Scope of Work (SOW)

- Source Removal SOW
  - Schedule Pay Items
  - Attachment A
    - Source Removal Table
    - Water Sampling Table
    - Soil and Air Sampling Table
    - Well Abandonment (if applicable)
    - Soil Boring (SB)and Well Installation (if applicable)
- Remedial Action Construction SOW
  - Schedule Pay Items
  - Attachment A
    - Remedial Action Construction (RAC) Table
      - Trenching Calculations Workbook
    - O&M (System) Parameters Table
    - Water Sampling Table
    - Soil-Air Sampling Table
    - Well Abandonment (if applicable)
    - Soil Boring Well Installation (if applicable)

Source Removal Table

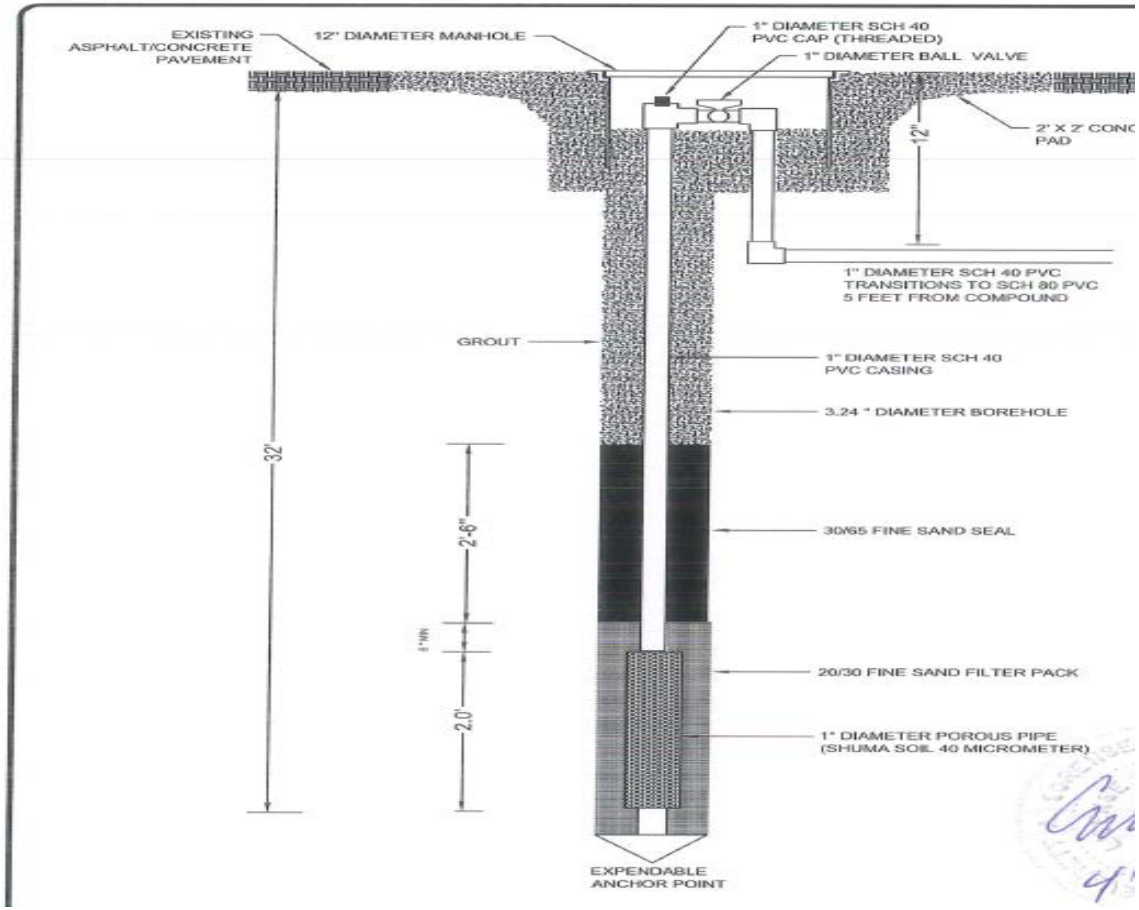
Any blank fields are not applicable to this type of work.

