



Contaminated Land

Site investigation and remediation

Heightened environmental awareness, public concern for sustainable development and stringent environmental protection laws and regulations have compelled organizations to change the ways in which they operate, and to address legacy issues posed by historical contamination and land use.

From project concept to completion and beyond, WSP has the diverse skills and expertise needed to work with clients on contaminated land projects of all types and sizes, from major infrastructure and site development, to oil refineries, manufacturing sites and mine closures.

Our services

- **Site Investigation and Remediation:** Our professionals deliver site-specific solutions that address all aspects of the remediation process, from site investigation and feasibility studies to risk assessment, remedy selection, remedial design and construction management. Whether we are assisting in advancing projects toward closure, or due diligence and site development, we apply creative thinking and techniques with the universal goals of minimizing our clients' risk and restoring the environment.
- **Asset and Portfolio Management:** WSP provides corporate leaders, portfolio managers and their legal counsel with insight into reducing the cost and complexity of managing asset and liability portfolios. Our asset and portfolio management professionals, coupled with our compliance and contaminated land experts, bring comprehensive knowledge of business, structures and buildings, and contaminated media and clean-up requirements and techniques to develop cost-effective programs for managing complex challenges.
- **Brownfield and Property Development:** WSP's collaborative approach to risk-based remedial services provides maximum flexibility to developers undertaking brownfield redevelopment projects. We quickly review available data, provide comprehensive analysis of associated risks and evaluate future site uses to anticipate the path to completion and keep projects on schedule. Our innovative site restoration and reuse solutions maximize in-situ technologies and integrate key remedial design elements with future site redevelopment plans, to promote redevelopment that is economically, socially, and environmentally sustainable.
- **PFAS Contamination Identification and Remediation:** We have specialized expertise managing ubiquitous and persistent per- and polyfluoroalkyl (PFAS) substances. Our team has multidisciplinary capabilities and experience to interpret the evolving financial, legal and regulatory landscape; recognize and define current and likely future obligations; and minimize impacts on transactions, operations and employees. We regularly incorporate PFAS into Phase 1 environmental site assessments and have the experience to investigate and remediate PFAS.
- **In Situ Remediation:** WSP's approach to in situ remediation is practical, yet aggressive and includes collecting cost-effective, predictive and actionable data using advanced diagnostics before remedy implementation. The WSP philosophy of practical innovation is regulatory closure focused and often intended to replace costly under-performing technologies. We have a track record of in situ remediation projects of all types that meet or exceed expectations.
- **Sediment Remediation and Dredged Material Management:** From harbors to river basins, lakes and wetlands, we have extensive experience developing the most sustainable, cost-effective and environmentally suitable solutions. We perform permitting, site screening and sediment characterization, and identify beneficial use opportunities such as marsh creation or habitat restoration.

Our experience

HEXAVALENT CHROMIUM AFFECTED DEEP SOIL

A manufacturing company and primary employer in a rural Kansas town was facing a \$5,000,000 price tag to clean up a legacy hexavalent chromium release using conventional technologies proposed by others. With the aid of three-dimensional data visualization software, WSP developed an innovative, minimally intrusive strategy to keep the facility operational during site clean-up activities at a fraction of the conventional technology cost. The treatment was successful; no further action determination was issued by the regulating authority and the facility was in operation throughout the project.

RAPID PFAS REMEDIATION FACILITATES SALE AND REDEVELOPMENT

While conducting due diligence for the purchase of a former fragrance manufacturing facility in Avenel, New Jersey, WSP identified historical discharges from an aqueous film forming foam (AFFF) fire suppression system. Follow-up investigations identified PFAS contamination in soil and groundwater. To facilitate the property transaction, we managed dewatering, excavation and off-site disposal of over 10,000 tons of contaminated soil under the requirements of the New Jersey Licensed Site Remediation Program. We also performed liability cost estimating that resulted in an indemnification for future costs related to PFAS cleanup and a significant reduction in the property sale price. WSP is providing post-transaction support for the property redevelopment.

IN SITU TREATMENT REPLACES COSTLY PUMP AND TREAT AT RCRA SITE

WSP was commissioned to design and install a passive groundwater treatment system to address chlorinated volatile organic compounds in fractured bedrock groundwater. The passive system replaces underperforming hydraulic containment system.

A low cost two-phase targeted pre-design study was performed using advanced diagnostics to define CVOC-affected flow zones within the bedrock and to directly demonstrate efficacy of the contemplated in situ amendment formulation. Full-scale implementation and treatment performance went as smoothly as predicted by the pre-design study. The passive treatment system is saving the client greater than \$100,000 per year in operation and maintenance costs of the now abandoned pump and treat system.

SMART REMEDIATION OF PETROLEUM LOCATED IN BEDROCK

WSP provided site assessments for 148 underground storage tank sites in Rock Springs, Cheyenne and Casper, Wyoming which were not on a path to closure. We evaluated impacts to soil and groundwater to determine what level of remediation would be necessary to achieve regulatory compliance and created an innovative and efficient design solution to address the impacts. Our work included excavations, active air sparging /soil vapor extraction systems, injection programs and natural attenuation programs. The technological advances over the life of the program have resulted in closure of more than 50 sites to date.

UNPRECEDENTED CLOSURE OF LARGE INDUSTRIAL SITE WITH DNAPL IMPACT

Our client needed site closure to begin redevelopment at the Gates Development Corporation property. After encountering extensive dense non-aqueous phase liquid (DNAPL) on site, WSP used our TerraCert® program to conduct widespread soil, groundwater and soil vapor sampling. We used that data to characterize the geometry and magnitude of the plumes, create an innovative design, implement appropriate successful remedies, and monitor the effectiveness of the treatment. Our innovative solution allowed Gates to eliminate future liability and to rapidly divest the property for redevelopment for both residential and commercial reuse.



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For more information on water stewardship, or our sustainability, energy and climate change services, please contact:

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