

Exhibit 5

COST SUMMARY

ID # - 8857 EXXON SERVICE STATION

Livingston Township, Essex County, New Jersey

Prepared on behalf of:

New Jersey Department of Environmental Protection (NJDEP)
The Commissioner of the NJDEP
The Administrator of the New Jersey Spill Compensation Fund

For:

The Office of the Attorney General of New Jersey
and

Miller, Axline & Sawyer
The Law Office of John K. Dema
Berger & Montague
Cohn Lifland Pearlman Herrmann & Knopf

Project No.: 003-01

November 2012

TABLE OF CONTENTS

Section A Cost Summary and Description

- A1 Cost Summary - Treatment System 1
- A2 Cost Summary - Treatment System 2
- A3 Cost Summary - Treatment System 3

Section B Site Figures

Section C Task Details and Appendices

- C1 Task Details - Treatment System 1
- C2 Task Details - Treatment System 2

Section D Groundwater Modeling

Section E Carbon Usage Estimates

- E1 Carbon Usage Estimates - Treatment System 1
- E2 Carbon Usage Estimates - Treatment System 2



SECTION A COST SUMMARY AND DESCRIPTION





SECTION A1 COST SUMMARY – TREATMENT SYSTEM 1



Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 1

Design Basis

1 Chemicals of Concern:		Analysis	Treatment	
	MTBE	1	1	
	TBA	1	1	
	BTEX	1	1	
2 Estimated Average Influent Concentrations (µg/L)				Section
	MTBE	50	GAC	E
	TBA	500	BioGAC	E
	BTEX	100	GAC	E
	Total Number of wells	56		B1
3	Monitoring Wells	51		B1
4	Extraction Wells	5		B1
Treatment System				
5	Total Flow Rate	60.5	GPM	D
6	Trenching	530	Foot	B1
7	Treatment Process(es)	5000	GAC	B2
8	Treatment Building	Off-site Treatment Building		C27
Net Present Value				
9	Existing Site Wells	23		
10	Number of wells for Semi-annual Sampling	79		B1 and existing site wells
11	Years of O&M/Semi-annual Sampling/Land Lease	2		2 pore flush, D
12	Years of Post Remediation Monitoring	5		
13	Discount Rate	3.0%		assumed
14	Contingency	30%		C51
Other				
15	Tax Rate	7%		
16	Mark Up	10%		
17	Location Adjustment Factor			
	Newark	112.7%		RS MEANS RJ1040-010 070-071
	Elizabeth	111.8%		RS MEANS RJ1040-010 072
	Jersey City	110.9%		RS MEANS RJ1040-010 073
	Paterson	112.2%		RS MEANS RJ1040-010 074-075
	Hackensack	111.0%		RS MEANS RJ1040-010 076
	Long Branch	110.2%		RS MEANS RJ1040-010 077
	Dover	111.2%		RS MEANS RJ1040-010 078
	Summit	111.2%		RS MEANS RJ1040-010 079
	Vineland	108.8%		RS MEANS RJ1040-010 080,083
	Camden	110.4%		RS MEANS RJ1040-010 081
	Atlantic City	109.1%		RS MEANS RJ1040-010 082,084
	Trenton	109.8%		RS MEANS RJ1040-010 085-086
	Point Pleasant	110.2%		RS MEANS RJ1040-010 087
	New Brunswick	111.2%		RS MEANS RJ1040-010 088-089
	Calculated State Average	110.8%		

Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 1

Item		Quantity	Rate	Total	Task Detail
Groundwater Well Installation					
1	Well Installation Work Plan	1	\$ 5,485	\$ 5,485	C1
2	Incremental Work Plan Cost for wells > 4	52	\$ 500	\$ 26,000	
3a	Pre-Drilling Activities (1-6 Wells/day)	10	\$ 7,956	\$ 79,560	C2a
3b	Fracture Lineament Assessment	1	\$ 11,358	\$ 11,358	C2b
4	Driller Mobilization	1	\$ 24,952	\$ 24,952	C2a
	Total Number of wells	56			
	Monitoring Wells	51			
5	A1-Zone Groundwater Well Installation/Development (TD = 20')	0	\$ 12,923	\$ -	C3
6	A2 Zone Groundwater Well Installation/Development (TD = 40')	10	\$ 15,048	\$ 150,477	C4
7	A3 Zone Groundwater Well Installation/Development (TD = 60')	0	\$ 18,159	\$ -	C5
8	A4 Zone Groundwater Well Installation/Development (TD = 80')	0	\$ 20,550	\$ -	C6
9	B1-Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 24,820	\$ -	C7
10	B2-Zone Groundwater Well Installation/Development (TD = 85')	0	\$ 31,428	\$ -	C8
11	B3-Zone Groundwater Well Installation/Development (TD = 100')	14	\$ 37,927	\$ 530,980	C9
12	B4-Zone Groundwater Well Installation/Development (TD = 125')	14	\$ 40,849	\$ 571,891	C10
13	B5-Zone Groundwater Well Installation/Development (TD = 150')	9	\$ 41,672	\$ 375,045	C11
14	B6-Zone Groundwater Well Installation/Development (TD = 200')	4	\$ 46,983	\$ 187,934	C12
	Extraction Wells	5			
5	A1-Zone Groundwater Well Installation/Development (TD = 20')	0	\$ 12,923	\$ -	C3
6	A2 Zone Groundwater Well Installation/Development (TD = 40')	2	\$ 15,048	\$ 30,095	C4
7	A3 Zone Groundwater Well Installation/Development (TD = 60')	0	\$ 18,159	\$ -	C5
8	A4 Zone Groundwater Well Installation/Development (TD = 80')	0	\$ 20,550	\$ -	C6
9	B1-Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 24,820	\$ -	C7
10	B2-Zone Groundwater Well Installation/Development (TD = 85')	0	\$ 31,428	\$ -	C8
11	B3-Zone Groundwater Well Installation/Development (TD = 100')	2	\$ 37,927	\$ 75,854	C9
12	B4-Zone Groundwater Well Installation/Development (TD = 125')	1	\$ 40,849	\$ 40,849	C10
13	B5-Zone Groundwater Well Installation/Development (TD = 150')	0	\$ 41,672	\$ -	C11
14	B6-Zone Groundwater Well Installation/Development (TD = 200')	0	\$ 46,983	\$ -	C12
15	Well Installation Report	1	\$ 7,520	\$ 7,520	C13
16	Incremental Report Cost for wells >4	52	\$ 1,000	\$ 52,000	
	Groundwater Well Installation Subtotal			\$ 2,170,000	
Pilot Testing					
17	Pumping Test Work Plan	1	\$ 5,125	\$ 5,125	C14
18	Aquifer Pumping Test	2	\$ 39,617	\$ 79,234	C15a
19	Dual Phase Extraction Pilot Test	0	\$ 28,472	\$ -	C15b
20	Bench Scale Testing	1	\$ 10,593	\$ 10,593	C16
21	Aquifer Pumping and Bench Test Report	3	\$ 7,520	\$ 22,560	C17
	Pilot Testing Subtotal			\$ 117,512	
Groundwater Modeling					
22	2-Dimension Model	0	\$ 20,020	\$ -	C39
23	3-Dimension Model	1	\$ 39,500	\$ 39,500	C40
	Groundwater Modeling Subtotal			\$ 39,500	
Risk Assessment					
24	Ecological Risk Assessment	0	\$ 11,770	\$ -	C41
25	Vapor Intrusion Risk Assessment	0	\$ 8,828	\$ -	C42
	Risk Assessment Subtotal			\$ -	
Professional/Technical Services					
26	FS/RAP/Remedial Design	12%	\$ 547,261	\$ 65,671	C51
27	Construction Management	8%	\$ 547,261	\$ 43,781	C51
28	Project Management	6%	\$ 547,261	\$ 32,836	C51
	Professional/Technical Services Subtotal			\$ 142,288	

Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 1

Item		Quantity		Rate	Total	Task Detail
Point of Entry Treatment (POET) Systems						
29	POET Design and Permitting	0	\$	15,380	\$ -	C43
				POET Subtotal	\$ -	
Groundwater Treatment System						
30	Pump Installation (Per Well)	5	\$	15,541	\$ 77,703	C18
31	Trenching Mob./Demob.	1	\$	41,195	\$ 41,195	C19
32	100 Feet of Trenching: Treatment System to Extraction Wells	5.3	\$	21,452	\$ 113,695	C19
33	Influent Manifold	1	\$	11,008	\$ 11,008	C20
34	Influent Tank and Piping	1	\$	62,103	\$ 62,103	C21
35	Optional Iron and Manganese Filter	0	\$	88,209	\$ -	C22
36	Dual Phase Extraction System	0	\$	148,757	\$ -	C23
37	Bio-Reactor GAC 2000#	0	\$	12,382	\$ -	C24
38	GAC 2000#	0	\$	72,682	\$ -	C24
39	Bio-Reactor GAC 5000#	1	\$	23,322	\$ 23,322	C25
40	GAC 5000#	1	\$	108,785	\$ 108,785	C25
41	Bio-Reactor GAC 10000#	0	\$	43,957	\$ -	C26
42	GAC 10000#	0	\$	176,879	\$ -	C26
43	Remediation Treatment System Building	1	\$	109,449	\$ 109,449	C27
				Groundwater Treatment System Subtotal	\$ 547,261	
44	Lease Land	1	\$	41,101	\$ 41,101	C28
45	Water Allocation Permit (For GWTS > 100M GPD)	0	\$	387	\$ -	C29
46	NJ NPDES Permitting	1	\$	15,307	\$ 15,307	C30
47	O&M Manual	1	\$	34,950	\$ 34,950	C31
				Well Installation, Pilot testing, and System Design and Install		
				Subtotal	\$ 3,107,919	
ORC-Advanced Injection Program						
48	Permit-by-Rule to Inject	0	\$	4,187	\$ -	C44
49	ORC Injection Work Plan	0	\$	5,125	\$ -	C45
50	ORC Pre-Injection Progra	0	\$	3,556	\$ -	C46
51	ORC Injection Point Field Activities	0	\$	2,898	\$ -	C47
52	ORC Injection Performance Monitoring	0	\$	62,228	\$ -	C48
53	ORC Injection Report	0	\$	7,520	\$ -	C49
				Subtotal	\$ -	
54	Project Management	6%	\$	-	\$ -	C51
				ORC-Advanced Injection Program Subtotal	\$ -	

Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 1

Item		Quantity	Rate	Total	Task Detail
Annual Operation and Maintenance (O&M)					
56	Annual DPE O&M	0	\$ 89,104	\$ -	C33
55	Annual GWTS O&M	1	\$ 85,464	\$ 85,464	C32
57	Annual GAC Carbon Change Out	1	\$ 56,644	\$ 56,644	C34 and E
58	GWTS Quarterly Performance Report	4	\$ 5,590	\$ 22,360	C35
	Subtotal			\$ 164,468	
59	Project Management	6%	\$ 164,468	\$ 9,868	C51
	Annual O&M Subtotal			\$ 174,336	
Annual Monitoring					
60	Semi-annual Groundwater Monitoring and Sampling	2	\$ 59,095	\$ 118,189	C36
61	Semi-annual Surface Water Sampling	0	\$ 857	\$ -	C50
62	Semi-annual Sediment Sampling	0	\$ 857	\$ -	C50
63	Semi-annual Sampling Reporting	2	\$ 8,230	\$ 16,460	C37
64	Incremental Report Cost for Wells >4	75	\$ 1,000	\$ 75,000	
	Subtotal			\$ 209,649	
65	Project Management	6%	\$ 209,649	\$ 12,579	C51
	Annual Monitoring Subtotal			\$ 222,228	
	Annual O&M and Monitoring Subtotal			\$ 396,564	
Net Present Value					
	Years of DPE Operation	0			
	Years of ORC Injection	0			
	Years of GWTS Operation	2			
	Years of Post-Restoration Monitoring	5			
	Discount Rate	3.0%			
66	0 Years of DPE O&M	0.00	\$ -	\$ -	
67	1 Year of ORC Injection	0.97	\$ -	\$ -	
68	3 Year of ORC Injection	0.92	\$ -	\$ -	
69	5 Year of ORC Injection	0.86	\$ -	\$ -	
70	2 Years of Land Lease	1.91	\$ 41,101	\$ 78,645	C28
71	2 Years of GWTS O&M	1.91	\$ 174,336	\$ 333,587	
72	7 Years of Monitoring	6.23	\$ 222,228	\$ 1,384,545	
73	Periodic Costs (5-Year Period)	1	\$ 24,487	\$ 24,487	C38
	NPV Subtotal			\$ 1,821,264	
	SUBTOTAL			\$ 4,929,183	
	Contingency	30%		\$ 1,478,755	C51
	TOTAL NPV REMEDIATION			\$ 6,407,937	