Source Removal Table					
SPI Section 10					
Sheet Piling					
Sheet Piling Length (feet)					
Sheet Piling Depth (feet)					
Sheet Piling Area (square feet)	**0**				
Sheet Piling Duration (number of days/weeks/months)					1
Conventional Excavation Volume	**Area 1**	**Area 2**	**Area 3**	**Total**	
Excavation Length (feet)					
Excavation Width (feet)					
Excavation Area (square feet)	0	0	0		
Excavation Depth (feet)					
Excavation Volume (cubic yards)	0	0	0		
Contingent Excavation (10% of volume) (cubic yards)	0	0	0		
Maximum Excavation (cubic yard)	**0**	**0**	**0**	**0**	1
LDA Excavation Volume	**Area 1**	**Area 2**	**Area 3**	**Total**	
Diameter of LDA (feet)					
LDA boring area (square feet)	0	0	0		
Number of LDA borings					
LDA Depth (feet)					
One LDA boring volume - (cubic yards)	0	0	0		
Excavation Volume (cubic yards)	0	0	0		
Contingent Excavation (10%) (cubic yards)	0	0	0		
Maximum Excavation (cubic yard)	**0**	**0**	**0**	**0**	1
Flowable Fill, Backfill, Clean Overburden					
Flowable Fill Volume (cubic yards)	0				1
Clean Backfill based on Proposed Volume (cubic yards)	0				
Clean Backfill based on Contingent Volume (cubic yards)	0				
Clean Backfill to allow for Compaction (20%) (cubic yards)	0				
ximum Clean Backfill Volume with Approval (cubic yards)	**0**				1
Clean Overburden Reuse with Approval (cubic yards)					1
Dewatering					
Groundwater Treatment Technology					
Number of Dewatering Points					1
Depth of Dewatering Points					
Point of Discharge					
Permits Required? (NPDES, Local, etc)					
Dewatering Duration (number of days/weeks/months)					
SPI Section 12					
Surface Removal					
Concrete Removal and Loading (square feet)					1
Concrete Removal and Loading > 4" (square feet)					
Asphalt Removal and Loading (square feet)					1
Mixed Debris for Transport and Disposal (tons)	**0**				1
Transport and Disposal					
Maximum Excavation Mass @ 1.4 tons/cy (tons)	0.0				
Contingent Transport and Disposal (10%) (tons)	0.0				
Maximum Transport and Disposal (tons)	**0.0**				1
SPI Section 13					
Resurfacing					
Asphalt Paving 2" thickness (square feet).	**0**				1
Asphalt Paving additional 1" thickness (square feet).					
Concrete Paving 4" thickness (square feet)	**0**				1
Concrete Paving additional 1" thickness (square feet)					
Grass - Sod or Seed and Mulch (square feet)					1

