

**Environmental Cleanup of the East Tennessee Technology Park  
Year One - Execution with Certainty<sup>SM</sup> - 13120**

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**ABSTRACT**

On August 1, 2011, URS | CH2M Oak Ridge LLC (UCOR) began its five-year, \$1.4 billion cleanup of the East Tennessee Technology Park (ETTP), located on the U.S. Department of Energy's (DOE) Oak Ridge Reservation in Tennessee. UCOR will close out cleanup operations that began in 1998 under a previous contract. When the Contract Base scope of work [1] is completed in 2016, the K-25 gaseous diffusion building will have been demolished and all waste dispositioned, demolition will have started on the K-27 gaseous diffusion building, all contact-handled and remote-handled transuranic waste in inventory (approximately 500 cubic meters) will have been transferred to the Transuranic Waste Processing Center, previously designated "No-Path-To-Disposition Waste" will have been dispositioned to the extent possible, and UCOR will have managed DOE Office of Environmental Management (EM)-owned facilities at ETTP, Oak Ridge National Laboratory (ORNL), and the Y-12 National Security Complex in a safe and cost-effective manner.

Since assuming its responsibilities as the ETTP cleanup contractor, UCOR has completed its life-cycle Performance Measurement Baseline; received its Earned Value Management System (EVMS) certification; advanced the deactivation and demolition (D&D) of the K-25 gaseous diffusion building; recovered and completed the Tank W-1A and K-1070-B Burial Ground remediation projects; characterized, packaged, and shipped contact-handled transuranic waste to the Transuranic Waste Processing Center; disposed of more than 90,000 cubic yards of cleanup waste while managing the Environmental Management Waste Management Facility (EMWMF); and provided operations, surveillance, and maintenance activities at DOE EM facilities at ETTP, ORNL, and the Y-12 National Security Complex.

Project performance as of December 31, 2012 has been excellent:

- Cost Performance Index – 1.06
- Schedule Performance Index – 1.02

At the same time, since safety is the foundation of all cleanup work, UCOR's safety record goes hand in hand with its excellent project performance. Through calendar year 2012, UCOR's recordable injury rate was 0.33, and the company has worked close to 4 million hours without a lost work day injury. UCOR's safety record is one of the best in the DOE EM Complex.

This performance was due, in large part, to the people and processes URS and CH2M HILL, the parent companies of UCOR, brought to the project. Key approaches included:

- Selected and deployed experienced staff in key leadership positions throughout the organization
- Approached "Transition" as the "true" beginning of the cleanup project – kicking off a number of project initiatives such as Partnering, PMB development, D&D Plan execution, etc.
- Established a project baseline for performance measurement and obtained EVMS certification in record time
- Determined material differences and changed conditions that warranted contract change – then quickly addressed these changes with the DOE client
- Aligned the project and the contract within one year – also done in record time

- Implemented Safety Trained Supervisor and Safety Conscious Work Environment Programs, and kicked off the pursuit of certification under DOE’s Voluntary Protection Program

## INTRODUCTION

The 2,200-acre East Tennessee Technology Park (ETTP) is located in the southwestern portion of the DOE’s Oak Ridge Reservation in East Tennessee. Figure 1 shows the location of the ETTP on the Oak Ridge Reservation. ETTP’s uranium enrichment facilities operated for more than 40 years and date back to the World War II Manhattan Project, which produced fissionable material for the world’s first nuclear weapon. The plant also produced enriched uranium for the commercial nuclear power industry from 1945 to 1985. Uranium enrichment operations were permanently shut down in 1987. As a result of these operations, ETTP has a legacy of contaminated buildings, soil, sediment, and groundwater that require remediation for the protection of human health and the environment. The DOE Office of Environmental Management is overseeing cleanup operations at the site with the end goal of transforming ETTP into a private sector industrial park as well as a national historical preservation site.

