

Title	<h2 style="color: #0056b3;">Changing the Paradigm of Legacy Rail Yards with Residual LNAPL</h2>
Location	St-Albans, Vermont
Project	A demonstration of limited LNAPL mobility at a diesel impacted rail yard site
Regulatory Context	Risk based approach under VT DEC Corrective Action Guidance (Nov. 1997)
Sustainable elements/approach	<p>The Site was a railyard in Vermont operated for nearly 100 years by CN Railway (CN) but now operated by a third party. LNAPL impacts are present due to historic and current operations. There was no mechanism for addressing residual LNAPL in Vermont.</p> <p>Historical or previous LNAPL recovery was via a groundwater remediation system (GRS) and bailing, which operated from 1997 to 2005 and recovered a total of 1,100 gallons. Post-GRS shutdown, the LNAPL thicknesses in monitoring wells were stable (average of 0.06 ft in GRS area with a maximum of up to 1.5 ft. It was shown through an LNAPL mobility assessment that additional recovery is not feasible.</p> <p>CN met with third party operator to understand their operations and transfer responsibilities and conducted several meetings with regulators to help them differentiate the Sites and demonstrate residual LNAPL is low risk.</p> <p>CN performed a sustainability evaluation to examine the impacts and benefits of various management approaches based on the premise that risk is low based on the various lines of evidence presented in the LNAPL mobility study. The approaches included Alternative 1 = Risk Based Closure; Alternative 2 = Groundwater Extraction and Treatment System; and Alternative 3 = Passive LNAPL Recovery. The results of the sustainability evaluation demonstrated that:</p> <ol style="list-style-type: none"> 1. Environmental <ul style="list-style-type: none"> • For all alternative, GHG driven by mobile sources resulting from transportation of staff and waste disposal to/from site • The majority of Alternatives 2 & 3 energy requirements result from continuous operation of pumps and compressor, respectively • Selection of Alternative 1 (risk based closure) reduces the overall estimated environmental impacts (mostly energy usage and air emissions) of remediation activities by 90% 2. Social <ul style="list-style-type: none"> • Selection of Alternative 1 (risk based closure) reduces health and safety risk (no product handling, no confined space vault entries, less mechanical equipment operation, less transportation requirements, shortened remedy life cycle) 3. Economic <ul style="list-style-type: none"> • Selection of Alternative 1 (risk based closure) significantly reduces cost and CN's environmental liability • <p>VT DEC closed CN portion of the site based on sound science demonstrating low risk.</p>
Value Added	<ul style="list-style-type: none"> • As shown in the sustainability evaluation the impacts of continuing operation of the system and monitoring of the site outweighed the benefits • Early and frequent stakeholder engagement contributed to success of project • Cost efficiency: CN was spending nearly \$100K per year at the Site dealing with residual LNAPL and stormwater monitoring