SECTION A2 COST SUMMARY – TREATMENT SYSTEM 2



Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 2

Design Basis

1 Chemicals of Concern:		Analysis	Treatment	
	MTBE	1	1	
	TBA	1	1	
	BTEX	1	1	
2 Estimated Average Influent Concentrations (µg/L)				Section
	MTBE	500	GAC	E
	TBA	500	BioGAC	E
	BTEX	5	GAC	E
Total Number of wells		1		B1
3	Monitoring Wells	0		B1
4	Extraction Wells	1		B1
Treatment System				
5	Total Flow Rate	12	GPM	D
6	Trenching	50	Foot	B1
7	Treatment Process(es)	2000	# GAC/Bio-GAC	B2
8	Treatment Building	Off-site Treatment Building		C27
Net Present Value				
9	Existing Site Wells	0		
10	Number of wells for Semi-annual Sampling	1		B1 and existing site wells
11	Years of O&M/Semi-annual Sampling/Land Lease	2		2 pore flush, D
12	Years of Post Remediation Monitoring	5		
13	Discount Rate	3.0%		assumed
14	Contingency	30%		C51
Other				
15	Tax Rate	7%		
16	Mark Up	10%		
17	Location Adjustment Factor			
	Newark	112.7%		RS MEANS RJ1040-010 070-071
	Elizabeth	111.8%		RS MEANS RJ1040-010 072
	Jersey City	110.9%		RS MEANS RJ1040-010 073
	Paterson	112.2%		RS MEANS RJ1040-010 074-075
	Hackensack	111.0%		RS MEANS RJ1040-010 076
	Long Branch	110.2%		RS MEANS RJ1040-010 077
	Dover	111.2%		RS MEANS RJ1040-010 078
	Summit	111.2%		RS MEANS RJ1040-010 079
	Vineland	108.8%		RS MEANS RJ1040-010 080,083
	Camden	110.4%		RS MEANS RJ1040-010 081
	Atlantic City	109.1%		RS MEANS RJ1040-010 082,084
	Trenton	109.8%		RS MEANS RJ1040-010 085-086
	Point Pleasant	110.2%		RS MEANS RJ1040-010 087
	New Brunswick	111.2%		RS MEANS RJ1040-010 088-089
	Calculated State Average	110.8%		

Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 2

Item		Quantity	Rate	Total	Task Detail
Groundwater Well Installation					
1	Well Installation Work Plan	1	\$ 5,485	\$ 5,485	C1
2	Incremental Work Plan Cost for wells > 4	0	\$ 500	\$ -	
3a	Pre-Drilling Activities (1-6 Wells/day)	1	\$ 7,956	\$ 7,956	C2a
3b	Fracture Lineament Assessment	0	\$ 11,358	\$ -	C2b
4	Driller Mobilization	1	\$ 24,952	\$ 24,952	C2a
	Total Number of wells	1			
	Monitoring Wells	0			
5	A1-Zone Groundwater Well Installation/Development (TD = 20')	0	\$ 12,923	\$ -	C3
6	A2 Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 15,048	\$ -	C4
7	A3 Zone Groundwater Well Installation/Development (TD = 60')	0	\$ 18,159	\$ -	C5
8	A4 Zone Groundwater Well Installation/Development (TD = 80')	0	\$ 20,550	\$ -	C6
9	B1-Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 24,820	\$ -	C7
10	B2-Zone Groundwater Well Installation/Development (TD = 85')	0	\$ 31,428	\$ -	C8
11	B3-Zone Groundwater Well Installation/Development (TD = 100')	0	\$ 37,927	\$ -	C9
12	B4-Zone Groundwater Well Installation/Development (TD = 125')	0	\$ 40,849	\$ -	C10
13	B5-Zone Groundwater Well Installation/Development (TD = 150')	0	\$ 41,672	\$ -	C11
14	B6-Zone Groundwater Well Installation/Development (TD = 200')	0	\$ 46,983	\$ -	C12
	Extraction Wells	1			
5	A1-Zone Groundwater Well Installation/Development (TD = 20')	0	\$ 12,923	\$ -	C3
6	A2 Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 15,048	\$ -	C4
7	A3 Zone Groundwater Well Installation/Development (TD = 60')	0	\$ 18,159	\$ -	C5
8	A4 Zone Groundwater Well Installation/Development (TD = 80')	0	\$ 20,550	\$ -	C6
9	B1-Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 24,820	\$ -	C7
10	B2-Zone Groundwater Well Installation/Development (TD = 85')	0	\$ 31,428	\$ -	C8
11	B3-Zone Groundwater Well Installation/Development (TD = 100')	0	\$ 37,927	\$ -	C9
12	B4-Zone Groundwater Well Installation/Development (TD = 125')	0	\$ 40,849	\$ -	C10
13	B5-Zone Groundwater Well Installation/Development (TD = 150')	1	\$ 41,672	\$ 41,672	C11
14	B6-Zone Groundwater Well Installation/Development (TD = 200')	0	\$ 46,983	\$ -	C12
15	Well Installation Report	1	\$ 7,520	\$ 7,520	C13
16	Incremental Report Cost for wells >4	0	\$ 1,000	\$ -	
	Groundwater Well Installation Subtotal			\$ 87,585	
Pilot Testing					
17	Pumping Test Work Plan	1	\$ 5,125	\$ 5,125	C14
18	Aquifer Pumping Test	1	\$ 39,617	\$ 39,617	C15a
19	Dual Phase Extraction Pilot Test	0	\$ 28,472	\$ -	C15b
20	Bench Scale Testing	1	\$ 10,593	\$ 10,593	C16
21	Aquifer Pumping and Bench Test Report	2	\$ 7,520	\$ 15,040	C17
	Pilot Testing Subtotal			\$ 70,375	
Groundwater Modeling					
22	2-Dimension Model	0	\$ 20,020	\$ -	C39
23	3-Dimension Model	0	\$ 39,500	\$ -	C40
	Groundwater Modeling Subtotal			\$ -	
Risk Assessment					
24	Ecological Risk Assessment	0	\$ 11,770	\$ -	C41
25	Vapor Intrusion Risk Assessment	0	\$ 8,828	\$ -	C42
	Risk Assessment Subtotal			\$ -	
Professional/Technical Services					
26	FS/RAP/Remedial Design	15%	\$ 327,750	\$ 49,162	C51
27	Construction Management	10%	\$ 327,750	\$ 32,775	C51
28	Project Management	8%	\$ 327,750	\$ 26,220	C51
	Professional/Technical Services Subtotal			\$ 108,157	

Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 2

Item		Quantity	Rate	Total	Task Detail
Point of Entry Treatment (POET) Systems					
29	POET Design and Permitting	0	\$ 15,380	\$ -	C43
POET Subtotal				\$ -	
Groundwater Treatment System					
30	Pump Installation (Per Well)	1	\$ 15,541	\$ 15,541	C18
31	Trenching Mob./Demob.	1	\$ 41,195	\$ 41,195	C19
32	100 Feet of Trenching: Treatment System to Extraction Wells	0.5	\$ 21,452	\$ 10,726	C19
33	Influent Manifold	1	\$ 3,671	\$ 3,671	C20
34	Influent Tank and Piping	1	\$ 62,103	\$ 62,103	C21
35	Optional Iron and Manganese Filter	0	\$ 88,209	\$ -	C22
36	Dual Phase Extraction System	0	\$ 146,729	\$ -	C23
37	Bio-Reactor GAC 2000#	1	\$ 12,382	\$ 12,382	C24
38	GAC 2000#	1	\$ 72,682	\$ 72,682	C24
39	Bio-Reactor GAC 5000#	0	\$ 23,322	\$ -	C25
40	GAC 5000#	0	\$ 108,785	\$ -	C25
41	Bio-Reactor GAC 10000#	0	\$ 43,957	\$ -	C26
42	GAC 10000#	0	\$ 176,879	\$ -	C26
43	Remediation Treatment System Building	1	\$ 109,449	\$ 109,449	C27
Groundwater Treatment System Subtotal				\$ 327,750	
44	Lease Land	1	\$ 41,101	\$ 41,101	C28
45	Water Allocation Permit (For GWTS > 100M GPD)	0	\$ 387	\$ -	C29
46	NJ NPDES Permitting	1	\$ 15,307	\$ 15,307	C30
47	O&M Manual	1	\$ 34,950	\$ 34,950	C31
Well Installation, Pilot testing, and System Design and Install					
Subtotal				\$ 685,225	
ORC-Advanced Injection Program					
48	Permit-by-Rule to Inject	0	\$ 4,187	\$ -	C44
49	ORC Injection Work Plan	0	\$ 5,125	\$ -	C45
50	ORC Pre-Injection Program	0	\$ 3,556	\$ -	C46
51	ORC Injection Point Field Activities	0	\$ 2,898	\$ -	C47
52	ORC Injection Performance Monitoring	0	\$ 6,503	\$ -	C48
53	ORC Injection Report	0	\$ 7,520	\$ -	C49
Subtotal				\$ -	
54	Project Management	8%	\$ -	\$ -	C51
ORC-Advanced Injection Program Subtotal				\$ -	

