

# Rail Industry Expertise

*Keeping Your EHS Needs on Track. Accelerating Value.*



With billions of dollars in assets to operate, maintain or expand, you know that today's needs may be significantly different than tomorrow's challenges.

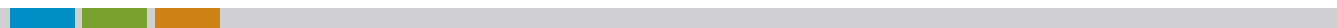
Whether you need a partner who can proactively plan for all of your compliance needs; certified industrial hygienists (CIHs) adept at navigating airborne challenges such as crystalline respirable silica; emergency responders specialized in hazmat leaks and derailment containments; or an environmental expert adept at stormwater management, remediation, Spill Control and Countermeasure (SPCC) plans; or other compliance challenges, we can help.

We can optimize your environmental, health, and safety (EHS) program; protect and extend the lifecycle of your rail assets; help you achieve compliance; protect your workers; mitigate your risk; and maximize your savings.

At Apex, we're your partners in creating sustainable and effective solutions for your routine and unexpected EHS challenges.

[www.apexcoss.com](http://www.apexcoss.com)





For over 30 years, we have delivered award-winning services including information management, due diligence, environmental assessment and remediation, engineering, regulatory compliance, water resource management, utilities, and land planning. We partner with our clients to identify, clearly define and meet their project objectives and goals. Our exceptional and consistent service, specialized technical capabilities, creative pricing strategies, responsiveness, and innovative expertise truly distinguishes Apex from its competitors. With nearly three decades of Class I rail industry expertise, ranging from highly complex subsurface remediation projects to everyday environmental compliance requirements, we can help keep you on track and accelerate your operational performance.

## Moving the Transportation Industry Forward

Rail is the most environmentally-sound, land-based mode of transportation—four times more fuel efficient than trucks. And our nation's railroads are well-positioned to deliver even greater environmental excellence. Companies like yours have moved from reactive initiatives to proactive measures that increase efficiency while generating savings and year-over-year returns on their investments. Companies like ours have helped make that happen.

But let's face it, successful environmental management has a reactive element to it as well. Between ever-evolving regulations and emerging risks, you can benefit by partnering with companies who understand the complexity and nuances of those challenges. Consider the new crystalline respirable silica standards—just dissecting the rule's application can be overwhelming. Do you know whether your previous air monitoring permissible exposure limit (PEL) is still valid? Which tasks are covered under Table 1? When to conduct medical surveillance? Even one rule like this can have myriad time-consuming and liability-producing implications.

Poised to address that rule and all of your industrial hygiene needs, our team of OSHA, Environmental Protection Agency (EPA), and state-accredited industrial hygiene inspectors and management planners; abatement designers; CIHs; professional engineers; construction managers; health and safety professionals; toxicologists; chemists; and microbiologists delivers asbestos, lead, moisture/mold, vapor intrusion, and indoor air quality expertise.

From sampling, identifications, and inspection to analyses, risk assessments, and planning, we've got you covered. We provide detailed cost estimates, site-specific modeling, design, management, mitigation, abatement, system implementation, hazard awareness communication, training,

and community relations. While our industrial hygiene (IH) expertise spans many specialties, clients often turn to us for our air exposure assessment surveys and monitoring. Led by our CIH team, we evaluate our clients' potential exposure to airborne chemical hazards such as dusts, fumes, and mists from hexavalent chromium, crystalline respirable silica, hydrogen sulfide, radon, and/or metalworking fluids; follow National Institute for Occupational Safety and Health (NIOSH) or OSHA sampling and analytical methods using state-of-the-art sampling equipment to obtain the highest quality, defensible data possible; provide recommendations based on sound science; and apply the most cost-effective, innovative, compliant, and site-specific approaches to minimize risk and maximize health and safety. Our IH services include a review of Safety Data Sheets, risk and hazard identification, exposure monitoring, exposure control plans, corrective action programs, and comprehensive training.

