OPERABLE UNIT 5 REMEDIAL INVESTIGATION REPORT
ALAMEDA POINT
ALAMEDA, CALIFORNIA

VOLUME II - APPENDICES

Final

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APPENDIX A
SUMMARY OF HISTORICAL DATA

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List of Acronyms and Abbreviations

BaP	benzo(a)pyrene
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
EBS	Environmental Baseline Survey
ft	foot (feet)
IR	Installation Restoration
MTBE	methyl tertiary butyl ether
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
TPH	total petroleum hydrocarbon
VOC	volatile organic compound

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1.0 Introduction

The area comprising Operable Unit (OU)-5 (Parcels 181 through 183) was addressed within the Final Basewide Environmental Baseline Survey (PRC, 1996a) and Draft Supplemental Basewide Environmental Baseline Survey (TtEMI 1999; IT 1998). In 1994 and 1995, the Navy conducted an Environmental Baseline Survey (EBS) that included the collection of surface soil samples and soil gas samples in the portion of OU-5 known as Estuary Park (formerly referred to as Installation Restoration [IR] Site 25 and, prior to that, EBS Parcel 182). Phase 2A of the EBS involved the collection of six surface soil samples and three soil gas samples from three target areas. Soil samples indicated the presence of polycyclic aromatic hydrocarbons (PAH) and motor oil range total petroleum hydrocarbons (TPH), as well as detectable levels of methoxychlor, a diphenyl chloride insecticide that is widely used for residential and agricultural applications. Polychlorinated biphenyls (PCB) were not detected in soil samples, but metals were detected at low concentrations. Volatile organic compounds (VOC) were not detected in soil gas samples.

In 1994 and 1995, the Navy conducted an EBS that included the collection of surface soil samples and soil gas samples in EBS Parcel 181 (the portion of OU-5 known as the Coast Guard Housing Area). Phase 2A of the EBS involved the collection of 15 surface soil samples, one subsurface soil sample, and 17 soil gas samples from three parcel-specific target areas, and two zone-wide target areas within Parcel 181. Soil samples did not reveal any significantly elevated concentrations of Contract Laboratory Program Metals, Contract Laboratory Program Pesticides/PCBs, or TPH (purgeables and extractables). Volatile organic compounds were not detected in soil gas samples. Polycyclic aromatic hydrocarbons were sampled at only one location in this EBS study because they were not expected to be of concern in this area. No additional sampling was conducted as part of Phase 2A in Parcel 181.

In 1995, the Navy conducted Phase 2B of the EBS, which included the collection of surface and subsurface soil samples and groundwater samples at Estuary Park. Five subsurface soil samples, three surface soil samples and four groundwater samples were collected from two target areas identified during the Phase 2A investigation. Elevated PAHs were detected in soil samples to 8 feet (ft) below ground surface (bgs), and TPH (gasoline range) and PAHs were detected at low concentrations in groundwater samples in the first water bearing zone.

In February 1998, the Navy conducted an additional investigation of Parcel 182 (Estuary Park) that included the collection of nine surface soil samples, and four surface soil samples from a

small playground area that was under construction at the time. Elevated PAHs in surface soil (0 to 1 ft bgs) were found in all samples. In October of 1998, 35 additional soil borings were completed in Estuary Park, resulting in 90 samples analyzed for PAHs (72 were collected at 1 and 7 ft bgs, and the rest at 4 and 10 ft bgs). In addition, ten groundwater samples were collected. A data summary report was submitted to the Navy in January 1999 (TtEMI, 1999).

In February 1999, soil and groundwater samples were taken within Parcel 181 (the Coast Guard Housing Area). Thirty-six soil samples (21 surface and 15 subsurface) were collected. Groundwater samples were also taken using a Hydropunch®, plus samples from the three existing monitoring wells. In April of 1999, 33 additional surface soil samples were taken (nine from backyards). Elevated PAH levels were detected in the northern portion of Parcel 181; however, concentrations decreased in samples in the southern and eastern portion of the area.

1.1 Review of Existing Data

Existing soil and groundwater data from OU-5 and adjacent Alameda Point and Alameda Annex sites were reviewed. This review resulted in the identification of data gaps to assess human health risk due to PAHs and possible groundwater contaminants to residents in Parcel 181. A Remedial Investigation Work Plan (Neptune and Company, 2001) was prepared to collect supplementary information to complete the OU-5 Remedial Investigation.

1.1.1 Soil Data

A review of existing relevant soil data for PAHs (Table A-1) and metals is provided in this section.

1.1.1.1 Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbon data were collected in 1994, 1995, 1998, and 1999 in the area of OU-5. The majority of the 1998 data were collected on a 150-ft regular grid within Parcel 182, although there are also some additional discretionary samples at a location near the northern boundary of the parcel where 1994 and 1995 data showed relatively high PAH concentrations. The 1999 PAH data were collected exclusively within Parcel 181, with the exception of a single sample from Parcel 183.

For purposes of data analysis and presentation, concentrations of the seven carcinogenic PAHs (benzo(a)pyrene [BaP], benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) were normalized according to their toxicity relative to BaP to create a single BaP-equivalent concentration. Benzo(a)pyrene is the only carcinogenic PAH for which the U.S. Environmental Protection Agency publishes a

cancer slope factor. The factors used to normalize toxicity, and the PAH concentrations for existing site samples, are provided in Appendix B. Bubble plots of the historical data that indicate the pattern of BaP-equivalent concentrations in OU-5 and the surrounding area at various depth intervals were presented in the RI Work Plan in Appendix B Figures B-1 through B-6 (Neptune and Company, 2001). Figures developed by Tetra Tech EM Inc. showing approximate isopleths of BaP equivalent concentrations in soil at 0 to 2 ft and 7 ft depths were also provided in the Work Plan (Figures B-7 and B-8) (Neptune and Company, 2001).

There were two trends apparent in the BaP-equivalent data. Benzo(a)pyrene-equivalent concentrations were clearly elevated in the northwest region of OU-5 in the area of Estuary Park and decreased in a southeasterly direction towards Alameda Annex IR Site 02. At Alameda Annex IR Site 02, BaP-equivalent concentrations increase again, but are still generally lower than in the northwest region of OU-5. The second noticeable trend was that BaP-equivalent concentrations were significantly higher between 2 to 8 ft bgs than at 0 to 2 ft bgs in the area of Estuary Park. Benzo(a)pyrene-equivalent concentrations were lowest in the 8 to 10 ft bgs interval in this area. Some PAH data from below 10 ft bgs were collected at Alameda Annex IR Site 02 and the southeast portion of OU-5. These data suggested that BaP-equivalent concentrations increased again below 10 ft in this area. These findings appeared to be consistent with the site history of historical industrial releases and fill operations.

Some data were also collected at OU-5 for organic chemicals other than PAHs during the EBS sampling. Organic chemicals such as pesticides, semivolatile organic compounds, benzene, toluene, ethylbenzene, and toluene, and other VOCs were sampled. Methyl tertiary butyl ether (MTBE) was identified in 4 of 43 soil samples in Estuary Park at a depth of 2 to 7 ft bgs and 2 of 10 soil samples in Estuary Park at a depth of 7 to 10 ft bgs. This chemical is a gasoline additive that has been used only in the relatively recent past. Detection of MTBE was limited to an area in the eastern portion of Estuary Park. Its presence at depth in this localized area may be an indication that some portion of the petroleum-related contamination at OU-5 is not associated with historical industrial activities. However, all but one of the MTBE detections were estimated values (J-qualified) and some of them were adjacent to a parking area on the east side of Estuary Park. Methyl tertiary butyl ether has also been detected at OU-5 in two monitoring well borings, P181-MW45 and P181-MW46, at 6 and 12 micrograms per liter, respectively. However the reported concentrations were within the range of nondetect values at other locations and MTBE was not detected in earlier samples from these wells, indicating that the validity of the detections is suspect. A VOC suite was not analyzed for surface soils so the presence of MTBE in surface soils is unknown.

Endosulfan sulfate and dichlorodiphenyltrichloroethane were each detected once in ten surface samples. However, detected concentrations were estimated values and were below (endosulfan sulfate) or within (dichlorodiphenyltrichloroethane) the range of nondetect values. Methoxychlor was detected in two of ten samples with estimated values of 0.18 and 0.22 milligrams per kilogram. These estimated values are approximately tenfold higher than most of the nondetect values, indicating that these values are likely valid.

1.1.1.2 Metals

Metals data were collected at three general locations in OU-5 during EBS sampling in 1994; four samples were obtained on the northern and eastern perimeter of Estuary Park, two samples were collected near the southern tip of Estuary Park, and eight samples were collected in the southeastern portion of OU-5. All samples were collected from the 0 to 2 ft bgs sampling interval.

Data for the majority of metals indicated higher concentrations in the samples near Estuary Park than in samples from the southeastern portion of OU-5. The pattern was roughly consistent with that observed in the 0 to 2 ft bgs BaP-equivalent data.

Certain metals at OU-5 may be associated with historical releases from early industries in the Oakland/Alameda area. The historical metals samples do not provide good spatial coverage across OU-5. Furthermore, existing metals data from Alameda Point ambient data sets represent different fill events for Alameda Island than the fill events associated with OU-5. Fill history maps (see Figure 2-2 of the main text) indicate that the majority of OU-5, with the exception of southernmost portions, was filled between 1900 and 1915, following construction of the railroad mole at the north boundary of Alameda Island. None of the three Alameda Point ambient data sets (western, central, and eastern portions of Alameda Point) have any samples associated with this early fill event. For these reasons, comparison of site and ambient metal data to determine whether metal concentrations at OU-5 are elevated were not performed.

Two additional soil samples collected at 103(a) Singleton Avenue and 2002 Monterey Circle were reportedly analyzed for lead according to an EBS Phase 2A zone analysis plan (ERM-West, 1995). The lead values reported in the document for these locations were relatively high but no contextual information was provided for these data. The EBS Report indicates that these samples may have been collected during a lead-based paint survey conducted by the Navy Public Works Center. Navy Public Works Center data obtained in sampling campaigns after the EBS report was written were reviewed and do not reveal similarly high lead concentrations. Lead concentrations in the fourteen 1994 EBS samples were also not different from those

observed in local ambient soil. Therefore, it is evident that the two high lead values reported in the EBS report were not generally representative of soils in the area.

1.1.1.3 Groundwater Data

Available groundwater quality data from OU-5 and adjacent properties are briefly reviewed in this section. One thousand three hundred and thirteen records associated with 35 sample location identification numbers were available for review. All groundwater samples were collected in the first water bearing zone. Table A-2 presents a summary of the historical groundwater data. Of the ten high molecular weight PAHs analyzed, only one, dibenz(a,h)anthracene, was never detected. The most frequently detected analytes were fluoranthene and pyrene (55 percent and 58 percent, respectively). The remaining high molecular weight PAHs were detected in 6 to 26 percent of the samples. All seven low molecular weight PAHs were detected in at least one sample. The detection rate was highest for acenaphthene (58 percent), followed by a 45 percent rate for naphthalene and phenanthrene. The detection rate for the remaining low molecular weight PAHs ranged from 19 percent to 39 percent. Each of the four BTEX compounds were detected in at least one of the 35 groundwater samples. Detection rates for the individual analytes ranged from 26 percent to 37 percent. Methyl tertiary butyl ether was detected in two of 30 samples. Four of the 48 additional semi-volatile organic chemicals were detected in any groundwater sample. These analytes were 1,4-dichlorobenzene (one of eight samples), 2,4-dichlorophenol (one of eight samples), carbazole (three of eight samples) and dibenzofuran (one of eight samples). Among the 29 additional volatile organic chemicals, only carbon disulfide was detected. It was detected in one of five samples. Among the TPH analyses, diesel range organic chemicals were detected in 53 percent of the samples. Gasoline range organic chemicals were detected in 28 percent of the samples. No samples contained detectable amounts of motor oil range organic chemicals.

The number of samples that were analyzed for chemicals other than petroleum-related compounds were relatively few. However, the data indicate that petroleum-related analytes (particularly BTEX compounds and low molecular weight PAHs) are the most commonly observed chemicals present in groundwater.

Spatial and temporal patterns for benzene and other frequently detected organic chemicals in groundwater (diesel-range TPH, acenaphthene, naphthalene, and phenanthrene) were reviewed. Monitoring wells 45, 46, 47, and EW-2 were sampled in February and December of 1999, all other sampling locations were sampled on a single date. The relative percent difference of benzene concentrations for these dates ranges between approximately 35 percent and 180 percent. This variability is significantly greater than the variability in benzene

concentrations observed in duplicate samples at a single date (4.9 percent and 7.4 percent) or between analytical methods (ranging between 2.2 percent and 16.3 percent).

Concentrations of diesel-range TPH, acenaphthene, naphthalene, and phenanthrene are generally highest at well MW-47 in the February 1999 samples while benzene concentrations are highest at well EW-2. Groundwater concentrations of benzene, diesel-range TPH, acenaphthene, naphthalene, and phenanthrene were measured in the October 1998 Hydropunch® samples and there was poor spatial correlation among these analytes. Plots of these groundwater data are provided in Appendix B of the Work Plan.

Table A-1
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
-	EBS PHASE 2A	182-Z16-004	1484385.585	474669.924	11/18/94	0.5	1	1100		1900		2500		1000		1500		350	J	2700		2891.50
-	EBS PHASE 2A	182-Z16-005	1483835.228	474677.478	11/18/94	0.5	1	390	U	390	U	390	U	390	U	390	U	390	U	390	U	450.65
182	EBS PHASE 2B	182-002-013	1484695.9	474484.9	10/18/95	7.5	8	140	J	230	J	150	J	43	J	140	J	400	UJ	270	J	486.57
182	EBS PHASE 2B	182-002-014	1484693.5	474357.9	10/19/95	7.5	8	430	UJ	430	UJ	430	UJ	430	UJ	430	UJ	430	UJ	430	UJ	496.87
182	EBS PHASE 2B	182-Z16-010	1483860.2	474612	10/18/95	0.5	1.5	500	J	730	J	730	J	180	J	500	J	85	J	600	J	1000.30
182	EBS PHASE 2B	182-Z16-010	1483860.2	474612	10/18/95	0.5	1.5	230	J	280	J	280	J	78	J	230	J	370	UJ	200	J	537.01
182	EBS PHASE 2B	182-Z16-010	1483860.2	474612	10/18/95	7	7.5	1E+05	D	1E+05	D	110000	D	21000	J	99000	D	8300	J	77000	D	167309.00
182	EBS PHASE 2B	182-Z16-011	1484334.5	474590.8	10/19/95	0.5	1	17000	J	27000	J	27000	J	6800	J	18000	UJ	3300	J	21000	UJ	35827.00

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	EBS PHASE 2B	182-Z16-011	1484334.5	474590.8	10/19/95	6.5	7	55	J	170	J	140	J	44	J	54	J	350	UJ	140	J	378.99
182	EBS PHASE 2B	182-Z16-012	1484456.9	474617.2	10/19/95	0.5	1	410	UJ	19000	DJ	19000	DJ	5500	DJ	15000	DJ	1700	J	14000	DJ	24090.50
182	EBS PHASE 2B	182-Z16-012	1484456.9	474617.2	10/19/95	6.5	7	100	J	340	J	340	J	110	J	120	J	500	UJ	280	J	663.22
181	P181F_ON	P181-01	1483499.008	473692.643	2/24/99	0.5	1	150		260		285		66		190		21		110		336.35
181	P181F_ON	P181-01	1483499.008	473692.643	2/24/99	6.5	7	81		220		220		76		110		19	U	84		268.87
181	P181F_ON	P181-02	1483857.792	473695.875	2/24/99	0.5	1	320		538		562		210		330		12	U	210		655.63
181	P181F_ON	P181-02	1483857.792	473695.875	2/24/99	6.5	7	163		284		373		398		208		5.1		101		356.99
181	P181F_ON	P181-03	1483715.437	473974.392	2/24/99	0.5	1	8200		15500		17400		2600		6810		150		4990		18741.81
181	P181F_ON	P181-03	1483715.437	473974.392	2/24/99	6.5	7	15		21		28		8.3		15		3.8	U	6.8		27.98
181	P181F_ON	P181-04	1483887.511	474260.364	2/24/99	0.5	1	443		672		778		200		412		50		245		871.01
181	P181F_ON	P181-04	1483887.511	474260.364	2/25/99	1.5	2	743		1560		2490		27	U	870		27	U	976		1995.41
181	P181F_ON	P181-04	1483887.511	474260.364	2/24/99	6.5	7	31		62		60		22		35		6.3		41		81.76

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
181	P181F_ON	P181-05	1484173.677	473555.108	2/24/99	0.5	1	393		743		856		240		408		54		311		955.81
181	P181F_ON	P181-05	1484173.677	473555.108	2/24/99	6.5	7	22		53		47		13		26		5.3		38		69.16
181	P181F_ON	P181-06	1484149.598	473933.57	2/24/99	0.5	1	821		1370		1530		370		811		27	U	520		1675.11
181	P181F_ON	P181-06	1484149.598	473933.57	2/24/99	6.5	7	7		12		11		2.9	U	8.7		2.9	U	7.9		16.06
181	P181F_ON	P181-07	1484235.538	474152.246	2/24/99	0.5	1	739		1310		1470		430		748		24	J	530		1612.95
181	P181F_ON	P181-07	1484235.538	474152.246	2/24/99	6.5	7	29		42		42		17		33		5.4		29		57.60
181	P181F_ON	P181-08	1484605.849	473599.649	2/24/99	0.5	1	888		1330		1440		410		786		19		402		1626.89
181	P181F_ON	P181-08	1484605.849	473599.649	2/24/99	6.5	7	260		386		532		130		365		15	U	280		502.37
181	P181F_ON	P181-09	1484312.483	473769.044	2/24/99	0.5	1	657		947		1050		435		595		15		312		1168.85
181	P181F_ON	P181-09	1484312.483	473769.044	2/24/99	6.5	7	92		122		130		39		96		4		64		155.09
181	P181F_ON	P181-10	1484510.33	473986.409	2/24/99	0.5	1	42		110		130		37		51		16	U	46		140.22
181	P181F_ON	P181-10	1484510.33	473986.409	2/24/99	6.5	7	17		28		32		11		19		3	U	9.5		35.48
181	P181F_ON	P181-11	1484560.112	474185.166	2/24/99	0.5	1	140		230		367		51		150		15	U	94		298.26

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
181	P181F_ON	P181-11	1484560.112	474185.166	2/24/99	6.5	7	6.3		5.4		7.8		3	U	6.6		3	U	3.1		8.64
181	P181F_ON	P181-12	1485004.107	473190.659	2/25/99	0.5	1	284		405		457		160		285		12	U	160		502.99
181	P181F_ON	P181-12	1485004.107	473190.659	2/25/99	6.5	7	22		31		29		12		23		3	U	18		39.54
181	P181F_ON	P181-13	1484836.134	473577.488	2/24/99	0.5	1	58		97		120		32		63		12	U	41		125.28
181	P181F_ON	P181-13	1484836.134	473577.488	2/24/99	6.5	7	95		160		157		59		97		3	U	63		193.69
181	P181F_ON	P181-14	1484888.399	473791.686	2/24/99	0.5	1	140		190		200		67		140		12	U	90		239.81
181	P181F_ON	P181-14	1484888.399	473791.686	2/24/99	6.5	7	69		80		120		40		81		3.5		43		107.18
181	P181F_ON	P181-15	1484780.868	474102.386	2/24/99	0.5	1	381		568	J	736	J	240	J	340		23	J	110	J	716.44
181	P181F_ON	P181-15	1484780.868	474102.386	2/24/99	6.5	7	52		61		75		14		53		3.1	U	33		78.74
181	P181F_ON	P181-16	1483852.129	473734.639	2/23/99	0	0.1	261		437	J	602	J	110	J	290		29	J	140	J	567.69
181	P181F_ON	P181-17	1483821.9	474186.705	2/23/99	0	0.1	1860		2980		3040		570		1940		280		1460		3903.64
181	P181F_ON	P181-18	1484136.714	474099.852	2/23/99	0	0.1	1110		1760	J	2440	J	470	J	919		100	J	524	J	2273.02
181	P181F_ON	P181-19	1484524.15	474138.428	2/23/99	0	0.1	364		566	J	795	J	210	J	395		32	J	170	J	733.40

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
181	P181F_ON	P181-20	1484555.076	473793.107	2/23/99	0	0.1	907		1610		1610		370		937		120		663		2052.64
181	P181F_ON	P181-21	1485109.71	473972.8654	2/23/99	0	0.1	330		540	J	769	J	170	J	330		34	J	170	J	702.93
181	P181F_ON	P181-22	1483626.2	473892.53	4/23/99	0	0.5	449		674	J	909	J	316	J	458		14	UJ	302	J	850.62
181	P181F_ON	P181-23	1483750.14	473903.21	4/23/99	0	0.5	320		358	J	594	J	130	J	297		14	UJ	130	J	471.00
181	P181F_ON	P181-24	1483778.24	473979.05	4/23/99	0	0.5	896		1450	J	1980	J	617	J	990		15	UJ	528	J	1805.06
181	P181F_ON	P181-25	1483710.33	474022.21	4/23/99	0	0.5	1030		1630	J	2220	J	667	J	1150		15	UJ	622	J	2032.52
181	P181F_ON	P181-28	1483702.18	473998.11	4/23/99	0	0.5	692		1180	J	1640	J	430	J	753		14	UJ	456	J	1470.85
181	P181F_ON	P181-29	1483698.22	473983.57	4/23/99	0	0.5	1100		1410		1460		440		920		67	U	780		1782.82
181	P181F_ON	P181-30	1483733.7	473977.36	4/23/99	0	0.5	100		140	J	190	J	59	J	78		17	UJ	68	J	184.97
181	P181F_ON	P181-31	1483720.08	473950.8	4/23/99	0	0.5	150		260		332		74		180		14	U	160		332.12
181	P181F_ON	P181-32	1483633.81	473643.43	4/23/99	0	0.5	220		299	J	404	J	140	J	220		14	UJ	130	J	383.02
181	P181F_ON	P181-33	1483866.69	473558.8	4/23/99	0	0.5	363		561		685		210		319		15	U	220		697.72
181	P181F_ON	P181-35	1483861	474300.67	4/23/99	0	0.5	2500		3790		4120		1600		2820		140	U	1600		4700.82

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
181	P181F_ON	P181-36	1484170.58	474323.59	4/23/99	0	0.5	2060		2710		2630		1200		1450		210		1100		3512.45
181	P181F_ON	P181-37	1484253.58	474084.38	4/23/99	0	0.5	3860		5120		5620		1300		3010		150	U	2100		6369.01
181	P181F_ON	P181-38	1484179.48	473729.69	4/23/99	0	0.5	533		733		850		230		446		15	U	300		911.55
181	P181F_ON	P181-39	1484363.24	473912.9	4/23/99	0	0.5	830		1240		1250		420		770		55	U	620		1542.47
181	P181F_ON	P181-40	1484402.01	473556.8	4/23/99	0	0.5	700		1170		1250		330		650		56	U	600		1456.95
181	P181F_ON	P181-41	1484402.04	474310.48	4/23/99	0	0.5	1100		1550		1750		420		840		65	U	710		1943.54
181	P181F_ON	P181-42	1484563.77	474289.57	4/23/99	0	0.5	260		445		521		190		280		14	U	200		552.28
181	P181F_ON	P181-44	1484827.23	474317.47	4/23/99	0	0.5	970	J	1370	J	1860	J	450	J	1000	J	87	J	470	J	1792.50
181	P181F_ON	P181-46	1484726.46	473877.88	4/23/99	0	0.5	250		391	J	576	J	100	J	250		13	UJ	160	J	497.35
181	P181F_ON	P181-47	1484717.35	473434.25	4/23/99	0	0.5	54		71	J	110	J	35	J	57		14	UJ	28	J	97.61
181	P181F_ON	P181-50	1485061.03	473290.27	4/26/99	0	0.5	230		380		463		140		240		13	U	150		472.44
181	P181F_ON	P181-51	1485093.81	473473.92	4/26/99	0	0.5	230		333		438		110		220		14	U	130		421.12
181	P181F_ON	P181-52	1485100.89	473725.55	4/26/99	0	0.5	190		290		330		85		190		55	U	160		386.54

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
181	P181F_ON	P181-53	1485041.06	474127.37	4/26/99	0	0.5	98		87		110		56	U	65		56	U	43	J	140.45
181	P181F_ON	P181-54	1484982.54	474307.31	4/26/99	0	0.5	230		370		430		160		260		54	U	170		481.86
181	P181F_ON	P181-55	1483570.13	474094.14	4/23/99	0	0.5	770		1300	J	1790	J	520	J	870		70	UJ	530	J	1650.07
182	P182F_ON EBS	182-25	1484313.268	474580.505	2/24/98	0.5	1	570		870	J	1100	J	380	J	580		48	J	310	J	1120.38
182	P182F_ON EBS	182-26	1484323.553	474580.505	2/24/98	0.5	1	880		1300		1600		560		790		77	J	430		1674.39
182	P182F_ON EBS	182-27	1484334.458	474570.3073	2/24/98	0.5	1	510		760		950		290	J	520		46	J	280	J	983.42
182	P182F_ON EBS	182-28	1484334.44	474520.5193	2/24/98	0.5	1	450	J	650		690		250	J	450	J	51	J	300	J	847.95
182	P182F_ON EBS	182-29	1484395.576	474617.2693	2/24/98	0.5	1	440		710		810		240	J	470		48	J	310	J	916.87
182	P182F_ON EBS	182-30	1484457.373	474566.4239	2/24/98	0.5	1	3900		5200		5700		2300	J	3700		350	J	1900	J	6726.70
182	P182F_ON EBS	182-31	1484457.403	474596.5161	2/24/98	0.5	1	480	J	8800	J	12000		5200	J	8100		210	J	4500	J	10768.10
182	P182F_ON EBS	182-32	1484466.943	474617.2693	2/24/98	0.5	1	42	J	63	J	70	J	420	U	42	J	420	U	45	J	290.84
182	P182F_ON EBS	182-33	1484477.118	474617.2693	2/24/98	0.5	1	570	J	940	J	1600	U	390	J	600	J	1600	U	350	J	1916.50
182	S14/S25F_ON	S25-SB01	1483363.125	473708.625	10/20/98	0.5	1	800	J	1400	J	1700		480	J	990	J	1700	U	700	J	2575.79

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB01	1483363.125	473708.625	10/20/98	3.5	4	490	U	54	J	61	J	490	U	40	J	490	U	54	J	337.49
182	S14/S25F_ON	S25-SB01	1483363.125	473708.625	10/20/98	9.5	10	2500	J	3600	J	2900	J	810	J	2800	J	4600	U	2100	J	6660.90
182	S14/S25F_ON	S25-SB02	1483367.75	473803.9375	10/23/98	6.5	7	79	J	150	J	150	J	59	J	110	J	210	U	74	J	286.00
182	S14/S25F_ON	S25-SB03	1483375.5	473905.8438	10/23/98	0.5	1	1100		2400		3500		960		1700		370	J	3200		3561.30
182	S14/S25F_ON	S25-SB03	1483375.5	473905.8438	10/23/98	6.5	7	15	J	14	J	29	J	7	J	21	J	46	U	22	J	43.69
182	S14/S25F_ON	S25-SB04	1483386.125	473999.7188	10/20/98	1.8	2.3	140	J	310	J	500		530		260	J	28	J	220	J	429.56
182	S14/S25F_ON	S25-SB04	1483386.125	473999.7188	10/20/98	3.5	4	260	J	390	J	500	J	530	J	290	J	1500	U	300	J	1251.59
182	S14/S25F_ON	S25-SB04	1483386.125	473999.7188	10/20/98	6.5	7	140	J	260	J	360	J	380	J	210	J	500	U	170	J	581.01
182	S14/S25F_ON	S25-SB04	1483386.125	473999.7188	10/20/98	9.5	10	2100	U	230	J	220	J	240	J	2100	U	2100	U	2100	UJ	1515.45
182	S14/S25F_ON	S25-SB05	1483382.125	474078.8125	10/23/98	0.5	1	480		920		2000		480		1000		98	J	800		1351.80
182	S14/S25F_ON	S25-SB05	1483382.125	474078.8125	10/23/98	6.5	7	49		80		96		30	J	61		47	U	58		124.16
182	S14/S25F_ON	S25-SB06	1483501.375	474035.5	10/23/98	0.5	1	580		1200		1900		560		1000		110	J	820		1646.60
182	S14/S25F_ON	S25-SB06	1483501.375	474035.5	10/23/98	6.5	7	210		320		390		94		240		27	J	180		426.18

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB07	1483520	474106.5313	10/23/98	0.5	1	1000		2500		3500		920		1700		370	J	3300		3660.90
182	S14/S25F_ON	S25-SB07	1483520	474106.5313	10/23/98	6.5	7	320		520		600		160	J	440		210	U	270		746.04
182	S14/S25F_ON	S25-SB08	1483550.125	474213.25	10/23/98	0.5	1	76		140		180		53		100		15	J	110		192.23
182	S14/S25F_ON	S25-SB08	1483550.125	474213.25	10/23/98	6.5	7	5	J	6	J	7	J	36	U	5	J	36	U	36	U	27.19
182	S14/S25F_ON	S25-SB09	1483574.25	474307.375	10/21/98	0.5	1	860		1600	J	2300	J	670	J	910		200	J	1100	J	2233.61
182	S14/S25F_ON	S25-SB10	1483588	474406.3438	10/20/98	0.5	1	130	J	200	J	320	J	340	J	130	J	1600	U	130	J	1061.53
182	S14/S25F_ON	S25-SB10	1483588	474406.3438	10/20/98	3.5	4	19000		24000		24000		8300		21000		2300	J	12000	J	31904.00
182	S14/S25F_ON	S25-SB11	1483608.75	474503.2813	10/21/98	0.5	1	3000		4400		4300		2300		3400		150	U	1800		5411.40
182	S14/S25F_ON	S25-SB11	1483608.75	474503.2813	10/21/98	6.5	7	63		130		140		55		89		46	U	100		183.94
182	S14/S25F_ON	S25-SB12	1483629.625	474600.4688	10/21/98	0.5	1	37	U	37	U	37	U	37	U	37	U	37	U	37	U	42.75
182	S14/S25F_ON	S25-SB12	1483629.625	474600.4688	10/21/98	6.5	7	98000		2E+05		140000		54000		1E+05		8200	U	42000		192770.00
182	S14/S25F_ON	S25-SB13	1483704.75	474218.2813	10/21/98	0.5	1	5200		8700		9400		3500		6000		400	U	3200		10721.00
182	S14/S25F_ON	S25-SB14	1483733.75	474309.875	10/20/98	0.5	1	1200	J	2400		2600		980	J	1400	J	180	J	1300	J	3101.20

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB14	1483733.75	474309.875	10/20/98	3.5	4	71	J	150	J	180	J	59	J	110	J	470	U	130	J	423.80
182	S14/S25F_ON	S25-SB14	1483733.75	474309.875	10/20/98	6.5	7	41000		55000		48000		16000		40000		5600	J	29000	J	72600.00
182	S14/S25F_ON	S25-SB15	1483767	474399.8125	10/21/98	6.5	7	88000		2E+05		130000		59000		1E+05		8000	U	41000		180590.00
182	S14/S25F_ON	S25-SB16	1483779.625	474500.7813	10/20/98	3.5	4	120	J	180	J	280	J	74	J	190	J	460	U	140	J	464.93
182	S14/S25F_ON	S25-SB16	1483779.625	474500.7813	10/20/98	6.5	7	24000		40000		34000		8600	J	30000		2600	J	25000	J	51016.00
182	S14/S25F_ON	S25-SB17	1483782.5	474598.0938	10/21/98	0.5	1	5500		8000		8400		3800		6300		360	U	3300		9944.30
182	S14/S25F_ON	S25-SB17	1483782.5	474598.0938	10/21/98	6.5	7	8900		15000		19000		5400		11000		480	U	6400		18735.00
182	S14/S25F_ON	S25-SB18	1483925.25	474419.4375	10/21/98	0.5	1	4700		7000		9100		2300		4600		170	U	2800		8772.60
182	S14/S25F_ON	S25-SB18	1483925.25	474419.4375	10/21/98	6.5	7	8800		14000		12000		4800		9000		510	U	3800		16772.00
182	S14/S25F_ON	S25-SB19	1483928.875	474521.9688	10/21/98	0.5	1	100		170		190		60		120		39	U	77		226.92
182	S14/S25F_ON	S25-SB19	1483928.875	474521.9688	10/21/98	6.5	7	1000		2000		1800		610		1100		77	U	700		2395.70
182	S14/S25F_ON	S25-SB20	1483933.125	474599.0938	10/21/98	0.5	1	3800	J	5900	J	6900	J	2200	J	3600	J	390	J	1900	J	7575.60
182	S14/S25F_ON	S25-SB20	1483933.125	474599.0938	10/21/98	6.5	7	2E+05	J	2E+05		180000		66000		2E+05	J	18000	U	80000	J	260830.00

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB21	1484084.125	474435.7188	10/21/98	0.5	1	6900	J	10000	J	12000	J	3200	J	6100	J	700	J	3400	J	12968.10
182	S14/S25F_ON	S25-SB21	1484084.125	474435.7188	10/21/98	6.5	7	3500		7700	J	7000	J	2200	J	3900		440	J	2700		9485.90
182	S14/S25F_ON	S25-SB22	1484090.625	474557	10/20/98	0.5	1	4200		7000		6800		1700	J	4400		870	J	5400		9531.40
182	S14/S25F_ON	S25-SB22	1484090.625	474557	10/20/98	3.5	4	3700		5000		5000		1200	J	3600		550	J	2900		6725.60
182	S14/S25F_ON	S25-SB22	1484090.625	474557	10/20/98	6.5	7	13000		20000		17000		3800	J	10000	J	1800	J	12000		26048.00
182	S14/S25F_ON	S25-SB22	1484090.625	474557	10/20/98	9.5	10	94	J	180	J	160	J	43	J	98	J	550	U	88	J	489.73
182	S14/S25F_ON	S25-SB23	1484092.5	474607.8125	10/21/98	0.5	1	2300		3500		3700		860		2600		310		1700		4591.20
182	S14/S25F_ON	S25-SB23	1484092.5	474607.8125	10/21/98	6.5	7	1E+05		2E+05	J	180000	J	58000	J	1E+05		2100	UJ	42000		194930.00
182	S14/S25F_ON	S25-SB24	1484203.375	474408.0938	10/20/98	0.5	1	1600		2200		2200		750		1600		46	J	1000		2735.10
182	S14/S25F_ON	S25-SB24	1484203.375	474408.0938	10/20/98	3.5	4	26000		36000		31000		10000	J	24000		4000	J	21000		47924.00
182	S14/S25F_ON	S25-SB24	1484203.375	474408.0938	10/20/98	7	7.5	370	J	610		530		130	J	380	J	61	J	390		801.68
182	S14/S25F_ON	S25-SB24	1484203.375	474408.0938	10/20/98	9.5	10	52	J	74	J	68	J	21	J	45	J	390	U	50	J	286.26
182	S14/S25F_ON	S25-SB25	1484214.375	474512.7188	10/20/98	0.5	1	3500		7400		6600		1500	J	3800		520	J	3700		9318.80

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB25	1484214.375	474512.7188	10/20/98	6.5	7	1800		2800		3000		750	J	1700		1400	U	1300	J	4119.20
182	S14/S25F_ON	S25-SB26	1484235.5	474603.8125	10/20/98	0.5	1	8700		14000		15000		3500	J	9700		1700	J	10000		19114.70
182	S14/S25F_ON	S25-SB26	1484235.5	474603.8125	10/20/98	6.5	7	5700		9000		9000		3000	J	5800		920	J	5600		11985.80
182	S14/S25F_ON	S25-SB27	1484382.25	474473.4063	10/21/98	0.5	1	430		620		610		200		380		140	U	350		831.38
182	S14/S25F_ON	S25-SB27	1484382.25	474473.4063	10/21/98	6.5	7	1600		2700		2400		890		1700		300		1700		3580.60
182	S14/S25F_ON	S25-SB28	1484387.25	474571.0625	10/20/98	0.5	1	8100		12000		12000		2800	J	7900		1400	J	8300		16275.90
182	S14/S25F_ON	S25-SB28	1484387.25	474571.0625	10/20/98	4	4.5	360	J	720		760		210	J	440	J	91	J	600		985.54
182	S14/S25F_ON	S25-SB28	1484387.25	474571.0625	10/20/98	7	7.5	2100	J	2900	J	2400	J	700	J	2100	J	170	J	1400	J	3669.10
182	S14/S25F_ON	S25-SB28	1484387.25	474571.0625	10/20/98	9.5	10	350	J	660		600		140	J	400	J	45	J	310	J	832.80
182	S14/S25F_ON	S25-SB29	1484387.875	474599.6875	10/21/98	0.5	1	5300		7300		8200		2100		5000		510		2900		9476.00
182	S14/S25F_ON	S25-SB29	1484387.875	474599.6875	10/21/98	6.5	7	5300		7900		7400		2100		6000		860		4200		10477.00
182	S14/S25F_ON	S25-SB30	1484533.25	474447.6563	10/20/98	1.5	2	1600		2300		2500		850	J	1600		210	J	1200	J	3050.10
182	S14/S25F_ON	S25-SB30	1484533.25	474447.6563	10/20/98	3.5	4	260	J	370		370		95	J	240	J	34	J	200	J	488.19

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB30	1484533.25	474447.6563	10/20/98	6.5	7	35000	J	73000		63000		17000	J	40000		6900	J	55000		95410.00
182	S14/S25F_ON	S25-SB30	1484533.25	474447.6563	10/20/98	9.5	10	26	J	60	J	50	J	390	U	33	J	390	U	51	J	269.68
182	S14/S25F_ON	S25-SB31	1484535.625	474496.9063	10/21/98	0.5	1	620		860		910		210		580		110		530		1178.68
182	S14/S25F_ON	S25-SB31	1484535.625	474496.9063	10/21/98	6.5	7	85000		2E+05		130000		43000		93000		9100		58000		186923.00
182	S14/S25F_ON	S25-SB32	1484536.125	474596.3125	10/21/98	6.5	7	860		3700		3300		1200		1300		330		2200		4679.30
182	S14/S25F_ON	S25-SB33	1484634	474376.6875	10/21/98	0.5	1	1900		2500		2400		890		1700		1400	U	1400		3780.60
182	S14/S25F_ON	S25-SB33	1484634	474376.6875	10/21/98	6.5	7	150		270		260		80		160		48	U	160		351.96
182	S14/S25F_ON	S25-SB34	1484639.125	474547.0625	10/20/98	1	1.5	120	J	220	J	280	J	340	J	120	J	360	U	120	J	455.52
182	S14/S25F_ON	S25-SB34	1484639.125	474547.0625	10/20/98	4	4.5	180	J	920		890		320	J	300	J	68	J	360	J	1134.50
182	S14/S25F_ON	S25-SB34	1484639.125	474547.0625	10/20/98	6.5	7	61	J	140	J	160	J	220	J	69	J	560	U	60	J	450.37
182	S14/S25F_ON	S25-SB35	1484637	474597.0313	10/21/98	0.5	1	86		110		150		49		88		36	U	60		158.18
182	S14/S25F_ON	S25-SB35	1484637	474597.0313	10/21/98	6.5	7	290		900		900		240		310		49	J	380		1108.71
181	P181F_ON	P181-26	1483683.26	473947.16	4/23/99	0	0.5	2800		3830	J	5200	J	1410	J	2300				1430	J	*

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
181	P181F_ON	P181-27	1483759.97	473959.68	4/23/99	0	0.5	627		1020	J	1290	J	250	J	598				384	J	*
181	P181F_ON	P181-34	1483943.43	473867.53	4/23/99	0	0.5	646	J	1010	J	1240	J	295	J	568	J			337	J	*
181	P181F_ON	P181-43	1484664.91	474296.28	4/23/99	0	0.5	1210	J	1890	J	2320	J	715	J	1290	J			634	J	*
181	P181F_ON	P181-45	1484709.9	474043.87	4/23/99	0	0.5	500	J	850	J	1100	J	380	J	530	J			290	J	*
181	P181F_ON	P181-48	1484712.57	473223.82	4/23/99	0	0.5	769	J	1040	J	1380	J	409	J	748	J			326	J	*
181	P181F_ON	P181-49	1484860.18	473414.91	4/23/99	0	0.5	150	J	130	J	260	J	94	J	160	J			41	J	*
182	S14/S25F_ON	S25-SB01	1483363.125	473708.625	10/20/98	6.5	7	24	J	48	J	52	J	13	J	32	J			35	J	*
182	S14/S25F_ON	S25-SB02	1483367.75	473803.9375	10/23/98	0.5	1	500	J	650	J	1300	J	340	J	610	J			250	J	*
182	S14/S25F_ON	S25-SB10	1483588	474406.3438	10/20/98	6.5	7	70	J	110	J	121	J	36	J	86	J			77	J	*
182	S14/S25F_ON	S25-SB10	1483588	474406.3438	10/20/98	9.5	10	15	J	30	J	26	J	10	J	20	J			21	J	*
182	S14/S25F_ON	S25-SB13	1483704.75	474218.2813	10/21/98	6.5	7	23	J	32	J	34	J	12	J	27	J			23	J	*
182	S14/S25F_ON	S25-SB16	1483779.625	474500.7813	10/20/98	0.5	1	65	J	102	J	122	J	45	J	82	J			73	J	*
182	S14/S25F_ON	S25-SB16	1483779.625	474500.7813	10/20/98	9.5	10	11	J	24	J	22	J	6.8	J	16	J			16	J	*

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Parcel	Investigation	Station	Easting (X Coord) (ft)	Northing (Y Coord) (ft)	Date	Top Depth (ft)	Bot. Depth (ft)	Benz(a) anthracene (µg/kg)		Benzo(a) pyrene (µg/kg)		Benzo(b) fluoranthene (µg/kg)		Benzo(k) fluoranthene (µg/kg)		Chrysene (µg/kg)		Dibenz(a,h) anthracene (µg/kg)		Indeno (1,2,3-cd) pyrene (µg/kg)		BaP equivalent (µg/kg)
182	S14/S25F_ON	S25-SB09	1483574.25	474307.375	10/21/98	6.5	7					3.8	J									
182	S14/S25F_ON	S25-SB14	1483733.75	474309.875	10/20/98	9.5	10			4.6	J									3.4	J	
182	S14/S25F_ON	S25-SB15	1483767	474399.8125	10/21/98	0.5	1			842	J	1280	J	1260	J					497	J	
182	S14/S25F_ON	S25-SB32	1484536.125	474596.3125	10/21/98	0.5	1			78	J									26	J	
182	S14/S25F_ON	S25-SB34	1484639.125	474547.0625	10/20/98	9.5	10			20	J	31	J							6.9	J	

ft denotes feet

µg/kg denotes micrograms per kilogram

BaP denotes benzo(a)pyrene

EBS denotes Environmental Baseline Survey

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Table A-2
Summary of Groundwater Analytical Data

Analyte[a]	Units	Detection Frequency			Range of Concentrations		Range of Detection Limits[b]	
		Number of Detects	Number of Samples	Percent Frequency of Detection	Minimum	Maximum	Minimum	Maximum
High Molecular Weight Polycyclic Aromatic Hydrocarbons								
Benz(a)anthracene	µg/L	8	31	26	0.21	9	0.1	10
Benzo(a)pyrene	µg/L	8	31	26	0.2	12	0.1	10
Benzo(b)fluoranthene	µg/L	8	31	26	0.24	8	0.1	10
Benzo(e)pyrene	µg/L	1	1	100	0.4	0.4	NA	NA
Benzo(g,h,i)perylene	µg/L	6	31	19	0.3	4	0.1	40
Benzo(k)fluoranthene	µg/L	2	31	6	1	3	0.1	40
Chrysene	µg/L	8	31	26	0.28	14	0.1	10
Fluoranthene	µg/L	17	31	55	0.1	43	0.1	48
Indeno(1,2,3-cd)pyrene	µg/L	4	31	13	0.28	3	0.1	40
Pyrene	µg/L	18	31	58	0.1	41	0.1	48
Low Molecular Weight Polycyclic Aromatic Hydrocarbons								
2-Methylnaphthalene	µg/L	9	26	35	0.1	54	0.1	10
Acenaphthene	µg/L	18	31	58	0.1	270	0.1	10
Acenaphthylene	µg/L	12	31	39	0.1	39	0.1	40
Anthracene	µg/L	10	31	32	0.6	22	0.1	10
Fluorene	µg/L	6	31	19	0.34	52	0.1	10
Naphthalene	µg/L	14	31	45	0.2	617	0.1	10
Phenanthrene	µg/L	14	31	45	0.22	150	0.1	10
Semivolatile Organic Compounds								
1,4-Dichlorobenzene	µg/L	1	8	13	0.2	13	1	40
2,4-Dichlorophenol	µg/L	2	8	25	0.2	0.2	1	40
Carbazole	µg/L	3	8	38	0.2	280	1	10
Dibenzofuran	µg/L	1	8	13	41	41	1	10
Total Petroleum Hydrocarbons (TPH)								
TPH - Diesel Range	mg/L	16	30	53	0.08	4.71	0.05	0.1

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Analyte[a]	Units	Detection Frequency			Range of Concentrations		Range of Detection Limits[b]	
		Number of Detects	Number of Samples	Percent Frequency of Detection	Minimum	Maximum	Minimum	Maximum
TPH - Gasoline Range	mg/L	11	40	28	0.05	1.6	0.05	0.05
Volatile Organic Compounds								
Benzene	µg/L	13	35	37	0.5	730	0.5	5
Carbon disulfide	µg/L	1	5	20	2	2	2	2
Ethylbenzene	µg/L	12	35	34	0.8	49	0.5	5
Methyl tertiary butyl ether	µg/L	2	30	7	6	12	5	25
Toluene	µg/L	9	35	26	0.9	69	0.5	5
Xylene (total)	µg/L	12	35	34	0.9	92	1	5
Other Chemicals								
2-Ethyl-1-Hexanol	µg/L	3	3	100	0.4	2	NA	NA
2,3,3-Trimethyl-1-Hexene	µg/L	1	1	100	0.9	0.9	NA	NA
3,4,4-Trimethyl-2-Hexene	µg/L	1	1	100	2	2	NA	NA
2,3,4-Trimethyl-2-Pentene	µg/L	1	1	100	1	1	NA	NA
2,4,4-Trimethyl-2-Pentene	µg/L	1	1	100	1	1	NA	NA
2-Phenylnaphthalene	µg/L	1	1	100	0.5	0.5	NA	NA
4-Amino-9-Fluorenone	µg/L	1	1	100	29	29	NA	NA
9(10H)-Acridinone	µg/L	1	1	100	46	46	NA	NA
9-Hexadecenoic acid	µg/L	1	1	100	0.8	0.8	NA	NA
3,4-Dichlorobenzoic acid	µg/L	1	1	100	2	2	NA	NA
Benzo(b)thiophene	µg/L	1	1	100	21	21	NA	NA
5-Propyl-decane	µg/L	1	1	100	0.4	0.4	NA	NA
Dodecanoic acid	µg/L	2	2	100	0.5	0.6	NA	NA
Hexadecanoic acid	µg/L	1	1	100	0.5	0.5	NA	NA
Isopropylbenzene (Cumene)	µg/L	1	1	100	2	2	NA	NA
1-Methylnaphthalene	µg/L	1	1	100	0.7	0.7	NA	NA

Table A-1 (continued)
Historical Relevant Operable Unit-5 Polycyclic Aromatic Hydrocarbon Data

Analyte[a]	Units	Detection Frequency			Range of Concentrations		Range of Detection Limits[b]	
		Number of Detects	Number of Samples	Percent Frequency of Detection	Minimum	Maximum	Minimum	Maximum
Nonanoic acid	µg/L	2	2	100	0.6	0.7	NA	NA
Phthalic anydride	µg/L	1	1	100	0.5	0.5	NA	NA
Trimethyl-silanol	µg/L	2	2	100	2	2	NA	NA
Sulfur	µg/L	2	2	100	20	310	NA	NA

µg/L denotes micrograms per liter
mg/L denotes milligrams per liter
NA denotes not applicable
a The analytes identified were detected in at least one groundwater sample collected from Operable Unit-5 and adjacent properties.
b The range of detection limits represents the detection limits for non-detected values only.

2.0 References

ERM-West. 1995. *EBS Phase 2A Zone Analysis Plans for Zones 1 through 23*. Prepared for the Department of the Navy, EFA West , San Bruno, CA.

IT Corporation (IT). 1998. *Environmental Baseline Survey Data Evaluation Summaries Volumes I – XIV, NAS Alameda, Alameda, California*. Prepared for the Department of the Navy, EFA West , San Bruno, California.

Neptune and Company, Inc. 2001. Final. *Remedial Investigation Work Plan for Operable Unit-5, Alameda Point, Alameda*, California. June 4.

PRC Environmental Management, Inc. (PRC). 1996. *Final Basewide Environmental Baseline Survey*. Prepared for the Department of the Navy.

Tetra Tech EM Inc. (TtEMI). 1999. *Draft OU-2 Remedial Investigation Report*. Prepared for the Department of the Navy. Tetra Tech EM Inc. (TtEMI). 1999b. *Draft Supplemental Basewide Environmental Baseline Survey*. Prepared for the Department of the Navy.

APPENDIX B
DATA PREPARATION, ANALYSIS AND CALCULATIONS OF EXPOSURE POINT CONCENTRATIONS

1.0 Data Preparation

Analysis of soil, groundwater, and soil gas data in support of remedial investigation (RI) objectives is documented in this appendix. Analytical data (Appendix D) received from the laboratories were validated, as presented in Appendix G. The subsequent preparation of data sets for exploratory data analysis and calculation of input values to the risk assessment is discussed in this appendix. The spatial and statistical analyses of soil data in support of the risk evaluation, are discussed in Section 2.0 (for polynuclear aromatic hydrocarbons [PAH]) and Section 3.0 (for metals). Groundwater and soil gas data are discussed in Section 4.0.

The Excel data sheets were input into media-specific working data sets. Corrections were made to station designations, analyte names, and sampling results, as necessary. Station names were changed so that they would sort correctly. For example, OU5-SG-1 was changed to OU5-SG-01. Additional fields were added to aid in data handling and analysis. These fields included analytical suites, sampling stratum, housing complex number, x- and y- coordinates, risk averaging area designation, and the identity of the associated soil gas sampling location for hydropunch samples. Because naphthalene was sometimes analyzed by both U.S. Environmental Protection Agency (EPA) Method 8310 and EPA Method 8260B, this information was also stored in an additional field. Careful documentation of all steps taken to prepare data for analyses was kept, including software code used to perform the operations.

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2.0 Analysis of Soil Polynuclear Aromatic Hydrocarbon Data

2.1 Calculation of Soil Benzo(a)Pyrene-Equivalent Concentrations

Benzo(a)pyrene (BaP)-equivalent, polynuclear aromatic hydrocarbon (PAH) soil concentrations (BaP-equivalents) were calculated for each soil sample by normalizing the concentration of each carcinogenic PAH to the carcinogenicity of BaP. U.S. Environmental Protection Agency (EPA) publishes toxicity equivalency factors for seven PAHs that relate the carcinogenicity of these compounds to that of BaP, for which EPA has published an oral cancer slope factor. The seven PAHs, with the equivalency factor noted for each PAH in parentheses, include:

- Benzo(a)anthracene (0.1)
- Benzo(a)pyrene (1.0)
- Benzo(b)fluoranthene (0.1)
- Benzo(k)fluoranthene (0.01)
- Chrysene (0.001)
- Dibenz(a,h)anthracene (1.0)
- Indeno(1,2,3-cd)pyrene (0.1).

The BaP-equivalent concentrations calculated using California EPA (CalEPA) toxicity equivalency factors (TEF) and slope factors for carcinogenic PAHs were utilized in the risk assessment in conjunction with BaP-equivalents calculated using carcinogenic PAH toxicity information recommended by EPA. The CalEPA TEF values are:

- Benz(a)anthracene (0.1)
- Benzo(a)pyrene (1.0)
- Benzo(b)fluoranthene (0.1)
- Benzo(k)fluoranthene (0.1)
- Chrysene (0.01)
- Dibenz(a,h)anthracene (4.1 / 12)
- Indeno(1,2,3-cd)pyrene (0.1)

The TEF value for dibenz(a,h)anthracene is the ratio of two slope factors rather than a single TEF value. As explained in Section 5.5 of the main body of the RI Report, CalEPA publishes separate oral and inhalation slope factors for dibenz(a,h)anthracene rather than a TEF based on the cancer slope factor of BaP. The CalEPA TEF shown for dibenz(a,h)anthracene is the CalEPA oral slope factor for dibenz(a,h)anthracene divided by the CalEPA oral slope factor for BaP. The ratio of the oral slope factors rather than the inhalation slope factors was used because

the inhalation exposure route is a negligible contributor to risks associated with soil-based exposure to PAHs.

The BaP-equivalent concentration for EPA and CalEPA are calculated in the same manner; as the sum of the products of soil PAH concentrations and equivalency factors. If a carcinogenic PAH was not detected, its soil concentration was set equal to one half the sample-specific reporting limit.

To support risk evaluations, BaP-equivalent concentrations were needed not only for the surface interval (0 to 0.5 feet), but also for other depth intervals such as 0 to 2 feet, and 0 to 4 feet. Concentrations across these depths are generated by taking a weighted average of the discrete samples that were taken. Weighted averages for sample locations were created by calculating the weighted mean for depth intervals that encompassed more than one of the original sampling depth intervals. Weights were assigned according to Table B-1, "Weights used in Calculating Weighted Averages."

Table B-1
Weights used in Calculating Weighted Averages

	Weighted Average Depth Intervals		
Original Sampling Depth Interval	**0 to 2 feet**	**0 to 4 feet**	**0 to 8 feet**
0.0 to 0.5 feet	1/4	1/8	1/16
0.5 to 2.0 feet	3/4	3/8	3/16
2.0 to 4.0 feet	Not Applicable	4/8	4/16
4.0 to 8.0 feet	Not Applicable	Not Applicable	8/16

2.2 Benzo(a)Pyrene-Equivalent Concentrations Spatial Distribution and Post Stratification

As described in Section 5.2 of the main text of this Remedial Investigation (RI) Report, exposure to carcinogenic PAHs in soil is the key component of risk-based decisions at Operable Unit 5 (OU-5). The use of PAH soils data to establish decision areas for the risk assessment is documented in this section of the data analysis appendix. Decision areas represent the area over which results are combined to calculate exposure point concentrations that are then used to assess risk.

The spatial distribution of BaP-equivalent concentrations was evaluated in x-, y-, and z-dimensions utilizing the data generated based on the RI Work Plan (Neptune and

Company, 2001). As discussed in Section 4.0 of the main text of this RI Report, spatial analysis of BaP-equivalent concentrations in soil was performed using BaP-equivalents calculated with EPA TEFs. The Navy has decided, in consultation with the regulatory agencies, to conduct a Time-Critical Removal Action to remove the top 2-feet of soil over a large portion of OU-5, where elevated BaP-equivalent concentrations greater than 1.8 milligrams per kilogram are present (SWDIV, 2001). This activity is currently being conducted. The area roughly corresponds to a 14-acre area, the central portion of the area bounded by Singleton and Mosley Avenues and includes 22 housing complexes and 3 open areas. To provide a baseline risk evaluation, and to be complete, these housing areas are included in the assessment of risk as part of this RI, and the risk reduction expected based on the Time-Critical Removal Action discussed. The process of post stratification for risk assessment continued forward with one new constraint: to make sure that the decision area selection process evaluated the removal action area as one or more decision areas, in addition to the other portions of OU-5 under consideration.

To support the evaluation of human health risk, the site was post-stratified based on BaP-equivalent concentrations in the top three depth increments to which exposure was considered: 0 to 0.5, 0.5 to 2, and 2 to 4 feet. Weighted-average BaP-equivalent concentrations were also calculated for the 0 to 2 and 0 to 4 foot intervals as described above, by weighting the BaP-equivalent concentration in each depth increment proportional to the length of that increment in the entire depth interval. The intent of the spatial analysis of the BaP-equivalent concentrations was to divide the site into decision areas that were relatively homogeneous with respect to these concentrations. In this way, the variance of the BaP-equivalent concentrations within a decision area is minimized and the representativeness of an average value for risk assessment calculations is optimized.

Several approaches were utilized to assist in the post stratification process. Initially the BaP-equivalent concentration data were evaluated using a "classification tree model" that partitioned the site into a number of horizontal and vertical regions chosen to minimize the mean squared error between the observed data and the model predictions (i.e., the mean of the observed data in a region) while maintaining a minimum number of samples in each region. In other words, the model sorted the samples into bins that were relatively similar in concentration, making sure no bin was smaller than ten samples. This process provided a rough map, indicating the mean value in each sector identified by the software, which was used as a starting point for further refinements (Figure B-1, "Tree Model Evaluation of Benzo(a)Pyrene-Equivalent Concentrations").

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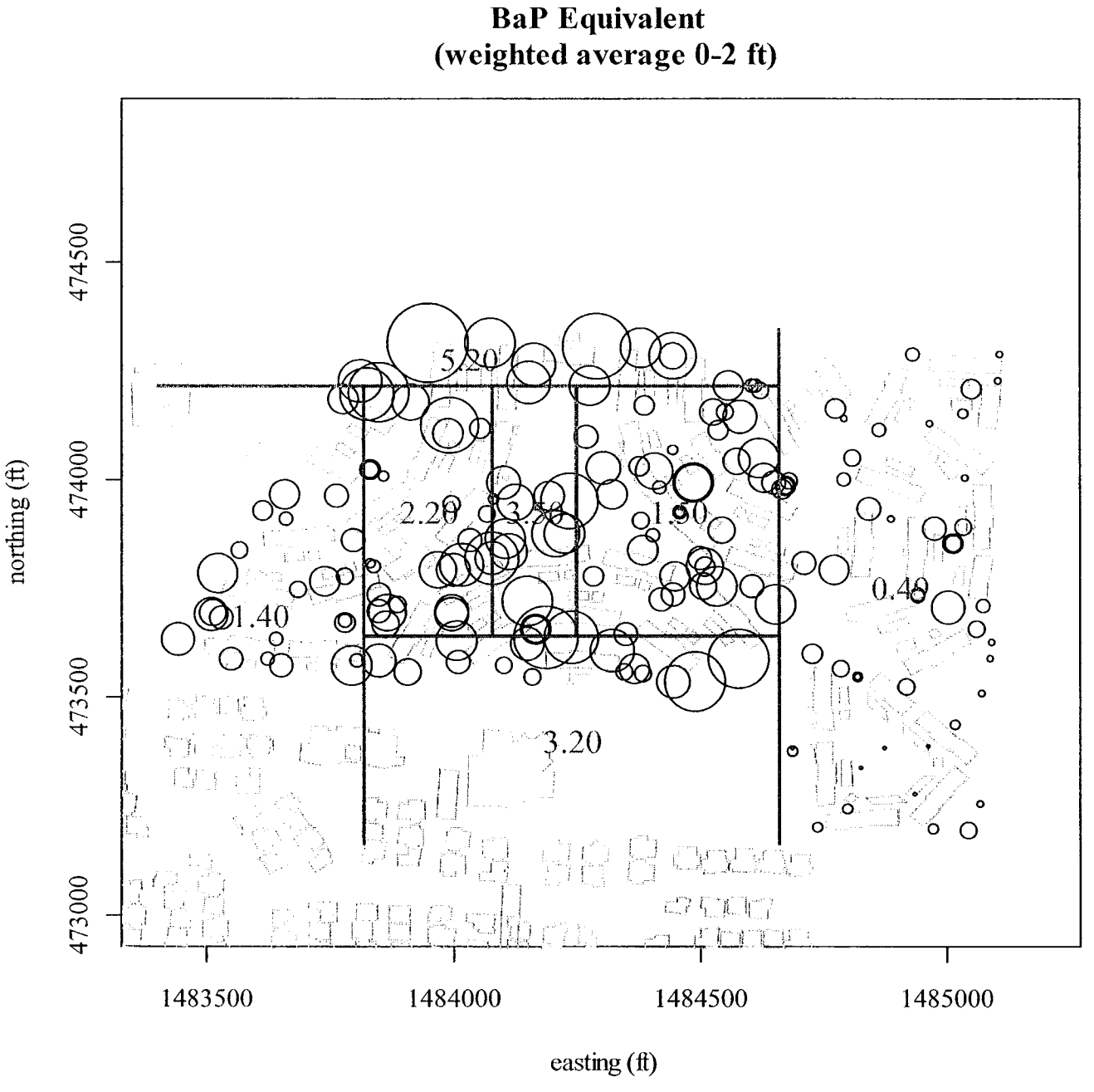
Figure B-1
Tree Model Evaluation of Benzo(a)Pyrene-Equivalent Concentrations



In refining the boundaries of the decision areas, samples within a housing complex were kept together (this constraint was not placed on the "tree model"), and housing complexes that were relatively homogeneous, and contiguous were grouped. As previously mentioned, the grouping exercise kept the removal area boundaries intact (decision areas did not cross the boundaries of the removal area). Various spatial plots of the BaP-equivalent concentrations for each depth interval, including bubble plots, were used to assist in visually grouping housing complexes together. Figure B-2, "Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 0.5 foot Interval," Figure B-3, "Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 2 foot Interval," and Figure B-4, "Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 4 foot Interval" show the spatial distribution of BaP-equivalent concentration values across Parcel 181 in the 0 to 0.5, 0 to 2, and 0 to 4-foot depth intervals (using weighted averages for the later two intervals). These figures depict concentrations of BaP-equivalent concentrations as bubbles, where the location of the center of the bubble corresponds to the sampling point, and the size of the bubble is proportional to the concentration. The use of bubbles allows one to get a quick visual feel for the data. Large bubbles represent locations of elevated concentration. To assist the viewer, the actual observed concentration is also printed on the map. As discussed in Section 5.2 of the RI Report, chronic exposure to soils below a depth of 4 feet is considered unlikely. Therefore, BaP-equivalent concentrations in samples below 4 feet were not considered during identification of residential decision areas.

The final result of the post stratification exercise was to divide OU-5 into seven decision areas (Figure B-5, "Operable Unit 5 Map Divided into Seven Decision Areas, Showing Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 2 foot Depth Interval" and Figure B-6, "Operable Unit 5 Map Divided into Seven Decision Areas, Showing Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 4 foot Depth Interval"), which group housing complexes in such a way as to minimize the variance in BaP-equivalent concentrations within 4 feet of the ground surface. By plotting the BaP-equivalent concentrations as bubbles on a map showing the boundaries of the decision areas, one can see the relative similarity of bubbles sizes within each decision area (e.g., minimal variance), and the relative difference in bubble sizes between decision areas. Decision areas 4, 5, and 7 encompass the area where the removal action will be taken. These areas comprise the contiguous group of housing areas where at least one value above 1.8 milligrams per kilogram BaP-equivalent concentration was observed. Results from samples in each decision area will be used to calculate the mean and 95 percent upper confidence limit (UCL) for the mean in each decision area to support the evaluation of risk.

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Figure B-2
Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 0.5 foot Interval

OU-5 Parcel 181 Soil: BaPs (mg/kg)
0-0.5 ft. Depth Interval

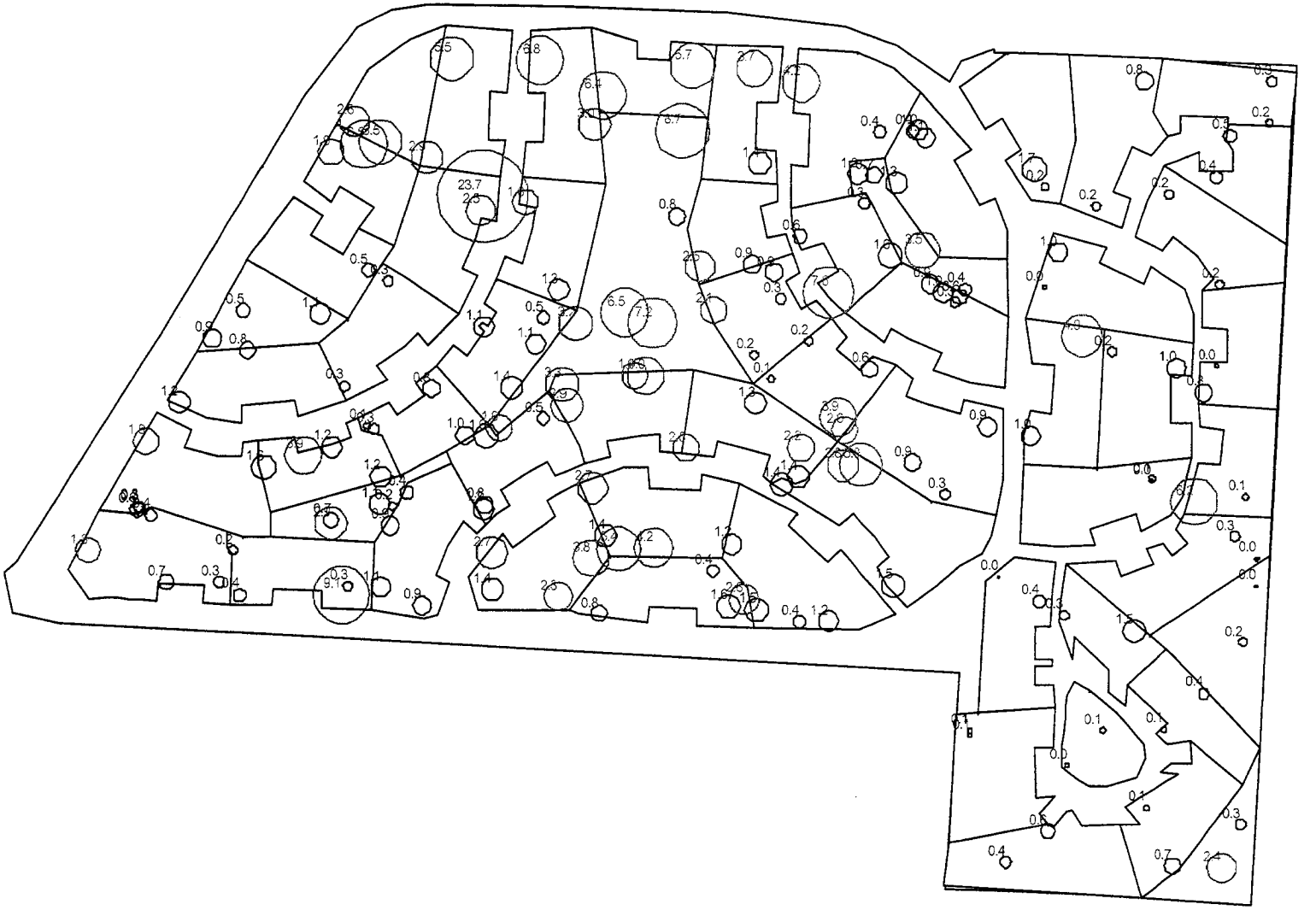


Figure B-3
Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 2 foot Interval

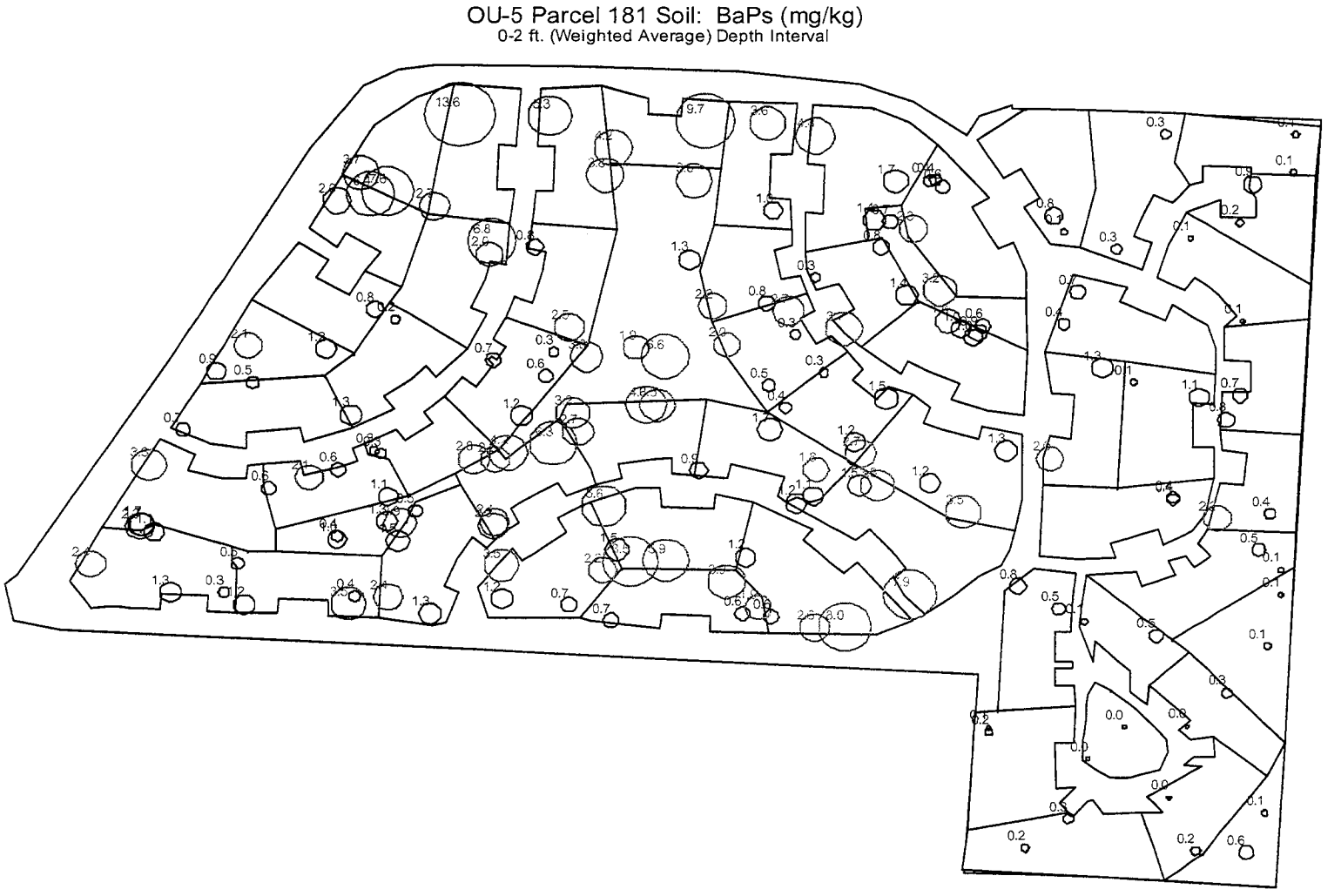


Figure B-4
Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 0 to 4 foot Interval

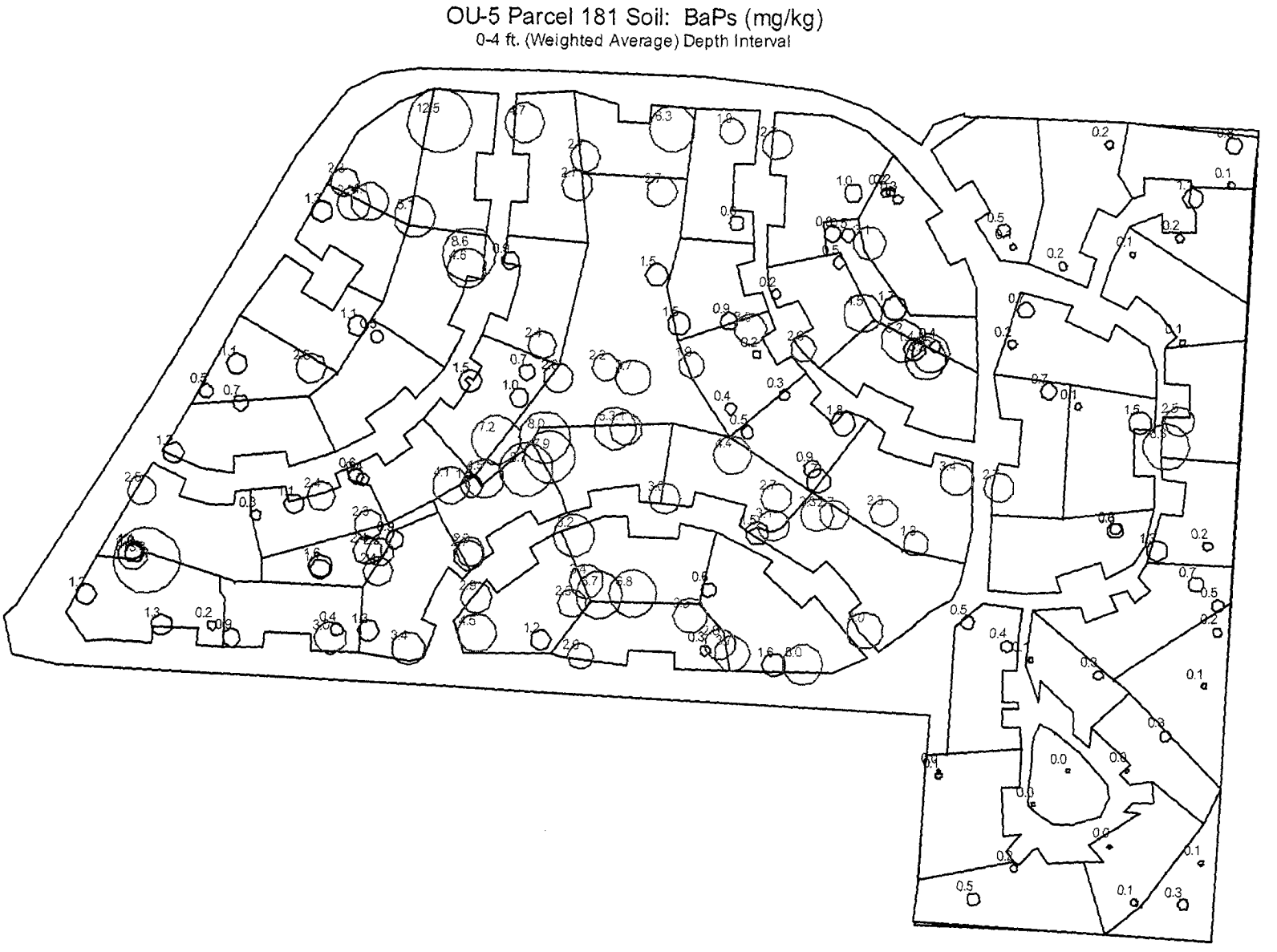


Figure B-5
Operable Unit 5 Map Divided into Seven Decision Areas, Showing Benzo(a)Pyrene-Equivalent Concentrations in the top 0 to 2 foot Depth Interval

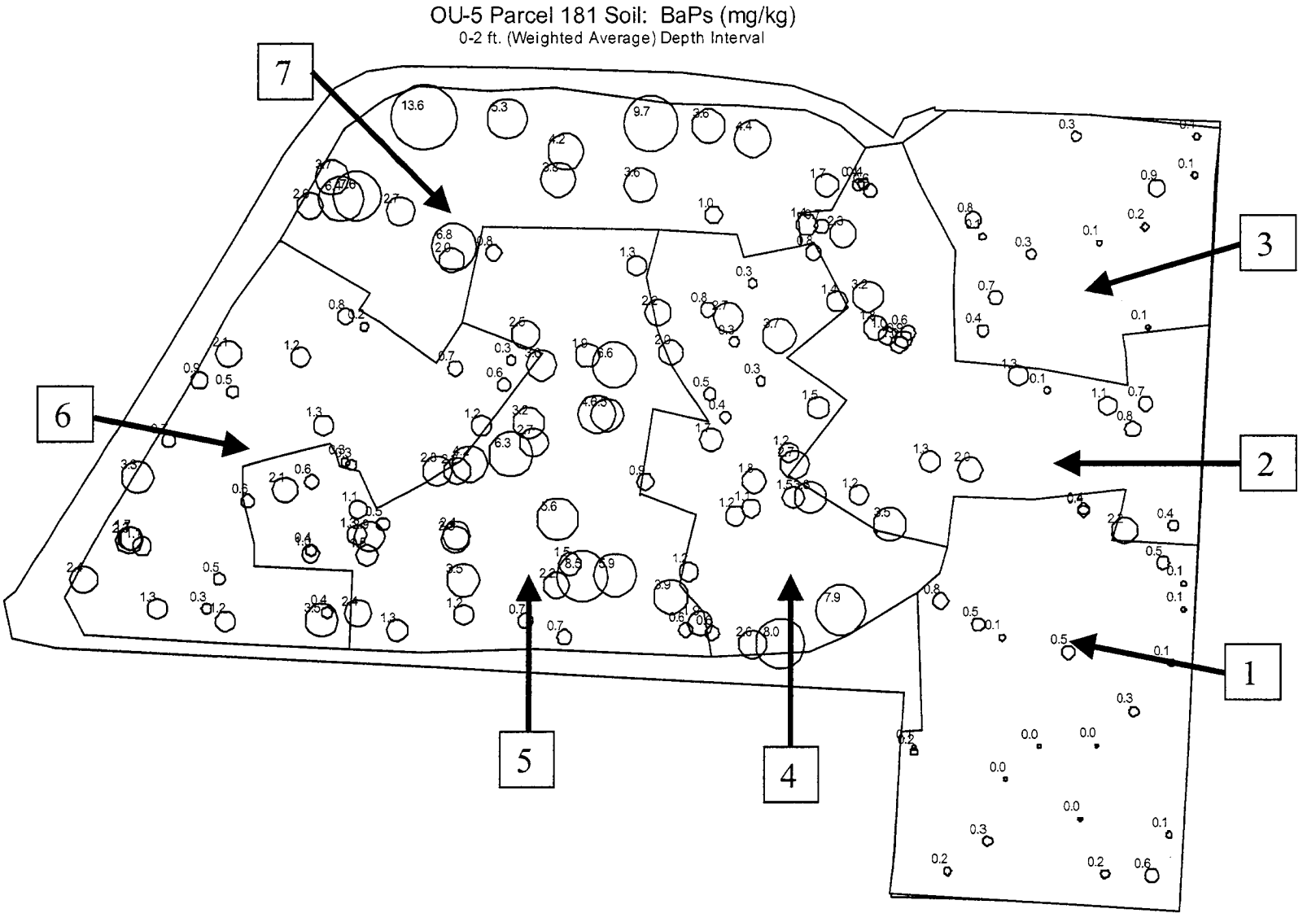
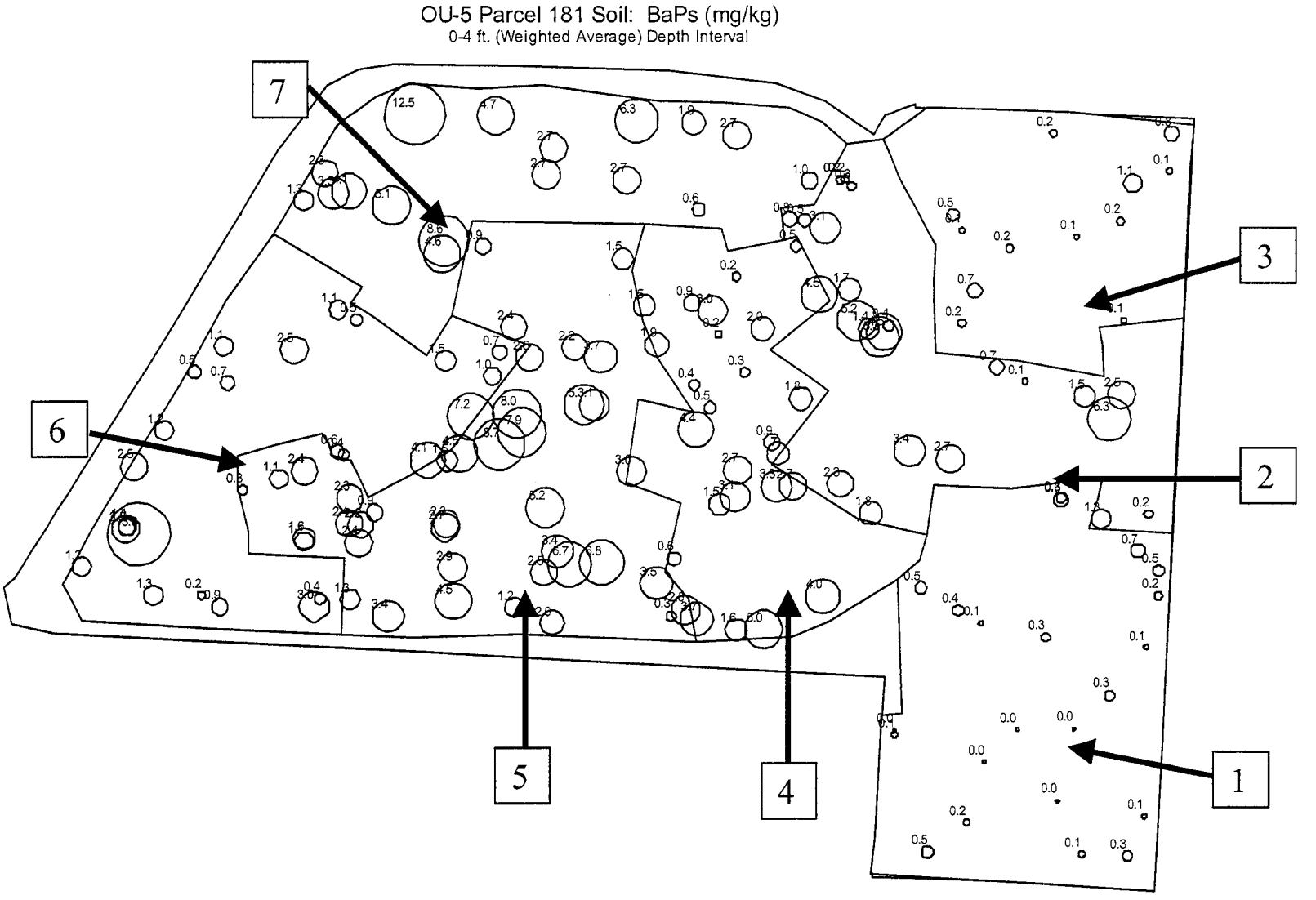


Figure B-6
Operable Unit 5 Map Divided into Seven Decision Areas, Showing Benzo(a)Pyrene-Equivalent Concentrations in the top 0 to 4 foot Depth Interval



The spatial analysis described in the preceding paragraphs employed the soil PAH data collected during the RI; PAH soil data collected in OU-5 during previous sampling events was only used in the planning process to support the sampling design for the RI. The principal reason why the historical PAH data were not combined with RI PAH data was that a different analytical method with lower detection limits was used in the RI. Hence, the RI PAH data were determined to be of higher quality than data previously collected, particularly for samples where PAH concentrations were relatively low. Figure B-7, "Comparison of Work Plan and Remedial Investigation Benzo(a)Pyrene-Equivalent Concentrations," shows that BaP-equivalent concentrations in the 0 to 2 feet depth interval for historical and RI soil samples are approximately equivalent. There were insufficient historical samples collected at depths below 2 feet to allow meaningful comparison of BaP-equivalent concentrations below this depth. The information provided in Figure B-7 suggests that RI BaP-equivalent EPCs would be effectively identical with or without inclusion of the historical data in the data set.