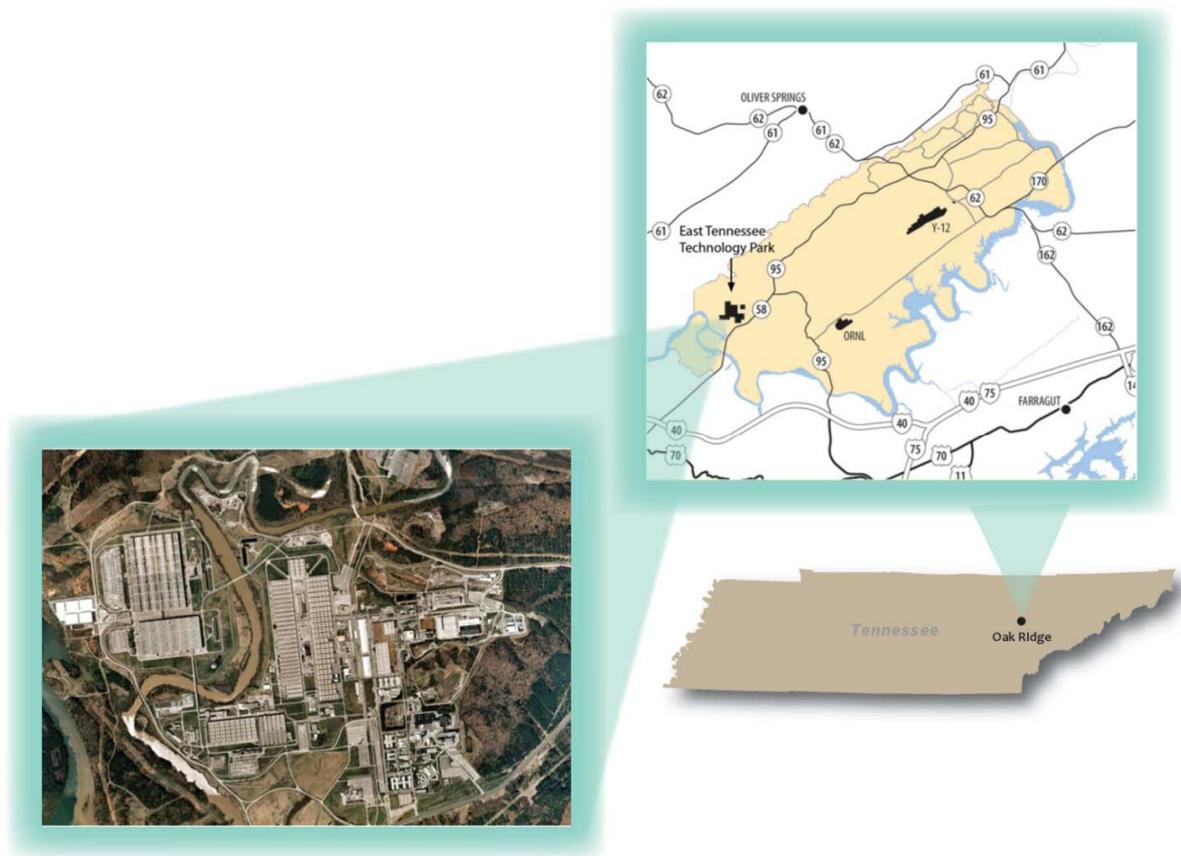


Figure 1. Location of ETTP on the Oak Ridge Reservation in Eastern Tennessee.

Major cleanup activities at ETTP began under a previous contractor in 1998. URS | CH2M Oak Ridge LLC (UCOR) is completing this work under a five-year contract with an additional four-year option. The project consists of:

- Demolition of the K-25, K-27, and K-31 uranium enrichment buildings

- Demolition of remaining ETTP facilities, such as the Toxic Substances Control Act Incinerator, the K-1037 barrier plant, centrifuge facilities, and other ancillary buildings and structures
- Environmental remediation of soil and groundwater contamination on the ETTP site
- Disposition of all D&D and remediation waste, either onsite or offsite at commercial or DOE treatment or disposal sites

### **ETTP CLEANUP PROJECT STATUS**

With UCOR more than 20 percent complete on its contract scope of work, the ETTP Cleanup Project is ahead of schedule and under budget. Through December 2012, project cost and schedule performance against the Performance Measurement Baseline are as follows:

- Cost variance is \$24M with a cost performance index of 1.06.
- Schedule variance is \$10M, with a schedule performance index of 1.02.

A key enabler to any successful DOE EM nuclear cleanup project is an excellent safety record, and the ETTP cleanup project is no different. Through December 2012, the workforce has close to 4 million hours without a lost day of work injury and a total recordable case rate of 0.33 and lost work day case rate of 0.17 (per 200,000 hours worked).

Another key enabler of a successful nuclear cleanup project is environmental compliance. In 2012, all regulatory milestones were met and no environmental non-compliances were noted by State and Federal environmental regulators.

Following are notable accomplishments in 2012.

### **D&D of K-25**

The K-25 facility was a former gaseous diffusion plant built as part of the Manhattan Project in the early 1940s. It first enriched uranium for nuclear weapons and later for the commercial nuclear power industry. The mile-long facility was comprised of three major sections – the east and west wings and the north end – aligned in a “U” shape. The north end forms the base of the “U” and is the smallest section.

