Area ID	Area (Sq. Ft)	Corrected SPL Volume (Gallons)	No Further Action	Manual SPL Recovery	Manual SPL/Groundwater Recovery	Vertical Extraction Wells	Horizontal Collection Wells	I
SPL-1	3,100	22			√			
SPL-2/3	22,700	3,580		√	√			
SPL-4	14,000	255			√			
SPL-5	28,900	1,820		√			√	
SPL-6	20,200	1,270					√	
SPL-7	22,500	2,880		√			√	
SPL-8	3,000	34					√	
SPL-9	21,200	1,840			√			
SPL-10	112,600	11,020		√		√	√	
SPL-11	113,300	14,290		√			√	
SPL-12/13	63,400	11,290		√			√	
SPL-14	34,700	1,380		√			√	
SPL-15	28,900	5,540		√			√	
SPL-16	6,400	195						
SPL-17 (7)	4,200	4						
SPL-18	27,000	9,310		√	√			
SPL-19	10,200	29		√	√			
SPL-20	11,100	196		√				
SPL-21	19,700	1,080		√				
SPL-22	91,300	10,840		√				
SPL-23	1,900	3						
SPL-24	7,500	730						
SPL-25	0	0						
SPL-26	55,700	6,450		√				
SPL-27 (1)	6,200	625		√				
SPL-28 (2)	11,100	509						

Area ID	*Area (Sq. Ft)*	*Corrected SPL Volume (Gallons)*	*No Further Action*	*Manual SPL Recovery*	*Manual SPL/Groundwater Recovery*	*Vertical Extraction Wells*	*Horizontal Collection Wells*
1. B&P Railroad (MEK & ROSE Units)	NE	NE					√ (4)
2. Hilton Street Property	NE	NE	√				
3. Mill Street Substation	NE	NE	√				
4. Mill Street	NE	NE					√ (4)
5. Conrail (EU1)	NE	NE					
6. B&P Railroad (South of Kendall Avenue)	NE	NE			√		
7.Kendall Avenue (PennDOT)	NE	NE					√ (3)
8. Werzalit	NE	NE					√ (3)
9. Conrail (EU3)	NE	NE					
10. B&P Railroad (North & South of Bolivar Drive)	NE	NE		√ (5)			
11. Robinson Property	NE	NE					
12. Strouss Property	NE	NE					
13. Bolivar Drive (PennDOT)	NE	NE					
14. Graham Packaging	NE	NE					
15. Route 219 (PennDOT)	NE	NE					

Notes:

√ Component of Selected Remedial Option.
(1) Does not include cover and post-closure monitoring/maintenance of Bauxite Fill Area.
(2) Does not include cover and post-closure monitoring/maintenance of Former Burn Pit Area.
(3) Already being performed by horizontal wells currently operational.
(4) Will be performed when HW-11 and HW-12 become operational.
(5) Already being performed as part of SPL-18.
(6) The volume of SPL will be addressed by the remedy implemented for SPL-19.
(7) The SPL-17 area is to be addressed using the technologies described in "Site Characterization Report, Tank 720" dated December 2007 and the Remedial Action Plan (RAP) to be submitted by ARG within 45 days of submittal of the SCR. Monitoring will be pursuant to the RAP.
NE Not estimated

TABLE 5.1

POST-CLOSURE INSPECTION AND MONITORING ACTIVITIES
ARG REFINERY, BRADFORD, PA

	Activity	*Frequency*	*Location*	*Parameter with Exceedanc*
e Fill Area	Inspections	Quarterly - Grade >3% Semi-Annual - Grade ≤ 3%	Entire Cover	NA
	Groundwater Monitoring	Semi-Annual for 2 years Thereafter - TBD	MW-TF43 and MW-129	Benzene, Arsenic, Iron and Manganese
h Area	Inspections	Quarterly for 2 years - Grade >3% Semi-Annual for 2 years - Grade ≤ 3%	Entire Cover	NA
	Groundwater Monitoring	NA	NA	NA
r Burn Pit Area	Inspections	Quarterly for 2 years - Grade >3% Semi-Annual for 2 years - Grade ≤ 3%	Entire Cover	NA
	Groundwater Monitoring	Semi-Annual for 2 years Thereafter - TBD	MWRW-01, MWRW-02. MWRW-03, MWRW-05	Arsenic, Iron, Manganese, Benzo(b)fluoranthene, Benzo(g,h,i)pery Benzo(k)fluoranthene, Chrysene, cis-1,2 Dibenz(a,h)anthracene, Pyrene, Benzen Ethylbenzene, Naphthalene and Vinyl Chloride
uction Debris Area	Inspections	Quarterly for 2 years - Grade >3% Semi-Annual for 2 years - Grade ≤ 3%	Entire Cover	NA
	Groundwater Monitoring	Semi-Annual for 2 years Thereafter - TBD	RAW-28 and MW-RA04	Aluminum, Beryllium, Cadmium, Iron, Manganese, Nickel, Methylene Chlorid
/Container Removal	Inspections	Quarterly for 2 years - Grade >3% Semi-Annual for 2 years - Grade ≤ 3%	Entire Cover	NA
	Groundwater Monitoring	Semi-Annual for 2 years Thereafter - TBD	RAW-12 and RAW-31	Beryllium and Nickel