Duplicate samples (i.e., homogenized splits of specific core intervals) were taken at 10 percent of the location/depth intervals. No splits were taken in the 0 to 0.5-foot interval, because the sample volume was too small to form multiple samples. Duplicates were not considered in the initial spatial analysis of BaP distributions; however, to evaluate the sensitivity of the patterns that were observed to the variability between splits, several plots were made by substituting the duplicates in place of the regular samples. The same basic patterns of BaP-equivalent concentrations emerged, despite the within sample variability. In addition, the variability within a housing complex was considered. While there was small-scale variability observed among samples within a housing unit, the variability between duplicates of the homogenized splits accounted for most of this. A distinct pattern of BaP-equivalent concentrations across the site was discernable through the noise caused by the within sample and within housing complex variability. In general, the concentrations of BaP-equivalent concentrations are greatest in the northwestern part of Parcel 181, and decrease to the east-southeast. These patterns formed the basis for the establishment of decision areas.

Having established decision areas, the EPA BaP-equivalent concentrations from each area were box plotted, side by side. These plots facilitated a visual evaluation of the relative spread of the data and clearly show the differences (and overlap) between decision areas. Figure B-8, "Weighted-Average Benzo(a)Pyrene-Equivalent Concentrations in Box Plots by Decision Area for the 0 to 2 foot Depth Interval" and Figure B-9, "Weighted-Average Benzo(a)Pyrene-Equivalent Concentrations in Box Plots by Decision Area for the 0 to 4 foot Depth Interval" display the weighted-average BaP-equivalent concentrations in box plots by decision area for the 0 to 2 and 0 to 4-foot depth intervals. While there is some overlap in

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Figure B-7
Comparison of Work Plan and Remedial Investigation Benzo(a)Pyrene-Equivalent Concentrations

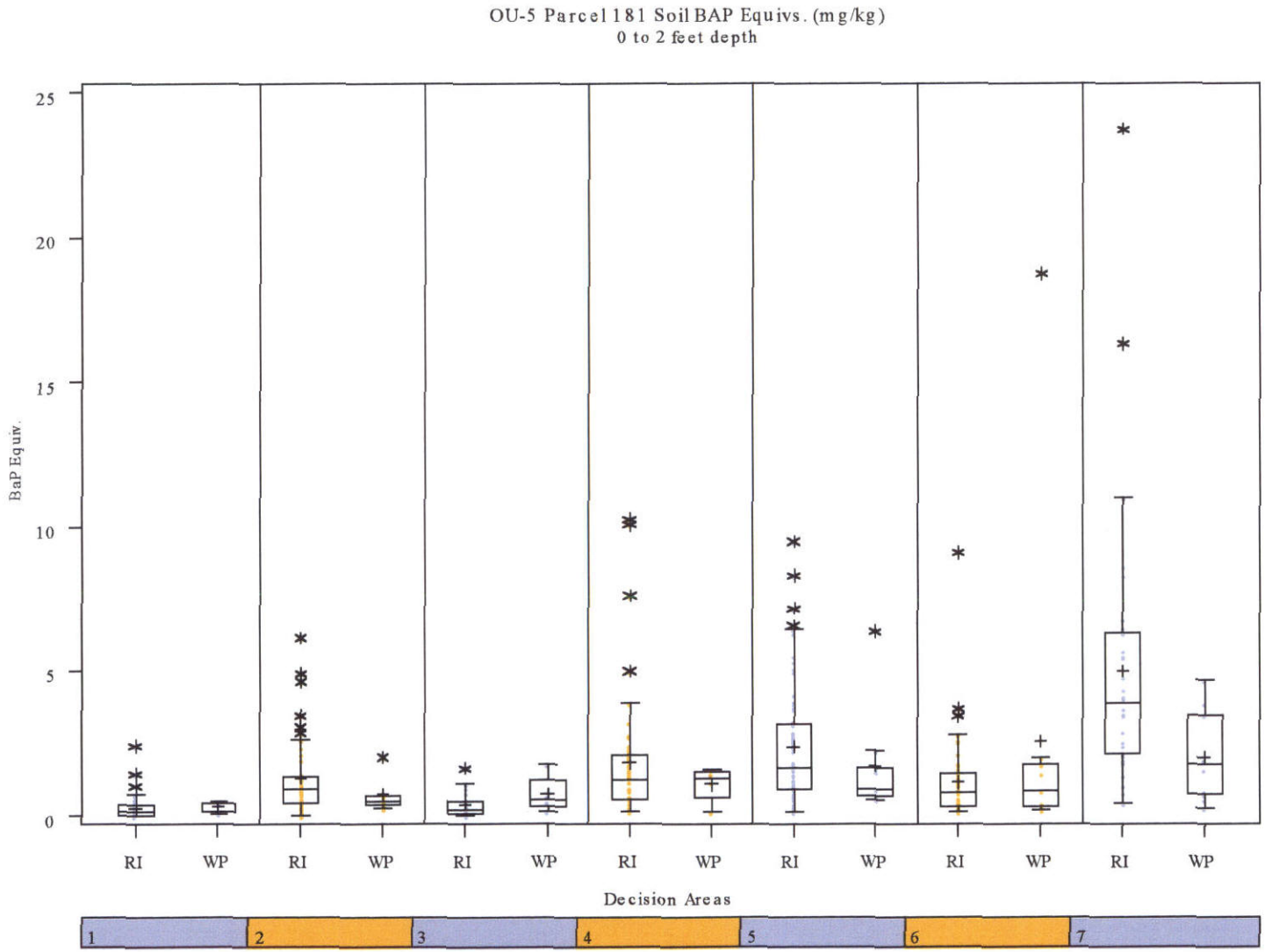


Figure B-8
Weighted-Average Benzo(a)Pyrene-Equivalent Concentrations in Box Plots by Decision Area for the 0 to 2 foot Depth Interval

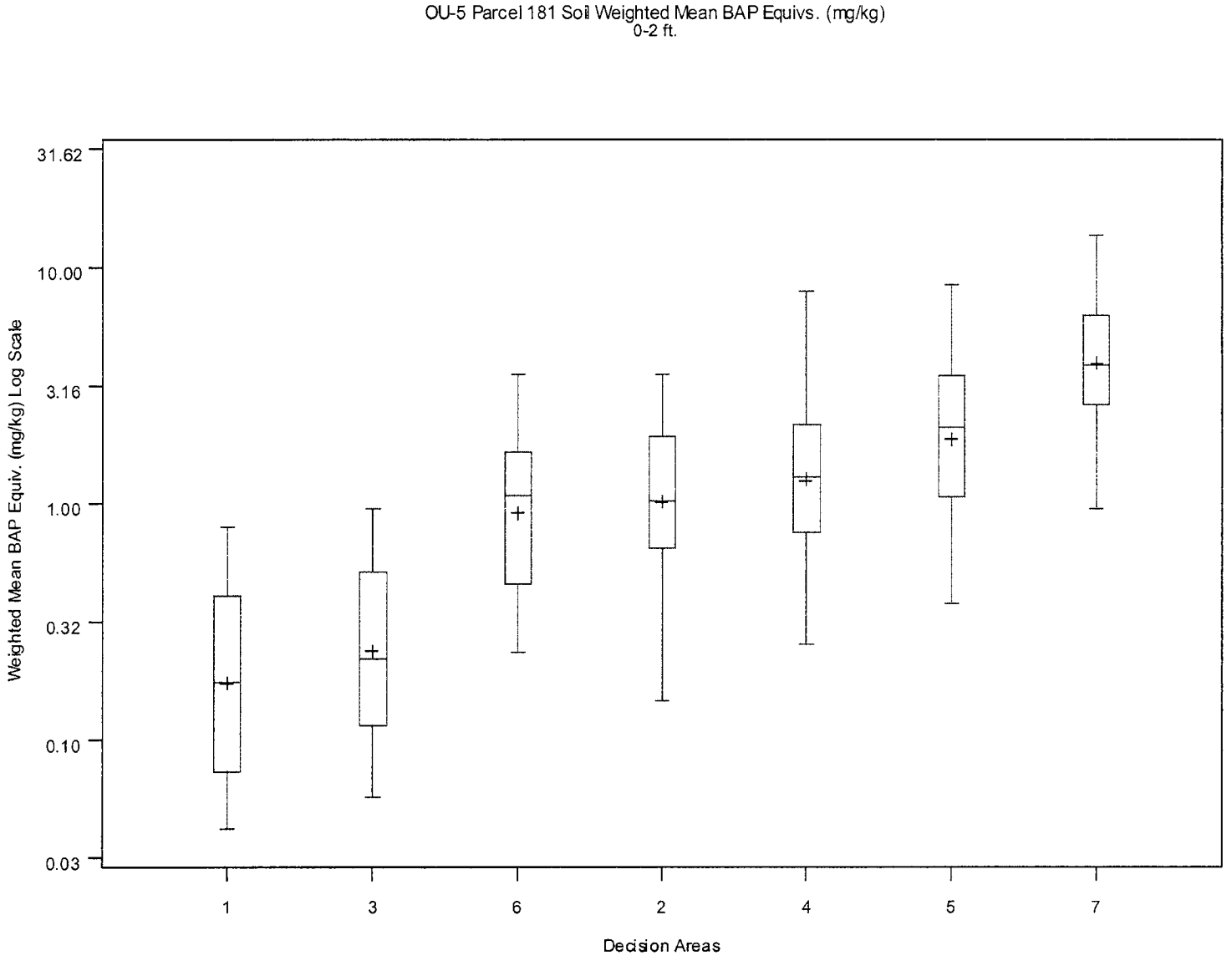
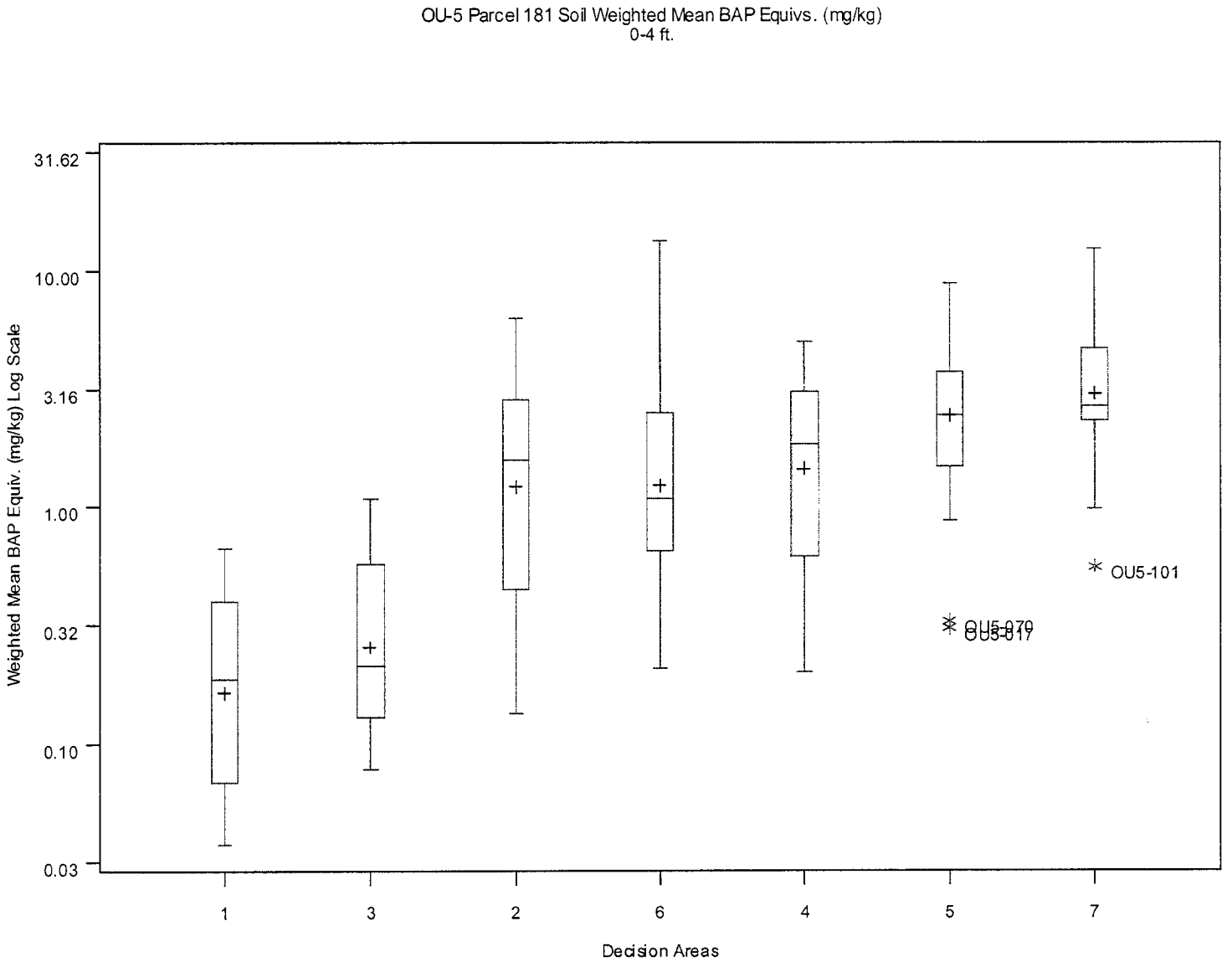


Figure B-9
Weighted-Average Benzo(a)Pyrene-Equivalent Concentrations in Box Plots by Decision Area for 0 to 4 foot Depth Interval



observed concentrations between decision areas in the 0 to 2 foot increment, there are also clearly differences in the medians, and ranges of the data, with the highest concentrations in decision areas 5 and 7 and the lowest in decision areas 1 and 3. The relative pattern holds when 0 to 4 foot weighted averages are calculated; however, decision area 2 appears to be somewhat higher in the 0 to 4 foot average than the 0 to 2 foot average, indicating the variability in BaP-equivalent concentrations at various depth intervals.

Figure B-10, "Spatial Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 4 to 8 foot Depth Interval Showing the Two District Strata" presents the distribution of EPA BaP-equivalent concentrations in the 4 to 8 foot depth interval. Two distinct strata are evident. Figure B-11, "Side-by-Side Box Plots of Benzo(a)Pyrene-Equivalent Concentrations in the Two Strata at the 4 to 8 foot Depth Interval" presents side-by-side box plots of the BaP-equivalent concentrations in the two 4 to 8 foot strata. Although not used in the identification of decision areas, BaP-equivalent concentrations at this depth are applied in the risk assessment to evaluate potential risk to construction workers that might contact these deeper soils during construction activities, or residents that might be exposed to the deeper soils following excavation and regrading.

2.3 Calculation of Soil Benzo(a)Pyrene-Equivalent Exposure Point Concentrations

To support the evaluation of risk to an individual under reasonable maximum exposure conditions, EPA Risk Assessment Guidance (1989), suggests that a 95 percent UCL on the arithmetic average concentration be used. These values are used in the risk evaluation as exposure point concentrations (EPC), and represent the soil concentration an individual may be exposed to over the exposure period considered in the evaluation. Calculations of 95 percent UCLs depend on the underlying distribution of the data. For that reason, the process starts with evaluating the observed distributions of the data, by decision area, and running statistical goodness-of-fit tests to determine if the data fit a continuous mathematical distribution such as the normal or lognormal distribution.

Exploratory data analysis plots were generated, for both the raw (untransformed) and log-transformed EPA BaP-equivalent concentrations. The plots include histograms, density graphs, box plots, and normal quantile-quantile plots by decision area and depth interval. Each of these plots provide another way of looking at the distribution of the raw (untransformed) data, and the log-transformed data, to see which distribution (normal or log-normal) is best supported by the data.

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Figure B-10
Spatial Distribution of Benzo(a)Pyrene-Equivalent Concentrations in the 4 to 8 foot Depth Interval Showing the Two Distinct Strata

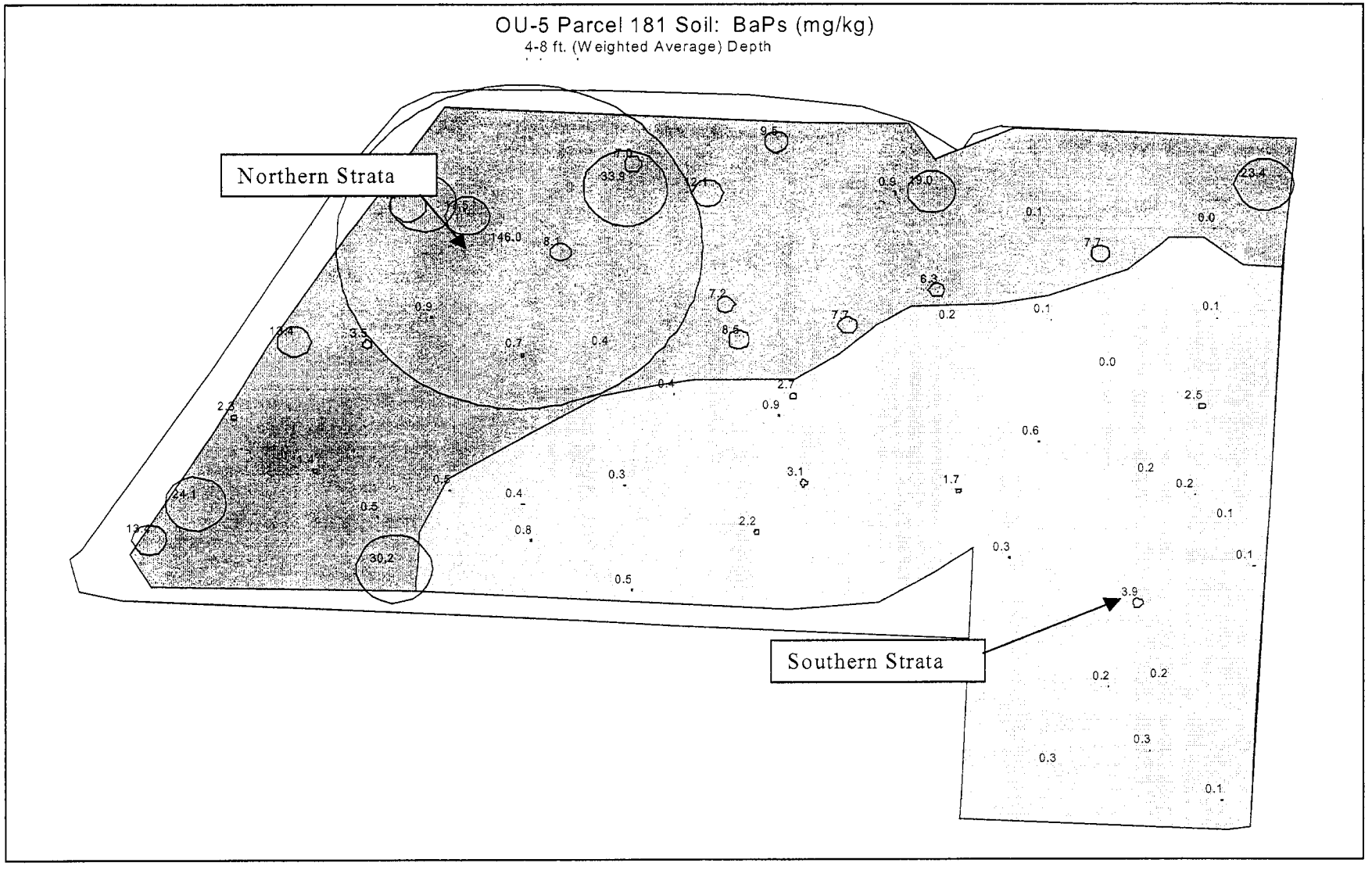
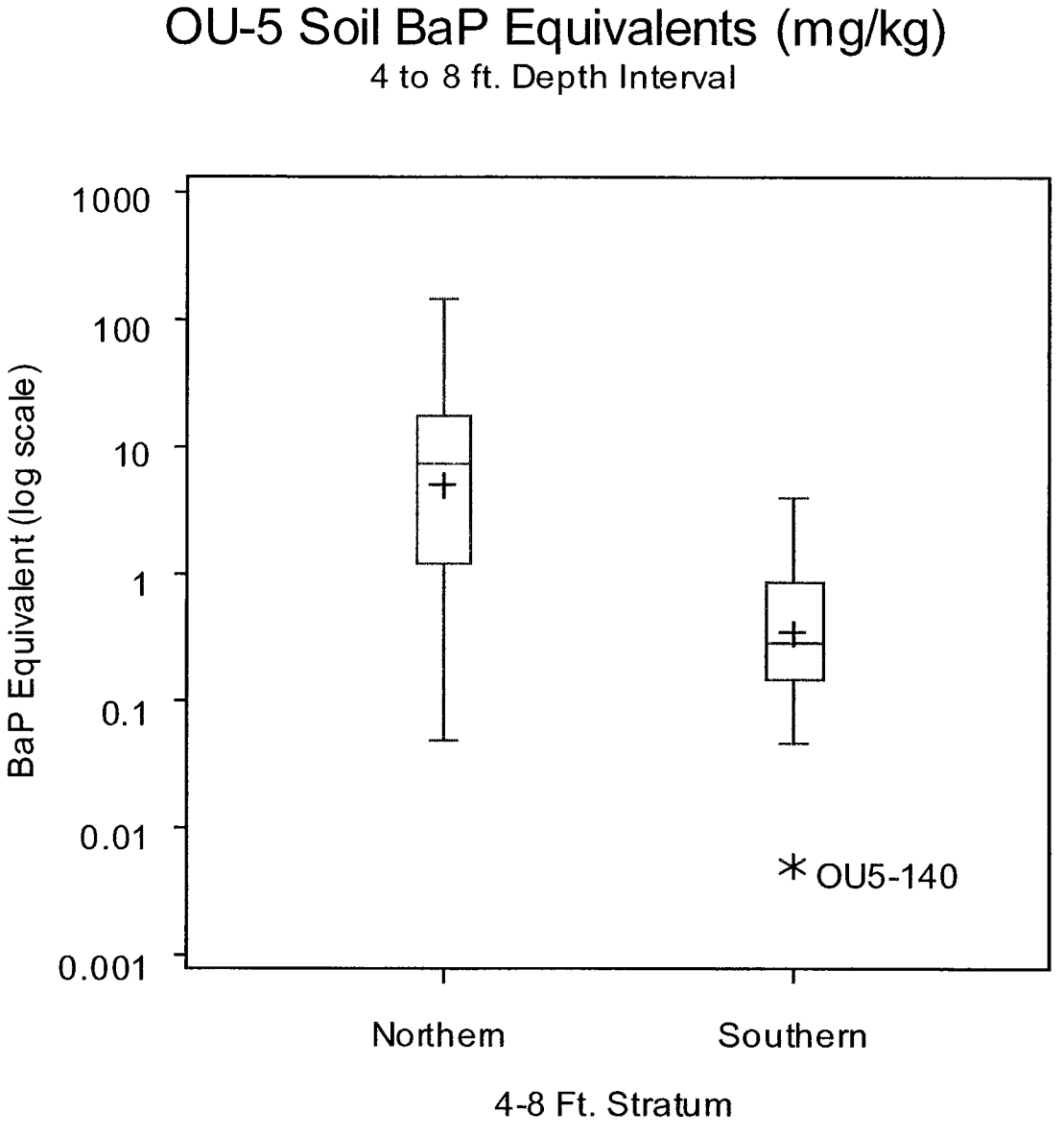


Figure B-11
Side by Side Box Plots of the Benzo(a)Pyrene-Equivalent Concentrations in the Two Strata at the 4 to 8 foot Depth Interval



Histograms show the frequency of BaP-equivalent values that fall in various "concentration bins" going from low to high concentrations. What the statistician is looking for, is a pattern that shows the highest frequency of results in the middle, with fewer observations in both the higher and lower concentration bins. The density plots show this same information as a line that is smoothed using statistical software. In general, these plots can be used to see if the data are distributed as a symmetrical bell shaped curve, or whether they are skewed, with the bell pulled to the left. Box plots show a box that contains the middle half of the values ranked from low to high (known as the interquartile range), with two whiskers on the top and the bottom, that reflect the tails of the distribution (generally calculated as two times the interquartile range). By looking at the position of the box within the whiskers, one can tell if the data are symmetrical (the box falls approximately in the middle of the whiskers), or if it is skewed (the box is closer to one whisker than the other. Values that fall outside the whiskers are often looked at closely to determine if they are outliers, or simply values, that fall outside this range. Finally, a normal quantile-quantile plot (sometimes referred to as a probability plot) is used to evaluate the distribution of the data. If the raw (untransformed) data fall close to the solid predicted line, it is another indication that the data are normally distributed.

To illustrate the use of these graphs, two examples are presented in Figure B-12, "Exploratory Data Analysis Plots Comparing Raw Data to Log-Transformed Data for 0 to 2 foot Interval in Decision Area 5" and Figure B-13, "Exploratory Data Analysis Plots Comparing Raw Data to Log-Transformed Data for 0 to 4 foot Interval in Decision Area 1." Figure B-12 shows the four types of plots for untransformed and log-transformed weighted-average EPA BaP-equivalent concentrations from the 0 to 2-foot interval in decision area 5. In this case, the BaP-equivalents are fairly elevated. Figure B-13 shows a similar figure for the 0 to 4-foot interval in decision area 1, an area where the BaP-equivalent concentrations are relatively low. In both cases, and for most decision area/depth interval cases the distribution of BaP-equivalent concentrations is better approximated by the lognormal distribution than the normal distribution. This is evident by comparing the top (raw data) and bottom (log-transformed data) plots. In both instances, the log-transformed data appear more symmetrical in the histograms, density plots and box plots, and show data points that fit more closely to the normal quantile-quantile line. To substantiate these observations, Shapiro Wilk Goodness-of-Fit tests were run to compare the observed distributions to the lognormal distribution, and if that failed, to the normal distribution. Using the results of these statistical tests and visual plots, both EPA and Cal EPA BaP-equivalent concentration distributions within each decision area and depth interval were determined to be generally best approximated by lognormal distribution. Therefore, all UCLs were calculated

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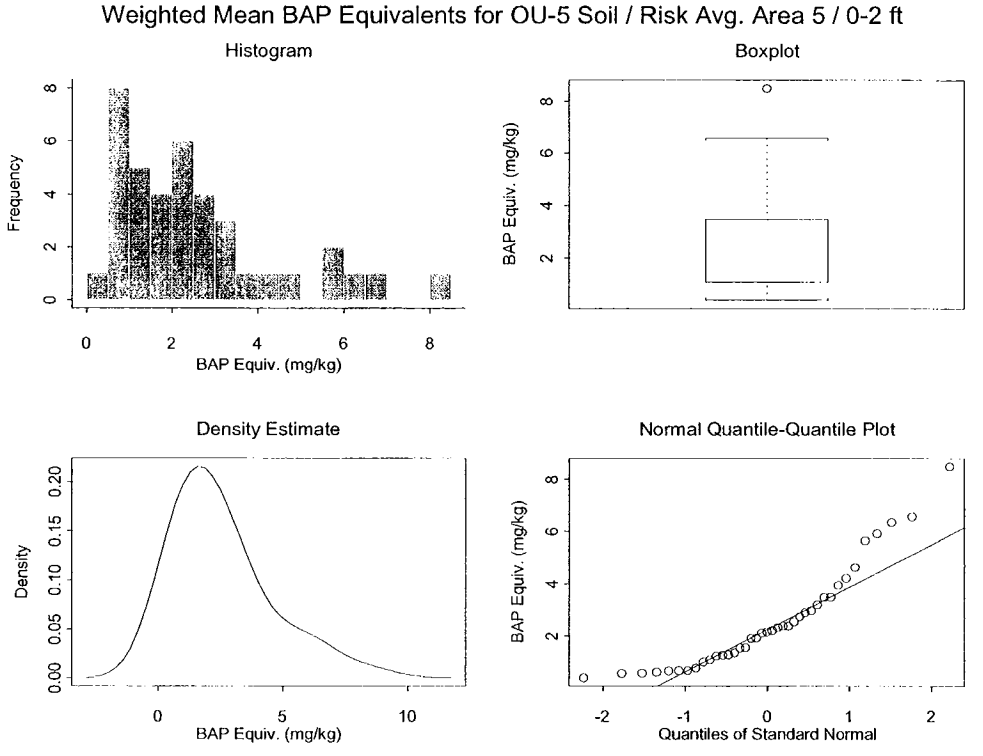
Figure B-12
Exploratory Data Analysis Plots Comparing Raw Data to Log Transformed Data for the 0 to 2 foot Interval in Decision (Risk Averaging) Area 5



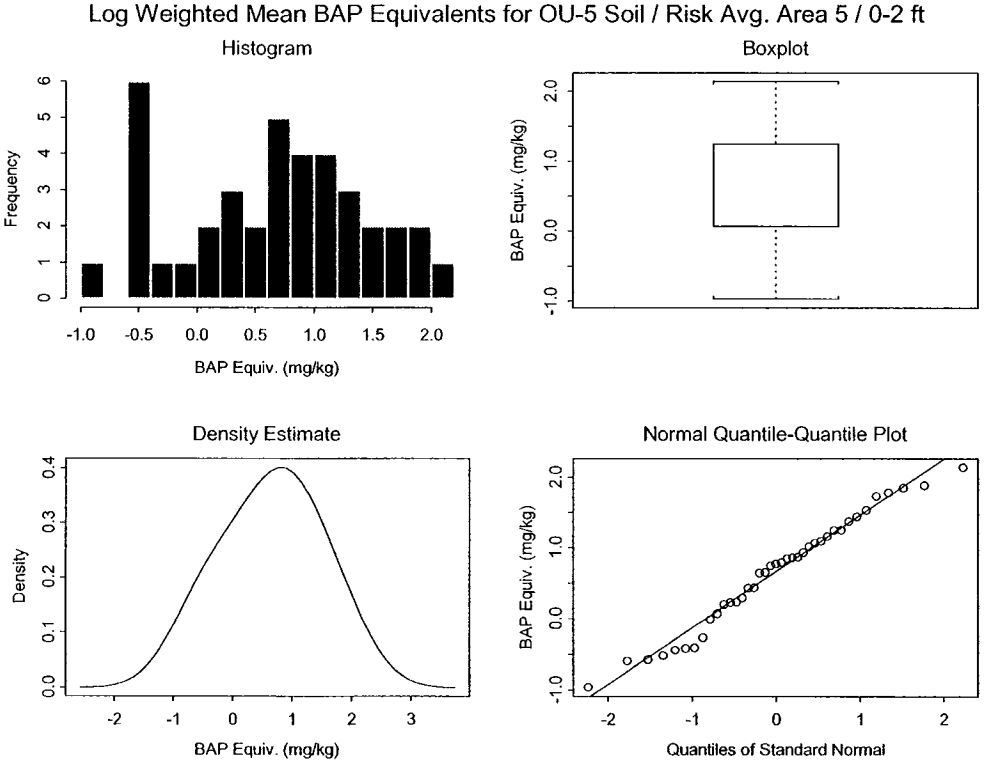
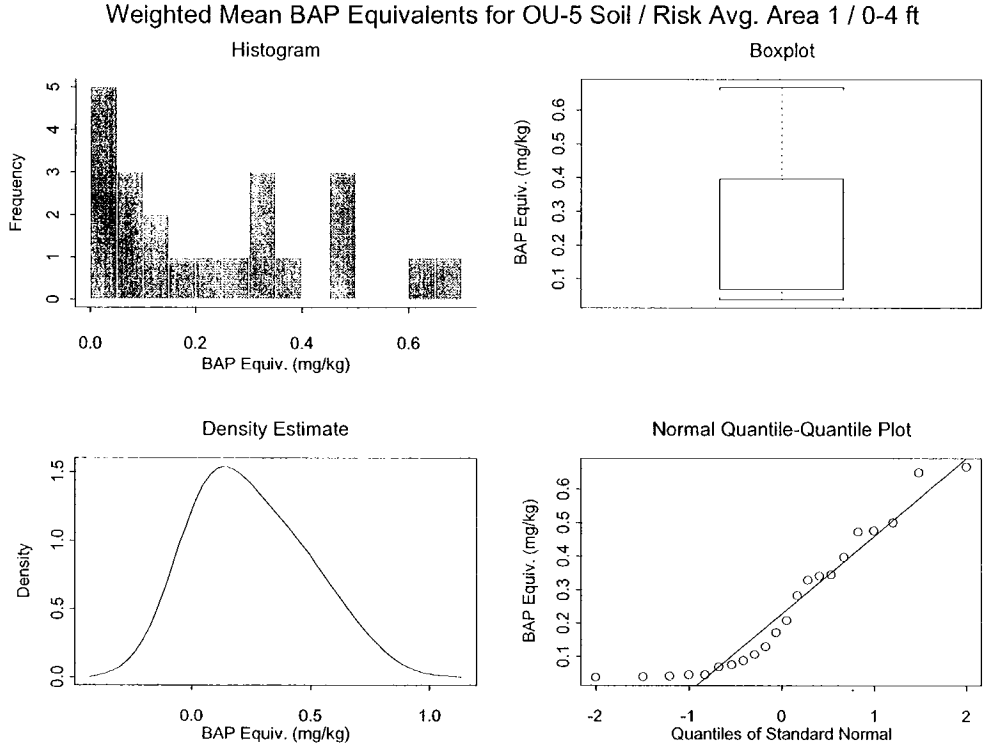
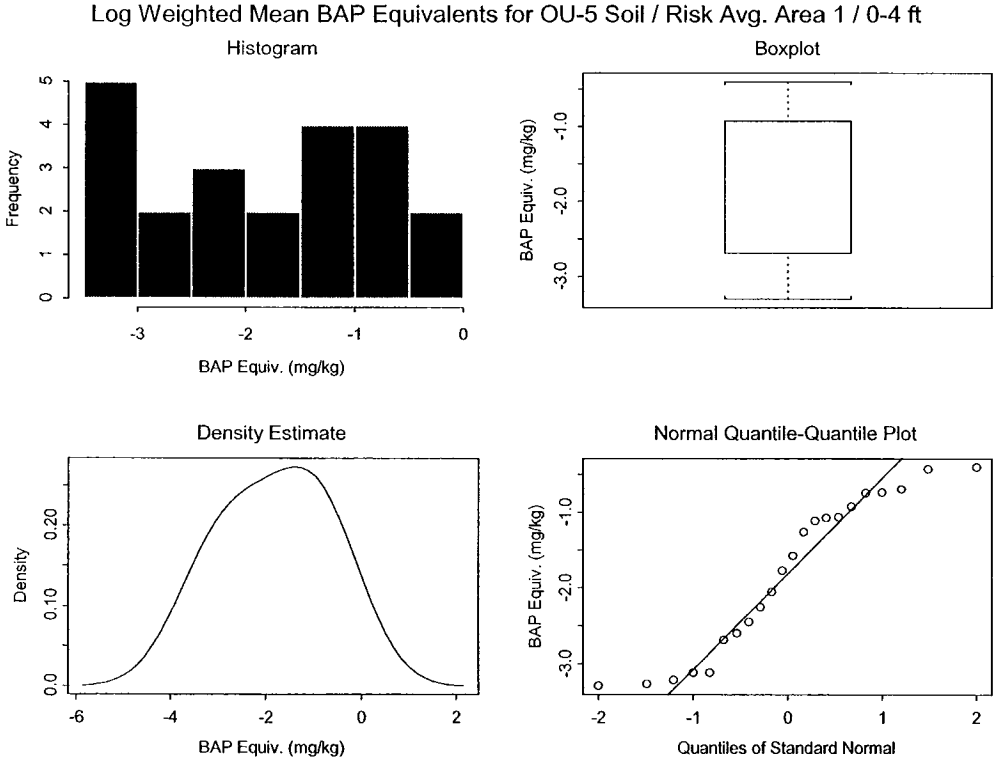


Figure B-13
Exploratory Data Analysis Plots Comparing Raw Data to Log Transformed Data for the 0 to 4 foot Interval in Decision (Risk Averaging) Area 1





based on this assumption. The 95 percent UCLs for the log-transformed mean were used as the EPC except for the following cases:

- If the data were lognormally distributed but the 95 percent UCL was greater than the overall maximum value. In this case, the EPC was set to the overall maximum value, regardless of detection status. Substitution of the maximum in cases where the UCL is greater is consistent with Risk Assessment Guidance for Superfund (EPA, 1989).
- If the data were highly censored (greater than 50 percent nondetects), or if the data did not fit either the normal or lognormal distribution. In this case, the EPC was set to the minimum of the 95 percent UCL for the log-transformed mean or the maximum detected value. Use of the maximum value, for a data set where most observations were nondetects, is a conservative approach, even if the UCL generated from this data set is higher (which may be a function of assuming the log normal distribution, when data are really not adequate to determine the true distribution).

For these cases, a bootstrap procedure was also performed to estimate the 95 percent UCL in order to evaluate the uncertainty associated with use of the maximum value. The bootstrap method utilizes the actual data as if it were the "true distribution." As such, no distributional assumption is needed. A random sample is taken repeatedly, using a computer simulation, and each group of samples is used to calculate a mean. In essence, the 95 percent UCL is generated from the results of this simulated sampling, and represents the value that 95 percent of the simulated mean values fall below (the 95th quantile of the simulated sample means). The results of the bootstrap procedure are useful in evaluating the uncertainty associated with using potential conservative assumptions regarding the underlying distribution and subsequent calculation of EPCs.

Given the data were generally lognormally distributed, the following equation was utilized to calculate the 95 percent UCL:

$$UCL_{1-\alpha} = \exp\left(\bar{y} + 0.5s_y^2 + \frac{s_y H_{1-\alpha}}{\sqrt{n-1}}\right)$$

where

$$\bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i$$

$$s_y^2 = \frac{1}{n-1}\sum_{i=1}^{n}(y_i - \bar{y})^2$$

$n = number\ of\ values$

and

$$y_i = \ln x_i$$

$$H_{1-\alpha} = from\ Tables\ A10 - A13\ (Gilbert\ 1987)$$

These equations first take the mean (y bar) and variance (s^2) of the log-transformed values, and an H statistic from a table (Gilbert, 1987) to calculate the UCL based on the first equation above.

Table B-2, "Summary Statistics and Exposure Point Concentrations for EPA Benzo(a)Pyrene-Equivalent Concentrations in Soil in the Seven Decision Areas (milligrams per kilogram)" and Table B-3, "Summary Statistics and Exposure Point Concentrations for CalEPA Benzo(a)Pyrene-Equivalent Concentrations in Soil in the Seven Decision Areas (milligrams per kilogram)" present the summary statistics and associated EPCs for each of the decision areas, by depth strata. These tables indicate the results of the goodness-of-fit tests. In all but one or two cases, the lognormal distribution was the best fit. In one case, (Decision Area 1, 0 to 4 foot depth interval) both the normal and lognormal distribution were rejected, and a question mark is indicated. Given that the lognormal distribution was confirmed for almost all decision areas and depth intervals, the 95 percent UCL was calculated on the log-transformed data.

In several cases, due to small sample sizes and/or relative high variability, the lognormal 95 percent UCL exceeded the overall maximum value. As mentioned above, in these cases, the EPC was set to the maximum detected value and a bootstrap procedure was used to generate 95 percent UCLs to support an uncertainty analysis. The results of this analysis will be discussed in the uncertainty section below.

As mentioned above, BaP-equivalent concentrations for the 4 to 8 foot depth interval were evaluated separately (in addition to looking at decision areas) because (1) exposure at this depth is less likely, (2) fewer samples were taken in this depth interval, and (3) a different pattern of

Table B-2
Summary Statistics and Exposure Point Concentrations for U.S. Environmental Protection Agency Benzo(a)Pyrene-Equivalent Concentrations in Soil in the Seven Decision Areas (milligrams per kilogram)

Decision Area	Depth Interval (feet)	Distribution	N	No. Detects	Min	Mean	95% UCL Log Trans.	Overall Max	Max Detected	EPC
1	0 - 0.5	Lognormal	22	19	0.014	0.373	1.041	2.444	2.444	1.041
1	0-2	Lognormal	22	22	0.042	0.261	0.477	0.790	0.790	0.477
1	0-4	?	22	22	0.037	0.250	0.488	0.666	0.666	0.488
1	0-8	Lognormal	11	11	0.094	0.398	0.780	2.082	2.082	0.780
2	0 - 0.5	Lognormal	24	24	0.027	1.288	2.839	6.159	6.159	2.839
2	0-2	Lognormal	24	24	0.145	1.317	1.979	3.544	3.544	1.979
2	0-4	Lognormal	24	24	0.134	2.015	4.542	6.349	6.349	4.542
2	0-8	Lognormal	8	8	0.070	2.887	72.884	9.623	9.623	9.623
3	0 - 0.5	Lognormal	12	12	0.049	0.480	1.148	1.663	1.663	1.148
3	0-2	Lognormal	12	12	0.057	0.347	0.793	0.949	0.949	0.793
3	0-4	Lognormal	12	12	0.078	0.364	0.737	1.094	1.094	0.737
3	0-8	Lognormal	6	6	0.116	2.736	5074.301	11.775	11.775	11.775
4	0 - 0.5	Lognormal	26	26	0.143	1.687	3.037	7.612	7.612	3.037
4	0-2	Lognormal	26	26	0.255	1.908	3.028	7.991	7.991	3.028
4	0-4	Normal	26	26	0.200	2.085	3.850	5.011	5.011	3.850
4	0-8	Lognormal	7	7	1.421	3.187	5.658	5.185	5.185	5.185
5	0 - 0.5	Lognormal	39	39	0.200	2.158	2.967	7.183	7.183	2.967
5	0-2	Lognormal	39	39	0.380	2.546	3.473	8.470	8.470	3.473
5	0-4	Lognormal	39	39	0.307	3.093	4.221	8.730	8.730	4.221
5	0-8	Lognormal	10	10	0.702	1.752	2.746	4.472	4.472	2.746

Table B-2 (continued)
Summary Statistics and Exposure Point Concentrations for U.S. Environmental Protection Agency Benzo(a)Pyrene-Equivalent Concentrations in Soil in the Seven Decision Areas (milligrams per kilogram)

Decision Area	Depth Interval (feet)	Distribution	N	No. Detects	Min	Mean	95% UCL Log Trans.	Overall Max	Max Detected	EPC
6	0 - 0.5	Lognormal	28	28	0.129	1.003	1.329	9.115	9.115	1.329
6	0-2	Lognormal	27	27	0.237	1.242	1.865	3.544	3.544	1.865
6	0-4	Lognormal	25	25	0.207	2.021	3.023	13.254	13.254	3.023
6	0-8	Lognormal	8	8	0.700	6.120	39.713	15.293	15.293	15.293
7	0 - 0.5	Lognormal	17	17	0.445	5.381	9.628	23.742	23.742	9.628
7	0-2	Lognormal	17	17	0.959	4.828	7.177	13.622	13.622	7.177
7	0-4	Lognormal	17	17	0.557	3.943	6.492	12.519	12.519	6.492
7	0-8	Lognormal	9	9	0.950	16.634	86.238	77.345	77.345	77.345

N denotes number of samples
Min denotes minimum
UCL denotes upper confidence limit
Log Trans. denotes Log Transformed
Max denotes maximum
EPC denotes exposure point concentration

Table B-3
Summary Statistics and Exposure Point Concentrations for California Environmental Protection Agency Benzo(a)Pyrene-Equivalent Concentrations in Soil in the Seven Decision Areas (milligrams per kilogram)

Decision Area	Depth Interval (feet)	Distribution	N	No. Detects	Min	Mean	95% UCL Log Trans.	Overall Max	Max Detected	EPC
1	0 - 0.5	Lognormal	22	19	0.013	0.340	1.014	2.487	2.487	
1	0-2	Lognormal	22	22	0.036	0.234	0.438	0.631	0.631	
1	0-4	?	22	22	0.03	0.225	0.458	0.652	0.652	
1	0-8	Lognormal	11	11	0.088	0.327	0.606	1.47	1.47	
2	0 - 0.5	Lognormal	24	24	0.02	1.064	2.348	5.747	5.747	
2	0-2	Lognormal	24	24	0.11	1.104	1.712	2.739	2.739	
2	0-4	Lognormal	24	24	0.098	1.739	4.202	5.029	5.029	
2	0-8	Lognormal	8	8	0.05	2.410	70.029	8.105	8.105	
3	0 - 0.5	Lognormal	12	12	0.033	0.423	1.201	1.654	1.654	
3	0-2	Lognormal	12	12	0.034	0.301	0.838	0.905	0.905	
3	0-4	Lognormal	12	12	0.057	0.317	0.731	1.04	1.04	
3	0-8	Lognormal	6	6	0.078	2.650	17122.713	11.314	11.314	
4	0 - 0.5	Lognormal	26	26	0.079	1.349	2.566	7.451	7.451	
4	0-2	Lognormal	26	26	0.175	1.575	2.633	7.512	7.512	
4	0-4	Normal	26	26	0.138	1.647	3.244	4.714	4.714	
4	0-8	Lognormal	7	7	1.073	2.600	4.959	4.355	4.355	
5	0 - 0.5	Lognormal	39	39	0.168	1.765	2.471	5.344	5.344	
5	0-2	Lognormal	39	39	0.299	2.122	2.925	7.419	7.419	
5	0-4	Lognormal	39	39	0.244	2.599	3.583	7.876	7.876	
5	0-8	Lognormal	10	10	0.571	1.473	2.402	3.857	3.857	

Table B-3 (continued)
Summary Statistics and Exposure Point Concentrations for California Environmental Protection Agency Benzo(a)Pyrene-Equivalent Concentrations in Soil in the Seven Decision Areas (milligrams per kilogram)

Decision Area	Depth Interval (feet)	Distribution	N	No. Detects	Min	Mean	95% UCL Log Trans.	Overall Max	Max Detected	EPC
6	0 - 0.5	Lognormal	28	28	0.078	0.882	1.203	8.614	8.614	
6	0-2	Lognormal	27	27	0.148	1.046	1.637	3.339	3.339	
6	0-4	Lognormal	25	25	0.166	1.709	2.630	10.616	10.616	
6	0-8	Lognormal	8	8	0.597	5.268	35.512	11.851	11.851	
7	0 - 0.5	Lognormal	17	17	0.32	4.057	7.262	17.601	17.601	
7	0-2	Lognormal	17	17	0.774	3.884	5.977	12.252	12.252	
7	0-4	Lognormal	17	17	0.461	3.276	5.674	11.229	11.229	
7	0-8	Lognormal	9	9	0.714	14.921	90.921	74.792	74.792	

N denotes number of samples
Min denotes minimum
UCL denotes upper confidence limit
Log Trans. denotes Log Transformed
Max denotes maximum
EPC denotes exposure point concentration

BaP-equivalent concentrations was evident. The concentrations of PAHs were generally higher below 4 feet, especially in the northern half of OU-5. Figure B-10 presents a post stratification of the 4 to 8 foot interval, forming two areas: one with generally high concentrations in the northern half of Parcel 181, and one with generally lower concentrations in the southern half of Parcel 181. Potential excavation below 4 feet is associated with a construction worker rather than residential exposure (Section 5.3 of the main text of the RI Report). For example, if new storm sewer lines were installed, a construction worker would possibly be exposed to contaminants in soil, down to depths below 4 feet.

With the exception of the weighted mean of the 0 to 4 foot depth interval in all of Parcel 181, the distribution of EPA and CalEPA BaP-equivalent concentrations generally fit the lognormal distribution quite well in all of Parcel 181 and the northern stratum. In the southern stratum, however, only the 4 to 8 foot interval for the EPA BaP-equivalent fit a lognormal distribution. Benzo(a)pyrene-equivalents in the remaining depth intervals of the southern stratum do not appear to fit either the normal or lognormal distributions. Summary statistics for all three-depth intervals are presented in Tables B-4, "Exposure Point Concentrations and Summary Statistics for EPA Benzo(a)Pyrene-Equivalent Concentrations in the Northern and Southern Strata and All of Parcel 181" and B-5, "Exposure Point Concentrations and Summary Statistics for CalEPA Benzo(a)Pyrene-Equivalent Concentrations in the Northern and Southern Strata and All of Parcel 181"The 4 to 8 foot depth interval is included in these tables, even though it was not directly used in the risk evaluation because it is evident that the 4 to 8 foot depth interval is responsible for the overall elevation of BaP-equivalent concentrations in the northern stratum. The data indicate that a construction worker who does not dig below 4 feet or limits their activity to the southern stratum, is likely to be exposed to much lower PAH concentrations. Recommended EPCs are based on 95 percent UCL of the log-transformed mean. Where the underlying distribution is uncertain, a bootstrap UCL was calculated to help understand the uncertainty associated with selecting the lognormal UCL for the EPC.

2.4 Calculation of Exposure Point Concentrations for Individual Polynuclear Aromatic Hydrocarbons

In addition to evaluating the cancer risk due to PAH exposures using BaP-equivalent concentrations, EPCs for individual PAHs were required to assess noncancer risk. The same statistical approach and logic that was used to calculate EPCs for BaP-equivalent concentrations was followed. Tables B-6 to B-21 present the EPCs and associated summary statistics for individual PAHs by decision area and depth interval. The overall maximum reported in these tables was the maximum of either the detected value or sample-specific reporting limit (when

Table B-4
Exposure Point Concentrations and Summary Statistics for U.S. Environmental Protection Agency Benzo(a)Pyrene-Equivalent Concentrations in the Northern and Southern Strata and All of Parcel 181

Portion of Operable Unit 5	N	Depth Interval	Milligrams Per Kilogram					
			Min	Max	Mean	95% UCL for Log. Mean	EPC	Bootstrap 95% UCL
All of Parcel 181	165	0-4	0.037	13.254	2.125	2.942	2.942	2.417
	59	0-8	0.07	77.345	4.786	10.430	10.430	
	59	4-8	0.005	146.041	7.952	34.191	34.191	
Northern Stratum of Parcel 181	80	0-4	0.118	13.254	2.09	2.942	2.942	
	31	0-8	0.116	77.345	8.102	19.506	19.506	
	31	4-8	0.048	146.041	14.411	77.116	77.116	
Southern Stratum of Parcel 181	85	0-4	0.037	8.73	2.158	5.0	5.0	2.552
	28	0-8	0.07	4.443	1.116	2.635	2.635	1.459
	28	4-8	0.005	3.882	0.802	2.312	2.312	

N denotes number of samples
Min denotes minimum
UCL denotes upper confidence limit
Log Trans. denotes Log Transformed
Max denotes maximum
EPC denotes exposure point concentration

Table B-5
Exposure Point Concentrations and Summary Statistics for California Environmental Protection Agency Benzo(a)Pyrene-Equivalent Concentrations in the Northern and Southern Strata and All of Parcel 181

Portion of Operable Unit 5	N	Depth Interval	Milligrams Per Kilogram					
			Min	Max	Mean	95% UCL for Log. Mean	EPC	Bootstrap 95% UCL
All of Parcel 181	165	0-4	0.030	11.229	1.776	2.893	2.893	2.033
	59	0-8	0.050	74.792	4.206	8.906	8.906	
	59	4-8	0.003	142.110	7.066	30.544	30.544	
Northern Stratum of Parcel 181	80	0-4	0.088	11.229	1.708	2.430	2.430	
	31	0-8	0.078	74.792	7.163	17.963	17.963	
	31	4-8	0.032	142.110	12.851	75.166	75.166	
Southern Stratum of Parcel 181	85	0-4	0.030	7.876	1.840	4.306	4.306	2.175
	28	0-8	0.050	3.667	0.931	2.170	2.170	1.197
	28	4-8	0.003	2.810	0.660	2.027	2.027	0.924

N denotes number of samples
Min denotes minimum
UCL denotes upper confidence limit
Log Trans. denotes Log Transformed
Max denotes maximum
EPC denotes exposure point concentration

Table B-6
Exposure Point Concentrations and Summary Statistics for Acenaphthene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.015	0.166	1.1	0.019	0.332	0.019
1	0 – 2	22	0.013	0.052	0.24	0.015	0.088	0.015
1	0 – 4	22	0.013	0.052	0.165	0.014	0.094	0.014
1	0 - 8	11	0.014	0.08	0.383	0.014	0.294	0.014
2	0 – 0.5	24	0.026	0.522	2.7	0.13	1.006	0.13
2	0 - 2	24	0.013	0.273	1.121	0.133	0.591	0.133
2	0 - 4	24	0.014	0.293	1.15	0.368	0.623	0.368
2	0 - 8	8	0.026	0.871	4.771	0.057	29.911	0.057
3	0 – 0.5	12	0.056	0.151	0.28		0.222	0.222
3	0 - 2	12	0.027	0.067	0.144	0.027	0.092	0.027
3	0 - 4	12	0.027	0.062	0.147	0.027	0.082	0.027
3	0 - 8	6	0.037	0.145	0.624	0.624	1.089	0.624
4	0 – 0.5	26	0.11	0.937	3.8		1.408	1.408
4	0 - 2	26	0.038	0.385	1	0.038	0.563	0.038
4	0 - 4	26	0.038	0.453	1.2	0.038	0.716	0.038
4	0 - 8	7	0.245	0.602	1.096		1.166	1.166
5	0 – 0.5	39	0.022	0.711	2.9	0.076	1.438	0.076
5	0 - 2	39	0.046	0.367	1.388	0.147	0.487	0.147
5	0 - 4	39	0.042	0.407	1.369	0.389	0.535	0.389
5	0 - 8	10	0.065	0.314	0.926	0.065	0.654	0.065
6	0 – 0.5	28	0.018	0.416	2.2	0.031	0.742	0.031
6	0 - 2	27	0.025	0.22	0.71	0.067	0.328	0.067
6	0 - 4	25	0.06	0.217	0.484	0.201	0.292	0.201
6	0 - 8	8	0.171	0.679	2.137	0.19	1.889	0.19
7	0 – 0.5	17	0.22	2.669	11		5.976	5.976
7	0 - 2	17	0.11	1.175	2.9		2.196	2.196
7	0 - 4	17	0.11	0.872	2.275		1.385	1.385
7	0 - 8	9	0.369	5.479	30.253	4.55	54.917	4.55

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-7
Exposure Point Concentrations and Summary Statistics for Acenaphthylene (milligrams per kilogram)

Decision Area	Depth Interval (feet)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.024	0.316	2.2	0.061	0.877	0.061
1	0 – 2	22	0.013	0.102	0.48	0.065	0.232	0.065
1	0 – 4	22	0.013	0.11	0.329	0.123	0.279	0.123
1	0 – 8	11	0.015	0.162	0.766	0.07	0.989	0.07
2	0 – 0.5	24	0.023	0.358	1.1	0.668	0.81	0.668
2	0 – 2	24	0.022	0.23	0.538	0.355	0.421	0.355
2	0 – 4	24	0.017	0.27	0.814	0.47	0.553	0.47
2	0 – 8	8	0.034	0.618	1.858	0.858	12.808	0.858
3	0 – 0.5	12	0.015	0.079	0.12	0.12	0.16	0.12
3	0 – 2	12	0.013	0.045	0.08	0.08	0.067	0.067
3	0 – 4	12	0.017	0.042	0.063	0.063	0.053	0.053
3	0 – 8	6	0.015	0.035	0.055	0.055	0.071	0.055
4	0 – 0.5	26	0.032	0.71	1.5	1.1	1.612	1.1
4	0 – 2	26	0.055	0.35	1.05	0.493	0.635	0.493
4	0 – 4	26	0.034	0.365	0.95	0.575	0.669	0.575
4	0 – 8	7	0.174	0.453	0.931	0.931	0.793	0.793
5	0 – 0.5	39	0.049	0.76	2.2	0.32	1.42	0.32
5	0 – 2	39	0.051	0.44	1.526	1.526	0.691	0.691
5	0 – 4	39	0.056	0.483	1.538	1.538	0.72	0.72
5	0 – 8	10	0.057	0.233	0.561	0.343	0.556	0.343
6	0 – 0.5	28	0.054	0.407	4.4	0.082	0.515	0.082
6	0 – 2	27	0.055	0.235	1.08	0.21	0.359	0.21
6	0 – 4	25	0.044	0.241	0.806	0.584	0.389	0.389
6	0 – 8	8	0.068	0.71	1.769	1.769	11.121	1.769
7	0 – 0.5	17	0.11	1.711	4.4	0.87	3.358	0.87
7	0 – 2	17	0.216	0.831	1.363	0.63	1.14	0.63
7	0 - 4	17	0.216	0.716	1.488	1.488	0.959	0.959
7	0 - 8	9	0.152	4.908	34.983	34.983	38.815	34.983

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-8
Exposure Point Concentrations and Summary Statistics for Anthracene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.005	0.037	0.11	0.073	0.055	0.055
1	0 - 2	22	0.005	0.024	0.137	0.137	0.034	0.034
1	0 - 4	22	0.006	0.024	0.086	0.086	0.031	0.031
1	0 - 8	11	0.007	0.024	0.051	0.051	0.037	0.037
2	0 – 0.5	24	0.008	0.072	0.673	0.673	0.108	0.108
2	0 - 2	24	0.006	0.059	0.219	0.219	0.113	0.113
2	0 - 4	24	0.006	0.113	0.541	0.541	0.321	0.321
2	0 - 8	8	0.004	0.41	2.808	2.808	21.244	2.808
3	0 – 0.5	12	0.002	0.043	0.11	0.066	0.238	0.11
3	0 - 2	12	0.002	0.035	0.097	0.097	0.128	0.097
3	0 - 4	12	0.003	0.035	0.075	0.075	0.115	0.115
3	0 - 8	6	0.004	0.194	0.974	0.974	1815.857	0.974
4	0 – 0.5	26	0.004	0.103	0.26	0.26	0.219	0.219
4	0 - 2	26	0.013	0.178	2.085	2.085	0.263	0.263
4	0 - 4	26	0.01	0.164	1.054	1.054	0.329	0.329
4	0 - 8	7	0.114	0.4	0.962	0.962	1.355	0.962
5	0 – 0.5	39	0.01	0.186	0.74	0.74	0.29	0.29
5	0 - 2	39	0.012	0.275	1.959	1.959	0.459	0.459
5	0 - 4	39	0.016	0.27	1.68	1.68	0.42	0.42
5	0 - 8	10	0.032	0.136	0.276	0.276	0.29	0.276
6	0 – 0.5	28	0.01	0.076	0.8	0.8	0.11	0.11
6	0 - 2	27	0.005	0.082	0.373	0.373	0.162	0.162
6	0 - 4	25	0.006	0.153	1.806	1.806	0.269	0.269
6	0 - 8	8	0.072	0.994	2.721	2.721	13.965	2.721
7	0 – 0.5	17	0.022	0.601	4.6	4.6	1.936	1.936
7	0 - 2	17	0.011	0.511	1.758	1.758	1.653	1.653
7	0 - 4	17	0.011	0.489	2.929	2.929	1.509	1.509
7	0 - 8	9	0.135	8.284	45.02	45.02	171.283	45.02

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-9
Exposure Point Concentrations and Summary Statistics for Benzo(a)anthracene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.004	0.142	1.1	1.1	0.333	0.333
1	0 - 2	22	0.018	0.094	0.277	0.277	0.162	0.162
1	0 - 4	22	0.017	0.087	0.279	0.279	0.153	0.153
1	0 - 8	11	0.032	0.115	0.454	0.454	0.21	0.21
2	0 – 0.5	24	0.005	0.4	3.11	3.11	0.922	0.922
2	0 - 2	24	0.026	0.415	1.078	1.078	0.715	0.715
2	0 - 4	24	0.024	0.657	2.613	2.613	1.688	1.688
2	0 - 8	8	0.013	0.912	3.881	3.881	38.27	3.881
3	0 – 0.5	12	0.009	0.2	0.88	0.88	0.719	0.719
3	0 - 2	12	0.013	0.153	0.523	0.523	0.44	0.44
3	0 - 4	12	0.026	0.158	0.556	0.556	0.391	0.391
3	0 - 8	6	0.029	1.449	6.033	6.033	50293.2	6.033
4	0 – 0.5	26	0.031	0.436	1.6	1.6	0.816	0.816
4	0 - 2	26	0.065	0.55	2.675	2.675	0.899	0.899
4	0 - 4	26	0.054	0.553	1.518	1.518	1.032	1.032
4	0 - 8	7	0.293	0.95	1.777	1.777	2.264	1.777
5	0 – 0.5	39	0.054	0.649	1.9	1.9	0.973	0.973
5	0 - 2	39	0.077	0.794	2.925	2.925	1.176	1.176
5	0 - 4	39	0.077	0.91	3.563	3.563	1.255	1.255
5	0 - 8	10	0.196	0.565	1.774	1.774	1.003	1.003
6	0 – 0.5	28	0.02	0.31	2.7	2.7	0.453	0.453
6	0 - 2	27	0.02	0.359	1.16	1.16	0.631	0.631
6	0 - 4	25	0.053	0.548	3.32	3.32	0.863	0.863
6	0 - 8	8	0.178	2.282	5.62	5.62	26.208	5.62
7	0 – 0.5	17	0.12	1.554	8.3	8.3	2.904	2.904
7	0 - 2	17	0.243	1.497	5.025	5.025	2.453	2.453
7	0 - 4	17	0.153	1.237	4.763	4.763	2.188	2.188
7	0 - 8	9	0.36	7.254	35.385	35.385	43.625	35.385

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-10
Exposure Point Concentrations and Summary Statistics for Benzo(a)Pyrene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.009	0.256	2	2	0.752	0.752
1	0 - 2	22	0.023	0.171	0.505	0.505	0.335	0.335
1	0 - 4	22	0.019	0.165	0.5	0.5	0.364	0.364
1	0 - 8	11	0.065	0.225	0.882	0.882	0.403	0.403
2	0 – 0.5	24	0.013	0.754	4.36	4.36	1.69	1.69
2	0 - 2	24	0.077	0.788	2	2	1.271	1.271
2	0 - 4	24	0.065	1.271	3.9	3.9	3.294	3.294
2	0 - 8	8	0.033	1.751	6.052	6.052	56.588	6.052
3	0 – 0.5	12	0.019	0.307	1.3	1.3	1.049	1.049
3	0 - 2	12	0.016	0.216	0.693	0.693	0.771	0.693
3	0 - 4	12	0.035	0.226	0.791	0.791	0.594	0.594
3	0 - 8	6	0.045	2.005	8.536	8.536	32715.3	8.536
4	0 – 0.5	26	0.031	0.941	6	6	2.004	2.004
4	0 - 2	26	0.1	1.106	5.61	5.61	1.967	1.967
4	0 - 4	26	0.072	1.127	3.505	3.505	2.413	2.413
4	0 - 8	7	0.709	1.852	3.314	3.314	3.806	3.314
5	0 – 0.5	39	0.12	1.229	3.5	3.5	1.748	1.748
5	0 - 2	39	0.213	1.497	5.375	5.375	2.071	2.071
5	0 - 4	39	0.174	1.849	5.853	5.853	2.566	2.566
5	0 - 8	10	0.418	1.061	2.912	2.912	1.775	1.775
6	0 – 0.5	28	0.047	0.651	6.5	6.5	0.916	0.916
6	0 - 2	27	0.085	0.745	2.525	2.525	1.19	1.19
6	0 - 4	25	0.123	1.228	7.374	7.374	1.906	1.906
6	0 - 8	8	0.451	3.785	8.813	8.813	23.988	8.813
7	0 – 0.5	17	0.2	2.659	11	11	4.803	4.803
7	0 - 2	17	0.543	2.666	8.875	8.875	4.213	4.213
7	0 - 4	17	0.326	2.302	8.188	8.188	4.176	4.176
7	0 - 8	9	0.46	10.961	57.635	57.635	75.712	57.635

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-11
Exposure Point Concentrations and Summary Statistics for Benzo(b)fluoranthene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.007	0.192	1.2	1.2	0.506	0.506
1	0 - 2	22	0.024	0.144	0.476	0.476	0.257	0.257
1	0 - 4	22	0.019	0.142	0.518	0.518	0.272	0.272
1	0 - 8	11	0.058	0.194	0.759	0.759	0.356	0.356
2	0 – 0.5	24	0.009	0.601	4.77	4.77	1.425	1.425
2	0 - 2	24	0.036	0.582	1.779	1.779	1.037	1.037
2	0 - 4	24	0.034	1	4.373	4.373	2.774	2.774
2	0 - 8	8	0.017	1.097	3.137	3.137	42.796	42.796
3	0 – 0.5	12	0.013	0.331	1.5	1.5	1.518	1.5
3	0 - 2	12	0.012	0.233	0.773	0.773	1.105	0.773
3	0 - 4	12	0.021	0.237	0.886	0.886	0.812	0.812
3	0 - 8	6	0.034	2.118	8.54	8.54		8.54
4	0 – 0.5	26	0.031	0.548	3.4	3.4	1.066	1.066
4	0 - 2	26	0.053	0.713	3.993	3.993	1.299	1.299
4	0 - 4	26	0.054	0.714	2.596	2.596	1.484	1.484
4	0 - 8	7	0.37	1.079	1.921	1.921	2.361	1.921
5	0 – 0.5	39	0.092	0.859	2.6	2.6	1.235	1.235
5	0 - 2	39	0.119	1.061	3.65	3.65	1.547	1.547
5	0 - 4	39	0.095	1.345	6.013	6.013	1.933	1.933
5	0 - 8	10	0.22	0.689	1.542	1.542	1.282	1.282
6	0 – 0.5	28	0.01	0.442	4.5	4.5	0.743	0.743
6	0 - 2	27	0.03	0.523	1.81	1.81	0.978	0.978
6	0 - 4	25	0.055	0.87	4.718	4.718	1.518	1.518
6	0 - 8	8	0.255	2.472	6.254	6.254	19.456	6.254
7	0 – 0.5	17	0.14	1.777	8.7	8.7	3.198	3.198
7	0 - 2	17	0.323	1.773	6.45	6.45	2.933	2.933
7	0 - 4	17	0.207	1.54	5.725	5.725	2.899	2.899
7	0 - 8	9	0.314	7.247	38.984	38.984	50.49	38.984

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-12
Exposure Point Concentrations and Summary Statistics for Benzo(g,h,i)perylene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.01	0.225	1.5	1.5	0.704	0.704
1	0 - 2	22	0.022	0.141	0.383	0.383	0.247	0.247
1	0 - 4	22	0.018	0.135	0.423	0.423	0.259	0.259
1	0 - 8	11	0.064	0.227	1.02	1.02	0.402	0.402
2	0 – 0.5	24	0.022	0.614	2.03	2.03	1.246	1.246
2	0 - 2	24	0.072	0.73	2.105	2.105	1.108	1.108
2	0 - 4	24	0.062	1.134	3.429	3.429	2.767	2.767
2	0 - 8	8	0.031	1.258	2.859	2.859	29.578	2.859
3	0 – 0.5	12	0.032	0.261	0.97	0.97	0.621	0.621
3	0 - 2	12	0.025	0.198	0.553	0.553	0.521	0.521
3	0 - 4	12	0.048	0.201	0.721	0.721	0.416	0.416
3	0 - 8	6	0.058	1.07	4.439	4.439	687.487	4.439
4	0 – 0.5	26	0.083	1.013	5.9	5.9	1.72	1.72
4	0 - 2	26	0.12	1.167	6.543	6.543	1.848	1.848
4	0 - 4	26	0.115	1.18	4.121	4.121	2.173	2.173
4	0 - 8	7	0.729	1.681	2.891	2.891	2.927	2.891
5	0 – 0.5	39	0.071	1.238	3.9	3.9	1.841	1.841
5	0 - 2	39	0.141	1.437	5.325	5.325	2.107	2.107
5	0 - 4	39	0.118	1.827	5.518	5.518	2.728	2.728
5	0 - 8	10	0.209	0.915	1.544	1.544	1.644	1.544
6	0 – 0.5	28	0.011	0.572	7	7	0.974	0.974
6	0 - 2	27	0.068	0.749	2.65	2.65	1.365	1.365
6	0 - 4	25	0.054	1.128	5.384	5.384	2.141	2.141
6	0 - 8	8	0.235	3.173	8.416	8.416	43.423	8.416
7	0 – 0.5	17	0.19	2.389	8.8	8.8	4.394	4.394
7	0 - 2	17	0.428	2.693	10.5	10.5	4.502	4.502
7	0 - 4	17	0.244	2.39	9	9	4.531	4.531
7	0 - 8	9	0.501	8.728	40.903	40.903	47.77	40.903

