



CTI Experience and Qualifications

DOE Projects





Fast Facts

CTI and Associates, Inc. (CTI) is a specialized geotechnical and civil engineering firm with over 40 years of specialized and comprehensive experience in on-site waste disposal facilities and landfills. Our expertise is broad and diverse as we integrate the expertise of seasoned engineers and construction professionals to better plan, design, construct, and troubleshoot large, complicated projects. Employing over 100 professionals in 6 offices, we have assisted DOD, DOE, and commercial customers in:

- Design and design reviews of waste disposal facilities for radioactive, hazardous waste, and municipal applications
- Developing regulatory strategies to maximize the utility of the project while assuring compliance with applicable regulations and requirements
- Safely constructing new facilities or expanding existing facilities to increase waste disposal capacity
- Performing design/build projects for new facilities or closing existing ones to increase quality and efficiency
- Representing owners to perform Construction Management and Construction Quality Assurance
- Remediating existing landfills to correct environmental and/or performance issues
- Serving as overall project consultants to optimize designs, perform value engineering, and improve construction efforts



Health and Safety is our Foundation:

- Current EMR is 0.68
- CTI is an active member of ISNetwork (Member# 400-240079)
- Recipient of the USACE Small Business Safety Award
- Recognized by DOE for 8,000 hours incident free on dismantlement, demolition and asset recovery on K-732 Switchyard



CPARS Comments

QUALITY: CTI showed very good quality in performing the tasks under the CLIN 0001 Demolition and Asset Recovery portion of the contract.

SCHEDULE: The contractor has done an exceptional job in keeping the program on schedule.

COST CONTROL: The contract with CTI is a Firm Fixed Price Contract. The contractor displayed exceptional cost control, staying within budget and the contract price.

MANAGEMENT: The contractor has exhibited exceptional management and business relations with all stakeholders and other contractors during this rating period. This is demonstrated through the contractor's communications and interactions with government personnel. The contractor worked well with other DOE prime contractors, integrating work between their subcontractors and UCOR. The contractor ensured timely notification of issues to the government, resulting in expedited issues resolution. The contractor successfully coordinated with DOE prior to any interaction with regulators and ensured smooth integration of all stakeholder correspondence.

UTILIZATION OF SMALL BUSINESS: CTI did an exceptional job with utilization of small businesses.

REGULATORY COMPLIANCE: Overall, CTI did a very good job with adhering to the regulatory compliance requirements. The contractor and its subcontractors have safely worked over 13,200 hours without any injuries or first aid incidents.

Engineering Design

CTI delivers state-of-the-art engineering that reflects emerging practices and technology. Our subsidence modeling capabilities have been put to work in a number of project applications to prevent future subsidence issues as well as facilitate regulator acceptance of the design.

Maxey Flats Radioactive Waste Landfill Principal Engineer State of Kentucky (URS)

CTI serves as a key partner on the remedial design engineering team, providing CERCLA remedial design and oversight of remedial actions for the closure of 200+ sumps and the installation of the 60+ acre final multi-layer closure cap. CTI is responsible for regulatory compliance, regulatory negotiations, design of Final Closure Cap, project quality and S&H management, engineering, permitting, data analysis, work plan development, construction management, construction, onsite QA, and reporting. CTI coordinated closely with the client (KYDEP) and EPA personnel during the design process when work scheduling and sequencing was affected by stakeholder needs and operational schedule constraints to ensure successful execution of work with minimal impact to the schedule. The project showcases CTI's ability to integrate environmental, engineering and construction QA services, and to manage radioactive waste-related issues associated with contaminated soils and other waste streams.



Project Highlights

- Management of radioactive waste-related issues associated with contaminated soils and other waste streams
- Regulatory Compliance and Negotiations
- Design of Final Closure Cap
- Project Quality and S&H management
- Engineering, Permitting, and Data Analysis
- Work Plan Development
- Construction Management
- Construction QA



EMDF Conceptual Design URS | CH2M Oak Ridge

CTI was responsible for the geotechnical evaluation of the geosynthetic components of the multi-layer system for landfill bottom liner system and leachate collection system. CTI engineers prepared calculations, prepared engineering design sketches, and conducted design quality control for sizing of multi-layer system components.