The west wing was demolished previously, and the east wing (consisting of 23 “units”) and the north end (consisting of three units) remained to be demolished when UCOR took over the contract. A unit typically consists of about 60 converters, 120 compressors, and associated piping and auxiliary equipment. The east wing is divided into two sections. The smaller section, consisting of five units, is contaminated with significant quantities of technetium-99 (Tc-99), a radioactive contaminant that is more mobile in the environment than other radioactive materials associated with nuclear fuels. The larger section, consisting of 18 units, does not contain significant quantities of technetium-99.

During 2012, UCOR demolished the entire 18 units of the non-technetium-99 area of the east wing and began demolishing the facility’s north end. Figure 2 shows the demolition of the non-technetium-99 area. The smaller north end can be seen in the upper left corner. More than 1.5 million square feet of the building was demolished. More than 90,000 cubic yards of demolition debris was hauled away for disposal, with most waste going to the Oak Ridge Reservation’s Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) [2] landfill known as the Environmental Management Waste Management Facility (EMWMF).

Deactivation activities continued in the smaller technetium-99 area of the east wing. These activities include characterization, stabilizing contamination in equipment, removing asbestos, and draining all remaining free liquids. These activities are required to be completed before demolition can begin.



Figure 2. Demolition of the non-technetium-99 area of K-25's east wing

#### **Deactivation of K-27**

K-27 is a smaller “sister” gaseous diffusion facility to K-25. In April 2012, deactivation (pre-demolition) of the K-27 facility began, almost two years ahead of the Performance Measurement Baseline schedule. This acceleration was made possible by cost savings identified by UCOR during Fiscal Years 2011 and 2012, availability of some additional characterization monies courtesy of the American Reinvestment and Recovery Act (ARRA) that were being managed by DOE and the Oak Ridge Institute for Science and Education (ORISE), and the availability of characterization resources from the K-25 Project. In Fiscal Year 2012, five of the nine units of K-27 were characterized by non-destructive assay techniques; electrical isolation was completed in all five vaults; and workers continued cutting up ducting, venting and purging liquid lines, and installing life line and grip strut safety hardware.

#### **Recovery and Completion of Tank W-1A and K-1070-B Environmental Remediation Projects**

Upon UCOR's arrival at the ETTP site, two environmental remediation projects that were to be completed by the previous contractor were unfinished. UCOR assumed both of these projects—removal of Tank W-1A (the largest source of groundwater contamination at the Oak Ridge National Laboratory (ORNL), and completion of the cleanup and capping of the K-1070-B disposal area on the ETTP site. Figure 3 is a picture of the removal of Tank W-1A, a 4,000-gallon stainless steel tank that was used to collect and store liquid wastes from radiochemical separations and high-radiation analytical facilities at ORNL. In 2012, UCOR completed both of these projects and delivered them within Federal Baseline targets.



Figure 3. Removal of Tank W-1A

### **Performance Measurement Baseline Validation and EVMS Certification**

A Performance Management Baseline (Project Plan) is established at the onset of a project to plan and sequence the delivery of a scope of work. It is a summary of the project's key technical, schedule, cost and performance parameters. It formalizes these elements and places them under formal change management. For a contract of this size, the Performance Measurement Baseline (PMB) is often established in steps. The ETTP PMB was established in the following manner:

1. An interim PMB (iPMB) that covered the period from August 1, 2011, through January 31, 2012, was delivered eight weeks into the Transition Period and was reviewed and approved by DOE and the DOE Office of Acquisition and Project Management (DOE APM) in time to implement on Aug. 1, 2011. The quality of the product was such that no significant comments were received. The UCOR team, augmented by project control expertise from the parent corporations brought in as part of "corporate reach back," estimated and planned the remaining scope that was to be included in the PMB for the entire contract. A key strategy for both the iPMB and the PMB was delivery of the UCOR proposal which was an expectation of DOE and allowed for quick approval of the iPMB and PMB.
2. The full scope PMB was submitted to DOE ahead of schedule on November 14, 2011, for review.
3. The full PMB was used starting in January 2012, following receipt of approval by DOE to load for performance measurement purposes. The PMB represented approximately \$1.4 billion in work scope under four authorized Contract Line Item Numbers covering scope in 57 control accounts. A detailed walk-through of the validation process was conducted with DOE-ORO, and all baseline changes and point adjustments, as a result of loading of the PMB, were reviewed with DOE-ORO to ensure that the PMB was developed and implemented properly. DOE formally accepted the PMB on July 10, 2012, a significant accomplishment in the first year of a five-year contract.