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-13
Exposure Point Concentrations and Summary Statistics for Benzo(k)fluoranthene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.003	0.104	0.76	0.76	0.235	0.235
1	0 - 2	22	0.014	0.078	0.213	0.213	0.13	0.13
1	0 - 4	22	0.014	0.072	0.229	0.229	0.122	0.122
1	0 - 8	11	0.032	0.097	0.394	0.394	0.177	0.177
2	0 – 0.5	24	0.011	0.216	1.23	1.23	0.424	0.424
2	0 - 2	24	0.015	0.244	0.7	0.7	0.415	0.415
2	0 - 4	24	0.013	0.339	1.2	1.2	0.804	0.804
2	0 - 8	8	0.007	0.49	1.168	1.168	30.867	1.168
3	0 – 0.5	12	0.008	0.067	0.16	0.16	0.182	0.16
3	0 - 2	12	0.006	0.045	0.101	0.101	0.1	0.1
3	0 - 4	12	0.01	0.067	0.303	0.303	0.144	0.144
3	0 - 8	6	0.014	0.873	4.067	4.067	49125.07	4.067
4	0 – 0.5	26	0.02	0.294	2	2	0.535	0.535
4	0 - 2	26	0.032	0.357	2.03	2.03	0.592	0.592
4	0 - 4	26	0.028	0.351	1.191	1.191	0.678	0.678
4	0 - 8	7	0.22	0.543	1.113	1.113	1.041	1.041
5	0 – 0.5	39	0.04	0.389	1.3	1.3	0.573	0.573
5	0 - 2	39	0.046	0.439	1.425	1.425	0.661	0.661
5	0 - 4	39	0.038	0.515	1.946	1.946	0.755	0.755
5	0 - 8	10	0.079	0.259	0.483	0.483	0.457	0.457
6	0 – 0.5	28	0.006	0.186	2.1	2.1	0.29	0.29
6	0 - 2	27	0.017	0.228	0.89	0.89	0.451	0.451
6	0 - 4	25	0.031	0.349	2.069	2.069	0.614	0.614
6	0 - 8	8	0.098	1.336	3.459	3.459	22.009	3.459
7	0 – 0.5	17	0.069	0.741	3.2	3.2	1.467	1.467
7	0 - 2	17	0.128	0.784	2.603	2.603	1.34	1.34
7	0 - 4	17	0.118	0.662	2.351	2.351	1.195	1.195
7	0 - 8	9	0.144	3.708	18.83	18.83	27.773	18.83

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-14
Exposure Point Concentrations and Summary Statistics for Chrysene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.006	0.152	1.2	1.2	0.339	0.339
1	0 - 2	22	0.018	0.102	0.317	0.317	0.178	0.178
1	0 - 4	22	0.016	0.093	0.224	0.224	0.17	0.17
1	0 - 8	11	0.033	0.133	0.606	0.606	0.241	0.241
2	0 – 0.5	24	0.011	0.442	2.1	2.1	0.97	0.97
2	0 - 2	24	0.046	0.462	0.991	0.991	0.749	0.749
2	0 - 4	24	0.043	0.697	2.376	2.376	1.683	1.683
2	0 - 8	8	0.022	0.856	2.593	2.593	17.458	2.593
3	0 – 0.5	12	0.011	0.257	1.1	1.1	1.078	1.078
3	0 - 2	12	0.016	0.16	0.508	0.508	0.475	0.475
3	0 - 4	12	0.023	0.166	0.51	0.51	0.439	0.439
3	0 - 8	6	0.046	1.276	4.974	4.974	4498.52	4.974
4	0 – 0.5	26	0.025	0.507	2.3	2.3	0.971	0.971
4	0 - 2	26	0.065	0.642	3.31	3.31	1.06	1.06
4	0 - 4	26	0.056	0.613	1.966	1.966	1.162	1.162
4	0 - 8	7	0.362	1.149	1.989	1.989	2.592	1.989
5	0 – 0.5	39	0.089	0.728	2.1	2.1	1.036	1.036
5	0 - 2	39	0.096	0.888	3.35	3.35	1.233	1.233
5	0 - 4	39	0.102	0.99	3.225	3.225	1.351	1.351
5	0 - 8	10	0.243	0.603	1.689	1.689	1.007	1.007
6	0 – 0.5	28	0.01	0.375	3.8	3.8	0.595	0.595
6	0 - 2	27	0.018	0.43	1.535	1.535	0.784	0.784
6	0 - 4	25	0.061	0.656	4.116	4.116	1.035	1.035
6	0 - 8	8	0.319	2.989	7.17	7.17	23.615	7.17
7	0 – 0.5	17	0.11	1.842	9.8	9.8	3.558	3.558
7	0 - 2	17	0.293	1.701	5.625	5.625	2.88	2.88
7	0 - 4	17	0.206	1.415	5.513	5.513	2.59	2.59
7	0 - 8	9	0.374	8.583	42.117	42.117	55.548	42.117

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-15
Exposure Point Concentrations and Summary Statistics for Dibenz(a,h)anthracene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.002	0.083	0.59	0.59	0.179	0.179
1	0 - 2	22	0.011	0.052	0.293	0.293	0.08	0.08
1	0 - 4	22	0.013	0.049	0.194	0.194	0.076	0.076
1	0 - 8	11	0.015	0.123	0.992	0.992	0.349	0.349
2	0 – 0.5	24	0.022	0.381	1.4	1.4	0.992	0.992
2	0 - 2	24	0.022	0.364	1.685	1.685	0.763	0.763
2	0 - 4	24	0.018	0.476	2.517	2.517	1.137	1.137
2	0 - 8	8	0.031	0.803	2.5	2.5	53.978	2.5
3	0 – 0.5	12	0.026	0.127	0.36	0.36	0.196	0.196
3	0 - 2	12	0.035	0.077	0.24	0.24	0.115	0.115
3	0 - 4	12	0.035	0.083	0.28	0.28	0.121	0.121
3	0 - 8	6	0.046	0.267	1.324	1.324	5.283	1.324
4	0 – 0.5	26	0.061	0.62	2.4	2.4	1.099	1.099
4	0 - 2	26	0.13	0.563	1.746	1.5	0.814	0.814
4	0 - 4	26	0.099	0.722	1.938	1.938	1.207	1.207
4	0 - 8	7	0.398	0.982	1.806	1.806	1.753	1.753
5	0 – 0.5	39	0.094	0.768	3.2	3.2	1.108	1.108
5	0 - 2	39	0.11	0.716	2.85	2.85	1.006	1.006
5	0 - 4	39	0.103	0.834	3.463	3.463	1.167	1.167
5	0 - 8	10	0.158	0.468	1.013	1.013	0.827	0.827
6	0 – 0.5	28	0.027	0.272	2.2	0.78	0.373	0.373
6	0 - 2	27	0.014	0.335	1.395	1.395	0.562	0.562
6	0 - 4	25	0.067	0.531	4.339	4.339	0.738	0.738
6	0 - 8	8	0.123	1.519	6.059	6.059	18.292	6.059
7	0 – 0.5	17	0.2	2.219	9.9	9.9	4.135	4.135
7	0 - 2	17	0.31	1.564	3.825	3.825	2.206	2.206
7	0 - 4	17	0.166	1.122	2.613	2.613	1.695	1.695
7	0 - 8	9	0.383	3.227	7.028	7.028	9.467	7.028

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-16
Exposure Point Concentrations and Summary Statistics for Fluoranthene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.021	0.712	7	7	2.708	2.708
1	0 - 2	22	0.024	0.381	1.765	1.765	0.912	0.912
1	0 - 4	22	0.024	0.323	0.91	0.91	0.867	0.867
1	0 - 8	11	0.0	0.505	2.234	2.234	1.121	1.121
2	0 – 0.5	24	0.03	1.46	7.47	7.47	3.899	3.899
2	0 - 2	24	0.09	1.669	5.575	5.575	3.398	3.398
2	0 - 4	24	0.1	2.417	8.088	8.088	7.746	7.746
2	0 - 8	8	0.05	4.236	18.839	18.839	296.402	18.839
3	0 – 0.5	12	0.026	0.381	1.4	1.4	1.217	1.217
3	0 - 2	12	0.024	0.325	1.25	1.25	1.181	1.181
3	0 - 4	12	0.055	0.318	1.325	1.325	0.854	0.854
3	0 - 8	6	0.073	1.699	7.039	7.039	2130.484	7.039
4	0 – 0.5	26	0.08	1.934	6.9	6.9	4.701	4.701
4	0 - 2	26	0.209	2.675	18.075	18.075	4.436	4.436
4	0 - 4	26	0.179	2.805	9.133	9.133	5.794	5.794
4	0 - 8	7	1.862	5.449	12.045	12.045	12.778	12.045
5	0 – 0.5	39	0.35	2.851	11	11	4.035	4.035
5	0 - 2	39	0.282	3.837	19.665	19.665	5.475	5.475
5	0 - 4	39	0.291	4.264	19.833	19.833	6.185	6.185
5	0 - 8	10	0.635	2.565	8.065	8.065	6.115	6.115
6	0 – 0.5	28	0.068	1.431	17	17	1.936	1.936
6	0 - 2	27	0.092	1.61	7.025	7.025	2.865	2.865
6	0 - 4	25	0.154	2.809	29.978	29.978	4.216	4.216
6	0 - 8	8	0.812	10.712	28.156	28.156	133.539	28.156
7	0 – 0.5	17	0.341	8.388	53	53	23.83	23.83
7	0 - 2	17	0.84	7.567	31.225	31.225	15.161	15.161
7	0 - 4	17	0.63	6.816	33.113	33.113	15.98	15.98
7	0 - 8	9	1.483	57.634	383.306	383.306	640.543	383.306

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-17
Exposure Point Concentrations and Summary Statistics for Fluorene
(milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.013	0.056	0.22	0.094	0.078	0.078
1	0 - 2	22	0.011	0.019	0.048	0.032	0.022	0.022
1	0 - 4	22	0.011	0.019	0.036	0.036	0.022	0.022
1	0 - 8	11	0.014	0.024	0.077	0.026	0.033	0.026
2	0 – 0.5	24	0.011	0.066	0.17	0.17	0.109	0.109
2	0 - 2	24	0.002	0.035	0.063	0.063	0.062	0.062
2	0 - 4	24	0.002	0.043	0.15	0.15	0.093	0.093
2	0 - 8	8	0.003	0.07	0.186	0.048	0.666	0.048
3	0 – 0.5	12	0.002	0.06	0.11		0.376	0.376
3	0 - 2	12	0.002	0.027	0.055	0.04	0.136	0.04
3	0 - 4	12	0.002	0.028	0.052	0.045	0.185	0.045
3	0 - 8	6	0.001	0.075	0.359	0.359	1003.59	0.359
4	0 – 0.5	26	0.011	0.079	0.21		0.156	0.156
4	0 - 2	26	0.006	0.061	0.735	0.735	0.099	0.099
4	0 - 4	26	0.003	0.052	0.379	0.379	0.097	0.097
4	0 - 8	7	0.017	0.139	0.623	0.623	1.223	0.623
5	0 – 0.5	39	0.011	0.083	0.22	0.13	0.129	0.129
5	0 - 2	39	0.005	0.082	1.053	1.053	0.116	0.116
5	0 - 4	39	0.006	0.08	0.661	0.661	0.119	0.119
5	0 - 8	10	0.006	0.033	0.088	0.088	0.093	0.088
6	0 – 0.5	28	0.011	0.047	0.44	0.045	0.063	0.045
6	0 - 2	27	0.006	0.028	0.113	0.113	0.045	0.045
6	0 - 4	25	0.004	0.047	0.48	0.48	0.079	0.079
6	0 - 8	8	0.007	0.119	0.377	0.377	3.808	0.377
7	0 – 0.5	17	0.011	0.237	0.78	0.78	0.548	0.548
7	0 - 2	17	0.022	0.113	0.323	0.323	0.174	0.174
7	0 - 4	17	0.022	0.12	0.761	0.761	0.178	0.178
7	0 - 8	9	0.018	4.763	18.171	18.171	3490.218	18.171

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-18
Exposure Point Concentrations and Summary Statistics for Indeno(1,2,3-cd)pyrene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.01	0.209	1.5	1.5	0.605	0.605
1	0 - 2	22	0.02	0.13	0.38	0.38	0.242	0.242
1	0 - 4	22	0.017	0.12	0.334	0.334	0.24	0.24
1	0 - 8	11	0.049	0.187	0.828	0.828	0.343	0.343
2	0 – 0.5	24	0.014	0.562	1.9	1.9	1.241	1.241
2	0 - 2	24	0.054	0.624	1.875	1.875	0.986	0.986
2	0 - 4	24	0.051	0.979	2.963	2.963	2.45	2.45
2	0 - 8	8	0.026	1.265	3.546	3.546	43.287	3.546
3	0 – 0.5	12	0.02	0.202	0.74	0.74	0.574	0.574
3	0 - 2	12	0.015	0.146	0.423	0.423	0.446	0.423
3	0 - 4	12	0.028	0.153	0.556	0.556	0.339	0.339
3	0 - 8	6	0.038	0.967	4.127	4.127	1411.399	4.127
4	0 – 0.5	26	0.055	0.839	5.4	5.4	1.536	1.536
4	0 - 2	26	0.095	1.083	7	7	1.821	1.821
4	0 - 4	26	0.071	1.051	4.4	4.4	2.06	2.06
4	0 - 8	7	0.569	1.44	2.556	2.556	2.682	2.556
5	0 – 0.5	39	0.096	1.13	4.1	4.1	1.602	1.602
5	0 - 2	39	0.152	1.414	5.825	5.825	2.03	2.03
5	0 - 4	39	0.116	1.785	5.821	5.821	2.617	2.617
5	0 - 8	10	0.266	0.943	2.095	2.095	1.844	1.844
6	0 – 0.5	28	0.011	0.602	7.7	7.7	0.912	0.912
6	0 - 2	27	0.006	0.707	2.825	2.825	1.878	1.878
6	0 - 4	25	0.055	1.158	7.898	7.898	2.076	2.076
6	0 - 8	8	0.299	3.252	8.933	8.933	31.355	8.933
7	0 – 0.5	17	0.18	2.418	11	11	4.412	4.412
7	0 - 2	17	0.48	2.613	10.55	10.55	4.514	4.514
7	0 - 4	17	0.283	2.328	8.975	8.975	4.73	4.73
7	0 - 8	9	0.379	9.51	50.144	50.144	78.422	50.144

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-19
Exposure Point Concentrations and Summary Statistics for Naphthalene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.018	0.166	1.1	0.018	0.321	0.018
1	0 - 2	22	0.013	0.054	0.24	0.15	0.092	0.092
1	0 - 4	22	0.013	0.056	0.165	0.108	0.099	0.099
1	0 - 8	11	0.015	0.083	0.383	0.038	0.269	0.038
2	0 – 0.5	24	0.019	0.515	2.7	0.11	1.317	0.11
2	0 - 2	24	0.014	0.271	1.121	0.061	0.63	0.061
2	0 - 4	24	0.014	0.279	1.15	0.132	0.582	0.132
2	0 - 8	8	0.045	0.882	4.771	0.12	12.699	0.12
3	0 – 0.5	12	0.033	0.146	0.28	0.033	0.247	0.033
3	0 - 2	12	0.022	0.065	0.144	0.028	0.096	0.028
3	0 - 4	12	0.027	0.061	0.147	0.034	0.082	0.034
3	0 - 8	6	0.037	0.091	0.309	0.309	0.309	0.309
4	0 – 0.5	26	0.11	0.937	3.8		1.408	1.408
4	0 - 2	26	0.044	0.386	1	0.044	0.554	0.044
4	0 - 4	26	0.046	0.453	1.2	0.046	0.702	0.046
4	0 - 8	7	0.245	0.602	1.096		1.166	1.166
5	0 – 0.5	39	0.018	0.713	2.9	0.12	1.395	0.12
5	0 - 2	39	0.051	0.367	1.388	0.104	0.482	0.104
5	0 - 4	39	0.04	0.403	1.369	0.289	0.539	0.289
5	0 - 8	10	0.061	0.33	0.926	0.342	0.716	0.342
6	0 – 0.5	28	0.025	0.417	2.2	0.031	0.713	0.031
6	0 - 2	27	0.029	0.22	0.71	0.062	0.325	0.062
6	0 - 4	25	0.06	0.217	0.484	0.164	0.289	0.164
6	0 - 8	8	0.164	0.676	2.137		1.99	1.99
7	0 – 0.5	17	0.22	2.681	11		6.03	6.03
7	0 - 2	17	0.11	1.176	2.9		2.201	2.201
7	0 - 4	17	0.11	0.873	2.275		1.387	1.387
7	0 - 8	9	0.364	19.454	70.506	70.506	3988.63	70.506

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-20
Exposure Point Concentrations and Summary Statistics for Phenanthrene (milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.006	0.23	2.8	2.8	0.455	0.455
1	0 - 2	22	0.014	0.129	0.705	0.705	0.267	0.267
1	0 - 4	22	0.015	0.111	0.464	0.464	0.224	0.224
1	0 - 8	11	0.019	0.115	0.253	0.253	0.285	0.253
2	0 – 0.5	24	0.008	0.435	4.04	4.04	0.906	0.906
2	0 - 2	24	0.033	0.552	1.678	1.678	1.251	1.251
2	0 - 4	24	0.04	0.767	3.921	3.921	2.307	2.307
2	0 - 8	8	0.021	1.885	11.477	11.477	104.695	11.477
3	0 – 0.5	12	0.006	0.093	0.28	0.28	0.284	0.28
3	0 - 2	12	0.007	0.139	0.618	0.618	0.508	0.508
3	0 - 4	12	0.013	0.118	0.484	0.484	0.337	0.337
3	0 - 8	6	0.011	0.646	3.116	3.116	3485.377	3.116
4	0 – 0.5	26	0.025	0.505	1.4	1.4	1.061	1.061
4	0 - 2	26	0.077	0.746	6.65	6.65	1.142	1.142
4	0 - 4	26	0.057	0.76	3.38	3.38	1.47	1.47
4	0 - 8	7	0.384	1.483	5.736	5.736	7.24	5.736
5	0 – 0.5	39	0.087	0.864	3.3	3.3	1.268	1.268
5	0 - 2	39	0.09	1.399	12.045	12.045	2.166	2.166
5	0 - 4	39	0.089	1.363	8.773	8.773	2.081	2.081
5	0 - 8	10	0.118	0.603	1.417	1.417	1.362	1.362
6	0 – 0.5	28	0.02	0.414	3.6	3.6	0.681	0.681
6	0 - 2	27	0.038	0.432	1.78	1.78	0.7	0.7
6	0 - 4	25	0.045	1.004	14.261	14.261	1.432	1.432
6	0 - 8	8	0.155	2.302	8.092	8.092	19.045	8.092
7	0 – 0.5	17	0.093	3.11	20	20	8.133	8.133
7	0 - 2	17	0.333	2.65	9.575	9.575	5.05	5.05
7	0 - 4	17	0.236	2.391	15.288	15.288	4.609	4.609
7	0 - 8	9	0.466	49.657	292.053	292.053	2114.939	292.053

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-21
Exposure Point Concentrations and Summary Statistics for Pyrene
(milligrams per kilogram)

Decision Area	Depth Interval (feet.)	N	Min	Mean	Maximum		95% UCL Log Trans.	EPC
					Overall	Detect		
1	0 – 0.5	22	0.014	0.512	4.8	4.8	1.59	1.59
1	0 - 2	22	0.034	0.296	1.21	1.21	0.581	0.581
1	0 - 4	22	0.026	0.259	0.63	0.63	0.57	0.57
1	0 - 8	11	0.16	0.416	1.763	1.763	0.65	0.65
2	0 – 0.5	24	0.026	1.337	6.45	6.45	2.979	2.979
2	0 - 2	24	0.117	1.462	3.775	3.775	2.56	2.56
2	0 - 4	24	0.123	2.271	7.863	7.863	5.877	5.877
2	0 - 8	8	0.062	3.711	16.414	16.414	138.605	16.414
3	0 – 0.5	12	0.025	0.508	2.2	2.2	1.963	1.963
3	0 - 2	12	0.023	0.408	1.433	1.433	1.799	1.433
3	0 - 4	12	0.052	0.39	1.616	1.616	1.096	1.096
3	0 - 8	6	0.09	1.978	8.056	8.056	2002.892	8.056
4	0 – 0.5	26	0.097	1.782	6.2	6.2	3.555	3.555
4	0 - 2	26	0.242	2.276	12.525	12.525	3.624	3.624
4	0 - 4	26	0.216	2.527	6.323	6.323	4.895	4.895
4	0 - 8	7	1.469	4.878	10.599	10.599	11.915	10.599
5	0 – 0.5	39	0.22	2.446	7.5	7.5	3.504	3.504
5	0 - 2	39	0.35	3.041	12.375	12.375	4.316	4.316
5	0 - 4	39	0.291	3.684	15.184	15.184	5.196	5.196
5	0 - 8	10	0.711	2.378	8.453	8.453	4.701	4.701
6	0 – 0.5	28	0.046	1.174	12	12	1.738	1.738
6	0 - 2	27	0.124	1.32	4.875	4.875	2.148	2.148
6	0 - 4	25	0.174	2.247	18.194	18.194	3.505	3.505
6	0 - 8	8	1.095	8.803	22.696	22.696	57.893	22.696
7	0 – 0.5	17	0.383	6.447	36	36	12.772	12.772
7	0 - 2	17	0.985	5.983	20.825	20.825	10.297	10.297
7	0 - 4	17	0.648	5.165	20.913	20.913	10.008	10.008
7	0 - 8	9	1.695	40.139	241.186	241.186	275.931	241.186

N denotes number of samples *Min denotes minimum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-22
Exposure Point Concentrations and Summary Statistics for Individual Polynuclear Aromatic Hydrocarbons in Northern Part of the 0 to 8 foot Depth Interval

Analyte	Distribution	N	# Detects	Milligrams per Kilogram					
				Minimum	Mean	95% UCL Log Trans.	Overall Max	Detected Max	EPC
ACENAPHTHENE	Lognormal	31	4	0.048	2.101	4.002	30.253	4.550	4.002
ACENAPHTHYLENE	?	31	8	0.026	1.782	3.679	34.983	34.983	3.679
ANTHRACENE	Lognormal	31	30	0.005	2.869	14.713	45.020	45.020	14.713
BENZO(A)ANTHRACENE	Lognormal	31	31	0.029	3.369	9.606	35.385	35.385	9.606
BENZO(A)PYRENE	Lognormal	31	31	0.045	5.242	13.570	57.635	57.635	13.570
BENZO(B)FLUORANTHENE	Lognormal	31	31	0.034	3.545	8.957	38.984	38.984	8.957
BENZO(G,H,I)PERYLENE	Lognormal	31	31	0.058	4.038	10.231	40.903	40.903	10.231
BENZO(K)FLUORANTHENE	Lognormal	31	31	0.014	1.761	5.721	18.830	18.830	5.721
CHRYSENE	Lognormal	31	31	0.046	3.896	9.913	42.117	42.117	9.913
DIBENZ(A,H)ANTHRACENE	Lognormal	31	29	0.046	1.720	4.844	7.028	7.028	4.844
FLUORANTHENE	Lognormal	31	31	0.073	21.774	64.658	383.306	383.306	64.658
FLUORENE	Lognormal	31	20	0.003	1.462	6.557	18.171	18.171	6.557
INDENO(1,2,3-CD)PYRENE	Lognormal	31	31	0.038	4.272	11.078	50.144	50.144	11.078
NAPHTHALENE	?	31	5	0.042	6.147	11.357	70.506	70.506	11.357
PHENANTHRENE	Lognormal	31	31	0.022	15.821	61.775	292.053	292.053	61.775
PYRENE	Lognormal	31	31	0.090	16.112	42.251	241.186	241.186	42.251

N denotes number of samples *Max denotes maximum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

Table B-23
Exposure Point Concentrations and Summary Statistics for Individual Polynuclear Aromatic Hydrocarbons in Southern Part of the 0 to 8 foot Depth Interval

				Milligrams per Kilogram					
Analyte	Distribution	N	# Detects	Minimum	Mean	95% UCL Log Trans.	Overall Max	Detected Max	EPC
ACENAPHTHENE	?	28	4	0.014	0.203	0.510	0.675	0.065	0.065
ACENAPHTHYLENE	?	28	8	0.015	0.252	0.679	1.129	0.465	0.465
ANTHRACENE	Lognormal	28	22	0.004	0.087	0.213	0.486	0.486	0.213
BENZO(A)ANTHRACENE	?	28	28	0.013	0.309	0.717	0.890	0.890	0.717
BENZO(A)PYRENE	Lognormal	28	28	0.033	0.661	1.542	2.610	2.610	1.542
BENZO(B)FLUORANTHENE	Lognormal	28	28	0.017	0.470	1.089	1.689	1.689	1.089
BENZO(G,H,I)PERYLENE	?	28	28	0.031	0.667	1.570	2.412	2.412	1.570
BENZO(K)FLUORANTHENE	Lognormal	28	28	0.007	0.218	0.485	0.985	0.985	0.485
CHRYSENE	Lognormal	28	28	0.022	0.372	0.808	1.249	1.249	0.808
DIBENZ(A,H)ANTHRACENE	?	28	20	0.015	0.315	0.998	1.331	1.331	0.998
FLUORANTHENE	Lognormal	28	28	0.050	1.529	4.293	5.681	5.681	4.293
FLUORENE	?	28	10	0.001	0.038	0.076	0.175	0.175	0.076
INDENO(1,2,3-CD)PYRENE	Lognormal	28	28	0.026	0.596	1.475	2.331	2.331	1.475
NAPHTHALENE	Lognormal	28	6	0.015	0.213	0.502	0.675	0.342	0.342
PHENANTHRENE	Lognormal	28	28	0.011	0.411	1.194	2.192	2.192	1.194
PYRENE	?	28	28	0.062	1.295	2.991	3.913	3.913	2.991

N denotes number of samples
Max denotes maximum
UCL denotes upper confidence limit
Log Trans. denotes Log Transformed
EPC denotes exposure point concentration

Table B-24
Exposure Point Concentrations and Summary Statistics for Individual Polynuclear Aromatic Hydrocarbons Over the Entire Site in the 0 to 8 foot Depth Interval

				Milligrams per Kilogram					
Analyte	Distribution	N	# Detects	Minimum	Mean	95% UCL Log Trans.	Overall Max	Detected Max	EPC
ACENAPHTHENE	Lognormal	59	8	0.014	1.200	2.002	30.253	4.550	2.002
ACENAPHTHYLENE	Lognormal	59	16	0.015	1.056	1.445	34.983	34.983	1.445
ANTHRACENE	Lognormal	59	52	0.004	1.549	3.484	45.020	45.020	3.484
BENZO(A)ANTHRACENE	Lognormal	59	59	0.013	1.917	4.293	35.385	35.385	4.293
BENZO(A)PYRENE	Lognormal	59	59	0.033	3.068	6.470	57.635	57.635	6.470
BENZO(B)FLUORANTHENE	Lognormal	59	59	0.017	2.086	4.098	38.984	38.984	4.098
BENZO(G,H,I)PERYLENE	Lognormal	59	59	0.031	2.438	4.848	40.903	40.903	4.848
BENZO(K)FLUORANTHENE	Lognormal	59	59	0.007	1.028	2.099	18.830	18.830	2.099
CHRYSENE	Lognormal	59	59	0.022	2.224	4.689	42.117	42.117	4.689
DIBENZ(A,H)ANTHRACENE	?	59	49	0.015	1.053	3.275	7.028	7.028	3.275
FLUORANTHENE	Lognormal	59	59	0.050	12.167	24.252	383.306	383.306	24.252
FLUORENE	?	59	30	0.001	0.786	0.719	18.171	18.171	0.719
INDENO(1,2,3-CD)PYRENE	Lognormal	59	59	0.026	2.527	5.178	50.144	50.144	5.178
NAPHTHALENE	?	59	11	0.015	3.331	3.235	70.506	70.506	3.235
PHENANTHRENE	Lognormal	59	59	0.011	8.508	14.130	292.053	292.053	14.130
PYRENE	Lognormal	59	59	0.062	9.080	17.774	241.186	241.186	17.774

N denotes number of samples *Max denotes maximum* *UCL denotes upper confidence limit*
Log Trans. denotes Log Transformed *EPC denotes exposure point concentration*

there were at least some nondetects). If the maximum detect cell is blank, this indicates that there were no detected concentrations of a given constituent in a decision area/depth interval. To assist in evaluating noncancer risk to construction workers, EPCs and associated summary statistics were also generated for the 0 to 8 foot depth interval for the northern and southern portions of the site (Figure B-10) and for the whole site. These EPCs are presented in Tables B-22, B-23, and B-24.

2.5 Analysis to Support Uncertainty Assessment for Exposure Point Concentrations of Polynuclear Aromatic Hydrocarbons in Soils

One-half the sample-specific reporting limit was substituted for nondetected PAHs in the calculation of BaP-equivalents. To evaluate the effect that this method for treating nondetects has on the EPCs calculated in support of risk assessment, EPCs were recalculated for each decision area and depth interval by substituting zeros for nondetects, and substituting the full sample-specific reporting limit for nondetects. Table B-25, "Effect of Varying Treatment of Non-Detects on Benzo(a)Pyrene-Equivalent Exposure Point Concentrations" presents the results of this analysis. For most decision areas and depth intervals, the EPC values were not very sensitive to how nondetects were treated. In many instances, substituting the full sample-specific reporting limit resulted in a lower EPC due to a reduction in variance, while substituting zeros for nondetects resulted in a higher EPC due to an increase in variance. In other cases, the EPC increased when the full reporting limit was substituted for nondetected PAHs; however, the magnitude of the increase was slight. This exercise indicates that it is unlikely that any decisions regarding a particular decision area would change as a result of how nondetects were treated.

As previously discussed, there were several cases where 95 percent UCLs were generated using a bootstrap method to support an uncertainty assessment. Basically, this was done when there were fewer than 50 percent detects, when the lognormal 95 percent UCL was greater than the observed maximum, or when the goodness-of-fit tests rejected both the normal and lognormal distributions. The bootstrap method utilizes the actual data as if it were the "true distribution." A random sample is taken repeatedly, using a computer simulation, and each group of samples is used to calculate a mean. The 95 percent UCL is generated from the results of this simulated sampling, and represents the value that 95 percent of the simulated mean values fall below (the 95th quantile of the simulated sample means). The results of the bootstrap procedure are useful in evaluating the uncertainty associated with using potentially conservative assumptions regarding the underlying distribution and subsequent calculation of EPCs. It should be stressed that the risk assessment did not utilize bootstrap estimates. These estimates were used only to

Table B-25
Effect of Varying Treatment of Non-Detects on Benzo(a)Pyrene-Equivalent Exposure Point Concentrations

Decision Area	Depth Interval (feet.)	Nondetect = 0	Nondetect = Half Reporting Limit	Nondetect = Reporting Limit
1	0 – 0.5	2.389	1.041	0.939
1	0 – 2	0.610	0.477	0.437
1	0 – 4	0.665	0.488	0.431
1	0 – 8	0.814	0.780	0.767
2	0 – 0.5	3.226	2.839	2.639
2	0 – 2	1.933	1.979	2.026
2	0 – 4	4.530	4.542	4.568
2	0 – 8	9.623	9.623	9.623
3	0 – 0.5	1.174	1.148	1.183
3	0 – 2	0.910	0.793	0.779
3	0 – 4	0.893	0.737	0.753
3	0 – 8	11.752	11.775	11.799
4	0 – 0.5	2.940	3.037	3.151
4	0 – 2	2.775	3.028	3.282
4	0 – 4	3.642	3.850	4.060
4	0 – 8	5.185	5.185	5.477
5	0 – 0.5	2.842	2.967	3.112
5	0 – 2	3.209	3.473	3.743
5	0 – 4	3.891	4.221	4.557
5	0 – 8	2.625	2.746	2.893
6	0 – 0.5	1.264	1.329	1.397
6	0 – 2	1.752	1.865	1.978
6	0 – 4	2.944	3.023	3.105
6	0 – 8	15.278	15.293	15.308
7	0 – 0.5	9.553	9.628	9.751
7	0 – 2	6.765	7.177	7.591
7	0 – 4	5.896	6.492	7.104
7	0 – 8	71.020	77.345	83.670

discuss the uncertainty associated with substituting the maximum observed value for the UCL in cases where the maximum value was less than the estimated UCL.

Table B-26, "Comparison of Benzo(a)Pyrene-Equivalent Exposure Point Concentrations to Bootstrap 95 Percent Upper Confidence Limits" and Table B-27, "Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits" compare the EPCs for BaP-equivalents and individual PAHs used in the risk evaluation to the bootstrap 95 percent UCLs. For situations for which the bootstrap procedure was not run (see Section 2.3), cells were filled in with NA (not applicable). Bootstrap estimates for the BaP-equivalent concentration EPCs are provided for the 0 to 4-foot interval for decision area 1 and the 0 to 8-foot interval for decision areas 2 through 7. In addition, bootstrap UCLs were calculated for a number of individual PAHs that met the criteria spelled out in Section 2.3.

In general, the bootstrap method either revealed little difference or resulted in a lower value, indicating that the values used in the risk evaluation were at times conservative, and possibly, overestimates of the concentrations were present. For BaP-equivalent concentrations presented in Table B-26, the main differences are between EPCs and bootstrap UCLs calculated for the 0 to 8 foot depth interval by decision area. This is due to the lower sample sizes and/or relatively high variability in the 4 to 8 foot depth interval. For example, bootstrap 95 percent UCLs for decision areas 2, 3, 6, and 7 in the 0 to 8-foot depth interval were roughly half the EPC used in the risk evaluation. Therefore, the EPC used in the risk analysis can be considered a conservative value, which could be as much as a factor of two above that which would result from a more extensive data set. From a risk management standpoint, the question of interest is whether an adjustment of this magnitude would change the decision regarding the acceptability of risk, or if this variation is all within a range that would drive the same decision (e.g., the area poses, or does not pose, an unacceptable risk.

For most of the individual PAHs presented in Table B-27, when a bootstrap 95 percent UCL was calculated, the value was lower than the EPC used in the risk evaluation. Therefore, the values used in the risk evaluation were conservative. However for acenaphthene, acenaphthylene, and naphthalene, the reverse was sometimes true (the bootstrap 95 percent UCL was higher than the EPC). This is likely due to the low detection frequency for these constituents; therefore, it is not necessarily true that the EPCs used in the risk evaluation for acenaphthene, acenaphthylene, and naphthalene are underestimates. Instead, they may be elevated due to substituting one-half the detection limit in the calculation of the EPCs. For the individual PAHs evaluated for the northern and southern "construction worker strata," the bootstrap 95 percent UCLs were lower

than, or very close to the EPCs used in the risk evaluation for everything except acenaphthene, again, due to the low detection frequency of that constituent.

Table B-26
Comparison of Benzo(a)Pyrene-Equivalent Exposure Point Concentrations to Bootstrap 95 Percent Upper Confidence Limits

	Depth Interval (feet)			
	0 to 4	0 to 8		
Decision Area	Exposure Point Concentration	Bootstrap	Exposure Point Concentration	Bootstrap
1	0.488	0.322	NA	NA
2	NA	NA	9.623	4.718
3	NA	NA	11.775	5.977
4	NA	NA	5.185	4.088
6	NA	NA	15.293	9.197
7	NA	NA	77.345	30.878

NA denotes not applicable (bootstrap upper confidence limits were only calculated for exposure point concentrations where the 95% upper confidence limit calculated using normal or lognormal distributions were greater than the maximum observed value – see Section 2.3).

Table B-27
Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

Decision Area	Analyte	Depth Interval (feet)							
		0 to 0.5		0 to 2		0 to 4		0 to 8	
		EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
1	ACENAPHTHENE	0.019	0.266	0.015	0.074	0.014	0.071	0.014	0.137
1	ACENAPHTHYLENE	0.061	0.523	0.065	0.149	0.123	0.148	0.070	0.279
1	ANTHRACENE	0.055	0.045	0.034	0.034	NA	NA	0.037	0.031
1	CHRYSENE	NA	NA	NA	NA	0.170	0.118	NA	NA
1	DIBENZ(A,H)ANTHRACENE	0.179	0.131	0.080	0.079	0.076	0.069	0.349	0.290
1	FLUORANTHENE	NA	NA	NA	NA	0.867	0.422	NA	NA
1	FLUORENE	0.078	0.078	0.022	0.022	0.022	0.022	0.026	0.034
1	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	0.240	0.152	NA	NA
1	NAPHTHALENE	0.018	0.267	0.092	0.078	0.099	0.075	0.038	0.139
1	PHENANTHRENE	NA	NA	NA	NA	NA	NA	0.253	0.155
1	PYRENE	NA	NA	NA	NA	0.570	0.333	0.650	0.678
2	ACENAPHTHENE	0.130	0.753	0.133	0.372	0.368	0.399	0.057	1.948
2	ACENAPHTHYLENE	0.668	0.475	0.355	0.287	0.470	0.350	0.858	0.987
2	ANTHRACENE	NA	NA	NA	NA	NA	NA	2.808	1.089
2	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	3.881	1.727
2	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	6.052	2.917
2	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	2.859	1.822
2	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	1.168	0.732

Table B-27 (continued)
Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

Decision Area	Analyte	Depth Interval (feet)							
		0 to 0.5		0 to 2		0 to 4		0 to 8	
		EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
2	CHRYSENE	NA	NA	NA	NA	NA	NA	2.593	1.340
2	DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	2.500	1.312
2	FLUORANTHENE	NA	NA	NA	NA	7.746	3.156	18.839	8.159
2	FLUORENE	0.109	0.080	0.062	0.041	0.093	0.055	0.048	0.104
2	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	3.546	1.959
2	PHENANTHRENE	NA	NA	NA	NA	2.307	1.080	11.477	4.550
2	PYRENE	NA	NA	NA	NA	NA	NA	16.414	7.096
3	ACENAPHTHENE	0.222	0.194	0.027	0.085	0.027	0.078	0.624	0.334
3	ACENAPHTHYLENE	0.120	0.097	0.067	0.054	0.053	0.048	0.055	0.045
3	ANTHRACENE	0.110	0.062	0.097	0.048	NA	NA	0.974	0.497
3	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	6.033	3.055
3	BENZO(A)PYRENE	NA	NA	0.693	0.326	NA	NA	8.536	4.319
3	BENZO(B)FLUORANTHENE	1.500	0.544	0.773	0.361	NA	NA	8.540	4.327
3	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	4.439	2.267
3	BENZO(K)FLUORANTHENE	0.160	0.094	NA	NA	NA	NA	4.067	2.046
3	CHRYSENE	NA	NA	NA	NA	NA	NA	4.974	2.536
3	DIBENZ(A,H)ANTHRACENE	0.196	0.170	0.115	0.110	NA	A	1.324	0.688
3	FLUORANTHENE	NA	NA	NA	NA	NA	A	7.039	3.595

Table B-27 (continued)
Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

Decision Area	Analyte	Depth Interval (feet)							
		0 to 0.5		0 to 2		0 to 4		0 to 8	
		EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
3	FLUORENE	0.376	0.081	0.040	0.037	0.045	0.038	0.359	0.184
3	INDENO(1,2,3-CD)PYRENE	NA	NA	0.423	0.214	NA	NA	4.127	2.097
3	NAPHTHALENE	0.033	0.191	0.028	0.083	0.034	0.077	0.309	0.176
3	PHENANTHRENE	0.280	0.131	NA	NA	NA	NA	3.116	1.587
3	PYRENE	NA	NA	1.433	0.636	NA	NA	8.056	4.134
4	ACENAPHTHENE	1.408	1.247	0.038	0.467	0.038	0.567	1.166	0.811
4	ACENAPHTHYLENE	1.100	0.857	0.493	0.441	0.575	0.452	0.793	0.597
4	ANTHRACENE	NA	NA	NA	NA	NA	NA	0.962	0.598
4	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	1.777	1.304
4	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	3.314	2.452
4	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	1.484	0.911	1.921	1.434
4	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	2.173	1.480	2.891	2.167
4	CHRYSENE	NA	NA	NA	NA	NA	NA	1.989	1.532
4	FLUORANTHENE	NA	NA	NA	NA	NA	NA	12.045	7.749
4	FLUORENE	0.156	0.096	0.099	0.115	0.097	0.077	0.623	0.287
4	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	A	2.556	1.853
4	NAPHTHALENE	1.408	1.251	0.044	0.468	0.046	0.562	1.166	0.811
4	PHENANTHRENE	NA	NA	NA	NA	NA	NA	5.736	2.749

Table B-27 (continued)
Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

Decision Area	Analyte	Depth Interval (feet)							
		0 to 0.5		0 to 2		0 to 4		0 to 8	
		EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
4	PYRENE	NA	NA	NA	NA	4.895	3.130	10.599	6.840
5	ACENAPHTHENE	0.076	0.908	0.147	0.454	0.389	0.482	0.065	0.457
5	ACENAPHTHYLENE	0.320	0.905	0.691	0.529	0.720	0.570	0.343	0.319
5	ANTHRACENE	NA	NA	NA	NA	NA	NA	0.276	0.182
5	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	2.728	2.188	1.544	1.138
5	FLUORENE	0.129	0.096	0.116	0.132	0.119	0.112	0.088	0.047
5	NAPHTHALENE	0.120	0.913	0.104	0.455	0.289	0.477	0.342	0.469
6	ACENAPHTHENE	0.031	0.580	0.067	0.278	0.201	0.259	0.190	1.074
6	ACENAPHTHYLENE	0.082	0.699	0.210	0.327	0.389	0.319	1.769	1.101
6	ANTHRACENE	0.110	0.129	NA	NA	NA	NA	2.721	1.621
6	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	5.620	3.478
6	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	8.813	5.660
6	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	6.254	3.753
6	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	8.416	4.895
6	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	3.459	2.092
6	CHRYSENE	NA	NA	NA	NA	NA	NA	7.170	4.472
6	DIBENZ(A,H)ANTHRACENE	0.373	0.416	NA	NA	NA	NA	6.059	2.733
6	FLUORANTHENE	NA	NA	NA	NA	NA	NA	28.156	17.184

Table B-27 (continued)
Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

Decision Area	Analyte	Depth Interval (feet)							
		0 to 0.5		0 to 2		0 to 4		0 to 8	
		EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
6	FLUORENE	0.045	0.076	0.045	0.037	0.079	0.082	0.377	0.194
6	INDENO(1,2,3-CD)PYRENE	0.912	1.117	1.878	0.935	NA	NA	8.933	5.061
6	NAPHTHALENE	0.031	0.580	0.062	0.278	0.164	0.259	1.990	1.058
6	PHENANTHRENE	NA	NA	NA	NA	NA	NA	8.092	3.841
6	PYRENE	NA	NA	NA	NA	NA	NA	22.696	13.476
7	ACENAPHTHENE	5.976	3.829	2.196	1.539	1.385	1.101	4.550	11.352
7	ACENAPHTHYLENE	0.870	2.131	0.630	0.976	0.959	0.849	34.983	12.330
7	ANTHRACENE	NA	NA	NA	NA	NA	NA	45.020	16.702
7	BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	35.385	13.971
7	BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	57.635	22.361
7	BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	38.984	15.008
7	BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	40.903	16.379
7	BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	18.830	7.387
7	CHRYSENE	NA	NA	NA	NA	NA	NA	42.117	16.681
7	DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	7.028	4.488
7	FLUORANTHENE	NA	NA	NA	NA	NA	NA	383.306	137.894
7	FLUORENE	0.548	0.318	0.174	0.145	0.178	0.200	18.171	8.789
7	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	50.144	19.218

Table B-27 (continued)
Comparison of Individual Polynuclear Aromatic Hydrocarbon Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

Decision Area	Analyte	Depth Interval (feet)							
		0 to 0.5		0 to 2		0 to 4		0 to 8	
		EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
7	NAPHTHALENE	6.030	3.855	2.201	1.540	1.387	1.106	70.506	34.973
7	PHENANTHRENE	NA	NA	NA	NA	NA	NA	292.053	104.673
7	PYRENE	NA	NA	NA	NA	NA	NA	241.186	89.287

NA denotes not applicable (bootstrap upper confidence limits were only calculated for EPCs where the 95% upper confidence limit calculated using normal or lognormal distributions were greater than the maximum observed value – see Section 2.3).

EPC denotes exposure point concentration.

3.0 Analysis of Soil Metals Data

3.1 Spatial Patterns and Comparison to Background Concentrations

Based on the analysis of the limited historical metals data at Operable Unit 5 (OU-5), metals were considered unlikely to pose an unacceptable risk at OU-5, with a few potential exceptions. Arsenic levels are relatively high in soils of this region of California compared with much of the continental United States. In addition, a few high lead values were previously observed, and there was some general concern that lead might be elevated in the area due to the possible historical use of lead-based paints. Accordingly, metals were analyzed in one location at each housing complex in the 0 to 0.5-foot depth interval and a smaller subset of the soil sampling locations across OU-5 for the deeper depth intervals.

Table B-28, "Summary Statistics and Exposure Point Concentrations for Metals Detected in Operable Unit 5 Soils" presents a summary of the metals concentrations and exposure point concentrations (EPC) in Parcel 181. The only inorganic constituent that exceeded U.S. Environmental Protection Agency (EPA) Region 9 residential soil preliminary remediation goals in Parcel 181 was arsenic, with the exception of one measurement of thallium at OU5-073 in the 4 to 8 foot depth interval that is likely to be a laboratory error. However, to confirm that there is no recent release or spill contributing to soil concentrations of arsenic or any other metal, and to further evaluate metals commonly related to industrial activities, this section provides spatial analyses and background comparisons for selected metals. These metals include arsenic, plus five additional metals, which are commonly related to industrial activities (cadmium, chromium, copper, lead, and mercury).

Maps showing the spatial distribution of these six inorganic constituents and a discussion of the spatial patterns observed were presented in Section 4.0 of the main text (see Figures 4-15 to 4-38). These maps did not reveal any consistent pattern across all six metals. Concentrations of arsenic below the 0 to 0.5-foot interval in the southwestern corner of Parcel 181, and in the 0 to 0.5-foot interval in the northeastern corner of Parcel 181, were higher than elsewhere. Chromium concentrations also appeared to increase at depth in the southwestern corner of Parcel 181. In addition, lead concentrations were generally higher in the 0 to 0.5-foot interval than in the lower depth intervals across the site. Most measurements of cadmium were nondetects, so no patterns were evident.

Table B-28
Summary Statistics and Exposure Point Concentrations for Metals Detected in Operable Unit 5 Soils

Analyte	Depth Interval (feet.)	N	Number Detects	Milligrams per Kilogram						PRGs
				Min	Mean	95% UCL Log Mean	Maximum			
							Overall	Detected	EPC	
ANTIMONY	0 - 0.5	58	9	0.150	3.565	6.274	6.250	4.980	4.980	31
	0 - 2	28	10	0.783	3.568	4.593	6.570	6.570	4.593	
	0 - 4	28	13	1.581	3.771	4.455	6.788	6.135	4.455	
	0 - 8	28	13	2.571	4.206	4.793	7.169	6.588	4.793	
	4 - 8	30	1	2.800	4.661	5.248	8.050	4.570	4.570	
ARSENIC	0 - 0.5	58	58	0.630	3.658	4.111	8.500	8.500	4.111	0.39
	0 - 2	28	28	0.788	3.382	4.078	9.293	9.293	4.078	
	0 - 4	28	28	1.544	3.758	4.569	9.386	9.386	4.569	
	0 - 8	28	28	1.372	3.591	4.238	8.708	8.708	4.238	
	4 - 8	30	30	1.180	3.422	4.281	8.030	8.030	4.281	
BARIUM	0 - 0.5	58	58	15.800	75.524	85.085	186.000	186.000	85.085	5,400
	0 - 2	28	28	25.550	72.855	86.169	150.500	150.500	86.169	
	0 - 4	28	28	31.250	74.958	91.902	151.900	151.900	91.902	
	0 - 8	28	28	26.744	65.020	75.642	157.625	157.625	75.642	
	4 - 8	30	30	15.700	56.193	69.831	172.000	172.000	69.831	
BERYLLIUM	0 - 0.5	58	23	0.078	0.224	0.262	0.585	0.483	0.262	150
	0 - 2	28	9	0.085	0.224	0.289	0.553	0.453	0.289	
	0 - 4	28	11	0.082	0.253	0.341	0.566	0.526	0.341	
	0 - 8	28	11	0.113	0.262	0.342	0.672	0.672	0.342	
	4 - 8	30	9	0.100	0.274	0.350	0.834	0.834	0.350	
CADMIUM	0 - 0.5	58	28	0.058	0.242	0.276	0.440	0.440	0.276	9
	0 - 2	28	13	0.100	0.219	0.257	0.345	0.345	0.257	
	0 - 4	28	13	0.100	0.215	0.255	0.341	0.341	0.255	
	0 - 8	28	13	0.090	0.241	0.297	0.913	0.913	0.297	
	4 - 8	30	9	0.065	0.263	0.333	1.700	1.700	0.333	

Table B-28 (continued)
Summary Statistics and Exposure Point Concentrations for Metals Detected in Operable Unit 5 Soils

Analyte	Depth Interval (feet.)	N	Number Detects	Milligrams per Kilogram						PRGs
				Min	Mean	95% UCL Log Mean	Maximum			
							Overall	Detected	EPC	
CHROMIUM	0 - 0.5	58	58	2.460	37.323	43.722	81.500	81.500	43.722	210
	0 - 2	28	28	23.725	38.232	41.130	62.250	62.250	41.130	
	0 - 4	28	28	28.863	44.993	49.770	78.825	78.825	49.770	
	0 - 8	28	28	25.656	48.468	54.252	96.331	96.331	54.252	
	4 - 8	30	30	16.100	51.843	62.446	121.000	121.000	62.446	
COBALT	0 - 0.5	58	58	1.200	8.538	9.412	16.900	16.900	9.412	4,700
	0 - 2	28	28	4.575	7.720	8.426	12.125	12.125	8.426	
	0 - 4	28	28	4.099	8.667	9.826	15.488	15.488	9.826	
	0 - 8	28	28	3.904	8.774	10.090	17.181	17.181	10.090	
	4 - 8	30	29	1.170	8.856	11.489	25.300	25.300	11.489	
COPPER	0 - 0.5	58	58	4.300	26.644	30.778	71.100	71.100	30.778	2,900
	0 - 2	28	28	7.700	21.346	25.894	37.650	37.650	25.894	
	0 - 4	28	28	5.788	22.464	28.712	51.638	51.638	28.712	
	0 - 8	28	28	5.699	21.497	26.604	51.263	51.263	26.604	
	4 - 8	30	30	4.600	20.618	27.597	63.600	63.600	27.597	
LEAD	0 - 0.5	58	58	5.400	32.758	39.660	92.600	92.600	39.660	400
	0 - 2	28	28	8.500	25.481	30.982	57.625	57.625	30.982	
	0 - 4	28	28	8.908	23.722	29.379	64.400	64.400	29.379	
	0 - 8	28	28	6.999	21.002	25.767	49.350	49.350	25.767	
	4 - 8	30	30	2.200	18.133	25.122	49.500	49.500	25.122	
MERCURY	0 - 0.5	58	51	0.022	0.188	0.225	0.950	0.950	0.225	23
	0 - 2	28	25	0.032	0.171	0.234	0.438	0.438	0.234	
	0 - 4	28	25	0.045	0.207	0.286	0.661	0.661	0.286	
	0 - 8	28	25	0.048	0.183	0.237	0.707	0.707	0.237	
	4 - 8	30	20	0.039	0.158	0.198	0.753	0.753	0.198	

Table B-28 (continued)
Summary Statistics and Exposure Point Concentrations for Metals Detected in Operable Unit 5 Soils

Analyte	Depth Interval (feet.)	N	Number Detects	Milligrams per Kilogram						PRGs
				Min	Mean	95% UCL Log Mean	Maximum			
							Overall	Detected	EPC	
MOLYBDENUM	0 - 0.5	58	7	0.105	1.175	2.731	3.130	1.910	1.910	390
	0 - 2	28	1	0.105	1.225	4.520	2.919	2.919	2.919	
	0 - 4	28	5	0.074	1.286	4.710	3.729	3.729	3.729	
	0 - 8	28	5	0.113	1.365	4.711	3.446	3.090	3.090	
	4 - 8	30	3	0.115	1.459	4.735	4.015	2.450	2.450	
NICKEL	0 - 0.5	58	58	4.020	36.337	41.755	74.100	74.100	41.755	1,600
	0 - 2	28	28	22.150	35.618	38.549	54.100	54.100	38.549	
	0 - 4	28	28	23.875	44.341	50.381	78.088	78.088	50.381	
	0 - 8	28	28	20.608	47.635	54.823	91.006	91.006	54.823	
	4 - 8	30	30	9.590	50.520	64.270	135.000	135.000	64.270	
SELENIUM	0 - 0.5	58	18	0.220	0.457	0.497	0.680	0.680	0.497	390
	0 - 2	28	12	0.234	0.476	0.540	1.116	1.116	0.540	
	0 - 4	28	13	0.263	0.494	0.565	1.018	1.018	0.565	
	0 - 8	28	14	0.279	1.136	1.007	18.018	18.018	1.007	
	4 - 8	30	8	0.285	1.696	1.189	35.500	35.500	1.189	
SILVER	0 - 0.5	58	1	0.260	0.412	0.451	0.770	0.770	0.451	390
	0 - 2	28	2	0.261	0.393	0.444	0.643	0.484	0.444	
	0 - 4	28	2	0.263	0.413	0.467	0.679	0.547	0.467	
	0 - 8	28	2	0.279	0.443	0.501	0.717	0.571	0.501	
	4 - 8	30	0	0.280	0.474	0.535	0.805		0.535	
THALLIUM	0 - 0.5	58	21	0.260	1.053	0.939	26.500	2.120	0.939	5.2
	0 - 2	28	11	0.258	0.817	1.058	6.854	1.309	1.058	
	0 - 4	28	12	0.263	0.746	1.011	3.599	1.404	1.011	
	0 - 8	28	12	0.279	2.205	1.903	42.977	42.977	1.903	
	4 - 8	30	6	0.280	3.473	2.049	84.700	84.700	2.049	

Table B-28 (continued)
Summary Statistics and Exposure Point Concentrations for Metals Detected in Operable Unit 5 Soils

Analyte	Depth Interval (feet.)	N	Number Detects	Milligrams per Kilogram						PRGs
				Min	Mean	95% UCL Log Mean	Maximum			
							Overall	Detected	EPC	
VANADIUM	0 - 0.5	58	58	5.700	29.950	32.604	59.200	59.200	32.604	550
	0 - 2	28	28	17.925	29.801	32.370	46.375	46.375	32.370	
	0 - 4	28	28	17.938	33.681	37.938	58.938	58.938	37.938	
	0 - 8	28	28	18.263	35.250	40.078	71.719	71.719	40.078	
	4 - 8	30	30	11.400	36.723	45.026	84.500	84.500	45.026	
ZINC	0 - 0.5	58	58	19.200	77.747	88.550	168.000	168.000	88.550	23,000
	0 - 2	28	28	21.175	59.622	71.235	125.250	125.250	71.235	
	0 - 4	28	28	20.875	62.836	79.278	180.375	180.375	79.278	
	0 - 8	28	28	19.338	57.015	69.774	123.688	123.688	69.774	
	4 – 8	30	30	11.700	51.847	67.267	139.000	139.000	67.267	

N denotes number of samples
Min denotes minimum
UCL denotes upper confidence limit
PRG denotes preliminary remediation goal
EPC denotes exposure point concentration

Figures B-14 to B-19 present box plots that allow one to compare the concentrations of these six inorganics to the three Alameda ambient data sets (pink, blue, and yellow) described in Tetra Tech Environmental Management, Inc. (2001), and to the 1993 to 1997 San Francisco Bay Regional Monitoring Program/Bay Protection and Toxic Cleanup Program (RMP/BPTCP) ambient sediment data (RWQCB, 1998). In addition, the Region IX residential soil preliminary remediation goals are either plotted as a dashed line on the box plots, or indicated above the plot, to provide a risk-based context for the background comparisons.

Arsenic soil concentrations are discussed in more detail in the following paragraphs because its soil concentrations are clearly the most relevant from a risk-based perspective. Figure B-14, "Operable Unit 5 Arsenic Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment" shows that arsenic concentrations measured in Parcel 181 are elevated relative to the "pink" Alameda data set. However, arsenic in Parcel 181 is not elevated relative to the "yellow" and "blue" data sets, and is well below the RMP/BPTCP sediment concentrations. This figure also shows that arsenic concentrations exceed the preliminary remediation goal (represented by the dashed line) in all five data sets.

None of the three Alameda background data sets ("pink," "yellow," or "blue") represent the same fill history as OU-5. The relative concentrations of base metals, such as iron, manganese, and aluminum are sometimes employed to assess the relative comparability of the concentrations of heavy metals in two data sets. Historical measurements of OU-5 base metal concentrations are consistently elevated relative to the "pink," "yellow," and "blue" data sets. Copper and chromium (detected at concentrations well below their preliminary remediation goals) are also consistently elevated in Parcel 181 relative to the three background data sets. However, concentrations of arsenic, cadmium, mercury, and lead vary among the three background data sets with concentrations at Parcel 181 exceeding some, but not others on a case-by-case basis. The bottom line conclusions drawn from this analysis of metals at Parcel 181 are as follows:

- Arsenic is the only metal present at levels of concern.
- All of the metals evaluated, with the exception of cadmium, which was not detected in most samples, are elevated relative to the "pink" data set.
- All three available background data sets representing Alameda soils are different enough from OU-5 soils to make any conclusions based on comparisons to these data fairly uncertain.

Figure B-14
Operable Unit 5 Arsenic Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment

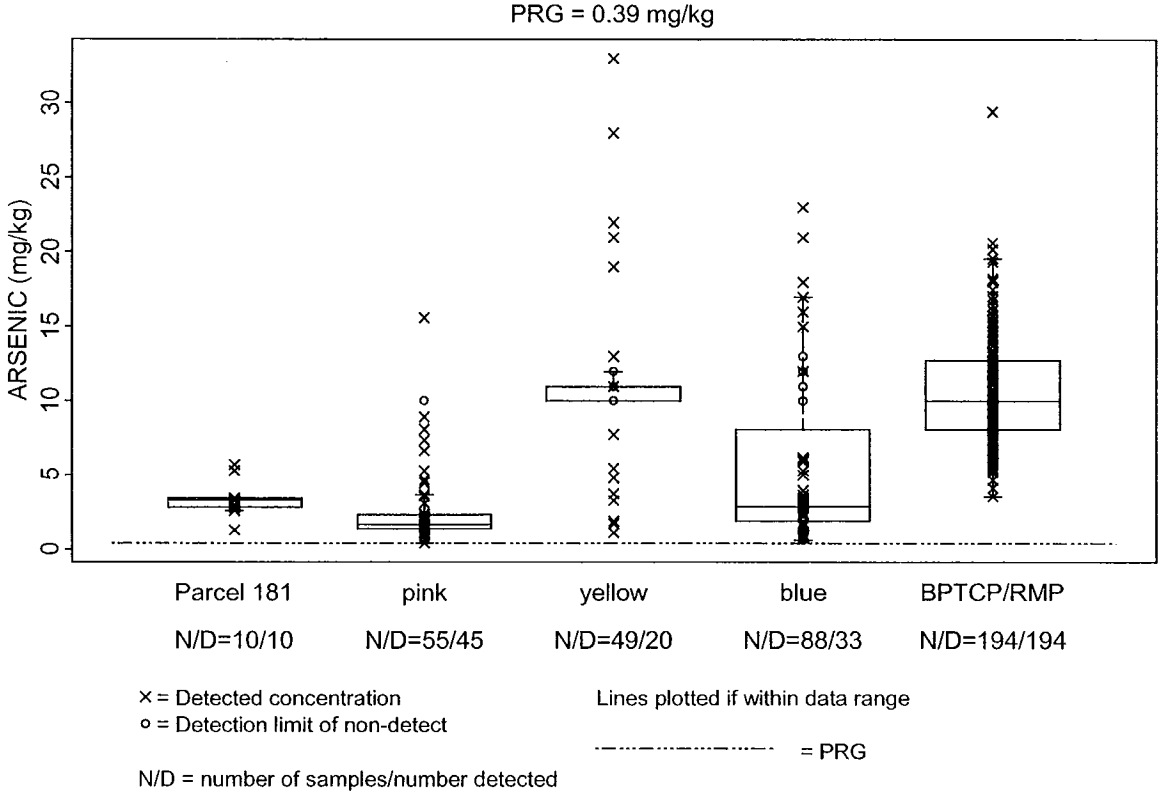


Figure B-15
Operable Unit 5 Cadmium Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment

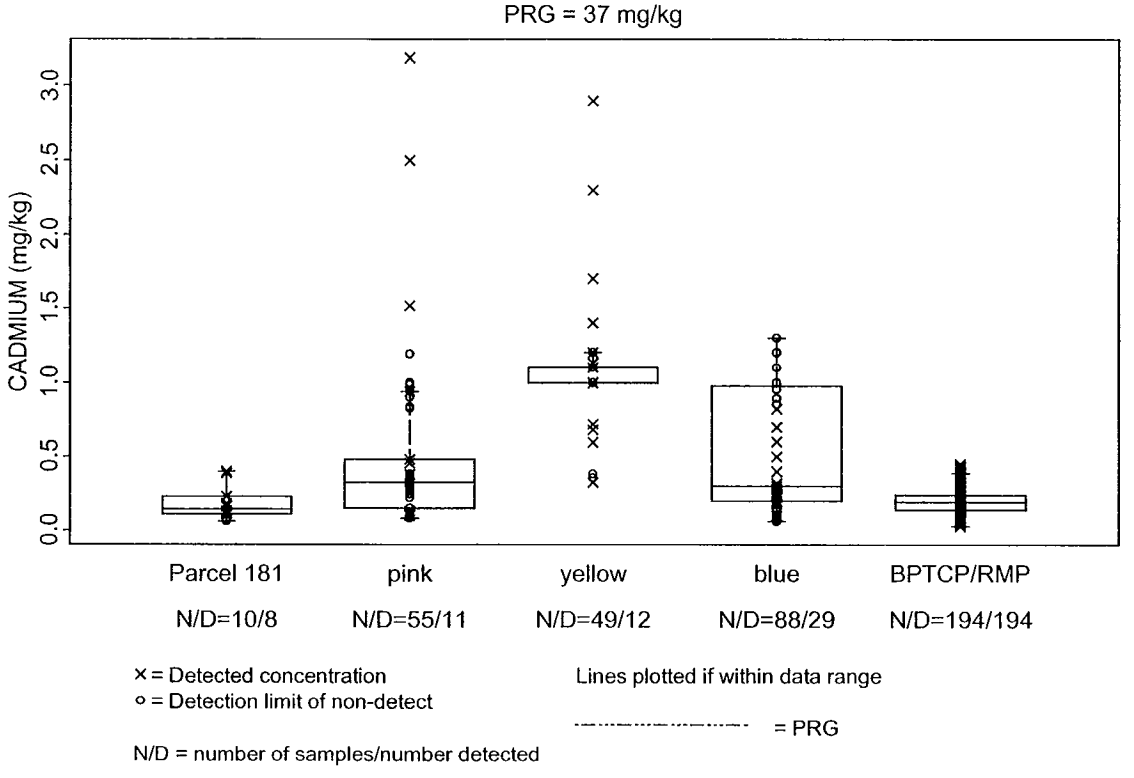


Figure B-16
Operable Unit 5 Chromium Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment

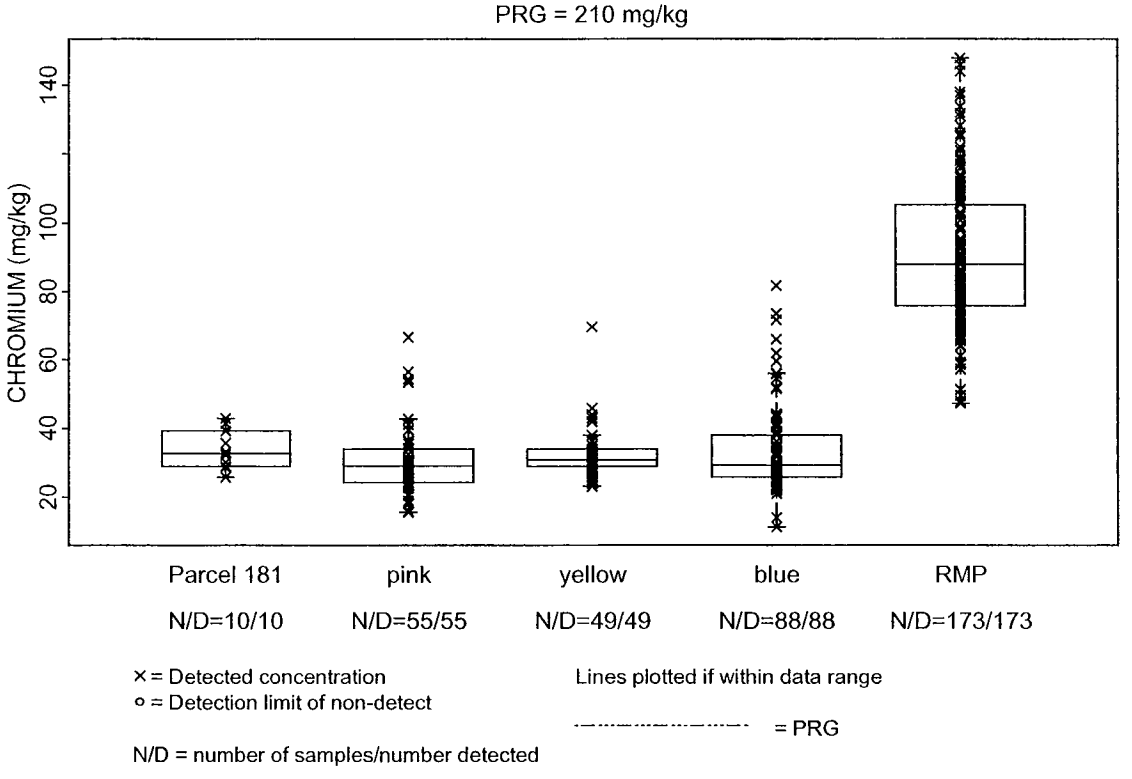


Figure B-17
Operable Unit 5 Copper Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment

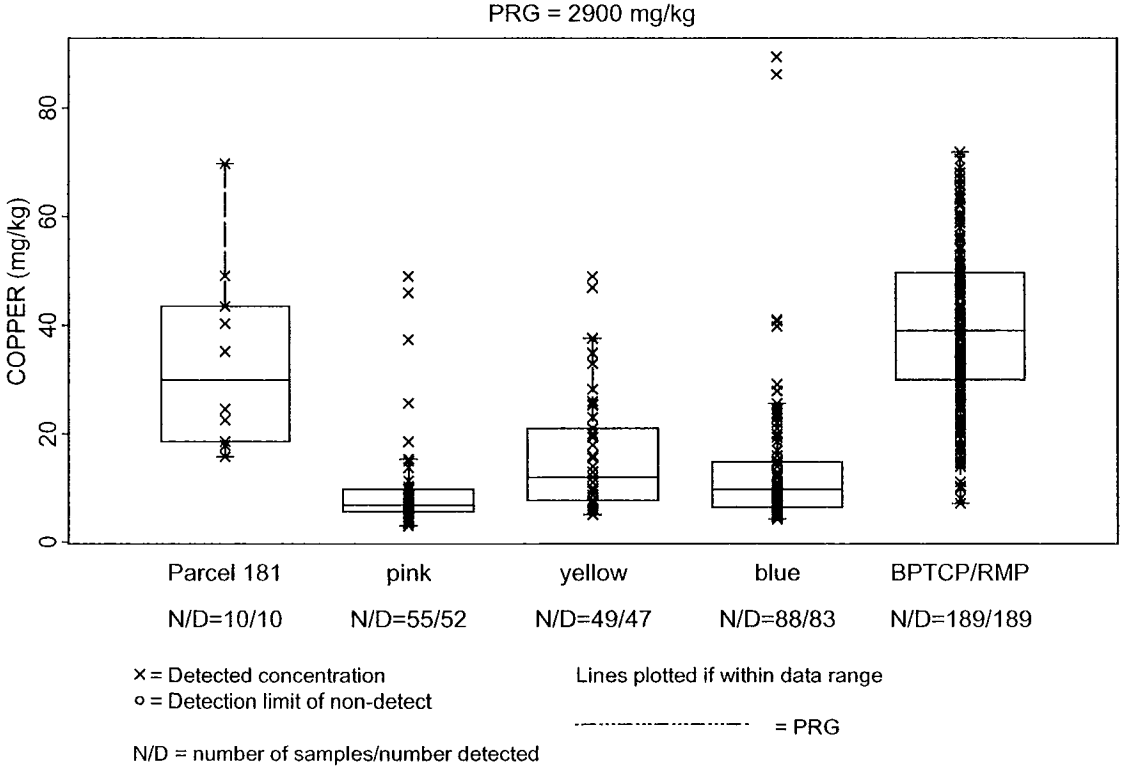


Figure B-18
Operable Unit 5 Lead Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment

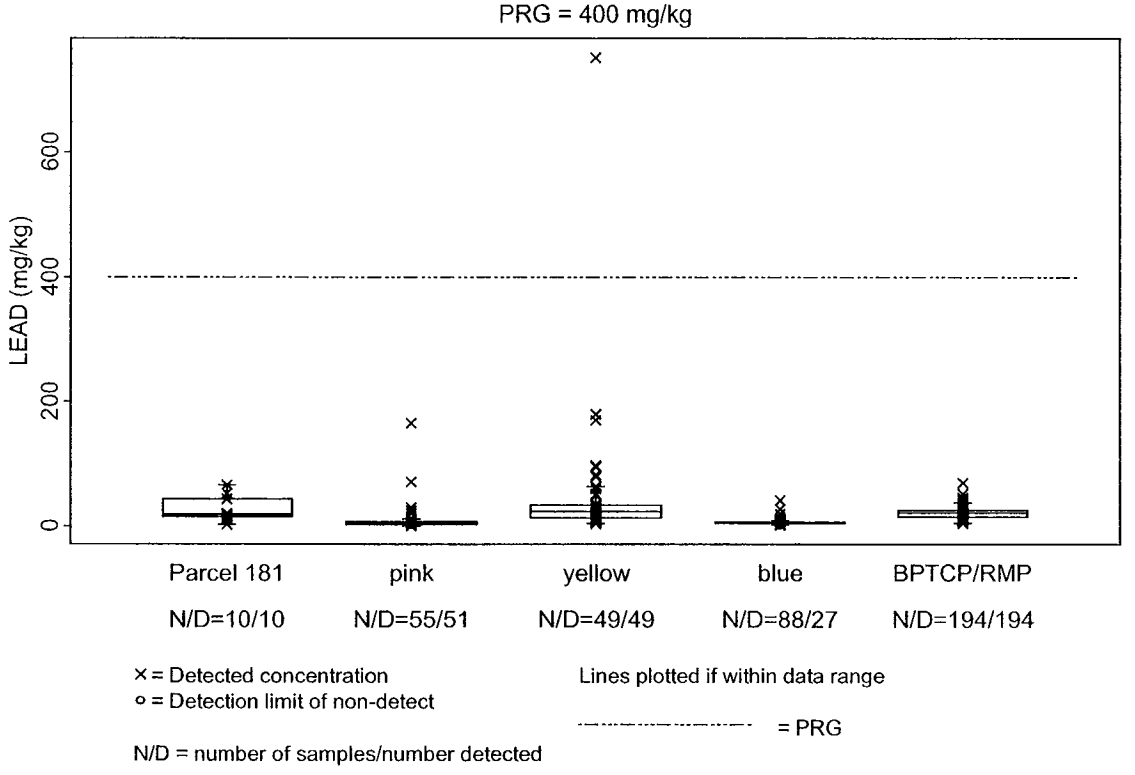


Figure B-19
Operable Unit 5 Mercury Values Compared to Alameda Point Ambient Soil and RMP/BPTCP Ambient Sediment Figure B-1.5.

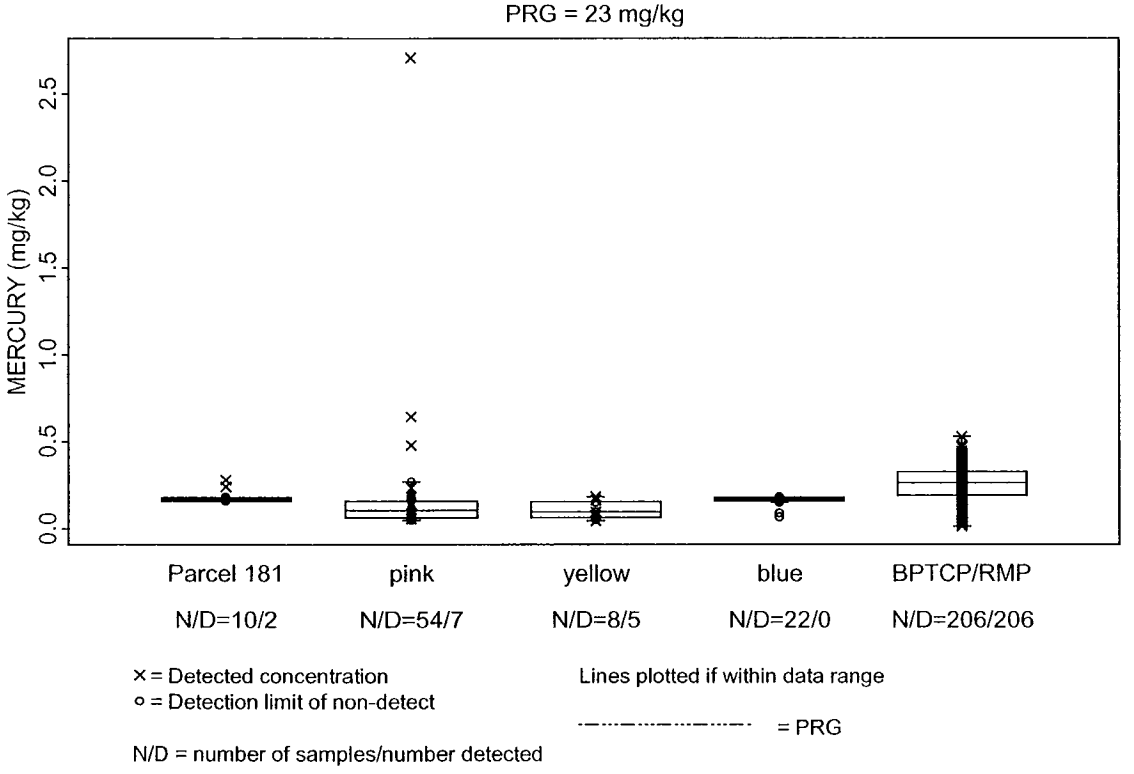


Figure B-20, "Arsenic Concentrations in 0 to 0.5 foot Depth Interval" shows the concentration of arsenic in the 0 to 0.5-foot depth interval across OU-5 using a bubble plot, where the size of the bubble is a function of concentration. The actual concentrations are also printed on the map. A quick review of this figure confirms the lack of a distinct spatial pattern in the 0 to 0.5-foot depth interval where human exposure is most likely, and where there is the greatest sample density.

