TABLES

SKYKOMISH SCHOOL CLEANUP ALTERNATIVES
EVALUATION WORK PLAN
Skykomish School
105 6th Street North
Skykomish, Washington

Farallon PN: 683-019

Table 1
Technology Screening
Skykomish School
Skykomish, Washington
Farallon PN: 683-019

Screened Technologies[1]	MTCA Threshold or Other Requirements: Protect Human Health and the Environment	Comply With Cleanup Standards	Comply With Applicable State and Federal Laws	Provide for Compliance Monitoring	Provide a Permanent Solution to the Maximum Extent Practicable	Consider Public Concerns	Provide for a Reasonable Cleanup Time Frame	Retained for Further Evaluation?	Comments
Containment[2]									
Capping[3]	X	X	X	✓	X	✓	X	No	Does not reduce contaminant concentrations or mitigate migration.
Slurry Wall[4]	X	X	X	✓	X	✓	X	No	Does not reduce contaminant concentrations or mitigate potential exposure routes.
Permeation Grouting[4]	✓	✓	✓	✓	✓	✓	✓	Yes	
Removal[2]									
Excavation[3,4]	✓	✓	✓	✓	✓	X	✓	No	Excavation to the depths required would threaten the School structure.
Extraction[2]									
Skimming[4]	X	X	X	✓	X	✓	X	No	Would not meet cleanup standards within a reasonable time frame.
Recovery Trenches[4]	X	X	X	✓	X	✓	X	No	Would not meet cleanup standards within a reasonable time frame.
In Situ Treatment[2]									
Bioventing[3]	X	X	X	✓	✓	✓	X	No	Would not meet cleanup standards within a reasonable time frame.
Chemical Flushing[4]	✓	✓	✓	✓	✓	✓	✓	Yes	
Hot Water / Steam Flushing[4]	✓	✓	✓	✓	✓	✓	✓	Yes	
In-Situ Oxidation[4]	✓	✓	✓	✓	✓	✓	✓	Yes	
Enhanced Aerobic Biodegradation[5]	✓	✓	✓	✓	✓	✓	X	No	Would not meet cleanup standards within a reasonable time frame.
Natural Attenuation[5]	X	X	X	✓	X	✓	X	No	Would not meet cleanup standards within a reasonable time frame.
Thermally Enhanced Soil Vapor Extraction [4,6]	✓	✓	✓	✓	✓	✓	✓	Yes	
Ex Situ Treatment[2]									
Thermal Desorption[3]	✓	✓	✓	✓	✓	X	✓	No	Requires excavation that would threaten the School structure.
Cement Incorporation[3]	✓	✓	✓	✓	✓	X	✓	No	Requires excavation that would threaten the School structure.
Bioreactors[5]	X	X	X	✓	X	✓	X	No	These technologies are applicable to groundwater cleanup, and do not address contaminated soil or NAPL. They may be used individually or in combination to augment application of other technologies
Phase Separation[5]	X	X	X	✓	X	✓	X	No	
Precipitation[5]	X	X	X	✓	X	✓	X	No	
Filtration[5]	X	X	X	✓	X	✓	X	No	
Carbon Adsorption[5]	X	X	X	✓	X	✓	X	No	
Oxidation[5]	X	X	X	✓	X	✓	X	No	
Disposal[2]									
Commercial Landfills[3]	✓	✓	✓	✓	✓	X	✓	No	Requires excavation that would threaten the School structure.
Reuse[2]									
Recycling as Off Specification Fuel[4]	X	X	X	✓	X	✓	X	No	Applicable to NAPL, and does not address contaminated soil or groundwater. May be used to augment application of other technologies.
Discharge[2]									
NPDES Discharge[5]	X	X	X	✓	X	✓	X	No	Neither discharge nor reinjection is implementable as a primary remedial technology; however, either may be required to augment application of other technologies.
Reinjection[5]	X	X	X	✓	X	✓	X	No	

NOTES:

[1]Technologies identified and screened for use in developing remedial alternates in the Final Feasibility Study (RETEC 2005)

[2]Response action classification.

[3]Technology identified in Final Feasibility Study (RETEC 2005) as applicable to petroleum hydrocarbons in soil.

[4]Technology identified in Final Feasibility Study (RETEC 2005) as applicable to LNAPL.

[5]Technology identified in Final Feasibility Study (RETEC 2005) as applicable to Dissolved Petroleum Hydrocarbons in Groundwater

[6]Thermally enhanced soil vapor extraction eliminated from consideration in Final Feasibility Study (RETEC 2005) and retained for further consideration

NAPL = Nonaqueous-phase liquid

NPDES = National Pollutant Discharge Elimination System

RETEC = The RETEC Group, Inc

Shaded = Technology retained for further consideration

✓ = Meets criterion

X = Fails to meet criterion

Table 2
Summary of Applicable Cleanup Alternatives
Skykomish School
Skykomish, Washington
Farallon PN: 683-019

Remedial Technology	Cleanup Alternative Components
Permeation Grout	• Injection of Portland Cement **Or** • Injection of Portland Cement with Additives **And Possibly** • Groundwater Extraction
Chemical Flushing	• Injection of Soap Solution **Or** • Injection of Co-Solvent Solution **And** • Groundwater Extraction
Hot Water/Steam Flushing	• Injection of Hot Water **Or** • Injection of Steam **And** • Groundwater Extraction • Soil Vapor Extraction
In-Situ Oxidation	• Injection of Heated Sodium Persulfate **And** • Groundwater Extraction • Soil Vapor Extraction **Or** • Injection of Regenox®
Thermally Enhanced Soil Vapor Extraction	• Resistive Thermal Heating **Or** • Conductive Thermal Heating **And** • Soil Vapor Extraction