Design analyses included geomembrane puncture protection, head-on-liner and drainage capacity, pipe flow capacity, pipe deflection and strength, settlement analyses, and sideslope/interface friction analyses.

Onsite Waste Disposal Facility (OSWDF) Portsmouth Gaseous Diffusion Plant DOE Headquarters

DOE PM conducted an annual Project Peer Review (PPR) of the Onsite Waste Disposal Facility (OSWDF) project at the Portsmouth Gaseous Diffusion Plant (PORTS) near Piketon, Ohio July 12-14, 2016.

The Office of Project Assessments (PM-10) led the review, CTI provided the core landfill engineering expertise, serving on the technical subcommittee for the PPR. CTI took the lead requesting key information from the OSWDF design team, conducting on-site interviews, and compiling PPR findings for the final report. The CTI team and OSWDF team enjoyed a positive collaboration, resulting in a well-received outcome by all project stakeholders.

Construction

CTI understands how to safely plan, estimate, and build on site disposal facilities and landfills and have been associated with DOE and other waste facility projects in Oak Ridge, Los Alamos, Nevada, and elsewhere. We self-perform a high percentage of the work, ensuring our culture and methods are applied to assure safety and efficiency in every project we execute.



Portage Landfill, Soil Cap Placement OHIO EPA

CTI landfill engineers and constructors collaborated on and considered several alternatives for remediating the environmental concerns at the Closed Portage Landfill. The final design included remediation features including a short term phytoremediation (wetland plantings to absorb and process leachate), a 12-inch to 18-inch thickness cap of cohesive soil to create a low-permeability barrier between precipitation and the waste mass and a finished topography designed to transport surface storm water towards existing controlled discharge points around the perimeter of the site.

CTI's in-house heavy equipment operators coordinated daily transport of clay borrow soils with the daily operations of a functioning sand and gravel mine adjacent to the landfill property. The operators were trained and certified under Mine Safety and Health Administration (MSHA) regulations to meet guidelines for transporting soils through an active mining operation.

Over 1,500 tons of ODOT Type D rip-rap was placed at engineered let-down discharge points with an underlayment of approximately 24,000 SF of geotextile fabric. Over 14,000 SF of erosion control matting was installed along drainage swales and diversion berms of the final soil cover surface. Despite several weather related challenges, the project was completed safely with over 3,000 field labor hours and within the imposed construction schedule of 100 calendar days.



Hot Springs Tailings Dam Reclamation Confidential Client

This project involved multiple stakeholders at an active industrial facility. CTI provided a unique combination of experienced project managers, geotechnical/civil engineers, construction managers and trade labor to complete the final phase of the reclamation of a tailings dam. Work completed during this final phase includes: mobilization and preparatory work, maintenance and control of traffic, haul road improvement/reinforcement and maintenance, demolition and removal, erosion/sediment control, site clearing, excavation, fill placement/grading, stream restoration, aggregate base placement, and permanent seeding.

Expansion of Industrial Landfill IV (ORRLF) URS | CH2M Oak Ridge (UCOR)

As FFP subcontractor to UCOR, CTI self-performed all work involved in the expansion of this classified landfill at Y-12, which supports critical D&D activities via the secure disposal of classified waste generated from these projects. CTI also integrated all work and activities with Consolidated Nuclear Services (Y-12 M&O) to ensure strict compliance with security, access, and badging requirements. The project was completed on time, on budget, and without incident.

CTI's SOW required excavation to expand the active landfill, transportation of excavated soils to a processing area to be screened and reused for construction of a compacted 2 ft. clay layer, and installation of a geomembrane liner and geocomposite layer. The leachate collection system was expanded to the new area, tied into the existing system, and a leachate surge tank installed. Granular drainage materials, a geotextile liner, and a protective soil cover were constructed over the expanded leachate collection system. The site was restored to include erosion control of sloped areas and a temporary access road. To mobilize and perform this work, CTI furnished approved QA, ES&H, and work plan documents.