3.2 Calculation of Exposure Point Concentrations for Metals in Soil

Because no distinct spatial patterns are evident, and because sample support for metals is inadequate to calculate EPCs on the scale of the polynuclear aromatic hydrocarbon (PAH) decision areas, there has been no attempt to generate separate metal EPCs for each decision area. Instead, a single set of EPCs was generated for each of the metals for the 0 to 0.5 and 4 to 8 foot depth increments and the 0 to 2 and 0 to 4 foot weighted averages for the whole site. Table B-28 presents the EPCs for OU-5 metals in these depth intervals.

3.3 Analysis to Support Uncertainty Assessment for Metals

Table B-29, "Comparison of Metals Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits" presents a comparison of exposure point concentrations derived from substituting the maximum observed value for the EPC to bootstrap estimates of the upper confidence limit (UCL). In general, bootstrap estimates are lower than the EPC used to assess risk, an indication that the values used were potentially conservative, and likely to overestimate the RME risk.

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Figure B-20
Arsenic Concentrations in the 0 to 0.5 foot Depth Interval

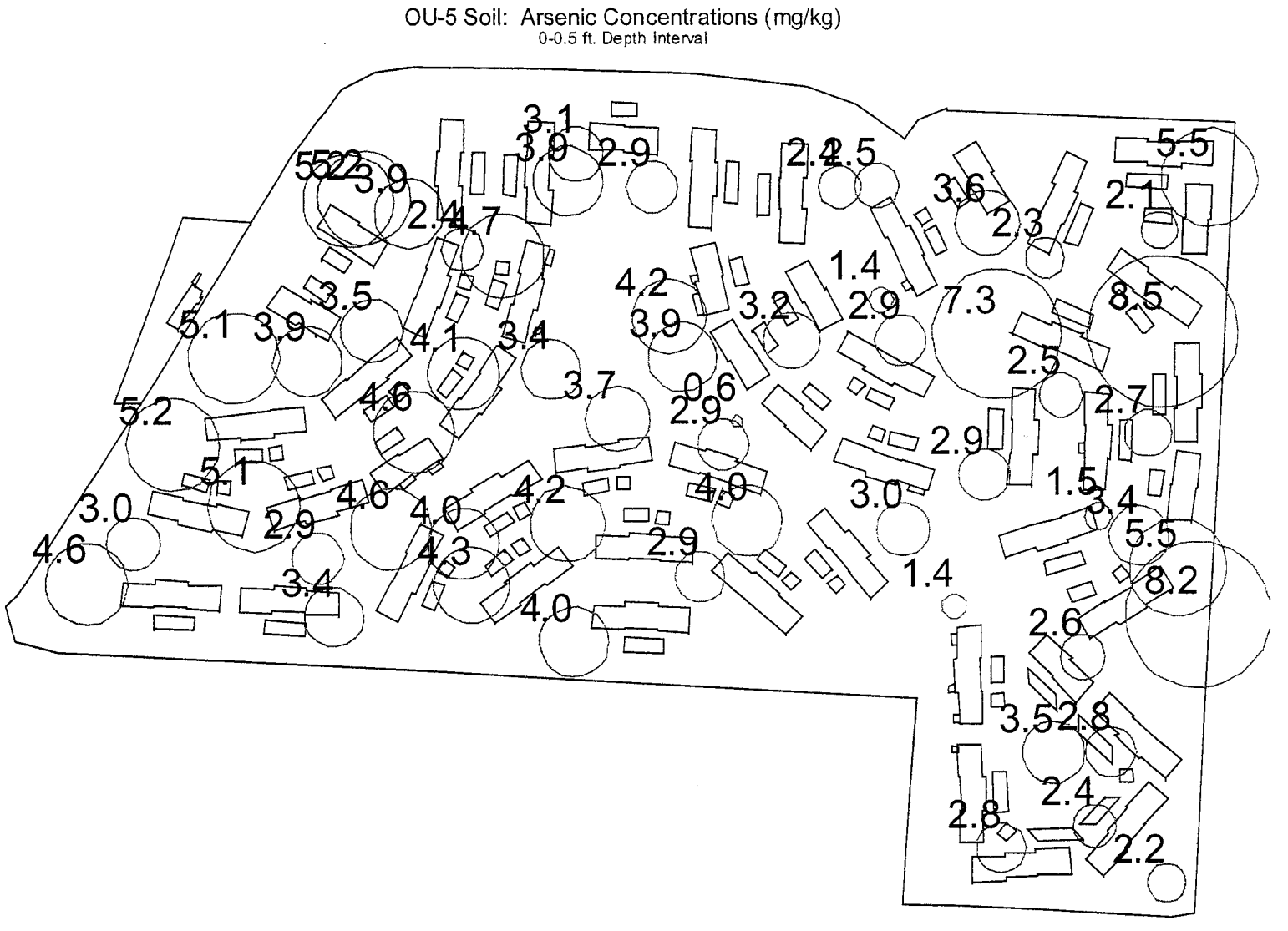

Table B-29
Comparison of Metals Exposure Point Concentrations to Bootstrap 95 percent Upper Confidence Limits

	Depth Interval (feet)									
	0 to 0.5		0 to 2		0 to 4		0 to 8		4 to 8	
Analyte	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap	EPC	Bootstrap
ANTIMONY	4.980	3.970	4.593	4.070	4.455	4.246	4.793	4.685	4.570	5.177
ARSENIC	4.111	3.994	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	85.085	82.516	NA	NA	91.902	86.543	NA	NA	NA	NA
BERYLLIUM	0.262	0.258	0.289	0.277	0.341	0.311	0.342	0.326	0.350	0.343
CADMIUM	0.276	0.260	0.257	0.242	0.255	0.240	0.297	0.295	0.333	0.295
CHROMIUM	43.722	39.793	NA	NA	49.770	49.332	NA	NA	NA	NA
COBALT	9.412	9.043	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	30.778	29.582	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	1.910	1.439	2.919	1.610	3.729	1.706	3.090	1.816	2.450	1.927
NICKEL	41.755	38.713	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.497	0.485	0.540	0.531	0.565	0.552	1.007	2.383	1.189	4.025
SILVER	0.451	0.445	0.444	0.435	0.467	0.458	0.501	0.491	0.535	0.525
THALLIUM	0.939	1.941	1.058	1.261	1.011	0.970	1.903	5.210	2.049	9.058
VANADIUM	32.604	31.639	NA	NA	NA	NA	NA	NA	NA	NA

NA denotes not applicable (bootstrap upper confidence limits were only calculated for EPCs where the 95% upper confidence limit calculated using normal or lognormal distributions were greater than the maximum observed value – see Section 2.3).

EPC denotes exposure point concentration

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4.0 Analysis of Groundwater and Soil Gas Data

A general analysis of the distribution of volatile organic compounds in groundwater and soil gas is presented in Sections 4.2 and 4.3 of the main text. The additional analyses presented in this appendix focus on understanding the nature and extent of two potential risk drivers: benzene and naphthalene. Distributions of these constituents in the X, Y, and Z dimensions were evaluated using a variety of spatial plots, including 3-D contour plots to assist in understanding the current spatial distribution of benzene and naphthalene. Contour plots generated "by eye" were presented in Section 4.0 of the main text. The plots presented in this appendix used a statistical local regression-smoothing algorithm (LOCFIT package in R). The plots drawn "by eye" pulled all samples collected within the general depth interval together. The statistical technique used the actual screened intervals and locations to predict the concentrations at a discrete number of fixed depths, and then plotted these in a series of side-by-side contour plots (Figure B-21, "Distribution of Benzene in Groundwater at Various Depths" and Figure B-22, "Distribution of Naphthalene in Groundwater at Various Depths") and in a 3-dimensional plot (Figure B-23, "3-D Visualization of Benzene in Groundwater" and Figure B-24, "3-D Visualization of Naphthalene in Groundwater"). These plots facilitated visualization of the benzene and naphthalene plumes among depth strata. From these plots, it is evident that the highest benzene concentrations are located under the southeast corner of Operable Unit 5 (OU-5), corresponding to decision area 3. Benzene concentrations increase with depth, with the highest concentrations appearing below 16 feet. Two areas of elevated naphthalene concentrations were present, one roughly corresponding to the area of elevated benzene concentrations, and another southeast of OU-5, approaching the DRMO Storage yard.

It is clear that groundwater contaminants are distributed on a roughly southeast to northwest pattern. It is not clear if the groundwater flow direction is actually in one direction (to the northwest or southeast), or whether it could, at least part of the time or over part of the site, flow in the opposite direction. The benzene and naphthalene plume contours, there is evidence to support either case. It should also be noted that while adjacent coreholes were fairly similar, a great deal of heterogeneity and discontinuity appears to exist across the site, consistent with the origin of the soils from historical dredging operations. The aquifer therefore, should not be viewed as a continuous sand layer that conveys groundwater. Instead the image is one of irregular patches of sandy material with water flowing opportunistically through regions where the sand connects, and being impeded considerably by clay/silt patches and layers where they exist.

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Figure B-21
Distribution of Benzene in Groundwater at Various Depths

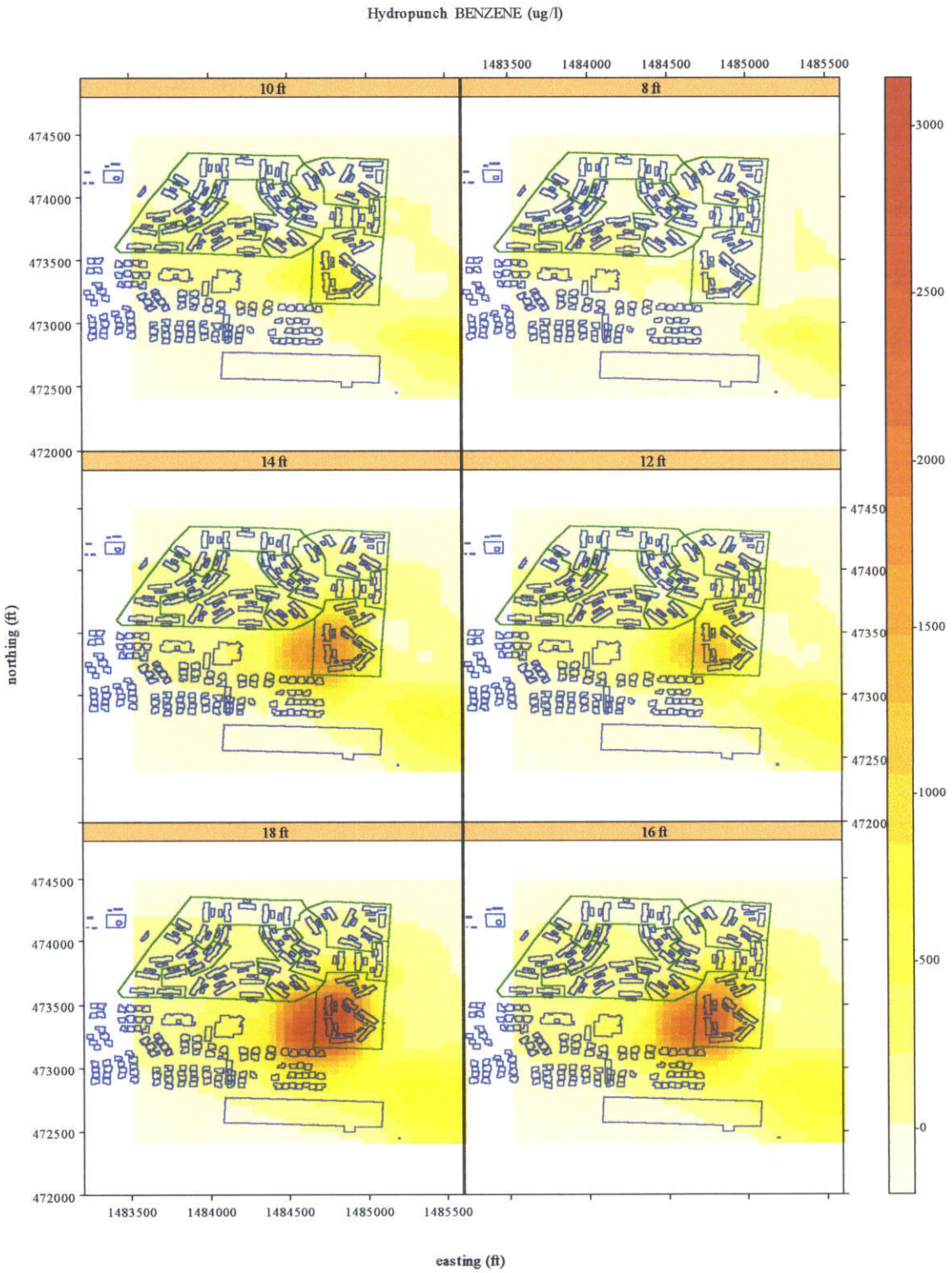

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Figure B-22
Distribution of Naphthalene in Groundwater at Various Depths

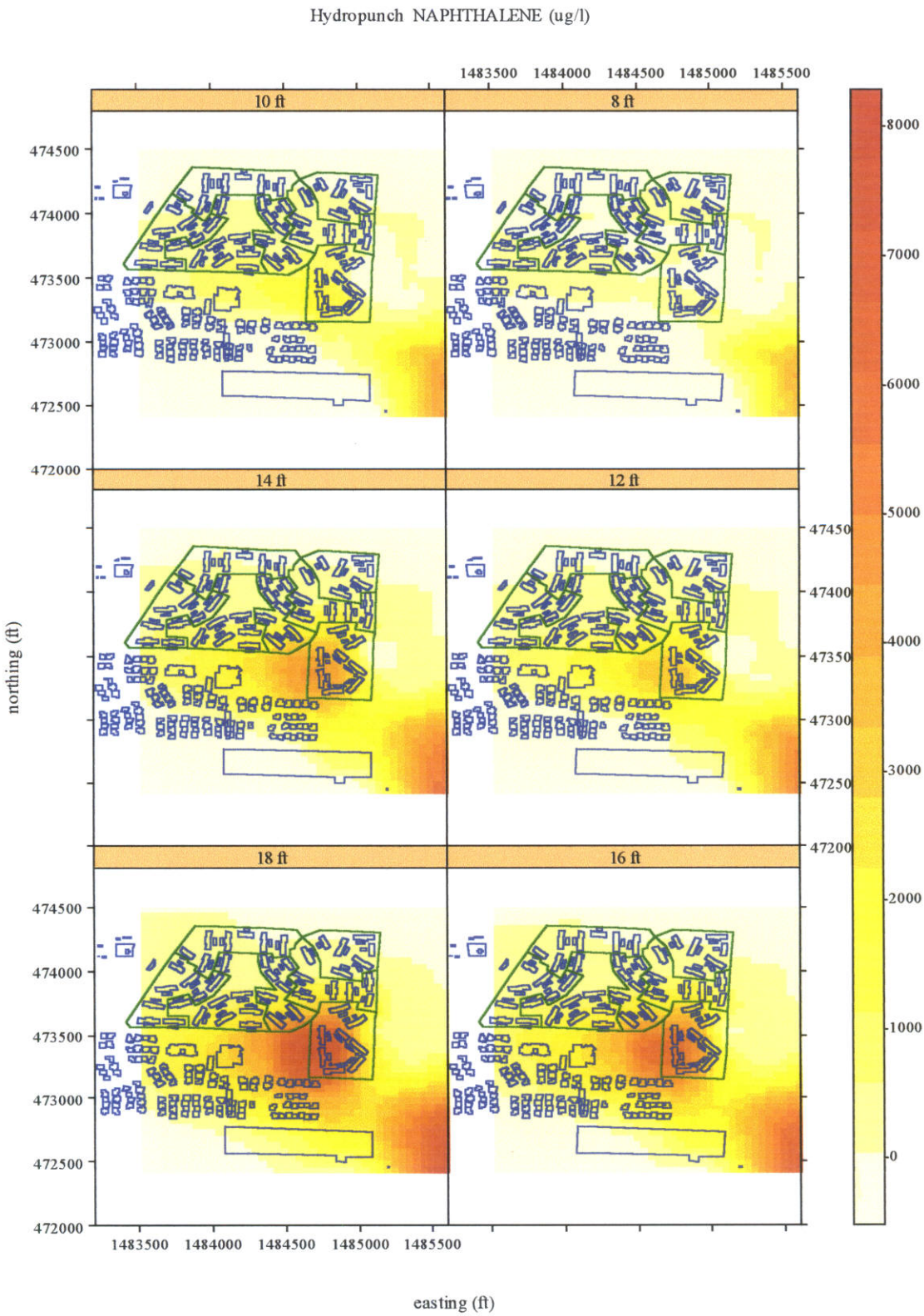

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Figure B-23
3-D Visualization of Benzene in Groundwater

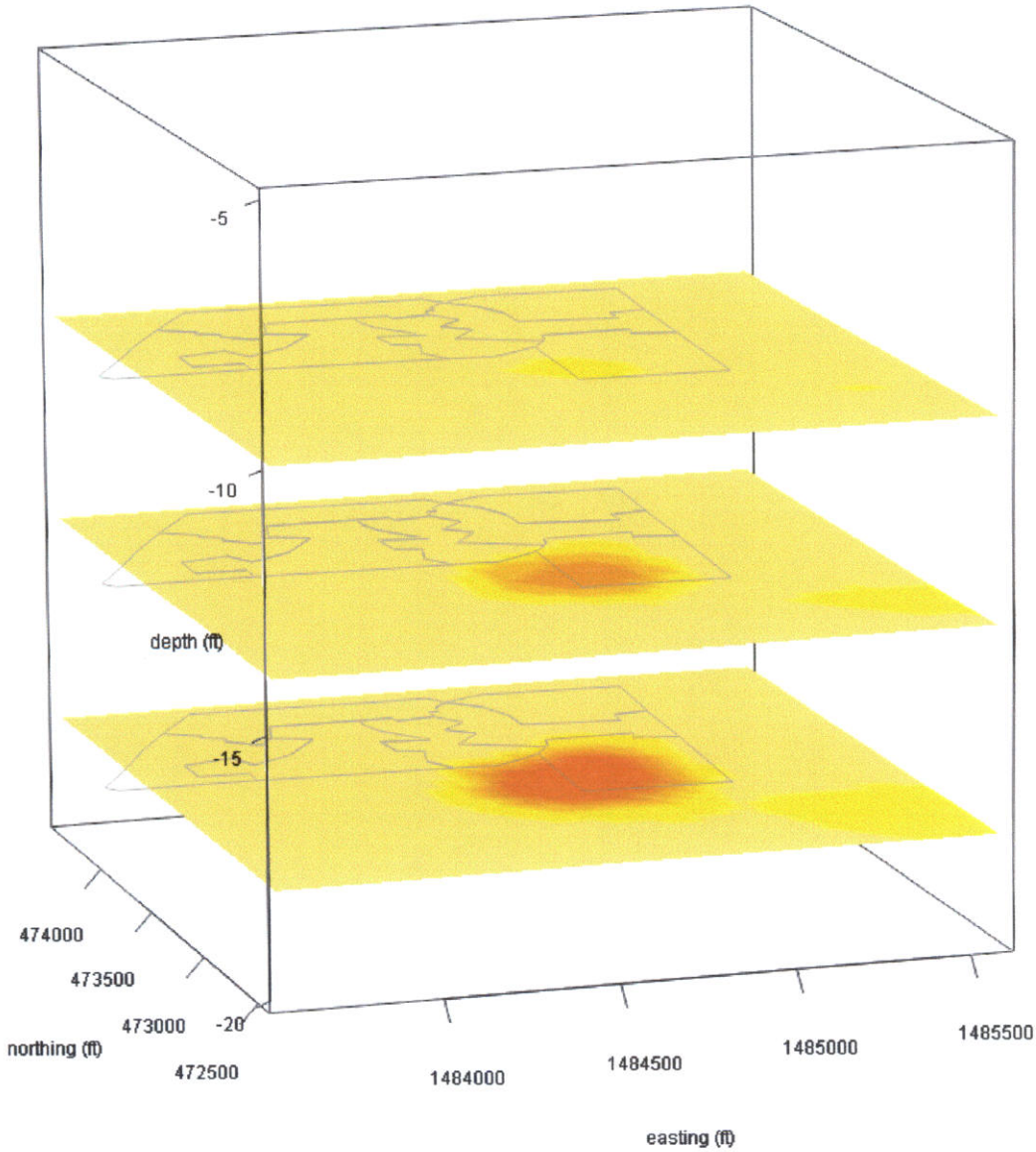

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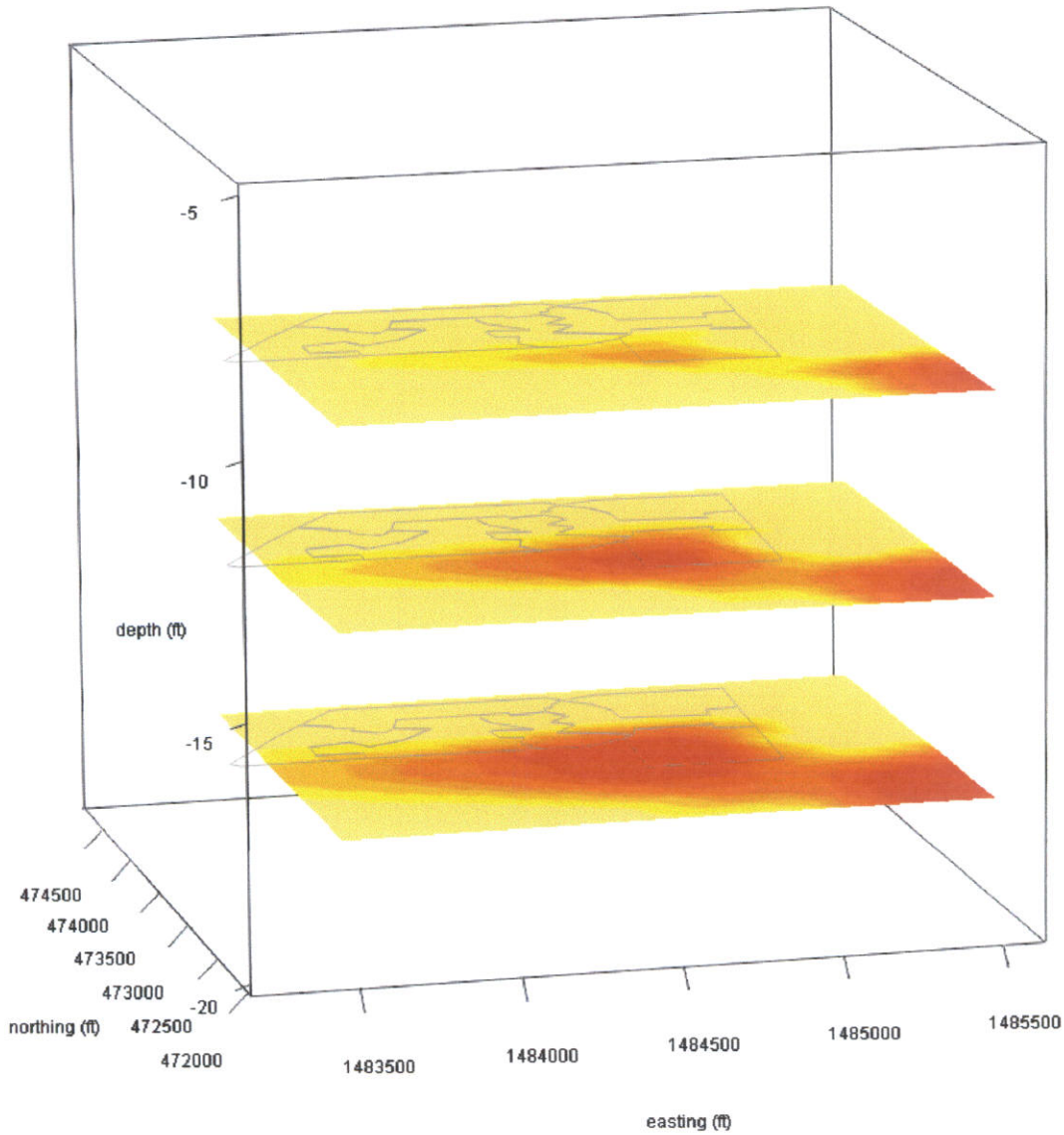
Figure B-24
3-D Visualization of Naphthalene in Groundwater



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The relationship between groundwater and soil gas concentrations was evaluated through both statistical correlation assessments, and use of visual plots. Figure B-25, "Soil Gas Concentrations of Benzene in the 5 to 7 foot Depth Interval" shows the distribution of benzene in soil gas in the 5 to 7 foot depth interval, and Figure B-26, "Soil Gas Concentrations of Naphthalene in the 5 to 7 foot Depth Interval" shows the distribution of naphthalene in this same interval. By comparing these figures to Figures B-21 and B-23, one can see that the highest soil gas concentrations are not generally collocated with those in groundwater. A more detailed evaluation of the associations between concentrations of benzene and naphthalene was performed by calculating Pearson's Product-Moment Correlation Coefficients between soil gas concentrations in the two depth intervals (2 foot and 5 to 7 foot) and those in the groundwater samples in the upper three depth intervals. This analysis allows one to determine if the concentration of groundwater does a good job of predicting the concentration of soil gas. There were insufficient data to calculate a correlation coefficient between the concentrations in lowest soil gas and groundwater depth intervals. The correlation was considered statistically significant if the p-value was "small," i.e., less than 0.05.

In only two cases did the statistical analysis reveal a statistically significant correlation: for benzene in the shallow groundwater and 2 foot soil gas, and for naphthalene in the 9 to 12 foot groundwater and 5 to 7 foot soil gas. When the data were examined more closely, a single pair of high benzene measurements in soil gas and groundwater concentrations drove the benzene correlation. The relationship between naphthalene in groundwater and soil gas in the second depth interval seems more compelling. Even with only seven data pairs, the correlation coefficient is statistically significant and the explanation of variance in soil gas concentrations accounted for by groundwater concentrations (as expressed by r^2) is 61 percent. There may be a relationship between groundwater and soil gas concentrations but with the limited data available, only two of the comparisons between soil gas and groundwater data proved to be statistically significant. One of these relationships is driven solely by one influential point. In order to understand the true presence and nature of this relationship, further sampling would be required.

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Figure B-25
Soil Gas Concentrations of Benzene in the 5 to 7 foot Depth Interval

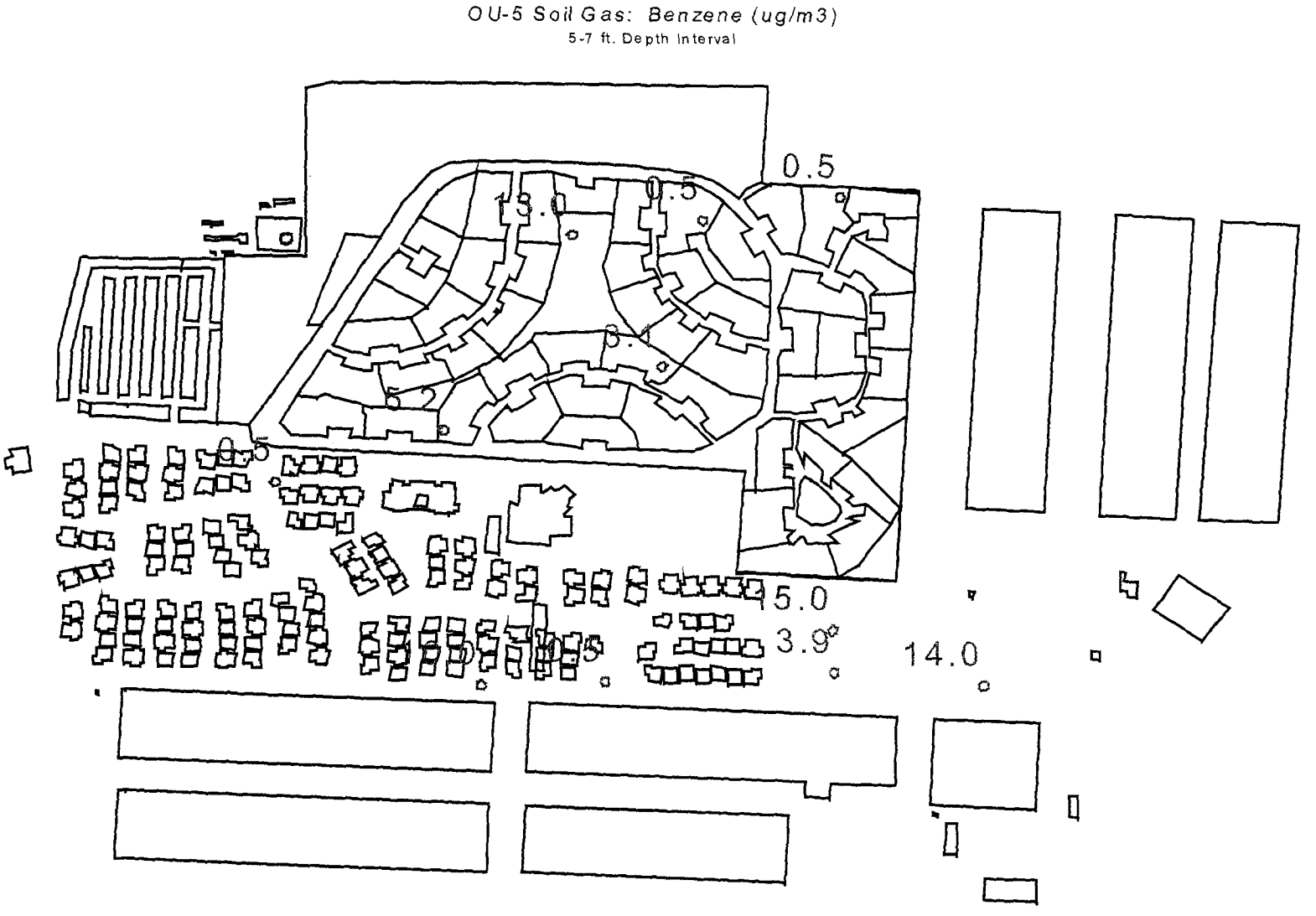
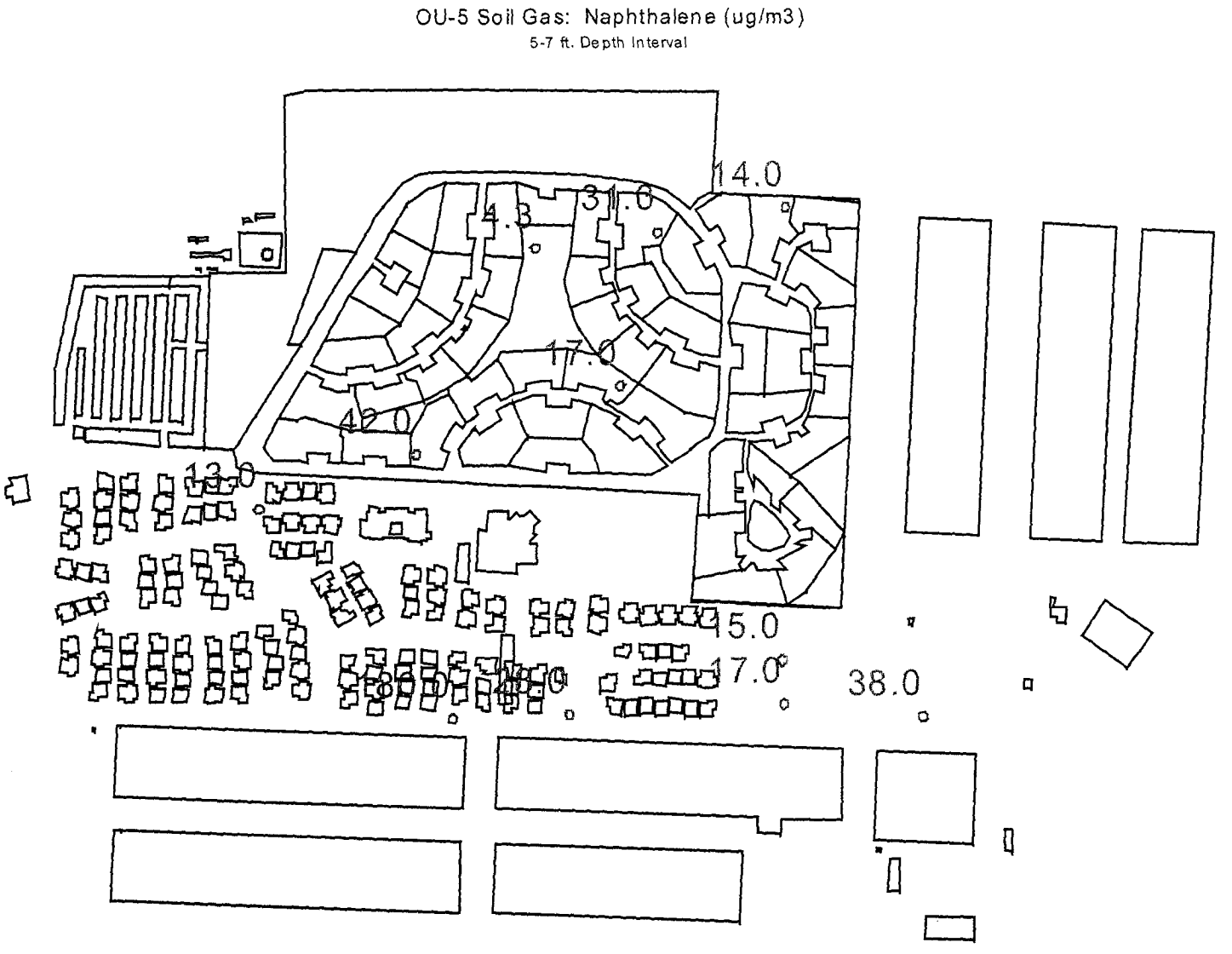


Figure B-26
Soil Gas Concentrations of Naphthalene in the 5 to 7 foot Depth Interval



5.0 References

Gilbert, R. O., 1987, *Statistical Methods for Environmental Pollution Monitoring*, Van Nostrand Reinhold Company, New York, New York.

Neptune and Company, Inc., 2001, *Remedial Investigation Work Plan for Operable Unit-5, Alameda Point, Alameda, California*, Final, June 4, Albuquerque, New Mexico.

Regional Water Quality Control Board, San Francisco Bay Area (RWQCB), April 1998, *Ambient Concentrations of Toxic Chemicals in Sediments*, prepared by T. Gandesbery and F. Henzel of RWQCB.

Southwest Division Naval Facilities Engineering Command (SWDIV), November 26, 2001, *Action Memorandum*, ***DCN: FWSD-RAC-02-0255***.

Tetra Tech Environmental Management, Inc. (TtEMI), 2001, *Summary of Background Concentrations in Soil and Groundwater*, ***TC.0245.11326***, Alameda Point, Alameda, California.

U.S. Environmental Protection Agency (EPA), 1989, *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual*, Interim Final, Part A, Office of Emergency and Remedial Response, ***EPA/540/1-89/002***, Washington, D.C.

APPENDIX C
RISK ASSESSMENT CALCULATIONS

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List of Attachments

Attachment 1 VLEACH Inputs – Example: Benzene
Attachment 2 Johnson and Ettinger Input and Output Modeling Files – Example: Xylene

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1.0 Introduction

This Appendix provides the supporting documentation for the modeling of volatile organic compounds from soil gas and groundwater into air. Section 1.1 discusses the VLEACH model used in the risk assessment to estimate indoor air concentrations for the residential scenario and trench air concentrations for the construction worker under the U.S. Environmental Protection Agency methodology. Section 1.4 presents the input files and output tables for the Johnson and Ettinger model. This model was used in the risk assessment to estimate indoor air concentration for the residential scenario under the California Environmental Protection Agency methodology.

1.1 VLEACH Description and Assumptions

VLEACH is a one-dimensional finite difference vadose zone, leaching model. Designed by CH2MHill for the U.S. Environmental Protection Agency, Region 9, VLEACH simulates the volatilization and migration of a contaminant vertically through the vadose zone.

VLEACH describes the movement of a contaminant within and between three different phases: (1) as a solute dissolved in water, (2) as a gas in the vapor phase, and (3) as an adsorbed compound in the solid phase. Equilibration among the three phases occurs according to distribution coefficients defined by the user. In particular, VLEACH simulates vertical transport by advection in the liquid phase and by gaseous diffusion in the vapor phase.

The transport processes are simulated for "polygons" that are vertically divided into a series of user-defined cells. Within each polygon, all cells are assumed to have homogeneous conditions, except for contaminant concentration. Therefore, VLEACH does not account for vertical heterogeneity along the vadose zone.

Initially, VLEACH calculates the equilibrium distribution of contaminant mass among the liquid, gas, and sorbed phases. Advective transport in the liquid phase and diffusive transport in vapor are then simulated. Diffusion of a contaminant in the vapor phase from cell to cell is governed by its concentration gradients through the polygon and its diffusion coefficient. Liquid-phase advective transport is governed by the recharge rate and soil water content. After the mass is exchanged between the cells, the total mass in each cell is recalculated and re-equilibrated among the different phases. These steps are conducted for each time step, and each polygon is simulated independently. At the end of the simulation, the results from each polygon are compiled to determine an overall area-weighted diffusive flux to the atmosphere at user-defined time intervals.

The following assumptions are made in VLEACH:

1. Linear isotherms describe the partitioning of the pollutant among the liquid, vapor, and soil phases. Therefore, local or instantaneous equilibrium among these phases is assumed.

2. The vadose zone is in a steady-state condition with respect to water movement. In other words, the moisture content profile within the vadose zone is assumed to be constant, which is a simplification of field conditions.

3. Liquid phase dispersion is not explicitly accounted for. Rather, apparent dispersion occurs through the combination of liquid advection and gaseous diffusion, which spreads contaminants ahead and behind the advective movement of water.

4. The contaminant is not subjected to *in situ* production or degradation, resulting in conservative concentration values.

5. Homogeneous soil properties are assumed to occur within a particular polygon.

6. Volatilization from the soil boundaries is either completely unimpeded or completely restricted.

7. The model does not account for non-aqueous phase liquids or any flow conditions derived form variable density.

8. Ground water concentrations are assumed to be held constant through time with respect to vapor phase diffusion.

1.2 Flux Calculations

VLEACH calculates the flux to groundwater or air based upon the advective and dispersive forces driving the chemical migration. For migration up into the atmosphere, the flux is calculated as reflecting only dispersion, where D_e is the effective dispersion coefficient

$$Flux = \theta_a D_e \left.\frac{dC}{dz}\right|_{z=0}$$

calculated through the Millington-Quirk relationship, θ_a is the volumetric air content, and

$$\left.\frac{dC}{dz}\right|_{z=0}$$

is the concentration gradient at the ground surface, $z = 0$. This flux is then attenuated into any structure according to how permeable its slab is to vapor,

$$Flux_{bldg} = \alpha\theta_a D_e \left.\frac{dC}{dz}\right|_{z=0}$$

This attenuation factor, α, is uncertain and potentially variable due to the presence of vapor barriers beneath a slab, the presence of cracks in slabs, the presence of imperfections in slabs near utility entrances, and natural variability in the soil around the slab that may allow vapors to go around it easily.

VLEACH was used in the risk assessment to model the migration of volatile organic compounds from soil gas into indoor air for a residential scenario and into trench air for a construction worker scenario. The following is an example calculation for benzene migration from soil gas to indoor air for a residential scenario.

1.3 Example

The text and tables of the main document includes the soil properties (Table 5-11), the chemical properties (Table 5-10), the air dispersion properties (Table 5-12), as well as descriptions of the modeling, including equations and assumptions for the VLEACH modeling (see Section 5.4). The only part missing that is necessary to reproduce the results are the model discretization factors, such as whether the numerical model used spatial increments of 1 foot or 2 feet. Given that there are a number of chemicals modeled and several different exposure scenarios, this section will present an example, input file.

Attachment 1 illustrates an example file with all the VLEACH inputs for benzene modeling from soil gas to indoor air (note that the format is modified from VLEACH standard in order to clearly show the input parameters). The parameters in this file are run through VLEACH to ultimately generate transfer coefficients. The steps will be illustrated for benzene.

Table C1-1 shows the resulting fluxes from VLEACH through time as well as the calculated indoor air concentration using the parameters from Table 5-12 and the equation on page 5-35 of the Remedial Investigation Report. Note that the steady-state flux is reached quickly.

Table C1-2 shows the same indoor air concentration as "Groundwater-to-Air Transfer Coefficients," where this transfer coefficient is just the concentration in indoor air for 1 milligrams per liter in groundwater. To convert this transfer coefficient to the one in Table 5-13, the groundwater concentration must be converted to a soil gas concentration. VLEACH generates the associated soil gas concentration profile through the soil associated with a groundwater source. That profile has different concentrations at different depths. Two depths are shown in Table C2 along with the associated steady-state soil gas concentrations at those depths. The depth-specific soil gas-to-air transfer coefficient is just the groundwater-to-air transfer coefficient divided by the respective soil gas concentration.

The model input parameters for vapor emission and air dispersion modeling are shown in Tables C1-3 and C1-4.

1.4 Johnson and Ettinger

As discussed in the main document, for the California Environmental Protection Agency methodology the modeling of the transport of volatile chemicals from soil gas to residential indoor air was based on the mathematical model developed by Johnson and Ettinger (EPA, 2000). This model provides an estimate of the flux of a chemical into a building resulting from the one-dimensional transport by diffusion and convection through the vadose zone and building floor slab. Indoor air concentrations are calculated from the flux assuming a simple dilution process.

U.S. Environmental Protection Agency (2000) implemented this model as a spreadsheet, including the equations described by Johnson and Ettinger. The spreadsheet model provides default assumptions, chemical properties, and toxicity criteria to allow the direct calculation of either risks or risk-based concentrations for a residential adult. For this assessment, Version 2.3 of the U.S. Environmental Protection Agency Johnson and Ettinger model was used. Toxicity values were updated to represent the hierarchy of sources discussed in Section 5.6.3, Table 5-23 and Table 5-27.

When available, site-specific parameters were used. In the absence of such data, default parameters or conservative estimates were used. The model input parameters for vapor emission and air dispersion modeling are shown in Tables C1-3 and C1-4. Table C1-5 presents the physical/chemical parameters included in the model spreadsheet. Table C1-6 through C1-8 summarizes the resulting risks for the current and future residents based on the maximum soil gas concentrations detected in Parcel 181 (Table C1-6 and C1-7) and for potential future residents based on the maximum soil gas concentrations detected in offsite properties (Table C1-8). The input and output modeling files, using xylene for the current residential scenario (6 years) as an example, are included as Attachment 2.

2.0 References

U.S. Environmental Protection Agency (EPA), December 2000, *User's Guide for the Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings (Revised)*, prepared by Environmental Quality Management, Inc. under Contract No. 68D70002, Washington D.C.

Table C1-1
VLEACH Model - Calculation of Soil Gas-to-Air Transfer Coefficients for Benzene, Indoor Concentrations Through Time

Year	Flux from 1 mg/L in groundwater	Indoor Concentration from 1 mg/kg in soil
2	-2.49E-02 g/sq.ft.	1.40E-03 mg/m3
4	-4.83E-02 g/sq.ft.	2.70E-03 mg/m3
6	-5.25E-02 g/sq.ft.	2.94E-03 mg/m3
8	-5.31E-02 g/sq.ft.	2.97E-03 mg/m3
10	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
12	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
14	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
16	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
18	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
20	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
22	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
24	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
26	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
474	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
476	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
478	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
480	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
482	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
484	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
486	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
488	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
490	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
492	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
494	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
496	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
498	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3
500	-5.32E-02 g/sq.ft.	2.98E-03 mg/m3

mg/kg denotes milligram per kilogram.

Table C1-2
VLEACH Model - Calculation of Soil Gas-to-Air Transfer Coefficients for Benzene, From Depth-Specific Outputs

Groundwater-to-Air Residential Transfer Coefficient (mg/m3 air) / (mg/L water)	Depth	Soil Gas Concentration* (µg/m3 soil gas) / (mg/L water)	Soil Gas-to-Air Transfer Coefficients (mg/m3 air) / (µg/m3 soil gas)
2.98E-03	2 ft bgs	5.07E+04	5.88E-08
2.98E-03	5 ft bgs	1.27E+05	2.35E-08

mg denotes microgram
mg denotes milligram
m3 denotes cubic meter
L denotes liter

** Soil gas concentration for 1 mg/L concentration in water at steady-state.*

Table C1-3
Input Parameters for Emission Modeling

Parameter	Unit	VLEACH	Johnson & Ettinger
Effective Soil Porosity [a]	--	0.38	0.38
Soil Dry Bulk Density [a]	g/cc	1.63	1.63
Volumetric Water Content of Soil [a]	cc water/cc soil	0.23	0.23
Soil Organic Carbon Content [a]	--	0.0057	NA
Soil Type (Used to estimate soil vapor permeability) [a]	--	NA	Sandy Loam
Average Soil Temperature[b]	C	NA	15
Depth to Ground Water[a]	feet	8	NA
Surface Area Weighted Depth to Ground Water (trench)[c]	feet	4.6	NA
Ground Water Recharge Rate[b]	feet/year	0	NA
Normalized Concentration of Chemicals in Groundwater	mg/L	1	NA
Normalized Concentration of Chemicals in Soil	mg/kg	1	NA

NA denotes Not Applicable
cc denotes cubic centimeter
g denotes grams
kg denotes kilogram
L denotes liter
mg denotes milligram

[a] *Site specific data*
[b] *Conservative default assumption*
[c] *Weighted DTW = (Ab/Atot)(8 ft - 3 ft) + (Asides/Atot)(8 ft - 5ft/2)*

Table C1-4
Input Parameters for Air Dispersion Modeling

Parameter	Unit	Indoor Air (VLEACH)	Outdoor Trench (VLEACH)	Indoor Air (Johnson & Ettinger)
Height[a,b,e]	feet	8	5	16
Length[b,e]	feet	NA	20	32
Width[b,e]	feet	NA	8	32
Slab Attenuation Factor for Future Residential Buildings	-	0.1	NA	NA
Indoor Air Exchange Rate[a,e]	1/hour	0.45	NA	0.45
Wind Speed[c]	feet/second	NA	3.28	NA
Fraction of Building Above Contaminated Area[d]	-	1	NA	NA

NA denotes Not Applicable

a Based on information from ASHRAE guidance (ASHRAE 1997).

b Outdoor trench dimensions based on professional judgement.

c EPA, 1995 (professional judgement, lowest of SCREEN).

d Most conservative assumption.

e Johnson & Ettinger Spreadsheet default (EPA, 2000)

American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc. (ASHRAE), 1997, 1997 ASHRAE Handbook - Fundamentals, *Atlanta, Georgia.*

U.S. Environmental Protection Agency (EPA), September 1995, SCREEN3 Model User's Guide, *Office of Air Quality Planning and Standards, EPA-450-4-92-006, Research Triangle Park, North Carolina.*

U.S. Environmental Protection Agency (EPA), December 2000, User's Guide for Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings (Revised).

Table C1-5
Johnson and Ettinger Model - Input Files for Physical/Chemical Properties and Toxicity Values

Chemical	Organic carbon partition coefficient, Koc (cm3/g)	Diffusivity in air, Da (cm2/s)	Diffusivity in water, Dw (cm2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at 25 C H (atm-m3/mol)	Normal boiling point, TB (K)	Critical temperature, TC (K)	Enthalpy of vaporization at the normal boiling point, DHv,b (cal/mol)	Unit risk factor, URF (mg/m3)-1	Reference conc., RfC (mg/m3)	Cancer Slope Factor (mg/kg-d)-1	Reference dose RfD (mg/kg-d)
Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.88E-05	329.20	508.10	6955	0.00E+00	3.50E-01	0.00E+00	1.00E-01
2-Butanone	4.50E+00	8.95E-02	9.80E-06	2.20E+05	2.30E-03	5.60E-05	352.50	535.00	7512	0.00E+00	1.00E+00	0.00E+00	2.86E-01
Benzene	5.89E+01	8.80E-02	9.80E-06	1.75E+03	2.28E-01	5.56E-03	353.24	562.16	7342	2.90E-05	6.00E-02	1.02E-01	1.71E-02
Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.52E-01	3.71E-03	404.87	632.40	8410	0.00E+00	1.00E+00	0.00E+00	2.86E-01
Chloroethane*	1.47E+01	1.00E-01	1.20E-05	5.74E+03	4.55E-01	1.11E-02	285.42	460.35	NA	8.29E-07	3.00E+01	2.90E-03	8.57E+00
Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	334.32	536.40	6988	5.30E-06	3.00E-01	1.86E-02	8.57E-02
1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	330.55	523.00	6895	1.60E-06	5.00E-01	5.60E-03	1.43E-01
1,1-Dichloroethene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.61E-02	304.75	576.05	6247	0.00E+00	7.00E-02	0.00E+00	2.00E-02
cis-1,2-Dichloroethene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	333.65	544.00	7192	0.00E+00	3.50E-02	0.00E+00	1.00E-02
Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.23E-01	7.88E-03	409.34	617.20	8501	0.00E+00	2.00E+00	0.00E+00	5.71E-01
2-Hexanone	1.35E-02	8.08E-02	9.80E-06	1.80E+04	7.18E-02	1.75E-03	400.60	587.00	8736	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4-Methyl-2-Pentanone	1.34E+02	7.50E-02	7.80E-06	1.90E+04	5.74E-03	1.40E-04	400.60	587.00	8736	0.00E+00	8.10E-02	0.00E+00	2.31E-02
Methyl tert-Butyl Ether	1.17E+01	8.10E-02	9.41E-05	4.80E+04	2.41E-02	5.87E-04	328.00	497.00	6678	2.60E-07	8.00E+00	9.10E-04	2.29E+00
Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.83E-04	491.14	748.40	10373	0.00E+00	9.00E-03	0.00E+00	2.57E-03
Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.13E-01	2.76E-03	418.31	636.00	8737	0.00E+00	9.00E-01	0.00E+00	2.57E-01
Tetrachloroethene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.54E-01	1.84E-02	394.40	620.20	8288	5.90E-06	3.50E-02	2.07E-02	1.00E-02
Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.63E-03	383.78	591.79	7930	0.00E+00	3.00E-01	0.00E+00	8.57E-02
1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.05E-01	1.72E-02	347.24	545.00	7136	0.00E+00	1.00E+00	0.00E+00	2.86E-01
Trichloroethene	1.66E+02	7.90E-02	9.10E-06	1.10E+03	4.22E-01	1.03E-02	360.36	544.20	7505	2.00E-06	6.00E-01	7.00E-03	1.71E-01
Vinyl Acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.10E-02	5.12E-04	345.65	519.13	7800	0.00E+00	2.00E-01	0.00E+00	5.71E-02
Xylenes (total)**	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.13E-01	5.20E-03	417.60	630.30	8661	0.00E+00	7.00E-01	0.00E+00	2.00E-01

Notes:

NA denotes Not Available

** Henry's law constant for chloroethane not corrected for temperature.*

*** Properties for total xylenes represented by o-xylene*

Table C1-6
Johnson and Ettinger - Maximum Estimated Cancer Risks and Hazard Quotients for Volatile Organic Compounds in Parcel 181 - Current Residents*

Chemical	Concentration (µg/m3)	Cancer Risk	Hazard Quotient
Acetone	180	NC	5.5E-06
2-Butanone	28	NC	2.9E-07
Benzene	13	1.6E-09	2.2E-06
Chlorobenzene	ND	NC	ND
Chloroethane	ND	ND	ND
Chloroform	35	8.2E-10	1.2E-06
1,1-Dichloroethane	ND	ND	ND
1,1-Dichloroethene	3.9	NC	5.6E-07
cis-1,2-Dichloroethene	4	NC	1.1E-06
Ethylbenzene	86	NC	4.2E-07
2-Hexanone	4.1	NC	NA
4-Methyl-2-Pentanone	12	NC	1.5E-06
Methyl tert-Butyl Ether	77	8.8E-11	9.9E-08
Naphthalene	54	NC	5.7E-05
Styrene	2.9	NC	3.2E-08
Tetrachloroethene	22	5.5E-10	6.2E-06
Toluene	230	NC	7.7E-06
1,1,1-Trichloroethane	ND	NC	ND
Trichloroethene	ND	ND	ND
Vinyl Acetate	26	NC	1.3E-06
Xylenes (total)	430	NC	6.2E-06
Total		3.1E-09	0.00009

** Soil gas measurements assumed to be taken at 2 feet below ground surface*

mg denotes microgram
m3 denotes cubic meter
ND denotes not detected in Parcel 181
NC denotes no cancer potency factor listed

Table C1-7
Johnson and Ettinger - Maximum Estimated Cancer Risks and Hazard Quotients for Volatile Organic Compounds in Parcel 181 - Future Residents*

Chemical	Concentration (µg/m3)	Cancer Risk	Hazard Quotient
Acetone	180	NC	2.8E-05
2-Butanone	28	NC	1.5E-06
Benzene	13	8.2E-09	1.1E-05
Chlorobenzene	ND	NC	ND
Chloroethane	ND	ND	ND
Chloroform	35	4.1E-09	6.0E-06
1,1-Dichloroethane	ND	ND	ND
1,1-Dichloroethene	3.9	NC	2.8E-06
cis-1,2-Dichloroethene	4	NC	5.6E-06
Ethylbenzene	86	NC	2.1E-06
2-Hexanone	4.1	NC	NA
4-Methyl-2-Pentanone	12	NC	7.4E-06
Methyl tert-Butyl Ether	77	4.4E-10	5.0E-07
Naphthalene	54	NC	2.9E-04
Styrene	2.9	NC	1.6E-07
Tetrachloroethene	22	2.7E-09	3.1E-05
Toluene	230	NC	3.9E-05
1,1,1-Trichloroethane	ND	NC	ND
Trichloroethene	ND	ND	ND
Vinyl Acetate	26	NC	6.6E-06
Xylenes (total)	430	NC	3.1E-05
Total		1.5E-08	4.6E-04

** Soil gas measurements assumed to be taken at 2 feet below ground surface*

mg denotes microgram
m3 denotes cubic meter
ND denotes not detected in Parcel 181
NC denotes no cancer potency factor listed

Table C1-8
Johnson and Ettinger - Maximum Estimated Cancer Risks and Hazard Quotients for Volatile Organic Compounds in Offsite Properties - Future Residents*

Chemical	Concentration (µg/m3)	Cancer Risk	Hazard Quotient
Acetone	310	NC	4.8E-05
2-Butanone	240	NC	1.3E-05
Benzene	20	1.3E-08	1.7E-05
Chlorobenzene	28	NC	1.4E-06
Chloroethane	5.2	9.5E-11	8.9E-09
Chloroform	92	1.1E-08	1.6E-05
1,1-Dichloroethane	38	1.3E-09	3.7E-06
1,1-Dichloroethene	ND	NC	ND
cis-1,2-Dichloroethene	19	NC	2.7E-05
Ethylbenzene	390	NC	9.6E-06
2-Hexanone	29	NC	NA
4-Methyl-2-Pentanone	78	NC	4.8E-05
Methyl tert-Butyl Ether	170	9.8E-10	1.1E-06
Naphthalene	180	NC	9.6E-04
Styrene	7.2	NC	3.9E-07
Tetrachloroethene	86	1.1E-08	1.2E-04
Toluene	300	NC	5.0E-05
1,1,1-Trichloroethane	27	NC	1.3E-06
Trichloroethene	130	5.5E-09	1.1E-05
Vinyl Acetate	76	NC	1.9E-05
Xylenes (total)	2810	NC	2.0E-04

mg denotes microgram
m3 denotes cubic meter
ND denotes not detected in Parcel 181
NC denotes no cancer potency factor listed

** Soil gas measurements assumed to be taken at 2 feet below ground surface*

Table C2-1
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 1 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$6.6x10^{-11}$	$4.3x10^{-7}$	$2.3x10^{-7}$	**$6.6x10^{-7}$**	$1.5x10^{-10}$	$4.0x10^{-6}$	$1.5x10^{-6}$	**$5.5x10^{-6}$**
Acenaphthylene	$1.5x10^{-8}$	$4.2x10^{-6}$	$2.2x10^{-6}$	**$6.4x10^{-6}$**	$3.5x10^{-8}$	$3.9x10^{-5}$	$1.4x10^{-5}$	**$5.3x10^{-5}$**
Anthracene	$3.8x10^{-11}$	$2.5x10^{-7}$	$1.3x10^{-7}$	**$3.8x10^{-7}$**	$8.9x10^{-11}$	$2.4x10^{-6}$	$8.6x10^{-7}$	**$3.2x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.7x10^{-7}$	$4.8x10^{-5}$	$2.5x10^{-5}$	**$7.3x10^{-5}$**	$4.0x10^{-7}$	$4.5x10^{-4}$	$1.6x10^{-4}$	**$6.1x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.4x10^{-8}$	$9.3x10^{-5}$	$4.8x10^{-5}$	**$1.4x10^{-4}$**	$3.3x10^{-8}$	$8.7x10^{-4}$	$3.2x10^{-4}$	**$1.2x10^{-3}$**
Fluorene	$4.1x10^{-10}$	$2.7x10^{-6}$	$1.4x10^{-6}$	**$4.1x10^{-6}$**	$9.5x10^{-10}$	$2.5x10^{-5}$	$9.1x10^{-6}$	**$3.4x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$4.4x10^{-9}$	$1.2x10^{-6}$	$6.4x10^{-7}$	**$1.9x10^{-6}$**	$1.0x10^{-8}$	$1.2x10^{-5}$	$4.2x10^{-6}$	**$1.6x10^{-5}$**
Phenanthrene	$1.1x10^{-7}$	$3.1x10^{-5}$	$1.6x10^{-5}$	**$4.7x10^{-5}$**	$2.6x10^{-7}$	$2.9x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Pyrene	$1.1x10^{-8}$	$7.3x10^{-5}$	$3.8x10^{-5}$	**$1.1x10^{-4}$**	$2.6x10^{-8}$	$6.8x10^{-4}$	$2.5x10^{-4}$	**$9.2x10^{-4}$**
Total	$3.3x10^{-7}$	$2.5x10^{-4}$	$1.3x10^{-4}$	**$3.9x10^{-4}$**	$7.6x10^{-7}$	$2.4x10^{-3}$	$8.6x10^{-4}$	**$3.2x10^{-3}$**

NA denotes not available.

Table C2-2
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 2 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.5x10^{-10}$	$3.0x10^{-6}$	$1.5x10^{-6}$	**$4.5x10^{-6}$**	$1.1x10^{-9}$	$2.8x10^{-5}$	$1.0x10^{-5}$	**$3.8x10^{-5}$**
Acenaphthylene	$1.6x10^{-7}$	$4.6x10^{-5}$	$2.4x10^{-5}$	**$7.0x10^{-5}$**	$3.8x10^{-7}$	$4.3x10^{-4}$	$1.6x10^{-4}$	**$5.8x10^{-4}$**
Anthracene	$7.5x10^{-11}$	$5.0x10^{-7}$	$2.6x10^{-7}$	**$7.5x10^{-7}$**	$1.8x10^{-10}$	$4.6x10^{-6}$	$1.7x10^{-6}$	**$6.3x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.0x10^{-7}$	$8.5x10^{-5}$	$4.4x10^{-5}$	**$1.3x10^{-4}$**	$7.1x10^{-7}$	$8.0x10^{-4}$	$2.9x10^{-4}$	**$1.1x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.0x10^{-8}$	$1.3x10^{-4}$	$6.9x10^{-5}$	**$2.0x10^{-4}$**	$4.7x10^{-8}$	$1.2x10^{-3}$	$4.5x10^{-4}$	**$1.7x10^{-3}$**
Fluorene	$5.7x10^{-10}$	$3.7x10^{-6}$	$1.9x10^{-6}$	**$5.7x10^{-6}$**	$1.3x10^{-9}$	$3.5x10^{-5}$	$1.3x10^{-5}$	**$4.8x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.7x10^{-8}$	$7.5x10^{-6}$	$3.9x10^{-6}$	**$1.1x10^{-5}$**	$6.2x10^{-8}$	$7.0x10^{-5}$	$2.6x10^{-5}$	**$9.6x10^{-5}$**
Phenanthrene	$2.2x10^{-7}$	$6.2x10^{-5}$	$3.2x10^{-5}$	**$9.4x10^{-5}$**	$5.1x10^{-7}$	$5.8x10^{-4}$	$2.1x10^{-4}$	**$7.9x10^{-4}$**
Pyrene	$2.1x10^{-8}$	$1.4x10^{-4}$	$7.1x10^{-5}$	**$2.1x10^{-4}$**	$4.8x10^{-8}$	$1.3x10^{-3}$	$4.6x10^{-4}$	**$1.7x10^{-3}$**
Total	$7.5x10^{-7}$	$4.8x10^{-4}$	$2.5x10^{-4}$	**$7.3x10^{-4}$**	$1.8x10^{-6}$	$4.5x10^{-3}$	$1.6x10^{-3}$	**$6.1x10^{-3}$**

NA denotes not available.

Table C2-3
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 3 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$7.7x10^{-10}$	$5.1x10^{-6}$	$2.6x10^{-6}$	**$7.7x10^{-6}$**	$1.8x10^{-9}$	$4.7x10^{-5}$	$1.7x10^{-5}$	**$6.5x10^{-5}$**
Acenaphthylene	$2.9x10^{-8}$	$8.2x10^{-6}$	$4.3x10^{-6}$	**$1.3x10^{-5}$**	$6.8x10^{-8}$	$7.7x10^{-5}$	$2.8x10^{-5}$	**$1.0x10^{-4}$**
Anthracene	$7.6x10^{-11}$	$5.0x10^{-7}$	$2.6x10^{-7}$	**$7.6x10^{-7}$**	$1.8x10^{-10}$	$4.7x10^{-6}$	$1.7x10^{-6}$	**$6.4x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.5x10^{-7}$	$4.3x10^{-5}$	$2.2x10^{-5}$	**$6.5x10^{-5}$**	$3.5x10^{-7}$	$4.0x10^{-4}$	$1.4x10^{-4}$	**$5.4x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.3x10^{-9}$	$4.2x10^{-5}$	$2.2x10^{-5}$	**$6.3x10^{-5}$**	$1.5x10^{-8}$	$3.9x10^{-4}$	$1.4x10^{-4}$	**$5.3x10^{-4}$**
Fluorene	$2.0x10^{-9}$	$1.3x10^{-5}$	$6.7x10^{-6}$	**$2.0x10^{-5}$**	$4.6x10^{-9}$	$1.2x10^{-4}$	$4.4x10^{-5}$	**$1.6x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$8.0x10^{-9}$	$2.3x10^{-6}$	$1.2x10^{-6}$	**$3.4x10^{-6}$**	$1.9x10^{-8}$	$2.1x10^{-5}$	$7.7x10^{-6}$	**$2.9x10^{-5}$**
Phenanthrene	$6.8x10^{-8}$	$1.9x10^{-5}$	$9.9x10^{-6}$	**$2.9x10^{-5}$**	$1.6x10^{-7}$	$1.8x10^{-4}$	$6.5x10^{-5}$	**$2.4x10^{-4}$**
Pyrene	$1.4x10^{-8}$	$9.0x10^{-5}$	$4.6x10^{-5}$	**$1.4x10^{-4}$**	$3.2x10^{-8}$	$8.4x10^{-4}$	$3.0x10^{-4}$	**$1.1x10^{-3}$**
Total	$2.8x10^{-7}$	$2.2x10^{-4}$	$1.2x10^{-4}$	**$3.4x10^{-4}$**	$6.5x10^{-7}$	$2.1x10^{-3}$	$7.5x10^{-4}$	**$2.8x10^{-3}$**

NA denotes not available.

Table C2-4
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 4 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-9}$	$3.2x10^{-5}$	$1.7x10^{-5}$	**$4.9x10^{-5}$**	$1.1x10^{-8}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Acenaphthylene	$2.7x10^{-7}$	$7.5x10^{-5}$	$3.9x10^{-5}$	**$1.1x10^{-4}$**	$6.2x10^{-7}$	$7.0x10^{-4}$	$2.6x10^{-4}$	**$9.6x10^{-4}$**
Anthracene	$1.5x10^{-10}$	$1.0x10^{-6}$	$5.2x10^{-7}$	**$1.5x10^{-6}$**	$3.6x10^{-10}$	$9.3x10^{-6}$	$3.4x10^{-6}$	**$1.3x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$4.2x10^{-7}$	$1.2x10^{-4}$	$6.1x10^{-5}$	**$1.8x10^{-4}$**	$9.8x10^{-7}$	$1.1x10^{-3}$	$4.0x10^{-4}$	**$1.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.4x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.4x10^{-4}$**	$5.7x10^{-8}$	$1.5x10^{-3}$	$5.5x10^{-4}$	**$2.0x10^{-3}$**
Fluorene	$8.1x10^{-10}$	$5.4x10^{-6}$	$2.8x10^{-6}$	**$8.1x10^{-6}$**	$1.9x10^{-9}$	$5.0x10^{-5}$	$1.8x10^{-5}$	**$6.8x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$3.4x10^{-7}$	$9.6x10^{-5}$	$5.0x10^{-5}$	**$1.5x10^{-4}$**	$8.0x10^{-7}$	$9.0x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Phenanthrene	$2.6x10^{-7}$	$7.3x10^{-5}$	$3.8x10^{-5}$	**$1.1x10^{-4}$**	$6.0x10^{-7}$	$6.8x10^{-4}$	$2.5x10^{-4}$	**$9.3x10^{-4}$**
Pyrene	$2.5x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.5x10^{-4}$**	$5.8x10^{-8}$	$1.5x10^{-3}$	$5.5x10^{-4}$	**$2.1x10^{-3}$**
Total	$1.3x10^{-6}$	$7.2x10^{-4}$	$3.8x10^{-4}$	**$1.1x10^{-3}$**	$3.1x10^{-6}$	$6.8x10^{-3}$	$2.5x10^{-3}$	**$9.2x10^{-3}$**

NA denotes not available.

Table C2-5
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 5 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-9}$	$3.2x10^{-5}$	$1.7x10^{-5}$	**$4.9x10^{-5}$**	$1.1x10^{-8}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Acenaphthylene	$2.7x10^{-7}$	$7.5x10^{-5}$	$3.9x10^{-5}$	**$1.1x10^{-4}$**	$6.2x10^{-7}$	$7.0x10^{-4}$	$2.6x10^{-4}$	**$9.6x10^{-4}$**
Anthracene	$1.5x10^{-10}$	$1.0x10^{-6}$	$5.2x10^{-7}$	**$1.5x10^{-6}$**	$3.6x10^{-10}$	$9.3x10^{-6}$	$3.4x10^{-6}$	**$1.3x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$4.2x10^{-7}$	$1.2x10^{-4}$	$6.1x10^{-5}$	**$1.8x10^{-4}$**	$9.8x10^{-7}$	$1.1x10^{-3}$	$4.0x10^{-4}$	**$1.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.4x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.4x10^{-4}$**	$5.7x10^{-8}$	$1.5x10^{-3}$	$5.5x10^{-4}$	**$2.0x10^{-3}$**
Fluorene	$8.1x10^{-10}$	$5.4x10^{-6}$	$2.8x10^{-6}$	**$8.1x10^{-6}$**	$1.9x10^{-9}$	$5.0x10^{-5}$	$1.8x10^{-5}$	**$6.8x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$3.4x10^{-7}$	$9.6x10^{-5}$	$5.0x10^{-5}$	**$1.5x10^{-4}$**	$8.0x10^{-7}$	$9.0x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Phenanthrene	$2.6x10^{-7}$	$7.3x10^{-5}$	$3.8x10^{-5}$	**$1.1x10^{-4}$**	$6.0x10^{-7}$	$6.8x10^{-4}$	$2.5x10^{-4}$	**$9.3x10^{-4}$**
Pyrene	$2.5x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.5x10^{-4}$**	$5.8x10^{-8}$	$1.5x10^{-3}$	$5.5x10^{-4}$	**$2.1x10^{-3}$**
Total	$1.3x10^{-6}$	$7.2x10^{-4}$	$3.8x10^{-4}$	**$1.1x10^{-3}$**	$3.1x10^{-6}$	$6.8x10^{-3}$	$2.5x10^{-3}$	**$9.2x10^{-3}$**

NA denotes not available.

Table C2-6
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 6 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.1x10^{-10}$	$7.1x10^{-7}$	$3.7x10^{-7}$	**$1.1x10^{-6}$**	$2.5x10^{-10}$	$6.6x10^{-6}$	$2.4x10^{-6}$	**$9.0x10^{-6}$**
Acenaphthylene	$2.0x10^{-8}$	$5.6x10^{-6}$	$2.9x10^{-6}$	**$8.5x10^{-6}$**	$4.6x10^{-8}$	$5.2x10^{-5}$	$1.9x10^{-5}$	**$7.2x10^{-5}$**
Anthracene	$7.7x10^{-11}$	$5.0x10^{-7}$	$2.6x10^{-7}$	**$7.7x10^{-7}$**	$1.8x10^{-10}$	$4.7x10^{-6}$	$1.7x10^{-6}$	**$6.4x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$2.4x10^{-7}$	$6.7x10^{-5}$	$3.5x10^{-5}$	**$1.0x10^{-4}$**	$5.5x10^{-7}$	$6.2x10^{-4}$	$2.3x10^{-4}$	**$8.5x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.0x10^{-8}$	$6.6x10^{-5}$	$3.4x10^{-5}$	**$1.0x10^{-4}$**	$2.4x10^{-8}$	$6.2x10^{-4}$	$2.3x10^{-4}$	**$8.4x10^{-4}$**
Fluorene	$2.3x10^{-10}$	$1.5x10^{-6}$	$8.0x10^{-7}$	**$2.3x10^{-6}$**	$5.5x10^{-10}$	$1.4x10^{-5}$	$5.2x10^{-6}$	**$2.0x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$7.5x10^{-9}$	$2.1x10^{-6}$	$1.1x10^{-6}$	**$3.2x10^{-6}$**	$1.8x10^{-8}$	$2.0x10^{-5}$	$7.2x10^{-6}$	**$2.7x10^{-5}$**
Phenanthrene	$1.7x10^{-7}$	$4.7x10^{-5}$	$2.4x10^{-5}$	**$7.1x10^{-5}$**	$3.9x10^{-7}$	$4.4x10^{-4}$	$1.6x10^{-4}$	**$5.9x10^{-4}$**
Pyrene	$1.2x10^{-8}$	$7.9x10^{-5}$	$4.1x10^{-5}$	**$1.2x10^{-4}$**	$2.8x10^{-8}$	$7.4x10^{-4}$	$2.7x10^{-4}$	**$1.0x10^{-3}$**
Total	$4.5x10^{-7}$	$2.7x10^{-4}$	$1.4x10^{-4}$	**$4.1x10^{-4}$**	$1.1x10^{-6}$	$2.5x10^{-3}$	$9.2x10^{-4}$	**$3.4x10^{-3}$**

NA denotes not available.

Table C2-7
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 0.5 feet) - Exposure Area 7 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.1x10^{-8}$	$1.4x10^{-4}$	$7.1x10^{-5}$	**$2.1x10^{-4}$**	$4.8x10^{-8}$	$1.3x10^{-3}$	$4.6x10^{-4}$	**$1.7x10^{-3}$**
Acenaphthylene	$2.1x10^{-7}$	$6.0x10^{-5}$	$3.1x10^{-5}$	**$9.1x10^{-5}$**	$4.9x10^{-7}$	$5.6x10^{-4}$	$2.0x10^{-4}$	**$7.6x10^{-4}$**
Anthracene	$1.3x10^{-9}$	$8.8x10^{-6}$	$4.6x10^{-6}$	**$1.3x10^{-5}$**	$3.1x10^{-9}$	$8.3x10^{-5}$	$3.0x10^{-5}$	**$1.1x10^{-4}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.0x10^{-4}$	$1.6x10^{-4}$	**$4.6x10^{-4}$**	$2.5x10^{-6}$	$2.8x10^{-3}$	$1.0x10^{-3}$	**$3.8x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.2x10^{-7}$	$8.2x10^{-4}$	$4.2x10^{-4}$	**$1.2x10^{-3}$**	$2.9x10^{-7}$	$7.6x10^{-3}$	$2.8x10^{-3}$	**$1.0x10^{-2}$**
Fluorene	$2.9x10^{-9}$	$1.9x10^{-5}$	$9.7x10^{-6}$	**$2.9x10^{-5}$**	$6.7x10^{-9}$	$1.8x10^{-4}$	$6.4x10^{-5}$	**$2.4x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.5x10^{-6}$	$4.1x10^{-4}$	$2.1x10^{-4}$	**$6.3x10^{-4}$**	$3.4x10^{-6}$	$3.9x10^{-3}$	$1.4x10^{-3}$	**$5.3x10^{-3}$**
Phenanthrene	$2.0x10^{-6}$	$5.6x10^{-4}$	$2.9x10^{-4}$	**$8.5x10^{-4}$**	$4.6x10^{-6}$	$5.2x10^{-3}$	$1.9x10^{-3}$	**$7.1x10^{-3}$**
Pyrene	$8.9x10^{-8}$	$5.8x10^{-4}$	$3.0x10^{-4}$	**$8.9x10^{-4}$**	$2.1x10^{-7}$	$5.4x10^{-3}$	$2.0x10^{-3}$	**$7.4x10^{-3}$**
Total	$5.0x10^{-6}$	$2.9x10^{-3}$	$1.5x10^{-3}$	**$4.4x10^{-3}$**	$1.2x10^{-5}$	$2.7x10^{-2}$	$9.8x10^{-3}$	**$3.7x10^{-2}$**

NA denotes not available.

Table C2-8
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 1 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$5.0x10^{-11}$	$3.3x10^{-7}$	$1.7x10^{-7}$	**$5.0x10^{-7}$**	$1.2x10^{-10}$	$3.1x10^{-6}$	$1.1x10^{-6}$	**$4.2x10^{-6}$**
Acenaphthylene	$1.6x10^{-8}$	$4.4x10^{-6}$	$2.3x10^{-6}$	**$6.7x10^{-6}$**	$3.7x10^{-8}$	$4.1x10^{-5}$	$1.5x10^{-5}$	**$5.6x10^{-5}$**
Anthracene	$2.4x10^{-11}$	$1.5x10^{-7}$	$8.0x10^{-8}$	**$2.4x10^{-7}$**	$5.5x10^{-11}$	$1.4x10^{-6}$	$5.3x10^{-7}$	**$2.0x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.0x10^{-8}$	$1.7x10^{-5}$	$8.8x10^{-6}$	**$2.6x10^{-5}$**	$1.4x10^{-7}$	$1.6x10^{-4}$	$5.7x10^{-5}$	**$2.2x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.7x10^{-9}$	$3.1x10^{-5}$	$1.6x10^{-5}$	**$4.7x10^{-5}$**	$1.1x10^{-8}$	$2.9x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Fluorene	$1.1x10^{-10}$	$7.6x10^{-7}$	$3.9x10^{-7}$	**$1.1x10^{-6}$**	$2.7x10^{-10}$	$7.1x10^{-6}$	$2.6x10^{-6}$	**$9.6x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.2x10^{-8}$	$6.3x10^{-6}$	$3.3x10^{-6}$	**$9.6x10^{-6}$**	$5.2x10^{-8}$	$5.9x10^{-5}$	$2.1x10^{-5}$	**$8.1x10^{-5}$**
Phenanthrene	$6.5x10^{-8}$	$1.8x10^{-5}$	$9.5x10^{-6}$	**$2.8x10^{-5}$**	$1.5x10^{-7}$	$1.7x10^{-4}$	$6.2x10^{-5}$	**$2.3x10^{-4}$**
Pyrene	$4.0x10^{-9}$	$2.7x10^{-5}$	$1.4x10^{-5}$	**$4.0x10^{-5}$**	$9.4x10^{-9}$	$2.5x10^{-4}$	$9.0x10^{-5}$	**$3.4x10^{-4}$**
Total	$1.7x10^{-7}$	$1.0x10^{-4}$	$5.4x10^{-5}$	**$1.6x10^{-4}$**	$4.0x10^{-7}$	$9.8x10^{-4}$	$3.6x10^{-4}$	**$1.3x10^{-3}$**

NA denotes not available.

