Argonne National Laboratory EM Project(s)
Baseline Summary
June 2008

BACKGROUND

The Argonne National Laboratory (ANL) site is approximately 27 miles southwest of downtown Chicago in DuPage County, Illinois. The 1,500 acre ANL site is completely surrounded by the 2,240 acre Waterfall Glen Forest Preserve.

ANL is a large, multiprogram science laboratory that has been involved in research and development activities on behalf of DOE and its predecessors since 1943. ANL's role is achieving DOE's science mission and is expected to continue into the foreseeable future. ANL is operated for DOE by UChicago Argonne LLC under a performance-based management contract awarded by DOE on July 31, 2006. Total DOE funding for ANL is approximately $550M/year.

Additional information regarding ongoing research and future mission projections for ANL may be found respectively on the ANL website (http://www.anl.gov) and within the ANL *Ten Year Site Plan, FY 2008-2017*.

In the past, contamination of soil and groundwater occurred as a result of accidental spills, past materials management practices, and former waste disposal practices. Contaminants of concern for soil and groundwater included volatile organic compounds, semi-volatile organic compounds, metals, polychlorinated biphenyl compounds, and a variety of radioisotopes. Historic areas of research at ANL included reactor research, which led to the construction and operation of a number of experimental nuclear reactors and associated research facilities that were contaminated with low levels of radioactive materials as a result of normal past operations.

Corrective actions to address contaminated soils and groundwater (PBS CH-ANLE-0030) were conducted under the site Resource Conservation and Recovery Act permit. By the end of FY 2003, all corrective actions were completed, with the exception of such ongoing activities as operation and maintenance of groundwater pumping systems; routine environmental monitoring; and periodic inspection of engineered barriers. A Land Use Control Memorandum of Agreement (LUCMOA) between DOE and the Illinois Environmental Protection Agency also was signed. Responsibility for ongoing long-term response actions is planned to transfer from EM to the DOE Office of Science at the end of FY 2009.

Between FY 1989 (the beginning of the EM program) and FY 2007, twelve radiologically contaminated facilities at ANL were decommissioned and decontaminated (D&D) (PBS CH-ANLE-0040). At present, the last remaining project under current EM scope at the site, the Building 301 Hot Cell Decontamination and Demolition Project, is underway. The project received Critical Decision 2/3 on June 14, 2007, and is scheduled to be completed in September 2009.

An additional EM activity at the site is the validation and disposal of legacy remote-handled transuranic (RH TRU) waste, which is being funded through the DOE Carlsbad Field Office (PBS CB-0081-ANL). The current scope to properly package, characterize and ship approximately 100 drums of RH-TRU waste from ANL to the Waste Isolation Pilot Plant (WIPP) for permanent disposal is scheduled for completion in FY 2009.

SCOPE DESCRIPTION

The purpose and objective of the Building 301 Hot Cell D&D Project is to complete the decontamination and demolition of the existing facility, including foundations, and disposal of the resulting materials and associated contaminated soils offsite in a safe, timely and cost-efficient manner, leaving the former location of the facility available for unrestricted industrial reuse. As with previous ANL D&D projects, the work is being accomplished in accordance with DOE Orders rather than under a Federal Facility Agreement. The facility is not a nuclear facility (e.g. is below Hazard Category 3).

The Building 301 Hot Cell facility was constructed in 1950 and was used extensively through the early 1970s. Limited use continued until the early 1990s. The building facilities initially were used for research and development of nuclear fuel components and materials. Later research was focused on uranium oxide mixtures. The building design included five hot cell facilities that were used to shield researchers from radiation.

Decontamination under the project began in FY 2001 but was shut down in FY 2002 due to lack of funding. These initial field activities included D&D and removal of Cave 5; D&D of Room D-109 except for the rod storage tubes; removal of items in miscellaneous areas, including the fume hoods and glove boxes, transformers/controls, miscellaneous equipment, and the wood partition wall; and decontamination of certain areas of the building floor. Costs of these initial activities are not part of the validated performance baseline.