The Earned Value Management System (EVMS) is a set of tools, systems and processes used to manage projects. After a new contractor takes over a project, the process to achieve EVMS certification

begins. The EVMS is a cornerstone to monitoring project performance to ensure the work scope in the PMB is delivered on schedule and on cost as planned. In this way, DOE's and UCOR's commitments and objectives for the ETPP cleanup effort can be effectively monitored throughout the entire project life span.

On December 9, 2011 an EVMS Certification Readiness Review was performed by DOE APM. At the conclusion of the review, UCOR received confirmation of readiness and the formal review was scheduled. During the week of March 26, 2012, UCOR's EVMS was reviewed by DOE APM for certification. The team's visit included interviews with various UCOR control account managers and senior management. The review resulted in a single Corrective Action Report (CAR) and two Continuous Improvement Opportunities (CIOs). The DOE-APM team noted that UCOR's EVMS and readiness to implement was the best they had observed on a certification assessment. UCOR completed the corrective action, and a return visit by the certification team was held on June 6, 2012, to verify corrective actions associated with the CAR were completed.

On July 17, 2012, UCOR received formal EVMS certification, less than one year after taking over management responsibilities for the ETPP.

### **Contract True Up**

To provide a basis for integrated project change management, the Performance Measurement Baseline plus Management Reserve (Contract Budget Base) must be aligned with the Negotiated Contract Cost. Alignment ensures that UCOR and DOE are in agreement on scope, schedule, and cost. Changes can be identified and efficiently dealt with, ensuring that the value and impact of changed conditions are ultimately agreed upon. This agreement is essential to avoiding future costly and time-consuming disputes and claims.

Upon assuming responsibility for the ETPP cleanup project, UCOR was required to identify any material differences in the facilities and processes that were described in the Request For Proposal Performance Work Statements from the actual "as found" conditions in the field. These material differences formed the basis from which UCOR and DOE began the process of reconciling the proposed contract cost with the estimated contract cost updated to include these "as found" conditions.

UCOR and DOE achieved alignment of the Contract Budget Base and the Negotiated Contract Cost within 10 months of UCOR assuming responsibility for the ETPP cleanup project. Approximately \$200M in changes were negotiated and processed as Baseline Changes to achieve alignment. In June 2012, DOE EM HQ personnel stated that it was the fastest that contract true up had been achieved on a large EM cleanup contract.

### **EXECUTION WITH CERTAINTY<sup>SM</sup>**

The early success of the ETPP Cleanup Project was made possible with a roadmap that began during the bid/proposal development, through transition, and finally to project execution. Figure 4 describes this "Roadmap to Execution with Certainty<sup>SM</sup>."

The execution of the roadmap relied on people recruited by UCOR largely from its parent companies, URS and CH2M HILL, who brought the requisite skills and leadership to the ETPP cleanup project and time-tested processes used successfully at other DOE EM nuclear cleanup projects. The people and processes brought to the project combined with an experienced and skilled incumbent workforce, compliant and effective procedures, and a supportive and experienced DOE Oak Ridge Office (ORO) client resulted in a fast and productive start to cleanup that has been sustained.

