U. S. DEPARTMENT OF ENERGY
WORK BREAKDOWN STRUCTURE DICTIONARY
PART II - ELEMENT DEFINITION

1. PROJECT TITLE/PARTICIPANT	**2. DATE**	**3. IDENTIFICATION NUMBER**
Environmental Management/Bechtel Jacobs Company LLC	10/01/02	DE-AC05-98OR22700

4. WBS ELEMENT CODE	**5. WBS ELEMENT TITLE**
1.12.04.01.01.16	PAD Groundwater Fenceline Action

6. INDEX LINE NO.	**7. REVISION NO. AND AUTHORIZATION**	**8. DATE**
N/A	Rev. 1	01/23/03

- **APPROVED CHANGES**
N/A

10. SYSTEM DESIGN DESCRIPTION	**11. BUDGET AND REPORTING NUMBER**
N/A	N/A

12. ELEMENT TASK DESCRIPTION

WBS GRAPHIC

See attached.

INTRODUCTION

In 1988, widespread contamination of groundwater by trichloroethene (TCE) and technetium-99 (Tc-99) around the Paducah Gaseous Diffusion Plant (PGDP) was detected. In 1993, an engineering evaluation cost estimate was approved and established the water policy box to protect the public from use of impacted groundwater. In 1995 and 1997, interim measures were taken to contain the high concentration areas of the Northwest and Northeast plumes. The interim measures included installation of two groundwater pump and treatment systems, one each at the Northwest and Northeast plumes. Subsequently, remedial investigations were performed to determine the extent of groundwater contamination at PGDP. Results of these investigations detected the presence of dense non-aqueous phase liquid (DNAPL) onsite and up to four dissolved-phase plumes (northeast, northwest, southwest, and Technetium-99 plume) outside the facility fenceline. As a result of the remedial investigations and baseline risk assessment performed for the groundwater operable unit (GWOU), the following groundwater problem statements have been developed.

- TCE exists as DNAPL in three main areas C-400 Building, C-720 Building, and C-474-C, Oil Landfarm. This organic compound is found in both the upper continental recharge system (UCRS) and the RGA at the C-400 Building and in the UCRS at the C-720 Building and C-474-C, Oil Landfarm. The mass of TCE in these areas must be reduced, removed, or contained before it is possible to return the groundwater back to beneficial use.
- TCE and its degradation products exist at lower concentrations throughout the plumes both on and off U. S. Department of Energy (DOE) property. These dissolved concentrations need to be reduced before the groundwater at or around the PGDP can be brought back to beneficial use.
- Dissolved-phase TCE and Tc-99 are discharging to surface water in Little Bayou Creek in the off-site area. These releases need to be contained or eliminated to remove direct contact risks to human health and the environment.

To address these problems DOE has developed a remedial strategy for PGDP to stop plume growth and migration of contaminants and to reduce the toxicity and volume of contaminants. The strategy includes employing various technologies as an early action, source area actions, fenceline actions, off-site plume actions,

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and institutional control action. Paducah Groundwater Fenceline Action, also referred to as ROD 3, is composed of 9 sub-project tasks. WBS element numbers assigned to the sub-project tasks are:

WBS 1.12.04.01.01.16.01 – Fenceline Technical Management and Integration
WBS 1.12.04.01.01.16.02 – Fenceline Characterization
WBS 1.12.04.01.01.16.03 – Fenceline Decision Documents
WBS 1.12.04.01.01.16.04 – Fenceline PTZ Treatability Study
WBS 1.12.04.01.01.16.05 – Fenceline C-Sparge™ Treatability Study
WBS 1.12.04.01.01.16.06 – Fenceline Design
WBS 1.12.04.01.01.16.07 – Fenceline Action Implementation
WBS 1.12.04.01.01.16.08 – Fenceline Newly Generated Wastes
WBS 1.12.04.01.01.16.09 – Fenceline DOE Prime

LOGIC RELATIONSHIPS

- Decision documents such as Proposed Plans and RODs are completed as part of the CERCLA process before proceeding with the design and action implementation sub-project tasks.
- Treatability studies PTZ and C-Sparge™ are being performed to document the constructability, effectiveness, and applicability of the technologies to the PGDP.
- Designs and other decision documents must be complete before proceeding with the construction and operation of the selected remedy for remedial action.

SCOPE DESCRIPTION

The objective of this subproject is to perform a CERCLA remedial action for the Groundwater Operable Unit (GWOU) and is part of the overall strategy for ultimate remediation to levels which are protective of human health and the environment. The GWOU consists of the groundwater plumes on and offsite and any source areas associated with the plumes. The fenceline action provides containment of the dissolved phase plumes at the security fenceline for the PGDP. This action combined with other onsite source area and offsite dissolved phased plume actions are part of the overall remedial strategy for the GWOU.

Release Sites and Facilities

Assessments to be completed
N/A

Actions to be completed
N/A

Past and Future Accomplishments

Past Accomplishments

Initiate and complete Phase I PTZ Construction.

Future Accomplishments

04.01.01.16.03 – Fenceline Decision Documents

- Complete D0, D1, and D2 Proposed Plan for Fenceline Action
- Complete D0, D1, D2 for ROD / LUCIP for ROD 3

04.01.01.16.06 – ROD 3 Fenceline Action Design
- Complete D0, D1, D2 Remedial Design Work Plan

04.01.01.16.07 – ROD3 Fenceline Action Implementation
- Complete Remedial Action Construction

04.01.01.16.08 – ROD3 Fenceline Newly Generated Waste
- Dispose of waste.

04.01.01.16.07 – ROD3 Fenceline DOE Prime
- DOE funding source for disposal of liquid and solid waste.