Activities under the approved performance baseline, in addition to planning, include the following: removal, packaging and disposal of solid, hazardous or radioactive equipment and materials; decontamination of radioactive hot spots in conjunction with fixing in place of lesser contamination; termination of building utilities; demolition of the building, including Caves, fuel storage tubes, and underground structures; removal of radiologically contaminated soils beneath the building (to the degree necessary to support future programmatic missions); and offsite disposal of project-generated wastes to sanitary (Subtitle D), RCRA (Subtitle C), or low level radioactive waste disposal facilities, as appropriate.

An Independent Verification Survey will be performed following the Final Status Survey. After demolition and back-filling, the site will be graded and reseeded. No long-term monitoring is anticipated. A final project report, including lessons learned, is required as part of project closeout. Appropriate levels of surveillance and maintenance and engineering and management oversight are included within the project scope.

PROJECT MANAGEMENT

Based on the direction from EM Headquarters, in FY 2007 the Argonne Site Office developed the baseline for the remaining current EM project (Building 301 Hot Cells D&D). This project baseline underwent an independent project review in March 2007 to verify the reasonableness of the scope, cost, and schedule. The Building 301 Hot Cell D&D Project baseline was approved as part of CD 2/3 approval (approval of baseline and approval to start physical work) on June 14, 2007 and reflects the entire remaining scope of this project, which is a subproject under PBS CH-ANLE-0040. The validated cost of the Building 301 Hot Cell Project was $17,291,266 at the 50% confidence level, and the project is fully funded using FY 2006 and FY 2007 funds. The approved baseline also provides as an acceptable point from which to track and control future change. The change request review and approval process can accommodate changes in the EM complex and priorities as well as changes to the project baseline assumptions; incorporation of technological advances; realization of specific programmatic risks; or implementation of programmatic business cases. However, as the Building 301 Hot Cell D&D Project is scheduled to be complete at the end of FY 2009, these changes could affect only the very near-term (within the 16 months) cost, schedule and scope.

LIST OF PROJECTS

The Argonne National Laboratory EM program consists of two PBSs as shown below. The validated Building 301 Hot Cell D&D Project is a subproject under PBS CH-ANLE-0040. As previously noted, an additional EM activity is validation and disposal of legacy remote-handled transuranic waste, which is being funded through the DOE Carlsbad Field Office (PBS CB-0081-ANL).

The baseline for the Building 301 Hot Cell D&D Project is from FY 2007 – FY 2009. No agreed-upon Out Year Planning Estimate Range (OPER) has been established within EM at this time for potential future work.

Project	Date Approved	
	Near Term Baseline (NTB)	Out Year Planning Estimate Range (OPER)
CH-ANLE-0030, Soil and Water Remediation	N/A	Project completed except for long-term response actions; to transition to SC in October 2009
CH-ANLE-0040, Nuclear Facilities D&D	6-14-2007 (Building 301 Hot Cell D&D Project only)	None at this time

PROJECT SCOPE

Soil and Water Remediation

The EM-funded work under PBS CH-ANLE-0030 included remediation activities for soil and groundwater that were required as corrective actions under Argonne National Laboratory's RCRA Part B Permit Corrective Action Program. Since the site is owned and operated by the DOE Office of Science, SC holds the permit governing cleanup of the site and storage and disposal of all wastes generated as a result of the work.

Remediation actions at all RCRA solid waste management units (SWMU) were completed in FY 2003. The Illinois Environmental Protection Agency (IEPA) accepted completion of the remediation actions in FY 2003 by issuing formal letters of "No Further Action" and "No Further Remediation" to ANL, and by signing in August 2003 of the Land Use Control Memorandum of Agreement (LUCMoA). Residual volatile organic compound (VOC) contamination pockets still remain at 300 Area, which requires continued groundwater monitoring. Remediation actions that were installed as part of the RCRA corrective action program are operational; and maintenance of those remediation actions has been integrated into the SC's Long Term Stewardship (LTS) Program.