### Our services are as comprehensive as our coverage, including:

- Compliance and permitting
- Natural and cultural resource management
- Sustainability, CSR, and ESG
- Environmental statistics and analytics
- Environmental management systems
- Spill response/emergency response
- Remediation
- Risk and liability management
- Stormwater and wastewater management
- SPCC plans
- Health, safety, and ergonomics

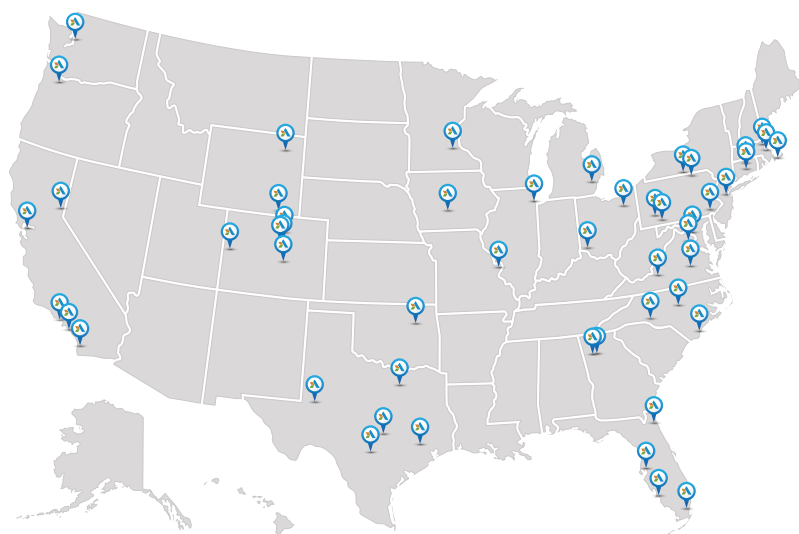
## What Sets Apex Apart

Beyond our in-depth rail experience, our ARTEMIS<sup>SM</sup> solution can help you track, manage, schedule and maintain your assets; meet your compliance requirements; and drive cost efficiencies, while using predictive analysis to minimize your risk and improve your operational performance.

With mobile data collection tools, a customizable interface, and a centralized cloud-based platform, ARTEMIS<sup>SM</sup> expedites data submissions by field staff; improves data accuracy; and reduces the cost from re-keying data/secondary QA/QC processes, while delivering quick and reliable results. By facilitating the data management process, it streamlines

environmental, health and safety programs and has already been proven to generate a 20-30 percent efficiency savings over traditional approaches.

Another way we differentiate ourselves is our safety focus. We put safety first. Not only is it part of our business, it is foundational to our culture. Apex's WorkSafe program enables us to observe and reward positive safety behaviors, address hazards, and track all of our safety measures. Our stringent requirements—which exceed industry standards—reflect our commitment to a safety-conscious work environment.



## National Presence. Local Expertise.

Apex operates in all 50 states and maintains a highly capable and diverse team of scientists, geologists, engineers, technicians, and information management specialists.

## Leading the Industry

### Company Recognition

- Ranked in the Top 30 All-Environmental Firms by *ENR* Magazine (#13 in 2022)
- Ranked in the Top 200 Environmental Firms by *ENR* Magazine (Since 1997) (#63 in 2022)
- Continually Ranked as a Zweig Group HOT Firm Winner

### Client Support

- *EPA State Excellence in Supporting Reuse Award* for our 2 Oregon DEQ Superfund site projects
- *Performance Excellence Award* from our confidential aerospace client for delivering stellar service





## Representative Projects



### Emergency Response Services

#### *Premier Transportation Company • Charleston, SC*

Apex was contracted to provide derailment support. Within an hour of notification, that evening our team members were on-site. Approximately 5,000 gallons of diesel fuel was released as a result of the derailment. Apex worked with our client and the excavation contractor to delineate and direct soil excavation activities while the active rail line was out of service and being repaired. Apex utilized ultraviolet fluorescence (UVF) to determine the soils which would require removal both laterally and vertically. Upon completion of excavation activities, final soil confirmation samples were collected for laboratory analysis as required by the regulatory agency. Using the real-time data approach, we helped our client obtain clean closure of the site within two days.