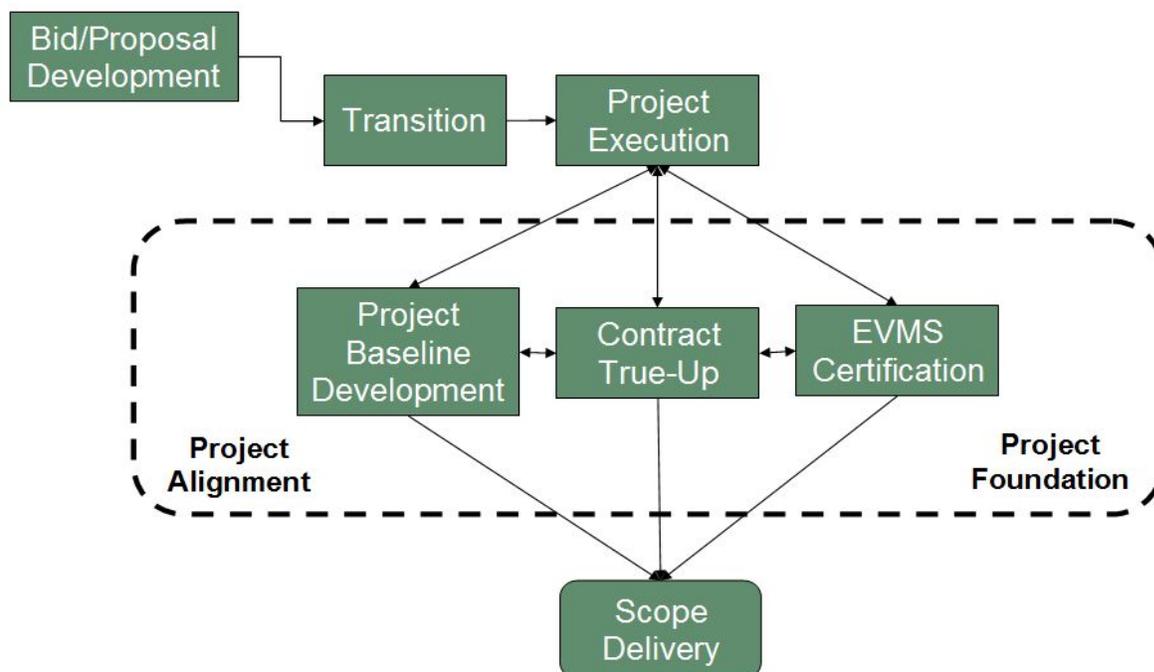


Figure 4. Roadmap to Execution with Certainty<sup>SM</sup>

### People

A key component of UCOR’s early successes at ETTP were the initial identification and recruitment of key and essential personnel during the preparation of the proposal. Later, during transition, additional resources were identified and subsequently recruited. In all cases, UCOR identified people who would bring to the ETTP cleanup project a demonstrated history of both successful performance in their particular areas of expertise and personal leadership. Approximately 75 people who met these criteria were specifically recruited by UCOR, the vast majority working for UCOR’s parent companies at other DOE EM cleanup sites across the country.

Table I provides a summary of the number of people brought to UCOR’s various organizations within the ETTP Cleanup Project and the DOE EM and commercial projects they had previously demonstrated their proficiency.

Project/Project Support Organization	Number of Resources	Past Performance
K-25 D&D	20	Rocky Flats, Savannah River Site, Idaho Cleanup Project, Hanford (Plateau Remediation and River Corridor), Oak Ridge National Laboratory, Maine Yankee
Waste Management	10	Rocky Flats, Idaho Cleanup Project, Nevada National Security Site, Mound
Site Infrastructure	8	Hanford River Corridor, Savannah River Site, Idaho Cleanup Project
Project Planning, Integration and Contracts	15	Savannah River Site, Hanford Tank Farms, Idaho Cleanup Project, Rocky Flats
ESHQA	5	Savannah River Site, Mound, Rocky Flats, Idaho Cleanup Project, Hanford Plateau
Other Support (Finance, Procurement, IT, Communications, Human Resources)	15	Savannah River Site, Yucca Mountain, Hanford Tank Farms, Idaho National Laboratory

Table I. Number and area of expertise of people brought to ETTP by UCOR

During the bid/proposal development period, UCOR began to carefully examine the scope of work that was to be performed, and then began identifying resources from both URS and CH2M HILL that were deployed at other DOE EM sites with a proven track record of delivering similar scopes of work on an accelerated basis and in a safe manner. This included not only the contract D&D and waste management cleanup scope, but also support functions such as environment, safety, health, and quality (ESHQ); facility surveillance and maintenance; planning; project controls; procurement; human resources; and prime contract management. A conscious decision was made to recruit highly experienced managers for not only the senior manager positions but also the middle manager positions. This was a key strategy because UCOR had proposed a very aggressive schedule to complete a significant amount of cleanup during the contract period, including demolishing the K-25 Building almost 18 months ahead of the federal baseline.

Once the announcement was made that UCOR had won the contract, transition started in May of 2011. During transition, a number of things came to light regarding the need to perform additional, unplanned work scope because the incumbent contractor was unable to complete two projects prior to UCOR assuming management responsibilities. The two projects were the remediation of Tank W-1A and the K-1070-B Burial Ground. Both projects were highly visible to State of Tennessee regulators as well as DOE EM HQ. Additional experienced project management resources were subsequently recruited from the parent companies to perform this work. During transition, the DOE's Office of Inspector General issued a draft report[3] on May 13, 2011, that was specifically critical of the previous contractor's contract and baseline management as well as its Earned Value Management System. In partial response to this draft report as well as UCOR's own assessment of availability of incumbent senior project control staff and managers, UCOR hired additional senior project controls managers and staff during the transition period (i.e., May through July, 2011).

