

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

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC		2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17		5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	
6. INDEX LINE NO. N/A	7. REVISION NO. AND AUTHORIZATION Rev 1		8. DATE 01/23/03
9. APPROVED CHANGES N/A			
10. SYSTEM DESIGN DESCRIPTION N/A		11. BUDGET AND REPORTING NUMBER N/A	
12. ELEMENT TASK DESCRIPTION			
WBS GRAPH			
See attached.			
INTRODUCTION			
<p>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 cost estimate was approved and established a 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.</p> <ul style="list-style-type: none"> - 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 regional gravel aquifer (RGA) at the C-400 (decontamination) 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 appears to be 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. <p>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, dissolved-phase plume actions, and institutional control action. Dissolved-phase plume action addresses the remediation of dissolved TCE and Tc-99 plumes inside and outside the facility fenceline. Dissolved-phase plume action is composed of 7 sub-project tasks. WBS element numbers assigned to the sub-project tasks are:</p> <p style="margin-left: 40px;">WBS 1.12.04.01.01.17.01 – Technical Management and Integration WBS 1.12.04.01.01.17.02 – Characterization</p>			

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC	2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17	5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	
WBS 1.12.04.01.01.17.03 – Decision Documents WBS 1.12.04.01.01.17.04 – Design WBS 1.12.04.01.01.17.05 – Action Implementation WBS 1.12.04.01.01.17.06 – Newly Generated Wastes WBS 1.12.04.01.01.17.07 – DOE Prime		
LOGIC RELATIONSHIPS		
<ul style="list-style-type: none"> - The GWOU feasibility study, performed under separate WBS, identified and evaluated technology alternatives to remediate primary and secondary source, and dissolved-phase plume areas. Dissolved-phase plumes consist primarily of TCE and Tc-99 contamination in the RGA. Remedial action assumes employing C-Sparge™ technology for treatment of TCE and anion exchange technology to remove Tc-99 from the RGA. The purpose of this action is to protect human health and the environment and to return the RGA to beneficial use. - No additional characterization is assumed with this action. - Decision documents Proposed Plan and Record of Decision (ROD) will be complete before proceeding with the design sub-project tasks. - Remedial design sub-project task includes development of the remedial design work plan and report. This scope will be completed prior to proceeding with the remedial action sub-project task. - Remedial action sub-project tasks include development of the remedial action work plan, operations and maintenance plan, remedial action construction, operations, and post-construction report. - Newly generated waste management will apply during the construction and operation scope of the project. - DOE prime sub-project includes funding for disposal of waste generated by this project. 		
SCOPE DESCRIPTION		
The objective of this sub-project is to perform remedial action, such as C-Sparge™ technology, of the offsite plume areas of the GWOU and to attain ultimate cleanup levels that are protective of human health and the environment. The GWOU consists of the groundwater plumes on and offsite and any sources associated with the plumes. The following Solid Waste Management Units (SWMUs) are associated with groundwater offsite plume action.		
Release Sites and Facilities		
Actions to be completed		
<u>RAIMS</u>	<u>SWMU</u>	<u>Description</u>
<u>No.</u>	<u>No.</u>	
2076	11	C-400 Trichloroethylene Leak Site (GW)
2073	26	C-400 to C-404 Underground Transfer Line (GW)
2077	40	C-403 Neutralization Tank (GW)
2075	47	C-400 Technetium Storage Tank Area (GW)
2074	203	C-400 Sump (GW)
2047	1	C-747-C Oil Land Farm
2678	211	C-720 TCE Spill Site Northwest
2477	209	C-720 Compressor Shop Pit Sump (GW)
2048	99	C-745 Kellogg Building Site (previously. AOC #C) (GW)
2049	183	McGraw UST (GW)
<u>IDMS</u>	<u>CODE</u>	
136	155	
138	139	
137	2	
3048	53	
82		