### Site Closure Facilitation

#### *Largest National Freight Railroad Network • Brownwood, TX*

Apex conducted free product recovery at the rail yard to minimize impacts and prevent potential migration. Texas Commission on Environmental Quality (TCEQ) characterized the site as low priority based on site conditions. After review of detailed site characteristics concerning plume size and stability, the lack of probable free product recovery based on site lithology and remaining free product, and the lack of potable groundwater use in the area, our team provided documentation of priority-based site characteristics and a request that the site be closed. The TCEQ accepted the information and closed the site. Closure saved BNSF hundreds of thousands of dollars in remedial operation and maintenance that was held in environmental reserves.



### Assessment and Remedial Alternative Selection

#### *Former Transportation Rail Yard • Boston, MA*

Our Apex team member directed the assessment activities at a former rail yard, located adjacent to Harvard University, which was slated for sale. Using an on-site laboratory, the trichloroethylene (TCE) plume was fully delineated both vertically and horizontally within a period of two weeks across seven acres. In addition, additional data was collected to determine the appropriate remedial alternative to meet the expedited timeline for the sale of the property and various alternative approaches including In-Situ Chemical Oxidation (ISCO), enhanced reductive dechlorination, and Electrical Resistance Heating (ERH) were evaluated. Based on the limited timeframe, the client opted to use ERH, followed by ISCO and sodium persulfate for polishing, as needed, to address the source area and enhanced reductive dechlorination using lactate and emulsified vegetable oil for the dilute plume.

### Turnkey Asbestos Services

#### *Premier Transportation Company • Greensboro, NC*

Apex provided turnkey asbestos services for a building that is part of the Downtown Greensboro Historic District. Our team reviewed two asbestos inspection reports provided by the building owner to assess and compare materials identified in previous reports with actual site conditions, prepared a written scope of work, and conducted the pre-bid meeting with the contractors. Upon awarding the bid to a contractor, Apex provided onsite project management and air monitoring during the removal of friable and non-friable asbestos containing materials.



### Hexavalent Chromium Release Assessment and Remediation

*National Rail-Based Transportation Company • Rosindale, NC*

Our client experienced a chromic acid release as the result of a train derailment in the 1990s. This hexavalent chromium and antimony impact was initially addressed using pump and treat technology which was subsequently shut down for a natural attenuation alternative. After approximately a decade of monitoring that had been completed by others, our Apex team member evaluated the geochemical conditions of the site and historical data and determined that remedial goals would not be achieved for 40 years or more.

Based on the results of a feasibility study, it was determined that active remediation would not only be more cost-effective, it would limit the client's future liability. The site was enrolled into the North Carolina Registered Environmental Consultant (REC) program for voluntary remedial action. Our team member completed the necessary workplans, assessment, permitting, and remedial action plan to move the site toward a final remedial solution. To remediate the site, approximately 40 injection points were installed across the plume within a network of reactive and a pilot test was conducted that involved injecting emulsified oils. As a result, the client achieved a 85% reduction in hexavalent chromium concentrations, as observed in the pilot test.



### Assessment and Remediation

*National Rail-Based Transportation Company • Multiple North Carolina and South Carolina Sites*

Our Apex team member managed various sites for our client. These included the removal of underground storage tanks (USTs), limited site assessments, excavation, and disposal of impacted soils; closure of sites with deed restrictions; groundwater sampling and ongoing monitoring; and the property assessment of a former textile mill and battery manufacturing facility which was being considered for purchase. To limit future liabilities, a Brownfields Agreement (BFA) was obtained for the referenced site, which is impacted with chlorinated solvents and battery waste landfill remains. With the BFA, the client gained the ability to expand the adjacent intermodal yard for future growth potential.

### Rail Car Derailment RI/FS

*National Rail-Based Transportation Company • McCormick, SC*

Our Apex team member developed a work plan, Health and Safety Plan, and sampling and analysis plan; directed a post-emergency response soil removal; and installed a soil vapor recovery system. The extent of toluene, ethylbenzene and xylene constituents in soil, sediment, and groundwater was assessed and a risk assessment was conducted to develop site-specific remedial goal objectives. Monitored natural attenuation analysis, based on site-specific hydrogeologic conditions, was performed and both the natural monitored attenuation alternative and the selection of the phytoremediation areas were negotiated with the regulatory agencies and all affected landowners.