Table C2-9
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 2 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.6x10^{-10}$	$3.0x10^{-6}$	$1.6x10^{-6}$	**$4.6x10^{-6}$**	$1.1x10^{-9}$	$2.8x10^{-5}$	$1.0x10^{-5}$	**$3.9x10^{-5}$**
Acenaphthylene	$8.6x10^{-8}$	$2.4x10^{-5}$	$1.3x10^{-5}$	**$3.7x10^{-5}$**	$2.0x10^{-7}$	$2.3x10^{-4}$	$8.3x10^{-5}$	**$3.1x10^{-4}$**
Anthracene	$7.9x10^{-11}$	$5.2x10^{-7}$	$2.7x10^{-7}$	**$7.8x10^{-7}$**	$1.8x10^{-10}$	$4.8x10^{-6}$	$1.8x10^{-6}$	**$6.6x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$2.7x10^{-7}$	$7.6x10^{-5}$	$3.9x10^{-5}$	**$1.2x10^{-4}$**	$6.3x10^{-7}$	$7.1x10^{-4}$	$2.6x10^{-4}$	**$9.7x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.8x10^{-8}$	$1.2x10^{-4}$	$6.0x10^{-5}$	**$1.8x10^{-4}$**	$4.1x10^{-8}$	$1.1x10^{-3}$	$4.0x10^{-4}$	**$1.5x10^{-3}$**
Fluorene	$3.2x10^{-10}$	$2.1x10^{-6}$	$1.1x10^{-6}$	**$3.2x10^{-6}$**	$7.6x10^{-10}$	$2.0x10^{-5}$	$7.2x10^{-6}$	**$2.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.5x10^{-8}$	$4.2x10^{-6}$	$2.2x10^{-6}$	**$6.4x10^{-6}$**	$3.5x10^{-8}$	$3.9x10^{-5}$	$1.4x10^{-5}$	**$5.3x10^{-5}$**
Phenanthrene	$3.0x10^{-7}$	$8.6x10^{-5}$	$4.4x10^{-5}$	**$1.3x10^{-4}$**	$7.1x10^{-7}$	$8.0x10^{-4}$	$2.9x10^{-4}$	**$1.1x10^{-3}$**
Pyrene	$1.8x10^{-8}$	$1.2x10^{-4}$	$6.1x10^{-5}$	**$1.8x10^{-4}$**	$4.1x10^{-8}$	$1.1x10^{-3}$	$4.0x10^{-4}$	**$1.5x10^{-3}$**
Total	$7.1x10^{-7}$	$4.3x10^{-4}$	$2.2x10^{-4}$	**$6.5x10^{-4}$**	$1.7x10^{-6}$	$4.0x10^{-3}$	$1.5x10^{-3}$	**$5.5x10^{-3}$**

NA denotes not available.

Table C2-10
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 3 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$9.4x10^{-11}$	$6.2x10^{-7}$	$3.2x10^{-7}$	**$9.4x10^{-7}$**	$2.2x10^{-10}$	$5.8x10^{-6}$	$2.1x10^{-6}$	**$7.8x10^{-6}$**
Acenaphthylene	$1.6x10^{-8}$	$4.6x10^{-6}$	$2.4x10^{-6}$	**$7.0x10^{-6}$**	$3.8x10^{-8}$	$4.3x10^{-5}$	$1.6x10^{-5}$	**$5.8x10^{-5}$**
Anthracene	$6.7x10^{-11}$	$4.4x10^{-7}$	$2.3x10^{-7}$	**$6.7x10^{-7}$**	$1.6x10^{-10}$	$4.1x10^{-6}$	$1.5x10^{-6}$	**$5.6x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.3x10^{-7}$	$3.6x10^{-5}$	$1.9x10^{-5}$	**$5.4x10^{-5}$**	$3.0x10^{-7}$	$3.3x10^{-4}$	$1.2x10^{-4}$	**$4.5x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.1x10^{-9}$	$4.0x10^{-5}$	$2.1x10^{-5}$	**$6.1x10^{-5}$**	$1.4x10^{-8}$	$3.8x10^{-4}$	$1.4x10^{-4}$	**$5.1x10^{-4}$**
Fluorene	$2.1x10^{-10}$	$1.4x10^{-6}$	$7.1x10^{-7}$	**$2.1x10^{-6}$**	$4.8x10^{-10}$	$1.3x10^{-5}$	$4.6x10^{-6}$	**$1.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$6.7x10^{-9}$	$1.9x10^{-6}$	$9.9x10^{-7}$	**$2.9x10^{-6}$**	$1.6x10^{-8}$	$1.8x10^{-5}$	$6.5x10^{-6}$	**$2.4x10^{-5}$**
Phenanthrene	$1.2x10^{-7}$	$3.5x10^{-5}$	$1.8x10^{-5}$	**$5.3x10^{-5}$**	$2.9x10^{-7}$	$3.2x10^{-4}$	$1.2x10^{-4}$	**$4.4x10^{-4}$**
Pyrene	$9.9x10^{-9}$	$6.5x10^{-5}$	$3.4x10^{-5}$	**$9.9x10^{-5}$**	$2.3x10^{-8}$	$6.1x10^{-4}$	$2.2x10^{-4}$	**$8.3x10^{-4}$**
Total	$2.9x10^{-7}$	$1.9x10^{-4}$	$9.6x10^{-5}$	**$2.8x10^{-4}$**	$6.8x10^{-7}$	$1.7x10^{-3}$	$6.3x10^{-4}$	**$2.4x10^{-3}$**

NA denotes not available.

Table C2-11
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 4 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$9.4x10^{-11}$	$6.2x10^{-7}$	$3.2x10^{-7}$	**$9.4x10^{-7}$**	$2.2x10^{-10}$	$5.8x10^{-6}$	$2.1x10^{-6}$	**$7.8x10^{-6}$**
Acenaphthylene	$1.6x10^{-8}$	$4.6x10^{-6}$	$2.4x10^{-6}$	**$7.0x10^{-6}$**	$3.8x10^{-8}$	$4.3x10^{-5}$	$1.6x10^{-5}$	**$5.8x10^{-5}$**
Anthracene	$6.7x10^{-11}$	$4.4x10^{-7}$	$2.3x10^{-7}$	**$6.7x10^{-7}$**	$1.6x10^{-10}$	$4.1x10^{-6}$	$1.5x10^{-6}$	**$5.6x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.3x10^{-7}$	$3.6x10^{-5}$	$1.9x10^{-5}$	**$5.4x10^{-5}$**	$3.0x10^{-7}$	$3.3x10^{-4}$	$1.2x10^{-4}$	**$4.5x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.1x10^{-9}$	$4.0x10^{-5}$	$2.1x10^{-5}$	**$6.1x10^{-5}$**	$1.4x10^{-8}$	$3.8x10^{-4}$	$1.4x10^{-4}$	**$5.1x10^{-4}$**
Fluorene	$2.1x10^{-10}$	$1.4x10^{-6}$	$7.1x10^{-7}$	**$2.1x10^{-6}$**	$4.8x10^{-10}$	$1.3x10^{-5}$	$4.6x10^{-6}$	**$1.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$6.7x10^{-9}$	$1.9x10^{-6}$	$9.9x10^{-7}$	**$2.9x10^{-6}$**	$1.6x10^{-8}$	$1.8x10^{-5}$	$6.5x10^{-6}$	**$2.4x10^{-5}$**
Phenanthrene	$1.2x10^{-7}$	$3.5x10^{-5}$	$1.8x10^{-5}$	**$5.3x10^{-5}$**	$2.9x10^{-7}$	$3.2x10^{-4}$	$1.2x10^{-4}$	**$4.4x10^{-4}$**
Pyrene	$9.9x10^{-9}$	$6.5x10^{-5}$	$3.4x10^{-5}$	**$9.9x10^{-5}$**	$2.3x10^{-8}$	$6.1x10^{-4}$	$2.2x10^{-4}$	**$8.3x10^{-4}$**
Total	$2.9x10^{-7}$	$1.9x10^{-4}$	$9.6x10^{-5}$	**$2.8x10^{-4}$**	$6.8x10^{-7}$	$1.7x10^{-3}$	$6.3x10^{-4}$	**$2.4x10^{-3}$**

NA denotes not available.

Table C2-12
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 5 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$5.1x10^{-10}$	$3.3x10^{-6}$	$1.7x10^{-6}$	**$5.1x10^{-6}$**	$1.2x10^{-9}$	$3.1x10^{-6}$	$1.1x10^{-6}$	**$4.2x10^{-6}$**
Acenaphthylene	$1.7x10^{-7}$	$4.7x10^{-5}$	$2.5x10^{-5}$	**$7.2x10^{-5}$**	$3.9x10^{-7}$	$4.1x10^{-5}$	$1.5x10^{-5}$	**$5.7x10^{-5}$**
Anthracene	$3.2x10^{-10}$	$2.1x10^{-6}$	$1.1x10^{-6}$	**$3.2x10^{-6}$**	$7.4x10^{-10}$	$1.4x10^{-6}$	$5.3x10^{-7}$	**$2.0x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$5.1x10^{-7}$	$1.4x10^{-4}$	$7.5x10^{-5}$	**$2.2x10^{-4}$**	$1.2x10^{-6}$	$1.6x10^{-4}$	$5.7x10^{-5}$	**$2.2x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.8x10^{-8}$	$1.9x10^{-4}$	$9.7x10^{-5}$	**$2.8x10^{-4}$**	$6.6x10^{-8}$	$2.9x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Fluorene	$6.0x10^{-10}$	$4.0x10^{-6}$	$2.1x10^{-6}$	**$6.0x10^{-6}$**	$1.4x10^{-9}$	$7.1x10^{-6}$	$2.6x10^{-6}$	**$9.6x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.5x10^{-8}$	$7.1x10^{-6}$	$3.7x10^{-6}$	**$1.1x10^{-5}$**	$5.9x10^{-8}$	$5.9x10^{-5}$	$2.1x10^{-5}$	**$8.1x10^{-5}$**
Phenanthrene	$5.3x10^{-7}$	$1.5x10^{-4}$	$7.7x10^{-5}$	**$2.3x10^{-4}$**	$1.2x10^{-6}$	$1.7x10^{-4}$	$6.2x10^{-5}$	**$2.3x10^{-4}$**
Pyrene	$3.0x10^{-8}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$7.0x10^{-8}$	$2.5x10^{-4}$	$9.0x10^{-5}$	**$3.4x10^{-4}$**
Total	$1.3x10^{-6}$	$7.4x10^{-4}$	$3.8x10^{-4}$	**$1.1x10^{-3}$**	$3.0x10^{-6}$	$9.8x10^{-4}$	$3.6x10^{-4}$	**$1.3x10^{-3}$**

NA denotes not available.

Table C2-13
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 6 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.3x10^{-10}$	$1.5x10^{-6}$	$7.9x10^{-7}$	**$2.3x10^{-6}$**	$5.4x10^{-10}$	$1.4x10^{-5}$	$5.2x10^{-6}$	**$1.9x10^{-5}$**
Acenaphthylene	$5.1x10^{-8}$	$1.4x10^{-5}$	$7.5x10^{-6}$	**$2.2x10^{-5}$**	$1.2x10^{-7}$	$1.3x10^{-4}$	$4.9x10^{-5}$	**$1.8x10^{-4}$**
Anthracene	$1.1x10^{-10}$	$7.4x10^{-7}$	$3.8x10^{-7}$	**$1.1x10^{-6}$**	$2.6x10^{-10}$	$6.9x10^{-6}$	$2.5x10^{-6}$	**$9.4x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.3x10^{-7}$	$9.3x10^{-5}$	$4.8x10^{-5}$	**$1.4x10^{-4}$**	$7.7x10^{-7}$	$8.7x10^{-4}$	$3.2x10^{-4}$	**$1.2x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.5x10^{-8}$	$9.8x10^{-5}$	$5.1x10^{-5}$	**$1.5x10^{-4}$**	$3.5x10^{-8}$	$9.2x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Fluorene	$2.4x10^{-10}$	$1.6x10^{-6}$	$8.1x10^{-7}$	**$2.4x10^{-6}$**	$5.5x10^{-10}$	$1.4x10^{-5}$	$5.3x10^{-6}$	**$2.0x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.5x10^{-8}$	$4.2x10^{-6}$	$2.2x10^{-6}$	**$6.4x10^{-6}$**	$3.5x10^{-8}$	$3.9x10^{-5}$	$1.4x10^{-5}$	**$5.4x10^{-5}$**
Phenanthrene	$1.7x10^{-7}$	$4.8x10^{-5}$	$2.5x10^{-5}$	**$7.3x10^{-5}$**	$4.0x10^{-7}$	$4.5x10^{-4}$	$1.6x10^{-4}$	**$6.1x10^{-4}$**
Pyrene	$1.5x10^{-8}$	$9.8x10^{-5}$	$5.1x10^{-5}$	**$1.5x10^{-4}$**	$3.5x10^{-8}$	$9.2x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Total	$6.0x10^{-7}$	$3.6x10^{-4}$	$1.9x10^{-4}$	**$5.5x10^{-4}$**	$1.4x10^{-6}$	$3.4x10^{-3}$	$1.2x10^{-3}$	**$4.6x10^{-3}$**

NA denotes not available.

Table C2-14
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 2 feet) - Exposure Area 7 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$7.6x10^{-9}$	$5.0x10^{-5}$	$2.6x10^{-5}$	**$7.6x10^{-5}$**	$1.8x10^{-8}$	$4.7x10^{-4}$	$1.7x10^{-4}$	**$6.4x10^{-4}$**
Acenaphthylene	$1.5x10^{-7}$	$4.3x10^{-5}$	$2.2x10^{-5}$	**$6.6x10^{-5}$**	$3.6x10^{-7}$	$4.0x10^{-4}$	$1.5x10^{-4}$	**$5.5x10^{-4}$**
Anthracene	$1.1x10^{-9}$	$7.5x10^{-6}$	$3.9x10^{-6}$	**$1.1x10^{-5}$**	$2.7x10^{-9}$	$7.0x10^{-5}$	$2.6x10^{-5}$	**$9.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.1x10^{-4}$	$1.6x10^{-4}$	**$4.7x10^{-4}$**	$2.6x10^{-6}$	$2.9x10^{-3}$	$1.0x10^{-3}$	**$3.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$7.9x10^{-8}$	$5.2x10^{-4}$	$2.7x10^{-4}$	**$7.9x10^{-4}$**	$1.8x10^{-7}$	$4.8x10^{-3}$	$1.8x10^{-3}$	**$6.6x10^{-3}$**
Fluorene	$9.1x10^{-10}$	$6.0x10^{-6}$	$3.1x10^{-6}$	**$9.1x10^{-6}$**	$2.1x10^{-9}$	$5.6x10^{-5}$	$2.0x10^{-5}$	**$7.6x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$5.3x10^{-7}$	$1.5x10^{-4}$	$7.8x10^{-5}$	**$2.3x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-3}$	$5.1x10^{-4}$	**$1.9x10^{-3}$**
Phenanthrene	$1.2x10^{-6}$	$3.5x10^{-4}$	$1.8x10^{-4}$	**$5.3x10^{-4}$**	$2.9x10^{-6}$	$3.2x10^{-3}$	$1.2x10^{-3}$	**$4.4x10^{-3}$**
Pyrene	$7.1x10^{-8}$	$4.7x10^{-4}$	$2.4x10^{-4}$	**$7.1x10^{-4}$**	$1.7x10^{-7}$	$4.4x10^{-3}$	$1.6x10^{-3}$	**$6.0x10^{-3}$**
Total	$3.2x10^{-6}$	$1.9x10^{-3}$	$9.9x10^{-4}$	**$2.9x10^{-3}$**	$7.4x10^{-6}$	$1.8x10^{-2}$	$6.5x10^{-3}$	**$2.4x10^{-2}$**

NA denotes not available.

Table C2-15
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 1 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-11}$	$3.3x10^{-7}$	$1.7x10^{-7}$	**$4.9x10^{-7}$**	$1.2x10^{-10}$	$3.0x10^{-6}$	$1.1x10^{-6}$	**$4.1x10^{-6}$**
Acenaphthylene	$3.0x10^{-8}$	$8.5x10^{-6}$	$4.4x10^{-6}$	**$1.3x10^{-5}$**	$7.0x10^{-8}$	$7.9x10^{-5}$	$2.9x10^{-5}$	**$1.1x10^{-4}$**
Anthracene	$2.2x10^{-11}$	$1.4x10^{-7}$	$7.4x10^{-8}$	**$2.2x10^{-7}$**	$5.1x10^{-11}$	$1.3x10^{-6}$	$4.8x10^{-7}$	**$1.8x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.3x10^{-8}$	$1.8x10^{-5}$	$9.2x10^{-6}$	**$2.7x10^{-5}$**	$1.5x10^{-7}$	$1.7x10^{-4}$	$6.0x10^{-5}$	**$2.3x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.5x10^{-9}$	$3.0x10^{-5}$	$1.5x10^{-5}$	**$4.5x10^{-5}$**	$1.1x10^{-8}$	$2.8x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Fluorene	$1.1x10^{-10}$	$7.5x10^{-7}$	$3.9x10^{-7}$	**$1.1x10^{-6}$**	$2.7x10^{-10}$	$7.0x10^{-6}$	$2.6x10^{-6}$	**$9.6x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.4x10^{-8}$	$6.8x10^{-6}$	$3.5x10^{-6}$	**$1.0x10^{-5}$**	$5.6x10^{-8}$	$6.3x10^{-5}$	$2.3x10^{-5}$	**$8.6x10^{-5}$**
Phenanthrene	$5.5x10^{-8}$	$1.5x10^{-5}$	$8.0x10^{-6}$	**$2.3x10^{-5}$**	$1.3x10^{-7}$	$1.4x10^{-4}$	$5.2x10^{-5}$	**$2.0x10^{-4}$**
Pyrene	$4.0x10^{-9}$	$2.6x10^{-5}$	$1.4x10^{-5}$	**$4.0x10^{-5}$**	$9.2x10^{-9}$	$2.4x10^{-4}$	$8.8x10^{-5}$	**$3.3x10^{-4}$**
Total	$1.8x10^{-7}$	$1.1x10^{-4}$	$5.5x10^{-5}$	**$1.6x10^{-4}$**	$4.2x10^{-7}$	$9.8x10^{-4}$	$3.6x10^{-4}$	**$1.3x10^{-3}$**

NA denotes not available.

Table C2-16
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 2 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.3x10^{-9}$	$8.4x10^{-6}$	$4.4x10^{-6}$	**$1.3x10^{-5}$**	$3.0x10^{-9}$	$7.8x10^{-5}$	$2.9x10^{-5}$	**$1.1x10^{-4}$**
Acenaphthylene	$1.1x10^{-7}$	$3.2x10^{-5}$	$1.7x10^{-5}$	**$4.9x10^{-5}$**	$2.7x10^{-7}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Anthracene	$2.2x10^{-10}$	$1.5x10^{-6}$	$7.6x10^{-7}$	**$2.2x10^{-6}$**	$5.2x10^{-10}$	$1.4x10^{-5}$	$5.0x10^{-6}$	**$1.9x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.7x10^{-7}$	$1.9x10^{-4}$	$9.8x10^{-5}$	**$2.9x10^{-4}$**	$1.6x10^{-6}$	$1.8x10^{-3}$	$6.4x10^{-4}$	**$2.4x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.0x10^{-8}$	$2.7x10^{-4}$	$1.4x10^{-4}$	**$4.0x10^{-4}$**	$9.4x10^{-8}$	$2.5x10^{-3}$	$9.0x10^{-4}$	**$3.4x10^{-3}$**
Fluorene	$4.8x10^{-10}$	$3.2x10^{-6}$	$1.7x10^{-6}$	**$4.8x10^{-6}$**	$1.1x10^{-9}$	$3.0x10^{-5}$	$1.1x10^{-5}$	**$4.1x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$3.2x10^{-8}$	$9.0x10^{-6}$	$4.7x10^{-6}$	**$1.4x10^{-5}$**	$7.4x10^{-8}$	$8.4x10^{-5}$	$3.1x10^{-5}$	**$1.2x10^{-4}$**
Phenanthrene	$5.6x10^{-7}$	$1.6x10^{-4}$	$8.2x10^{-5}$	**$2.4x10^{-4}$**	$1.3x10^{-6}$	$1.5x10^{-3}$	$5.4x10^{-4}$	**$2.0x10^{-3}$**
Pyrene	$4.1x10^{-8}$	$2.7x10^{-4}$	$1.4x10^{-4}$	**$4.1x10^{-4}$**	$9.5x10^{-8}$	$2.5x10^{-3}$	$9.1x10^{-4}$	**$3.4x10^{-3}$**
Total	$1.5x10^{-6}$	$9.4x10^{-4}$	$4.9x10^{-4}$	**$1.4x10^{-3}$**	$3.4x10^{-6}$	$8.7x10^{-3}$	$3.2x10^{-3}$	**$1.2x10^{-2}$**

NA denotes not available.

Table C2-17
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 3 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$9.2x10^{-11}$	$6.1x10^{-7}$	$3.1x10^{-7}$	**$9.2x10^{-7}$**	$2.1x10^{-10}$	$5.6x10^{-6}$	$2.1x10^{-6}$	**$7.7x10^{-6}$**
Acenaphthylene	$1.3x10^{-8}$	$3.6x10^{-6}$	$1.9x10^{-6}$	**$5.6x10^{-6}$**	$3.0x10^{-8}$	$3.4x10^{-5}$	$1.2x10^{-5}$	**$4.6x10^{-5}$**
Anthracene	$8.0x10^{-11}$	$5.3x10^{-7}$	$2.7x10^{-7}$	**$8.0x10^{-7}$**	$1.9x10^{-10}$	$4.9x10^{-6}$	$1.8x10^{-6}$	**$6.7x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.0x10^{-7}$	$2.8x10^{-5}$	$1.5x10^{-5}$	**$4.3x10^{-5}$**	$2.4x10^{-7}$	$2.7x10^{-4}$	$9.7x10^{-5}$	**$3.6x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.4x10^{-9}$	$2.9x10^{-5}$	$1.5x10^{-5}$	**$4.4x10^{-5}$**	$1.0x10^{-8}$	$2.7x10^{-4}$	$9.9x10^{-5}$	**$3.7x10^{-4}$**
Fluorene	$2.3x10^{-10}$	$1.5x10^{-6}$	$8.0x10^{-7}$	**$2.3x10^{-6}$**	$5.4x10^{-10}$	$1.4x10^{-5}$	$5.2x10^{-6}$	**$2.0x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$8.3x10^{-9}$	$2.4x10^{-6}$	$1.2x10^{-6}$	**$3.6x10^{-6}$**	$1.9x10^{-8}$	$2.2x10^{-5}$	$8.0x10^{-6}$	**$3.0x10^{-5}$**
Phenanthrene	$8.2x10^{-8}$	$2.3x10^{-5}$	$1.2x10^{-5}$	**$3.5x10^{-5}$**	$1.9x10^{-7}$	$2.2x10^{-4}$	$7.8x10^{-5}$	**$2.9x10^{-4}$**
Pyrene	$7.6x10^{-9}$	$5.0x10^{-5}$	$2.6x10^{-5}$	**$7.6x10^{-5}$**	$1.8x10^{-8}$	$4.7x10^{-4}$	$1.7x10^{-4}$	**$6.4x10^{-4}$**
Total	$2.2x10^{-7}$	$1.4x10^{-4}$	$7.2x10^{-5}$	**$2.1x10^{-4}$**	$5.1x10^{-7}$	$1.3x10^{-3}$	$4.7x10^{-4}$	**$1.8x10^{-3}$**

NA denotes not available.

Table C2-18
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 4 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.3x10^{-10}$	$8.8x10^{-7}$	$4.5x10^{-7}$	**$1.3x10^{-6}$**	$3.1x10^{-10}$	$8.2x10^{-6}$	$3.0x10^{-6}$	**$1.1x10^{-5}$**
Acenaphthylene	$1.4x10^{-7}$	$3.9x10^{-5}$	$2.0x10^{-5}$	**$6.0x10^{-5}$**	$3.3x10^{-7}$	$3.7x10^{-4}$	$1.3x10^{-4}$	**$5.0x10^{-4}$**
Anthracene	$2.3x10^{-10}$	$1.5x10^{-6}$	$7.8x10^{-7}$	**$2.3x10^{-6}$**	$5.3x10^{-10}$	$1.4x10^{-5}$	$5.1x10^{-6}$	**$1.9x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$5.3x10^{-7}$	$1.5x10^{-4}$	$7.7x10^{-5}$	**$2.3x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-3}$	$5.1x10^{-4}$	**$1.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.0x10^{-8}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$7.0x10^{-8}$	$1.9x10^{-3}$	$6.7x10^{-4}$	**$2.5x10^{-3}$**
Fluorene	$5.0x10^{-10}$	$3.3x10^{-6}$	$1.7x10^{-6}$	**$5.0x10^{-6}$**	$1.2x10^{-9}$	$3.1x10^{-5}$	$1.1x10^{-5}$	**$4.2x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.1x10^{-8}$	$3.2x10^{-6}$	$1.6x10^{-6}$	**$4.8x10^{-6}$**	$2.6x10^{-8}$	$3.0x10^{-5}$	$1.1x10^{-5}$	**$4.0x10^{-5}$**
Phenanthrene	$3.6x10^{-7}$	$1.0x10^{-4}$	$5.2x10^{-5}$	**$1.5x10^{-4}$**	$8.3x10^{-7}$	$9.4x10^{-4}$	$3.4x10^{-4}$	**$1.3x10^{-3}$**
Pyrene	$3.4x10^{-8}$	$2.2x10^{-4}$	$1.2x10^{-4}$	**$3.4x10^{-4}$**	$7.9x10^{-8}$	$2.1x10^{-3}$	$7.6x10^{-4}$	**$2.8x10^{-3}$**
Total	$1.1x10^{-6}$	$7.2x10^{-4}$	$3.7x10^{-4}$	**$1.1x10^{-3}$**	$2.6x10^{-6}$	$6.7x10^{-3}$	$2.4x10^{-3}$	**$9.2x10^{-3}$**

NA denotes not available.

Table C2-19
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 5 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.3x10^{-9}$	$8.9x10^{-6}$	$4.6x10^{-6}$	**$1.3x10^{-5}$**	$3.1x10^{-9}$	$3.0x10^{-6}$	$1.1x10^{-6}$	**$4.1x10^{-6}$**
Acenaphthylene	$1.7x10^{-7}$	$4.9x10^{-5}$	$2.6x10^{-5}$	**$7.5x10^{-5}$**	$4.1x10^{-7}$	$7.9x10^{-5}$	$2.9x10^{-5}$	**$1.1x10^{-4}$**
Anthracene	$2.9x10^{-10}$	$1.9x10^{-6}$	$9.9x10^{-7}$	**$2.9x10^{-6}$**	$6.8x10^{-10}$	$1.3x10^{-6}$	$4.8x10^{-7}$	**$1.8x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.6x10^{-7}$	$1.9x10^{-4}$	$9.7x10^{-5}$	**$2.8x10^{-4}$**	$1.5x10^{-6}$	$1.7x10^{-4}$	$6.0x10^{-5}$	**$2.3x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.2x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.2x10^{-4}$**	$7.5x10^{-8}$	$2.8x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Fluorene	$6.2x10^{-10}$	$4.1x10^{-6}$	$2.1x10^{-6}$	**$6.2x10^{-6}$**	$1.4x10^{-9}$	$7.0x10^{-6}$	$2.6x10^{-6}$	**$9.6x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$7.0x10^{-8}$	$2.0x10^{-5}$	$1.0x10^{-5}$	**$3.0x10^{-5}$**	$1.6x10^{-7}$	$6.3x10^{-5}$	$2.3x10^{-5}$	**$8.6x10^{-5}$**
Phenanthrene	$5.1x10^{-7}$	$1.4x10^{-4}$	$7.4x10^{-5}$	**$2.2x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-4}$	$5.2x10^{-5}$	**$2.0x10^{-4}$**
Pyrene	$3.6x10^{-8}$	$2.4x10^{-4}$	$1.2x10^{-4}$	**$3.6x10^{-4}$**	$8.4x10^{-8}$	$2.4x10^{-4}$	$8.8x10^{-5}$	**$3.3x10^{-4}$**
Total	$1.5x10^{-6}$	$8.6x10^{-4}$	$4.5x10^{-4}$	**$1.3x10^{-3}$**	$3.5x10^{-6}$	$9.8x10^{-4}$	$3.6x10^{-4}$	**$1.3x10^{-3}$**

NA denotes not available.

Table C2-20
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 6 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$7.0x10^{-10}$	$4.6x10^{-6}$	$2.4x10^{-6}$	**$7.0x10^{-6}$**	$1.6x10^{-9}$	$4.3x10^{-5}$	$1.6x10^{-5}$	**$5.8x10^{-5}$**
Acenaphthylene	$9.4x10^{-8}$	$2.7x10^{-5}$	$1.4x10^{-5}$	**$4.1x10^{-5}$**	$2.2x10^{-7}$	$2.5x10^{-4}$	$9.0x10^{-5}$	**$3.4x10^{-4}$**
Anthracene	$1.9x10^{-10}$	$1.2x10^{-6}$	$6.4x10^{-7}$	**$1.9x10^{-6}$**	$4.4x10^{-10}$	$1.1x10^{-5}$	$4.2x10^{-6}$	**$1.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$5.2x10^{-7}$	$1.5x10^{-4}$	$7.6x10^{-5}$	**$2.2x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-3}$	$5.0x10^{-4}$	**$1.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.2x10^{-8}$	$1.4x10^{-4}$	$7.5x10^{-5}$	**$2.2x10^{-4}$**	$5.1x10^{-8}$	$1.3x10^{-3}$	$4.9x10^{-4}$	**$1.8x10^{-3}$**
Fluorene	$4.1x10^{-10}$	$2.7x10^{-6}$	$1.4x10^{-6}$	**$4.1x10^{-6}$**	$9.6x10^{-10}$	$2.5x10^{-5}$	$9.2x10^{-6}$	**$3.4x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$4.0x10^{-8}$	$1.1x10^{-5}$	$5.8x10^{-6}$	**$1.7x10^{-5}$**	$9.3x10^{-8}$	$1.1x10^{-4}$	$3.8x10^{-5}$	**$1.4x10^{-4}$**
Phenanthrene	$3.5x10^{-7}$	$9.8x10^{-5}$	$5.1x10^{-5}$	**$1.5x10^{-4}$**	$8.1x10^{-7}$	$9.2x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Pyrene	$2.4x10^{-8}$	$1.6x10^{-4}$	$8.3x10^{-5}$	**$2.4x10^{-4}$**	$5.7x10^{-8}$	$1.5x10^{-3}$	$5.4x10^{-4}$	**$2.0x10^{-3}$**
Total	$1.0x10^{-6}$	$6.0x10^{-4}$	$3.1x10^{-4}$	**$9.1x10^{-4}$**	$2.4x10^{-6}$	$5.6x10^{-3}$	$2.0x10^{-3}$	**$7.6x10^{-3}$**

NA denotes not available.

Table C2-21
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 4 feet) - Exposure Area 7 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.8x10^{-9}$	$3.2x10^{-5}$	$1.6x10^{-5}$	**$4.8x10^{-5}$**	$1.1x10^{-8}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Acenaphthylene	$2.3x10^{-7}$	$6.6x10^{-5}$	$3.4x10^{-5}$	**$1.0x10^{-4}$**	$5.4x10^{-7}$	$6.1x10^{-4}$	$2.2x10^{-4}$	**$8.4x10^{-4}$**
Anthracene	$1.0x10^{-9}$	$6.9x10^{-6}$	$3.6x10^{-6}$	**$1.0x10^{-5}$**	$2.4x10^{-9}$	$6.4x10^{-5}$	$2.3x10^{-5}$	**$8.8x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.1x10^{-4}$	$1.6x10^{-4}$	**$4.7x10^{-4}$**	$2.6x10^{-6}$	$2.9x10^{-3}$	$1.1x10^{-3}$	**$4.0x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$8.3x10^{-8}$	$5.5x10^{-4}$	$2.8x10^{-4}$	**$8.3x10^{-4}$**	$1.9x10^{-7}$	$5.1x10^{-3}$	$1.9x10^{-3}$	**$7.0x10^{-3}$**
Fluorene	$9.3x10^{-10}$	$6.1x10^{-6}$	$3.2x10^{-6}$	**$9.3x10^{-6}$**	$2.2x10^{-9}$	$5.7x10^{-5}$	$2.1x10^{-5}$	**$7.8x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$3.4x10^{-7}$	$9.5x10^{-5}$	$4.9x10^{-5}$	**$1.4x10^{-4}$**	$7.8x10^{-7}$	$8.9x10^{-4}$	$3.2x10^{-4}$	**$1.2x10^{-3}$**
Phenanthrene	$1.1x10^{-6}$	$3.2x10^{-4}$	$1.6x10^{-4}$	**$4.8x10^{-4}$**	$2.6x10^{-6}$	$2.9x10^{-3}$	$1.1x10^{-3}$	**$4.0x10^{-3}$**
Pyrene	$6.9x10^{-8}$	$4.6x10^{-4}$	$2.4x10^{-4}$	**$6.9x10^{-4}$**	$1.6x10^{-7}$	$4.3x10^{-3}$	$1.6x10^{-3}$	**$5.8x10^{-3}$**
Total	$2.9x10^{-6}$	$1.8x10^{-3}$	$9.5x10^{-4}$	**$2.8x10^{-3}$**	$6.9x10^{-6}$	$1.7x10^{-2}$	$6.2x10^{-3}$	**$2.3x10^{-2}$**

NA denotes not available.

Table C2-22
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 1 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-11}$	$3.2x10^{-7}$	$1.7x10^{-7}$	**$4.9x10^{-7}$**	$1.1x10^{-10}$	$3.0x10^{-6}$	$1.1x10^{-6}$	**$4.1x10^{-6}$**
Acenaphthylene	$1.7x10^{-8}$	$4.8x10^{-6}$	$2.5x10^{-6}$	**$7.3x10^{-6}$**	$4.0x10^{-8}$	$4.5x10^{-5}$	$1.6x10^{-5}$	**$6.1x10^{-5}$**
Anthracene	$2.6x10^{-11}$	$1.7x10^{-7}$	$8.8x10^{-8}$	**$2.6x10^{-7}$**	$6.0x10^{-11}$	$1.6x10^{-6}$	$5.8x10^{-7}$	**$2.2x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$9.8x10^{-8}$	$2.8x10^{-5}$	$1.4x10^{-5}$	**$4.2x10^{-5}$**	$2.3x10^{-7}$	$2.6x10^{-4}$	$9.4x10^{-5}$	**$3.5x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$5.8x10^{-9}$	$3.8x10^{-5}$	$2.0x10^{-5}$	**$5.8x10^{-5}$**	$1.4x10^{-8}$	$3.6x10^{-4}$	$1.3x10^{-4}$	**$4.9x10^{-4}$**
Fluorene	$1.4x10^{-10}$	$9.1x10^{-7}$	$4.7x10^{-7}$	**$1.4x10^{-6}$**	$3.2x10^{-10}$	$8.5x10^{-6}$	$3.1x10^{-6}$	**$1.2x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$9.2x10^{-9}$	$2.6x10^{-6}$	$1.4x10^{-6}$	**$4.0x10^{-6}$**	$2.1x10^{-8}$	$2.4x10^{-5}$	$8.8x10^{-6}$	**$3.3x10^{-5}$**
Phenanthrene	$6.1x10^{-8}$	$1.7x10^{-5}$	$9.0x10^{-6}$	**$2.6x10^{-5}$**	$1.4x10^{-7}$	$1.6x10^{-4}$	$5.9x10^{-5}$	**$2.2x10^{-4}$**
Pyrene	$4.5x10^{-9}$	$3.0x10^{-5}$	$1.5x10^{-5}$	**$4.5x10^{-5}$**	$1.1x10^{-8}$	$2.8x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Total	$2.0x10^{-7}$	$1.2x10^{-4}$	$6.3x10^{-5}$	**$1.9x10^{-4}$**	$4.6x10^{-7}$	$1.1x10^{-3}$	$4.1x10^{-4}$	**$1.6x10^{-3}$**

NA denotes not available.

Table C2-23
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 2 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.0x10^{-10}$	$1.3x10^{-6}$	$6.7x10^{-7}$	**$2.0x10^{-6}$**	$4.6x10^{-10}$	$1.2x10^{-5}$	$4.4x10^{-6}$	**$1.6x10^{-5}$**
Acenaphthylene	$2.1x10^{-7}$	$5.9x10^{-5}$	$3.0x10^{-5}$	**$8.9x10^{-5}$**	$4.9x10^{-7}$	$5.5x10^{-4}$	$2.0x10^{-4}$	**$7.5x10^{-4}$**
Anthracene	$1.9x10^{-9}$	$1.3x10^{-5}$	$6.6x10^{-6}$	**$1.9x10^{-5}$**	$4.5x10^{-9}$	$1.2x10^{-4}$	$4.4x10^{-5}$	**$1.6x10^{-4}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.9x10^{-7}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$1.6x10^{-6}$	$1.8x10^{-3}$	$6.7x10^{-4}$	**$2.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$9.8x10^{-8}$	$6.5x10^{-4}$	$3.3x10^{-4}$	**$9.8x10^{-4}$**	$2.3x10^{-7}$	$6.0x10^{-3}$	$2.2x10^{-3}$	**$8.2x10^{-3}$**
Fluorene	$2.5x10^{-10}$	$1.6x10^{-6}$	$8.5x10^{-7}$	**$2.5x10^{-6}$**	$5.8x10^{-10}$	$1.5x10^{-5}$	$5.6x10^{-6}$	**$2.1x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.9x10^{-8}$	$8.2x10^{-6}$	$4.3x10^{-6}$	**$1.2x10^{-5}$**	$6.8x10^{-8}$	$7.7x10^{-5}$	$2.8x10^{-5}$	**$1.0x10^{-4}$**
Phenanthrene	$2.8x10^{-6}$	$7.9x10^{-4}$	$4.1x10^{-4}$	**$1.2x10^{-3}$**	$6.5x10^{-6}$	$7.3x10^{-3}$	$2.7x10^{-3}$	**$1.0x10^{-2}$**
Pyrene	$1.1x10^{-7}$	$7.5x10^{-4}$	$3.9x10^{-4}$	**$1.1x10^{-3}$**	$2.7x10^{-7}$	$7.0x10^{-3}$	$2.5x10^{-3}$	**$9.5x10^{-3}$**
Total	$3.9x10^{-6}$	$2.5x10^{-3}$	$1.3x10^{-3}$	**$3.7x10^{-3}$**	$9.2x10^{-6}$	$2.3x10^{-2}$	$8.4x10^{-3}$	**$3.1x10^{-2}$**

NA denotes not available.

Table C2-24
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 3 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.2x10^{-9}$	$1.4x10^{-5}$	$7.4x10^{-6}$	**$2.2x10^{-5}$**	$5.1x10^{-9}$	$1.3x10^{-4}$	$4.8x10^{-5}$	**$1.8x10^{-4}$**
Acenaphthylene	$1.3x10^{-8}$	$3.8x10^{-6}$	$2.0x10^{-6}$	**$5.7x10^{-6}$**	$3.1x10^{-8}$	$3.5x10^{-5}$	$1.3x10^{-5}$	**$4.8x10^{-5}$**
Anthracene	$6.8x10^{-10}$	$4.4x10^{-6}$	$2.3x10^{-6}$	**$6.8x10^{-6}$**	$1.6x10^{-9}$	$4.2x10^{-5}$	$1.5x10^{-5}$	**$5.7x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.0x10^{-4}$	$1.6x10^{-4}$	**$4.6x10^{-4}$**	$2.5x10^{-6}$	$2.8x10^{-3}$	$1.0x10^{-3}$	**$3.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.7x10^{-8}$	$2.4x10^{-4}$	$1.3x10^{-4}$	**$3.7x10^{-4}$**	$8.5x10^{-8}$	$2.2x10^{-3}$	$8.2x10^{-4}$	**$3.1x10^{-3}$**
Fluorene	$1.9x10^{-9}$	$1.2x10^{-5}$	$6.4x10^{-6}$	**$1.9x10^{-5}$**	$4.4x10^{-9}$	$1.1x10^{-4}$	$4.2x10^{-5}$	**$1.6x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$7.5x10^{-8}$	$2.1x10^{-5}$	$1.1x10^{-5}$	**$3.2x10^{-5}$**	$1.7x10^{-7}$	$2.0x10^{-4}$	$7.2x10^{-5}$	**$2.7x10^{-4}$**
Phenanthrene	$7.6x10^{-7}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.2x10^{-4}$**	$1.8x10^{-6}$	$2.0x10^{-3}$	$7.3x10^{-4}$	**$2.7x10^{-3}$**
Pyrene	$5.6x10^{-8}$	$3.7x10^{-4}$	$1.9x10^{-4}$	**$5.6x10^{-4}$**	$1.3x10^{-7}$	$3.4x10^{-3}$	$1.2x10^{-3}$	**$4.7x10^{-3}$**
Total	$2.0x10^{-6}$	$1.2x10^{-3}$	$6.1x10^{-4}$	**$1.8x10^{-3}$**	$4.7x10^{-6}$	$1.1x10^{-2}$	$4.0x10^{-3}$	**$1.5x10^{-2}$**

NA denotes not available.

Table C2-25
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 4 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.0x10^{-9}$	$2.7x10^{-5}$	$1.4x10^{-5}$	**$4.0x10^{-5}$**	$9.4x10^{-9}$	$2.5x10^{-4}$	$9.0x10^{-5}$	**$3.4x10^{-4}$**
Acenaphthylene	$1.9x10^{-7}$	$5.4x10^{-5}$	$2.8x10^{-5}$	**$8.3x10^{-5}$**	$4.5x10^{-7}$	$5.1x10^{-4}$	$1.8x10^{-4}$	**$6.9x10^{-4}$**
Anthracene	$6.7x10^{-10}$	$4.4x10^{-6}$	$2.3x10^{-6}$	**$6.7x10^{-6}$**	$1.6x10^{-9}$	$4.1x10^{-5}$	$1.5x10^{-5}$	**$5.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$7.0x10^{-7}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$1.6x10^{-6}$	$1.8x10^{-3}$	$6.7x10^{-4}$	**$2.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.3x10^{-8}$	$4.1x10^{-4}$	$2.1x10^{-4}$	**$6.3x10^{-4}$**	$1.5x10^{-7}$	$3.9x10^{-3}$	$1.4x10^{-3}$	**$5.3x10^{-3}$**
Fluorene	$3.2x10^{-9}$	$2.1x10^{-5}$	$1.1x10^{-5}$	**$3.2x10^{-5}$**	$7.6x10^{-9}$	$2.0x10^{-4}$	$7.2x10^{-5}$	**$2.7x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.8x10^{-7}$	$8.0x10^{-5}$	$4.1x10^{-5}$	**$1.2x10^{-4}$**	$6.6x10^{-7}$	$7.5x10^{-4}$	$2.7x10^{-4}$	**$1.0x10^{-3}$**
Phenanthrene	$1.4x10^{-6}$	$3.9x10^{-4}$	$2.0x10^{-4}$	**$6.0x10^{-4}$**	$3.3x10^{-6}$	$3.7x10^{-3}$	$1.3x10^{-3}$	**$5.0x10^{-3}$**
Pyrene	$7.4x10^{-8}$	$4.8x10^{-4}$	$2.5x10^{-4}$	**$7.4x10^{-4}$**	$1.7x10^{-7}$	$4.5x10^{-3}$	$1.6x10^{-3}$	**$6.2x10^{-3}$**
Total	$2.7x10^{-6}$	$1.7x10^{-3}$	$8.7x10^{-4}$	**$2.5x10^{-3}$**	$6.3x10^{-6}$	$1.6x10^{-2}$	$5.7x10^{-3}$	**$2.1x10^{-2}$**

NA denotes not available.

Table C2-26
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 5 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.3x10^{-10}$	$1.5x10^{-6}$	$7.7x10^{-7}$	**$2.2x10^{-6}$**	$5.3x10^{-10}$	$1.4x10^{-5}$	$5.0x10^{-6}$	**$1.9x10^{-5}$**
Acenaphthylene	$8.3x10^{-8}$	$2.3x10^{-5}$	$1.2x10^{-5}$	**$3.6x10^{-5}$**	$1.9x10^{-7}$	$2.2x10^{-4}$	$8.0x10^{-5}$	**$3.0x10^{-4}$**
Anthracene	$1.9x10^{-10}$	$1.3x10^{-6}$	$6.5x10^{-7}$	**$1.9x10^{-6}$**	$4.5x10^{-10}$	$1.2x10^{-5}$	$4.3x10^{-6}$	**$1.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.8x10^{-7}$	$1.1x10^{-4}$	$5.5x10^{-5}$	**$1.6x10^{-4}$**	$8.8x10^{-7}$	$9.9x10^{-4}$	$3.6x10^{-4}$	**$1.3x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.2x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.2x10^{-4}$**	$7.4x10^{-8}$	$2.0x10^{-3}$	$7.1x10^{-4}$	**$2.7x10^{-3}$**
Fluorene	$4.6x10^{-10}$	$3.0x10^{-6}$	$1.6x10^{-6}$	**$4.6x10^{-6}$**	$1.1x10^{-9}$	$2.8x10^{-5}$	$1.0x10^{-5}$	**$3.8x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$8.3x10^{-8}$	$2.3x10^{-5}$	$1.2x10^{-5}$	**$3.6x10^{-5}$**	$1.9x10^{-7}$	$2.2x10^{-4}$	$7.9x10^{-5}$	**$3.0x10^{-4}$**
Phenanthrene	$3.3x10^{-7}$	$9.3x10^{-5}$	$4.8x10^{-5}$	**$1.4x10^{-4}$**	$7.7x10^{-7}$	$8.7x10^{-4}$	$3.2x10^{-4}$	**$1.2x10^{-3}$**
Pyrene	$3.3x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.3x10^{-4}$**	$7.6x10^{-8}$	$2.0x10^{-3}$	$7.3x10^{-4}$	**$2.7x10^{-3}$**
Total	$9.4x10^{-7}$	$6.8x10^{-4}$	$3.5x10^{-4}$	**$1.0x10^{-3}$**	$2.2x10^{-6}$	$6.3x10^{-3}$	$2.3x10^{-3}$	**$8.6x10^{-3}$**

NA denotes not available.

Table C2-27
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 6 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$6.6x10^{-10}$	$4.3x10^{-6}$	$2.3x10^{-6}$	**$6.6x10^{-6}$**	$1.5x10^{-9}$	$4.1x10^{-5}$	$1.5x10^{-5}$	**$5.5x10^{-5}$**
Acenaphthylene	$4.3x10^{-7}$	$1.2x10^{-4}$	$6.3x10^{-5}$	**$1.8x10^{-4}$**	$1.0x10^{-6}$	$1.1x10^{-3}$	$4.1x10^{-4}$	**$1.5x10^{-3}$**
Anthracene	$1.9x10^{-9}$	$1.2x10^{-5}$	$6.4x10^{-6}$	**$1.9x10^{-5}$**	$4.4x10^{-9}$	$1.2x10^{-4}$	$4.2x10^{-5}$	**$1.6x10^{-4}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$2.0x10^{-6}$	$5.8x10^{-4}$	$3.0x10^{-4}$	**$8.8x10^{-4}$**	$4.8x10^{-6}$	$5.4x10^{-3}$	$2.0x10^{-3}$	**$7.3x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.5x10^{-7}$	$9.6x10^{-4}$	$5.0x10^{-4}$	**$1.5x10^{-3}$**	$3.4x10^{-7}$	$9.0x10^{-3}$	$3.3x10^{-3}$	**$1.2x10^{-2}$**
Fluorene	$2.0x10^{-9}$	$1.3x10^{-5}$	$6.7x10^{-6}$	**$2.0x10^{-5}$**	$4.6x10^{-9}$	$1.2x10^{-4}$	$4.4x10^{-5}$	**$1.6x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$4.8x10^{-7}$	$1.4x10^{-4}$	$7.1x10^{-5}$	**$2.1x10^{-4}$**	$1.1x10^{-6}$	$1.3x10^{-3}$	$4.6x10^{-4}$	**$1.7x10^{-3}$**
Phenanthrene	$2.0x10^{-6}$	$5.5x10^{-4}$	$2.9x10^{-4}$	**$8.4x10^{-4}$**	$4.6x10^{-6}$	$5.2x10^{-3}$	$1.9x10^{-3}$	**$7.1x10^{-3}$**
Pyrene	$1.6x10^{-7}$	$1.0x10^{-3}$	$5.4x10^{-4}$	**$1.6x10^{-3}$**	$3.7x10^{-7}$	$9.7x10^{-3}$	$3.5x10^{-3}$	**$1.3x10^{-2}$**
Total	$5.2x10^{-6}$	$3.4x10^{-3}$	$1.8x10^{-3}$	**$5.2x10^{-3}$**	$1.2x10^{-5}$	$3.2x10^{-2}$	$1.2x10^{-2}$	**$4.4x10^{-2}$**

NA denotes not available.

Table C2-28
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0 to 8 feet) - Exposure Area 7 - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.6x10^{-8}$	$1.0x10^{-4}$	$5.4x10^{-5}$	**$1.6x10^{-4}$**	$3.7x10^{-8}$	$9.7x10^{-4}$	$3.5x10^{-4}$	**$1.3x10^{-3}$**
Acenaphthylene	$8.5x10^{-6}$	$2.4x10^{-3}$	$1.2x10^{-3}$	**$3.6x10^{-3}$**	$2.0x10^{-5}$	$2.2x10^{-2}$	$8.1x10^{-3}$	**$3.1x10^{-2}$**
Anthracene	$3.1x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.1x10^{-4}$**	$7.3x10^{-8}$	$1.9x10^{-3}$	$7.0x10^{-4}$	**$2.6x10^{-3}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$9.9x10^{-6}$	$2.8x10^{-3}$	$1.5x10^{-3}$	**$4.3x10^{-3}$**	$2.3x10^{-5}$	$2.6x10^{-2}$	$9.5x10^{-3}$	**$3.6x10^{-2}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.0x10^{-6}$	$1.3x10^{-2}$	$6.8x10^{-3}$	**$2.0x10^{-2}$**	$4.7x10^{-6}$	$1.2x10^{-1}$	$4.5x10^{-2}$	**$1.7x10^{-1}$**
Fluorene	$9.5x10^{-8}$	$6.2x10^{-4}$	$3.2x10^{-4}$	**$9.5x10^{-4}$**	$2.2x10^{-7}$	$5.8x10^{-3}$	$2.1x10^{-3}$	**$7.9x10^{-3}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.7x10^{-5}$	$4.8x10^{-3}$	$2.5x10^{-3}$	**$7.4x10^{-3}$**	$4.0x10^{-5}$	$4.5x10^{-2}$	$1.6x10^{-2}$	**$6.2x10^{-2}$**
Phenanthrene	$7.1x10^{-5}$	$2.0x10^{-2}$	$1.0x10^{-2}$	**$3.0x10^{-2}$**	$1.7x10^{-4}$	$1.9x10^{-1}$	$6.8x10^{-2}$	**$2.5x10^{-1}$**
Pyrene	$1.7x10^{-6}$	$1.1x10^{-2}$	$5.7x10^{-3}$	**$1.7x10^{-2}$**	$3.9x10^{-6}$	$1.0x10^{-1}$	$3.7x10^{-2}$	**$1.4x10^{-1}$**
Total	$1.1x10^{-4}$	$5.5x10^{-2}$	$2.9x10^{-2}$	**$8.4x10^{-2}$**	$2.6x10^{-4}$	$5.1x10^{-1}$	$1.9x10^{-1}$	**$7.0x10^{-1}$**

NA denotes not available.

Table C2-29
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soil (0-8 feet) by Site - Construction Workers - USEPA Methodology

Chemical	Estimated Noncancer Hazard Index			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.3x10^{-6}$	$7.8x10^{-5}$	$1.4x10^{-5}$	**$9.5x10^{-5}$**
Acenaphthylene	$1.1x10^{-4}$	$1.7x10^{-4}$	$3.0x10^{-5}$	**$3.1x10^{-4}$**
Anthracene	$7.9x10^{-7}$	$2.7x10^{-5}$	$4.9x10^{-6}$	**$3.3x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.8x10^{-4}$	$5.7x10^{-4}$	$1.0x10^{-4}$	**$1.1x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**
Fluoranthene	$4.1x10^{-5}$	$1.4x10^{-3}$	$2.5x10^{-4}$	**$1.7x10^{-3}$**
Fluorene	$1.2x10^{-6}$	$4.2x10^{-5}$	$7.5x10^{-6}$	**$5.1x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**
Naphthalene	$2.6x10^{-4}$	$3.8x10^{-4}$	$6.8x10^{-5}$	**$7.0x10^{-4}$**
Phenanthrene	$1.1x10^{-3}$	$1.7x10^{-3}$	$3.0x10^{-4}$	**$3.1x10^{-3}$**
Pyrene	$4.0x10^{-5}$	$1.4x10^{-3}$	$2.5x10^{-4}$	**$1.7x10^{-3}$**
Total	$2.0x10^{-3}$	$5.7x10^{-3}$	$1.0x10^{-3}$	**$8.7x10^{-3}$**

NA denotes not available.

Table C2-30
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soil (0-8 feet) by Northern and Southern Area - Construction Workers - USEPA Methodology

		Estimated Noncancer Hazard Index			
Area	Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Northern	Acenaphthene	$4.5x10^{-6}$	$1.6x10^{-4}$	$2.8x10^{-5}$	**$1.9x10^{-4}$**
	Acenaphthylene	$2.9x10^{-4}$	$4.3x10^{-4}$	$7.7x10^{-5}$	**$8.0x10^{-4}$**
	Anthracene	$3.3x10^{-6}$	$1.2x10^{-4}$	$2.1x10^{-5}$	**$1.4x10^{-4}$**
	Benzo(a)anthracene	NA	NA	NA	**NA**
	Benzo(a)pyrene	NA	NA	NA	**NA**
	Benzo(b)fluoranthene	NA	NA	NA	**NA**
	Benzo(g,h,i)perylene	$8.1x10^{-4}$	$1.2x10^{-3}$	$2.1x10^{-4}$	**$2.2x10^{-3}$**
	Benzo(k)fluoranthene	NA	NA	NA	**NA**
	Chrysene	NA	NA	NA	**NA**
	Dibenz(a,h)anthracene	NA	NA	NA	**NA**
	Fluoranthene	$1.1x10^{-4}$	$3.8x10^{-3}$	$6.8x10^{-4}$	**$4.6x10^{-3}$**
	Fluorene	$1.1x10^{-5}$	$3.8x10^{-4}$	$6.9x10^{-5}$	**$4.6x10^{-4}$**
	Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**
	Naphthalene	$9.0x10^{-4}$	$1.3x10^{-3}$	$2.4x10^{-4}$	**$2.5x10^{-3}$**
	Phenanthrene	$4.9x10^{-3}$	$7.3x10^{-3}$	$1.3x10^{-3}$	**$1.3x10^{-2}$**
	Pyrene	$9.6x10^{-5}$	$3.3x10^{-3}$	$5.9x10^{-4}$	**$4.0x10^{-3}$**
	Total	$7.1x10^{-3}$	$1.8x10^{-2}$	$3.2x10^{-3}$	**$2.8x10^{-2}$**
Southern	Acenaphthene	$5.8x10^{-7}$	$2.0x10^{-5}$	$3.6x10^{-6}$	**$2.4x10^{-5}$**
	Acenaphthylene	$5.4x10^{-5}$	$8.0x10^{-5}$	$1.4x10^{-5}$	**$1.5x10^{-4}$**
	Anthracene	$4.8x10^{-8}$	$1.7x10^{-6}$	$3.0x10^{-7}$	**$2.0x10^{-6}$**
	Benzo(a)anthracene	NA	NA	NA	**NA**
	Benzo(a)pyrene	NA	NA	NA	**NA**
	Benzo(b)fluoranthene	NA	NA	NA	**NA**
	Benzo(g,h,I)perylene	$1.2x10^{-4}$	$1.8x10^{-4}$	$3.3x10^{-5}$	**$3.4x10^{-4}$**
	Benzo(k)fluoranthene	NA	NA	NA	**NA**
	Chrysene	NA	NA	NA	**NA**
	Dibenz(a,h)anthracene	NA	NA	NA	**NA**
	Fluoranthene	$7.3x10^{-6}$	$2.5x10^{-4}$	$4.5x10^{-5}$	**$3.0x10^{-4}$**
	Fluorene	$1.3x10^{-7}$	$4.5x10^{-6}$	$8.0x10^{-7}$	**$5.4x10^{-6}$**
	Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**
	Naphthalene	$4.0x10^{-5}$	$5.9x10^{-5}$	$1.1x10^{-5}$	**$1.1x10^{-4}$**
	Phenanthrene	$9.5x10^{-5}$	$1.4x10^{-4}$	$2.5x10^{-5}$	**$2.6x10^{-4}$**
	Pyrene	$6.8x10^{-6}$	$2.3x10^{-4}$	$4.2x10^{-5}$	**$2.8x10^{-4}$**
	Total	$3.3x10^{-4}$	$9.8x10^{-4}$	$1.7x10^{-4}$	**$1.5x10^{-3}$**

NA denotes not available.

Table C2-31
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-0.5 feet) - Current Residents - USEPA Methodology

	Estimated Cancer Risk							
	Current Adult Resident				Current Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Arsenic	$1.1x10^{-9}$	$7.2x10^{-7}$	$8.7x10^{-8}$	**$8.1x10^{-7}$**	$2.6x10^{-9}$	$6.8x10^{-6}$	$5.7x10^{-7}$	**$7.3x10^{-6}$**
Barium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Beryllium	$3.9x10^{-11}$	NC	NC	**$3.9x10^{-11}$**	$9.1x10^{-11}$	NC	NC	**$9.1x10^{-11}$**
Cadmium	$3.1x10^{-11}$	NC	NC	**$3.1x10^{-11}$**	$7.2x10^{-11}$	NC	NC	**$7.2x10^{-11}$**
Chromium (III)	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Chromium (VI)	$4.7x10^{-9}$	NC	NC	**$4.7x10^{-9}$**	$1.1x10^{-8}$	NC	NC	**$1.1x10^{-8}$**
Cobalt	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Nickel	$1.3x10^{-9}$	NC	NC	**$1.3x10^{-9}$**	$2.9x10^{-9}$	NC	NC	**$2.9x10^{-9}$**
Selenium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Total	$7.1x10^{-9}$	$7.2x10^{-7}$	$8.7x10^{-8}$	**$8.2x10^{-7}$**	$1.7x10^{-8}$	$6.8x10^{-6}$	$5.7x10^{-7}$	**$7.3x10^{-6}$**

NC denotes not known to be a carcinogen.

Table C2-32
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-2.0 feet) - Current Residents - USEPA Methodology

	Estimated Cancer Risk							
	Current Adult Resident				Current Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Arsenic	$1.1x10^{-9}$	$7.2x10^{-7}$	$8.6x10^{-8}$	**$8.1x10^{-7}$**	$2.5x10^{-9}$	$6.7x10^{-6}$	$5.6x10^{-7}$	**$7.3x10^{-6}$**
Barium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Beryllium	$4.3x10^{-11}$	NC	NC	**$4.3x10^{-11}$**	$1.0x10^{-10}$	NC	NC	**$1.0x10^{-10}$**
Cadmium	$2.9x10^{-11}$	NC	NC	**$2.9x10^{-11}$**	$6.7x10^{-11}$	NC	NC	**$6.7x10^{-11}$**
Chromium (III)	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Chromium (VI)	$4.4x10^{-9}$	NC	NC	**$4.4x10^{-9}$**	$1.0x10^{-8}$	NC	NC	**$1.0x10^{-8}$**
Cobalt	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Nickel	$1.2x10^{-9}$	NC	NC	**$1.2x10^{-9}$**	$2.7x10^{-9}$	NC	NC	**$2.7x10^{-9}$**
Selenium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Total	$6.7x10^{-9}$	$7.2x10^{-7}$	$8.6x10^{-8}$	**$8.1x10^{-7}$**	$1.6x10^{-8}$	$6.7x10^{-6}$	$5.6x10^{-7}$	**$7.3x10^{-6}$**

NC denotes not known to be a carcinogen.

Table C2-33
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-4.0 feet) - Current Residents - USEPA Methodology

	Estimated Cancer Risk							
	Current Adult Resident				Current Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Arsenic	$1.2x10^{-9}$	$8.0x10^{-7}$	$9.6x10^{-8}$	**$9.0x10^{-7}$**	$2.9x10^{-9}$	$7.5x10^{-6}$	$6.3x10^{-7}$	**$8.1x10^{-6}$**
Barium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Beryllium	$5.1x10^{-11}$	NC	NC	**$5.1x10^{-11}$**	$1.2x10^{-10}$	NC	NC	**$1.2x10^{-10}$**
Cadmium	$2.9x10^{-11}$	NC	NC	**$2.9x10^{-11}$**	$6.7x10^{-11}$	NC	NC	**$6.7x10^{-11}$**
Chromium (III)	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Chromium (VI)	$5.3x10^{-9}$	NC	NC	**$5.3x10^{-9}$**	$1.2x10^{-8}$	NC	NC	**$1.2x10^{-8}$**
Cobalt	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Nickel	$1.5x10^{-9}$	NC	NC	**$1.5x10^{-9}$**	$3.5x10^{-9}$	NC	NC	**$3.5x10^{-9}$**
Selenium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Total	$8.1x10^{-9}$	$8.0x10^{-7}$	$9.6x10^{-8}$	**$9.1x10^{-7}$**	$1.9x10^{-8}$	$7.5x10^{-6}$	$6.3x10^{-7}$	**$8.2x10^{-6}$**

NC denotes not known to be a carcinogen.

Table C2-34
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-0.5 feet) - Future Residents - USEPA Methodology

	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**
Arsenic	$7.0x10^{-9}$	$9.7x10^{-6}$	$9.1x10^{-7}$	**$1.1x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$2.5x10^{-10}$	NC	NC	**$2.5x10^{-10}$**
Cadmium	$2.0x10^{-10}$	NC	NC	**$2.0x10^{-10}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.0x10^{-8}$	NC	NC	**$3.0x10^{-8}$**
Cobalt	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**
Nickel	$7.9x10^{-9}$	NC	NC	**$7.9x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**
Total	$4.5x10^{-8}$	$9.7x10^{-6}$	$9.1x10^{-7}$	**$1.1x10^{-5}$**

NC denotes not known to be a carcinogen.

Table C2-35
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-2.0 feet) - Future Residents - USEPA Methodology

	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**
Arsenic	$6.9x10^{-9}$	$9.6x10^{-6}$	$9.1x10^{-7}$	**$1.0x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$2.7x10^{-10}$	NC	NC	**$2.7x10^{-10}$**
Cadmium	$1.8x10^{-10}$	NC	NC	**$1.8x10^{-10}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$2.8x10^{-8}$	NC	NC	**$2.8x10^{-8}$**
Cobalt	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**
Nickel	$7.3x10^{-9}$	NC	NC	**$7.3x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**
Total	$4.3x10^{-8}$	$9.6x10^{-6}$	$9.1x10^{-7}$	**$1.1x10^{-5}$**

NC denotes not known to be a carcinogen.

Table C2-36
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-4.0 feet) - Future Residents - USEPA Methodology

	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**
Arsenic	$7.7x10^{-9}$	$1.1x10^{-5}$	$1.0x10^{-6}$	**$1.2x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$3.2x10^{-10}$	NC	NC	**$3.2x10^{-10}$**
Cadmium	$1.8x10^{-10}$	NC	NC	**$1.8x10^{-10}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.4x10^{-8}$	NC	NC	**$3.4x10^{-8}$**
Cobalt	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**
Nickel	$9.6x10^{-9}$	NC	NC	**$9.6x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**
Total	$5.2x10^{-8}$	$1.1x10^{-5}$	$1.0x10^{-6}$	**$1.2x10^{-5}$**

NC denotes not known to be a carcinogen.

Table C2-37
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-8.0 feet) - Future Residents - USEPA Methodology

	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**
Arsenic	$7.2x10^{-9}$	$1.0x10^{-5}$	$9.4x10^{-7}$	**$1.1x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$3.2x10^{-10}$	NC	NC	**$3.2x10^{-10}$**
Cadmium	$2.1x10^{-10}$	NC	NC	**$2.1x10^{-10}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.7x10^{-8}$	NC	NC	**$3.7x10^{-8}$**
Cobalt	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**
Nickel	$1.0x10^{-8}$	NC	NC	**$1.0x10^{-8}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**
Total	$5.5x10^{-8}$	$1.0x10^{-5}$	$9.4x10^{-7}$	**$1.1x10^{-5}$**

NC denotes not known to be a carcinogen.

Table C2-38
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-8.0 feet) - Construction Workers - USEPA Methodology

	Estimated Cancer Risk			
	Construction Worker			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NC	NC	NC	**NC**
Arsenic	$6.2x10^{-8}$	$2.1x10^{-7}$	$8.8x10^{-9}$	**$2.8x10^{-7}$**
Barium	NC	NC	NC	**NC**
Beryllium	$2.8x10^{-9}$	NC	NC	**$2.8x10^{-9}$**
Cadmium	$1.8x10^{-9}$	NC	NC	**$1.8x10^{-9}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.2x10^{-7}$	NC	NC	**$3.2x10^{-7}$**
Cobalt	NC	NC	NC	**NC**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NC	NC	NC	**NC**
Nickel	$8.9x10^{-8}$	NC	NC	**$8.9x10^{-8}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NC	NC	NC	**NC**
Zinc	NC	NC	NC	**NC**
Total	$4.7x10^{-7}$	$2.1x10^{-7}$	$8.8x10^{-9}$	**$6.9x10^{-7}$**

NC denotes not known to be a carcinogen.

Table C2-39
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-0.5 feet) - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.7x10^{-2}$	$6.8x10^{-4}$	**$1.8x10^{-2}$**	NA	$1.6x10^{-1}$	$4.5x10^{-3}$	**$1.6x10^{-1}$**
Arsenic	$1.0x10^{-4}$	$1.9x10^{-2}$	$2.2x10^{-3}$	**$2.1x10^{-2}$**	$2.3x10^{-4}$	$1.8x10^{-1}$	$1.5x10^{-2}$	**$1.9x10^{-1}$**
Barium	$1.3x10^{-4}$	$1.7x10^{-3}$	$6.6x10^{-5}$	**$1.9x10^{-3}$**	$3.0x10^{-4}$	$1.6x10^{-2}$	$4.4x10^{-4}$	**$1.6x10^{-2}$**
Beryllium	$9.6x10^{-6}$	$1.8x10^{-4}$	$7.1x10^{-6}$	**$2.0x10^{-4}$**	$2.2x10^{-5}$	$1.7x10^{-3}$	$4.7x10^{-5}$	**$1.7x10^{-3}$**
Cadmium	$1.0x10^{-5}$	$7.6x10^{-4}$	$3.0x10^{-6}$	**$7.7x10^{-4}$**	$2.3x10^{-5}$	$7.1x10^{-3}$	$2.0x10^{-5}$	**$7.1x10^{-3}$**
Chromium (III)	NA	$3.4x10^{-5}$	$1.4x10^{-6}$	**$3.6x10^{-5}$**	NA	$3.2x10^{-4}$	$8.9x10^{-6}$	**$3.3x10^{-4}$**
Chromium (VI)	$4.5x10^{-5}$	$2.9x10^{-3}$	$1.1x10^{-4}$	**$3.0x10^{-3}$**	$1.0x10^{-4}$	$2.7x10^{-2}$	$7.5x10^{-4}$	**$2.7x10^{-2}$**
Cobalt	NA	$2.1x10^{-4}$	$8.6x10^{-6}$	**$2.2x10^{-4}$**	NA	$2.0x10^{-3}$	$5.6x10^{-5}$	**$2.1x10^{-3}$**
Copper	NA	$1.1x10^{-3}$	$4.5x10^{-5}$	**$1.2x10^{-3}$**	NA	$1.1x10^{-2}$	$3.0x10^{-4}$	**$1.1x10^{-2}$**
Mercury	$5.5x10^{-7}$	$3.6x10^{-3}$	$1.4x10^{-4}$	**$3.7x10^{-3}$**	$1.3x10^{-6}$	$3.4x10^{-2}$	$9.4x10^{-4}$	**$3.4x10^{-2}$**
Molybdenum	NA	$5.2x10^{-4}$	$2.1x10^{-5}$	**$5.4x10^{-4}$**	NA	$4.9x10^{-3}$	$1.4x10^{-4}$	**$5.0x10^{-3}$**
Nickel	$6.1x10^{-4}$	$2.9x10^{-3}$	$1.1x10^{-4}$	**$3.6x10^{-3}$**	$1.4x10^{-3}$	$2.7x10^{-2}$	$7.5x10^{-4}$	**$2.9x10^{-2}$**
Selenium	NA	$1.4x10^{-4}$	$5.4x10^{-6}$	**$1.4x10^{-4}$**	NA	$1.3x10^{-3}$	$3.6x10^{-5}$	**$1.3x10^{-3}$**
Silver	NA	$1.2x10^{-4}$	$4.9x10^{-6}$	**$1.3x10^{-4}$**	NA	$1.2x10^{-3}$	$3.2x10^{-5}$	**$1.2x10^{-3}$**
Thallium	NA	$1.9x10^{-2}$	$7.8x10^{-4}$	**$2.0x10^{-2}$**	NA	$1.8x10^{-1}$	$5.1x10^{-3}$	**$1.9x10^{-1}$**
Vanadium	NA	$6.4x10^{-3}$	$2.5x10^{-4}$	**$6.6x10^{-3}$**	NA	$6.0x10^{-2}$	$1.7x10^{-3}$	**$6.1x10^{-2}$**
Zinc	NA	$4.0x10^{-4}$	$1.6x10^{-5}$	**$4.2x10^{-4}$**	NA	$3.8x10^{-3}$	$1.1x10^{-4}$	**$3.9x10^{-3}$**
Total	$9.0x10^{-4}$	$7.6x10^{-2}$	$4.5x10^{-3}$	**$8.1x10^{-2}$**	$2.1x10^{-3}$	$7.1x10^{-1}$	$2.9x10^{-2}$	**$7.4x10^{-1}$**

NA denotes not available.

Table C2-40
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-2.0 feet) - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.6x10^{-2}$	$6.3x10^{-4}$	**$1.6x10^{-2}$**	NA	$1.5x10^{-1}$	$4.1x10^{-3}$	**$1.5x10^{-1}$**
Arsenic	$9.9x10^{-5}$	$1.9x10^{-2}$	$2.2x10^{-3}$	**$2.1x10^{-2}$**	$2.3x10^{-4}$	$1.7x10^{-1}$	$1.5x10^{-2}$	**$1.9x10^{-1}$**
Barium	$1.3x10^{-4}$	$1.7x10^{-3}$	$6.7x10^{-5}$	**$1.9x10^{-3}$**	$3.0x10^{-4}$	$1.6x10^{-2}$	$4.4x10^{-4}$	**$1.6x10^{-2}$**
Beryllium	$1.1x10^{-5}$	$2.0x10^{-4}$	$7.9x10^{-6}$	**$2.2x10^{-4}$**	$2.5x10^{-5}$	$1.8x10^{-3}$	$5.2x10^{-5}$	**$1.9x10^{-3}$**
Cadmium	$9.4x10^{-6}$	$7.0x10^{-4}$	$2.8x10^{-6}$	**$7.2x10^{-4}$**	$2.2x10^{-5}$	$6.6x10^{-3}$	$1.8x10^{-5}$	**$6.6x10^{-3}$**
Chromium (III)	NA	$3.2x10^{-5}$	$1.3x10^{-6}$	**$3.3x10^{-5}$**	NA	$3.0x10^{-4}$	$8.4x10^{-6}$	**$3.1x10^{-4}$**
Chromium (VI)	$4.2x10^{-5}$	$2.7x10^{-3}$	$1.1x10^{-4}$	**$2.8x10^{-3}$**	$9.8x10^{-5}$	$2.5x10^{-2}$	$7.0x10^{-4}$	**$2.6x10^{-2}$**
Cobalt	NA	$1.9x10^{-4}$	$7.7x10^{-6}$	**$2.0x10^{-4}$**	NA	$1.8x10^{-3}$	$5.0x10^{-5}$	**$1.8x10^{-3}$**
Copper	NA	$9.6x10^{-4}$	$3.8x10^{-5}$	**$1.0x10^{-3}$**	NA	$8.9x10^{-3}$	$2.5x10^{-4}$	**$9.2x10^{-3}$**
Mercury	$5.7x10^{-7}$	$3.7x10^{-3}$	$1.5x10^{-4}$	**$3.9x10^{-3}$**	$1.3x10^{-6}$	$3.5x10^{-2}$	$9.8x10^{-4}$	**$3.6x10^{-2}$**
Molybdenum	NA	$8.0x10^{-4}$	$3.2x10^{-5}$	**$8.3x10^{-4}$**	NA	$7.5x10^{-3}$	$2.1x10^{-4}$	**$7.7x10^{-3}$**
Nickel	$5.6x10^{-4}$	$2.6x10^{-3}$	$1.1x10^{-4}$	**$3.3x10^{-3}$**	$1.3x10^{-3}$	$2.5x10^{-2}$	$6.9x10^{-4}$	**$2.7x10^{-2}$**
Selenium	NA	$1.5x10^{-4}$	$5.9x10^{-6}$	**$1.5x10^{-4}$**	NA	$1.4x10^{-3}$	$3.9x10^{-5}$	**$1.4x10^{-3}$**
Silver	NA	$1.2x10^{-4}$	$4.9x10^{-6}$	**$1.3x10^{-4}$**	NA	$1.1x10^{-3}$	$3.2x10^{-5}$	**$1.2x10^{-3}$**
Thallium	NA	$2.2x10^{-2}$	$8.8x10^{-4}$	**$2.3x10^{-2}$**	NA	$2.1x10^{-1}$	$5.7x10^{-3}$	**$2.1x10^{-1}$**
Vanadium	NA	$6.3x10^{-3}$	$2.5x10^{-4}$	**$6.6x10^{-3}$**	NA	$5.9x10^{-2}$	$1.7x10^{-3}$	**$6.1x10^{-2}$**
Zinc	NA	$3.3x10^{-4}$	$1.3x10^{-5}$	**$3.4x10^{-4}$**	NA	$3.0x10^{-3}$	$8.5x10^{-5}$	**$3.1x10^{-3}$**
Total	$8.5x10^{-4}$	$7.7x10^{-2}$	$4.5x10^{-3}$	**$8.2x10^{-2}$**	$2.0x10^{-3}$	$7.1x10^{-1}$	$3.0x10^{-2}$	**$7.5x10^{-1}$**

NA denotes not available.

