



# Conestoga-Rovers & Associates Project Summary

## KEY PROJECT ELEMENTS

- Bulk Fuel Terminal
- Aboveground Storage Tank
- Underground Storage Tank
- Solar-Powered Ozone Injection System

## FORMER BULK FUEL TERMINAL REMEDIATION JUNEAU, ALASKA



CLIENT: CONFIDENTIAL  
DURATION: 2006 AND ONGOING  
COST: \$150,000

The site is in Juneau, Alaska, which is situated on filled tidal wetlands at the southern terminus of the Mendenhall Valley. The site is a former bulk fuel terminal located on the northern portion of the Juneau International Airport. The former bulk terminal consisted of two 25,000-gallon aboveground storage tanks (ASTs) and one 25,000-gallon underground storage tank (UST). The facility operated from approximately 1958 to 1987.

CRA was retained by the client in 2006 when a property adjacent to the site was proposed for redevelopment and impact to shallow soil and groundwater seeps were observed during the initial geotechnical assessments for the proposed development. CRA completed 20 shallow soil borings to assess the site subsurface conditions and to investigate whether petroleum hydrocarbons were present in soil and groundwater beneath the proposed tank farm area. In 2006, the Alaska Department of Environmental Quality (Alaska DEQ) approved a Soil and Groundwater Management Plan developed by CRA in the event that future development at the Juneau International Airport tract encounters contaminated material relating to the former UST site.

In 2007, CRA installed an ozone injection remedial system in a monitoring well to initiate groundwater remediation using chemical oxidation for the diesel range petroleum hydrocarbon plume. CRA proposed the safest alternative for the active tank farm to expedite site remediation and accelerate site closure. The solar-powered ozone injection device operates by drawing air from the surface down into a cold-corona discharge chamber where ozone is generated and mixed with air at a rate of one to two percent by volume. The mixture is injected into surrounding groundwater through an inert fine-pore, heat-bonded silica diffuser. The diffuser creates ozone/oxygen bubbles 0.5 to 2 millimeters in diameter that rise through the surrounding saturated soil, oxidizing dissolved petroleum hydrocarbons in the groundwater and the sorbed residual petroleum hydrocarbons in the soil.

The system is powered by a solar panel array, requiring no power source in the active tank farm. No greenhouse gases are generated by this remedial effort, making it the safest and greenest approach until future site work must occur.

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