off-site lakes, and excavating soils from specific locations using standard construction equipment and procedures.

- Removing material stored at the temporary facilities on site using standard construction equipment and procedures.

- On-site treating by chemical stabilization/solidification of certain contaminated materials.

- Placing both treated and untreated materials in a facility designed and constructed specifically for the Weldon Spring site wastes.

3 DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THESE DIFFERENCES

This planned modification to the remedial action encompasses the treatment and disposal of up to approximately 60,000 cu yd of lead contaminated soil, incinerator ash, and construction debris from the adjacent Department of Defense Weldon Spring Ordnance Works facility. This proposed modification has been determined to be an on-site action as defined in the *Comprehensive Environmental Response, Compensation and Liability Act* section 104(d)(4): "Two or more noncontiguous facilities related on the basis of geography or on the basis of potential threats to human health and the environment may be treated as one facility for the purposes of this section". As such, the permit waiver provided in *Comprehensive Environmental Response, Compensation and Liability Act* section 121(e)(1) applies to the proposed action, and no permits are required for the transport and disposal of wastes from the ordnance works area. This modification does not, however, alter or change in any way the current land ownership for either the ordnance works area or the chemical plant area.

The ash product resulting from ordnance works remedial actions will be tested using the toxicity characteristic leaching procedure (TLCP). Any ash product that passes the TCLP is no longer considered a characteristic waste under the *Resource Conservation and Recovery Act* (RCRA) and will be backfilled on the ordnance works property. Ash product that does not pass the TCLP (i.e., is considered a RCRA characteristic waste) will be treated by a CSS process until no longer characteristic and then disposed in the chemical plant facility. Lead contaminated soils will also be treated by CSS. Bench scale testing for chemical stabilization/solidification treatment will be conducted by the Department of Defense to develop the appropriate soil/grout mixture ratio.

All waste materials will be temporarily stored on the ordnance works property prior to disposal. A value engineering study is planned to identify the most effective and efficient method of waste handling.

The Department of Energy has developed acceptance criteria which the ordnance works waste will be required to meet in order to be considered for placement. These criteria may be found in the Waste Acceptance Plan for the Weldon Spring Site Remedial Action Project, Rev. 0, DOE/OR/21548-526. Acceptance criteria include such requirements as limits on size

of metal debris; waste may not be considered "listed" under RCRA; waste may not contain free liquids; and all RCRA characteristic wastes must be treated to below RCRA standards.

4 COSTS

The preliminary estimate of the direct cost for design, transportation, and placement of the Weldon Spring Ordnance Works waste is approximately $8.5 million. A pro rata share of Project Integration and Support Facilities cost will be apportioned to this direct cost estimate. The pro rata share of Project Integration and Support Facilities cost is allocated to each agency based upon the percentage of direct cost attributed to each agency. Therefore, the total cost of taking the ordnance works waste will depend upon the direct cost of performing that piece of work compared to the direct cost of performing the remaining remedial action work. Preliminary estimates indicate that including the ordnance works waste in the disposal facility will increase the Department of Defense share of Project Integration and Support Facilities cost from 21% to 22.5% for the life of the project.

5 SCHEDULE

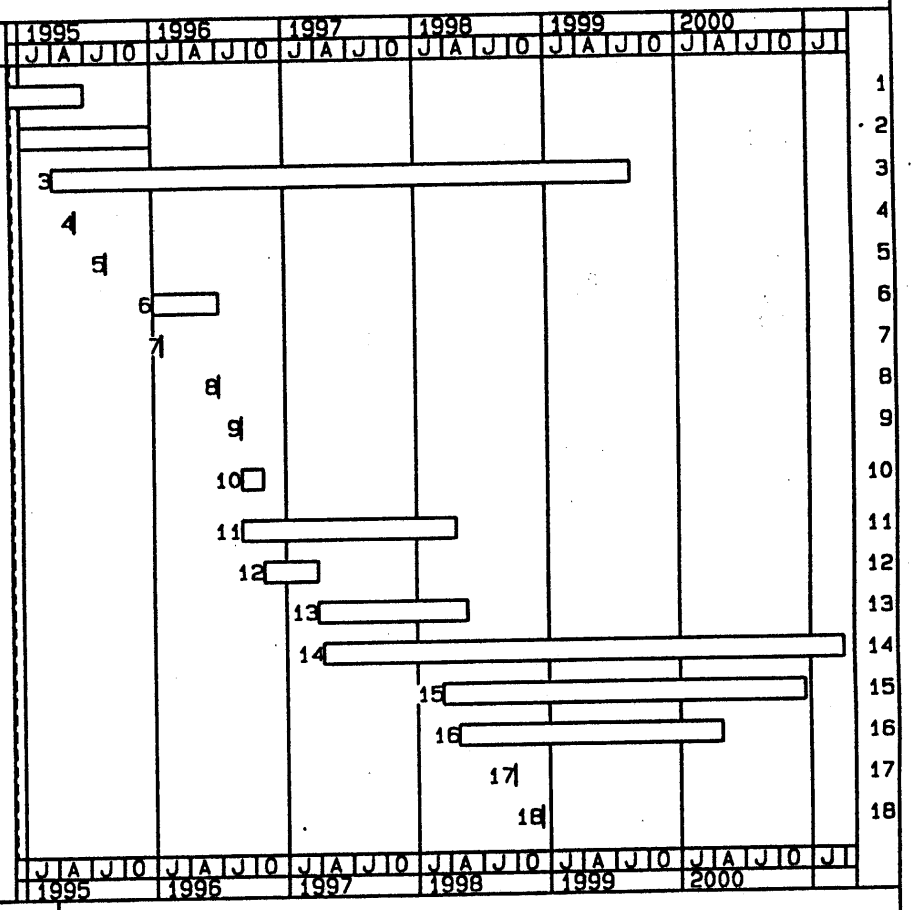
Figure 5-1 is a proposed schedule for executing this change. The transfer and placement of wastes have been planned so that there will be no impact on the final closure schedule for the chemical plant area disposal facility.