Design/Build



Los Alamos Site Office, LANL DOE EMCBC

CTI performed a 5.5-acre landfill D/B evapotranspiration (ET) landfill cap, site restoration, and infrastructure improvements at the airport landfill located in Los Alamos, NM. CTI designed and safely constructed a permanent soil erosion control system that replaced a heavily eroded cover system. Scope included:

- Preparation of site operational plans and permits;
- Design/layout of an erosion control repair and improvement plan for an eroded sloped area outside the cap limit that involves complex grading, steep slope (1H:1V) and a 24-ft tall concrete retaining wall;
- Excavation/re-grading of steep, heavily eroded slope, and reinforcement with a robust riprap erosion control system;
- Improvement of existing sedimentation basins (which eroded severely after an intensive storm) with both geosynthetics and riprap;
- Characterization, demolition, transportation, and disposal of approximately 5.5 acres of asphalt and concrete landfill cap, including 5 reinforced concrete hangar pads;
- Excavation, relocation, grading and compaction of ~4700 CY of existing solid waste material;
- Import, placement, and compaction of cover soils to construct a 5.5-acre ET cover system, including development of a phased approach to construction to minimize water infiltration into the existing landfill;
- Amendment of cover soil, seed, mulch, and install erosion control measures for the 5.5-acre ET cover system, including ~20,000 SF of 40-mil LLDPE-lined channels;
- Design and construction of an ~9500 SF, 9-inch thick reinforced concrete hangar pad, and 2000 SY of new taxi-way asphalt placement, including coordination with the County to allow for future construction of an airplane hangar and County stormwater system improvements;
- Re-grading multiple areas to restore eroded rills, slopes, drainage paths, retention and sedimentation features; and
- Inspection and air sampling from the existing landfill gas passive vents to assess the condition of the existing landfill cap.

CTI demonstrates a unique ability to seamlessly integrate engineering and construction to provide customers with value and efficiency in performing design/build projects.



Design/Build of a RCRA Compliant Mixed Waste Landfill, NV Nat'l Security Site (NNSS) NSTec

CTI is responsible for the design engineering, permitting, construction, and construction quality control of a low-level radioactive waste (LLW)/hazardous waste mixed-waste landfill at the Nevada National Security Site. CTI's overall approach to successfully accomplish the scope of work involves the use of an integrated project team with a combination of self-perform and subcontracted work; the latter performed by specialty subcontractors selected on the basis of qualifications and experience conducting similar activities.



As the prime subcontractor, CTI self-performs the majority of engineering design and construction activities. CTI's extensive landfill design experience was applied to improve upon the conceptual design and deliver an optimal solution to the design, construction, material, and regulatory constraints present at the site.

To date, CTI has successfully completed the design package. The completed design package (includes engineering report, calculations, drawings, technical specifications, engineering report, MQA/CQA and CQC Plans) was submitted to Nevada Division of Environmental Protection (NDEP) in December 2016 and is currently under NDEP's review.

Construction Quality Assurance

CTI has assisted hundreds of customers assure that construction meets required specifications and standards by performing on-site oversight, inspections, and testing. We manage a state of the art laboratory for soils and concrete samples that meet the highest standards of quality control.



Portsmouth
QA/QC
Fluor BWXT



CTI was selected by Fluor-BWXT Portsmouth (FBP) to provide Construction Quality Control (CQC) support services related to the On-Site Waste Disposal Facility (OSWDF) Infrastructure (Sedimentation Pond 2 and Raw Water Line) Project. This project demonstrates CTI's capabilities in supporting CQC/QA activities related to large scale earthwork and facility improvement projects.

- Obtained approval of all planning, safety, and quality documents and deliverables ahead of schedule to support an accelerated mobilization.
- CTI furnished all labor, materials, supplies, and equipment necessary for completion of CQC Support Services required under the Project.
- CTI provided a fully-equipped soils and construction materials testing laboratory at the Project site. Our field laboratory is an extension of our corporate laboratory that is accredited by the American Association of State Highway and Transportation Officials (AASHTO) Materials Reference Laboratories (AMRL) and validated by the US Army Corps of Engineers (USACE) in concrete, soils, aggregates, and asphalt.
- To date CTI has safely worked over 5,000 hours on the Project with zero incidents and remains under budget.