### Site Assessments and Remedial Services

#### Construction Authority • California

Apex conducted Phase I and II Environmental Site Assessments (ESAs) and remedial programs at sites with confirmed contamination for 89 parcels along the Blue Line commuter rail corridor being constructed from downtown Los Angeles to downtown Pasadena. The parcels consisted of mixed industrial, pipeline, commercial, retail, underground storage tank, residential, and other sites. All work was completed in accordance with ASTM Standard E 1527-00.

Our initial scope, conducting concurrent Phase I ESAs on the 89 parcels, was to identify recognized environmental conditions that could impact soil and groundwater beneath the railroad right-of-way. The project was designed to reduce cost and maximize data for a corridor style Phase I study comprised of 10 area studies. For each area, we then provided detailed reports for every identified parcel in the study. Twenty sites were identified with recognized environmental conditions and we conducted Phase II ESAs to assess the extent and magnitude of contamination.

Apex completed the Phase I ESA program under a compressed 90-day schedule and within budget—including all assessments and the preparation of Project Summary and Area reports.

During construction activities, we were contracted by the rail line construction contractor to conduct remediation on six of the 20 sites and provide environmental services on an “as needed” basis for other potential environmental conditions along the railroad right-of-way. By providing quick response for assessment, characterization, and remediation of ten sites with impacted soil, we met the railway construction schedule.



### Derailment Analytical Services for Site Closure

#### Largest National Freight Railroad Network • Crawford, TX

When a release of ethanolamine from a derailment flowed along surface drainage and impacted shallow soil, groundwater monitoring wells were installed to determine potential groundwater impact. Based on the complicated analytical procedure for ethanolamines and the Texas Risk Reduction Program (TRRP) protective concentration levels (PCLs) established, the TCEQ did not accept the laboratory detection limits of the samples and ordered that three additional groundwater monitoring wells be installed through approximately 60 feet of bedrock to encounter the first potable water supply. In order to develop an argument against the need for additional wells, Apex provided a strong technical argument presenting analytical procedural information for ethanolamine and its chemical behavior in the natural environment.

After over a year of negotiations, the TCEQ accepted the technical information and the site was approved for closure. Tens of thousands of dollars were saved by negotiating away the requirement for further assessment.





### Phase I and II ESAs

#### *Railway Company Vacant Property • Amarillo, TX*

Apex performed a Phase I ESA that involved approximately 20,000 square feet of undeveloped property located adjacent to an existing client Right-of-Way. Our client was interested in purchasing the property for development as a parking lot and office/training facility. The Phase I ESA revealed two potential environmental concerns, prompting the recommendation of limited Phase II ESA actions. The first concern was the potential existence of two USTs which were identified as in existence in 1913. The second concern was based on visual evidence of broken asphalt dispersed across the property that indicated the possible use of unregulated fill material on the subject property. Our Phase II activities included the advancement of six shallow soil borings and analyses of collected soil samples for volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), and Resource Recovery and Conservation Act (RCRA) metals. Action Levels were developed for the analytes based upon Texas Risk Reduction Program (TRRP) at that time. Laboratory results indicated that TRRP Action Levels were exceeded relative to a few select RCRA metals and these soil samples were further analyzed using the Synthetic Precipitate Leachate Procedure (SPLP). Following the SPLP analysis, concentrations were compared to residential Tier I Protective Concentration Levels (PCLs) for each metal. The only PCL exceedance was for lead in one sample. At this point, Apex calculated a site-specific critical soil PCL for lead within the subsurface soil. Based upon the calculated site-specific PCL, we demonstrated to our client that the onsite lead concentrations did not pose an environmental risk to the subject property under either residential or commercial/industrial land use.



### Stormwater Pollution Prevention Plan (SWPPP) Inspections

#### *Largest National Freight Railroad Network • Amarillo, TX*

In accordance with their SWPPP requirements, Apex inspected four rail yards. Using a checklist of appropriate items, we tracked the site compliance of each individual yard. We performed quarterly stormwater inspections of each site, noting observations while tracking and maintaining quarterly rain gauge data. Our team also collected water samples manually during a rain event or from a Vortex sampler located at each yard and maintained field copies of the four SWPPP plan files.