Table C2-41
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-4.0 feet) - Current and Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.5x10^{-2}$	$6.1x10^{-4}$	**$1.6x10^{-2}$**	NA	$1.4x10^{-1}$	$4.0x10^{-3}$	**$1.5x10^{-1}$**
Arsenic	$1.1x10^{-4}$	$2.1x10^{-2}$	$2.5x10^{-3}$	**$2.3x10^{-2}$**	$2.6x10^{-4}$	$1.9x10^{-1}$	$1.6x10^{-2}$	**$2.1x10^{-1}$**
Barium	$1.4x10^{-4}$	$1.8x10^{-3}$	$7.2x10^{-5}$	**$2.0x10^{-3}$**	$3.2x10^{-4}$	$1.7x10^{-2}$	$4.7x10^{-4}$	**$1.8x10^{-2}$**
Beryllium	$1.2x10^{-5}$	$2.3x10^{-4}$	$9.3x10^{-6}$	**$2.6x10^{-4}$**	$2.9x10^{-5}$	$2.2x10^{-3}$	$6.1x10^{-5}$	**$2.3x10^{-3}$**
Cadmium	$9.3x10^{-6}$	$7.0x10^{-4}$	$2.8x10^{-6}$	**$7.1x10^{-4}$**	$2.2x10^{-5}$	$6.5x10^{-3}$	$1.8x10^{-5}$	**$6.6x10^{-3}$**
Chromium (III)	NA	$3.9x10^{-5}$	$1.6x10^{-6}$	**$4.1x10^{-5}$**	NA	$3.6x10^{-4}$	$1.0x10^{-5}$	**$3.7x10^{-4}$**
Chromium (VI)	$5.1x10^{-5}$	$3.2x10^{-3}$	$1.3x10^{-4}$	**$3.4x10^{-3}$**	$1.2x10^{-4}$	$3.0x10^{-2}$	$8.5x10^{-4}$	**$3.1x10^{-2}$**
Cobalt	NA	$2.2x10^{-4}$	$9.0x10^{-6}$	**$2.3x10^{-4}$**	NA	$2.1x10^{-3}$	$5.9x10^{-5}$	**$2.2x10^{-3}$**
Copper	NA	$1.1x10^{-3}$	$4.2x10^{-5}$	**$1.1x10^{-3}$**	NA	$9.9x10^{-3}$	$2.8x10^{-4}$	**$1.0x10^{-2}$**
Mercury	$6.9x10^{-7}$	$4.6x10^{-3}$	$1.8x10^{-4}$	**$4.8x10^{-3}$**	$1.6x10^{-6}$	$4.3x10^{-2}$	$1.2x10^{-3}$	**$4.4x10^{-2}$**
Molybdenum	NA	$1.0x10^{-3}$	$4.1x10^{-5}$	**$1.1x10^{-3}$**	NA	$9.5x10^{-3}$	$2.7x10^{-4}$	**$9.8x10^{-3}$**
Nickel	$7.3x10^{-4}$	$3.5x10^{-3}$	$1.4x10^{-4}$	**$4.3x10^{-3}$**	$1.7x10^{-3}$	$3.2x10^{-2}$	$9.0x10^{-4}$	**$3.5x10^{-2}$**
Selenium	NA	$1.5x10^{-4}$	$6.2x10^{-6}$	**$1.6x10^{-4}$**	NA	$1.4x10^{-3}$	$4.0x10^{-5}$	**$1.5x10^{-3}$**
Silver	NA	$1.3x10^{-4}$	$5.1x10^{-6}$	**$1.3x10^{-4}$**	NA	$1.2x10^{-3}$	$3.3x10^{-5}$	**$1.2x10^{-3}$**
Thallium	NA	$2.1x10^{-2}$	$8.4x10^{-4}$	**$2.2x10^{-2}$**	NA	$2.0x10^{-1}$	$5.5x10^{-3}$	**$2.0x10^{-1}$**
Vanadium	NA	$7.4x10^{-3}$	$3.0x10^{-4}$	**$7.7x10^{-3}$**	NA	$6.9x10^{-2}$	$1.9x10^{-3}$	**$7.1x10^{-2}$**
Zinc	NA	$3.6x10^{-4}$	$1.4x10^{-5}$	**$3.8x10^{-4}$**	NA	$3.4x10^{-3}$	$9.5x10^{-5}$	**$3.5x10^{-3}$**
Total	$1.1x10^{-3}$	$8.1x10^{-2}$	$4.9x10^{-3}$	**$8.7x10^{-2}$**	$2.5x10^{-3}$	$7.6x10^{-1}$	$3.2x10^{-2}$	**$7.9x10^{-1}$**

NA denotes not available.

Table C2-42
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-8.0 feet) - Future Residents - USEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.6x10^{-2}$	$6.5x10^{-4}$	**$1.7x10^{-2}$**	NA	$1.5x10^{-1}$	$4.3x10^{-3}$	**$1.6x10^{-1}$**
Arsenic	$1.0x10^{-4}$	$1.9x10^{-2}$	$2.3x10^{-3}$	**$2.2x10^{-2}$**	$2.4x10^{-4}$	$1.8x10^{-1}$	$1.5x10^{-2}$	**$2.0x10^{-1}$**
Barium	$1.1x10^{-4}$	$1.5x10^{-3}$	$5.9x10^{-5}$	**$1.7x10^{-3}$**	$2.6x10^{-4}$	$1.4x10^{-2}$	$3.9x10^{-4}$	**$1.4x10^{-2}$**
Beryllium	$1.2x10^{-5}$	$2.3x10^{-4}$	$9.4x10^{-6}$	**$2.6x10^{-4}$**	$2.9x10^{-5}$	$2.2x10^{-3}$	$6.1x10^{-5}$	**$2.3x10^{-3}$**
Cadmium	$1.1x10^{-5}$	$8.1x10^{-4}$	$3.2x10^{-6}$	**$8.3x10^{-4}$**	$2.5x10^{-5}$	$7.6x10^{-3}$	$2.1x10^{-5}$	**$7.6x10^{-3}$**
Chromium (III)	NA	$4.2x10^{-5}$	$1.7x10^{-6}$	**$4.4x10^{-5}$**	NA	$4.0x10^{-4}$	$1.1x10^{-5}$	**$4.1x10^{-4}$**
Chromium (VI)	$5.6x10^{-5}$	$3.5x10^{-3}$	$1.4x10^{-4}$	**$3.7x10^{-3}$**	$1.3x10^{-4}$	$3.3x10^{-2}$	$9.2x10^{-4}$	**$3.4x10^{-2}$**
Cobalt	NA	$2.3x10^{-4}$	$9.2x10^{-6}$	**$2.4x10^{-4}$**	NA	$2.2x10^{-3}$	$6.0x10^{-5}$	**$2.2x10^{-3}$**
Copper	NA	$9.8x10^{-4}$	$3.9x10^{-5}$	**$1.0x10^{-3}$**	NA	$9.2x10^{-3}$	$2.6x10^{-4}$	**$9.5x10^{-3}$**
Mercury	$5.7x10^{-7}$	$3.8x10^{-3}$	$1.5x10^{-4}$	**$3.9x10^{-3}$**	$1.3x10^{-6}$	$3.5x10^{-2}$	$9.9x10^{-4}$	**$3.6x10^{-2}$**
Molybdenum	NA	$8.5x10^{-4}$	$3.4x10^{-5}$	**$8.8x10^{-4}$**	NA	$7.9x10^{-3}$	$2.2x10^{-4}$	**$8.1x10^{-3}$**
Nickel	$8.0x10^{-4}$	$3.8x10^{-3}$	$1.5x10^{-4}$	**$4.7x10^{-3}$**	$1.9x10^{-3}$	$3.5x10^{-2}$	$9.8x10^{-4}$	**$3.8x10^{-2}$**
Selenium	NA	$2.8x10^{-4}$	$1.1x10^{-5}$	**$2.9x10^{-4}$**	NA	$2.6x10^{-3}$	$7.2x10^{-5}$	**$2.6x10^{-3}$**
Silver	NA	$1.4x10^{-4}$	$5.5x10^{-6}$	**$1.4x10^{-4}$**	NA	$1.3x10^{-3}$	$3.6x10^{-5}$	**$1.3x10^{-3}$**
Thallium	NA	$3.9x10^{-2}$	$1.6x10^{-3}$	**$4.1x10^{-2}$**	NA	$3.7x10^{-1}$	$1.0x10^{-2}$	**$3.8x10^{-1}$**
Vanadium	NA	$7.8x10^{-3}$	$3.1x10^{-4}$	**$8.2x10^{-3}$**	NA	$7.3x10^{-2}$	$2.0x10^{-3}$	**$7.5x10^{-2}$**
Zinc	NA	$3.2x10^{-4}$	$1.3x10^{-5}$	**$3.3x10^{-4}$**	NA	$3.0x10^{-3}$	$8.3x10^{-5}$	**$3.1x10^{-3}$**
Total	$1.1x10^{-3}$	$9.9x10^{-2}$	$5.5x10^{-3}$	**$1.1x10^{-1}$**	$2.6x10^{-3}$	$9.3x10^{-1}$	$3.6x10^{-2}$	**$9.6x10^{-1}$**

NA denotes not available.

Table C2-43
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-8.0 feet) - Construction Workers - USEPA Methodology

Chemical	Estimated Noncancer Hazard Index			
	Construction Worker			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$2.8x10^{-2}$	$3.9x10^{-4}$	**$2.9x10^{-2}$**
Arsenic	$3.4x10^{-2}$	$3.3x10^{-2}$	$1.4x10^{-3}$	**$6.8x10^{-2}$**
Barium	$3.7x10^{-2}$	$2.5x10^{-3}$	$3.5x10^{-5}$	**$3.9x10^{-2}$**
Beryllium	$4.1x10^{-3}$	$4.0x10^{-4}$	$5.5x10^{-6}$	**$4.5x10^{-3}$**
Cadmium	$3.5x10^{-3}$	$1.4x10^{-3}$	$1.9x10^{-6}$	**$4.9x10^{-3}$**
Chromium (III)	NA	$7.3x10^{-5}$	$1.0x10^{-6}$	**$7.4x10^{-5}$**
Chromium (VI)	$1.8x10^{-2}$	$6.1x10^{-3}$	$8.3x10^{-5}$	**$2.4x10^{-2}$**
Cobalt	NA	$3.9x10^{-4}$	$5.4x10^{-6}$	**$4.0x10^{-4}$**
Copper	NA	$1.7x10^{-3}$	$2.3x10^{-5}$	**$1.7x10^{-3}$**
Mercury	$1.9x10^{-4}$	$6.5x10^{-3}$	$8.9x10^{-5}$	**$6.8x10^{-3}$**
Molybdenum	NA	$1.5x10^{-3}$	$2.0x10^{-5}$	**$1.5x10^{-3}$**
Nickel	$2.6x10^{-1}$	$6.4x10^{-3}$	$8.9x10^{-5}$	**$2.7x10^{-1}$**
Selenium	NA	$4.7x10^{-4}$	$6.5x10^{-6}$	**$4.8x10^{-4}$**
Silver	NA	$2.4x10^{-4}$	$3.2x10^{-6}$	**$2.4x10^{-4}$**
Thallium	NA	$6.8x10^{-2}$	$9.3x10^{-4}$	**$6.9x10^{-2}$**
Vanadium	NA	$1.3x10^{-2}$	$1.8x10^{-4}$	**$1.4x10^{-2}$**
Zinc	NA	$5.5x10^{-4}$	$7.5x10^{-6}$	**$5.5x10^{-4}$**
Total	$3.6x10^{-1}$	$1.7x10^{-1}$	$3.2x10^{-3}$	**$5.3x10^{-1}$**

NA denotes not available.

Table C3-1
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 1 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$6.6x10^{-11}$	$4.3x10^{-7}$	$2.3x10^{-7}$	**$6.6x10^{-7}$**	$1.5x10^{-10}$	$4.0x10^{-6}$	$1.5x10^{-6}$	**$5.6x10^{-6}$**
Acenaphthylene	$1.5x10^{-8}$	$4.2x10^{-6}$	$2.2x10^{-6}$	**$6.4x10^{-6}$**	$3.5x10^{-8}$	$3.9x10^{-5}$	$1.5x10^{-5}$	**$5.4x10^{-5}$**
Anthracene	$3.8x10^{-11}$	$2.5x10^{-7}$	$1.3x10^{-7}$	**$3.8x10^{-7}$**	$8.9x10^{-11}$	$2.4x10^{-6}$	$8.9x10^{-7}$	**$3.2x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.7x10^{-7}$	$4.8x10^{-5}$	$2.5x10^{-5}$	**$7.3x10^{-5}$**	$4.0x10^{-7}$	$4.5x10^{-4}$	$1.7x10^{-4}$	**$6.2x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.4x10^{-8}$	$9.3x10^{-5}$	$4.8x10^{-5}$	**$1.4x10^{-4}$**	$3.3x10^{-8}$	$8.7x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Fluorene	$4.1x10^{-10}$	$2.7x10^{-6}$	$1.4x10^{-6}$	**$4.1x10^{-6}$**	$9.5x10^{-10}$	$2.5x10^{-5}$	$9.5x10^{-6}$	**$3.5x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.5x10^{-9}$	$1.2x10^{-6}$	$6.4x10^{-7}$	**$1.9x10^{-6}$**	$3.4x10^{-9}$	$1.2x10^{-5}$	$4.3x10^{-6}$	**$1.6x10^{-5}$**
Phenanthrene	$1.1x10^{-7}$	$3.1x10^{-5}$	$1.6x10^{-5}$	**$4.7x10^{-5}$**	$2.6x10^{-7}$	$2.9x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Pyrene	$1.1x10^{-8}$	$7.3x10^{-5}$	$3.8x10^{-5}$	**$1.1x10^{-4}$**	$2.6x10^{-8}$	$6.8x10^{-4}$	$2.6x10^{-4}$	**$9.3x10^{-4}$**
Total	$3.2x10^{-7}$	$2.5x10^{-4}$	$1.3x10^{-4}$	**$3.9x10^{-4}$**	$7.5x10^{-7}$	$2.4x10^{-3}$	$8.9x10^{-4}$	**$3.3x10^{-3}$**

NA denotes not available.

Table C3-2
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 2 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.5x10^{-10}$	$3.0x10^{-6}$	$1.5x10^{-6}$	**$4.5x10^{-6}$**	$1.1x10^{-9}$	$2.8x10^{-5}$	$1.0x10^{-5}$	**$3.8x10^{-5}$**
Acenaphthylene	$1.6x10^{-7}$	$4.6x10^{-5}$	$2.4x10^{-5}$	**$7.0x10^{-5}$**	$3.8x10^{-7}$	$4.3x10^{-4}$	$1.6x10^{-4}$	**$5.9x10^{-4}$**
Anthracene	$7.5x10^{-11}$	$5.0x10^{-7}$	$2.6x10^{-7}$	**$7.5x10^{-7}$**	$1.8x10^{-10}$	$4.6x10^{-6}$	$1.7x10^{-6}$	**$6.4x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.0x10^{-7}$	$8.5x10^{-5}$	$4.4x10^{-5}$	**$1.3x10^{-4}$**	$7.1x10^{-7}$	$8.0x10^{-4}$	$3.0x10^{-4}$	**$1.1x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.0x10^{-8}$	$1.3x10^{-4}$	$6.9x10^{-5}$	**$2.0x10^{-4}$**	$4.7x10^{-8}$	$1.2x10^{-3}$	$4.7x10^{-4}$	**$1.7x10^{-3}$**
Fluorene	$5.7x10^{-10}$	$3.7x10^{-6}$	$1.9x10^{-6}$	**$5.7x10^{-6}$**	$1.3x10^{-9}$	$3.5x10^{-5}$	$1.3x10^{-5}$	**$4.8x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$8.9x10^{-9}$	$7.5x10^{-6}$	$3.9x10^{-6}$	**$1.1x10^{-5}$**	$2.1x10^{-8}$	$7.0x10^{-5}$	$2.7x10^{-5}$	**$9.7x10^{-5}$**
Phenanthrene	$2.2x10^{-7}$	$6.2x10^{-5}$	$3.2x10^{-5}$	**$9.4x10^{-5}$**	$5.1x10^{-7}$	$5.8x10^{-4}$	$2.2x10^{-4}$	**$8.0x10^{-4}$**
Pyrene	$2.1x10^{-8}$	$1.4x10^{-4}$	$7.1x10^{-5}$	**$2.1x10^{-4}$**	$4.8x10^{-8}$	$1.3x10^{-3}$	$4.8x10^{-4}$	**$1.7x10^{-3}$**
Total	$7.4x10^{-7}$	$4.8x10^{-4}$	$2.5x10^{-4}$	**$7.3x10^{-4}$**	$1.7x10^{-6}$	$4.5x10^{-3}$	$1.7x10^{-3}$	**$6.1x10^{-3}$**

NA denotes not available.

Table C3-3
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 3 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$7.7x10^{-10}$	$5.1x10^{-6}$	$2.6x10^{-6}$	**$7.7x10^{-6}$**	$1.8x10^{-9}$	$4.7x10^{-5}$	$1.8x10^{-5}$	**$6.5x10^{-5}$**
Acenaphthylene	$2.9x10^{-8}$	$8.2x10^{-6}$	$4.3x10^{-6}$	**$1.3x10^{-5}$**	$6.8x10^{-8}$	$7.7x10^{-5}$	$2.9x10^{-5}$	**$1.1x10^{-4}$**
Anthracene	$7.6x10^{-11}$	$5.0x10^{-7}$	$2.6x10^{-7}$	**$7.6x10^{-7}$**	$1.8x10^{-10}$	$4.7x10^{-6}$	$1.8x10^{-6}$	**$6.5x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.5x10^{-7}$	$4.3x10^{-5}$	$2.2x10^{-5}$	**$6.5x10^{-5}$**	$3.5x10^{-7}$	$4.0x10^{-4}$	$1.5x10^{-4}$	**$5.5x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.3x10^{-9}$	$4.2x10^{-5}$	$2.2x10^{-5}$	**$6.3x10^{-5}$**	$1.5x10^{-8}$	$3.9x10^{-4}$	$1.5x10^{-4}$	**$5.4x10^{-4}$**
Fluorene	$2.0x10^{-9}$	$1.3x10^{-5}$	$6.7x10^{-6}$	**$2.0x10^{-5}$**	$4.6x10^{-9}$	$1.2x10^{-4}$	$4.5x10^{-5}$	**$1.7x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.7x10^{-9}$	$2.3x10^{-6}$	$1.2x10^{-6}$	**$3.4x10^{-6}$**	$6.2x10^{-9}$	$2.1x10^{-5}$	$8.0x10^{-6}$	**$2.9x10^{-5}$**
Phenanthrene	$6.8x10^{-8}$	$1.9x10^{-5}$	$9.9x10^{-6}$	**$2.9x10^{-5}$**	$1.6x10^{-7}$	$1.8x10^{-4}$	$6.7x10^{-5}$	**$2.5x10^{-4}$**
Pyrene	$1.4x10^{-8}$	$9.0x10^{-5}$	$4.6x10^{-5}$	**$1.4x10^{-4}$**	$3.2x10^{-8}$	$8.4x10^{-4}$	$3.2x10^{-4}$	**$1.2x10^{-3}$**
Total	$2.7x10^{-7}$	$2.2x10^{-4}$	$1.2x10^{-4}$	**$3.4x10^{-4}$**	$6.4x10^{-7}$	$2.1x10^{-3}$	$7.8x10^{-4}$	**$2.9x10^{-3}$**

NA denotes not available.

Table C3-4
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 4 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-9}$	$3.2x10^{-5}$	$1.7x10^{-5}$	**$4.9x10^{-5}$**	$1.1x10^{-8}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Acenaphthylene	$2.7x10^{-7}$	$7.5x10^{-5}$	$3.9x10^{-5}$	**$1.1x10^{-4}$**	$6.2x10^{-7}$	$7.0x10^{-4}$	$2.7x10^{-4}$	**$9.7x10^{-4}$**
Anthracene	$1.5x10^{-10}$	$1.0x10^{-6}$	$5.2x10^{-7}$	**$1.5x10^{-6}$**	$3.6x10^{-10}$	$9.3x10^{-6}$	$3.5x10^{-6}$	**$1.3x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$4.2x10^{-7}$	$1.2x10^{-4}$	$6.1x10^{-5}$	**$1.8x10^{-4}$**	$9.8x10^{-7}$	$1.1x10^{-3}$	$4.1x10^{-4}$	**$1.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.4x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.4x10^{-4}$**	$5.7x10^{-8}$	$1.5x10^{-3}$	$5.7x10^{-4}$	**$2.1x10^{-3}$**
Fluorene	$8.1x10^{-10}$	$5.4x10^{-6}$	$2.8x10^{-6}$	**$8.1x10^{-6}$**	$1.9x10^{-9}$	$5.0x10^{-5}$	$1.9x10^{-5}$	**$6.9x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.1x10^{-7}$	$9.6x10^{-5}$	$5.0x10^{-5}$	**$1.5x10^{-4}$**	$2.7x10^{-7}$	$9.0x10^{-4}$	$3.4x10^{-4}$	**$1.2x10^{-3}$**
Phenanthrene	$2.6x10^{-7}$	$7.3x10^{-5}$	$3.8x10^{-5}$	**$1.1x10^{-4}$**	$6.0x10^{-7}$	$6.8x10^{-4}$	$2.6x10^{-4}$	**$9.3x10^{-4}$**
Pyrene	$2.5x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.5x10^{-4}$**	$5.8x10^{-8}$	$1.5x10^{-3}$	$5.7x10^{-4}$	**$2.1x10^{-3}$**
Total	$1.1x10^{-6}$	$7.2x10^{-4}$	$3.8x10^{-4}$	**$1.1x10^{-3}$**	$2.6x10^{-6}$	$6.8x10^{-3}$	$2.5x10^{-3}$	**$9.3x10^{-3}$**

NA denotes not available.

Table C3-5
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 5 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-9}$	$3.2x10^{-5}$	$1.7x10^{-5}$	**$4.9x10^{-5}$**	$1.1x10^{-8}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Acenaphthylene	$2.7x10^{-7}$	$7.5x10^{-5}$	$3.9x10^{-5}$	**$1.1x10^{-4}$**	$6.2x10^{-7}$	$7.0x10^{-4}$	$2.7x10^{-4}$	**$9.7x10^{-4}$**
Anthracene	$1.5x10^{-10}$	$1.0x10^{-6}$	$5.2x10^{-7}$	**$1.5x10^{-6}$**	$3.6x10^{-10}$	$9.3x10^{-6}$	$3.5x10^{-6}$	**$1.3x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$4.2x10^{-7}$	$1.2x10^{-4}$	$6.1x10^{-5}$	**$1.8x10^{-4}$**	$9.8x10^{-7}$	$1.1x10^{-3}$	$4.1x10^{-4}$	**$1.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.4x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.4x10^{-4}$**	$5.7x10^{-8}$	$1.5x10^{-3}$	$5.7x10^{-4}$	**$2.1x10^{-3}$**
Fluorene	$8.1x10^{-10}$	$5.4x10^{-6}$	$2.8x10^{-6}$	**$8.1x10^{-6}$**	$1.9x10^{-9}$	$5.0x10^{-5}$	$1.9x10^{-5}$	**$6.9x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.1x10^{-7}$	$9.6x10^{-5}$	$5.0x10^{-5}$	**$1.5x10^{-4}$**	$2.7x10^{-7}$	$9.0x10^{-4}$	$3.4x10^{-4}$	**$1.2x10^{-3}$**
Phenanthrene	$2.6x10^{-7}$	$7.3x10^{-5}$	$3.8x10^{-5}$	**$1.1x10^{-4}$**	$6.0x10^{-7}$	$6.8x10^{-4}$	$2.6x10^{-4}$	**$9.3x10^{-4}$**
Pyrene	$2.5x10^{-8}$	$1.6x10^{-4}$	$8.4x10^{-5}$	**$2.5x10^{-4}$**	$5.8x10^{-8}$	$1.5x10^{-3}$	$5.7x10^{-4}$	**$2.1x10^{-3}$**
Total	$1.1x10^{-6}$	$7.2x10^{-4}$	$3.8x10^{-4}$	**$1.1x10^{-3}$**	$2.6x10^{-6}$	$6.8x10^{-3}$	$2.5x10^{-3}$	**$9.3x10^{-3}$**

NA denotes not available.

Table C3-6
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 6 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.1x10^{-10}$	$7.1x10^{-7}$	$3.7x10^{-7}$	**$1.1x10^{-6}$**	$2.5x10^{-10}$	$6.6x10^{-6}$	$2.5x10^{-6}$	**$9.1x10^{-6}$**
Acenaphthylene	$2.0x10^{-8}$	$5.6x10^{-6}$	$2.9x10^{-6}$	**$8.5x10^{-6}$**	$4.6x10^{-8}$	$5.2x10^{-5}$	$2.0x10^{-5}$	**$7.2x10^{-5}$**
Anthracene	$7.7x10^{-11}$	$5.0x10^{-7}$	$2.6x10^{-7}$	**$7.7x10^{-7}$**	$1.8x10^{-10}$	$4.7x10^{-6}$	$1.8x10^{-6}$	**$6.5x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$2.4x10^{-7}$	$6.7x10^{-5}$	$3.5x10^{-5}$	**$1.0x10^{-4}$**	$5.5x10^{-7}$	$6.2x10^{-4}$	$2.3x10^{-4}$	**$8.6x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.0x10^{-8}$	$6.6x10^{-5}$	$3.4x10^{-5}$	**$1.0x10^{-4}$**	$2.4x10^{-8}$	$6.2x10^{-4}$	$2.3x10^{-4}$	**$8.5x10^{-4}$**
Fluorene	$2.3x10^{-10}$	$1.5x10^{-6}$	$8.0x10^{-7}$	**$2.3x10^{-6}$**	$5.5x10^{-10}$	$1.4x10^{-5}$	$5.4x10^{-6}$	**$2.0x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.5x10^{-9}$	$2.1x10^{-6}$	$1.1x10^{-6}$	**$3.2x10^{-6}$**	$5.9x10^{-9}$	$2.0x10^{-5}$	$7.5x10^{-6}$	**$2.7x10^{-5}$**
Phenanthrene	$1.7x10^{-7}$	$4.7x10^{-5}$	$2.4x10^{-5}$	**$7.1x10^{-5}$**	$3.9x10^{-7}$	$4.4x10^{-4}$	$1.6x10^{-4}$	**$6.0x10^{-4}$**
Pyrene	$1.2x10^{-8}$	$7.9x10^{-5}$	$4.1x10^{-5}$	**$1.2x10^{-4}$**	$2.8x10^{-8}$	$7.4x10^{-4}$	$2.8x10^{-4}$	**$1.0x10^{-3}$**
Total	$4.5x10^{-7}$	$2.7x10^{-4}$	$1.4x10^{-4}$	**$4.1x10^{-4}$**	$1.0x10^{-6}$	$2.5x10^{-3}$	$9.5x10^{-4}$	**$3.5x10^{-3}$**

NA denotes not available.

Table C3-7
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-0.5 feet) - Exposure Area 7 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.1x10^{-8}$	$1.4x10^{-4}$	$7.1x10^{-5}$	**$2.1x10^{-4}$**	$4.8x10^{-8}$	$1.3x10^{-3}$	$4.8x10^{-4}$	**$1.8x10^{-3}$**
Acenaphthylene	$2.1x10^{-7}$	$6.0x10^{-5}$	$3.1x10^{-5}$	**$9.1x10^{-5}$**	$4.9x10^{-7}$	$5.6x10^{-4}$	$2.1x10^{-4}$	**$7.7x10^{-4}$**
Anthracene	$1.3x10^{-9}$	$8.8x10^{-6}$	$4.6x10^{-6}$	**$1.3x10^{-5}$**	$3.1x10^{-9}$	$8.3x10^{-5}$	$3.1x10^{-5}$	**$1.1x10^{-4}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.0x10^{-4}$	$1.6x10^{-4}$	**$4.6x10^{-4}$**	$2.5x10^{-6}$	$2.8x10^{-3}$	$1.1x10^{-3}$	**$3.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.2x10^{-7}$	$8.2x10^{-4}$	$4.2x10^{-4}$	**$1.2x10^{-3}$**	$2.9x10^{-7}$	$7.6x10^{-3}$	$2.9x10^{-3}$	**$1.0x10^{-2}$**
Fluorene	$2.9x10^{-9}$	$1.9x10^{-5}$	$9.7x10^{-6}$	**$2.9x10^{-5}$**	$6.7x10^{-9}$	$1.8x10^{-4}$	$6.6x10^{-5}$	**$2.4x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$4.9x10^{-7}$	$4.1x10^{-4}$	$2.1x10^{-4}$	**$6.3x10^{-4}$**	$1.1x10^{-6}$	$3.9x10^{-3}$	$1.5x10^{-3}$	**$5.3x10^{-3}$**
Phenanthrene	$2.0x10^{-6}$	$5.6x10^{-4}$	$2.9x10^{-4}$	**$8.5x10^{-4}$**	$4.6x10^{-6}$	$5.2x10^{-3}$	$2.0x10^{-3}$	**$7.2x10^{-3}$**
Pyrene	$8.9x10^{-8}$	$5.8x10^{-4}$	$3.0x10^{-4}$	**$8.9x10^{-4}$**	$2.1x10^{-7}$	$5.4x10^{-3}$	$2.1x10^{-3}$	**$7.5x10^{-3}$**
Total	$4.0x10^{-6}$	$2.9x10^{-3}$	$1.5x10^{-3}$	**$4.4x10^{-3}$**	$9.3x10^{-6}$	$2.7x10^{-2}$	$1.0x10^{-2}$	**$3.7x10^{-2}$**

NA denotes not available.

Table C3-8
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 1 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$5.0x10^{-11}$	$3.3x10^{-7}$	$1.7x10^{-7}$	**$5.0x10^{-7}$**	$1.2x10^{-10}$	$3.1x10^{-6}$	$1.2x10^{-6}$	**$4.3x10^{-6}$**
Acenaphthylene	$1.6x10^{-8}$	$4.4x10^{-6}$	$2.3x10^{-6}$	**$6.7x10^{-6}$**	$3.7x10^{-8}$	$4.1x10^{-5}$	$1.6x10^{-5}$	**$5.7x10^{-5}$**
Anthracene	$2.4x10^{-11}$	$1.5x10^{-7}$	$8.0x10^{-8}$	**$2.4x10^{-7}$**	$5.5x10^{-11}$	$1.4x10^{-6}$	$5.4x10^{-7}$	**$2.0x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.0x10^{-8}$	$1.7x10^{-5}$	$8.8x10^{-6}$	**$2.6x10^{-5}$**	$1.4x10^{-7}$	$1.6x10^{-4}$	$6.0x10^{-5}$	**$2.2x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.7x10^{-9}$	$3.1x10^{-5}$	$1.6x10^{-5}$	**$4.7x10^{-5}$**	$1.1x10^{-8}$	$2.9x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Fluorene	$1.1x10^{-10}$	$7.6x10^{-7}$	$3.9x10^{-7}$	**$1.1x10^{-6}$**	$2.7x10^{-10}$	$7.1x10^{-6}$	$2.7x10^{-6}$	**$9.7x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$7.5x10^{-9}$	$6.3x10^{-6}$	$3.3x10^{-6}$	**$9.6x10^{-6}$**	$1.7x10^{-8}$	$5.9x10^{-5}$	$2.2x10^{-5}$	**$8.1x10^{-5}$**
Phenanthrene	$6.5x10^{-8}$	$1.8x10^{-5}$	$9.5x10^{-6}$	**$2.8x10^{-5}$**	$1.5x10^{-7}$	$1.7x10^{-4}$	$6.4x10^{-5}$	**$2.4x10^{-4}$**
Pyrene	$4.0x10^{-9}$	$2.7x10^{-5}$	$1.4x10^{-5}$	**$4.0x10^{-5}$**	$9.4x10^{-9}$	$2.5x10^{-4}$	$9.3x10^{-5}$	**$3.4x10^{-4}$**
Total	$1.6x10^{-7}$	$1.0x10^{-4}$	$5.4x10^{-5}$	**$1.6x10^{-4}$**	$3.7x10^{-7}$	$9.8x10^{-4}$	$3.7x10^{-4}$	**$1.3x10^{-3}$**

NA denotes not available.

Table C3-9
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 2 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.6x10^{-10}$	$3.0x10^{-6}$	$1.6x10^{-6}$	**$4.6x10^{-6}$**	$1.1x10^{-9}$	$2.8x10^{-5}$	$1.1x10^{-5}$	**$3.9x10^{-5}$**
Acenaphthylene	$8.6x10^{-8}$	$2.4x10^{-5}$	$1.3x10^{-5}$	**$3.7x10^{-5}$**	$2.0x10^{-7}$	$2.3x10^{-4}$	$8.6x10^{-5}$	**$3.1x10^{-4}$**
Anthracene	$7.9x10^{-11}$	$5.2x10^{-7}$	$2.7x10^{-7}$	**$7.8x10^{-7}$**	$1.8x10^{-10}$	$4.8x10^{-6}$	$1.8x10^{-6}$	**$6.6x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$2.7x10^{-7}$	$7.6x10^{-5}$	$3.9x10^{-5}$	**$1.2x10^{-4}$**	$6.3x10^{-7}$	$7.1x10^{-4}$	$2.7x10^{-4}$	**$9.8x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.8x10^{-8}$	$1.2x10^{-4}$	$6.0x10^{-5}$	**$1.8x10^{-4}$**	$4.1x10^{-8}$	$1.1x10^{-3}$	$4.1x10^{-4}$	**$1.5x10^{-3}$**
Fluorene	$3.2x10^{-10}$	$2.1x10^{-6}$	$1.1x10^{-6}$	**$3.2x10^{-6}$**	$7.6x10^{-10}$	$2.0x10^{-5}$	$7.5x10^{-6}$	**$2.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$5.0x10^{-9}$	$4.2x10^{-6}$	$2.2x10^{-6}$	**$6.4x10^{-6}$**	$1.2x10^{-8}$	$3.9x10^{-5}$	$1.5x10^{-5}$	**$5.4x10^{-5}$**
Phenanthrene	$3.0x10^{-7}$	$8.6x10^{-5}$	$4.4x10^{-5}$	**$1.3x10^{-4}$**	$7.1x10^{-7}$	$8.0x10^{-4}$	$3.0x10^{-4}$	**$1.1x10^{-3}$**
Pyrene	$1.8x10^{-8}$	$1.2x10^{-4}$	$6.1x10^{-5}$	**$1.8x10^{-4}$**	$4.1x10^{-8}$	$1.1x10^{-3}$	$4.1x10^{-4}$	**$1.5x10^{-3}$**
Total	$7.0x10^{-7}$	$4.3x10^{-4}$	$2.2x10^{-4}$	**$6.5x10^{-4}$**	$1.6x10^{-6}$	$4.0x10^{-3}$	$1.5x10^{-3}$	**$5.5x10^{-3}$**

NA denotes not available.

Table C3-10
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 3 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$9.4x10^{-11}$	$6.2x10^{-7}$	$3.2x10^{-7}$	**$9.4x10^{-7}$**	$2.2x10^{-10}$	$5.8x10^{-6}$	$2.2x10^{-6}$	**$7.9x10^{-6}$**
Acenaphthylene	$1.6x10^{-8}$	$4.6x10^{-6}$	$2.4x10^{-6}$	**$7.0x10^{-6}$**	$3.8x10^{-8}$	$4.3x10^{-5}$	$1.6x10^{-5}$	**$5.9x10^{-5}$**
Anthracene	$6.7x10^{-11}$	$4.4x10^{-7}$	$2.3x10^{-7}$	**$6.7x10^{-7}$**	$1.6x10^{-10}$	$4.1x10^{-6}$	$1.6x10^{-6}$	**$5.7x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.3x10^{-7}$	$3.6x10^{-5}$	$1.9x10^{-5}$	**$5.4x10^{-5}$**	$3.0x10^{-7}$	$3.3x10^{-4}$	$1.3x10^{-4}$	**$4.6x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.1x10^{-9}$	$4.0x10^{-5}$	$2.1x10^{-5}$	**$6.1x10^{-5}$**	$1.4x10^{-8}$	$3.8x10^{-4}$	$1.4x10^{-4}$	**$5.2x10^{-4}$**
Fluorene	$2.1x10^{-10}$	$1.4x10^{-6}$	$7.1x10^{-7}$	**$2.1x10^{-6}$**	$4.8x10^{-10}$	$1.3x10^{-5}$	$4.8x10^{-6}$	**$1.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.2x10^{-9}$	$1.9x10^{-6}$	$9.9x10^{-7}$	**$2.9x10^{-6}$**	$5.2x10^{-9}$	$1.8x10^{-5}$	$6.7x10^{-6}$	**$2.4x10^{-5}$**
Phenanthrene	$1.2x10^{-7}$	$3.5x10^{-5}$	$1.8x10^{-5}$	**$5.3x10^{-5}$**	$2.9x10^{-7}$	$3.2x10^{-4}$	$1.2x10^{-4}$	**$4.5x10^{-4}$**
Pyrene	$9.9x10^{-9}$	$6.5x10^{-5}$	$3.4x10^{-5}$	**$9.9x10^{-5}$**	$2.3x10^{-8}$	$6.1x10^{-4}$	$2.3x10^{-4}$	**$8.4x10^{-4}$**
Total	$2.8x10^{-7}$	$1.9x10^{-4}$	$9.6x10^{-5}$	**$2.8x10^{-4}$**	$6.6x10^{-7}$	$1.7x10^{-3}$	$6.5x10^{-4}$	**$2.4x10^{-3}$**

NA denotes not available.

Table C3-11
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 4 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$9.4x10^{-11}$	$6.2x10^{-7}$	$3.2x10^{-7}$	**$9.4x10^{-7}$**	$2.2x10^{-10}$	$5.8x10^{-6}$	$2.2x10^{-6}$	**$7.9x10^{-6}$**
Acenaphthylene	$1.6x10^{-8}$	$4.6x10^{-6}$	$2.4x10^{-6}$	**$7.0x10^{-6}$**	$3.8x10^{-8}$	$4.3x10^{-5}$	$1.6x10^{-5}$	**$5.9x10^{-5}$**
Anthracene	$6.7x10^{-11}$	$4.4x10^{-7}$	$2.3x10^{-7}$	**$6.7x10^{-7}$**	$1.6x10^{-10}$	$4.1x10^{-6}$	$1.6x10^{-6}$	**$5.7x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.3x10^{-7}$	$3.6x10^{-5}$	$1.9x10^{-5}$	**$5.4x10^{-5}$**	$3.0x10^{-7}$	$3.3x10^{-4}$	$1.3x10^{-4}$	**$4.6x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.1x10^{-9}$	$4.0x10^{-5}$	$2.1x10^{-5}$	**$6.1x10^{-5}$**	$1.4x10^{-8}$	$3.8x10^{-4}$	$1.4x10^{-4}$	**$5.2x10^{-4}$**
Fluorene	$2.1x10^{-10}$	$1.4x10^{-6}$	$7.1x10^{-7}$	**$2.1x10^{-6}$**	$4.8x10^{-10}$	$1.3x10^{-5}$	$4.8x10^{-6}$	**$1.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.2x10^{-9}$	$1.9x10^{-6}$	$9.9x10^{-7}$	**$2.9x10^{-6}$**	$5.2x10^{-9}$	$1.8x10^{-5}$	$6.7x10^{-6}$	**$2.4x10^{-5}$**
Phenanthrene	$1.2x10^{-7}$	$3.5x10^{-5}$	$1.8x10^{-5}$	**$5.3x10^{-5}$**	$2.9x10^{-7}$	$3.2x10^{-4}$	$1.2x10^{-4}$	**$4.5x10^{-4}$**
Pyrene	$9.9x10^{-9}$	$6.5x10^{-5}$	$3.4x10^{-5}$	**$9.9x10^{-5}$**	$2.3x10^{-8}$	$6.1x10^{-4}$	$2.3x10^{-4}$	**$8.4x10^{-4}$**
Total	$2.8x10^{-7}$	$1.9x10^{-4}$	$9.6x10^{-5}$	**$2.8x10^{-4}$**	$6.6x10^{-7}$	$1.7x10^{-3}$	$6.5x10^{-4}$	**$2.4x10^{-3}$**

NA denotes not available.

Table C3-12
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 5 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$5.1x10^{-10}$	$3.3x10^{-6}$	$1.7x10^{-6}$	**$5.1x10^{-6}$**	$1.2x10^{-9}$	$3.1x10^{-6}$	$1.2x10^{-6}$	**$4.3x10^{-6}$**
Acenaphthylene	$1.7x10^{-7}$	$4.7x10^{-5}$	$2.5x10^{-5}$	**$7.2x10^{-5}$**	$3.9x10^{-7}$	$4.1x10^{-5}$	$1.6x10^{-5}$	**$5.7x10^{-5}$**
Anthracene	$3.2x10^{-10}$	$2.1x10^{-6}$	$1.1x10^{-6}$	**$3.2x10^{-6}$**	$7.4x10^{-10}$	$1.4x10^{-6}$	$5.4x10^{-7}$	**$2.0x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$5.1x10^{-7}$	$1.4x10^{-4}$	$7.5x10^{-5}$	**$2.2x10^{-4}$**	$1.2x10^{-6}$	$1.6x10^{-4}$	$6.0x10^{-5}$	**$2.2x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.8x10^{-8}$	$1.9x10^{-4}$	$9.7x10^{-5}$	**$2.8x10^{-4}$**	$6.6x10^{-8}$	$2.9x10^{-4}$	$1.1x10^{-4}$	**$4.0x10^{-4}$**
Fluorene	$6.0x10^{-10}$	$4.0x10^{-6}$	$2.1x10^{-6}$	**$6.0x10^{-6}$**	$1.4x10^{-9}$	$7.1x10^{-6}$	$2.7x10^{-6}$	**$9.7x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$8.4x10^{-9}$	$7.1x10^{-6}$	$3.7x10^{-6}$	**$1.1x10^{-5}$**	$2.0x10^{-8}$	$5.9x10^{-5}$	$2.2x10^{-5}$	**$8.1x10^{-5}$**
Phenanthrene	$5.3x10^{-7}$	$1.5x10^{-4}$	$7.7x10^{-5}$	**$2.3x10^{-4}$**	$1.2x10^{-6}$	$1.7x10^{-4}$	$6.4x10^{-5}$	**$2.4x10^{-4}$**
Pyrene	$3.0x10^{-8}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$7.0x10^{-8}$	$2.5x10^{-4}$	$9.3x10^{-5}$	**$3.4x10^{-4}$**
Total	$1.3x10^{-6}$	$7.4x10^{-4}$	$3.8x10^{-4}$	**$1.1x10^{-3}$**	$3.0x10^{-6}$	$9.8x10^{-4}$	$3.7x10^{-4}$	**$1.4x10^{-3}$**

NA denotes not available.

Table C3-13
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 6 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.3x10^{-10}$	$1.5x10^{-6}$	$7.9x10^{-7}$	**$2.3x10^{-6}$**	$5.4x10^{-10}$	$1.4x10^{-5}$	$5.4x10^{-6}$	**$2.0x10^{-5}$**
Acenaphthylene	$5.1x10^{-8}$	$1.4x10^{-5}$	$7.5x10^{-6}$	**$2.2x10^{-5}$**	$1.2x10^{-7}$	$1.3x10^{-4}$	$5.1x10^{-5}$	**$1.9x10^{-4}$**
Anthracene	$1.1x10^{-10}$	$7.4x10^{-7}$	$3.8x10^{-7}$	**$1.1x10^{-6}$**	$2.6x10^{-10}$	$6.9x10^{-6}$	$2.6x10^{-6}$	**$9.5x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.3x10^{-7}$	$9.3x10^{-5}$	$4.8x10^{-5}$	**$1.4x10^{-4}$**	$7.7x10^{-7}$	$8.7x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.5x10^{-8}$	$9.8x10^{-5}$	$5.1x10^{-5}$	**$1.5x10^{-4}$**	$3.5x10^{-8}$	$9.2x10^{-4}$	$3.5x10^{-4}$	**$1.3x10^{-3}$**
Fluorene	$2.4x10^{-10}$	$1.6x10^{-6}$	$8.1x10^{-7}$	**$2.4x10^{-6}$**	$5.5x10^{-10}$	$1.4x10^{-5}$	$5.5x10^{-6}$	**$2.0x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$5.0x10^{-9}$	$4.2x10^{-6}$	$2.2x10^{-6}$	**$6.4x10^{-6}$**	$1.2x10^{-8}$	$3.9x10^{-5}$	$1.5x10^{-5}$	**$5.4x10^{-5}$**
Phenanthrene	$1.7x10^{-7}$	$4.8x10^{-5}$	$2.5x10^{-5}$	**$7.3x10^{-5}$**	$4.0x10^{-7}$	$4.5x10^{-4}$	$1.7x10^{-4}$	**$6.2x10^{-4}$**
Pyrene	$1.5x10^{-8}$	$9.8x10^{-5}$	$5.1x10^{-5}$	**$1.5x10^{-4}$**	$3.5x10^{-8}$	$9.2x10^{-4}$	$3.5x10^{-4}$	**$1.3x10^{-3}$**
Total	$5.9x10^{-7}$	$3.6x10^{-4}$	$1.9x10^{-4}$	**$5.5x10^{-4}$**	$1.4x10^{-6}$	$3.4x10^{-3}$	$1.3x10^{-3}$	**$4.6x10^{-3}$**

NA denotes not available.

Table C3-14
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-2 feet) - Exposure Area 7 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$7.6x10^{-9}$	$5.0x10^{-5}$	$2.6x10^{-5}$	**$7.6x10^{-5}$**	$1.8x10^{-8}$	$4.7x10^{-4}$	$1.8x10^{-4}$	**$6.4x10^{-4}$**
Acenaphthylene	$1.5x10^{-7}$	$4.3x10^{-5}$	$2.2x10^{-5}$	**$6.6x10^{-5}$**	$3.6x10^{-7}$	$4.0x10^{-4}$	$1.5x10^{-4}$	**$5.5x10^{-4}$**
Anthracene	$1.1x10^{-9}$	$7.5x10^{-6}$	$3.9x10^{-6}$	**$1.1x10^{-5}$**	$2.7x10^{-9}$	$7.0x10^{-5}$	$2.7x10^{-5}$	**$9.7x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.1x10^{-4}$	$1.6x10^{-4}$	**$4.7x10^{-4}$**	$2.6x10^{-6}$	$2.9x10^{-3}$	$1.1x10^{-3}$	**$4.0x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$7.9x10^{-8}$	$5.2x10^{-4}$	$2.7x10^{-4}$	**$7.9x10^{-4}$**	$1.8x10^{-7}$	$4.8x10^{-3}$	$1.8x10^{-3}$	**$6.7x10^{-3}$**
Fluorene	$9.1x10^{-10}$	$6.0x10^{-6}$	$3.1x10^{-6}$	**$9.1x10^{-6}$**	$2.1x10^{-9}$	$5.6x10^{-5}$	$2.1x10^{-5}$	**$7.7x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.8x10^{-7}$	$1.5x10^{-4}$	$7.8x10^{-5}$	**$2.3x10^{-4}$**	$4.2x10^{-7}$	$1.4x10^{-3}$	$5.3x10^{-4}$	**$1.9x10^{-3}$**
Phenanthrene	$1.2x10^{-6}$	$3.5x10^{-4}$	$1.8x10^{-4}$	**$5.3x10^{-4}$**	$2.9x10^{-6}$	$3.2x10^{-3}$	$1.2x10^{-3}$	**$4.4x10^{-3}$**
Pyrene	$7.1x10^{-8}$	$4.7x10^{-4}$	$2.4x10^{-4}$	**$7.1x10^{-4}$**	$1.7x10^{-7}$	$4.4x10^{-3}$	$1.7x10^{-3}$	**$6.0x10^{-3}$**
Total	$2.8x10^{-6}$	$1.9x10^{-3}$	$9.9x10^{-4}$	**$2.9x10^{-3}$**	$6.6x10^{-6}$	$1.8x10^{-2}$	$6.7x10^{-3}$	**$2.4x10^{-2}$**

NA denotes not available.

Table C3-15
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-4 feet) - Exposure Area 1 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-11}$	$3.3x10^{-7}$	$1.7x10^{-7}$	**$4.9x10^{-7}$**	$1.2x10^{-10}$	$3.0x10^{-6}$	$1.1x10^{-6}$	**$4.2x10^{-6}$**
Acenaphthylene	$3.0x10^{-8}$	$8.5x10^{-6}$	$4.4x10^{-6}$	**$1.3x10^{-5}$**	$7.0x10^{-8}$	$7.9x10^{-5}$	$3.0x10^{-5}$	**$1.1x10^{-4}$**
Anthracene	$2.2x10^{-11}$	$1.4x10^{-7}$	$7.4x10^{-8}$	**$2.2x10^{-7}$**	$5.1x10^{-11}$	$1.3x10^{-6}$	$5.0x10^{-7}$	**$1.8x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.3x10^{-8}$	$1.8x10^{-5}$	$9.2x10^{-6}$	**$2.7x10^{-5}$**	$1.5x10^{-7}$	$1.7x10^{-4}$	$6.2x10^{-5}$	**$2.3x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.5x10^{-9}$	$3.0x10^{-5}$	$1.5x10^{-5}$	**$4.5x10^{-5}$**	$1.1x10^{-8}$	$2.8x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Fluorene	$1.1x10^{-10}$	$7.5x10^{-7}$	$3.9x10^{-7}$	**$1.1x10^{-6}$**	$2.7x10^{-10}$	$7.0x10^{-6}$	$2.7x10^{-6}$	**$9.7x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$8.0x10^{-9}$	$6.8x10^{-6}$	$3.5x10^{-6}$	**$1.0x10^{-5}$**	$1.9x10^{-8}$	$6.3x10^{-5}$	$2.4x10^{-5}$	**$8.7x10^{-5}$**
Phenanthrene	$5.5x10^{-8}$	$1.5x10^{-5}$	$8.0x10^{-6}$	**$2.3x10^{-5}$**	$1.3x10^{-7}$	$1.4x10^{-4}$	$5.4x10^{-5}$	**$2.0x10^{-4}$**
Pyrene	$4.0x10^{-9}$	$2.6x10^{-5}$	$1.4x10^{-5}$	**$4.0x10^{-5}$**	$9.2x10^{-9}$	$2.4x10^{-4}$	$9.2x10^{-5}$	**$3.3x10^{-4}$**
Total	$1.6x10^{-7}$	$1.1x10^{-4}$	$5.5x10^{-5}$	**$1.6x10^{-4}$**	$3.8x10^{-7}$	$9.8x10^{-4}$	$3.7x10^{-4}$	**$1.4x10^{-3}$**

NA denotes not available.

Table C3-16
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-4 feet) - Exposure Area 2 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.3x10^{-9}$	$8.4x10^{-6}$	$4.4x10^{-6}$	**$1.3x10^{-5}$**	$3.0x10^{-9}$	$7.8x10^{-5}$	$3.0x10^{-5}$	**$1.1x10^{-4}$**
Acenaphthylene	$1.1x10^{-7}$	$3.2x10^{-5}$	$1.7x10^{-5}$	**$4.9x10^{-5}$**	$2.7x10^{-7}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Anthracene	$2.2x10^{-10}$	$1.5x10^{-6}$	$7.6x10^{-7}$	**$2.2x10^{-6}$**	$5.2x10^{-10}$	$1.4x10^{-5}$	$5.2x10^{-6}$	**$1.9x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.7x10^{-7}$	$1.9x10^{-4}$	$9.8x10^{-5}$	**$2.9x10^{-4}$**	$1.6x10^{-6}$	$1.8x10^{-3}$	$6.7x10^{-4}$	**$2.4x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.0x10^{-8}$	$2.7x10^{-4}$	$1.4x10^{-4}$	**$4.0x10^{-4}$**	$9.4x10^{-8}$	$2.5x10^{-3}$	$9.3x10^{-4}$	**$3.4x10^{-3}$**
Fluorene	$4.8x10^{-10}$	$3.2x10^{-6}$	$1.7x10^{-6}$	**$4.8x10^{-6}$**	$1.1x10^{-9}$	$3.0x10^{-5}$	$1.1x10^{-5}$	**$4.1x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.1x10^{-8}$	$9.0x10^{-6}$	$4.7x10^{-6}$	**$1.4x10^{-5}$**	$2.5x10^{-8}$	$8.4x10^{-5}$	$3.2x10^{-5}$	**$1.2x10^{-4}$**
Phenanthrene	$5.6x10^{-7}$	$1.6x10^{-4}$	$8.2x10^{-5}$	**$2.4x10^{-4}$**	$1.3x10^{-6}$	$1.5x10^{-3}$	$5.6x10^{-4}$	**$2.0x10^{-3}$**
Pyrene	$4.1x10^{-8}$	$2.7x10^{-4}$	$1.4x10^{-4}$	**$4.1x10^{-4}$**	$9.5x10^{-8}$	$2.5x10^{-3}$	$9.4x10^{-4}$	**$3.4x10^{-3}$**
Total	$1.4x10^{-6}$	$9.4x10^{-4}$	$4.9x10^{-4}$	**$1.4x10^{-3}$**	$3.4x10^{-6}$	$8.7x10^{-3}$	$3.3x10^{-3}$	**$1.2x10^{-2}$**

NA denotes not available.

Table C3-17
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-4 feet) - Exposure Area 3 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$9.2x10^{-11}$	$6.1x10^{-7}$	$3.1x10^{-7}$	**$9.2x10^{-7}$**	$2.1x10^{-10}$	$5.6x10^{-6}$	$2.1x10^{-6}$	**$7.8x10^{-6}$**
Acenaphthylene	$1.3x10^{-8}$	$3.6x10^{-6}$	$1.9x10^{-6}$	**$5.6x10^{-6}$**	$3.0x10^{-8}$	$3.4x10^{-5}$	$1.3x10^{-5}$	**$4.7x10^{-5}$**
Anthracene	$8.0x10^{-11}$	$5.3x10^{-7}$	$2.7x10^{-7}$	**$8.0x10^{-7}$**	$1.9x10^{-10}$	$4.9x10^{-6}$	$1.8x10^{-6}$	**$6.8x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.0x10^{-7}$	$2.8x10^{-5}$	$1.5x10^{-5}$	**$4.3x10^{-5}$**	$2.4x10^{-7}$	$2.7x10^{-4}$	$1.0x10^{-4}$	**$3.7x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$4.4x10^{-9}$	$2.9x10^{-5}$	$1.5x10^{-5}$	**$4.4x10^{-5}$**	$1.0x10^{-8}$	$2.7x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Fluorene	$2.3x10^{-10}$	$1.5x10^{-6}$	$8.0x10^{-7}$	**$2.3x10^{-6}$**	$5.4x10^{-10}$	$1.4x10^{-5}$	$5.4x10^{-6}$	**$2.0x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.8x10^{-9}$	$2.4x10^{-6}$	$1.2x10^{-6}$	**$3.6x10^{-6}$**	$6.5x10^{-9}$	$2.2x10^{-5}$	$8.3x10^{-6}$	**$3.0x10^{-5}$**
Phenanthrene	$8.2x10^{-8}$	$2.3x10^{-5}$	$1.2x10^{-5}$	**$3.5x10^{-5}$**	$1.9x10^{-7}$	$2.2x10^{-4}$	$8.1x10^{-5}$	**$3.0x10^{-4}$**
Pyrene	$7.6x10^{-9}$	$5.0x10^{-5}$	$2.6x10^{-5}$	**$7.6x10^{-5}$**	$1.8x10^{-8}$	$4.7x10^{-4}$	$1.8x10^{-4}$	**$6.4x10^{-4}$**
Total	$2.1x10^{-7}$	$1.4x10^{-4}$	$7.2x10^{-5}$	**$2.1x10^{-4}$**	$4.9x10^{-7}$	$1.3x10^{-3}$	$4.9x10^{-4}$	**$1.8x10^{-3}$**

NA denotes not available.

Table C3-18
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-4 feet) - Exposure Area 4 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.3x10^{-10}$	$8.8x10^{-7}$	$4.5x10^{-7}$	**$1.3x10^{-6}$**	$3.1x10^{-10}$	$8.2x10^{-6}$	$3.1x10^{-6}$	**$1.1x10^{-5}$**
Acenaphthylene	$1.4x10^{-7}$	$3.9x10^{-5}$	$2.0x10^{-5}$	**$6.0x10^{-5}$**	$3.3x10^{-7}$	$3.7x10^{-4}$	$1.4x10^{-4}$	**$5.1x10^{-4}$**
Anthracene	$2.3x10^{-10}$	$1.5x10^{-6}$	$7.8x10^{-7}$	**$2.3x10^{-6}$**	$5.3x10^{-10}$	$1.4x10^{-5}$	$5.3x10^{-6}$	**$1.9x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$5.3x10^{-7}$	$1.5x10^{-4}$	$7.7x10^{-5}$	**$2.3x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-3}$	$5.2x10^{-4}$	**$1.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.0x10^{-8}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$7.0x10^{-8}$	$1.9x10^{-3}$	$7.0x10^{-4}$	**$2.6x10^{-3}$**
Fluorene	$5.0x10^{-10}$	$3.3x10^{-6}$	$1.7x10^{-6}$	**$5.0x10^{-6}$**	$1.2x10^{-9}$	$3.1x10^{-5}$	$1.2x10^{-5}$	**$4.3x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$3.8x10^{-9}$	$3.2x10^{-6}$	$1.6x10^{-6}$	**$4.8x10^{-6}$**	$8.8x10^{-9}$	$3.0x10^{-5}$	$1.1x10^{-5}$	**$4.1x10^{-5}$**
Phenanthrene	$3.6x10^{-7}$	$1.0x10^{-4}$	$5.2x10^{-5}$	**$1.5x10^{-4}$**	$8.3x10^{-7}$	$9.4x10^{-4}$	$3.5x10^{-4}$	**$1.3x10^{-3}$**
Pyrene	$3.4x10^{-8}$	$2.2x10^{-4}$	$1.2x10^{-4}$	**$3.4x10^{-4}$**	$7.9x10^{-8}$	$2.1x10^{-3}$	$7.9x10^{-4}$	**$2.9x10^{-3}$**
Total	$1.1x10^{-6}$	$7.2x10^{-4}$	$3.7x10^{-4}$	**$1.1x10^{-3}$**	$2.6x10^{-6}$	$6.7x10^{-3}$	$2.5x10^{-3}$	**$9.3x10^{-3}$**

NA denotes not available.

Table C3-19
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-4 feet) - Exposure Area 5 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.3x10^{-9}$	$8.9x10^{-6}$	$4.6x10^{-6}$	**$1.3x10^{-5}$**	$3.1x10^{-9}$	$3.0x10^{-6}$	$1.1x10^{-6}$	**$4.2x10^{-6}$**
Acenaphthylene	$1.7x10^{-7}$	$4.9x10^{-5}$	$2.6x10^{-5}$	**$7.5x10^{-5}$**	$4.1x10^{-7}$	$7.9x10^{-5}$	$3.0x10^{-5}$	**$1.1x10^{-4}$**
Anthracene	$2.9x10^{-10}$	$1.9x10^{-6}$	$9.9x10^{-7}$	**$2.9x10^{-6}$**	$6.8x10^{-10}$	$1.3x10^{-6}$	$5.0x10^{-7}$	**$1.8x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.6x10^{-7}$	$1.9x10^{-4}$	$9.7x10^{-5}$	**$2.8x10^{-4}$**	$1.5x10^{-6}$	$1.7x10^{-4}$	$6.2x10^{-5}$	**$2.3x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.2x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.2x10^{-4}$**	$7.5x10^{-8}$	$2.8x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Fluorene	$6.2x10^{-10}$	$4.1x10^{-6}$	$2.1x10^{-6}$	**$6.2x10^{-6}$**	$1.4x10^{-9}$	$7.0x10^{-6}$	$2.7x10^{-6}$	**$9.7x10^{-6}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.3x10^{-8}$	$2.0x10^{-5}$	$1.0x10^{-5}$	**$3.0x10^{-5}$**	$5.5x10^{-8}$	$6.3x10^{-5}$	$2.4x10^{-5}$	**$8.7x10^{-5}$**
Phenanthrene	$5.1x10^{-7}$	$1.4x10^{-4}$	$7.4x10^{-5}$	**$2.2x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-4}$	$5.4x10^{-5}$	**$2.0x10^{-4}$**
Pyrene	$3.6x10^{-8}$	$2.4x10^{-4}$	$1.2x10^{-4}$	**$3.6x10^{-4}$**	$8.4x10^{-8}$	$2.4x10^{-4}$	$9.2x10^{-5}$	**$3.3x10^{-4}$**
Total	$1.4x10^{-6}$	$8.6x10^{-4}$	$4.5x10^{-4}$	**$1.3x10^{-3}$**	$3.4x10^{-6}$	$9.8x10^{-4}$	$3.7x10^{-4}$	**$1.4x10^{-3}$**

NA denotes not available.

Table C3-20
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-4 feet) - Exposure Area 6 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$7.0x10^{-10}$	$4.6x10^{-6}$	$2.4x10^{-6}$	**$7.0x10^{-6}$**	$1.6x10^{-9}$	$4.3x10^{-5}$	$1.6x10^{-5}$	**$5.9x10^{-5}$**
Acenaphthylene	$9.4x10^{-8}$	$2.7x10^{-5}$	$1.4x10^{-5}$	**$4.1x10^{-5}$**	$2.2x10^{-7}$	$2.5x10^{-4}$	$9.4x10^{-5}$	**$3.4x10^{-4}$**
Anthracene	$1.9x10^{-10}$	$1.2x10^{-6}$	$6.4x10^{-7}$	**$1.9x10^{-6}$**	$4.4x10^{-10}$	$1.1x10^{-5}$	$4.3x10^{-6}$	**$1.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$5.2x10^{-7}$	$1.5x10^{-4}$	$7.6x10^{-5}$	**$2.2x10^{-4}$**	$1.2x10^{-6}$	$1.4x10^{-3}$	$5.2x10^{-4}$	**$1.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.2x10^{-8}$	$1.4x10^{-4}$	$7.5x10^{-5}$	**$2.2x10^{-4}$**	$5.1x10^{-8}$	$1.3x10^{-3}$	$5.1x10^{-4}$	**$1.9x10^{-3}$**
Fluorene	$4.1x10^{-10}$	$2.7x10^{-6}$	$1.4x10^{-6}$	**$4.1x10^{-6}$**	$9.6x10^{-10}$	$2.5x10^{-5}$	$9.5x10^{-6}$	**$3.5x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.3x10^{-8}$	$1.1x10^{-5}$	$5.8x10^{-6}$	**$1.7x10^{-5}$**	$3.1x10^{-8}$	$1.1x10^{-4}$	$4.0x10^{-5}$	**$1.4x10^{-4}$**
Phenanthrene	$3.5x10^{-7}$	$9.8x10^{-5}$	$5.1x10^{-5}$	**$1.5x10^{-4}$**	$8.1x10^{-7}$	$9.2x10^{-4}$	$3.5x10^{-4}$	**$1.3x10^{-3}$**
Pyrene	$2.4x10^{-8}$	$1.6x10^{-4}$	$8.3x10^{-5}$	**$2.4x10^{-4}$**	$5.7x10^{-8}$	$1.5x10^{-3}$	$5.6x10^{-4}$	**$2.1x10^{-3}$**
Total	$1.0x10^{-6}$	$6.0x10^{-4}$	$3.1x10^{-4}$	**$9.1x10^{-4}$**	$2.4x10^{-6}$	$5.6x10^{-3}$	$2.1x10^{-3}$	**$7.7x10^{-3}$**

NA denotes not available.

Table C3-21
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 7 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.8x10^{-9}$	$3.2x10^{-5}$	$1.6x10^{-5}$	**$4.8x10^{-5}$**	$1.1x10^{-8}$	$3.0x10^{-4}$	$1.1x10^{-4}$	**$4.1x10^{-4}$**
Acenaphthylene	$2.3x10^{-7}$	$6.6x10^{-5}$	$3.4x10^{-5}$	**$1.0x10^{-4}$**	$5.4x10^{-7}$	$6.1x10^{-4}$	$2.3x10^{-4}$	**$8.4x10^{-4}$**
Anthracene	$1.0x10^{-9}$	$6.9x10^{-6}$	$3.6x10^{-6}$	**$1.0x10^{-5}$**	$2.4x10^{-9}$	$6.4x10^{-5}$	$2.4x10^{-5}$	**$8.9x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.1x10^{-4}$	$1.6x10^{-4}$	**$4.7x10^{-4}$**	$2.6x10^{-6}$	$2.9x10^{-3}$	$1.1x10^{-3}$	**$4.0x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$8.3x10^{-8}$	$5.5x10^{-4}$	$2.8x10^{-4}$	**$8.3x10^{-4}$**	$1.9x10^{-7}$	$5.1x10^{-3}$	$1.9x10^{-3}$	**$7.0x10^{-3}$**
Fluorene	$9.3x10^{-10}$	$6.1x10^{-6}$	$3.2x10^{-6}$	**$9.3x10^{-6}$**	$2.2x10^{-9}$	$5.7x10^{-5}$	$2.2x10^{-5}$	**$7.9x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.1x10^{-7}$	$9.5x10^{-5}$	$4.9x10^{-5}$	**$1.4x10^{-4}$**	$2.6x10^{-7}$	$8.9x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Phenanthrene	$1.1x10^{-6}$	$3.2x10^{-4}$	$1.6x10^{-4}$	**$4.8x10^{-4}$**	$2.6x10^{-6}$	$2.9x10^{-3}$	$1.1x10^{-3}$	**$4.1x10^{-3}$**
Pyrene	$6.9x10^{-8}$	$4.6x10^{-4}$	$2.4x10^{-4}$	**$6.9x10^{-4}$**	$1.6x10^{-7}$	$4.3x10^{-3}$	$1.6x10^{-3}$	**$5.9x10^{-3}$**
Total	$2.7x10^{-6}$	$1.8x10^{-3}$	$9.5x10^{-4}$	**$2.8x10^{-3}$**	$6.4x10^{-6}$	$1.7x10^{-2}$	$6.5x10^{-3}$	**$2.4x10^{-2}$**

NA denotes not available.

Table C3-22
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 1 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.9x10^{-11}$	$3.2x10^{-7}$	$1.7x10^{-7}$	**$4.9x10^{-7}$**	$1.1x10^{-10}$	$3.0x10^{-6}$	$1.1x10^{-6}$	**$4.1x10^{-6}$**
Acenaphthylene	$1.7x10^{-8}$	$4.8x10^{-6}$	$2.5x10^{-6}$	**$7.3x10^{-6}$**	$4.0x10^{-8}$	$4.5x10^{-5}$	$1.7x10^{-5}$	**$6.2x10^{-5}$**
Anthracene	$2.6x10^{-11}$	$1.7x10^{-7}$	$8.8x10^{-8}$	**$2.6x10^{-7}$**	$6.0x10^{-11}$	$1.6x10^{-6}$	$6.0x10^{-7}$	**$2.2x10^{-6}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$9.8x10^{-8}$	$2.8x10^{-5}$	$1.4x10^{-5}$	**$4.2x10^{-5}$**	$2.3x10^{-7}$	$2.6x10^{-4}$	$9.7x10^{-5}$	**$3.5x10^{-4}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$5.8x10^{-9}$	$3.8x10^{-5}$	$2.0x10^{-5}$	**$5.8x10^{-5}$**	$1.4x10^{-8}$	$3.6x10^{-4}$	$1.4x10^{-4}$	**$4.9x10^{-4}$**
Fluorene	$1.4x10^{-10}$	$9.1x10^{-7}$	$4.7x10^{-7}$	**$1.4x10^{-6}$**	$3.2x10^{-10}$	$8.5x10^{-6}$	$3.2x10^{-6}$	**$1.2x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$3.1x10^{-9}$	$2.6x10^{-6}$	$1.4x10^{-6}$	**$4.0x10^{-6}$**	$7.2x10^{-9}$	$2.4x10^{-5}$	$9.2x10^{-6}$	**$3.3x10^{-5}$**
Phenanthrene	$6.1x10^{-8}$	$1.7x10^{-5}$	$9.0x10^{-6}$	**$2.6x10^{-5}$**	$1.4x10^{-7}$	$1.6x10^{-4}$	$6.1x10^{-5}$	**$2.2x10^{-4}$**
Pyrene	$4.5x10^{-9}$	$3.0x10^{-5}$	$1.5x10^{-5}$	**$4.5x10^{-5}$**	$1.1x10^{-8}$	$2.8x10^{-4}$	$1.0x10^{-4}$	**$3.8x10^{-4}$**
Total	$1.9x10^{-7}$	$1.2x10^{-4}$	$6.3x10^{-5}$	**$1.9x10^{-4}$**	$4.4x10^{-7}$	$1.1x10^{-3}$	$4.3x10^{-4}$	**$1.6x10^{-3}$**

NA denotes not available.

Table C3-23
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 2 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.0x10^{-10}$	$1.3x10^{-6}$	$6.7x10^{-7}$	**$2.0x10^{-6}$**	$4.6x10^{-10}$	$1.2x10^{-5}$	$4.5x10^{-6}$	**$1.7x10^{-5}$**
Acenaphthylene	$2.1x10^{-7}$	$5.9x10^{-5}$	$3.0x10^{-5}$	**$8.9x10^{-5}$**	$4.9x10^{-7}$	$5.5x10^{-4}$	$2.1x10^{-4}$	**$7.6x10^{-4}$**
Anthracene	$1.9x10^{-9}$	$1.3x10^{-5}$	$6.6x10^{-6}$	**$1.9x10^{-5}$**	$4.5x10^{-9}$	$1.2x10^{-4}$	$4.5x10^{-5}$	**$1.6x10^{-4}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$6.9x10^{-7}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$1.6x10^{-6}$	$1.8x10^{-3}$	$6.9x10^{-4}$	**$2.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$9.8x10^{-8}$	$6.5x10^{-4}$	$3.3x10^{-4}$	**$9.8x10^{-4}$**	$2.3x10^{-7}$	$6.0x10^{-3}$	$2.3x10^{-3}$	**$8.3x10^{-3}$**
Fluorene	$2.5x10^{-10}$	$1.6x10^{-6}$	$8.5x10^{-7}$	**$2.5x10^{-6}$**	$5.8x10^{-10}$	$1.5x10^{-5}$	$5.8x10^{-6}$	**$2.1x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$9.7x10^{-9}$	$8.2x10^{-6}$	$4.3x10^{-6}$	**$1.2x10^{-5}$**	$2.3x10^{-8}$	$7.7x10^{-5}$	$2.9x10^{-5}$	**$1.1x10^{-4}$**
Phenanthrene	$2.8x10^{-6}$	$7.9x10^{-4}$	$4.1x10^{-4}$	**$1.2x10^{-3}$**	$6.5x10^{-6}$	$7.3x10^{-3}$	$2.8x10^{-3}$	**$1.0x10^{-2}$**
Pyrene	$1.1x10^{-7}$	$7.5x10^{-4}$	$3.9x10^{-4}$	**$1.1x10^{-3}$**	$2.7x10^{-7}$	$7.0x10^{-3}$	$2.6x10^{-3}$	**$9.6x10^{-3}$**
Total	$3.9x10^{-6}$	$2.5x10^{-3}$	$1.3x10^{-3}$	**$3.7x10^{-3}$**	$9.1x10^{-6}$	$2.3x10^{-2}$	$8.7x10^{-3}$	**$3.2x10^{-2}$**

NA denotes not available.

Table C3-24
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 3 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.2x10^{-9}$	$1.4x10^{-5}$	$7.4x10^{-6}$	**$2.2x10^{-5}$**	$5.1x10^{-9}$	$1.3x10^{-4}$	$5.0x10^{-5}$	**$1.8x10^{-4}$**
Acenaphthylene	$1.3x10^{-8}$	$3.8x10^{-6}$	$2.0x10^{-6}$	**$5.7x10^{-6}$**	$3.1x10^{-8}$	$3.5x10^{-5}$	$1.3x10^{-5}$	**$4.9x10^{-5}$**
Anthracene	$6.8x10^{-10}$	$4.4x10^{-6}$	$2.3x10^{-6}$	**$6.8x10^{-6}$**	$1.6x10^{-9}$	$4.2x10^{-5}$	$1.6x10^{-5}$	**$5.7x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$1.1x10^{-6}$	$3.0x10^{-4}$	$1.6x10^{-4}$	**$4.6x10^{-4}$**	$2.5x10^{-6}$	$2.8x10^{-3}$	$1.1x10^{-3}$	**$3.9x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.7x10^{-8}$	$2.4x10^{-4}$	$1.3x10^{-4}$	**$3.7x10^{-4}$**	$8.5x10^{-8}$	$2.2x10^{-3}$	$8.5x10^{-4}$	**$3.1x10^{-3}$**
Fluorene	$1.9x10^{-9}$	$1.2x10^{-5}$	$6.4x10^{-6}$	**$1.9x10^{-5}$**	$4.4x10^{-9}$	$1.1x10^{-4}$	$4.3x10^{-5}$	**$1.6x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.5x10^{-8}$	$2.1x10^{-5}$	$1.1x10^{-5}$	**$3.2x10^{-5}$**	$5.8x10^{-8}$	$2.0x10^{-4}$	$7.4x10^{-5}$	**$2.7x10^{-4}$**
Phenanthrene	$7.6x10^{-7}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.2x10^{-4}$**	$1.8x10^{-6}$	$2.0x10^{-3}$	$7.5x10^{-4}$	**$2.7x10^{-3}$**
Pyrene	$5.6x10^{-8}$	$3.7x10^{-4}$	$1.9x10^{-4}$	**$5.6x10^{-4}$**	$1.3x10^{-7}$	$3.4x10^{-3}$	$1.3x10^{-3}$	**$4.7x10^{-3}$**
Total	$2.0x10^{-6}$	$1.2x10^{-3}$	$6.1x10^{-4}$	**$1.8x10^{-3}$**	$4.6x10^{-6}$	$1.1x10^{-2}$	$4.2x10^{-3}$	**$1.5x10^{-2}$**

NA denotes not available.

Table C3-25
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 4 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$4.0x10^{-9}$	$2.7x10^{-5}$	$1.4x10^{-5}$	**$4.0x10^{-5}$**	$9.4x10^{-9}$	$2.5x10^{-4}$	$9.4x10^{-5}$	**$3.4x10^{-4}$**
Acenaphthylene	$1.9x10^{-7}$	$5.4x10^{-5}$	$2.8x10^{-5}$	**$8.3x10^{-5}$**	$4.5x10^{-7}$	$5.1x10^{-4}$	$1.9x10^{-4}$	**$7.0x10^{-4}$**
Anthracene	$6.7x10^{-10}$	$4.4x10^{-6}$	$2.3x10^{-6}$	**$6.7x10^{-6}$**	$1.6x10^{-9}$	$4.1x10^{-5}$	$1.5x10^{-5}$	**$5.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$7.0x10^{-7}$	$2.0x10^{-4}$	$1.0x10^{-4}$	**$3.0x10^{-4}$**	$1.6x10^{-6}$	$1.8x10^{-3}$	$7.0x10^{-4}$	**$2.5x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$6.3x10^{-8}$	$4.1x10^{-4}$	$2.1x10^{-4}$	**$6.3x10^{-4}$**	$1.5x10^{-7}$	$3.9x10^{-3}$	$1.5x10^{-3}$	**$5.3x10^{-3}$**
Fluorene	$3.2x10^{-9}$	$2.1x10^{-5}$	$1.1x10^{-5}$	**$3.2x10^{-5}$**	$7.6x10^{-9}$	$2.0x10^{-4}$	$7.5x10^{-5}$	**$2.7x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$9.4x10^{-8}$	$8.0x10^{-5}$	$4.1x10^{-5}$	**$1.2x10^{-4}$**	$2.2x10^{-7}$	$7.5x10^{-4}$	$2.8x10^{-4}$	**$1.0x10^{-3}$**
Phenanthrene	$1.4x10^{-6}$	$3.9x10^{-4}$	$2.0x10^{-4}$	**$6.0x10^{-4}$**	$3.3x10^{-6}$	$3.7x10^{-3}$	$1.4x10^{-3}$	**$5.1x10^{-3}$**
Pyrene	$7.4x10^{-8}$	$4.8x10^{-4}$	$2.5x10^{-4}$	**$7.4x10^{-4}$**	$1.7x10^{-7}$	$4.5x10^{-3}$	$1.7x10^{-3}$	**$6.2x10^{-3}$**
Total	$2.5x10^{-6}$	$1.7x10^{-3}$	$8.7x10^{-4}$	**$2.5x10^{-3}$**	$5.9x10^{-6}$	$1.6x10^{-2}$	$5.9x10^{-3}$	**$2.2x10^{-2}$**

NA denotes not available.