Estimated Costs Summary

Site Name: #8857 Exxon Service Station #31310

Description: Pump and Treat System 2

Item		Quantity	Rate	Total	Task Detail
Annual Operation and Maintenance (O&M)					
56	Annual DPE O&M	0	\$ 89,104	\$ -	C33
55	Annual GWTS O&M	1	\$ 85,464	\$ 85,464	C32
57	Annual GAC Carbon Change Out	1	\$ 49,321	\$ 49,321	C34 and E
58	GWTS Quarterly Performance Report	4	\$ 5,590	\$ 22,360	C35
	Subtotal			\$ 157,145	
59	Project Management	8%	\$ 157,145	\$ 12,572	C51
	Annual O&M Subtotal			\$ 169,716	
Annual Monitoring					
60	Semi-annual Groundwater Monitoring and Sampling	0	\$ 3,007	\$ -	C36
61	Semi-annual Surface Water Sampling	0	\$ 857	\$ -	C50
62	Semi-annual Sediment Sampling	0	\$ 857	\$ -	C50
63	Semi-annual Sampling Reporting	0	\$ 8,230	\$ -	C37
64	Incremental Report Cost for Wells >4	0	\$ 1,000	\$ -	
	Subtotal			\$ -	
65	Project Management	8%	\$ -	\$ -	C51
	Annual Monitoring Subtotal			\$ -	
	Annual O&M and Monitoring Subtotal			\$ 169,716	
Net Present Value					
	Years of DPE Operation	0			
	Years of ORC Injection	0			
	Years of GWTS Operation	2			
	Years of Post-Restoration Monitoring	5			
	Discount Rate	3.0%			
66	0 Years of DPE O&M	0.00	\$ -	\$ -	
67	1 Year of ORC Injection	0.97	\$ -	\$ -	
68	3 Year of ORC Injection	0.92	\$ -	\$ -	
69	5 Year of ORC Injection	0.86	\$ -	\$ -	
70	2 Years of Land Lease	1.91	\$ 41,101	\$ 78,645	C28
71	2 Years of GWTS O&M	1.91	\$ 169,716	\$ 324,747	
72	7 Years of Monitoring	6.23	\$ -	\$ -	
73	Periodic Costs (5-Year Period)	1	\$ 7,958	\$ 7,958	C38
	NPV Subtotal			\$ 411,349	
	SUBTOTAL			\$ 1,096,574	
	Contingency	30%		\$ 328,972	C51
	TOTAL NPV REMEDIATION			\$ 1,425,547	



SECTION A3 COST SUMMARY – TREATMENT SYSTEM 3



Estimated Costs Summary

Site Name: #8857 Exxon Service Station

Description: Wellhead Treatment Design and Permitting (Well 11) System 3

Design Basis

1 Chemicals of Concern:		Analysis	Treatment
MTBE		1	1
TBA		1	1
BTEX		1	1

2 Estimated Average Influent Concentrations (µg/L)			Section
MTBE	5	GAC	E
TBA	5		E
BTEX	0	GAC	E

Total Number of wells			
3	Monitoring Wells	0	B1
4	Extraction Wells	0	B1

Treatment System				
5	Total Flow Rate	200	GPM	D
6	Trenching	0	Foot	B1
7	Treatment Process(es)	5000	# GAC/Bio-GAC	B2
8	Treatment Building	Off-site Treatment Building		C27

Net Present Value				
9	Existing Site Wells	0		
10	Number of wells for Semi-annual Sampling	0		B1 and existing site wells
11	Years of O&M/Semi-annual Sampling/Land Lease	2		2 pore flush, D
12	Years of Post Remediation Monitoring	5		
13	Discount Rate	3.0%		assumed
14	Contingency	15%		C51

Other				
15	Tax Rate	7%		
16	Mark Up	10%		
17	Location Adjustment Factor			
	Newark	112.7%		RS MEANS RJ1040-010 070-071
	Elizabeth	111.8%		RS MEANS RJ1040-010 072
	Jersey City	110.9%		RS MEANS RJ1040-010 073
	Paterson	112.2%		RS MEANS RJ1040-010 074-075
	Hackensack	111.0%		RS MEANS RJ1040-010 076
	Long Branch	110.2%		RS MEANS RJ1040-010 077
	Dover	111.2%		RS MEANS RJ1040-010 078
	Summit	111.2%		RS MEANS RJ1040-010 079
	Vineland	108.8%		RS MEANS RJ1040-010 080,083
	Camden	110.4%		RS MEANS RJ1040-010 081
	Atlantic City	109.1%		RS MEANS RJ1040-010 082,084
	Trenton	109.8%		RS MEANS RJ1040-010 085-086
	Point Pleasant	110.2%		RS MEANS RJ1040-010 087
	New Brunswick	111.2%		RS MEANS RJ1040-010 088-089
	Calculated State Average	110.8%		