RAC Table

Remedial Action Construction Table					
SPI Section 5 and 6					
Well Installation Specifications					
Process Type (AS, SVE, MPX, GWT, etc)					
Total System Well Count					
Existing Wells to be Used					
New System Wells	0	0	0	0	
Well Type (HW, VW, AW)					
Well Diameter (inches)					
Boring Length (feet)					
Well Length (feet)					6-1 through 6-4, includes 8" and 12" diameter manhole
Screened Length (feet)					
Well Vaults					6-11 or 6-12 or Section 22 for specialty vaults. 8" and 1
Slot Size (inches)					
Well Material (HDPE, PVC)					
Installation Method (DPT, HSA, MR, Sonic, Open Trench)					
Boring Diameter (inches)					
Total Boring Length (feet)	**0**	**0**	**0**	**0**	5-6 through 5-23 or 15-1 for HWs. Total boring depth is
Total Well Length (feet)	**0**	**0**	**0**	**0**	6-1 through 6-4 for vertical and angled wells, includes 8
SPI Section 12					
Surface Removal	**Quantity**				
Concrete/Asphalt Removal (square feet)					12-1 See Trench Calculation.
Additional removal of concrete > 4-inch (square feet)					12-2 See Trench Calculation.
Transport & Disposal of Mixed Debris or Clean Concrete (ton)	0.0				12-4 and/or 12-5.
Transport & Disposal of Petroleum Impacted Soil *(Choose Contain*	**Well Installation**		**Trenching**		
Transport Petroleum Impacted Soil (ton)			0		12-7 or 12-8 Assumes that 1/2 of the soil in the trench
Disposal of Petroleum Impacted Soil (ton)			0		12-9 through 12-12
Transport and Disposal of Petroleum Impacted Soil (included drum)	0				12-6. Assumes a 10-inch borehole and that the 55 gallo
SPI Section 13					
Resurfacing	**Quantity**				
Asphalt Paving (square feet)					13-1 and 13-2.
Concrete Paving (square feet)					13-3.
Concrete Paving extra 1-inch (square feet) {calculation assumes 2" additiona	0				13-4.
Grass-Sod or Seed and Mulch (square feet)					13-6 or 13-7.
SPI Section 15					
Underground Piping Specifications	**0**	**0**	**0**	**0**	
Underground Piping Diameter (inches)					
Underground Piping Material (40/80 PVC, HDPE)					
Total footage of trench (feet)					See Trench Calculations (Total Scope Units)
Trench Installation and Plumbing (linear feet, 1 to 10 lines)					15-1.a Quantities from Trench Calculation workbook
Trench Installation and Plumbing (linear feet, 11 to 20 lines)					15-1.b Quantities from Trench Calculation workbook
Trench Installation and Plumbing (linear feet, 21 to 30 lines)					15-1.c Quantities from Trench Calculation workbook
Trench Installation and Plumbing (linear feet, additional > 30 lines)					15-1.d Quantities from Trench Calculation workbook
SPI Section 18					
Process Type	**SYSTEM 1**	**VAPOR TREATME**	**SYSTEM 2**	**VAPOR TREATME**	
Remedial Action Equipment					
System Size (S, M, L)					17-1 and 18-17 or 18-18.
Estimated Usage (Months) <= 6 months or > 6 months					18-35 or 18-38.
Vapor Treatment Vessel Size (pounds)					