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC		2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17		5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	
<u>RAIMS</u> No.	<u>SWMU</u> No.	<u>Description</u>	<u>IDMS</u> CODE
2344	193	McGraw Const Facilities (Southside Cylinder Yards) (GW)	84
2345	194	McGraw Construction Facilities (Southside) (GW)	85
2052	204	Dykes Road Historical Staging Area (GW)	672
2045	201	Northwest Groundwater Plume	36
2044	202	Northeast Groundwater Plume	40
2679	210	Southwest Groundwater Plume	
2680	145s	Residential/Inert Landfill Borrow Area (Black ooze trench) SW	
2015	145	Residential/Inert Landfill Borrow Area	42
Future Accomplishments (FY 2003 through completion)			
04.01.01.17.01 – Management and Integration			
- Project Management			
04.01.01.17.03 – Decision Documents			
- Complete D0, D1, and D2 Proposed Plan.			
- Conduct public review and comment of Proposed Plan.			
- Complete D0, D1, and D2 Record of Decision/Land Use Controls Plan.			
- Regulatory approval of ROD/LUCIP.			
- Obtain ROD signature.			
04.01.01.17.04 – Design			
- Complete D0, D1, and D2 Remedial Design Work Plan(s).			
- Procure Remedial Design-Build Subcontract.			
- Complete D0, D1, and D2 Remedial Design Work Report.			
04.01.01.17.05 – Action Implementation			
- Complete D0, D1, and D2 Remedial Action Work Plan(s).			
- Complete D0, D1, and D2 Operations and Maintenance Plan(s).			
- Complete Remedial Action Construction.			
- Complete D0, D1, and D2 Post Construction Report.			
- Implement O&M.			
04.01.01.17.06 – Newly Generated Waste			
- Management of waste from remedial action activities.			
- Dispose of waste within one year of generation.			
04.01.01.17.07 – DOE Prime			
- DOE funding source for disposal of waste from the remedial action activities.			
Scope (FY 2003 through completion)			
04.01.01.17.01 Technical Management and Integration			
<p>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</p>			

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC	2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17	5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	
<p>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.</p> <p>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.</p> <p>Baseline Change Proposals – Prepare BCP documentation to make necessary corrections to the FY 01 baseline when scope, schedule, or cost changes are determined necessary.</p> <p>Specific activities include:</p> <ul style="list-style-type: none"> ? 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 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. <p>04.01.01.17.03 – Decision Documents</p> <p>Initiate D0 proposed plan in FY 04 and complete D1 and D2 Proposed Plan. Present D2 Proposed Plan for public review and comment. Complete D0, D1, and D2 ROD/LUCIP. Regulatory approval of ROD/LUCIP. Obtain ROD signature.</p> <p>04.01.01.17.04 – Design</p> <p>Complete Procurement of Remedial Design-Build Subcontract. Complete D0, D1, and D2 Remedial Design Work Plan(s). Complete D0, D1, and D2 Remedial Design Report. Issue Certified for Construction Design. Certified for Construction approval.</p> <p>04.01.01.17.05 – Action Implementation</p> <p>Complete D0, D1, and D2 Remedial Action Work Plan(s). EPA/KDEP approval of Remedial Action Work Plan. Mobilize and execute Remedial Action Construction. Complete D0, D1, and D2 Operations and Maintenance Plan. Implement operations and maintenance. Completed Post Construction Report.</p>		

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC	2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17	5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	
<p>04.01.01.17.06 – Newly Generated Waste</p> <p>Management of waste from remedial action activities. Dispose of waste within one year of generation.</p> <p>04.01.01.17.07 – DOE Prime</p> <p>DOE funding source for disposal of waste from the remedial action activities.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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 NEPA requirements as ARARs. "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"</p> <p>As applicable, indicate other regulatory-related requirements. CERCLA: Y RCRA: Y DNFSB: N DOE Orders: Y AEA: N UMTRCA: N State: Y Other: Y</p>		

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC	2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17	5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	
<p>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 Profile Metrics Form.</p> <p>RELEASE SITES Please see attached RAIMS report, as applicable.</p> <p>PROJECT SCHEDULE Please see attached project summary schedule, project detail schedule, and Milestone Status Summary Report. Schedule assumptions:</p> <p>BASELINE BY YEAR Please see attached Baseline by Year Report.</p>		

1. PROJECT TITLE/PARTICIPANT Environmental Management/Bechtel Jacobs Company LLC	2. DATE 10/1/02	3. IDENTIFICATION NUMBER DE-AC05-98OR22700
4. WBS ELEMENT CODE .04.01.01.17	5. WBS ELEMENT TITLE PAD Groundwater Dissolved-Phase Plumes Action	