Detroit Metropolitan Airport
Runway 4L 22R
Wayne County Airport Authority (WCAA)

CTI performed a base-wide geotechnical investigation consisting of over 180 soil borings along the runway and taxiways with over 800 soils laboratory tests. The project also included cores through existing pavement up to 17-inches in thickness, on over 25,000 lineal feet of existing runway and taxiway.

Geotechnical analysis included the inspection and redesign of the existing underdrain system. As well as testing for pipe protection design and allowable bore pressure calculations for horizontal directional drill installation methods.

Prior to excavation, an extensive subsurface utility investigation was conducted via the use of as-built information in combination with utilizing ground penetrating radar, electromagnetic survey arrays and magnetometry locating equipment. The utilities were exposed by completing 'soft dig' exploratory excavations utilizing hydro-excavation equipment and a detailed existing utility map created for use in the design and construction.

CTI also performed analytical testing of excavated soils for determining proper off-site disposal options and beneficial re-use. Conduct extensive laboratory testing. Which includes performing Soil Index Testing, Soil Compaction testing with a Nuclear Density Gauge, Unconfined Compressive Strength tests, California Bearing Ratio (CBR) tests, and resilient Modulus testing of asphalt cores.

CTI also provides quality assurance inspection and testing of reconstruction operations which include placement of 18 inches of aggregate base, 8 inches of hot-mix asphalt (HMA) and 17 inches of concrete pavement. In addition, CTI is also observing the placement of underdrains, the regrading or shoulders and high-speed turnarounds.

Environmental D&D and Remediation

CTI environmental professionals, engineers, and constructors have successfully solved complex CERCLA and RCRA contamination and cleanup issues in landfills, soils, sediments, and groundwater. Our staff has investigated, developed plans, interacted with regulators, and performed cleanup for a broad range of customers

K-732 Switchyard Demolition & Dismantlement (D&D) Department of Energy (DOE) EMCBC



The K-732 Switchyard Project, Oak Ridge, TN includes the demolition and asset recovery of a Manhattan Project vintage 5-acre electrical switchyard, a comprehensive site characterization to determine the type and extent of soil and concrete contamination, the remediation of soil and concrete to meet DOE cleanup requirements, and the restoration of the site for future use as a modernized switchyard. The objective of the project is to support the reindustrialization of the East Tennessee Technology Park (ETTP) site. To date, approximately 500 tons of assets (copper and steel) have been removed and processed. The value of these assets will decrease the total cost of the project to the DOE. The D&D phase (Clin 1) and the Site Characterization (Clin 2) are currently 100% complete and finished on schedule and budget with zero incidents. The Site Remediation phase (Clin 3) is progressing which will complete the project.

- DOE approval of all planning, safety, waste management, transportation, and quality documents and deliverables. Work has been accomplished without incident with over 7,000 man-hours completed safely.
- Completion of a comprehensive site radiation survey of all equipment to be demolished and removed, and waste characterization of materials for disposal.
- Draining, shipment, and disposal of over 57,000 gallons of PCB contaminated oils from equipment.
- Safe and compliant removal of asbestos insulation and cement-asbestos board from equipment and buildings located throughout the site.
- Equipment dismantled/removed includes 4 large power transformers, 36 oil circuit breakers, 22 smaller transformers, and 5 oil storage tanks.
- Site infrastructure demolished includes support towers, 2 fire suppression system valve houses, oil pump house, bus works, disconnect switches, and static line towers.
- The removal of 3 synchronous condensers to the Y-12 site for disposal. Each condenser weighs approximately 125 tons requiring the use of a specialized subcontractor for loading, transport, and unloading at the site. A special waste permit was received for this major activity.
- The removal and recovery of underground copper wiring that traversed the area of the Switchyard footprint.

All major phases of the project are to be completed within 18 months. As Prime contractor, CTI interfaces routinely with DOE representatives, UCOR (DOE's ETTP Environmental Management Prime Contractor), the City of Oak Ridge, and Tennessee Department of Environment and Conservation (TDEC). CTI was responsible for subcontractor management including asbestos abatement, waste removal and disposal, asset recovery, equipment suppliers, and specialty transportation firms. Daily plan of the day meetings were held to safely coordinate the integration of work to be performed.



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