### SPCC Inspections

#### *Largest National Freight Railroad Network Rail Yards • Amarillo, TX*

Based on the client's SPCC plan requirements, Apex provided monthly inspections of two rail yards. We used checklists of appropriate items to track SPCC/general compliance of each individual yard and conducted a general site inspection at a yard no longer required to have an SPCC plan. The checklists, compiled monthly, were submitted to our client for review and signature and our team provided the maintenance of the field copies of both the SPCC plan files and the general site files.

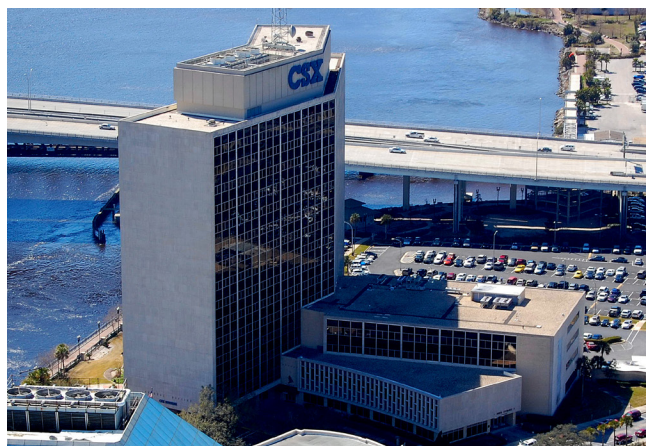


### Spill Response and Soil Remediation – Overflow of Diesel/Water from Frac Tank

**Largest National Freight Railroad Network • Amarillo, TX**

During construction upgrades of a Yard oil/water separator, a frac tank was being used for temporary liquid storage. On two consecutive days, negligence associated with the closure of water spigots on the frac tank created a combined release of approximately 10,200 gallons of oil/diesel/water to the ground. Apex was contacted by our client to provide technical oversight of the site remediation activities, waste profiling as necessary for disposal, and confirmation sampling and reporting. Vacuum trucks were used to remove free standing liquids from the onsite soils. Offsite impact was managed with sorbent booms and minimized such that no sewer inlets or other waters were impacted. The first spill accounted for approximately 60 percent of the total recovered liquids and 100 percent of the offsite impact. Our team utilized a three-staged excavation of impacted soils after the removal of all free liquids. Following each stage of excavation, we collected confirmation samples to assess progress and obtain cleanup goals. Excavation of the offsite area between the curb and fence line was limited to six inches in depth due to the presence of a fiber optic line. Apex made a surficial application of Micro-Blaze™ throughout the fiber optic line area to enhance microbial degradation of residual TPH impacted soil.

Our final reporting included the submittal of a Spill Response and Soil Remediation Report to our client, the TCEQ, and the EPA. The spill was deemed adequately remediated and no further action was required.



### Superfund Site Remediation

**Nocatee-Hull Former Creosote Site • Nocatee (Hull), FL**

Our Apex team member assisted the client with the CERCLA remedial action for this site which covers three separate areas: a 38-acre former creosote wood treating plant area; a portion of the adjacent 35-acre Peace River floodplain area, which includes a borrow pit (a large area where soil has been dug up), stream, and floodplain to the west; and a portion of a 45-acre rural, residential area on the east side of Hull Avenue, referred to as the Oak Creek area. Historic operations contaminated the site's soil, groundwater, and sediment. The project included the excavation and consolidation of surficial impacted soils, in-situ stabilization and solidification of deep impacted soil, relocation of Hull Avenue to facilitate soil excavation, installation of a 2,200 slurry wall that will be keyed into a low permeability clay approximately 75 feet below ground surface, and the installation of a consolidation cap system. The Apex team member's role spanned the quality control of slurry wall operations, surficial impacted soil excavation/consolidation, stormwater management, procurement and coordination of subcontractors and material suppliers, submittal log and quality control document maintenance, monitoring and controlling project costs, scheduling, and payment preparation.





### 3D Subsurface Assessment

#### *National Freight Railroad Network Rail Yard • Amarillo, TX*

A chlorinated solvent plume in the Ogallala Aquifer of north Texas was identified at the client rail yard in the 1990s. Apex conducted numerous shallow (140' depth) and deep (260' depth) investigations which were unable to identify a source of the chlorinated solvents onsite.