lot Applicable

TABLE 6.1

DEMONSTRATION OF ATTAINMENT FOR GROUNDWATER
ARG REFINERY, BRADFORD, PA

SPL Area	*Wells to Be Monitored Quarterly for SPL Thickness* [6]	*Wells to Be Sampled Quarterly* [5]	*Parameters With Exceedances*
SPL-1	EMW-01	EMW-01, MW-68	Aluminum, Cadmium, Iron, Manganese, Nickel
SPL-2/3	EMW-04, EMW-79, MW-62, MW-69, MW-102, MW-103, MW-104	MW-103, MW-104, MW-62, MW-70	Methyl ethyl ketone, Benzene, Benzo(a)pyrene, Benzo(k)fluoranthene, Chrysene, Pentachlorophenol, Arsenic, Iron Manganese
SPL-4	MW-59, MW-61	MW-59, MW-61, EMW-06	Iron and Manganese
SPL-5	EMW-07, EMW-08, EMW-09, MW-56, MW-71, MW-121, MW-139	MW-56, MW-73, MW-139, EMW-08	Arsenic, Iron, Manganese
SPL-6	EMW-10, MW-72, MW-73	MW-72, MW-73	Arsenic, Iron and Manganese
SPL-7	EMW-11, EMW-11 (Sump), MW-48, MW-80, MW-93, MW-94, MW-120	EMW-11, MW-48, MW-80	Arsenic, Iron, Manganese, Thallium
SPL-8	RW-12, RW-16(1)	RW-12, RW-16	Arsenic, Iron, Manganese
SPL-9	EMW-17, MW-92, MW-96, MW-122, MW-123, MW-124, MW-131, RW-13	EMW-17, MW-92, MW-131	Arsenic, Iron, 1,2,4-TMB, 1,3,5-TMB, Benzene, Benzo(a)pyrene, Benzo(k)fluoranthene
SPL-10	EMW-18, EMW-19, EMW-21, EMW-22, EMW-23, EMW-24, EMW-25, EMW-26, EMW-27, EMW-28, EMW-29, EMW-82, EMW-83, MW-26, MW-32, MW-33, MW-37, MW-125, MW-126, HWMW-02, HWMW-03, JD-1, RW-1, RW-14	EMW-27, MW-33, MW-37, RW-1, RW-3, RW-4	Aluminum, Arsenic, Beryllium, Iron, Manganese, Nickel, Benzo(a)pyrene, Benzo(g,h,i)perylene, Pentachlorophenol, Benzene

17)