The ability to perform corporate reach-back to both URS and CH2M HILL during early phases of the project was also important to achieving and sustaining the fast start. For example, a number of resources were brought in for short periods of time to assist in the walk-down of facilities, preparing the Performance Measurement Baseline—particularly scheduling and cost estimating resources—as well as helping ready the project for EVMS certification. Similarly, the UCOR Procurement organization brought in corporate resources to assist in developing and issuing a large number of procurement actions required to realign many of the staff augmentation contracts. Under UCOR's contract with DOE-ORO, more than 60 percent of the workforce was required to be subcontracted. UCOR's early assessment during transition was that a different subcontracting approach was called for, due to the expense of the current subcontracting arrangements that were put into effect by the previous prime contractor.

UCOR's early and sustained project performance benefited not only from the people it brought from other sites, but just as importantly from the safe, skilled, and competent workforce that already worked at ETTP. This workforce includes not only the salaried and union personnel but also the experienced DOE staff, particularly the Federal Project Directors and their staffs.

#### **D&D of K-25 and Deactivation of K-27**

During the time UCOR worked the proposal for the ETTP cleanup, the Project Manager for the D&D of the K-25 facility began to identify a team of deactivation, demolition, and waste management experts from across the DOE EM complex. The entire UCOR K-25 Management Team of approximately 12 people, with one exception, had worked together for many years demolishing and dispositioning demolition wastes from at least three previous commercial nuclear and DOE sites. The 12 managers had more than 150 years of combined experience in the D&D of contaminated nuclear facilities. Thus, in coming to the ETTP project, each of the D&D managers was filling a role they had previously and

successfully served before at other DOE EM sites. Just as importantly, the D&D managers had worked together and shared a similar work and safety culture.

Because of the relatively short period of time available to D&D K-25, the management team decided to use the previous contractor's operating procedures, rather than replace them with ones they had successfully used at other projects. The management team judged that the existing procedures had been used effectively in the past and had proven compliant with both DOE and environmental regulatory requirements. Through a process known as "blue sheeting," UCOR adopted the existing procedures so work essentially could and did begin immediately upon assumption of management responsibilities on August 1, 2011.

As a result of both the fast start in demolishing the remaining East Wing non-Tc-99 area of the K-25 building as well as cost savings mined by UCOR during the first year, UCOR approached DOE-ORO about accelerating the D&D of K-27, originally slated to start in 2014. UCOR asserted that trained and skilled managers and their characterization crews were completing their jobs in K-25 on an accelerated basis and additional cost savings were being achieved that could fund these crews performing characterization work in K-27. Also, additional characterization resources—both people and monies—were available through ORISE from ARRA funding. DOE-ORO agreed with the acceleration approach, and deactivation work began on K-27 in the summer of 2012.

### **Waste Management**

Similar to the approach used by the Project Manager for K-25, the project manager of the Waste Management Organization recruited and assembled a team of waste management experts from around the country, all of whom had been working for the parent companies at other DOE EM cleanup sites. The Waste Management Team consisted of five people who had worked together for many years. The team replaced the entire former contractor's team. Because the cleanup of the ETTP site is largely a waste management job (i.e., demolishing vertically standing buildings and transporting the debris and rubble primarily to an on site CERCLA disposal cell), the team was also faced with a need to get off to a fast start in order to support the D&D of K-25 in particular. Once again, the team blue-sheeted the existing procedures, allowing work to begin immediately. During transition and soon thereafter, the project manager identified some areas of needed programmatic and operational improvement particularly related to waste management planning and operations at the EMWMF and recruited additional resources from the parent companies. The waste management team also took advantage of expertise within the parent companies and during transition and for a short period thereafter, brought additional waste management expertise via corporate reach back.

### **Recovery and Completion of Tank W-1A and K-1070-B Environmental Remediation Projects**

When UCOR arrived at the ETTP site during transition in May 2011, two significant environmental remediation projects, Tank W-1A and K-1070-B, were behind schedule and over cost. Both projects were to have been completed prior to UCOR's arrival. During transition, DOE approached UCOR about taking over the projects and completing them. DOE authorized UCOR to begin work on the projects as Authorized Unpriced Work, and UCOR identified and recruited several project management and environmental remediation resources from other DOE EM projects managed by UCOR's parent companies experienced in these types of remediation efforts. DOE and UCOR quickly agreed on the scope, schedule, and cost of the two remediation efforts, and UCOR immediately initiated work under the watchful eye of a senior project manager experienced in these types of cleanup efforts. Similar to the experience at K-25, the incumbent workforce performed admirably in completing this work safely and efficiently, largely using existing blue-sheeted procedures.