Remaining long-term response actions (LTRA) include: (a) operation and maintenance of remediation actions---groundwater extraction and phytoremediation at 300 Area and engineered clay covers for three landfills; (b) periodic groundwater monitoring; and (c) periodic reporting to IEPA. Full responsibility for the LTRA is planned to be transferred from EM to SC in FY 2010 (October 1, 2009).

Key performance parameters were the completion of 57 "release sites" of which 54 were Solid Waste Management Units under RCRA. All release sites were completed ("No Further Action" or "No Further Remediation") by the close of FY 2003.

.Nuclear Facility D&D – Building 301 Hot Cell D&D Project

The D&D of Building 301 will result in the removal of radioactive and hazardous material associated with the Hot Cells (Caves) and associated facilities, and includes demolition and removal of the building and foundations.

The decontamination of the building surfaces will be accomplished by using proven decontamination techniques by experienced and qualified workers. Procedures will be written with detailed instructions. Information contained therein will be communicated to the workforce by the project manager to ensure that quality objectives are met and that environment, safety and health concerns are identified and mitigated. Surveillance, audits and/or management reviews will occur throughout the project to ensure that procedures and requirements are followed.

Remaining work scope consists of the following: additional utility deactivation/isolation; abatement (removal of asbestos containing material (ACM), lead, mercury, oil and universal waste, and miscellaneous chemical wastes that may be present; equipment removal; dismantlement (includes removal of walls and partitions both in Room 101 and adjacent to the Cave structures in C102; decontamination and concrete removal from all four Caves; and removal of contaminated embedded piping; the massive steel structures in Caves 1 through 4, several Cave doors, D-109 storage tubes, and remaining wall of Cave 5 will be released for demolition along with the building); systems removal; decontamination of facility as required; trench remediation; release surveys; and waste management. All above and below grade Building 301 structural elements will be demolished using heavy equipment to rubblize the building and its foundation and debris removal. In addition the project includes excavation and removal of utilities to termination points at the two nearest streets.

The concluding activities include: site restoration, demobilization, and preparation of the as-left utility drawings and a final report.

ANL's goal is to clean the building to free release levels prior to demolition. Radiological criteria for free release of the building are given in Figure IV-1 of DOE Order 5400.5, "Radiation Protection of the Public and Environment". For unrestricted industrial re-use, the site of the former building must be cleaned up to a level such that direct exposure pathways are at or below 20 mrem/hour more than ANL site average background levels, to achieve a total annual dose not to exceed 40 mrem/year, based on a 2,000 hour work year.

Key performance parameters are the completion of the remaining 9 radiological facilities under the Building 301 Hot Cell D&D Project. A "facility" for this purpose is a discrete portion of work, such as Cave 1, Cave 4 Cell A, or an individual room within the building. All remaining facilities are planned to be completed by the end of FY 2009.

PROJECT COST

(dollars in millions)

Cost Element	**Project Number**			
	CH-ANLE-0030*	**CH-ANLE-0040****		
1. Prior Year Costs (1997-2007)	$28.764	$33.860		
2. Total Near-Term Baseline (50% Confidence Level)	N/A	$17.292		
3. Unfunded Contingency	N/A	$0.537		
4. Performance Baseline (80% Confidence Level)	N/A	$17.829		
5. Out Year Planning Estimate Range	N/A	0		
6. **Total Life Cycle Cost**	N/A	$51.689		