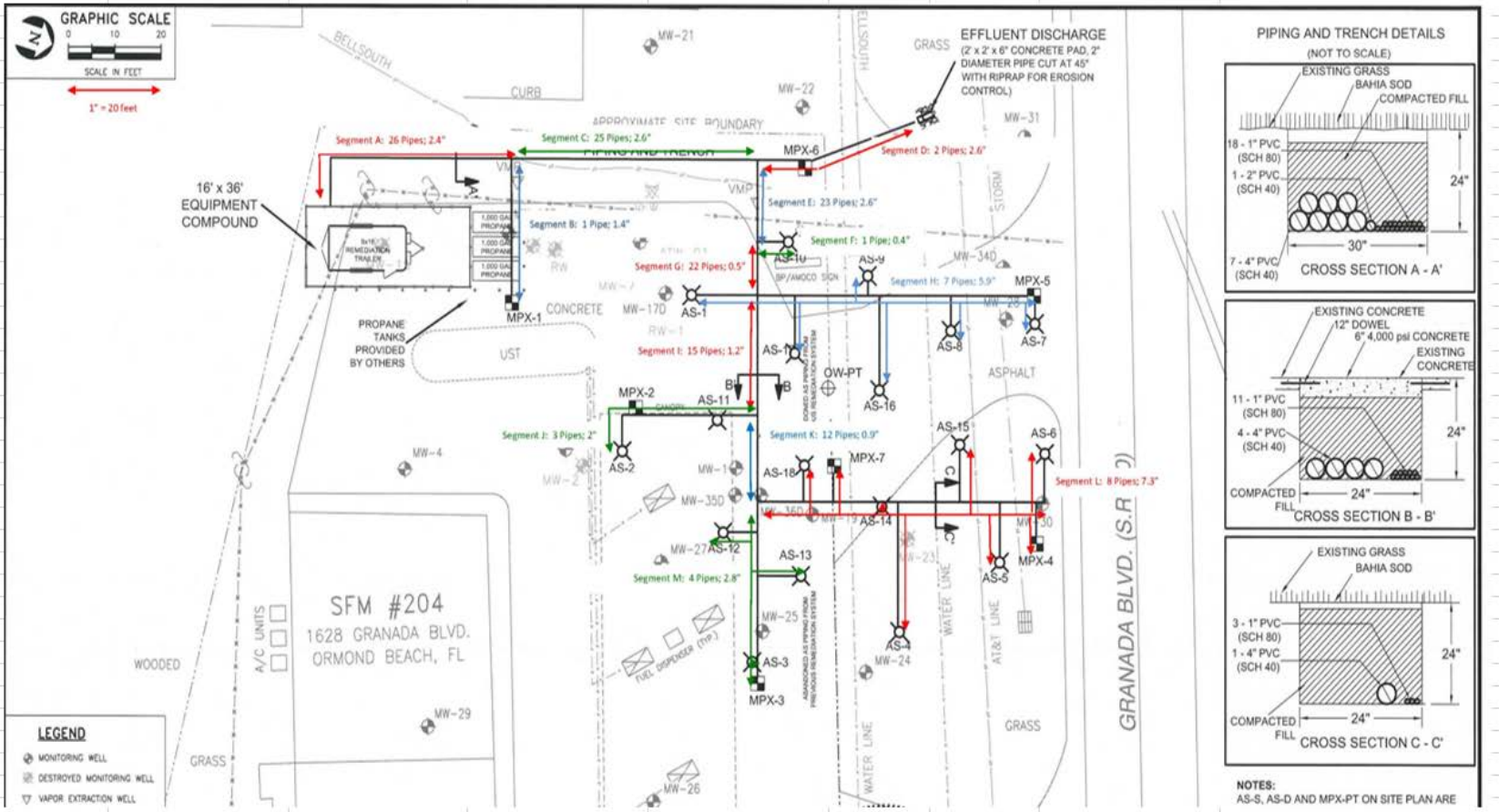
Treatment Well Detail



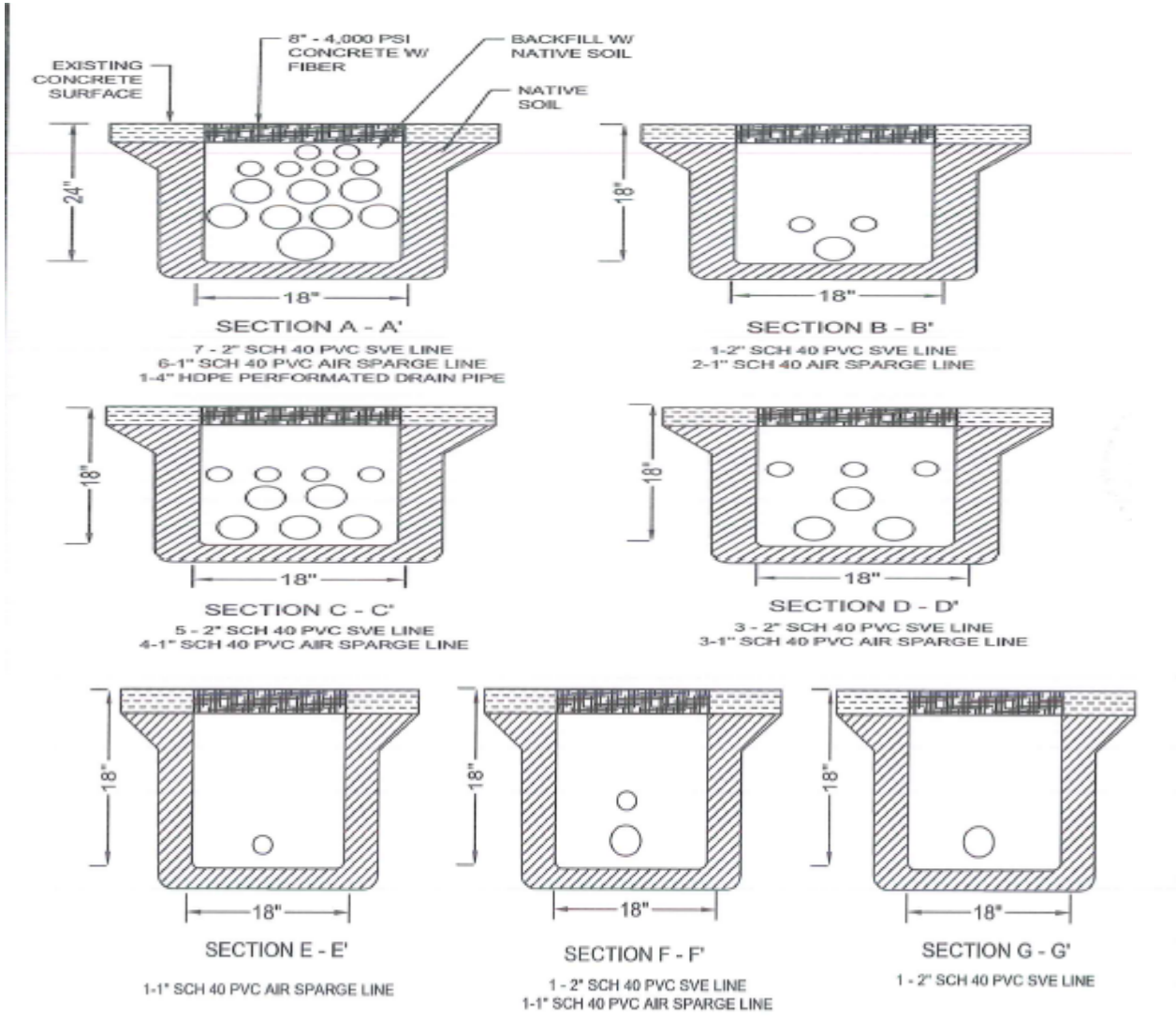
Trenching Calculation Workbook

Trench Segment	Number of Pipes in Trench	Length of Trench Segment (feet)	SPI Item 15-1.a. Trenching Installation of trench containing 1-10 Plumbing Lines (linear foot of trench)	SPI Item 15-1.b. Trenching Installation of trench containing 11-20 Plumbing Lines (linear foot of trench)	SPI Item 15-1.c. Trenching Installation of trench containing 21-30 Plumbing Lines (linear foot of trench)	Additional pipes >30	ADDITIONAL bundle of 1-10 lines	SPI Item 15-1.d. Trenching Installation of additional bundle of 1-10 lines greater than 30 lines in trench (linear foot of trench)	Notes
A			0	0	0	0	0	0	
B			0	0	0	0	0	0	
C			0	0	0	0	0	0	
D			0	0	0	0	0	0	
E			0	0	0	0	0	0	
F			0	0	0	0	0	0	
G			0	0	0	0	0	0	
H			0	0	0	0	0	0	
I			0	0	0	0	0	0	
J			0	0	0	0	0	0	
K			0	0	0	0	0	0	
L			0	0	0	0	0	0	
M			0	0	0	0	0	0	
N			0	0	0	0	0	0	
O			0	0	0	0	0	0	
P			0	0	0	0	0	0	
Q			0	0	0	0	0	0	
R			0	0	0	0	0	0	
S			0	0	0	0	0	0	
T			0	0	0	0	0	0	
U			0	0	0	0	0	0	
V			0	0	0	0	0	0	
	Actual Footage of Trench	0	0	0	0			0	
	10% Contingent (rounded)	0	0	0	0			0	
	Total Scoped Units	0	0	0	0			0	
			SPI Item 15-1.a.	SPI Item 15-1.b.	SPI Item 15-1.c.			SPI Item 15-1.d.	