Estimated Costs Summary

Site Name: #8857 Exxon Service Station

Description: Wellhead Treatment Design and Permitting (Well 11) System 3

Item		Quantity	Rate	Total	Task Detail
Groundwater Well Installation					
1	Well Installation Work Plan	0	\$ 5,485	\$ -	C1
2	Incremental Work Plan Cost for wells > 4	0	\$ 500	\$ -	
3a	Pre-Drilling Activities (1-6 Wells/day)	0	\$ 7,956	\$ -	C2a
3b	Fracture Lineament Assessment	0	\$ 11,358	\$ -	C2b
4	Driller Mobilization	0	\$ 24,952	\$ -	C2a
	Total Number of wells	0			
	Monitoring Wells	0			
5	A1-Zone Groundwater Well Installation/Development (TD = 20')	0	\$ 12,923	\$ -	C3
6	A2 Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 15,048	\$ -	C4
7	A3 Zone Groundwater Well Installation/Development (TD = 60')	0	\$ 18,159	\$ -	C5
8	A4 Zone Groundwater Well Installation/Development (TD = 80')	0	\$ 20,550	\$ -	C6
9	B1-Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 24,820	\$ -	C7
10	B2-Zone Groundwater Well Installation/Development (TD = 85')	0	\$ 31,340	\$ -	C8
11	B3-Zone Groundwater Well Installation/Development (TD = 100')	0	\$ 37,927	\$ -	C9
12	B4-Zone Groundwater Well Installation/Development (TD = 125')	0	\$ 40,849	\$ -	C10
13	B5-Zone Groundwater Well Installation/Development (TD = 150')	0	\$ 41,672	\$ -	C11
14	B6-Zone Groundwater Well Installation/Development (TD = 200')	0	\$ 46,983	\$ -	C12
	Extraction Wells	0			
5	A1-Zone Groundwater Well Installation/Development (TD = 20')	0	\$ 12,923	\$ -	C3
6	A2 Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 15,048	\$ -	C4
7	A3 Zone Groundwater Well Installation/Development (TD = 60')	0	\$ 18,159	\$ -	C5
8	A4 Zone Groundwater Well Installation/Development (TD = 80')	0	\$ 20,550	\$ -	C6
9	B1-Zone Groundwater Well Installation/Development (TD = 40')	0	\$ 24,820	\$ -	C7
10	B2-Zone Groundwater Well Installation/Development (TD = 85')	0	\$ 31,340	\$ -	C8
11	B3-Zone Groundwater Well Installation/Development (TD = 100')	0	\$ 37,927	\$ -	C9
12	B4-Zone Groundwater Well Installation/Development (TD = 125')	0	\$ 40,849	\$ -	C10
13	B5-Zone Groundwater Well Installation/Development (TD = 150')	0	\$ 41,672	\$ -	C11
14	B6-Zone Groundwater Well Installation/Development (TD = 200')	0	\$ 46,983	\$ -	C12
15	Well Installation Report	0	\$ 7,520	\$ -	C13
16	Incremental Report Cost for wells >4	0	\$ 1,000	\$ -	
	Groundwater Well Installation Subtotal			\$ -	
Pilot Testing					
17	Pumping Test Work Plan	0	\$ 5,125	\$ -	C14
18	Aquifer Pumping Test	0	\$ 39,617	\$ -	C15a
19	Dual Phase Extraction Pilot Test	0	\$ 28,472	\$ -	C15b
20	Bench Scale Testing	0	\$ 10,593	\$ -	C16
21	Aquifer Pumping and Bench Test Report	0	\$ 7,520	\$ -	C17
	Pilot Testing Subtotal			\$ -	
Groundwater Modeling					
22	2-Dimension Model	0	\$ 20,020	\$ -	C39
23	3-Dimension Model	0	\$ 39,500	\$ -	C40
	Groundwater Modeling Subtotal			\$ -	
Risk Assessment					
24	Ecological Risk Assessment	0	\$ 11,770	\$ -	C41
25	Vapor Intrusion Risk Assessment	0	\$ 8,828	\$ -	C42
	Risk Assessment Subtotal			\$ -	
Professional/Technical Services					
26	FS/RAP/Remedial Design	15%	\$ 393,706	\$ 59,056	C51
27	Construction Management	10%	\$ 393,706	\$ 39,371	C51
28	Project Management	8%	\$ 393,706	\$ 31,496	C51
	Professional/Technical Services Subtotal			\$ 129,923	