TABLE 6.1

DEMONSTRATION OF ATTAINMENT FOR GROUNDWATER
ARG REFINERY, BRADFORD, PA

SPL Area	*Wells to Be Monitored Quarterly for SPL Thickness* [6]	*Wells to Be Sampled Quarterly* [5]	*Parameters With Exceedances*
SPL-20	MW-PP03, MW-PP04	MW-PP04, MW-118	Iron, Manganese, Cis-1,2-DCE, TCE, Vinyl Chloride
SPL-21	MW-116	MW-116, MW- 118	Iron, Manganese, TCE, Vinyl Chloride
SPL-22	MW-TF10, MW-TF14, MW-TF28, MW-TF29, MW-TF31, MW-TF35, MW-TF37, MW-TF50, HG-417A, MW-420	MW-TF10, MW-TF26, MW-TF28, MW-TF44, MW-TF50	Aluminum, Arsenic, Iron, Manganese, Thallium, Benzene, Ethylbenzene, MTBE, Naphthalene, Toluene, Xylene (total)
SPL-23	MW-TF07	MW-TF07	Iron, Manganese
SPL-24	MW-TF27	MW-TF27, MW-TF44,	Arsenic, Iron, Manganese, Benzene, MTBE
SPL-25	MW-TF26(1)	MW-TF26	Arsenic, Iron, Manganese, Benzene
SPL-26	MW-TF02, MW-TF03, MW-TF04, MW-TF17, MW-TF25	MW-TF02, MW-TF17, MW-TF22, MW-TF49	Arsenic, Iron, Manganese, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, 1,2-DCA, Benzene, Ethylbenzene, Naphthalene, Xylenes (total)
SPL-27	MW-TF05, MW-TF21, MW-TF42	MW-TF21, MW-TF22, MW-TF49	Arsenic, Iron, Manganese, Benzene
SPL-28	FBMW-02	FBMW-02, MWRW-03	Arsenic, Iron, Manganese, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Pyrene, Cis-1,2-DCE, Benzene, Ethylbenzene, Naphthalene, Vinyl Chloride
SPL-29	EMW-13	EMW-13	Iron, Manganese

TABLE 6.1

DEMONSTRATION OF ATTAINMENT FOR GROUNDWATER
ARG REFINERY, BRADFORD, PA

SPL Area	*Wells to Be Monitored Quarterly for SPL Thickness* (6)	*Wells to Be Sampled Quarterly* (5)	*Parameters With Exceedances*
Robinson and Strouss	MW-133, MW-NT22	MW-133, MW-NT22	Iron, Manganese, 1,2,4-TMB, 1,3,5-TMB, Benzene, Ethylbenzene, Naphthalene, TCE, Xylenes (total)
Boliver Drive	NA	MW-NT34, MW-TF46	Iron, Manganese, 1,2,4-TMB, 1,3,5-TMB, Benzene
Graham Packaging	MW-PP03, MW-PP04, MW-116	MW-PP04, MW-116, MW-118	Iron, Manganese, Cis-1,2-DCE, TCE, Vinyl Chloride
Route 219	FBMW-02	FBMW-02	Aluminum, Antimony, Arsenic, Iron, Manganese, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Pyrene, Cis-1,2-DCE, Benzene, Ethylbenzene, Naphthalene, Vinyl Chloride

Notes:

(1) Quarterly monitoring of SPL thickness to start after acceptance of SCR by PADEP. SCR was accepted on October 29, 2007.

(2) Wells MW-416 and MW-CR03 which are located within SPL-16 will be abandoned during excavation of the SPL impacted soil.

(3) The SPL-17 area is to be addressed using the technologies described in "Site Characterization Report, Tank 720" dated December 2007 and the Remedial Action Plan (RAP) to be submitted by ARG within 45 days of submittal of the SCR. Monitoring will be pursuant to the RAP.

(4) To be addressed as part of SPL-19.

(5) Sampling to start after eight quarters with SPL thickness <0.01 feet.

(6) SPL thickness monitoring prior to the start of the demonstration of attainment period will be performed as par t of the SPL recovery program or semi-annual, whichever is more frequent.

(7) MW-NT33 was decomissioned by Shell in October 2007, MW-NT36 to be used in lieu of.

SPL Area [2]	*Sample In Vicinity of Boreholes*	*No. of Boreholes*	*Sample Depth (ft bgs)*	*Parameters with Exceedance*
SPL-30	ESI-59b, ESI-63	5 (6)	4 - 6	Benzene, Ethylbenzene, Naphthalene, and Xylenes (total)
	TF-87	5 (6)	4.8 - 6.8	Benzene
	ESI-48	5 (6)	5 - 7	Naphthalene
B&P Railroad (MEK & Rose Units)	RESB-06	2	5 - 7	Lead
Hilton Street	- -	- -	- -	- -
Penn Electric	- -	- -	- -	- -
Mill Street	- -	- -	- -	- -
Conrail (EU-1)	- -	- -	- -	- -
B&P Railroad (Crude Unit)	- -	- -	- -	- -
Kendall Avenue	EWSB-01	8	2 - 4	Benzene
Werzalit	- -	- -	- -	- -
Conrail (EU3)	- -	- -	- -	- -
B&P Railroad (North & South of Bolivar Drive)	GP-116	8	5 - 6	1,2,4-TMB, 1,3,5-TMB
Robinson & Strouss	GP-103	8	9 - 11	1,2,4-TMB, 1,3,5-TMB
Bolivar Drive	GP-103	Included Above	9 - 11	1,2,4-TMB, 1,3,5-TMB
Graham Packaging	- -	- -	- -	- -
Route 219	See Table 6.3		See Table 6.3	See Table 6.3