WSSRAP DE-AC05-86OR21548
M-K FERGUSON
CONTRACT: 3589

FILE: ARMYBR

DOE/DOD WASTE COORDINATION SCH

	PE	ACTIVITY DESCRIPTION	ACT/FCS START	ACT/FCS FINISH	ORIG DUR
1	100	DOD BENCH TESTING/TREATABILITY TEST	1-DEC-94	28-JUN-95	184
2	20	DOD REMEDIATION-DESIGN	1-JAN-95	31-DEC-95	365
3	110	CSS PILOT OPERATION	30-MAR-95	25-AUG-99	1610
4	10	DOD REMEDIATION-OPERABLE UNIT ROD	31-MAY-95	31-MAY-95	1
5	119	DISPOSAL CELL 60% DESIGN CPL	24-AUG-95	24-AUG-95	1
6	30	DOD REMEDIATION-PROCUREMENT	1-JAN-96	30-JUN-96	182
7	139	CSS PROD PLANT 60% DESIGN CPL	26-JAN-96	26-JAN-96	1
8	40	DOD REMEDIATION-AWARD	1-JUL-96	1-JUL-96	1
9	50	DOD REMEDIATION-NTP	31-AUG-96	31-AUG-96	1
10	60	DOD REMEDIATION-CONSTRUCT INCINERATOR	1-SEP-96	30-OCT-96	60
11	70	DOD REMEDIATION-EXCAVATE WASTE	1-SEP-96	23-APR-98	600
12	80	DOD REMEDIATION-TRIAL BURN	31-OCT-96	29-MAR-97	150
13	90	DOD REMEDIATION-WASTE PROCESSING	30-MAR-97	23-MAY-98	420
14	120	DISPOSAL CELL CONSTRUCTION	14-APR-97	1-APR-01	1449
15	130	DISPOSAL CELL WASTE PLACEMENT	16-MAR-98	17-DEC-00	1008
16	140	CSS PRODUCTION PLANT OPS	30-APR-98	28-APR-00	730
17	150	GROUNDWATER OPERABLE UNIT ROD	27-SEP-98	27-SEP-98	1
18	160	QUARRY RESIDUALS OPERABLE UNIT ROD	11-DEC-98	11-DEC-98	1



STATUS DATE: 6-DEC-94

WORK FORECAST

WORK COMPLETED

ARTEMIS 6000

Barchart Drawing System 1:17 pm 3-MAR-95

6 SUPPORT AGENCY COMMENTS

This proposal has been reviewed with both the U.S. Environmental Protection Agency Region VII and the Missouri Department of Natural Resources. Both agencies agree that this change is acceptable and beneficial from a technical, environmental, and cost standpoint.

7 AFFIRMATION OF STATUTORY DETERMINATIONS

The Department of Energy, the Department of Defense, the Environmental Protection Agency and the Missouri Department of Natural Resources believe that the proposed change remains protective of human health and the environment; complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action; and is cost effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

This change, while significant, does not fundamentally alter the remedy selected in the *Record of Decision* with respect to scope, performance, or cost.

8 PUBLIC PARTICIPATION ACTIVITIES

This Explanation of Significant Difference (ESD) is issued for public notice to accommodate the requirements of the *Comprehensive Environmental Response, Compensation and Liability Act*, section 117(c). The public notice of availability of this ESD is scheduled to be announced on January 15, 1996. Public review of this document is encouraged by the Department of Energy. The public is invited to examine the Administrative Record file of which this document will become a part.

A public meeting took place on February 21, 1995. This modification was presented to allow for information transfer and begin public participation in the decision-making process regarding this ESD. The public raised no objections to the proposed modification of the selected remedial action. In addition, this proposed modification was endorsed by the Missouri Department of Natural Resources.