Estimated Costs Summary

Site Name: #8857 Exxon Service Station

Description: Wellhead Treatment Design and Permitting (Well 11) System 3

Item		Quantity	Rate	Total	Task Detail
Point of Entry Treatment (POET) Systems					
29	POET Design and Permitting	0	\$ 15,380	\$ -	C43
POET Subtotal				\$ -	
Groundwater Treatment System					
30	Pump Installation (Per Well)	0	\$ 15,541	\$ -	C18
31	Trenching Mob./Demob.	0	\$ 41,195	\$ -	C19
32	100 Feet of Trenching: Treatment System to Extraction Wells	0	\$ 21,452	\$ -	C19
33	Influent Manifold	1	\$ 1,837	\$ 1,837	C20
34	Influent Tank and Piping	1	\$ 62,103	\$ 62,103	C21
35	Optional Iron and Manganese Filter	1	\$ 88,209	\$ 88,209	C22
36	Dual Phase Extraction System	0	\$ 146,222	\$ -	C23
37	Bio-Reactor GAC 2000#	0	\$ 12,382	\$ -	C24
38	GAC 2000#	0	\$ 72,682	\$ -	C24
39	Bio-Reactor GAC 5000#	1	\$ 23,322	\$ 23,322	C25
40	GAC 5000#	1	\$ 108,785	\$ 108,785	C25
41	Bio-Reactor GAC 10000#	0	\$ 43,957	\$ -	C26
42	GAC 10000#	0	\$ 176,879	\$ -	C26
43	Remediation Treatment System Building	1	\$ 109,449	\$ 109,449	C27
Groundwater Treatment System Subtotal				\$ 393,706	
44	Lease Land	0	\$ 41,101	\$ -	C28
45	Water Allocation Permit (For GWTS > 100M GPD)	0	\$ 387	\$ -	C29
46	NJ NPDES Permitting	0	\$ 15,307	\$ -	C30
47	O&M Manual	0	\$ 34,950	\$ -	C31
Well Installation, Pilot testing, and System Design and Install					
Subtotal				\$ 523,629	
ORC-Advanced Injection Program					
48	Permit-by-Rule to Inject	0	\$ 4,187	\$ -	C44
49	ORC Injection Work Plan	0	\$ 5,125	\$ -	C45
50	ORC Pre-Injection Program	0	\$ 3,556	\$ -	C46
51	ORC Injection Point Field Activities	0	\$ 2,898	\$ -	C47
52	ORC Injection Performance Monitoring	0	\$ 4,208	\$ -	C48
53	ORC Injection Report	0	\$ 7,520	\$ -	C49
Subtotal				\$ -	
54	Project Management	8%	\$ -	\$ -	C51
ORC-Advanced Injection Program Subtotal				\$ -	

Estimated Costs Summary

Site Name: #8857 Exxon Service Station

Description: Wellhead Treatment Design and Permitting (Well 11) System 3

Item		Quantity	Rate	Total	Task Detail
Annual Operation and Maintenance (O&M)					
56	Annual DPE O&M	0	\$ 89,104	\$ -	C33
55	Annual GWTS O&M	0	\$ 85,464	\$ -	C32
57	Annual GAC Carbon Change Out	0	\$ 56,202	\$ -	C34 and E
58	GWTS Quarterly Performance Report	0	\$ 5,590	\$ -	C35
	Subtotal			\$ -	
59	Project Management	8%	\$ -	\$ -	C51
	Annual O&M Subtotal			\$ -	
Annual Monitoring					
60	Semi-annual Groundwater Monitoring and Sampling	0	\$ 708	\$ -	C36
61	Semi-annual Surface Water Sampling	0	\$ 857	\$ -	C50
62	Semi-annual Sediment Sampling	0	\$ 857	\$ -	C50
63	Semi-annual Sampling Reporting	0	\$ 8,230	\$ -	C37
64	Incremental Report Cost for Wells >4	0	\$ 1,000	\$ -	
	Subtotal			\$ -	
65	Project Management	8%	\$ -	\$ -	C51
	Annual Monitoring Subtotal			\$ -	
	Annual O&M and Monitoring Subtotal			\$ -	
Net Present Value					
	Years of DPE Operation	0			
	Years of ORC Injection	0			
	Years of GWTS Operation	2			
	Years of Post-Restoration Monitoring	5			
	Discount Rate	3.0%			
66	0 Years of DPE O&M	0.00	\$ -	\$ -	
67	1 Year of ORC Injection	0.97	\$ -	\$ -	
68	3 Year of ORC Injection	0.92	\$ -	\$ -	
69	5 Year of ORC Injection	0.86	\$ -	\$ -	
70	2 Years of Land Lease	1.91	\$ -	\$ -	C28
71	2 Years of GWTS O&M	1.91	\$ -	\$ -	
72	7 Years of Monitoring	6.23	\$ -	\$ -	
73	Periodic Costs (5-Year Period)	0	\$ 3,825	\$ -	C38
	NPV Subtotal			\$ -	
	SUBTOTAL			\$ 59,056	
	Contingency	15%		\$ 8,858	C51
	TOTAL NPV REMEDIATION FOR F/S, RAP/REMEDIAL DESIGN			\$ 67,914	