### **Performance Measurement Baseline Validation, EVMS Certification, and Contract True Up**

During the time period when UCOR was preparing its proposal for the ETTP cleanup project, a decision was made to form an organization that would include both project planning and prime contracts in the same organization. This was a departure from previous jobs where typically the prime contracts function was housed within the Administration organization, which also typically includes such functions as Procurement and Finance. The decision to depart from this older model was extremely important to the eventual reconciliation of the Contract Budget Base and the Negotiated Contract Cost, a process called “True Up.” The management of the development and implementation of the Performance Measurement Baseline as well as the management of the Prime Contract, was housed within UCOR’s Project Planning, Integration and Controls (PPI&C) organization. This resulted in a very close, daily working relationship between the two organizations under the leadership of a senior manager who had experience in both functions. Further, similar to the K-25 Project, PPI&C’s entire management team was brought in and replaced the previous contractor’s management team. The new PPI&C management team was composed of experienced project planning, controls, and contracts managers who had worked together on other DOE EM jobs, and in the course of those jobs, developed and implemented validated PMBs, obtained EVMS certification, and successfully managed prime contracts. The net effect of this was the record-setting contract true up achieved in 10 months. Figure 5 is a picture of the DOE-ORO and UCOR performance measurement baseline and prime contract personnel.



Figure 5. DOE and UCOR employees celebrated contract reconciliation

Further, UCOR identified and recruited other senior project controls managers and staff predominantly from other DOE EM sites. Based on successful organizational models used at these other sites, senior project controls managers experienced in PMB development and validation, as well as EVMS certification, were hired and placed in charge of project control organizations that were part of the delivering project and support organizations, and these manager resources were matrixed back to the PPI&C organization.

Complimenting UCOR on its EVMS certification, the DOE-OECM EVMS Certification Compliance Review Team stated in their report: “Having only one Corrective Action Request (CAR) and two Continuous Improvement Opportunities (CIOs) for a certification review is rare.” Further, the team noted: “UCOR also did an excellent job in finding out from other sites what is necessary to achieve a favorable review outcome.” This success was made possible by the senior project controls management resources UCOR brought to the ETTP Project from other sites who had previously achieved certification of their Earned Value Management Systems.

### Processes

Upon assuming management responsibilities of the ETTP cleanup project in August 2011, all the UCOR organizations blue sheeted existing procedures so work could begin immediately and there was confidence that the site was in compliance with the many regulatory requirements that govern it. During transition, a number of organizations began to determine that the current processes and systems being used at the site needed to be updated, augmented, or changed. The need for these changes was particularly true for PPI&C and to a lesser extent, the ESH&Q organization.

Borrowing from their successful cleanup projects at Idaho, Hanford, and Savannah River, in combination with noteworthy practices already being performed at ETTP, UCOR brought a number of time-tested processes to the ETTP cleanup project as depicted in Table II.

Activity or Program	Process	Origins
Performance Measurement Baseline Development and Implementation	Work Breakdown Structure Project Systems Project Control System Description Project Management Plan Project Execution Plans Risk Management Process and Procedures	Previous D&D projects at Savannah River Site, Idaho Cleanup Project and Hanford (Tank Farms, River Corridor and Plateau)
EVMS Certification	EVMS Training EVMS Procedures	Savannah River Site and Idaho Cleanup Project
Contract True Up	Identification and Management of Material Differences	Hanford Tank Farms, Idaho Cleanup Project, Savannah River Site
ESHQA	Safety Trained Supervisor Safety Conscious Work Environment Voluntary Protection Program (initiating)	Savannah River Site, Hanford Tank Farms, Mound, Idaho Cleanup Project

Table II. Proven processes brought to ETTP and the Sites where the processes were used effectively

### Performance Measurement Baseline Validation, EVMS Certification and Contract True Up

A key achievement in 2012 was the publication and validation of the ETTP cleanup project PMB, achieving EVMS certification, and obtaining contract true up. This achievement was made possible by not only the people UCOR recruited and brought to the project, but also the use of time-tested processes. For example, in the development and implementation of the PMB and the EVMS, UCOR brought a number of processes and procedures from other sites that had successfully developed and implemented validated baselines and achieved EVMS certification. Key procedures that UCOR changed out at the ETTP to ensure compliance with DOE Order 413.3B included the Project Control System Description, project planning documents such as Project Execution Plans, and the Risk Management Plan. During transition, as a result of a review of the project control systems, UCOR discovered a number of “home grown” systems that made ongoing maintenance a costly proposition. A number of systems were considered “proprietary” by the previous contractor and UCOR was required to acquire new systems. A decision was made early on to replace these systems with systems UCOR PPI&C management and senior

project controls personnel were familiar with and were compliant with all applicable EVMS requirements. Thus, UCOR implemented project control software changes including new scheduling software (Primavera version 6) and a new cost processor (Cobra).