Trenching Layout



Trench Detail



System Integration & Startup

- Pay items are <u>not</u> applicable to subsequent system startups following down time for repair, sampling, system modification, etc.
- All inclusive package includes
  - All equipment, material, and labor costs.
  - Startup assistance by equipment manufacturer/vendor/specialist
  - Field oversight by qualified Remediation Technician
  - Setting up utility accounts
  - Connecting utilities to the remediation system and the system to a discharge point.
  - Installing telemetry
  - Troubleshooting
  - System related sampling of water and air streams including all recovery/treatment and discharge points
  - <u>Excluding</u> mobilization of personal and equipment to and from site

O&M Packages

- 17. Remediation System O&M Packaged Work Scopes (Excluding Remediation System Equipment)
  - All inclusive packages on a monthly basis of
    - Mobilization, Per Diem, Labor, and Materials
    - Equipment necessary for conduction operation monitoring, system related sampling, preventative maintenance, trouble shooting after startup in accordance with the approved RAP.
    - Excluding monitoring well sampling and mobs for quarterly monitoring well sampling.

Treatment/Recovery Points	1 Technology	2 Technologies	3 Technologies
<10 Treat/Recovery Points	Small	Small	Small
10-20 Treat/Recovery Points	Medium	Medium	Medium
21-40 Treat/Recovery Points	Large	Large	Large
>40 Treat/Recovery Points	n/a	Extra Large	Extra Large

17.	MONTHLY REMEDIATION SYSTEM O&M PACKAGED WORK SCOPES (Excluding Remediation System Equipment)	
17-1.	System O&M Package - Small	Per Month
17-2.	System O&M Package - Medium	Per Month
17-3.	System O&M Package - Large	Per Month
17-4.	System O&M Package - Extra Large	Per Month
17-5.	Supplemental System O&M Package - Add Thermox or Catox Treatment	Per Month

Equipment

- 18. Remedial Action Equipment/System Use (Equipment Only, Excluding O&M)
    - Unless otherwise specified, the following pay items include:
        - All equipment, material and non-O&M labor costs.
        - All down well groundwater pumps, if applicable
        - Carbon polishing equipment and initial load of carbon.
        - Major repairs or replacement items including remediation equipment in need of replacement, and associated mobilizations to and form site for that purpose.
        - Costs for equipment and liability insurance and/or liability damage waivers.
        - Mobilization to and from the site for replacement remediation system.
        - Excluding mobilization of personnel and equipment to and from site for initial installation and final removal.

ATC Contract

System size is defined by the blower size (or water flow), number of legs, and air flow capacity

Groundwater Treatment System Requirements: System must include a control panel, multi-well inlet manifold, down well groundwater pumps, oil/water separator, equalization tank, transfer pump, tray air stripper with blower, carbon polishing capability, inlet and outlet ports, valves, totalizing flow meters, switches, thermal overload and overflow shut off capability.

System Size	Minimum Water Flow Capacity	Minimum Number of Legs Manifold	Minimum Air Flow Capacity (SCFM)
Small	75	5	300
Medium	150	10	750
Large	250	20	1500

Air Sparging System Requirements: System must provide compressed oil free air at a temperature compatible with schedule 40 PVC pipe. The system must include control panel, applicable filters, a manifold to distribute air to each air sparging well, and means to measure air flow and pressure to each air sparging well, a pressure relief valve, discharge silencers/noise control, and a means of condensate removal.

System Size	Minimum Blower Size (HP)	Minimum Number of Legs in Manifold	Minimum Air Flow Capacity (SCFM)
Small	5	5	50
Medium	10	10	150
Large	20	20	250

Vapor Extraction System Requirements: The system must include a SVE blower/pump, air dilution valves, vacuum relief valves, transfer pump, moisture separator device, telemetry, control panel and applicable filters and meters. The system must include the capacity to add and remove vapor treatment equipment as needed. The system must include a manifold to withdraw air from VE wells and include sampling port for all applicable parameters.