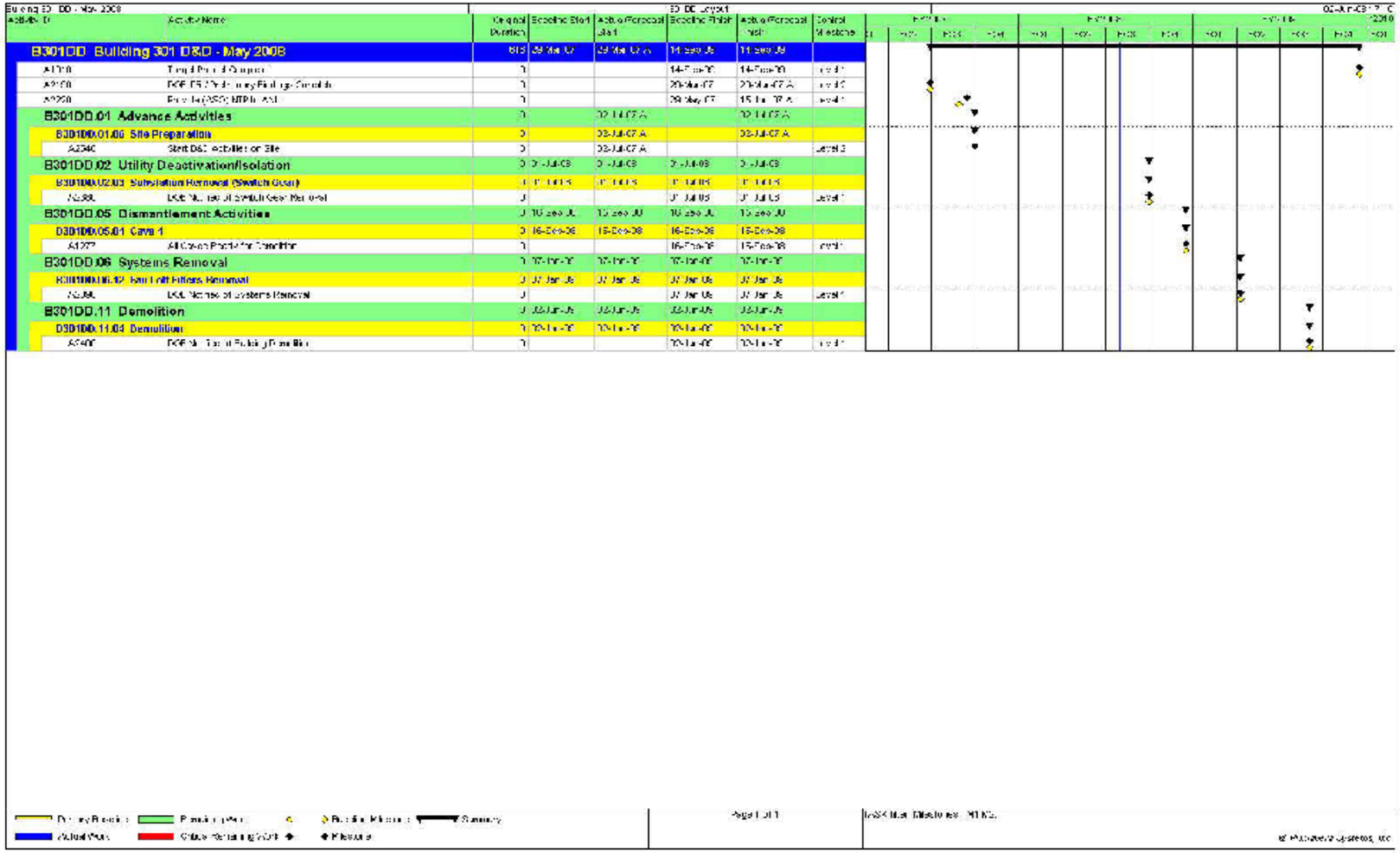
* Project is completed. Funding for long-term response actions is $434K for FY 2008 and $459K for FY 2009.

** Prior year costs include FY 2007 costs outside of the validated baseline for Building 301 Hot Cells D&D Project, and do not include FY 2007 actual and expected costs under that validated baseline.

Prior year costs (1997 – 2003) ($3.078M) of general program management, under CH-ANLEPM, are not included in these totals.

SUMMARY LIFECYCLE BASELINE SCHEDULE

Attached is a Level 2 schedule for the Building 310 Hot Cell D&D. No schedule is provided for the remaining long-term response actions under CH-ANLE-0030.


B301DD Building 301 D&D - May 2008
B301DD.01 Advance Activities
B301DD.01.00 Site Preparation
B301DD.02 Utility Deactivation/Isolation
B301DD.05 Dismantlement Activities
B301DD.05.01 Cave 1
B301DD.06 Systems Removal
B301DD.11 Demolition
B301DD.11.03 Demolition