We provided a 3D visualization of the aquifer based on numerous subsurface assessments using Environmental Visualization Software (EVS). EVS confirmed that the potential source may exist off-site from a historic chemical usage area. Further historic research was acquired of the area which determined that a degreasing area utilizing chlorinated solvents was located in this area. Based on this information in coordination with the EVS data, our client agreed to pursue an Innocent Operator/Owner standpoint with the TCEQ. The Innocent Owner/Operator Program (IOP) application was accepted and the Site Investigation Report presenting our findings is currently in technical review.



### Soil Removal and Facility Closure

#### *Premier Transportation Company • North Carolina*

Apex was engaged to take over for another consultant and complete the removal of impacted soils along an active rail line. The former consultant did not utilize real-time data and after multiple mobilizations, they still did not have the limits of impact identified for site closure. As a result, costs were escalating. In one mobilization using the UVF, Apex assessed the impacts and directed the excavation activities in this active intermodal facility to obtain closure of the incident.

### Derailment Spill Response

#### *Largest National Freight Railroad Network • Slaton, TX*

Apex managed the spill response of a 500,000 gallon liquid fertilizer release from an adjacent facility onto a client right-of-way. Through expedient assessment and reporting, the site was managed under the Texas spill rules. Expert report and project documentation was key in assisting legal counsel with cost recovery litigation resulting in a settlement of \$1.8M (over 90 percent).

*Railroad Research Facility • Pueblo, CO*

In cooperation with the our client, Apex staff led the development and implementation of the technology center Environmental Management System and continues to support annual energy reporting including greenhouse gas emissions. Due to extensive historical site knowledge, our staff assisted in multiple National Environmental Policy Act (NEPA) assessments related to proposed rail projects. Site audits spanned hazardous, solid, and universal waste; USTs; aboveground storage tanks (ASTs); Used Oil; SPCC plans; drinking water; an industrial wastewater treatment system; and large capacity septic systems.



Our staff's air pollution control programs included emission inventories, calculations, and notifications to regulatory agencies, ozone depleting compounds, asbestos surveys, and abatement projects. Our staff routinely performed chemical inventories and prepared Tier II reports to both state and local emergency planning agencies. Other initiatives included the removal and installation of USTs and ASTs, locomotive fueling facilities, an industrial wastewater treatment system, and lined surface impoundments; and the development of all environmental reporting requirements to the EPA, state, and local agencies.



### Annual Contract Asbestos and Related Industrial Hygiene Services

**MARTA • Atlanta, GA**

MARTA provides affordable mass transit via trains and buses to the City of Atlanta and the surrounding communities. They began in 1971 and continue providing services today as the ninth-largest rapid-transit system in the United States.

For over 20 years, Apex has provided annual support including asbestos, lead, and universal waste surveys for over 5 million feet of building and facility space, industrial hygiene support services including worker exposures assessments for contaminants (chemicals, noise, mold, metals, dust, radiation, etc.), indoor environmental quality (IEQ) assessments, exhaust system ventilation evaluations, confined space management services, ergonomics risk evaluations, safety audits and other miscellaneous services.

In addition, the contract includes managing asbestos-containing materials (ACMs) for over 90 buildings within multiple facilities, and conducting asbestos abatement work for building renovation activities and for large-scale projects.

Apex also provides safety auditing, safety program development and annual training for MARTA's workforce to ensure that maintenance and operation workers are familiar with hazards related to confined space and regulated materials including asbestos.



### Health and Safety Consulting Services

**National Railroad Passenger Corporation • Nationwide**

Providing passenger rail services to over 500 destinations in North America, this rail client operates over 20,000 miles of track and serves over 30 million passengers annually.

Apex has supported this client for more than 10 years, providing asbestos and lead management services, industrial hygiene consulting services, IEQ assessments, noise studies, EMF assessments, climate change services and ergonomics assessments, often times mobilizing rapidly to ensure the clients' operational continuity.

Apex has also provided incident investigation services and root cause analysis for emergencies with the goal of continuous improvement and in support of a robust health and safety culture.