Table C3-26
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 5 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.3x10^{-10}$	$1.5x10^{-6}$	$7.7x10^{-7}$	**$2.2x10^{-6}$**	$5.3x10^{-10}$	$1.4x10^{-5}$	$5.2x10^{-6}$	**$1.9x10^{-5}$**
Acenaphthylene	$8.3x10^{-8}$	$2.3x10^{-5}$	$1.2x10^{-5}$	**$3.6x10^{-5}$**	$1.9x10^{-7}$	$2.2x10^{-4}$	$8.3x10^{-5}$	**$3.0x10^{-4}$**
Anthracene	$1.9x10^{-10}$	$1.3x10^{-6}$	$6.5x10^{-7}$	**$1.9x10^{-6}$**	$4.5x10^{-10}$	$1.2x10^{-5}$	$4.4x10^{-6}$	**$1.6x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.8x10^{-7}$	$1.1x10^{-4}$	$5.5x10^{-5}$	**$1.6x10^{-4}$**	$8.8x10^{-7}$	$9.9x10^{-4}$	$3.7x10^{-4}$	**$1.4x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$3.2x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.2x10^{-4}$**	$7.4x10^{-8}$	$2.0x10^{-3}$	$7.4x10^{-4}$	**$2.7x10^{-3}$**
Fluorene	$4.6x10^{-10}$	$3.0x10^{-6}$	$1.6x10^{-6}$	**$4.6x10^{-6}$**	$1.1x10^{-9}$	$2.8x10^{-5}$	$1.1x10^{-5}$	**$3.9x10^{-5}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$2.8x10^{-8}$	$2.3x10^{-5}$	$1.2x10^{-5}$	**$3.6x10^{-5}$**	$6.5x10^{-8}$	$2.2x10^{-4}$	$8.2x10^{-5}$	**$3.0x10^{-4}$**
Phenanthrene	$3.3x10^{-7}$	$9.3x10^{-5}$	$4.8x10^{-5}$	**$1.4x10^{-4}$**	$7.7x10^{-7}$	$8.7x10^{-4}$	$3.3x10^{-4}$	**$1.2x10^{-3}$**
Pyrene	$3.3x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.3x10^{-4}$**	$7.6x10^{-8}$	$2.0x10^{-3}$	$7.6x10^{-4}$	**$2.8x10^{-3}$**
Total	$8.8x10^{-7}$	$6.8x10^{-4}$	$3.5x10^{-4}$	**$1.0x10^{-3}$**	$2.1x10^{-6}$	$6.3x10^{-3}$	$2.4x10^{-3}$	**$8.7x10^{-3}$**

NA denotes not available.

Table C3-27
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 6 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$6.6x10^{-10}$	$4.3x10^{-6}$	$2.3x10^{-6}$	**$6.6x10^{-6}$**	$1.5x10^{-9}$	$4.1x10^{-5}$	$1.5x10^{-5}$	**$5.6x10^{-5}$**
Acenaphthylene	$4.3x10^{-7}$	$1.2x10^{-4}$	$6.3x10^{-5}$	**$1.8x10^{-4}$**	$1.0x10^{-6}$	$1.1x10^{-3}$	$4.3x10^{-4}$	**$1.6x10^{-3}$**
Anthracene	$1.9x10^{-9}$	$1.2x10^{-5}$	$6.4x10^{-6}$	**$1.9x10^{-5}$**	$4.4x10^{-9}$	$1.2x10^{-4}$	$4.4x10^{-5}$	**$1.6x10^{-4}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$2.0x10^{-6}$	$5.8x10^{-4}$	$3.0x10^{-4}$	**$8.8x10^{-4}$**	$4.8x10^{-6}$	$5.4x10^{-3}$	$2.0x10^{-3}$	**$7.4x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$1.5x10^{-7}$	$9.6x10^{-4}$	$5.0x10^{-4}$	**$1.5x10^{-3}$**	$3.4x10^{-7}$	$9.0x10^{-3}$	$3.4x10^{-3}$	**$1.2x10^{-2}$**
Fluorene	$2.0x10^{-9}$	$1.3x10^{-5}$	$6.7x10^{-6}$	**$2.0x10^{-5}$**	$4.6x10^{-9}$	$1.2x10^{-4}$	$4.5x10^{-5}$	**$1.7x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$1.6x10^{-7}$	$1.4x10^{-4}$	$7.1x10^{-5}$	**$2.1x10^{-4}$**	$3.8x10^{-7}$	$1.3x10^{-3}$	$4.8x10^{-4}$	**$1.8x10^{-3}$**
Phenanthrene	$2.0x10^{-6}$	$5.5x10^{-4}$	$2.9x10^{-4}$	**$8.4x10^{-4}$**	$4.6x10^{-6}$	$5.2x10^{-3}$	$2.0x10^{-3}$	**$7.1x10^{-3}$**
Pyrene	$1.6x10^{-7}$	$1.0x10^{-3}$	$5.4x10^{-4}$	**$1.6x10^{-3}$**	$3.7x10^{-7}$	$9.7x10^{-3}$	$3.6x10^{-3}$	**$1.3x10^{-2}$**
Total	$4.9x10^{-6}$	$3.4x10^{-3}$	$1.8x10^{-3}$	**$5.2x10^{-3}$**	$1.1x10^{-5}$	$3.2x10^{-2}$	$1.2x10^{-2}$	**$4.4x10^{-2}$**

NA denotes not available.

Table C3-28
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soils (0-8 feet) - Exposure Area 7 - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$1.6x10^{-8}$	$1.0x10^{-4}$	$5.4x10^{-5}$	**$1.6x10^{-4}$**	$3.7x10^{-8}$	$9.7x10^{-4}$	$3.7x10^{-4}$	**$1.3x10^{-3}$**
Acenaphthylene	$8.5x10^{-6}$	$2.4x10^{-3}$	$1.2x10^{-3}$	**$3.6x10^{-3}$**	$2.0x10^{-5}$	$2.2x10^{-2}$	$8.4x10^{-3}$	**$3.1x10^{-2}$**
Anthracene	$3.1x10^{-8}$	$2.1x10^{-4}$	$1.1x10^{-4}$	**$3.1x10^{-4}$**	$7.3x10^{-8}$	$1.9x10^{-3}$	$7.2x10^{-4}$	**$2.6x10^{-3}$**
Benzo(a)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$9.9x10^{-6}$	$2.8x10^{-3}$	$1.5x10^{-3}$	**$4.3x10^{-3}$**	$2.3x10^{-5}$	$2.6x10^{-2}$	$9.9x10^{-3}$	**$3.6x10^{-2}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Fluoranthene	$2.0x10^{-6}$	$1.3x10^{-2}$	$6.8x10^{-3}$	**$2.0x10^{-2}$**	$4.7x10^{-6}$	$1.2x10^{-1}$	$4.6x10^{-2}$	**$1.7x10^{-1}$**
Fluorene	$9.5x10^{-8}$	$6.2x10^{-4}$	$3.2x10^{-4}$	**$9.5x10^{-4}$**	$2.2x10^{-7}$	$5.8x10^{-3}$	$2.2x10^{-3}$	**$8.0x10^{-3}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Naphthalene	$5.7x10^{-6}$	$4.8x10^{-3}$	$2.5x10^{-3}$	**$7.3x10^{-3}$**	$1.3x10^{-5}$	$4.5x10^{-2}$	$1.7x10^{-2}$	**$6.2x10^{-2}$**
Phenanthrene	$7.1x10^{-5}$	$2.0x10^{-2}$	$1.0x10^{-2}$	**$3.0x10^{-2}$**	$1.7x10^{-4}$	$1.9x10^{-1}$	$7.0x10^{-2}$	**$2.6x10^{-1}$**
Pyrene	$1.7x10^{-6}$	$1.1x10^{-2}$	$5.7x10^{-3}$	**$1.7x10^{-2}$**	$3.9x10^{-6}$	$1.0x10^{-1}$	$3.9x10^{-2}$	**$1.4x10^{-1}$**
Total	$9.9x10^{-5}$	$5.5x10^{-2}$	$2.9x10^{-2}$	**$8.4x10^{-2}$**	$2.3x10^{-4}$	$5.1x10^{-1}$	$1.9x10^{-1}$	**$7.1x10^{-1}$**

NA denotes not available.

Table C3-29
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soil (0-8 feet) by Site - Construction Workers - CalEPA Methodology

	Estimated Noncancer Hazard Index			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Acenaphthene	$2.3x10^{-6}$	$7.8x10^{-5}$	$1.1x10^{-4}$	**$1.9x10^{-4}$**
Acenaphthylene	$1.1x10^{-4}$	$1.7x10^{-4}$	$2.4x10^{-4}$	**$5.3x10^{-4}$**
Anthracene	$7.9x10^{-7}$	$2.7x10^{-5}$	$3.9x10^{-5}$	**$6.7x10^{-5}$**
Benzo(a)anthracene	NA	NA	NA	**NA**
Benzo(a)pyrene	NA	NA	NA	**NA**
Benzo(b)fluoranthene	NA	NA	NA	**NA**
Benzo(g,h,i)perylene	$3.8x10^{-4}$	$5.7x10^{-4}$	$8.1x10^{-4}$	**$1.8x10^{-3}$**
Benzo(k)fluoranthene	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	NA	NA	NA	**NA**
Fluoranthene	$4.1x10^{-5}$	$1.4x10^{-3}$	$2.0x10^{-3}$	**$3.5x10^{-3}$**
Fluorene	$1.2x10^{-6}$	$4.2x10^{-5}$	$6.0x10^{-5}$	**$1.0x10^{-4}$**
Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**
Naphthalene	$8.5x10^{-5}$	$3.8x10^{-4}$	$5.4x10^{-4}$	**$1.0x10^{-3}$**
Phenanthrene	$1.1x10^{-3}$	$1.7x10^{-3}$	$2.4x10^{-3}$	**$5.1x10^{-3}$**
Pyrene	$4.0x10^{-5}$	$1.4x10^{-3}$	$2.0x10^{-3}$	**$3.4x10^{-3}$**
Total	$1.8x10^{-3}$	$5.7x10^{-3}$	$8.2x10^{-3}$	**$1.6x10^{-2}$**

NA denotes not available.

Table C3-30
Pathway-Specific Noncancer Hazard Indices for Polynuclear Aromatic Hydrocarbons in Soil (0-8 feet) by Northern and Southern Area - Construction Workers - CalEPA Methodology

		Estimated Noncancer Hazard Index			
Area	Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Northern	Acenaphthene	$4.5x10^{-6}$	$1.6x10^{-4}$	$2.2x10^{-4}$	**$3.8x10^{-4}$**
	Acenaphthylene	$2.9x10^{-4}$	$4.3x10^{-4}$	$6.2x10^{-4}$	**$1.3x10^{-3}$**
	Anthracene	$3.3x10^{-6}$	$1.2x10^{-4}$	$1.6x10^{-4}$	**$2.8x10^{-4}$**
	Benzo(a)anthracene	NA	NA	NA	**NA**
	Benzo(a)pyrene	NA	NA	NA	**NA**
	Benzo(b)fluoranthene	NA	NA	NA	**NA**
	Benzo(g,h,i)perylene	$8.1x10^{-4}$	$1.2x10^{-3}$	$1.7x10^{-3}$	**$3.7x10^{-3}$**
	Benzo(k)fluoranthene	NA	NA	NA	**NA**
	Chrysene	NA	NA	NA	**NA**
	Dibenz(a,h)anthracene	NA	NA	NA	**NA**
	Fluoranthene	$1.1x10^{-4}$	$3.8x10^{-3}$	$5.4x10^{-3}$	**$9.3x10^{-3}$**
	Fluorene	$1.1x10^{-5}$	$3.8x10^{-4}$	$5.5x10^{-4}$	**$9.4x10^{-4}$**
	Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**
	Naphthalene	$3.0x10^{-4}$	$1.3x10^{-3}$	$1.9x10^{-3}$	**$3.5x10^{-3}$**
	Phenanthrene	$4.9x10^{-3}$	$7.3x10^{-3}$	$1.0x10^{-2}$	**$2.2x10^{-2}$**
	Pyrene	$9.6x10^{-5}$	$3.3x10^{-3}$	$4.7x10^{-3}$	**$8.1x10^{-3}$**
	Total	$6.5x10^{-3}$	$1.8x10^{-2}$	$2.6x10^{-2}$	**$5.0x10^{-2}$**
Southern	Acenaphthene	$5.8x10^{-7}$	$2.0x10^{-5}$	$2.8x10^{-5}$	**$4.9x10^{-5}$**
	Acenaphthylene	$5.4x10^{-5}$	$8.0x10^{-5}$	$1.1x10^{-4}$	**$2.5x10^{-4}$**
	Anthracene	$4.8x10^{-8}$	$1.7x10^{-6}$	$2.4x10^{-6}$	**$4.1x10^{-6}$**
	Benzo(a)anthracene	NA	NA	NA	**NA**
	Benzo(a)pyrene	NA	NA	NA	**NA**
	Benzo(b)fluoranthene	NA	NA	NA	**NA**
	Benzo(g,h,I)perylene	$1.2x10^{-4}$	$1.8x10^{-4}$	$2.6x10^{-4}$	**$5.7x10^{-4}$**
	Benzo(k)fluoranthene	NA	NA	NA	**NA**
	Chrysene	NA	NA	NA	**NA**
	Dibenz(a,h)anthracene	NA	NA	NA	**NA**
	Fluoranthene	$7.3x10^{-6}$	$2.5x10^{-4}$	$3.6x10^{-4}$	**$6.2x10^{-4}$**
	Fluorene	$1.3x10^{-7}$	$4.5x10^{-6}$	$6.4x10^{-6}$	**$1.1x10^{-5}$**
	Indeno(1,2,3-cd)pyrene	NA	NA	NA	**NA**
	Naphthalene	$1.3x10^{-5}$	$5.9x10^{-5}$	$8.4x10^{-5}$	**$1.6x10^{-4}$**
	Phenanthrene	$9.5x10^{-5}$	$1.4x10^{-4}$	$2.0x10^{-4}$	**$4.3x10^{-4}$**
	Pyrene	$6.8x10^{-6}$	$2.3x10^{-4}$	$3.3x10^{-4}$	**$5.7x10^{-4}$**
	Total	$3.0x10^{-4}$	$9.8x10^{-4}$	$1.4x10^{-3}$	**$2.7x10^{-3}$**

NA denotes not available.

Table C3-31
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-0.5 feet) - Current Residents - CalEPA Methodology

	Estimated Cancer Risk							
	Current Adult Resident				Current Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Arsenic	$8.8x10^{-10}$	$7.2x10^{-7}$	$8.7x10^{-8}$	**$8.1x10^{-7}$**	$2.1x10^{-9}$	$6.8x10^{-6}$	$5.9x10^{-7}$	**$7.3x10^{-6}$**
Barium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Beryllium	$3.9x10^{-11}$	NC	NC	**$3.9x10^{-11}$**	$9.1x10^{-11}$	NC	NC	**$9.1x10^{-11}$**
Cadmium	$7.4x10^{-11}$	$1.2x10^{-8}$	$4.9x10^{-11}$	**$1.2x10^{-8}$**	$1.7x10^{-10}$	$1.1x10^{-7}$	$3.3x10^{-9}$	**$1.2x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Chromium (VI)	$5.7x10^{-8}$	NC	NC	**$5.7x10^{-8}$**	$1.3x10^{-7}$	NC	NC	**$1.3x10^{-7}$**
Cobalt	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Nickel	$6.8x10^{-10}$	NC	NC	**$6.8x10^{-10}$**	$1.6x10^{-9}$	NC	NC	**$1.6x10^{-9}$**
Selenium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Total	$5.9x10^{-8}$	$7.4x10^{-7}$	$8.7x10^{-8}$	**$8.8x10^{-7}$**	$1.4x10^{-7}$	$6.9x10^{-6}$	$5.9x10^{-7}$	**$7.6x10^{-6}$**

NA denotes not available.

Table C3-32
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-2.0 feet) - Current Residents - CalEPA Methodology

	Estimated Cancer Risk							
	Current Adult Resident				Current Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Arsenic	$8.7x10^{-10}$	$7.2x10^{-7}$	$8.6x10^{-8}$	**$8.1x10^{-7}$**	$2.0x10^{-9}$	$6.7x10^{-6}$	$5.8x10^{-7}$	**$7.3x10^{-6}$**
Barium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Beryllium	$4.3x10^{-11}$	NC	NC	**$4.3x10^{-11}$**	$1.0x10^{-10}$	NC	NC	**$1.0x10^{-10}$**
Cadmium	$6.9x10^{-11}$	$1.1x10^{-8}$	$4.6x10^{-11}$	**$1.2x10^{-8}$**	$1.6x10^{-10}$	$1.1x10^{-7}$	$3.1x10^{-10}$	**$1.1x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Chromium (VI)	$5.3x10^{-8}$	NC	NC	**$5.3x10^{-8}$**	$1.2x10^{-7}$	NC	NC	**$1.2x10^{-7}$**
Cobalt	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Nickel	$6.3x10^{-10}$	NC	NC	**$6.3x10^{-10}$**	$1.5x10^{-9}$	NC	NC	**$1.5x10^{-9}$**
Selenium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Total	$5.5x10^{-8}$	$7.3x10^{-7}$	$8.6x10^{-8}$	**$8.7x10^{-7}$**	$1.3x10^{-7}$	$6.8x10^{-6}$	$5.8x10^{-7}$	**$7.5x10^{-6}$**

NA denotes not available.

Table C3-33
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-4.0 feet) - Current Residents - CalEPA Methodology

	Estimated Cancer Risk							
	Current Adult Resident				Current Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Arsenic	$9.8x10^{-10}$	$8.0x10^{-7}$	$9.6x10^{-8}$	**$9.0x10^{-7}$**	$2.3x10^{-9}$	$7.5x10^{-6}$	$6.5x10^{-7}$	**$8.2x10^{-6}$**
Barium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Beryllium	$5.1x10^{-11}$	NC	NC	**$5.1x10^{-11}$**	$1.2x10^{-10}$	NC	NC	**$1.2x10^{-10}$**
Cadmium	$6.8x10^{-11}$	$1.1x10^{-8}$	$4.5x10^{-11}$	**$1.1x10^{-8}$**	$1.6x10^{-10}$	$1.1x10^{-7}$	$3.1x10^{-10}$	**$1.1x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Chromium (VI)	$6.5x10^{-8}$	NC	NC	**$6.5x10^{-8}$**	$1.5x10^{-7}$	NC	NC	**$1.5x10^{-7}$**
Cobalt	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Nickel	$8.2x10^{-10}$	NC	NC	**$8.2x10^{-10}$**	$1.9x10^{-9}$	NC	NC	**$1.9x10^{-9}$**
Selenium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**	NC	NC	NC	**NC**
Total	$6.7x10^{-8}$	$8.2x10^{-7}$	$9.6x10^{-8}$	**$9.8x10^{-7}$**	$1.6x10^{-7}$	$7.6x10^{-6}$	$6.5x10^{-7}$	**$8.4x10^{-6}$**

NA denotes not available.

Table C3-34
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-0.5 feet) - Future Residents - CalEPA Methodology

Chemical	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**
Arsenic	$5.6x10^{-9}$	$9.7x10^{-6}$	$9.3x10^{-7}$	**$1.1x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$2.5x10^{-10}$	NC	NC	**$2.5x10^{-10}$**
Cadmium	$4.7x10^{-10}$	$1.6x10^{-7}$	$5.3x10^{-10}$	**$1.7x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.6x10^{-7}$	NC	NC	**$3.6x10^{-7}$**
Cobalt	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**
Nickel	$4.3x10^{-9}$	NC	NC	**$4.3x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**
Total	$3.7x10^{-7}$	$9.8x10^{-6}$	$9.4x10^{-7}$	**$1.1x10^{-5}$**

NA denotes not available.

Table C3-35
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-2.0 feet) - Future Residents - CalEPA Methodology

Chemical	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**
Arsenic	$5.5x10^{-9}$	$9.6x10^{-6}$	$9.3x10^{-7}$	**$1.1x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$2.7x10^{-10}$	NC	NC	**$2.7x10^{-10}$**
Cadmium	$4.4x10^{-10}$	$1.5x10^{-7}$	$4.9x10^{-10}$	**$1.5x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.4x10^{-7}$	NC	NC	**$3.4x10^{-7}$**
Cobalt	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**
Nickel	$4.0x10^{-9}$	NC	NC	**$4.0x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**
Total	$3.5x10^{-7}$	$9.7x10^{-6}$	$9.3x10^{-7}$	**$1.1x10^{-5}$**

NA denotes not available.

Table C3-36
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-4.0 feet) - Future Residents - CalEPA Methodology

Chemical	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**
Arsenic	$6.2x10^{-9}$	$1.1x10^{-5}$	$1.0x10^{-6}$	**$1.2x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$3.2x10^{-10}$	NC	NC	**$3.2x10^{-10}$**
Cadmium	$4.3x10^{-10}$	$1.5x10^{-7}$	$4.9x10^{-10}$	**$1.5x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$4.1x10^{-7}$	NC	NC	**$4.1x10^{-7}$**
Cobalt	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**
Nickel	$5.2x10^{-9}$	NC	NC	**$5.2x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**
Total	$4.2x10^{-7}$	$1.1x10^{-5}$	$1.0x10^{-6}$	**$1.2x10^{-5}$**

NA denotes not available.

Table C3-37
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-8.0 feet) - Future Residents - CalEPA Methodology

Chemical	Estimated Cancer Risk			
	Future Resident (age-adjusted)			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**
Arsenic	$5.7x10^{-9}$	$1.0x10^{-5}$	$9.6x10^{-7}$	**$1.1x10^{-5}$**
Barium	NC	NC	NC	**NC**
Beryllium	$3.2x10^{-10}$	NC	NC	**$3.2x10^{-10}$**
Cadmium	$5.0x10^{-10}$	$1.8x10^{-7}$	$5.7x10^{-10}$	**$1.8x10^{-7}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$4.5x10^{-7}$	NC	NC	**$4.5x10^{-7}$**
Cobalt	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**
Nickel	$5.6x10^{-9}$	NC	NC	**$5.6x10^{-9}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**
Total	$4.6x10^{-7}$	$1.0x10^{-5}$	$9.6x10^{-7}$	**$1.2x10^{-5}$**

NA denotes not available.

Table C3-38
Pathway-Specific Cancer Risks for Inorganic Chemicals in Soil (0-8.0 feet) - Construction Workers - CalEPA Methodology

	Estimated Cancer Risk			
	Construction Worker			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	NA	NA	**NA**
Arsenic	$4.9x10^{-8}$	$2.1x10^{-7}$	$6.1x10^{-8}$	**$3.2x10^{-7}$**
Barium	NC	NC	NC	**NC**
Beryllium	$2.8x10^{-9}$	NC	NC	**$2.8x10^{-9}$**
Cadmium	$4.3x10^{-9}$	$3.8x10^{-9}$	$3.6x10^{-11}$	**$8.1x10^{-9}$**
Chromium (III)	NC	NC	NC	**NC**
Chromium (VI)	$3.8x10^{-6}$	NC	NC	**$3.8x10^{-6}$**
Cobalt	NA	NA	NA	**NA**
Copper	NC	NC	NC	**NC**
Mercury	NC	NC	NC	**NC**
Molybdenum	NA	NA	NA	**NA**
Nickel	$4.8x10^{-8}$	NC	NC	**$4.8x10^{-8}$**
Selenium	NC	NC	NC	**NC**
Silver	NC	NC	NC	**NC**
Thallium	NC	NC	NC	**NC**
Vanadium	NA	NA	NA	**NA**
Zinc	NC	NC	NC	**NC**
Total	$3.9x10^{-6}$	$2.2x10^{-7}$	$6.1x10^{-8}$	**$4.2x10^{-6}$**

NA denotes not available.

Table C3-39
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-0.5 feet) - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.7x10^{-2}$	$6.8x10^{-4}$	**$1.8x10^{-2}$**	NA	$1.6x10^{-1}$	$4.6x10^{-3}$	**$1.6x10^{-1}$**
Arsenic	$1.0x10^{-4}$	$1.9x10^{-2}$	$2.2x10^{-3}$	**$2.1x10^{-2}$**	$2.3x10^{-4}$	$1.8x10^{-1}$	$1.5x10^{-2}$	**$1.9x10^{-1}$**
Barium	$1.3x10^{-4}$	$1.7x10^{-3}$	$6.6x10^{-5}$	**$1.9x10^{-3}$**	$3.0x10^{-4}$	$1.6x10^{-2}$	$4.5x10^{-4}$	**$1.6x10^{-2}$**
Beryllium	$2.7x10^{-5}$	$1.8x10^{-4}$	$7.1x10^{-6}$	**$2.1x10^{-4}$**	$6.4x10^{-5}$	$1.7x10^{-3}$	$4.8x10^{-5}$	**$1.8x10^{-3}$**
Cadmium	$1.0x10^{-5}$	$7.6x10^{-4}$	$3.0x10^{-6}$	**$7.7x10^{-4}$**	$2.3x10^{-5}$	$7.1x10^{-3}$	$2.0x10^{-5}$	**$7.1x10^{-3}$**
Chromium (III)	NA	$3.4x10^{-5}$	$1.4x10^{-6}$	**$3.6x10^{-5}$**	NA	$3.2x10^{-4}$	$9.3x10^{-6}$	**$3.3x10^{-4}$**
Chromium (VI)	$2.3x10^{-5}$	$2.9x10^{-3}$	$1.1x10^{-4}$	**$3.0x10^{-3}$**	$5.3x10^{-5}$	$2.7x10^{-2}$	$7.7x10^{-4}$	**$2.7x10^{-2}$**
Cobalt	NA	$2.1x10^{-4}$	$8.6x10^{-6}$	**$2.2x10^{-4}$**	NA	$2.0x10^{-3}$	$5.8x10^{-5}$	**$2.1x10^{-3}$**
Copper	NA	$1.1x10^{-3}$	$4.5x10^{-5}$	**$1.2x10^{-3}$**	NA	$1.1x10^{-2}$	$3.1x10^{-4}$	**$1.1x10^{-2}$**
Mercury	$1.8x10^{-6}$	$3.6x10^{-3}$	$1.4x10^{-4}$	**$3.7x10^{-3}$**	$4.2x10^{-6}$	$3.4x10^{-2}$	$9.7x10^{-4}$	**$3.4x10^{-2}$**
Molybdenum	NA	$5.2x10^{-4}$	$2.1x10^{-5}$	**$5.4x10^{-4}$**	NA	$4.9x10^{-3}$	$1.4x10^{-4}$	**$5.0x10^{-3}$**
Nickel	$6.1x10^{-4}$	$2.9x10^{-3}$	$1.1x10^{-4}$	**$3.6x10^{-3}$**	$1.4x10^{-3}$	$2.7x10^{-2}$	$7.7x10^{-4}$	**$2.9x10^{-2}$**
Selenium	$1.8x10^{-8}$	$1.4x10^{-4}$	$5.4x10^{-6}$	**$1.4x10^{-4}$**	$4.2x10^{-8}$	$1.3x10^{-3}$	$3.7x10^{-5}$	**$1.3x10^{-3}$**
Silver	NA	$1.2x10^{-4}$	$4.9x10^{-6}$	**$1.3x10^{-4}$**	NA	$1.2x10^{-3}$	$3.3x10^{-5}$	**$1.2x10^{-3}$**
Thallium	NA	$1.9x10^{-2}$	$7.8x10^{-4}$	**$2.0x10^{-2}$**	NA	$1.8x10^{-1}$	$5.3x10^{-3}$	**$1.9x10^{-1}$**
Vanadium	NA	$6.4x10^{-3}$	$2.5x10^{-4}$	**$6.6x10^{-3}$**	NA	$6.0x10^{-2}$	$1.7x10^{-3}$	**$6.1x10^{-2}$**
Zinc	NA	$4.0x10^{-4}$	$1.6x10^{-5}$	**$4.2x10^{-4}$**	NA	$3.8x10^{-3}$	$1.1x10^{-4}$	**$3.9x10^{-3}$**
Total	$9.0x10^{-4}$	$7.6x10^{-2}$	$4.5x10^{-3}$	**$8.1x10^{-2}$**	$2.1x10^{-3}$	$7.1x10^{-1}$	$3.0x10^{-2}$	**$7.4x10^{-1}$**

NA denotes not available.

Table C3-40
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-2.0 feet) - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.6x10^{-2}$	$6.3x10^{-4}$	**$1.6x10^{-2}$**	NA	$1.5x10^{-1}$	$4.3x10^{-3}$	**$1.5x10^{-1}$**
Arsenic	$9.9x10^{-5}$	$1.9x10^{-2}$	$2.2x10^{-3}$	**$2.1x10^{-2}$**	$2.3x10^{-4}$	$1.7x10^{-1}$	$1.5x10^{-2}$	**$1.9x10^{-1}$**
Barium	$1.3x10^{-4}$	$1.7x10^{-3}$	$6.7x10^{-5}$	**$1.9x10^{-3}$**	$3.0x10^{-4}$	$1.6x10^{-2}$	$4.6x10^{-4}$	**$1.6x10^{-2}$**
Beryllium	$3.0x10^{-5}$	$2.0x10^{-4}$	$7.9x10^{-6}$	**$2.4x10^{-4}$**	$7.0x10^{-5}$	$1.8x10^{-3}$	$5.4x10^{-5}$	**$2.0x10^{-3}$**
Cadmium	$9.4x10^{-6}$	$7.0x10^{-4}$	$2.8x10^{-6}$	**$7.2x10^{-4}$**	$2.2x10^{-5}$	$6.6x10^{-3}$	$1.9x10^{-5}$	**$6.6x10^{-3}$**
Chromium (III)	NA	$3.2x10^{-5}$	$1.3x10^{-6}$	**$3.3x10^{-5}$**	NA	$3.0x10^{-4}$	$8.7x10^{-6}$	**$3.1x10^{-4}$**
Chromium (VI)	$2.1x10^{-5}$	$2.7x10^{-3}$	$1.1x10^{-4}$	**$2.8x10^{-3}$**	$5.0x10^{-5}$	$2.5x10^{-2}$	$7.3x10^{-4}$	**$2.6x10^{-2}$**
Cobalt	NA	$1.9x10^{-4}$	$7.7x10^{-6}$	**$2.0x10^{-4}$**	NA	$1.8x10^{-3}$	$5.2x10^{-5}$	**$1.8x10^{-3}$**
Copper	NA	$9.6x10^{-4}$	$3.8x10^{-5}$	**$1.0x10^{-3}$**	NA	$8.9x10^{-3}$	$2.6x10^{-4}$	**$9.2x10^{-3}$**
Mercury	$1.9x10^{-6}$	$3.7x10^{-3}$	$1.5x10^{-4}$	**$3.9x10^{-3}$**	$4.4x10^{-6}$	$3.5x10^{-2}$	$1.0x10^{-3}$	**$3.6x10^{-2}$**
Molybdenum	NA	$8.0x10^{-4}$	$3.2x10^{-5}$	**$8.3x10^{-4}$**	NA	$7.5x10^{-3}$	$2.2x10^{-4}$	**$7.7x10^{-3}$**
Nickel	$5.6x10^{-4}$	$2.6x10^{-3}$	$1.1x10^{-4}$	**$3.3x10^{-3}$**	$1.3x10^{-3}$	$2.5x10^{-2}$	$7.1x10^{-4}$	**$2.7x10^{-2}$**
Selenium	$2.0x10^{-8}$	$1.5x10^{-4}$	$5.9x10^{-6}$	**$1.5x10^{-4}$**	$4.6x10^{-8}$	$1.4x10^{-3}$	$4.0x10^{-5}$	**$1.4x10^{-3}$**
Silver	NA	$1.2x10^{-4}$	$4.9x10^{-6}$	**$1.3x10^{-4}$**	NA	$1.1x10^{-3}$	$3.3x10^{-5}$	**$1.2x10^{-3}$**
Thallium	NA	$2.2x10^{-2}$	$8.8x10^{-4}$	**$2.3x10^{-2}$**	NA	$2.1x10^{-1}$	$5.9x10^{-3}$	**$2.1x10^{-1}$**
Vanadium	NA	$6.3x10^{-3}$	$2.5x10^{-4}$	**$6.6x10^{-3}$**	NA	$5.9x10^{-2}$	$1.7x10^{-3}$	**$6.1x10^{-2}$**
Zinc	NA	$3.3x10^{-4}$	$1.3x10^{-5}$	**$3.4x10^{-4}$**	NA	$3.0x10^{-3}$	$8.8x10^{-5}$	**$3.1x10^{-3}$**
Total	$8.5x10^{-4}$	$7.7x10^{-2}$	$4.5x10^{-3}$	**$8.2x10^{-2}$**	$2.0x10^{-3}$	$7.1x10^{-1}$	$3.1x10^{-2}$	**$7.5x10^{-1}$**

NA denotes not available.

Table C3-41
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-4.0 feet) - Current and Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.5x10^{-2}$	$6.1x10^{-4}$	**$1.6x10^{-2}$**	NA	$1.4x10^{-1}$	$4.1x10^{-3}$	**$1.5x10^{-1}$**
Arsenic	$1.1x10^{-4}$	$2.1x10^{-2}$	$2.5x10^{-3}$	**$2.3x10^{-2}$**	$2.6x10^{-4}$	$1.9x10^{-1}$	$1.7x10^{-2}$	**$2.1x10^{-1}$**
Barium	$1.4x10^{-4}$	$1.8x10^{-3}$	$7.2x10^{-5}$	**$2.0x10^{-3}$**	$3.2x10^{-4}$	$1.7x10^{-2}$	$4.9x10^{-4}$	**$1.8x10^{-2}$**
Beryllium	$3.6x10^{-5}$	$2.3x10^{-4}$	$9.3x10^{-6}$	**$2.8x10^{-4}$**	$8.3x10^{-5}$	$2.2x10^{-3}$	$6.3x10^{-5}$	**$2.3x10^{-3}$**
Cadmium	$9.3x10^{-6}$	$7.0x10^{-4}$	$2.8x10^{-6}$	**$7.1x10^{-4}$**	$2.2x10^{-5}$	$6.5x10^{-3}$	$1.9x10^{-5}$	**$6.6x10^{-3}$**
Chromium (III)	NA	$3.9x10^{-5}$	$1.6x10^{-6}$	**$4.1x10^{-5}$**	NA	$3.6x10^{-4}$	$1.1x10^{-5}$	**$3.7x10^{-4}$**
Chromium (VI)	$2.6x10^{-5}$	$3.2x10^{-3}$	$1.3x10^{-4}$	**$3.4x10^{-3}$**	$6.0x10^{-5}$	$3.0x10^{-2}$	$8.8x10^{-4}$	**$3.1x10^{-2}$**
Cobalt	NA	$2.2x10^{-4}$	$9.0x10^{-6}$	**$2.3x10^{-4}$**	NA	$2.1x10^{-3}$	$6.1x10^{-5}$	**$2.2x10^{-3}$**
Copper	NA	$1.1x10^{-3}$	$4.2x10^{-5}$	**$1.1x10^{-3}$**	NA	$9.9x10^{-3}$	$2.9x10^{-4}$	**$1.0x10^{-2}$**
Mercury	$2.3x10^{-6}$	$4.6x10^{-3}$	$1.8x10^{-4}$	**$4.8x10^{-3}$**	$5.4x10^{-6}$	$4.3x10^{-2}$	$1.2x10^{-3}$	**$4.4x10^{-2}$**
Molybdenum	NA	$1.0x10^{-3}$	$4.1x10^{-5}$	**$1.1x10^{-3}$**	NA	$9.5x10^{-3}$	$2.8x10^{-4}$	**$9.8x10^{-3}$**
Nickel	$7.3x10^{-4}$	$3.5x10^{-3}$	$1.4x10^{-4}$	**$4.3x10^{-3}$**	$1.7x10^{-3}$	$3.2x10^{-2}$	$9.3x10^{-4}$	**$3.5x10^{-2}$**
Selenium	$2.1x10^{-8}$	$1.5x10^{-4}$	$6.2x10^{-6}$	**$1.6x10^{-4}$**	$4.8x10^{-8}$	$1.4x10^{-3}$	$4.2x10^{-5}$	**$1.5x10^{-3}$**
Silver	NA	$1.3x10^{-4}$	$5.1x10^{-6}$	**$1.3x10^{-4}$**	NA	$1.2x10^{-3}$	$3.5x10^{-5}$	**$1.2x10^{-3}$**
Thallium	NA	$2.1x10^{-2}$	$8.4x10^{-4}$	**$2.2x10^{-2}$**	NA	$2.0x10^{-1}$	$5.7x10^{-3}$	**$2.0x10^{-1}$**
Vanadium	NA	$7.4x10^{-3}$	$3.0x10^{-4}$	**$7.7x10^{-3}$**	NA	$6.9x10^{-2}$	$2.0x10^{-3}$	**$7.1x10^{-2}$**
Zinc	NA	$3.6x10^{-4}$	$1.4x10^{-5}$	**$3.8x10^{-4}$**	NA	$3.4x10^{-3}$	$9.8x10^{-5}$	**$3.5x10^{-3}$**
Total	$1.1x10^{-3}$	$8.1x10^{-2}$	$4.9x10^{-3}$	**$8.7x10^{-2}$**	$2.5x10^{-3}$	$7.6x10^{-1}$	$3.3x10^{-2}$	**$7.9x10^{-1}$**

NA denotes not available.

Table C3-42
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-8.0 feet) - Future Residents - CalEPA Methodology

	Estimated Noncancer Hazard Index							
	Current and Future Adult Resident				Current and Future Child Resident			
Chemical	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$1.6x10^{-2}$	$6.5x10^{-4}$	**$1.7x10^{-2}$**	NA	$1.5x10^{-1}$	$4.4x10^{-3}$	**$1.6x10^{-1}$**
Arsenic	$1.0x10^{-4}$	$1.9x10^{-2}$	$2.3x10^{-3}$	**$2.2x10^{-2}$**	$2.4x10^{-4}$	$1.8x10^{-1}$	$1.6x10^{-2}$	**$2.0x10^{-1}$**
Barium	$1.1x10^{-4}$	$1.5x10^{-3}$	$5.9x10^{-5}$	**$1.7x10^{-3}$**	$2.6x10^{-4}$	$1.4x10^{-2}$	$4.0x10^{-4}$	**$1.4x10^{-2}$**
Beryllium	$3.6x10^{-5}$	$2.3x10^{-4}$	$9.4x10^{-6}$	**$2.8x10^{-4}$**	$8.3x10^{-5}$	$2.2x10^{-3}$	$6.3x10^{-5}$	**$2.3x10^{-3}$**
Cadmium	$1.1x10^{-5}$	$8.1x10^{-4}$	$3.2x10^{-6}$	**$8.3x10^{-4}$**	$2.5x10^{-5}$	$7.6x10^{-3}$	$2.2x10^{-5}$	**$7.6x10^{-3}$**
Chromium (III)	NA	$4.2x10^{-5}$	$1.7x10^{-6}$	**$4.4x10^{-5}$**	NA	$4.0x10^{-4}$	$1.1x10^{-5}$	**$4.1x10^{-4}$**
Chromium (VI)	$2.8x10^{-5}$	$3.5x10^{-3}$	$1.4x10^{-4}$	**$3.7x10^{-3}$**	$6.6x10^{-5}$	$3.3x10^{-2}$	$9.6x10^{-4}$	**$3.4x10^{-2}$**
Cobalt	NA	$2.3x10^{-4}$	$9.2x10^{-6}$	**$2.4x10^{-4}$**	NA	$2.2x10^{-3}$	$6.2x10^{-5}$	**$2.2x10^{-3}$**
Copper	NA	$9.8x10^{-4}$	$3.9x10^{-5}$	**$1.0x10^{-3}$**	NA	$9.2x10^{-3}$	$2.7x10^{-4}$	**$9.5x10^{-3}$**
Mercury	$1.9x10^{-6}$	$3.8x10^{-3}$	$1.5x10^{-4}$	**$3.9x10^{-3}$**	$4.5x10^{-6}$	$3.5x10^{-2}$	$1.0x10^{-3}$	**$3.6x10^{-2}$**
Molybdenum	NA	$8.5x10^{-4}$	$3.4x10^{-5}$	**$8.8x10^{-4}$**	NA	$7.9x10^{-3}$	$2.3x10^{-4}$	**$8.1x10^{-3}$**
Nickel	$8.0x10^{-4}$	$3.8x10^{-3}$	$1.5x10^{-4}$	**$4.7x10^{-3}$**	$1.9x10^{-3}$	$3.5x10^{-2}$	$1.0x10^{-3}$	**$3.8x10^{-2}$**
Selenium	$3.7x10^{-8}$	$2.8x10^{-4}$	$1.1x10^{-5}$	**$2.9x10^{-4}$**	$8.6x10^{-8}$	$2.6x10^{-3}$	$7.5x10^{-5}$	**$2.6x10^{-3}$**
Silver	NA	$1.4x10^{-4}$	$5.5x10^{-6}$	**$1.4x10^{-4}$**	NA	$1.3x10^{-3}$	$3.7x10^{-5}$	**$1.3x10^{-3}$**
Thallium	NA	$3.9x10^{-2}$	$1.6x10^{-3}$	**$4.1x10^{-2}$**	NA	$3.7x10^{-1}$	$1.1x10^{-2}$	**$3.8x10^{-1}$**
Vanadium	NA	$7.8x10^{-3}$	$3.1x10^{-4}$	**$8.2x10^{-3}$**	NA	$7.3x10^{-2}$	$2.1x10^{-3}$	**$7.5x10^{-2}$**
Zinc	NA	$3.2x10^{-4}$	$1.3x10^{-5}$	**$3.3x10^{-4}$**	NA	$3.0x10^{-3}$	$8.6x10^{-5}$	**$3.1x10^{-3}$**
Total	$1.1x10^{-3}$	$9.9x10^{-2}$	$5.5x10^{-3}$	**$1.1x10^{-1}$**	$2.5x10^{-3}$	$9.3x10^{-1}$	$3.7x10^{-2}$	**$9.7x10^{-1}$**

NA denotes not available.

Table C3-43
Pathway-Specific Noncancer Hazard Indices for Inorganic Chemicals in Soil (0-8.0 feet) - Construction Workers - CalEPA Methodology

Chemical	Estimated Noncancer Hazard Index			
	Construction Worker			
	Inhalation of Soil Particulates	Incidental Ingestion of Soil	Dermal Contact with Soil	All Pathways
Antimony	NA	$2.8x10^{-2}$	$2.7x10^{-3}$	**$3.1x10^{-2}$**
Arsenic	$3.4x10^{-2}$	$3.3x10^{-2}$	$9.5x10^{-3}$	**$7.6x10^{-2}$**
Barium	$3.7x10^{-2}$	$2.5x10^{-3}$	$2.4x10^{-4}$	**$3.9x10^{-2}$**
Beryllium	$1.2x10^{-2}$	$4.0x10^{-4}$	$3.8x10^{-5}$	**$1.2x10^{-2}$**
Cadmium	$3.5x10^{-3}$	$1.4x10^{-3}$	$1.3x10^{-5}$	**$4.9x10^{-3}$**
Chromium (III)	NA	$7.3x10^{-5}$	$6.9x10^{-6}$	**$8.0x10^{-5}$**
Chromium (VI)	$9.2x10^{-3}$	$6.1x10^{-3}$	$5.8x10^{-4}$	**$1.6x10^{-2}$**
Cobalt	NA	$3.9x10^{-4}$	$3.8x10^{-5}$	**$4.3x10^{-4}$**
Copper	NA	$1.7x10^{-3}$	$1.6x10^{-4}$	**$1.8x10^{-3}$**
Mercury	$6.3x10^{-4}$	$6.5x10^{-3}$	$6.2x10^{-4}$	**$7.7x10^{-3}$**
Molybdenum	NA	$1.5x10^{-3}$	$1.4x10^{-4}$	**$1.6x10^{-3}$**
Nickel	$2.6x10^{-1}$	$6.4x10^{-3}$	$6.1x10^{-4}$	**$2.7x10^{-1}$**
Selenium	$1.2x10^{-5}$	$4.7x10^{-4}$	$4.5x10^{-5}$	**$5.3x10^{-4}$**
Silver	NA	$2.4x10^{-4}$	$2.2x10^{-5}$	**$2.6x10^{-4}$**
Thallium	NA	$6.8x10^{-2}$	$6.4x10^{-3}$	**$7.4x10^{-2}$**
Vanadium	NA	$1.3x10^{-2}$	$1.3x10^{-3}$	**$1.5x10^{-2}$**
Zinc	NA	$5.5x10^{-4}$	$5.2x10^{-5}$	**$6.0x10^{-4}$**
Total	$3.6x10^{-1}$	$1.7x10^{-1}$	$2.2x10^{-2}$	**$5.5x10^{-1}$**

NA denotes not available.

ATTACHMENT 1
VLEACH INPUTS – EXAMPLE: BENZENE

START of parameters

benzgw.sum	\summary file
benzgw.mbl	\mass balance file
benzgw.cnc	\conc. profile file
none	\soil output file
none	\groundwater output file
benzgw.air	\groundwater output file
none	\file for input to next period
GW Navy OU5 Benzene	\title of run
1	\# polygons
0.01 500.0 2.0 2.0	\delt,simtime,t intvl for mbal, vertconc. (yrs)
58.9 0.228 1750 0.760	\Koc(ml/g),Kh,solub(mg/l),Dair(m^2/d)
Overall Area	\title of polygon 1
10000. 1.0	\polygon area(ft^2),vertical spcg(ft)
0.1 0.45 8 1.0	\BoxModel params: Atten, ExchgRate(/hr), BldgHt(ft),BldgCovg
0.0 1.63 .38	\gw rechg(ft/yr),rhob(g/ml),tot.poros.
0.23 .0057	\vol. water content,foc
00.0 0. 1.000	\Cinfilt water,Catm,Cgw bdry (<0, imperm) all mg/l
8 0 30.	\n vert cells;=1 plot =0 no;plot-time
1 8 0	\csoiltot in ug/kg

ATTACHMENT 2
JOHNSON AND ETTINGER INPUT AND OUTPUT MODELING FILES – EXAMPLE: XYLENE

Data Entry Sheet

	A	B	C	D	E	F	G	H
4			Soil Gas Concentration Data					
5		ENTER	ENTER		ENTER			
6			Soil		Soil			
7		Chemical	gas	OR	gas			
8		CAS No.	conc.,		conc.,			
9		(numbers only,	C_g		C_g			
10		no dashes)	($\mu g/m^3$)		(ppmv)		Chemical	
11								
12		95476	4.30E+02				o-Xylene	
13								
14								
15		ENTER	ENTER	ENTER	ENTER		ENTER	
16		Depth						
17	MORE	below grade	Soil gas		Vadose zone		User-defined	
18	↓	to bottom	sampling	Average	SCS		vadose zone	
19		of enclosed	depth	soil	soil type		soil vapor	
20		space floor,	below grade,	temperature,	(used to estimate	OR	permeability,	
21		L_F	L_s	T_S	soil vapor		k_v	
22		(15 or 200 cm)	(cm)	(°C)	permeability)		(cm^2)	
23								
24		15	60.96	15	SL			
25								
26								
27								
28								
29		ENTER	ENTER	ENTER				
30	MORE	Vadose zone	Vadose zone	Vadose zone				
31	↓	soil dry	soil total	soil water-filled				
32		bulk density,	porosity,	porosity,				
33		ρ_b^A	n^V	θ_w^V				
34		(g/cm^3)	(unitless)	(cm^3/cm^3)				
35								
36		1.63	0.38	0.23				
37								
38								
39	MORE							
40	↓	ENTER	ENTER	ENTER	ENTER			
41		Averaging	Averaging					
42		time for	time for	Exposure	Exposure			
43		carcinogens,	noncarcinogens,	duration,	frequency,			
44		AT_C	AT_{NC}	ED	EF			
45		(yrs)	(yrs)	(yrs)	(days/yr)			
46								
47		70	30	6	350			
48								
49	END							

Intermediate Calculations Sheet

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
45.96	0.150	0.560	5.98E-09	0.598	3.58E-09	3,844	4.30E+02	5.63E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
9.24E+05	4.16E-04	15	10,348	2.84E-03	1.20E-01	1.77E-04	1.09E-03	45.96

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.30E+02	0.10	3.42E+00	1.09E-03	3.84E+02	1.55E+53	5.26E-05	2.26E-02

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	7.0E-01

END

Results Sheet

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NC	6.2E-06

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

APPENDIX D
REMEDIAL INVESTIGATION DATA TABLES

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-001		OU5-001		OU5-001		OU5-001		OU5-002		OU5-002		OU5-002		OU5-003	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-0048		181- 049		181- 050		181- 051		181-0052		181-0053		181-0054		181-0055	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	120	U	1400	U	160	U	1500	U	110	U	110	U	130	U	110	U
Acenaphthylene	ug/kg	240	U	2800	U	87	J	3100	U	230	U	220	U	260	U	220	U
Anthracene	ug/kg	270	J	230	J	16	U	750	J	26		140	J	3500	J	38	J
Benzo(a)anthracene	ug/kg	630	J	1100	J	20	J	5100	J	130		410	J	6300	J	160	J
Benzo(a)pyrene	ug/kg	1300	J	2000	J	71	J	11000	J	260	J	910	J	14000	J	470	J
Benzo(b)fluoranthene	ug/kg	850	J	1500	J	49	J	7100	J	180		600	J	7400	J	310	J
Benzo(g,h,i)perylene	ug/kg	940	J	2100	J	82	J	10000	J	250	J	940	J	10000	J	570	J
Benzo(k)fluoranthene	ug/kg	360	J	880	J	30	J	4200	J	94		280	J	3800	J	110	J
Chrysene	ug/kg	790	J	1300	J	34	J	7200	J	140		530	J	7800	J	230	J
Dibenz(a,h)anthracene	ug/kg	480	U	280	U	31	U	310	U	110	U	440	U	8500	J	110	U
Fluoranthene	ug/kg	4000	J	6600	J	110	J	21000	J	620	J	2400	J	58000	J	870	J
Fluorene	ug/kg	32	J	280	U	31	U	170	J	23	U	24	J	940	J	22	U
Indeno(1,2,3-cd)pyrene	ug/kg	1100	J	1700	J	80	J	10000	J	240	J	980	J	15000	J	560	J
Naphthalene	ug/kg	120	U	1400	U	160	U	1500	U	110	U	110	U	130	U	110	U
Phenanthrene	ug/kg	1000	J	1700	J	29	J	3500	J	140		650	J	28000	J	220	J
Pyrene	ug/kg	2900	J	4600	J	78	J	16000	J	450	J	1700	J	35000	J	590	J
BaP equivalency	ug/kg	1800	J	2600	J	100	J	13000	J	370		1300	J	25000	J	630	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.599	U														
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.266		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	12	U														
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	4.6															
Barium	mg/kg	100															
Beryllium	mg/kg	0.419	J														
Cadmium	mg/kg	0.251	J														
Chromium	mg/kg	57.7															
Cobalt	mg/kg	10.1															
Copper	mg/kg	31.9															
Lead	mg/kg	81.8															
Molybdenum	mg/kg	1.65	J														
Nickel	mg/kg	52.9															
Selenium	mg/kg	0.55	J														
Silver	mg/kg	1.2	U														
Thallium	mg/kg	1.18	J														
Vanadium	mg/kg	40.6															
Zinc	mg/kg	112															

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-003		OU5-003		OU5-003		OU5-004		OU5-004		OU5-004		OU5-004		OU5-005	
Sample Depth (ft)		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5	
Sample ID		181-0056		181-0057		181-0058		181-0059		181-0060		181-0061		181-0062		181-0063	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	110	U	170	U	140	U	120	U	130	U	140	U	3000	U	110	U
Acenaphthylene	ug/kg	230	U	270	U	270	U	240	U	260	U	290	U	6000	U	230	U
Anthracene	ug/kg	130	J	80	J	21		12		99	J	6.5	J	5400	J	25	J
Benzo(a)anthracene	ug/kg	790	J	450	J	130		70		560	J	42		11000	J	72	
Benzo(a)pyrene	ug/kg	1800	J	1200	J	330	J	130	J	1500	J	93	J	17000	J	140	
Benzo(b)fluoranthene	ug/kg	1300	J	1000	J	300		100		1200	J	90		12000	J	98	
Benzo(g,h,i)perylene	ug/kg	2300	J	1700	J	490	J	130	J	2000	J	130	J	16000	J	150	
Benzo(k)fluoranthene	ug/kg	540	J	430	J	140		54		510	J	39		6700	J	44	
Chrysene	ug/kg	1000	J	660	J	170	J	78		810	J	54		14000	J	92	
Dibenz(a,h)anthracene	ug/kg	1100	U	1300	J	320	J	91		530	U	100	J	6000	U	110	J
Fluoranthene	ug/kg	4000	J	2700	J	640	J	250		3200	J	160		55000	J	430	J
Fluorene	ug/kg	22	J	27	U	28	U	24	U	26	U	29	U	740	J	23	U
Indeno(1,2,3-cd)pyrene	ug/kg	2300	J	1800	J	510	J	140	J	2100	J	120		17000	J	160	J
Naphthalene	ug/kg	110	U	140	U	130	U	120	U	130	U	140	U	3000	U	110	U
Phenanthrene	ug/kg	560	J	390	J	110		58		420	J	38		16000	J	120	J
Pyrene	ug/kg	2800	J	1700	J	480	J	230	J	2400	J	140	J	36000	J	280	J
BaP equivalency	ug/kg	2800	J	2800	J	750		250		2200	J	220		24000	J	280	
Cyanide (EPA 9014)																	
Cyanide	mg/kg							0.592	U	0.661	U	0.714	U	0.754	U		
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.13		0.541		0.884		0.753		Not Analyzed	
Antimony	mg/kg							11.8	U	13.2	U	14.3	U	15.1	U		
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg							2.97		11.4		9.48		8.03	J		
Barium	mg/kg							64.2		177		155		86.6			
Beryllium	mg/kg							0.242	J	0.462	J	0.614	J	0.834	J		
Cadmium	mg/kg							0.592	U	0.661	U	0.714	U	0.754	U		
Chromium	mg/kg							35.4		71.2		95.4		91			
Cobalt	mg/kg							6.9		8.4		12.7		13			
Copper	mg/kg							22.2		42.8		53.2		57.1			
Lead	mg/kg							37.4		49.8		29.8		48.3			
Molybdenum	mg/kg							1.76	J	6.61	U	4.54	J	2.45	J		
Nickel	mg/kg							32.8		61.2		91.2		92.5			
Selenium	mg/kg							1.18	U	1.32	U	0.924	J	1.51	U		
Silver	mg/kg							1.18	U	1.32	U	1.43	U	1.51	U		
Thallium	mg/kg							0.705	J	1.51	J	1.5	J	1.61	J		
Vanadium	mg/kg							25.7		50.2		61.2		70.8			
Zinc	mg/kg							77		125		119		121			

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-005		OU5-005		OU5-006		OU5-006		OU5-006		OU5-006		OU5-007		OU5-007	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0	
Sample ID		181-0064		181-0065		181-0066		181-0067		181-0068		181-0069		181-0119		181-0070	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	560	U	130	U	570	U	630	U	730	U	150	U	1500	U	550	U
Acenaphthylene	ug/kg	1100	U	67	J	1100	U	1300	U	1500	U	290	U	590	U	1100	U
Anthracene	ug/kg	170		21	J	140		240	J	68	J	27	J	14	J	130	
Benzo(a)anthracene	ug/kg	510		90		440		820		300		110		160		350	
Benzo(a)pyrene	ug/kg	1000	J	220		830		1700	J	750		250		510		690	
Benzo(b)fluoranthene	ug/kg	700		180		760		1200		600		220		260		520	
Benzo(g,h,i)perylene	ug/kg	1200		310		1000		1800	J	910		370		440		810	
Benzo(k)fluoranthene	ug/kg	320		65		270		570		240		87	J	80		230	
Chrysene	ug/kg	630		140	J	550	J	1200	J	390		150		240		440	
Dibenz(a,h)anthracene	ug/kg	900	J	230	J	780	J	1600	J	850		290		150	U	650	J
Fluoranthene	ug/kg	3300	J	530	J	2700	J	4300	J	1600		630	J	670		2300	J
Fluorene	ug/kg	110	U	26	U	110	U	130	U	150	U	29	U	59	U	110	U
Indeno(1,2,3-cd)pyrene	ug/kg	1100		320	J	1400	J	2000	J	990	J	330	J	330		790	J
Naphthalene	ug/kg	560	U	130	U	570	U	630	U	730	U	150	U	1500	U	550	U
Phenanthrene	ug/kg	640		87	J	600	J	460		270		110	J	240		660	J
Pyrene	ug/kg	2200	J	380	J	2000	J	3200	J	1300	J	400	J	510		1500	J
BaP equivalency	ug/kg	2100		510		1900		3700		1800		610		660		1500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-007		OU5-008		OU5-008		OU5-008		OU5-009		OU5-009		OU5-009		OU5-009	
Sample Depth (ft)		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP	
Sample ID		181-0071		181-0072		181-0073		181-0074		181-0075		181-0076		181-0077		181-0078	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	640	U	610	U	700	U	720	U	110	UJ	290	U	80	U	350	U
Acenaphthylene	ug/kg	1300	U	1200	U	1400	U	1400	U	220	U	120	U	32	U	140	U
Anthracene	ug/kg	79		50	J	53	J	44	J	13	J	6	J	4		14	U
Benzo(a)anthracene	ug/kg	370		140		230		150		87		50		47		14	U
Benzo(a)pyrene	ug/kg	910		320		670		450		160	J	140		101		39	
Benzo(b)fluoranthene	ug/kg	750		220		500		310		130		75		21		14	U
Benzo(g,h,i)perylene	ug/kg	1300		250		820		440		180	J	82		3.2	U	68	
Benzo(k)fluoranthene	ug/kg	300		63		190		120		69	J	28		23		14	U
Chrysene	ug/kg	500	J	200	J	330		240	J	90		71		47		14	U
Dibenz(a,h)anthracene	ug/kg	250	U	120	U	690	J	140	U	130	J	130		8	U	35	U
Fluoranthene	ug/kg	2200	J	800		1300		840		290		180		101		14	U
Fluorene	ug/kg	130	U	120	U	140	U	140	U	22	U	12	U	3.2	U	14	U
Indeno(1,2,3-cd)pyrene	ug/kg	1300	J	250	J	830	J	470	J	140		97		3.2	U	14	U
Naphthalene	ug/kg	640	U	610	U	700	U	720	U	110	UJ	290	U	80	U	350	U
Phenanthrene	ug/kg	310	J	160		190		180		63	J	65		26		14	U
Pyrene	ug/kg	1600	J	570		860		610		280	J	190		136		14	U
BaP equivalency	ug/kg	1300		440		1500		610		330		290		110		59	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-010		OU5-010		OU5-011		OU5-011		OU5-011		OU5-011		OU5-012		OU5-012	
Sample Depth (ft)		0.0-0.5		0.5-2.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0	
Sample ID		181-0079		181-0080		181-0081		181-0082		181-0083		181-0084		181-0085		181-0086	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	270	U	280	U	530	U	300	U	690	U	720	U	600	U	340	U
Acenaphthylene	ug/kg	110	U	110	U	210	U	120	U	280	U	290	U	240	U	130	U
Anthracene	ug/kg	11	J	57		66		33		40		320		19	J	20	
Benzo(a)anthracene	ug/kg	130		287		420		170		380		987		160		160	
Benzo(a)pyrene	ug/kg	170		444		720		283		815		1350		300		460	
Benzo(b)fluoranthene	ug/kg	84		248		420		170		540		866		160		311	
Benzo(g,h,i)perylene	ug/kg	86		433		494		210		696		932		200		405	
Benzo(k)fluoranthene	ug/kg	36		90		140		55		170		300		55		84	
Chrysene	ug/kg	120		272		410		180		410		1170		150		220	
Dibenz(a,h)anthracene	ug/kg	27	U	28	U	320		140		680		620		550		410	
Fluoranthene	ug/kg	371		762		1110		420		1210		3080		450		673	
Fluorene	ug/kg	11	U	11	U	45		12	U	28	U	60		30		20	
Indeno(1,2,3-cd)pyrene	ug/kg	94		299		525		220		713		996		210		412	
Naphthalene	ug/kg	270	U	280	U	530	U	300	U	690	U	720	U	600	U	340	U
Phenanthrene	ug/kg	311		332		440		160		280		965		130		120	
Pyrene	ug/kg	336		725		1070		469		1220		3310		470		642	
BaP equivalency	ug/kg	210		540		1200		480		1700		2300		900		960	
Cyanide (EPA 9014)																	
Cyanide	mg/kg					2.7	U	3	U	3.5	U	3.6	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.20	J	0.40		0.77		0.21	J	Not Analyzed		Not Analyzed	
Antimony	mg/kg					5.3	U	0.53	J	6.9	U	7.2	U				
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg					5.2		5.5		8.7		6.1					
Barium	mg/kg					86		172		136		172					
Beryllium	mg/kg					0.21	U	0.24	U	0.048	J	0.29	U				
Cadmium	mg/kg					0.27		0.37		0.10	J	0.29	U				
Chromium	mg/kg					44.4		55.1		90.9		121					
Cobalt	mg/kg					11		12.3		18		15					
Copper	mg/kg					32.4		32.9		70.5		37.6					
Lead	mg/kg					49.1		51.5		77.9		34.3					
Molybdenum	mg/kg					0.21	U	0.24	U	0.28	U	0.29	U				
Nickel	mg/kg					46.2		56.5		95		94.6					
Selenium	mg/kg					0.53	U	1.4		0.92		0.72	U				
Silver	mg/kg					0.53	U	0.61	U	0.69	U	0.72	U				
Thallium	mg/kg					0,53	U	0.61	U	0.69	U	0.72	U				
Vanadium	mg/kg					41.8		47.9		71.5		84.5					
Zinc	mg/kg					101		104		152		97.6					

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-012		OU5-012		OU5-013		OU5-013		OU5-013		OU5-014		OU5-014		OU5-014	
Sample Depth (ft)		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-0087		181-0088		181-0089		181-0090		181-0091		181-0092		181-0093		181-0094	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	72	U	73	U	280	U	310	U	340	U	280	U	1800	UJ	73	UJ
Acenaphthylene	ug/kg	29	U	29	U	110	U	120	U	140	U	110	U	710	UJ	29	UJ
Anthracene	ug/kg	2	J	4		31		10		20		10	J	100	J	43	J
Benzo(a)anthracene	ug/kg	14		32		190		120		190		100		570	J	44	J
Benzo(a)pyrene	ug/kg	76		64		435		210		484		245		1200	J	80	J
Benzo(b)fluoranthene	ug/kg	46		39		251		120		336		160		880	J	55	J
Benzo(g,h,i)perylene	ug/kg	54		56		323		150		426		190		1610	J	75	J
Benzo(k)fluoranthene	ug/kg	13		11		80		39		97		45		330	J	22	J
Chrysene	ug/kg	36		32		224		110		220		120		720	J	86	J
Dibenz(a,h)anthracene	ug/kg	46		38		290		100		270		210		1200	J	57	J
Fluoranthene	ug/kg	100		87		669		361		792		371		2160	J	153	J
Fluorene	ug/kg	2.9	U	2.9	U	11	U	12	U	14	U	11	U	71	UJ	5	J
Indeno(1,2,3-cd)pyrene	ug/kg	59		51		282		140		415		180		1100	J	67	J
Naphthalene	ug/kg	72	U	73	U	280	U	310	U	340	U	280	U	1800	UJ	73	UJ
Phenanthrene	ug/kg	14		23		200		110		190		84		410	J	46	J
Pyrene	ug/kg	103		88		702		304		741		344		2240	J	170	J
BaP equivalency	ug/kg	130		110		800		350		850		500		2700	J	150	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg											2.8	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.95		Not Analyzed		Not Analyzed	
Antimony	mg/kg											5.7	U				
Arsenic	mg/kg											5.1					
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg											150					
Beryllium	mg/kg											0.23	U				
Cadmium	mg/kg											0.11	J				
Chromium	mg/kg											81.5					
Cobalt	mg/kg											13.8					
Copper	mg/kg											66.9					
Lead	mg/kg											67.2					
Molybdenum	mg/kg											0.23	U				
Nickel	mg/kg											74.1					
Selenium	mg/kg											0.27	J				
Silver	mg/kg											0.57	U				
Thallium	mg/kg											0.57	U				
Vanadium	mg/kg											59.2					
Zinc	mg/kg											143					

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-014		OU5-015		OU5-015		OU5-015		OU5-015		OU5-015		OU5-016		OU5-016	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		4.0-8.0 DUP		0.0-0.5		0.5-2.0	
Sample ID		181-0095		181-0100		181-0101		181-0102		181-0103		181-0104		181-0105		181-0106	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	7800	UJ	550	U	280	U	650	U	74	U	2100	U	290	U	290	U
Acenaphthylene	ug/kg	3100	UJ	220	U	110	U	260	U	30	U	830	U	110	U	120	U
Anthracene	ug/kg	3100	J	74		10	J	19	J	82		2870		25		8	J
Benzo(a)anthracene	ug/kg	5400	J	702		92		240		181		3460		150		53	
Benzo(a)pyrene	ug/kg	7210	J	1670		190		642		312		5250		343		170	
Benzo(b)fluoranthene	ug/kg	4700	J	894		99		390		181		2650		210		89	
Benzo(g,h,i)perylene	ug/kg	5700	J	1040		150		729		279		3910		234		110	
Benzo(k)fluoranthene	ug/kg	2300	J	290		42		170		86		1100		82		34	
Chrysene	ug/kg	7830	J	812		100		220		236		3360		130		85	
Dibenz(a,h)anthracene	ug/kg	4600	J	1000		120		470		155		1600		260		88	
Fluoranthene	ug/kg	19600	J	1810		365		1540		541		9260		499		210	
Fluorene	ug/kg	400	J	66		11	U	26	U	3	U	220		11	U	12	U
Indeno(1,2,3-cd)pyrene	ug/kg	5200	J	1000		110		557		213		3010		248		120	
Naphthalene	ug/kg	7800	UJ	550	U	280	U	650	U	74	U	2100	U	290	U	290	U
Phenanthrene	ug/kg	4900	J	370		75		90		117		1780		160		67	
Pyrene	ug/kg	22300	J	2090		280		1140		857		15700		632		256	
BaP equivalency	ug/kg	13000	J	2900		340		1200		530		7800		660		280	
Cyanide (EPA 9014)																	
Cyanide	mg/kg			2.7	U	2.8	U	3.3	U	3.7	U	4.1	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		0.11	J	0.30		0.59		0.16	J	0.3	J	Not Analyzed		Not Analyzed	
Antimony	mg/kg			0.25	J	5.6	U	1	J	7.4	U	0.49	J				
Arsenic	mg/kg			2.9		3		4.3		4.2		6.1					
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg			66.5		80.4		131		81.1		66.1					
Beryllium	mg/kg			0.22	U	0.22	U	0.071	J	0.30	U	0.33	U				
Cadmium	mg/kg			0.17	J	0.14	J	0.39		0.30	U	0.33	U				
Chromium	mg/kg			34.9		35.1		75.9		80.8		80.6					
Cobalt	mg/kg			8		6.3		16.3		11.7		14.2					
Copper	mg/kg			22.9		17.9		61.1		34		35.7					
Lead	mg/kg			23.3		28.2		62.0		26.6		26.8					
Molybdenum	mg/kg			0.22	U	0.22	U	0.26	U	0.30	U	0.33	U				
Nickel	mg/kg			34.3		34		118		70.5		75.2					
Selenium	mg/kg			0.55	U	0.22	J	0.65	U	0.74	U	0.83	U				
Silver	mg/kg			0.55	U	0.56	U	0.65	U	0.74	U	0.83	U				
Thallium	mg/kg			0.55	U	0.56	U	0.65	U	0.74	U	0.83	U				
Vanadium	mg/kg			27.4		28.5		52.2		61.9		64.2					
Zinc	mg/kg			66.4		48.8		143		75.1		90.3					

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-016		OU5-017		OU5-017		OU5-017		OU5-017		OU5-018		OU5-018		OU5-018	
Sample Depth (ft)		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-0107		181-0108		181-0109		181-0110		181-0111		181-0112		181-0113		181-0114	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1500	U	270	U	270	U	330	U	390	U	1400	U	270	U	310	U
Acenaphthylene	ug/kg	620	U	110	U	110	U	130	U	160	U	550	U	110	U	130	U
Anthracene	ug/kg	80		98		24		13	U	49		410		110		13	U
Benzo(a)anthracene	ug/kg	790		447		78		9	J	393		1880		544		30	
Benzo(a)pyrene	ug/kg	1490		918		110		36		702		2270		887		76	
Benzo(b)fluoranthene	ug/kg	920		574		50		9	J	387		1500		560		41	
Benzo(g,h,i)perylene	ug/kg	1560		589		110		13	U	736		1500		669		50	
Benzo(k)fluoranthene	ug/kg	320		220		20		5	J	120		670		200		11	J
Chrysene	ug/kg	800		545		77		9	J	408		1890		549		36	
Dibenz(a,h)anthracene	ug/kg	1000		490		89		33	U	580		1100		440		50	
Fluoranthene	ug/kg	2440		1410		267		30		1120		4680		1510		99	
Fluorene	ug/kg	62	U	11	U	11	U	13	U	16	U	55	U	11	U	13	U
Indeno(1,2,3-cd)pyrene	ug/kg	1200		718		60		13	U	545		1710		712		52	
Naphthalene	ug/kg	1500	U	270	U	270	U	330	U	390	U	1400	U	270	U	310	U
Phenanthrene	ug/kg	410		545		71		10	J	310		1980		679		37	
Pyrene	ug/kg	2980		1460		277		10		1130		4770		1510		95	
BaP equivalency	ug/kg	2800		1600		220		55		1400		3900		1500		140	
Cyanide (EPA 9014)																	
Cyanide	mg/kg			2.7	U												
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		0.3		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg			5.3	U												
Arsenic	mg/kg			5.1													
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg			66.9													
Beryllium	mg/kg			0.21	U												
Cadmium	mg/kg			0.33													
Chromium	mg/kg			33.8													
Cobalt	mg/kg			9													
Copper	mg/kg			31.2													
Lead	mg/kg			48.2													
Molybdenum	mg/kg			0.21	U												
Nickel	mg/kg			35.3													
Selenium	mg/kg			0.53	U												
Silver	mg/kg			0.53	U												
Thallium	mg/kg			0.53	U												
Vanadium	mg/kg			28.4													
Zinc	mg/kg			116													

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-018		OU5-019		OU5-019		OU5-019		OU5-020		OU5-020		OU5-020		OU5-021	
Sample Depth (ft)		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-0115		181-0116		181-0117		181-0118		181-120		181-121		181-122		181-123	
Sample Collection Date		05/23/2001		05/23/2001		05/23/2001		05/23/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	310	U	260	U	280	U	1700	U	2200	U	560	U	650	U	110	U
Acenaphthylene	ug/kg	130	U	110	U	110	U	690	U	4400	U	1100	U	1300	U	220	U
Anthracene	ug/kg	5	J	90		10		100		800		230		130		15	
Benzo(a)anthracene	ug/kg	37		332		83		1200		2700		600		660		52	
Benzo(a)pyrene	ug/kg	110		806		267		2370		6500	J	1200	J	1700	J	120	
Benzo(b)fluoranthene	ug/kg	64		486		150		1530		4500		780		1300		85	
Benzo(g,h,i)perylene	ug/kg	55		788		261		1910		7000	J	1200		2200	J	130	
Benzo(k)fluoranthene	ug/kg	20		180		52		470		2100		370		530		32	
Chrysene	ug/kg	58		521		140		1300		3800	J	780	J	900	J	67	
Dibenz(a,h)anthracene	ug/kg	63		280		71		1300		2200	U	450	U	520	U	110	
Fluoranthene	ug/kg	170		1400		407		4080		17000	J	3700	J	3900	J	310	J
Fluorene	ug/kg	13	U	11	U	11	U	69	U	440	U	110	U	130	U	22	U
Indeno(1,2,3-cd)pyrene	ug/kg	76		576		200		1840		7700	J	1200	J	2300	J	140	
Naphthalene	ug/kg	310	U	260	U	280	U	1700	U	2200	U	560	U	650	U	110	U
Phenanthrene	ug/kg	54		540		100		610		3600	J	1000	J	470	J	65	
Pyrene	ug/kg	170		1350		339		4480		12000	J	2500	J	2900	J	220	J
BaP equivalency	ug/kg	190		1200		380		4100		9100		1700		2400		260	
Cyanide (EPA 9014)																	
Cyanide	mg/kg															0.556	UJ
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.022	J
Antimony	mg/kg															11.1	U
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg															3.36	J
Barium	mg/kg															186	
Beryllium	mg/kg															0.354	J
Cadmium	mg/kg															0.556	U
Chromium	mg/kg															28.1	
Cobalt	mg/kg															7.54	
Copper	mg/kg															14	
Lead	mg/kg															17.9	
Molybdenum	mg/kg															5.56	U
Nickel	mg/kg															27.7	
Selenium	mg/kg															1.11	U
Silver	mg/kg															1.11	U
Thallium	mg/kg															0.829	J
Vanadium	mg/kg															32.2	
Zinc	mg/kg															54.5	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-021		OU5-021		OU5-021		OU5-021		OU5-022		OU5-022		OU5-022		OU5-023	
Sample Depth (ft)		0.5-2.0		2.0-4.0		4.0-8.0		4.0-8.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-124		181-125		181-126		181-127		181-128		181-129		181-130		181-131	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	110	U	600	U	3200	U	3400	U	530	U	550	U	620	U	560	U
Acenaphthylene	ug/kg	65	J	1200	U	6400	U	3000	J	1100	U	1100	U	1200	U	1100	U
Anthracene	ug/kg	32		29	J	4900	J	16000	J	68		230		62	U	69	
Benzo(a)anthracene	ug/kg	72		110		9700	J	20000	J	220		680		74		200	
Benzo(a)pyrene	ug/kg	180	J	310		15000	J	33000	J	480		1300	J	100		430	
Benzo(b)fluoranthene	ug/kg	150		240		9300	J	23000	J	340		910		470		310	
Benzo(g,h,i)perylene	ug/kg	250		430		11000	J	23000	J	590		1400		1000		500	
Benzo(k)fluoranthene	ug/kg	71		85		5500	J	11000	J	150		400		290		130	
Chrysene	ug/kg	120		160		12000	J	27000	J	280		810	J	62	U	260	
Dibenz(a,h)anthracene	ug/kg	200		120	U	12000	J	17000	U	460		1200		120	U	380	
Fluoranthene	ug/kg	560	J	640		55000	J	140000	J	1300		3900	J	610		1200	
Fluorene	ug/kg	22	U	120	U	640	U	2900	J	110	U	110	U	120	U	110	U
Indeno(1,2,3-cd)pyrene	ug/kg	250	J	460		12000	J	28000	J	600	J	1400	J	470		520	
Naphthalene	ug/kg	110	U	600	U	3200	U	3400	U	530	U	550	U	620	U	560	U
Phenanthrene	ug/kg	120		110	J	5800	J	39000	J	310		1100	J	160		320	
Pyrene	ug/kg	400	J	430		45000	J	99000	J	1000	J	2700	J	290		840	J
BaP equivalency	ug/kg	430		450		30000	J	49000	J	1100		2800		260		910	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.546	UJ	0.602	UJ	0.803	UJ	0.853	UJ								
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.504		0.662		0.292		0.138	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	3.82	J	12	U	16.1	U	17.1	U								
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	4.95	J	6.52	J	6.83	J	5.98	J								
Barium	mg/kg	131		94.3		86.8		99.8									
Beryllium	mg/kg	0.486	J	0.455	J	0.672	J	0.71	J								
Cadmium	mg/kg	0.546	U	0.602	U	0.803	U	0.853	U								
Chromium	mg/kg	47.5		55.7		94.8		94.4									
Cobalt	mg/kg	12.3		10.3		18.6		14.5									
Copper	mg/kg	41.4		26.4		33.2		37.9									
Lead	mg/kg	26		24.6		20.8		22.9									
Molybdenum	mg/kg	5.46	U	6.02	U	8.03	U	1.84	J								
Nickel	mg/kg	45.8		53.4		101		90.3									
Selenium	mg/kg	1.09	U	1.2	U	1.61	U	1.71	U								
Silver	mg/kg	1.09	U	1.2	U	1.61	U	1.71	U								
Thallium	mg/kg	1.03	J	0.835	J	1.19	J	1.49	J								
Vanadium	mg/kg	34.3		40.8		70.1		67.5									
Zinc	mg/kg	97.9		66.7		85.6		97.4									