System Size	Minimum Blower Size (HP)	Minimum Number of Legs in Manifold	Minimum Air Flow Capacity (SCFM)
Small	5	5	100
Medium	10	10	250
Large	20	20	500

Carbon Off-Gas Treatment

Air Sparging/Soil Vapor Extraction System Requirements: System must provide oil free air at a temperature compatible with schedule 40 PVC pipe. The system must include a manifold to distribute and measure air flow and pressure to each air sparging well. The system must include a moisture separator device. The system must include a manifold to withdraw air from vacuum extraction (VE) wells and include sampling port for all applicable parameters. The system must include an interlock that prevents operation of the air sparging system in the event the VES is not operating.

System Size	Minimum Blower Size (HP)	Minimum Number of Legs in Manifold	Minimum Air Flow Capacity (SCFM)
Small	See individual specs for AS and SVE above		
Medium			
Large			

Multiphase Extraction System Requirements: System must include MPE blower or pump, heat exchanger, moisture separator, vacuum relief, and air stripper. The system must include the capacity to add and remove vapor treatment equipment as needed. The system must include a manifold to withdraw air and water from MPE wells and include sampling ports for all applicable parameters.

System Size	Minimum Blower Size (HP)	Minimum Number of Legs in Manifold	Minimum Air Flow Capacity (SCFM)
Small	5 to <10	5-10	35 to 60
Medium	10 to 20	10 to20	60 to 150
Large	20 to 40	20 to 40	150 to 300

Air Sparging/Multiphase Extraction System Requirements: System must provide oil free air at a temperature compatible with schedule 40 PVC pipe. The system must include a manifold to distribute and measure air flow and pressure to each air sparging well. System must include MPE blower or pump, heat exchanger, moisture separator, vacuum relief, and air stripper. The system must include a manifold to withdraw air from MPE wells and include sampling port for all applicable parameters. The system must include an interlock that prevents operation of the air sparging system in the event the MPE is not operating.

System Size	Minimum Blower Size (HP)	Minimum Number of Legs in Manifold	Minimum Air Flow Capacity (SCFM)
Small	See individual specs for AS and MPE above		
Medium			
Large			

Carbon Off-Gas Treatment Add-On: Carbon canisters must be equipped with standard size inlet/outlet connections and drain for accumulated condensate.

System Size	Pounds of Granular Activated Carbon
Small	<500
Medium	500-1000
Large	>1000-2000

Schedule of Pay Items

Section 18 in the SPI lists the holding tanks and systems per month, per term, and per size.

18.	REMEDIAL ACTION SYSTEM/EQUIPMENT USE (Equipment Only, Excluding O&M)	
18-1.	Medium Holding Tank - 2,000 to 6,000 gal. capacity - Short Term ≤ 6 mos.	Per Month
18-2.	Medium Holding Tank - 2,000 to 6,000 gal. capacity - Long Term > 6 mos.	Per Month
18-3.	Large Holding Tank > 6,000 to 10,000 gal. capacity - Short Term ≤ 6 mos.	Per Month
18-4.	Large Holding Tank > 6,000 to 10,000 gal. capacity - Long Term > 6 mos.	Per Month
18-5.	Groundwater Treatment System - Stand Alone Small - Short Term ≤ 6 mos.	Per Month
18-6.	Groundwater Treatment System - Stand Alone Small - Long Term > 6 mos.	Per Month
18-7.	Groundwater Treatment System - Stand Alone Medium - Short Term ≤ 6 mos.	Per Month
18-8.	Groundwater Treatment System - Stand Alone Medium - Long Term > 6 mos.	Per Month
18-9.	Groundwater Treatment System - Stand Alone Large - Short Term ≤ 6 mos.	Per Month
18-10.	Groundwater Treatment System - Stand Alone Large - Long Term > 6 mos.	Per Month
18-11.	Air Sparge System - Small - Short Term ≤ 6 mos.	Per Month
18-12.	Air Sparge System - Small - Long Term > 6 mos.	Per Month
18-13.	Air Sparge System - Medium - Short Term ≤ 6 mos.	Per Month
18-14.	Air Sparge System - Medium - Long Term > 6 mos.	Per Month
18-15.	Air Sparge System - Large - Short Term ≤ 6 mos.	Per Month
18-16.	Air Sparge System - Large - Long Term > 6 mos.	Per Month
18-17.	AS/SVE System - Small - Short Term ≤ 6 mos.	Per Month
18-18.	AS/SVE System - Small - Long Term > 6 mos.	Per Month
18-19.	AS/SVE System - Medium - Short Term ≤ 6 mos.	Per Month
18-20.	AS/SVE System - Medium - Long Term > 6 mos.	Per Month
18-21.	AS/SVE System - Large - Short Term ≤ 6 mos.	Per Month
18-22.	AS/SVE System - Large - Long Term > 6 mos.	Per Month