Scope

04.01.01.16.01 Technical Management and Integration

Technical Management and Integration activities include the technical, subcontract, and project management necessary to ensure that all activities in the WBS elements are completed on schedule, within budget, and without safety or environmental incident. Technical Management and Integration includes the Project Manager, Safety Advocate, Subcontract Technical Representative, and Project Controls personnel who will perform project management, subcontractor oversight, ES&H support, and project scheduling and estimating. Other BJC/M&I support activities will be captured in individual WBS elements.

The Fiscal Year Baseline/Life Cycle Baseline activities will be performed on an annual basis to determine the scope of work for future work. The future scope of work will be scheduled and estimated based upon regulatory milestones and DOE commitments.

Baseline Change Proposals – Prepare BCP documentation to make necessary corrections to the FY 01 baseline when scope, schedule, or cost changes are determined necessary.

Specific activities include:

- Ensure completion of all activities within the subproject is in compliance with the principals of Integrated Safety Management
- Maintain contact and open communications with the appropriate DOE Project Manager on the subproject activities
- Participate in biweekly technical information and monthly Project Status Review meetings to provide the DOE with project status summaries
- Manage the subcontracts and work authorizations issued to complete the work under the subproject
- Respond and supply information to DOE for Lessons Learned, surveillance and audits, Site-Specific Advisory Board support, and other DOE reporting mechanisms.
- Maintain the monthly subproject estimates and estimates at completion.

04.01.01.16.06 – ROD 3 Fenceline Action Design

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Complete D0, D1, and D2 Remedial Design Work Plan.
Complete D0, D1, and D2 Remedial Design Report. Assumes an approximately total of 16,000 linear feet of PTZ. 14,000 linear feet along west, north and east side of PGDP, and 2,000 linear feet between the fenceline and Little Bayou Creek.

04.01.01.16.07 – ROD 3 Fenceline Action Implementation
Complete D0, D1, and D2 Remedial Action Work Plan
Complete D0, D1, and D2 Construction Quality Assurance Plan
Complete Remedial Action Construction
Complete D0, D1, and D2 Operations and Maintenance plan
Complete D0, D1, and D2 Post Construction Report

04.01.01.16.08 – Fenceline Newly Generated Waste
Conduct waste management of liquid and solid waste generated from remedial action construction.
Dispose of waste generated each prior year.

04.01.0116.09 – Fenceline DOE Prime
DOE funding source for disposal of liquid and solid waste generated from remedial action construction at DOE sites.

It is the core value of Bechtel Jacobs Company that the safety and health of every worker and the public at large, and our environment, are the most important assets we are entrusted to protect. To accomplish this, an Integrated Safety Management System (ISMS), based on DOE's ISMS has been implemented that incorporates the five core functions and is based on the seven guiding principles. The objective of ISMS is to systematically integrate safety and environmental protection into the planning and execution of all work activities. The term safety encompasses Nuclear Safety, Industrial Safety, Industrial Hygiene, Occupational Health, Health Physics, and environmental issues. ISMS requirements flow-down to Bechtel Jacobs Company subcontractors. The Five Core Functions are: (1) Define the scope of work, (2) Analyze hazards, (3) Develop and implement hazard controls, (4) Perform work within controls, and (5) Provide feedback and continuous improvement. The Seven Guiding Principles are (1) Line Management Responsibility for Safety, (2) Clear Roles and Responsibilities, (3) Competence commensurate with responsibility, (4) Balanced Priorities, (5) Identification of Safety Standards and Requirements, (6) Hazard Control Tailored to Work Being Performed, and (7) Operations Authorization.

In performing the analysis of alternatives against the CERCLA nine criteria, consideration is given to the principles of ISMS. Specifically, in the analysis of "implementability" and "short-term impact", a trade-off assessment is performed to balance the risk to workers compared to the overall benefit of the project. This assessment follows the five core functions of ISMS to assure that the scope of work and the specific steps to carry out the project have been defined in sufficient detail to analyze the associated hazards, the effectiveness of the controls, and the actual risks to the workers.

Before a subproject begins, several activities must be completed that demonstrate that all involved in the project have completed rigorous health and safety reviews and that all potential hazards of doing the work have been identified. The routine activities in RA are conducted in accordance with standard operating procedures, activity hazard analyses, and Integrated Safety Management plans. Non-routine work will require a readiness assessment as necessary to ensure complete health, safety, and environmental reviews prior to work start. This assessment is conducted by people, experienced in similar kinds of work, with the right to examine all aspects of a project about to commence, and require that the project team provide documented evidence that any applicable requirements of the job have been met.

REQUIREMENTS/DRIVERS

Bechtel Jacobs Company LLC Contract DE-AC05-98OR22700, December 18, 1997
Integrated Safety Management System Description, BJC/OR-87, Revision 2
Paducah Gaseous Diffusion Plant RCRA/HSWA Permit Number KY8-890-008-982
Site Management Plan for PGDP, Fiscal Year 00 Annual Revision, November, 1999

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"Integrated Safety Management System Description, BJC-GM-1400, Revision 2, October 2001 and Integrated Safety Management System Supplement, BJC-GM-1401, Revision 0, December 2000"

As applicable, indicate other regulatory-related requirements.

CERCLA: Y RCRA: Y DNFSB: N DOE Orders: Y AEA: N UMTRCA: N State: Y Other: Y

WASTE VOLUMES

Please see attached waste performance metrics, as applicable.
The waste quantities supporting the method of accomplishment and basis of estimate are consistent with data reported on the Waste Performance Metrics Form.

PROJECT SCHEDULE

Please see attached project summary schedule, project detail schedule, and Milestone Status Summary Report.
Schedule Assumptions:

EXECUTION YEAR BASELINE
Please see attached Budgeted Cost of Work scheduled Plan

BASELINE BY YEAR
Please see attached Baseline by Year Report.