



SVE/Groundwater Treatment System
Steel Skids
NES 09-282 (SVE)



NES was selected to fabricate an integrated SVE/Groundwater Treatment system for an industrial manufacturing facility in Virginia. The SVE system was designed and fabricated with a sound attenuation enclosure in order to address property owner sound requirements and included equipment for liquid condensate treatment and off-gas conditioning prior to vapor treatment. The Groundwater Treatment system was designed and fabricated for use with the customer's proprietary nutrient injection process to target contaminated hot spots within the subsurface and included multiple analytical instruments to optimize performance and monitor the effectiveness of the remediation approach.

Design Parameters

Site Contaminants	Chlorinated solvents
SVE System	1,200 scfm at 85 inches wc vacuum at the moisture separator inlet with carbon for vapor treatment
Site Power	480 VAC, 3 phase
NEC Area Classification	Non-Classified system interior and exterior

System Equipment

SVE	Rotary lobe positive displacement blower (40 hp)
Condensate Treatment	Liquid phase carbon
Off-Gas Conditioning	Air-to-water heat exchanger with refrigerated chiller
Off-Gas Treatment	Vapor phase carbon
Controls	PLC with remote operation, remote notification, data-logging, and VFD operation for adjusting SVE blower performance
System Enclosure	Steel skids with sound attenuation and component enclosures





SVE/Groundwater Treatment System
Steel Skids
NES 09-282 (GWT)



NES was selected to fabricate an integrated SVE/Groundwater Treatment system for an industrial manufacturing facility in Virginia. The SVE system was designed and fabricated with a sound attenuation enclosure in order to address property owner sound requirements and included equipment for liquid condensate treatment and off-gas conditioning prior to vapor treatment. The Groundwater Treatment system was designed and fabricated for use with the customer's proprietary nutrient injection process to target contaminated hot spots within the subsurface and included multiple analytical instruments to optimize performance and monitor the effectiveness of the remediation approach.

Design Parameters

Site Contaminants	Chlorinated solvents
Groundwater Treatment	12 gpm maximum
Site Power	480 VAC, 3 phase
NEC Area Classification	Non-Classified system interior and exterior

System Equipment

Well Pumps (Quantity 3)	Sized for 4 gpm maximum each (1/2 hp)
Nutrient Metering Pump	5 gph (actual injection rate based on groundwater extraction rate)
Groundwater Nutrient Tank	Capacity 260 gallons
Solids Filtration	Bag filter units
Analytical Instrumentation	Dissolved oxygen, temperature, pH, ORP, nutrient injection rate, groundwater extraction rate, treated groundwater re-injection rate
Controls	PLC with remote operation, remote notification, data-logging, and VFD operation with level transducers for maintaining groundwater extraction well and water re-injection well levels
System Enclosure	Steel skids with sound attenuation and component enclosures





NES was selected to fabricate an integrated SVE/Groundwater Treatment system for an industrial multi-national company in Massachusetts. The design approach and equipment selection was based on an expedited delivery schedule driven by regulatory deadlines and a pending property transaction.

Design Parameters

Site Contaminants	Chlorinated solvents
SVE System	500 scfm at 48 inches wc vacuum at the inlet manifold legs with carbon for vapor treatment
Groundwater Treatment	40 gpm
Site Power	480 VAC, 3 phase
NEC Area Classification	Non-Classified system interior and exterior

System Equipment

SVE	Rotary lobe positive displacement blower (15 hp)
Well Pumps (Quantity 8)	Sized for 5 gpm each (1/2 hp)
Groundwater Holding Tank	Capacity 500 gallons
Solids Filtration	Multiple bag filter units
Air Stripper	Low profile 6 tray unit (blower 7.5 hp)
Water Polishing	Liquid phase carbon
Off-Gas Treatment	Vapor phase carbon for SVE and vapor phase carbon for air stripper
Controls	PLC with remote operation, remote notification, data-logging, and VFD operation for adjusting SVE blower performance
System Enclosure	Steel cargo shipping container (exterior 40 feet x 8 feet x 9.5 feet)



NES was selected to fabricate an integrated SVE/Groundwater Treatment system for a retail petroleum service station in Pennsylvania.

Design Parameters

Site Contaminants	Gasoline and other petroleum products
SVE System	65 scfm at 10 inches Hg vacuum with carbon for vapor treatment
Groundwater Treatment	10 gpm
Site Power	240 VAC, 3 phase, 4 wire
NEC Area Classification	Class 1, Division 2 system interior with Non-Classified exterior

System Equipment

SVE	Rotary lobe positive displacement blower (5hp)
Well Pumps	Pneumatically operated (air compressor 5 hp)
Oil Water Separator	Stainless steel construction
Air Stripper	Low profile 3 tray unit (blower 5 hp)
Water Polishing	Liquid phase carbon
Off-Gas Treatment	Vapor phase carbon for SVE and air stripper
Controls	PLC with remote operation, remote notification, and data-logging
System Enclosure	Wooden shed (exterior 26 feet x 8 feet x 9.5 feet)



NES was selected to fabricate an integrated SVE/Groundwater Treatment system for a retail petroleum service station in New Jersey. Local building codes required that the wooden shed be designed and constructed in accordance with the International Building Code (IBC).

Design Parameters

Site Contaminants	Gasoline
SVE System	200 acfm at 15 inches Hg vacuum at the moisture separator inlet with catalytic oxidizer for vapor treatment
Groundwater Treatment	15 gpm
Site Power	208 VAC, 3 phase, 4 wire
NEC Area Classification	Class 1, Division 2 shed interior with Non-Classified exterior

System Equipment

SVE	Rotary claw vacuum pump (10 hp)
Well Pumps	Pneumatically operated (air compressor 5 hp)
Groundwater Holding Tank	Capacity 200 gallons
Chemical Pre-Treatment	In-line chemical injection of liquid sequesterant
Solids Filtration	Multiple bag filter units
Air Stripper	Low profile 4 tray unit (blower 5 hp)
Water Polishing	Liquid phase carbon
Off-Gas Treatment	Catalytic oxidizer for SVE and vapor phase carbon for air stripper
Controls	PLC with wireless remote monitoring unit for remote operation, remote notification, and data-logging
System Enclosure	Wooden shed (exterior 26 feet x 8 feet x 9.5 feet)