Schedule of Pay Items

Section 18 in the SPI lists the off gas treatment per month, per term, and per size.

18-29.	Groundwater Treatment - Add On - Small - Short Term ≤ 6 mos.	Per Month
18-30.	Groundwater Treatment - Add On - Medium - Short Term ≤ 6 mos.	Per Month
18-31.	Groundwater Treatment - Add On - Large - Short Term ≤ 6 mos.	Per Month
18-32.	Groundwater Treatment - Add On - Small - Long Term > 6 mos.	Per Month
18-33.	Groundwater Treatment - Add On - Medium - Long Term > 6 mos.	Per Month
18-34.	Groundwater Treatment - Add On - Large - Long Term > 6 mos.	Per Month
18-35.	Carbon Off Gas Treatment - Add On - Small - Short Term ≤ 6 mos.	Per Month
18-36.	Carbon Off Gas Treatment - Add On - Medium - Short Term ≤ 6 mos.	Per Month
18-37.	Carbon Off Gas Treatment - Add On - Largely - Short Term ≤ 6 mos.	Per Month
18-38.	Carbon Off Gas Treatment - Add On - Small- Long Term > 6 mos.	Per Month
18-39.	Carbon Off Gas Treatment - Add On - Medium - Long Term > 6 mos.	Per Month
18-40.	Carbon Off Gas Treatment - Add On - Large - Long Term > 6 mos.	Per Month
18-41.	Thermox/Catox Off Gas Treatment - Add On - Small - Short Term ≤ 6 mos.	Per Month
18-42.	Thermox/Catox Off Gas Treatment - Add On - Medium - Short Term ≤ 6 mos.	Per Month
18-43.	Thermox/Catox Off Gas Treatment - Add On - Large - Short Term ≤ 6 mos.	Per Month
18-44.	Thermox/Catox Off Gas Treatment - Add On - Small - Long Term > 6 mos.	Per Month
18-45.	Thermox/Catox Off Gas Treatment - Add On - Medium - Long Term > 6 mos.	Per Month
18-46.	Thermox/Catox Off Gas Treatment - Add On - Large - Long Term > 6 mos.	Per Month

Quote Requirements

- $2,500 threshold policy
  - One quote for <$2,500; 3 for >$2,500
  - PRP may request additional quotes if high dollar amount
  - Threshold is the aggregate total per vendor across the PO, not per Task

- In-House Quotes
  - If <$2,500, 1 additional outside quote is required to demonstrate cost benefit to State
  - If >$2,500, 2 additional outside quotes are required
  - Should not reference other venders.

- Proprietary Product Quotes
  - Must include information that clearly establishes the current proprietary claim.

Quote Requirements

- Quotes not required for Permit Fees
  - Reasonable estimate is sufficient
- Quotes must:
  - Be dated and current on Vendor letterhead with contact information
  - Multiple quotes must be comparable
  - Quotes must be valid through PO issuance (60 days or more from submittal date)
    - Expirations can be a date or a period of time that the quote is valid (if applicable)
  - Provide sufficient scope detail to reflect what service if being requested and provided
    - Services must be itemized (NO LUMP SUMS!!!)
- Confidentiality Disclaimers are not allowed per DEP Directive 301