The process for performing contract true up has also been used at a number of different sites managed by URS and CH2M HILL. The process of true up was managed as a discrete project with a project manager. It started during transition with a team of people experienced with the scope of work and project conditions. The teams were comprised of both UCOR managers and staff as well as resources brought in as part of corporate reach back. The teams were formed around each of the Contract PWS areas (e.g, K-25 D&D, Surveillance and Maintenance, Waste Disposition). Teams walked down their areas of responsibility and prepared Due Diligence Discovery Identification Forms (DDDIFs) whenever something differed from the description provided in the PWS. A Due Diligence Board was formed and reviewed DDDIFs. The DDDIFs were reviewed by the Board, and the Board subsequently made a determination as to how many were significant and how many were *de minimus*. UCOR submitted the significant differences to DOE-ORO as Contract Change Proposals (CCPs). Upon receipt of the CCPs, DOE then formed teams to perform both technical reviews and cost analyses. Once DOE and UCOR agreed on the Material Differences (MDs), MDs were chunked into groups and a schedule developed to evaluate and eventually negotiate settlements. Many meetings took place between the teams. UCOR established proposal preparation teams and augmented staff where needed with corporate reach back in order to deliver FAR compliant proposals in the most timely manner achievable.

### **Safety**

UCOR safety performance has been excellent. Nearly 4 million hours have been worked without a lost day work injury, and the total recordable injury rate is 0.33. Compared to other DOE EM sites, this performance places ETTP in the top one-half of the sites and below the DOE EM average, per DOE's Computerized Accident Incident Reporting System data of November 12, 2012. This performance can be attributed to a number of factors. First, UCOR inherited a very safe incumbent workforce that maintained good safety performance prior to UCOR's arrival. Secondly, the entire UCOR management team coming to the ETTP project brought a robust safety culture, having worked at DOE EM cleanup sites previously. They understood the importance of safety from both a personnel and project performance perspective. Third, UCOR brought a number of safety processes and programs that have been used very successfully at other sites. For example, UCOR made a number of organizational changes upon arrival. Safety and health professionals deployed in the field supporting the projects were now reporting directly to the central safety organization. This change ensured that the application of safety and health requirements and standards were consistent across the entire project and not customized from project to project. Also, "lessons learned" from other DOE EM sites and commercial industry were shared with the entire management team and the workforce on a priority basis. URS, an advocate of the Safety Trained Supervisor (STS) program at its other DOE sites, brought the STS program to the ETTP project. The STS certification provides a means for employers to verify safety and health knowledge of first-line supervisors and managers. The program requires applicants to meet minimum education and experience requirements and demonstrate knowledge of basic safety and health standards and practices. Following implementation of STS at their sites, URS has observed a greater than 80 percent reduction in injuries while productivity has improved. More than 40 ETTP supervisors have received STS certification.

URS and CH2M HILL are major advocates for the Voluntary Protection Program (VPP). VPP Sites typically have significantly reduced Day Away Restricted or Transferred Case rates compared to industry, per the Occupation Safety and Health (OSHA) Office of Partnership and Recognition. URS and CH2M HILL have achieved *Star* status, the highest recognition of VPP, at most of their DOE EM sites, including the sites the two companies are teamed together, such as Idaho Cleanup Project and Washington Closure. UCOR is in the process of pursuing Star status for the ETTP Site, using the processes successfully used at its other VPP Star Sites.

## CONCLUSION

The excellent project performance UCOR has achieved in its first year of cleanup of the ETTP is largely attributable to the people and processes (Execution with Certainty<sup>SM</sup>) brought to the ETTP cleanup project, combined with the experienced personnel that transitioned from the previous contractor. In some cases, based on UCOR's experience during its first year of ETTP cleanup operations, replacing an entire project organization's management team is called for in order to institute the needed cultural and performance changes required to achieve company and client goals. In other cases, few organizational changes are needed because a particular organization's culture and performance don't require such a significant and radical change. It is clearly situational and something companies bidding on future DOE EM cleanup work need to carefully consider.

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