Notes:

(1) Applicable if the exposure pathway has not been eliminated.
(2) Sample is from unsaturated soil unless indicated otherwise.
(3) Demonstration of attainment to be shown by the results of the five verification soil samples to be collected and analyzed from the excavation sidewalls and floor as described in Section 4.5.1.
(4) For the on-Site portion of SPL-18 not related to the May 2004 diesel release.
(5) Pennzoil Quaker State is taking the lead on developing the remedy for this area.
(6) Total number of samples in each SPL area for the depth intervals/locations listed.
(7) Included in SPL-22.
(8) Total number of samples in each SPL area for all depth intervals/locations listed.
(S) Surface Soil.

SPL Area	*Location Vicinity of Boreholes*	*No. of Boreholes*	*Sample Depth (ft bgs)*	*Parameters with Exceedance*
SPL-1	MW-68	8	15 - 17	Antimony and Arsenic
SPL-2/3	MEKSB-09	6	4 - 8	Lead
	MW-69	4	15 - 17	Arsenic
SPL-4	- -	- -	- -	- -
SPL-5	RESB-01	7 (1)	6 - 8	Arsenic and Benzene
SPL-6	MW-72	7 (1)	10 - 10.5	Antimony and Arsenic
	MW-73	7 (1)	15 - 17	Antimony and Arsenic
SPL-7	RESB-13	4 (2)	6 - 8	Lead and PAHs
	RESB-15	4 (2)	8 - 10	Lead
SPL-8	- -	- -	- -	- -
SPL-9	DBSB-02	5 (2)	7 - 8	Anthracene, Benzene, Naphthalene
	DBSB-03	5 (2)	6 - 8	Benzene
	DBSB-04	5 (2)	6 - 8	Benzene
	DBSB-05	5 (2)	6 - 8	Benzene
	DBSB-06	5 (2)	6 - 8	Benzene, Antimony and Lead
SPL-10	UYSB-02	0	6 - 8	Lead and Mercury
	UYSB-07	0	6 - 8	Naphthalene
	UYSB-05	0	6 - 8	Anthracene and Benzo(a)pyrene
SPL-11	CUSB-01	4 (2)	6 - 8	Lead and Mercury
	CUSB-04	4 (2)	6 - 8	Lead
	ESI-20	4 (2)	5 - 7	Benzene
SPL-12/13	BHSB-02	0	3 - 5	Lead
	CUSB-08	0	6 - 8	Arsenic, Lead and Benzene
	CUSB-10	0	4 - 6	Benzene
SPL-14	RDSB-01	7	6 - 8	Lead
SPL-15	MW-85	4	8 - 9	Benzene
SPL-16	- -	- -	- -	- -
SPL-17	- -	- -	- -	- -
SPL-18	MW-NT19, MW-NT20	7		1,2,4-TMB, 1,3,5-TMB, Benzene
SPL-19	- -	- -	- -	- -
SPL-20	- -	- -	- -	- -
SPL-21	- -	- -	- -	- -
SPL-22	TF-12	5 (2)	11-12	Benzene
	TF-90	5 (2)	6 - 8	Benzene
SPL-23	- -	- -	- -	- -
SPL-24	- -	- -	- -	- -
SPL-25	TF-16	4	8 - 10	Naphthalene
SPL-26	- -	- -	- -	- -
SPL-27	MW-TF47	0	10 - 12	Benzene
	BF-1B	0	10 - 12	Arsenic
SPL-28	RWSB-01	0	17	Benzene
	MWRW-02	0	10 - 12	Naphthalene and Benzene
SPL-29	PFSB-03	6 (2)	6 - 8	Mercury, Benzo(a)pyrene, Anthracene, Chrysene, Benzene and Naphthalene
	PFSB-04	6 (2)		Lead
	PFSB-05	6 (2)		Lead and Benzo(a)pyrene
SPL-30	- -	- -	- -	- -
B&P Railroad (MEK & Rose Units)	MESKB-09	6 (2)	4 - 8	Lead
	MW-68	6 (2)	15 - 17	Antimony, Arsenic
	MW-69	6 (2)	15 - 17	Arsenic
	MW-72	6 (2)	10 - 10.5	Antimony, Arsenic
	MW-73	6 (2)	15 - 17	Antimony, Arsenic