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-023		OU5-023		OU5-024		OU5-024		OU5-024		OU5-024		OU5-025		OU5-025	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0	
Sample ID		181-132		181-133		181-134		181-135		181-136		181-137		181-138		181-139	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	570	U	670	U	550	U	570	U	620	U	620	U	560	U	570	U
Acenaphthylene	ug/kg	1100	U	1300	U	1100	U	1100	U	1200	U	1200	U	1100	U	1100	U
Anthracene	ug/kg	130		130		19	J	290	J	100		320	J	84		83	
Benzo(a)anthracene	ug/kg	360		600		54	J	1100	J	300		1100	J	260		280	
Benzo(a)pyrene	ug/kg	790	J	1400	J	120		2600	J	680		2600	J	530		560	
Benzo(b)fluoranthene	ug/kg	620		1100		92	J	1900	J	490		1800	J	370		430	
Benzo(g,h,i)perylene	ug/kg	970		1800		71	J	3000	J	850		2700	J	680		940	
Benzo(k)fluoranthene	ug/kg	260		470		40	J	720	J	180		790	J	140		160	
Chrysene	ug/kg	480		780		89		1400	J	410		1400	J	360		370	
Dibenz(a,h)anthracene	ug/kg	750		1600		110	U	1100	U	590		1200	U	480		590	
Fluoranthene	ug/kg	2300	J	3500	J	350		6400	J	1900	J	6600	J	1600	J	1600	J
Fluorene	ug/kg	110	U	130	U	110	U	110	U	120	U	120	U	110	U	110	U
Indeno(1,2,3-cd)pyrene	ug/kg	950	J	1800	J	96		3300	J	820	J	3100	J	690		720	J
Naphthalene	ug/kg	570	U	670	U	550	U	570	U	620	U	620	U	560	U	570	U
Phenanthrene	ug/kg	600		250		100	J	1300	J	480		1400	J	340		300	
Pyrene	ug/kg	1500	J	2500	J	220		4500	J	1300	J	4600	J	1100	J	1100	J
BaP equivalency	ug/kg	1700		3400		200		3800	J	1400		3800	J	1100		1300	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-025		OU5-026		OU5-026		OU5-026		OU5-027		OU5-027		OU5-027		OU5-027	
Sample Depth (ft)		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-140		181-141		181-142		181-143		181-144		181-145		181-146		181-147	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	590	U	550	U	560	U	1200	U	270	U	260	U	300	U	290	U
Acenaphthylene	ug/kg	1200	U	1100	U	1100	U	2400	U	110	U	100	U	120	U	120	U
Anthracene	ug/kg	200	J	66	J	110	J	290	J	10		28		66		20	
Benzo(a)anthracene	ug/kg	690		200		310		1000		86		150		408		120	
Benzo(a)pyrene	ug/kg	1700	J	440		680		2700	J	220		401		683		316	
Benzo(b)fluoranthene	ug/kg	1200		310		470		1700		110		204		380		160	
Benzo(g,h,i)perylene	ug/kg	1900	J	500		860		2900		220		170		333		160	
Benzo(k)fluoranthene	ug/kg	510		120		190		750		48		79		150		69	
Chrysene	ug/kg	940	J	270		390		1300		120		275		404		210	
Dibenz(a,h)anthracene	ug/kg	1500		390		620		2200		170		130		460		130	
Fluoranthene	ug/kg	4300	J	1200	J	1900	J	6100	J	516		604		1040		458	
Fluorene	ug/kg	120	U	110	U	110	U	240	U	11	U	10	U	12	U	12	U
Indeno(1,2,3-cd)pyrene	ug/kg	1900	J	490	J	850	J	3100	J	180		216		436		210	
Naphthalene	ug/kg	590	U	550	U	560	U	1200	U	270	U	260	U	300	U	290	U
Phenanthrene	ug/kg	820	J	290	J	480	J	1400	J	87		130		364		140	
Pyrene	ug/kg	3000	J	750	J	1300	J	4400	J	381		567		1420		471	
BaP equivalency	ug/kg	3600		930		1500		5500		430		590		1300		500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg									2.7	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.26		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg									5.3	U						
Arsenic	mg/kg									4.6							
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg									68.6							
Beryllium	mg/kg									0.21	U						
Cadmium	mg/kg									0.18	J						
Chromium	mg/kg									34.8							
Cobalt	mg/kg									9.9							
Copper	mg/kg									24.7							
Lead	mg/kg									32.3							
Molybdenum	mg/kg									0.21	U						
Nickel	mg/kg									39.7							
Selenium	mg/kg									0.53	U						
Silver	mg/kg									0.53	U						
Thallium	mg/kg									0.53	U						
Vanadium	mg/kg									29.7							
Zinc	mg/kg									105							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-027		OU5-028		OU5-028		OU5-028		OU5-029		OU5-029		OU5-029		OU5-030	
Sample Depth (ft)		4.0-8.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-148		181-149		181-150		181-151		181-152		181-153		181-154		181-155	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	190	J	540	U	540	U	1300	U	280	U	290	U	320	U	280	U
Acenaphthylene	ug/kg	120	U	1100	U	1100	U	2500	U	110	U	120	U	130	U	110	U
Anthracene	ug/kg	52		73		60		190	J	11	U	5	J	55		20	
Benzo(a)anthracene	ug/kg	321		240		200		640		20		20		285		93	
Benzo(a)pyrene	ug/kg	656		550		470		1600	J	47		98		532		170	
Benzo(b)fluoranthene	ug/kg	306		390		340		1100		10		36		291		79	
Benzo(g,h,i)perylene	ug/kg	548		660		590		2000		11	U	220		462		60	
Benzo(k)fluoranthene	ug/kg	150		160		120		480		6	J	20		110		32	
Chrysene	ug/kg	444		330		260		840		10		20		357		95	
Dibenz(a,h)anthracene	ug/kg	410		510		440		1500		78		190		390		130	
Fluoranthene	ug/kg	1850		1500		1200		3800	J	68		100		1690		499	
Fluorene	ug/kg	12	U	110	U	110	U	250	U	11	U	12	U	13	U	11	U
Indeno(1,2,3-cd)pyrene	ug/kg	443		690		620		2000	J	11	U	12	U	412		130	
Naphthalene	ug/kg	300	U	540	U	540	U	1300	U	280	U	290	U	320	U	280	U
Phenanthrene	ug/kg	284		360		260		740	J	20		44		379		140	
Pyrene	ug/kg	1440		1100		870		2800	J	46		150		1180		349	
BaP equivalency	ug/kg	1200		1200		1000		3500		130		290		1000		330	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-030		OU5-030		OU5-030		OU5-031		OU5-031		OU5-032		OU5-032		OU5-032	
Sample Depth (ft)		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-156		181-157		181-158		181-159		181-160		181-0096		181-0097		181-0098	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/23/2001		05/23/2001		05/23/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	280	U	280	U	300	U	280	U	1400	U	530	U	270	U	1600	U
Acenaphthylene	ug/kg	110	U	110	U	120	U	110	U	570	U	210	U	110	U	620	U
Anthracene	ug/kg	20		10		10		11	J	34	J	51		60		100	
Benzo(a)anthracene	ug/kg	100		99		140		77		380		410		367		880	
Benzo(a)pyrene	ug/kg	170		180		285		150		830		641		634		2140	
Benzo(b)fluoranthene	ug/kg	71		82		160		68		420		370		400		1420	
Benzo(g,h,i)perylene	ug/kg	96		56		140		41		860		370		462		1790	
Benzo(k)fluoranthene	ug/kg	30		32		62		27		150		130		140		440	
Chrysene	ug/kg	100		95		170		76		420		390		354		1100	
Dibenz(a,h)anthracene	ug/kg	120		120		220		110		700		370		460		1300	
Fluoranthene	ug/kg	526		459		701		190		1100		1140		1190		3640	
Fluorene	ug/kg	11	U	11	U	12	U	11	U	57	U	40		11	U	62	U
Indeno(1,2,3-cd)pyrene	ug/kg	110		120		230		68		630		390		443		1580	
Naphthalene	ug/kg	280	U	280	U	300	U	280	U	1400	U	530	U	270	U	1600	U
Phenanthrene	ug/kg	95		79		120		71		270		300		390		770	
Pyrene	ug/kg	337		335		495		256		1300		1210		1050		3430	
BaP equivalency	ug/kg	320		330		560		280		1700		1100		1200		3800	
Cyanide (EPA 9014)																	
Cyanide	mg/kg											2.7	U	2.7	U	3.1	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.23		0.21	J	0.33	
Antimony	mg/kg											5.3	U	5.4	U	0.57	J
Arsenic	mg/kg											3.9		3.7		6.2	
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg											105		104		79.9	
Beryllium	mg/kg											0.21	U	0.22	U	0.25	U
Cadmium	mg/kg											0.32		0.14	J	0.066	J
Chromium	mg/kg											39.9		47		64.5	
Cobalt	mg/kg											10.7		7.4		9.9	
Copper	mg/kg											29.3		27.1		27.9	
Lead	mg/kg											45.3		35.3		33.6	
Molybdenum	mg/kg											0.21	U	0.22	U	0.25	U
Nickel	mg/kg											39.2		39.5		54.6	
Selenium	mg/kg											0.57		0.29	J	0.62	U
Silver	mg/kg											0.53	U	0.54	U	0.62	U
Thallium	mg/kg											0.53	U	0.54	U	0.62	U
Vanadium	mg/kg											34.9		36.6		44.6	
Zinc	mg/kg											95.4		59.4		62.8	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-032		OU5-033		OU5-033		OU5-033		OU5-033		OU5-034		OU5-034		OU5-034	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-0099		181-161		181-162		181-163		181-164		181-165		181-166		181-167	
Sample Collection Date		05/23/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	730	U	280	U	290	U	300	U	350	U	280	U	280	U	330	U
Acenaphthylene	ug/kg	290	U	110	U	120	U	120	U	140	U	110	U	110	U	130	U
Anthracene	ug/kg	676		20		35		24		28		11	J	11	U	20	
Benzo(a)anthracene	ug/kg	1420		180		274		220		326		110		47		210	
Benzo(a)pyrene	ug/kg	2270		305		478		436		690		190		130		409	
Benzo(b)fluoranthene	ug/kg	1210		150		249		230		391		98		74		240	
Benzo(g,h,i)perylene	ug/kg	1610		120		478		455		751		229		86		260	
Benzo(k)fluoranthene	ug/kg	666		57		83		72		120		25		28		86	
Chrysene	ug/kg	1520		180		274		241		363		110		73		220	
Dibenz(a,h)anthracene	ug/kg	880		100		340		140		550		61		69		190	
Fluoranthene	ug/kg	3750		777		790		705		1140		296		210		616	
Fluorene	ug/kg	29	U	11	U	12	U	12	U	14	U	11	U	11	U	13	U
Indeno(1,2,3-cd)pyrene	ug/kg	1280		220		356		334		581		130		92		322	
Naphthalene	ug/kg	730	U	280	U	290	U	300	U	350	U	280	U	280	U	330	U
Phenanthrene	ug/kg	2210		140		268		190		130		95		63		130	
Pyrene	ug/kg	5070		552		903		766		1330		343		239		754	
BaP equivalency	ug/kg	3500		460		910		660		1400		290		220		680	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	3.7	U									2.8	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.31		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.18	J	Not Analyzed		Not Analyzed	
Antimony	mg/kg	7.3	U									0.18	J				
Arsenic	mg/kg	6.8										3.5					
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg	51.6										75.2					
Beryllium	mg/kg	0.29	U									0.23	U				
Cadmium	mg/kg	1.7										0.15	J				
Chromium	mg/kg	71.6										41.3					
Cobalt	mg/kg	25.3										9.7					
Copper	mg/kg	63.6										26.8					
Lead	mg/kg	22.1										29					
Molybdenum	mg/kg	0.29	U									0.23	U				
Nickel	mg/kg	135										40.3					
Selenium	mg/kg	0.73	U									0.56	U				
Silver	mg/kg	0.73	U									0.56	U				
Thallium	mg/kg	0.73	U									0.56	U				
Vanadium	mg/kg	53.4										34.9					
Zinc	mg/kg	139										69.3					

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-034		OU5-035		OU5-035		OU5-035		OU5-035	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-168		181-169		181-170		181-171		181-172	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)											
Acenaphthene	ug/kg	380	U	1300	U	1400	U	150	U	1200	U
Acenaphthylene	ug/kg	150	U	2500	U	2800	U	290	U	2400	U
Anthracene	ug/kg	130		400		550		10	J	2700	J
Benzo(a)anthracene	ug/kg	220		1300		2100	J	34		5600	J
Benzo(a)pyrene	ug/kg	625		2800	J	4400	J	91		9700	J
Benzo(b)fluoranthene	ug/kg	350		2300		3600		80		6700	J
Benzo(g,h,i)perylene	ug/kg	280		2900		5900	J	130		10000	J
Benzo(k)fluoranthene	ug/kg	140		1100		1600		33		3300	J
Chrysene	ug/kg	486		1800	J	2700	J	57		6400	J
Dibenz(a,h)anthracene	ug/kg	220		3000		1400	U	96		4800	UJ
Fluoranthene	ug/kg	1200		8400	J	13000	J	190		36000	J
Fluorene	ug/kg	15	U	250	U	280	U	29	U	410	
Indeno(1,2,3-cd)pyrene	ug/kg	387		3500	J	6400	J	130		10000	J
Naphthalene	ug/kg	380	U	1300	U	1400	U	150	U	1200	U
Phenanthrene	ug/kg	210		1900	J	2900	J	30		9900	J
Pyrene	ug/kg	1680		5700	J	8900	J	140		23000	J
BaP equivalency	ug/kg	940		6500		6300		210		14000	J
Cyanide (EPA 9014)											
Cyanide	mg/kg			0.626	U						
Metals (EPA 6010B/7471A)											
Mercury	mg/kg	Not Analyzed		0.527		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg			12.5	U						
Arsenic	mg/kg										
Arsenic (EPA 7060A)	mg/kg			5.17	J						
Barium	mg/kg			140							
Beryllium	mg/kg			0.378	J						
Cadmium	mg/kg			0.288	J						
Chromium	mg/kg			41.7							
Cobalt	mg/kg			8.89							
Copper	mg/kg			41.2							
Lead	mg/kg			92.6							
Molybdenum	mg/kg			6.26	U						
Nickel	mg/kg			47							
Selenium	mg/kg			1.25	U						
Silver	mg/kg			1.25	U						
Thallium	mg/kg			0.715	J						
Vanadium	mg/kg			39.1							
Zinc	mg/kg			126							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-036		OU5-036		OU5-036		OU5-036		OU5-036		OU5-037		OU5-037		OU5-037	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		4.0-8.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-173		181-174		181-175		181-176		181-177		181-178		181-179		181-180	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1100	U	1200	U	690	U	2500	U	1100	U	1400	U	1500	U	690	U
Acenaphthylene	ug/kg	2300	U	2500	U	1400	U	4900	U	2300	U	560	U	610	U	1400	U
Anthracene	ug/kg	620		800	J	35	J	3500	J	1200	J	51	J	54	J	46	J
Benzo(a)anthracene	ug/kg	1800	J	2700	J	140		7500	J	2500	J	510		550		150	
Benzo(a)pyrene	ug/kg	3500	J	5700	J	340		13000	J	4400	J	930		1000		370	
Benzo(b)fluoranthene	ug/kg	2600		4200	J	260		9200	J	3200	J	470		510		300	
Benzo(g,h,i)perylene	ug/kg	4000	J	6800	J	440		13000	J	4800	J	870		930		490	
Benzo(k)fluoranthene	ug/kg	1200		1600	J	100		4700	J	1200	J	120		130		130	
Chrysene	ug/kg	2200	J	3500	J	190		8300	J	3000	J	500		530		220	
Dibenz(a,h)anthracene	ug/kg	2300	U	2500	UJ	140	U	10000	J	2300	UJ	800		900		140	U
Fluoranthene	ug/kg	11000	J	17000	J	880		52000	J	14000	J	1430		1550		860	
Fluorene	ug/kg	230	U	250	U	140	U	310	J	160	J	56	U	61	U	140	U
Indeno(1,2,3-cd)pyrene	ug/kg	3900	J	6800	J	430		14000	J	4800	J	590		640		490	
Naphthalene	ug/kg	1100	U	1200	U	690	U	2500	U	1100	U	1400	U	1500	U	690	U
Phenanthrene	ug/kg	2500	J	3800	J	200		14000	J	4400	J	470		510		180	
Pyrene	ug/kg	7600	J	12000	J	610		39000	J	11000	J	1530		1640		580	
BaP equivalency	ug/kg	5500		8300	J	490		26000	J	6600	J	1900		2100		540	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.574	U														
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.436		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	11.5	U														
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	5.2															
Barium	mg/kg	96.6															
Beryllium	mg/kg	0.483	J														
Cadmium	mg/kg	0.574	U														
Chromium	mg/kg	53.4															
Cobalt	mg/kg	8.92															
Copper	mg/kg	34.9															
Lead	mg/kg	86.7															
Molybdenum	mg/kg	1.39	J														
Nickel	mg/kg	51.9															
Selenium	mg/kg	1.15	U														
Silver	mg/kg	1.15	U														
Thallium	mg/kg	0.64	J														
Vanadium	mg/kg	36.8															
Zinc	mg/kg	117															

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-038		OU5-038		OU5-038		OU5-039		OU5-039		OU5-039		OU5-039		OU5-40	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5	
Sample ID		181-181		181-182		181-183		181-184		181-185		181-186		181-187		181-188	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1100	U	1200	U	620	U	1200	U	1300	U	1100	U	530	U	1100	U
Acenaphthylene	ug/kg	2200	U	2500	U	1200	U	2400	U	2600	U	1700	J	1100	U	2300	U
Anthracene	ug/kg	94	J	190		89		430	J	2200	J	4100	J	97		230	
Benzo(a)anthracene	ug/kg	380		710		210		1200		6300	J	4500	J	190		680	
Benzo(a)pyrene	ug/kg	1200		1800		430		2500	J	11000	J	7500	J	390		1400	
Benzo(b)fluoranthene	ug/kg	950		1300		310		1800		8000	J	5000	J	270		970	
Benzo(g,h,i)perylene	ug/kg	1700		2500		560		3000		13000	J	7500	J	430		1500	
Benzo(k)fluoranthene	ug/kg	170		500		120		810		3200	J	2100	J	120		430	
Chrysene	ug/kg	850		950		290		1500		7000	J	5400	J	260		810	
Dibenz(a,h)anthracene	ug/kg	1100		1800		420		2400		5100	UJ	4400	UJ	380		1200	
Fluoranthene	ug/kg	480		4400		1400		7900		39000	J	35000	J	1400		4100	J
Fluorene	ug/kg	220	U	250	U	120	U	240	U	390		1200		110	U	230	U
Indeno(1,2,3-cd)pyrene	ug/kg	1500		2800		550		3200	J	13000	J	7400	J	440		1500	J
Naphthalene	ug/kg	1100	U	1200	U	620	U	1200	U	1300	U	1100	U	530	U	1100	U
Phenanthrene	ug/kg	1300		750		470		2300	J	12000	J	21000	J	450		1100	
Pyrene	ug/kg	2100	J	3100		780		5300	J	26000	J	21000	J	710		2900	J
BaP equivalency	ug/kg	2600		4100		960		5500		16000		11000	J	860		2900	
Cyanide (EPA 9014)																	
Cyanide	mg/kg															0.564	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.321	
Antimony	mg/kg															11.3	U
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg															3.92	J
Barium	mg/kg															100	
Beryllium	mg/kg															0.34	J
Cadmium	mg/kg															0.564	U
Chromium	mg/kg															52.8	
Cobalt	mg/kg															9.05	
Copper	mg/kg															33.6	
Lead	mg/kg															52.6	
Molybdenum	mg/kg															1.01	J
Nickel	mg/kg															43.4	
Selenium	mg/kg															1.13	U
Silver	mg/kg															1.13	U
Thallium	mg/kg															0.677	J
Vanadium	mg/kg															41.3	
Zinc	mg/kg															109	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-40		OU5-40		OU5-40		OU5-041		OU5-041		OU5-041		OU5-041		OU5-042	
Sample Depth (ft)		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5	
Sample ID		181-189		181-190		181-191		181-192		181-193		181-194		181-195		181-196	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001		05/24/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1100	U	1200	U	1300	U	1200	U	560	U	1300	U	120000	UJ	560	U
Acenaphthylene	ug/kg	2300	U	2400	U	640	J	870	J	1100	U	2600	U	69000	J	1100	U
Anthracene	ug/kg	200		800	J	4200	J	4600	J	69		880	J	89000	J	300	
Benzo(a)anthracene	ug/kg	600		2400	J	7500	J	8300	J	220		3300	J	68000	J	640	
Benzo(a)pyrene	ug/kg	1300		5100	J	12000	J	11000	J	520		7400	J	110000	J	1200	J
Benzo(b)fluoranthene	ug/kg	810		3600	J	8700	J	8700	J	350		5500	J	74000	J	820	
Benzo(g,h,i)perylene	ug/kg	1200		6000	J	12000	J	8800	J	550		9000	J	76000	J	960	
Benzo(k)fluoranthene	ug/kg	370		1400	J	4900	J	3200	J	160		2400	J	36000	J	260	
Chrysene	ug/kg	680		2800	J	8600	J	9800	J	290		3800	J	81000	J	770	
Dibenz(a,h)anthracene	ug/kg	1000		2400	U	5100	U	9900	J	450		2600	U	24000	UJ	1000	
Fluoranthene	ug/kg	3500		15000	J	43000	J	53000	J	1300		19000	J	750000	J	4200	J
Fluorene	ug/kg	230	U	240	U	840		780		110	U	260	U	36000	J	90	J
Indeno(1,2,3-cd)pyrene	ug/kg	1300		6100	J	13000	J	11000	J	570		9400	J	94000	J	1300	J
Naphthalene	ug/kg	1100	U	1200	U	1300	U	1200	U	560	U	1300	U	140000	J	560	U
Phenanthrene	ug/kg	920		2800	J	17000	J	20000	J	280		3000	J	580000	J	1700	J
Pyrene	ug/kg	2400		11000	J	30000	J	36000	J	990	J	15000	J	470000	J	2800	J
BaP equivalency	ug/kg	2600		7500		18000	J	24000	J	1100		11000	J	146000	J	2500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg					0.639	U	0.597	U								
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.215		0.1	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg					12.8	U	11.9	U								
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg					4.7		2.38	J								
Barium	mg/kg					88.2		40.9									
Beryllium	mg/kg					0.46	J	0.236	J								
Cadmium	mg/kg					0.639	U	0.597	U								
Chromium	mg/kg					62.3		43.2									
Cobalt	mg/kg					10.6		6.13									
Copper	mg/kg					32		12									
Lead	mg/kg					23.3		6.31									
Molybdenum	mg/kg					6.39	U	5.97	U								
Nickel	mg/kg					56.8		36.3									
Selenium	mg/kg					1.28	U	1.19	U								
Silver	mg/kg					1.28	U	1.19	U								
Thallium	mg/kg					2.55	U	2.39	U								
Vanadium	mg/kg					42.2		26.3									
Zinc	mg/kg					84.1		36.9									

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-042		OU5-042		OU5-042		OU5-043		OU5-043		OU5-043		OU5-044		OU5-044	
Sample Depth (ft)		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0	
Sample ID		181-197		181-198		181-199		181-200		181-201		181-202		181-203		181-204	
Sample Collection Date		05/24/2001		05/24/2001		05/24/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	560	U	1300	U	1300	U	2800	U	2800	U	2800	U	2600	U	2600	U
Acenaphthylene	ug/kg	1100	U	2500	U	2500	U	1100	U	1100	U	1100	U	1100	U	1100	U
Anthracene	ug/kg	130		1100	J	1200	J	690		430		250		200		310	
Benzo(a)anthracene	ug/kg	430		2400	J	3100	J	1500		900		1300		560		1600	
Benzo(a)pyrene	ug/kg	890	J	4900	J	6300	J	4900		3180		2730		2000		2770	
Benzo(b)fluoranthene	ug/kg	600		3300	J	4300	J	2270		1500		1400		950		1300	
Benzo(g,h,i)perylene	ug/kg	930		5400	J	6600	J	1500		1000		1100		810		1100	
Benzo(k)fluoranthene	ug/kg	290		1300	J	1900	J	870		570		370		280		450	
Chrysene	ug/kg	510		2700	J	3600	J	3510		2000		1400		1100		1600	
Dibenz(a,h)anthracene	ug/kg	760		2500	UJ	2500	UJ	1300		1200		920		680		880	
Fluoranthene	ug/kg	2400	J	15000	J	20000	J	19,300		11,600		7,550		3,100		4,830	
Fluorene	ug/kg	110	U	250	U	140	J	110	U	110	U	110	U	110	U	110	U
Indeno(1,2,3-cd)pyrene	ug/kg	970	J	5400	J	6800	J	2460		1900		1800		1200		1800	
Naphthalene	ug/kg	560	U	1300	U	1300	U	2800	U	2800	U	2800	U	2800	U	2600	U
Phenanthrene	ug/kg	530	J	3400	J	5200	J	5000		3400		1500		1400		1800	
Pyrene	ug/kg	1800	J	10000	J	14000	J	12,500		7,350		6,300		3,860		5,330	
BaP equivalency	ug/kg	1900		7300	J	9000	J	6800		4800		4100		3000		4100	
Cyanide (EPA 9014)																	
Cyanide	mg/kg													2.6	U	2.6	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.26		0.22	
Antimony	mg/kg													5.3	U	5.3	U
Arsenic	mg/kg													3.9		5	
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg													74.8		85.6	
Beryllium	mg/kg													0.21	U	0.21	U
Cadmium	mg/kg													0.27		0.24	
Chromium	mg/kg													43.7		37.2	
Cobalt	mg/kg													9.8		12.9	
Copper	mg/kg													28.5		28.5	
Lead	mg/kg													35		28	
Molybdenum	mg/kg													0.21	U	0.21	U
Nickel	mg/kg													42.3		40.3	
Selenium	mg/kg													0.53	U	0.53	U
Silver	mg/kg													0.53	U	0.53	U
Thallium	mg/kg													0.53	U	0.53	U
Vanadium	mg/kg													37.5		49.3	
Zinc	mg/kg													75.7		63.5	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-044		OU5-044		OU5-045		OU5-045		OU5-045		OU5-045		OU5-045		OU5-046	
Sample Depth (ft)		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		4.0-8.0		0.0-0.5	
Sample ID		181-205		181-206		181-207		181-208		181-209		181-210		181-211		181-212	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1400	U	28000	U	1300	U	270	U	280	U	1500	U	3300	U	320	U
Acenaphthylene	ug/kg	560	U	11000	U	530	U	110	U	110	U	610	U	1300	U	130	U
Anthracene	ug/kg	70		28400		80		20		67		70		500		170	
Benzo(a)anthracene	ug/kg	220		19000		670		130		371		480		3230		711	
Benzo(a)pyrene	ug/kg	850		18000		1120		233		654		950		5270		876	
Benzo(b)fluoranthene	ug/kg	400		9200		590		110		336		470		2800		419	
Benzo(g,h,i)perylene	ug/kg	750		13000		560		100		285		650		2300		262	
Benzo(k)fluoranthene	ug/kg	100		7000		150		27		77		100		750		110	
Chrysene	ug/kg	440		21000		680		120		377		440		3060		743	
Dibenz(a,h)anthracene	ug/kg	560		12000		500		140		220		610		1800		240	
Fluoranthene	ug/kg	1,490		49,500		2,050		451		1,410		1,930		15,000		2,730	
Fluorene	ug/kg	56	U	36300		53	U	11	U	11	U	61	U	130	U	13	U
Indeno(1,2,3-cd)pyrene	ug/kg	250		9600		810		75		443		300		3840		485	
Naphthalene	ug/kg	1400	U	140000		1300	U	270	U	280	U	1500	U	3300	U	320	U
Phenanthrene	ug/kg	490		183000		700		160		530		500		730		866	
Pyrene	ug/kg	1,760		63,600		2,050		438		1,370		2,100		15,800		2,340	
BaP equivalency	ug/kg	1500		34000		1800		400		990		1700		8100		1300	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	2.8	U	2.8	U	2.6	U										
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.15	J	0.096	J	0.23		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.6	U	5.7	U	0.17	J										
Arsenic	mg/kg	8.9		3.9		4.7											
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg	78.9		42.5		85.1											
Beryllium	mg/kg	0.23	U	0.23	U	0.21	U										
Cadmium	mg/kg	0.13	J	0.13	J	0.47	U										
Chromium	mg/kg	35.3		37.7		37.9											
Cobalt	mg/kg	12.5		7.7		9											
Copper	mg/kg	23.8		16.3		30.1											
Lead	mg/kg	19.2		22.6		59.7											
Molybdenum	mg/kg	0.23	U	0.23	U	0.21	U										
Nickel	mg/kg	36		38.1		39											
Selenium	mg/kg	0.56	U	0.57	U	0.53	U										
Silver	mg/kg	0.56	U	0.57	U	0.53	U										
Thallium	mg/kg	0.56	U	0.57	U	0.53	U										
Vanadium	mg/kg	57.6		30.4		32.7											
Zinc	mg/kg	64.3		41.5		104											

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-046		OU5-046		OU5-047		OU5-047		OU5-047		OU5-048		OU5-048		OU5-048	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-213		181-214		181-215		181-216		181-217		181-218		181-219		181-220	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1400	U	1400	U	280	U	270	U	1500	U	1400	U	270	U	290	U
Acenaphthylene	ug/kg	540	U	540	U	110	U	110	U	600	U	550	U	110	U	120	U
Anthracene	ug/kg	160		60		38		1	J	90		140		20		99	
Benzo(a)anthracene	ug/kg	1000		560		190		52		220		200		140		326	
Benzo(a)pyrene	ug/kg	1960		1180		331		110		670		620		290		923	
Benzo(b)fluoranthene	ug/kg	960		610		170		55		290		270		150		533	
Benzo(g,h,i)perylene	ug/kg	900		570		120		51		440		440		140		477	
Benzo(k)fluoranthene	ug/kg	230		130		42		10		70		190		33		190	
Chrysene	ug/kg	1100		530		190		48		370		330		140		508	
Dibenz(a,h)anthracene	ug/kg	660		830		110		76		400		370		110		360	
Fluoranthene	ug/kg	3,340		2,090		639		150		1,430		1,210		476		1,580	
Fluorene	ug/kg	54	U	54	U	11	U	11	U	60	U	55	U	11	U	12	U
Indeno(1,2,3-cd)pyrene	ug/kg	1340		440		200		80		390		360		210		688	
Naphthalene	ug/kg	1400	U	1400	U	280	U	270	U	1500	U	1400	U	270	U	290	U
Phenanthrene	ug/kg	1170		530		288		42		860		1100		150		489	
Pyrene	ug/kg	3,680		2,430		710		130		1,350		1,270		542		1,980	
BaP equivalency	ug/kg	3000		2200		500		200		1200		1100		450		1400	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-048		OU5-049		OU5-049		OU5-049		OU5-049		OU5-050		OU5-050		OU5-050	
Sample Depth (ft)		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-221		181-222		181-223		181-224		181-225		181-226		181-227		181-228	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	280	U	270	U	260	U	270	J	360	U	31	J	23	J	240	J
Acenaphthylene	ug/kg	110	U	110	U	110	U	130	U	150	U	82	J	58	J	700	J
Anthracene	ug/kg	110		84		28		265		94		84	J	62	J	620	J
Benzo(a)anthracene	ug/kg	265		290		110		583		160		670	J	470	J	4400	J
Benzo(a)pyrene	ug/kg	824		775		358		1520		506		1100	J	860	J	10000	J
Benzo(b)fluoranthene	ug/kg	475		407		190		866		260		1000	J	780	J	8600	J
Benzo(g,h,i)perylene	ug/kg	418		352		180		721		210		740	J	830	J	9100	J
Benzo(k)fluoranthene	ug/kg	160		160		69		305		86		450	J	300	J	3800	J
Chrysene	ug/kg	478		498		210		1020		350		610	J	430	J	4400	J
Dibenz(a,h)anthracene	ug/kg	320		250		140		530		170		95	UJ	120	J	1100	J
Fluoranthene	ug/kg	1,450		1,490		557		3,390		1,090		1600	J	1200	J	8400	J
Fluorene	ug/kg	11	U	11	U	11	U	13	U	15	U	24	J	19	J	120	J
Indeno(1,2,3-cd)pyrene	ug/kg	593		452		232		1060		290		550	J	600	J	7100	J
Naphthalene	ug/kg	280	U	270	U	260	U	330	U	360	U	31	J	28	J	300	J
Phenanthrene	ug/kg	529		499		160		1220		333		710	J	490	J	3700	J
Pyrene	ug/kg	1,670		1,390		578		3,650		1,090		1800	J	1200	J	13000	J
BaP equivalency	ug/kg	1300		1100		550		2300		750		1400	J	1200	J	13000	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg			2.7	U	2.6	U	3.3	U	3.6	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		0.19	J	0.24		0.14	J	0.20	J	Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg			5.3	U	0.21	J	6.6	U	7.3	U						
Arsenic	mg/kg			4.1		5.5		3.5		4.5							
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg			68.7		56.8		231		59.9							
Beryllium	mg/kg			0.21	U	0.21	U	0.26	U	0.29	U						
Cadmium	mg/kg			0.34		0.29		0.38		0.2	J						
Chromium	mg/kg			30.7		21.4		47.7		58.5							
Cobalt	mg/kg			9		8.7		8.7		11.2							
Copper	mg/kg			31.9		34.2		20.3		25.4							
Lead	mg/kg			39.5		19.6		28.4		23.5							
Molybdenum	mg/kg			0.21	U	0.21	U	0.26	U	0.29	U						
Nickel	mg/kg			32.9		21.8		44.3		60.5							
Selenium	mg/kg			0.53	U	0.53	U	0.66	U	0.73	U						
Silver	mg/kg			0.53	U	0.53	U	0.66	U	0.73	U						
Thallium	mg/kg			0.53	U	0.53	U	0.66	U	0.73	U						
Vanadium	mg/kg			30.5		29.4		34		45.4							
Zinc	mg/kg			108		129		237		67							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-051		OU5-051		OU5-051		OU5-051		OU5-052		OU5-052		OU5-052		OU5-053	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-233		181-234		181-235		181-236		181-237		181-238		181-239		181-229	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	46	J	180	J	100	J	81	J	38	J	48	J	38	J	100	UJ
Acenaphthylene	ug/kg	57	J	100	J	360	J	170	J	90	J	89	J	35	J	54	J
Anthracene	ug/kg	200	J	560	J	410	J	250	J	98	J	120	J	74	J	42	J
Benzo(a)anthracene	ug/kg	850	J	2100	J	1900	J	1200	J	650	J	850	J	310	J	370	J
Benzo(a)pyrene	ug/kg	1400	J	3700	J	3500	J	2500	J	1200	J	1800	J	570	J	590	J
Benzo(b)fluoranthene	ug/kg	1200	J	3200	J	3800	J	2100	J	1100	J	1500	J	510	J	550	J
Benzo(g,h,i)perylene	ug/kg	1000	J	2300	J	2900	J	2200	J	1300	J	1800	J	580	J	530	J
Benzo(k)fluoranthene	ug/kg	540	J	1200	J	360	J	950	J	480	J	660	J	210	J	200	J
Chrysene	ug/kg	790	J	2100	J	1700	J	1100	J	620	J	750	J	290	J	330	J
Dibenz(a,h)anthracene	ug/kg	190	J	550	J	420	J	300	J	160	J	220	J	71	J	71	J
Fluoranthene	ug/kg	1100	J	2200	J	3700	J	2200	J	1200	J	1500	J	540	J	590	J
Fluorene	ug/kg	48	J	160	J	210	J	64	J	22	J	34	J	20	J	100	UJ
Indeno(1,2,3-cd)pyrene	ug/kg	820	J	2000	J	2200	J	1700	J	930	J	1300	J	420	J	390	J
Naphthalene	ug/kg	27	J	130	J	100	J	77	J	39	J	55	J	28	J	100	U
Phenanthrene	ug/kg	810	J	1700	J	3100	J	1600	J	700	J	830	J	490	J	290	J
Pyrene	ug/kg	1600	J	3400	J	5200	J	3400	J	1800	J	2400	J	850	J	890	J
BaP equivalency	ug/kg	1900	J	5000	J	4700	J	3300	J	1600	J	2400	J	770	J	790	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg															0.5	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.179	
Antimony	mg/kg															10	U
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg															4.6	
Barium	mg/kg															73.8	
Beryllium	mg/kg															0.302	J
Cadmium	mg/kg															0.589	U
Chromium	mg/kg															41.6	
Cobalt	mg/kg															7.92	
Copper	mg/kg															22	J
Lead	mg/kg															33.3	
Molybdenum	mg/kg															5.89	U
Nickel	mg/kg															39.2	
Selenium	mg/kg															1.18	U
Silver	mg/kg															1.18	U
Thallium	mg/kg															0.855	J
Vanadium	mg/kg															30.9	
Zinc	mg/kg															77.7	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-054		OU5-054		OU5-054		OU5-054		OU5-055		OU5-055		OU5-055		OU5-055	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-240		181-241		181-242		181-243		181-244		181-245		181-246		181-247	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	18	J	83	J	63	J	230	J	22	J	72	J	150	J	25	J
Acenaphthylene	ug/kg	61	J	260	J	160	J	300	J	140	J	190	J	180	J	30	J
Anthracene	ug/kg	76	J	300	J	170	J	440	J	130	J	250	J	200	J	47	J
Benzo(a)anthracene	ug/kg	440	J	1400	J	1700	J	3100	J	520	J	1100	J	1200	J	220	J
Benzo(a)pyrene	ug/kg	710	J	2600	J	3900	J	7600	J	850	J	2000	J	2200	J	280	J
Benzo(b)fluoranthene	ug/kg	640	J	2200	J	4200	J	6600	J	790	J	2200	J	2000	J	270	J
Benzo(g,h,i)perylene	ug/kg	670	J	2100	J	4300	J	7200	J	800	J	1700	J	2600	J	300	J
Benzo(k)fluoranthene	ug/kg	260	J	1100	J	340	J	2100	J	320	J	190	J	720	J	85	J
Chrysene	ug/kg	390	J	1300	J	1600	J	3200	J	480	J	1100	J	990	J	170	J
Dibenz(a,h)anthracene	ug/kg	94	J	330	J	480	J	880	J	120	J	250	J	330	J	42	J
Fluoranthene	ug/kg	650	J	2300	J	2900	J	5600	J	880	J	1800	J	3000	J	360	J
Fluorene	ug/kg	21	J	85	J	31	J	80	J	40	J	69	J	72	J	98	UJ
Indeno(1,2,3-cd)pyrene	ug/kg	500	J	1700	J	3100	J	5600	J	620	J	1300	J	1900	J	220	J
Naphthalene	ug/kg	25	J	74	J	130	J	260	J	120	J	85	J	93	J	28	J
Phenanthrene	ug/kg	520	J	2200	J	870	J	2100	J	1100	J	1700	J	1500	J	330	J
Pyrene	ug/kg	1100	J	3700	J	4700	J	8600	J	1400	J	2900	J	3000	J	470	J
BaP equivalency	ug/kg	960	J	3500	J	5300	J	10000	J	1200	J	2700	J	3000	J	390	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg									0.5	U	0.5	U	0.5	U	0.5	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.155		0.203		0.526		0.1	U
Antimony	mg/kg									10.6	U	10	U	10	U	10	U
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg									4.03		3.35	J	6.49	J	1.45	
Barium	mg/kg									91.6		79.7		122		31.1	
Beryllium	mg/kg									0.366	J	0.414	J	0.541	J	0.0997	J
Cadmium	mg/kg									0.531	U	0.527	U	0.635	U	0.575	U
Chromium	mg/kg									35		31.5		81.9		16.1	
Cobalt	mg/kg									9.78		7.73		10.4		3.33	
Copper	mg/kg									26	J	18.4	J	36.5	J	7.01	J
Lead	mg/kg									24.4		20.7		35.1		13.9	
Molybdenum	mg/kg									5.31	U	5.27	U	1.91	J	5.75	U
Nickel	mg/kg									37		29.9		76.1		17.2	
Selenium	mg/kg									1.06	U	1.05	U	1.27	U	1.15	U
Silver	mg/kg									1.06	U	1.05	U	1.27	U	1.15	U
Thallium	mg/kg									1.04	J	2.11	U	1.06	J	2.3	U
Vanadium	mg/kg									33.7		29.2		55.8		11.4	
Zinc	mg/kg									71.2	J	57.1	J	86.8	J	15.3	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-056		OU5-056		OU5-056		OU5-057		OU5-057		OU5-057		OU5-057		OU5-058	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5	
Sample ID		181-248		181-249		181-250		181-251		181-252		181-253		181-254		181-255	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	24	J	98	J	71	J	110	UJ	1100	UJ	530	UJ	1600	UJ	76	J
Acenaphthylene	ug/kg	49	J	270	J	120	J	210	UJ	2000	J	1100	UJ	3100	UJ	320	J
Anthracene	ug/kg	55	J	260	J	160	J	36	J	2600	J	510	J	1400	J	370	J
Benzo(a)anthracene	ug/kg	430	J	1200	J	890	J	100	J	3300	J	990	J	3200	J	1400	J
Benzo(a)pyrene	ug/kg	600	J	2100	J	1600	J	220	J	5000	J	1800	J	7900	J	2100	J
Benzo(b)fluoranthene	ug/kg	570	J	1700	J	1400	J	150	J	3300	J	1200	J	5100	J	1800	J
Benzo(g,h,i)perylene	ug/kg	600	J	2100	J	1900	J	240	J	4500	J	1600	J	7600	J	2100	J
Benzo(k)fluoranthene	ug/kg	210	J	770	J	540	J	71	J	1700	J	550	J	2600	J	790	J
Chrysene	ug/kg	350	J	1100	J	740	J	130	J	3700	J	1100	J	3500	J	1200	J
Dibenz(a,h)anthracene	ug/kg	94	J	310	J	240	J	200	J	4300	UJ	1100	UJ	3100	UJ	320	J
Fluoranthene	ug/kg	720	J	2200	J	1600	J	660	J	26000	J	7100	J	20000	J	2300	J
Fluorene	ug/kg	91	UJ	79	J	38	J	21	UJ	1400	J	110	J	270	J	110	J
Indeno(1,2,3-cd)pyrene	ug/kg	450	J	1600	J	1400	J	170	J	4800	J	1800	J	8000	J	1600	J
Naphthalene	ug/kg	18	J	87	J	61	J	110	UJ	1100	UJ	530	UJ	1600	UJ	67	J
Phenanthrene	ug/kg	380	J	1800	J	1000	J	180	J	16000	J	2600	J	5500	J	2700	J
Pyrene	ug/kg	960	J	3000	J	2200	J	470	J	15000	J	4400	J	19000	J	3500	J
BaP equivalency	ug/kg	840	J	2900	J	2200	J	460	J	8300	J	2800	J	11000	J	2900	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-058		OU5-058		OU5-059		OU5-059		OU5-059		OU5-060		OU5-060		OU5-060	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-256		181-257		181-258		181-259		181-260		181-261		181-262		181-263	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	91	J	690	J	530	UJ	510	UJ	1200	UJ	560	UJ	550	UJ	620	UJ
Acenaphthylene	ug/kg	130	J	910	J	1100	UJ	410	J	2500	UJ	1100	UJ	1100	UJ	1200	UJ
Anthracene	ug/kg	180	J	1400	J	220	J	410	J	120	UJ	370	J	670	J	210	J
Benzo(a)anthracene	ug/kg	1300	J	5800	J	680	J	860	J	2100	J	880	J	1400	J	710	J
Benzo(a)pyrene	ug/kg	1900	J	9600	J	1500	J	1500	J	5900	J	1700	J	2600	J	1700	J
Benzo(b)fluoranthene	ug/kg	2100	J	10000	J	1100	J	1000	J	4000	J	1200	J	1800	J	1100	J
Benzo(g,h,i)perylene	ug/kg	2300	J	8200	J	1700	J	1600	J	6300	J	1900	J	2500	J	1800	J
Benzo(k)fluoranthene	ug/kg	190	J	1000	J	440	J	460	J	1700	J	520	J	710	J	470	J
Chrysene	ug/kg	1000	J	5400	J	840	J	1100	J	2000	J	1000	J	1800	J	930	J
Dibenz(a,h)anthracene	ug/kg	290	J	1200	J	1400	J	1300	J	5600	J	1100	UJ	1100	UJ	500	UJ
Fluoranthene	ug/kg	2300	J	10000	J	4500	J	5900	J	9000	J	5800	J	9700	J	4400	J
Fluorene	ug/kg	56	J	410	J	110	UJ	47	J	250	UJ	65	J	60	J	120	UJ
Indeno(1,2,3-cd)pyrene	ug/kg	1600	J	6500	J	1800	J	1700	J	6700	J	2000	J	2700	J	1900	J
Naphthalene	ug/kg	81	J	500	J	530	UJ	510	UJ	1200	UJ	560	UJ	550	UJ	620	UJ
Phenanthrene	ug/kg	1600	J	8600	J	1100	J	1800	J	770	J	1900	J	2700	J	880	J
Pyrene	ug/kg	3300	J	15000	J	2700	J	3700	J	12000	J	3900	J	6100	J	3000	J
BaP equivalency	ug/kg	2700	J	13000	J	3300	J	3200	J	13000	J	2700	J	3700	J	2300	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg											0.556	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.251		Not Analyzed		Not Analyzed	
Antimony	mg/kg											11.1	U				
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg											4.3	J				
Barium	mg/kg											90.4					
Beryllium	mg/kg											0.329	J				
Cadmium	mg/kg											0.556	U				
Chromium	mg/kg											37.9					
Cobalt	mg/kg											7.67					
Copper	mg/kg											29.5					
Lead	mg/kg											53					
Molybdenum	mg/kg											1.02	J				
Nickel	mg/kg											38					
Selenium	mg/kg											1.11	U				
Silver	mg/kg											1.11	U				
Thallium	mg/kg											2.22	U				
Vanadium	mg/kg											30.5					
Zinc	mg/kg											99.8	J				

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-060		OU5-060		OU5-061		OU5-061		OU5-061		OU5-062		OU5-062		OU5-062	
Sample Depth (ft)		2.0-4.0 DUP		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-264		181-265		181-266		181-267		181-268		181-269		181-270		181-271	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	690	UJ	120	UJ	570	UJ	580	UJ	1400	UJ	540	UJ	110	UJ	720	UJ
Acenaphthylene	ug/kg	1400	UJ	110	J	1100	UJ	1200	UJ	960	J	1100	UJ	220	UJ	1400	UJ
Anthracene	ug/kg	170	J	150	J	140	J	44	J	750	J	260	J	22	J	230	J
Benzo(a)anthracene	ug/kg	580	J	290	J	440	J	170	J	2400	J	700	J	37	J	600	J
Benzo(a)pyrene	ug/kg	1400	J	580	J	940	J	480	J	5300	J	1400	J	100	J	1200	J
Benzo(b)fluoranthene	ug/kg	980	J	400	J	650	J	390	J	3400	J	940	J	82	J	990	J
Benzo(g,h,i)perylene	ug/kg	1700	J	620	J	1400	J	740	J	6100	J	1400	J	100	J	1400	J
Benzo(k)fluoranthene	ug/kg	410	J	150	J	240	J	150	J	1400	J	410	J	31	J	430	J
Chrysene	ug/kg	730	J	370	J	570	J	270	J	3100	J	780	J	69	J	780	J
Dibenz(a,h)anthracene	ug/kg	550	UJ	250	UJ	460	UJ	540	J	2700	UJ	1100	UJ	22	UJ	580	UJ
Fluoranthene	ug/kg	3600	J	1900	J	2800	J	1100	J	17000	J	4600	J	320	J	3400	J
Fluorene	ug/kg	140	UJ	40	J	110	UJ	120	UJ	270	UJ	110	UJ	22	UJ	140	UJ
Indeno(1,2,3-cd)pyrene	ug/kg	1600	J	640	J	1100	J	760	J	6200	J	1400	J	82	J	1500	J
Naphthalene	ug/kg	690	UJ	390	J	570	UJ	580	UJ	1400	UJ	540	UJ	110	UJ	720	UJ
Phenanthrene	ug/kg	690	J	680	J	690	J	200	J	4000	J	1300	J	70	J	720	J
Pyrene	ug/kg	2500	J	1300	J	1900	J	770	J	11000	J	3100	J	240	J	2600	J
BaP equivalency	ug/kg	2000	J	840	J	1400	J	1200	J	7900	J	2300	J	130	J	1800	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-063		OU5-063		OU5-063		OU5-064		OU5-064		OU5-064		OU5-064		OU5-065	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5	
Sample ID		181-272		181-273		181-274		181-276		181-277		181-278		181-279		181-280	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1100	UJ	560	UJ	640	UJ	550	UJ	540	UJ	610	UJ	120	UJ	1100	UJ
Acenaphthylene	ug/kg	2200	UJ	1100	UJ	1300	UJ	1100	UJ	1100	UJ	1200	UJ	240	UJ	2100	UJ
Anthracene	ug/kg	690	J	210	J	140	J	68	J	98	J	280	J	65	J	520	J
Benzo(a)anthracene	ug/kg	1400	J	570	J	540	J	230	J	190	J	940	J	150	J	1500	J
Benzo(a)pyrene	ug/kg	2600	J	1100	J	1700	J	510	J	410	J	2200	J	320	J	3500	J
Benzo(b)fluoranthene	ug/kg	1800	J	820	J	1300	J	390	J	310	J	1500	J	220	J	2600	J
Benzo(g,h,i)perylene	ug/kg	2900	J	1300	J	2200	J	620	J	480	J	2400	J	350	J	3900	J
Benzo(k)fluoranthene	ug/kg	860	J	360	J	550	J	150	J	110	J	710	J	91	J	1200	J
Chrysene	ug/kg	1600	J	680	J	670	J	330	J	300	J	1200	J	190	J	1700	J
Dibenz(a,h)anthracene	ug/kg	1100	UJ	450	UJ	1300	UJ	220	UJ	220	UJ	1200	UJ	120	UJ	2100	UJ
Fluoranthene	ug/kg	9200	J	3700	J	3000	J	1500	J	1400	J	5500	J	1000	J	8900	J
Fluorene	ug/kg	220	UJ	110	UJ	130	UJ	110	UJ	110	UJ	120	UJ	24	UJ	210	UJ
Indeno(1,2,3-cd)pyrene	ug/kg	3000	J	1400	J	2300	J	680	J	530	J	2500	J	360	J	4100	J
Naphthalene	ug/kg	1100	UJ	560	UJ	640	UJ	550	UJ	540	UJ	610	UJ	120	UJ	1100	UJ
Phenanthrene	ug/kg	2800	J	960	J	320	J	300	J	450	J	930	J	230	J	1800	J
Pyrene	ug/kg	6100	J	2500	J	3300	J	990	J	920	J	3800	J	690	J	7500	J
BaP equivalency	ug/kg	3800	J	1600	J	2800	J	750	J	620	J	3300	J	450	J	5400	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg							0.547	U	0.541	U	0.611	U	0.596	U		
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.304		0.205		0.44		0.119	U	Not Analyzed	
Antimony	mg/kg							4.87	J	10.8	U	4.93	J	4.57	J		
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg							3.95	J	3.72	J	5.65	J	1.18	J		
Barium	mg/kg							76.1		65.1		95.6		32.1			
Beryllium	mg/kg							0.301	J	0.274	J	0.516	J	0.183	J		
Cadmium	mg/kg							0.547	U	0.541	U	0.611	U	0.596	U		
Chromium	mg/kg							43.7		42.7		72.5		32			
Cobalt	mg/kg							7.51		6.35		12.3		5.46			
Copper	mg/kg							24.1		20.5		28.6		10.7			
Lead	mg/kg							75.4		51.7		23.4		10.7			
Molybdenum	mg/kg							5.47	U	5.41	U	6.11	U	5.96	U		
Nickel	mg/kg							38.5		36.6		71.8		32.5			
Selenium	mg/kg							1.09	U	1.08	U	1.22	U	1.19	U		
Silver	mg/kg							1.09	U	0.463	J	1.22	U	1.19	U		
Thallium	mg/kg							2.19	U	2.16	U	0.723	J	2.38	U		
Vanadium	mg/kg							32.6		27.6		49.9		19.7			
Zinc	mg/kg							64.5	J	45.5	J	75	J	27.7	J		

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-065		OU5-065		OU5-066		OU5-066		OU5-066		OU5-066		OU5-067		OU5-067	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0	
Sample ID		181-281		181-282		181-283		181-284		181-285		181-286		181-287		181-288	
Sample Collection Date		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/25/2001		05/29/2001		05/29/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1100	UJ	530	UJ	530	UJ	530	UJ	530	UJ	570	UJ	530	U	1100	U
Acenaphthylene	ug/kg	2100	UJ	1100	UJ	1100	UJ	1100	UJ	1100	UJ	370	J	1100	U	2200	U
Anthracene	ug/kg	1300	J	680	J	110	J	110	J	140	J	1000	J	240	J	990	J
Benzo(a)anthracene	ug/kg	3400	J	1500	J	300	J	320	J	420	J	1900	J	700		2000	J
Benzo(a)pyrene	ug/kg	6000	J	3100	J	730	J	740	J	940	J	3400	J	1300		3200	J
Benzo(b)fluoranthene	ug/kg	4000	J	2100	J	460	J	500	J	640	J	2200	J	980		2200	J
Benzo(g,h,i)perylene	ug/kg	5800	J	3300	J	970	J	870	J	1100	J	3300	J	880	J	2900	J
Benzo(k)fluoranthene	ug/kg	1500	J	760	J	180	J	220	J	280	J	950	J	440		1000	J
Chrysene	ug/kg	3900	J	1700	J	390	J	400	J	530	J	2100	J	770	J	2100	J
Dibenz(a,h)anthracene	ug/kg	4200	UJ	2100	UJ	520	J	670	J	840	J	2300	UJ	1200		2600	J
Fluoranthene	ug/kg	22000	J	12000	J	2100	J	1900	J	2600	J	13000	J	4200	J	14000	J
Fluorene	ug/kg	250	J	96	J	110	UJ	110	UJ	110	UJ	230	J	110	U	280	
Indeno(1,2,3-cd)pyrene	ug/kg	6400	J	3500	J	810	J	870	J	1100	J	3600	J	670	J	3700	J
Naphthalene	ug/kg	1100	UJ	530	UJ	530	UJ	530	UJ	530	UJ	570	UJ	530	UJ	1100	UJ
Phenanthrene	ug/kg	6900	J	3800	J	500	J	440	J	610	J	5600	J	1000	J	5800	J
Pyrene	ug/kg	14000	J	7800	J	1500	J	1500	J	1800	J	8800	J	3100	J	8800	J
BaP equivalency	ug/kg	9500	J	4900	J	1400	J	1600	J	2000	J	5300	J	2700		6600	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg													0.531	U	0.541	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.202		0.155	
Antimony	mg/kg													10.6	U	10.8	U
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg													4.24		3.17	
Barium	mg/kg													74		42.5	
Beryllium	mg/kg													0.335	J	0.231	J
Cadmium	mg/kg													0.531	U	0.541	U
Chromium	mg/kg													38.8		42.8	
Cobalt	mg/kg													7.21		6.29	
Copper	mg/kg													20.1		18	
Lead	mg/kg													25		19.6	
Molybdenum	mg/kg													5.31	U	5.41	U
Nickel	mg/kg													37.8		38.7	
Selenium	mg/kg													1.06	U	1.08	U
Silver	mg/kg													1.06	U	1.08	U
Thallium	mg/kg													1.33	J	0.873	J
Vanadium	mg/kg													29.5		26.1	
Zinc	mg/kg													58.4		36.2	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-067		OU5-067		OU5-068		OU5-068		OU5-068		OU5-069		OU5-069		OU5-069	
Sample Depth (ft)		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-289		181-290		181-291		181-292		181-293		181-294		181-295		181-296	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	700	U	290	U	570	U	1200	U	1400	U	100	U	1100	U	610	U
Acenaphthylene	ug/kg	1400	U	580	U	1100	U	2400	U	2800	U	210	U	2100	U	1200	U
Anthracene	ug/kg	70	UJ	24	J	740	J	910	J	680	J	24	J	460		200	
Benzo(a)anthracene	ug/kg	1400	J	60		1700	J	2300	J	2400	J	83		1400	J	600	
Benzo(a)pyrene	ug/kg	3400	J	190		3000	J	4300	J	5100	J	190	J	3300	J	1400	
Benzo(b)fluoranthene	ug/kg	2200	J	150		1900	J	3000		3600	J	140		2200		1000	
Benzo(g,h,i)perylene	ug/kg	3400	J	190		2500	J	3800	J	5000	J	240		2600	J	1600	
Benzo(k)fluoranthene	ug/kg	950	J	60		900	J	1500		1800		61		980		450	
Chrysene	ug/kg	1600	J	98		2000	J	2900	J	2500	J	110		1600	J	680	
Dibenz(a,h)anthracene	ug/kg	1400	UJ	58	U	1100	UJ	2400	UJ	2800	U	200		2100	UJ	1400	
Fluoranthene	ug/kg	8200	J	330		11000	J	15000	J	14000	J	460	J	8000	J	3300	J
Fluorene	ug/kg	140	U	58	U	130		240	U	280	U	21	U	210	U	120	U
Indeno(1,2,3-cd)pyrene	ug/kg	3900	J	230		2800	J	4300	J	5500	J	220	J	3800	J	1300	J
Naphthalene	ug/kg	700	UJ	290	UJ	570	UJ	1200	UJ	1400	UJ	100	UJ	1100	U	610	U
Phenanthrene	ug/kg	920	J	73		3300	J	3700	J	1700		88		1500	J	610	
Pyrene	ug/kg	7400	J	340		7000	J	9200	J	11000	J	350	J	6600	J	3300	J
BaP equivalency	ug/kg	4900	J	260		4200	J	6500		7700		440		5100		3100	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.701	U	0.725	U												
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.316		0.156	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.13	J	14.5	U												
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	4.82		3.74													
Barium	mg/kg	89.8		53.4													
Beryllium	mg/kg	0.555	J	0.368	J												
Cadmium	mg/kg	0.701	U	0.725	U												
Chromium	mg/kg	81.7		55.7													
Cobalt	mg/kg	17		8.58													
Copper	mg/kg	38.5		18.7													
Lead	mg/kg	34.9		16.1													
Molybdenum	mg/kg	7.01	U	7.25	U												
Nickel	mg/kg	99.1		49.4													
Selenium	mg/kg	1.4	U	1.45	U												
Silver	mg/kg	1.4	U	1.45	U												
Thallium	mg/kg	1.66	J	0.909	J												
Vanadium	mg/kg	53.3		37.5													
Zinc	mg/kg	114		46.8													

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-069		OU5-070		OU5-070		OU5-070		OU5-071		OU5-071		OU5-071	
Sample Depth (ft)		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-297		181-298		181-299		181-300		181-301		181-302		181-303	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)															
Acenaphthene	ug/kg	600	U	560	U	560	U	110	U	540	U	550	U	1300	U
Acenaphthylene	ug/kg	1200	U	1100	U	1100	U	220	U	1100	U	1100	U	2700	U
Anthracene	ug/kg	100		56	U	25	J	11	U	170		55	U	130	U
Benzo(a)anthracene	ug/kg	330		350		81		11	U	370		61		1500	
Benzo(a)pyrene	ug/kg	1500	J	800	J	220		2.6	J	740	J	220		3200	J
Benzo(b)fluoranthene	ug/kg	610		490		150		18	J	490		130		2200	
Benzo(g,h,i)perylene	ug/kg	1000		820		290		13	J	750		270		3100	
Benzo(k)fluoranthene	ug/kg	270		230		57		7.6	J	230		50	J	970	
Chrysene	ug/kg	370		440		120		11	J	480		110		1600	
Dibenz(a,h)anthracene	ug/kg	860		620		110	U	22	U	650		110	U	2800	
Fluoranthene	ug/kg	3300	J	2100	J	540		23		2300	J	480		9100	J
Fluorene	ug/kg	120	U	110	U	110	U	22	U	110	U	110	U	270	U
Indeno(1,2,3-cd)pyrene	ug/kg	1800	J	780	J	280		7.6	J	700	J	170		3000	J
Naphthalene	ug/kg	600	U	560	U	560	U	110	U	540	U	550	U	1300	U
Phenanthrene	ug/kg	270		400		88	J	22	U	670		79	J	730	
Pyrene	ug/kg	3200	J	1500	J	410		22	U	1600	J	300		7900	J
BaP equivalency	ug/kg	2600		1600		330		17	J	1500		310		6700	
Cyanide (EPA 9014)															
Cyanide	mg/kg														
Metals (EPA 6010B/7471A)															
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg														
Arsenic	mg/kg														
Arsenic (EPA 7060A)	mg/kg														
Barium	mg/kg														
Beryllium	mg/kg														
Cadmium	mg/kg														
Chromium	mg/kg														
Cobalt	mg/kg														
Copper	mg/kg														
Lead	mg/kg														
Molybdenum	mg/kg														
Nickel	mg/kg														
Selenium	mg/kg														
Silver	mg/kg														
Thallium	mg/kg														
Vanadium	mg/kg														
Zinc	mg/kg														

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-072		OU5-072		OU5-072		OU5-072		OU5-073		OU5-073		OU5-073		OU5-073	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-304		181-305		181-306		181-307		181-308		181-309		181-310		181-311	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	540	U	550	U	680	U	1300	U	530	U	530	U	110	U	660	U
Acenaphthylene	ug/kg	1100	U	1100	U	1400	U	2600	U	1100	U	1100	U	220	U	1300	U
Anthracene	ug/kg	290		190		350	J	510		140		63		25	J	200	
Benzo(a)anthracene	ug/kg	830	J	540		1100	J	1500		360		230		8.5	J	450	
Benzo(a)pyrene	ug/kg	1700	J	1200	J	2500	J	3200	J	790		570		12	J	1100	J
Benzo(b)fluoranthene	ug/kg	1100		770		1800		2300		510		380		35	J	750	
Benzo(g,h,i)perylene	ug/kg	1400	J	1300		2500	J	3200	J	810		640		35	J	1100	
Benzo(k)fluoranthene	ug/kg	500		340		790		1000		240		170		32	J	330	
Chrysene	ug/kg	1100	J	700		1200	J	1600	J	470		330		41	J	520	
Dibenz(a,h)anthracene	ug/kg	1100	U	440	U	1400	U	1300	U	420	U	480		38	J	900	
Fluoranthene	ug/kg	4700	J	3400	J	6600	J	8500	J	2300	J	1300		99	J	2900	J
Fluorene	ug/kg	110	U	110	U	140	U	260	U	110	U	110	U	12	J	130	U
Indeno(1,2,3-cd)pyrene	ug/kg	1500	J	1300	J	2700	J	3400	J	810	J	670		18	J	1000	J
Naphthalene	ug/kg	540	U	550	U	680	U	1300	U	530	U	530	U	110	U	660	U
Phenanthrene	ug/kg	740	J	710		1400	J	1900	J	560		230		67	J	620	
Pyrene	ug/kg	3500	J	2300	J	4600	J	6000	J	1500	J	920	J	22	U	2400	J
BaP equivalency	ug/kg	2600		1700		3800		4600		1200		1200		57	J	2200	
Cyanide (EPA 9014)																	
Cyanide	mg/kg									0.529	U	0.527	U	0.545	U	0.659	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.101	J	0.059	J	0.181		0.116	J
Antimony	mg/kg									10.6	U	10.5	U	4.43	J	13.2	U
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg									2.85		2.5		4.76		3.91	
Barium	mg/kg									67.2		63.3		163		68.4	
Beryllium	mg/kg									0.307	J	0.259	J	0.781	J	0.439	J
Cadmium	mg/kg									0.529	U	0.527	U	0.545	U	0.659	U
Chromium	mg/kg									40.3		35		27.3		56.5	
Cobalt	mg/kg									7.86		8.1		11.8		8.9	
Copper	mg/kg									20.5		20.1		24.3		21.4	
Lead	mg/kg									22.2		16.4		11.2		49.5	
Molybdenum	mg/kg									5.29	U	5.27	U	5.45	U	6.59	U
Nickel	mg/kg									37.5		31.8		43		50.6	
Selenium	mg/kg									1.06	U	1.05	U	1.09	U	35.5	
Silver	mg/kg									1.06	U	1.05	U	1.09	U	1.32	U
Thallium	mg/kg									0.896	J	0.857	J	1.64	J	84.7	
Vanadium	mg/kg									32.9		29.3		37.7		39.1	
Zinc	mg/kg									61.4		53.5		67.3		56.5	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-074		OU5-074		OU5-074		OU5-075		OU5-075		OU5-075		OU5-075		OU5-076	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5	
Sample ID		181-312		181-313		181-314		181-315		181-316		181-317		181-318		181-319	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	540	U	570	U	580	U	580	U	1200	U	650	U	630	U	590	U
Acenaphthylene	ug/kg	1100	U	1100	U	1200	U	1200	U	2400	U	1300	U	1300	U	1200	U
Anthracene	ug/kg	41	J	57	U	86		58	U	850		120		92		240	
Benzo(a)anthracene	ug/kg	130		850	J	250		200		3100		660		380		500	
Benzo(a)pyrene	ug/kg	310		2200	J	510		540		7300	J	1400	J	890	J	1000	J
Benzo(b)fluoranthene	ug/kg	220		1500	J	360		370		5200	J	1200		680		710	
Benzo(g,h,i)perylene	ug/kg	310		2400	J	650		670		8500	J	1700	J	1200		1200	
Benzo(k)fluoranthene	ug/kg	100		670	J	170		170		2400	J	540		300		320	
Chrysene	ug/kg	180		1000	J	320	J	270		4100	J	790	J	500	J	640	J
Dibenz(a,h)anthracene	ug/kg	110	U	1100	UJ	120	U	490		2400	UJ	520	U	250	U	470	U
Fluoranthene	ug/kg	800		4300	J	1500		1100		15000	J	2400	J	1700	J	3300	J
Fluorene	ug/kg	110	U	110	U	120	U	120	U	240	U	130	U	130	U	120	U
Indeno(1,2,3-cd)pyrene	ug/kg	280		2700	J	680		700		9100	J	1800	J	1200	J	1300	J
Naphthalene	ug/kg	540	U	570	U	580	U	580	U	1200	U	650	U	630	U	590	U
Phenanthrene	ug/kg	170		660		400		200		2400	J	140	J	210	J	1100	J
Pyrene	ug/kg	570		3900	J	940	J	750		12000	J	2000	J	1300	J	2100	J
BaP equivalency	ug/kg	430		3300	J	700		1200		10000		2000		1200		1500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-076		OU5-076		OU5-077		OU5-077		OU5-077		OU5-077		OU5-078		OU5-078	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0	
Sample ID		181-320		181-321		181-322		181-323		181-324		181-325		181-326		181-327	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1100	U	170	U	560	U	570	U	660	U	570	U	520	U	520	U
Acenaphthylene	ug/kg	2200	U	340	U	1100	U	1100	U	1300	U	330	J	1000	U	1000	U
Anthracene	ug/kg	2700	J	23		260		130		180		800		170		64	
Benzo(a)anthracene	ug/kg	3400	J	21		560		400		510		1000	J	430		200	
Benzo(a)pyrene	ug/kg	6400	J	96		940		770	J	1300	J	2100	J	970	J	460	
Benzo(b)fluoranthene	ug/kg	4100	J	62		700		570		880		1400	J	670		300	
Benzo(g,h,i)perylene	ug/kg	5600	J	100		1000		950		1400		2000	J	840		500	
Benzo(k)fluoranthene	ug/kg	2600	J	33		350		240		410		670	J	290		130	
Chrysene	ug/kg	4200	J	53	J	680	J	480	J	600	J	1500	J	610	J	250	J
Dibenz(a,h)anthracene	ug/kg	4500	UJ	34	U	450	U	460	U	530	U	1100	U	420	U	390	
Fluoranthene	ug/kg	23000	J	190		3400	J	2500	J	3200	J	8400	J	2200	J	1300	
Fluorene	ug/kg	960	J	22	J	110	U	110	U	130	U	290		100	U	100	U
Indeno(1,2,3-cd)pyrene	ug/kg	6600	J	80		1000		860	J	1400	J	2000	J	890	J	510	
Naphthalene	ug/kg	1100	U	170	U	560	U	570	U	660	U	570	U	520	U	520	U
Phenanthrene	ug/kg	8500	J	110		1200	J	690	J	750	J	3600	J	650		270	
Pyrene	ug/kg	16000	J	120	J	2200		1600	J	2900	J	5500	J	1700	J	820	J
BaP equivalency	ug/kg	10000	J	130		1400		1200		1800		3100	J	1400		950	
Cyanide (EPA 9014)																	
Cyanide	mg/kg					0.562	U										
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.135		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg					11.2	U										
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg					3.99											
Barium	mg/kg					70.6											
Beryllium	mg/kg					0.308	J										
Cadmium	mg/kg					0.562	U										
Chromium	mg/kg					40.5											
Cobalt	mg/kg					7.76											
Copper	mg/kg					16.6											
Lead	mg/kg					23.6											
Molybdenum	mg/kg					5.62	U										
Nickel	mg/kg					36.7											
Selenium	mg/kg					1.12	U										
Silver	mg/kg					1.12	U										
Thallium	mg/kg					1.21	J										
Vanadium	mg/kg					29.8											
Zinc	mg/kg					56.7											

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-078		OU5-078		OU5-079		OU5-079		OU5-079		OU5-080		OU5-080		OU5-080	
Sample Depth (ft)		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-328		181-329		181-330		181-331		181-332		181-333		181-334		181-335	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	510	U	1200	U	2800	U	1600	U	2900	U	3800	U	1400	U	1700	U
Acenaphthylene	ug/kg	1000	U	2400	U	1100	U	650	U	1200	U	1500	U	570	U	700	U
Anthracene	ug/kg	76		430		100		22	J	270		200		100		52J	
Benzo(a)anthracene	ug/kg	250		1100		640		190		1,400		1,100		570		350	
Benzo(a)pyrene	ug/kg	560		2600		1,200		330		2,410		2,200		1,300		1,000	
Benzo(b)fluoranthene	ug/kg	360		1500		640		170		1,300		1,200		700		540	
Benzo(g,h,i)perylene	ug/kg	600		2300		1,700		600		2,700		2,800		1,530		1,400	
Benzo(k)fluoranthene	ug/kg	160		700		370		100		810		660		350		260	
Chrysene	ug/kg	320	J	1300	J	620		180		1,400		1,000		650		240	
Dibenz(a,h)anthracene	ug/kg	470		2000		1,400		590		2,300		2,400		1,200		940	
Fluoranthene	ug/kg	1400	J	6600		1,400		390		6,080		2,700		2,970		1,300	
Fluorene	ug/kg	100	U	240	U	110	U	65	U	120	U	150	U	57	U	70	U
Indeno(1,2,3-cd)pyrene	ug/kg	620		2100		1,100		320		2,100		1,900		1,100		850	
Naphthalene	ug/kg	510	U	1200	U	2800	U	1600	U	2900	U	3800	U	1400	U	1700	U
Phenanthrene	ug/kg	370		1800		560		100		930		890		440		100	
Pyrene	ug/kg	1000	J	4700	J	2,780		460		6,900		5,060		3,180		2,730	
BaP equivalency	ug/kg	1200		5100		2,800		990		5,200		5,000		2,700		2,100	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-081		OU5-081		OU5-081		OU5-081		OU5-081		OU5-082		OU5-082		OU5-082	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		4.0-8.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-336		181-337		181-338		181-339		181-340		181-341		181-342		181-343	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	270	U	2900	U	360	U	1400	U	3100	U	1300	U	1400	U	3200	U
Acenaphthylene	ug/kg	110	U	1100	U	140	U	560	U	1300	U	540	U	570	U	1300	U
Anthracene	ug/kg	11J		200		14	U	51J		100		27J		70		710	
Benzo(a)anthracene	ug/kg	72		1,100		20		290		830		200		360		1,800	
Benzo(a)pyrene	ug/kg	100		2,000		36		730		2,000		350		630		2,610	
Benzo(b)fluoranthene	ug/kg	57		1,200		20		360		920		180		310		1,100	
Benzo(g,h,i)perylene	ug/kg	140		2,760		14	U	1,000		2,400		560		830		2,500	
Benzo(k)fluoranthene	ug/kg	33		630		20		170		450		100		200		900	
Chrysene	ug/kg	64		1,300		10		340		910		190		410		2,100	
Dibenz(a,h)anthracene	ug/kg	140		2,200		36	U	790		1,800		520		700		2,300	
Fluoranthene	ug/kg	160		2,980		37		860		3,990		360		1,590		11,900	
Fluorene	ug/kg	11	U	110	U	14	U	56	U	130	U	54	U	57	U	130	U
Indeno(1,2,3-cd)pyrene	ug/kg	98		2,000		14	U	630		1,500		320		550		1,900	
Naphthalene	ug/kg	270	U	2900	U	360	U	1400	U	3100	U	1300	U	1400	U	3200	U
Phenanthrene	ug/kg	55		890		14	U	90		200		110		280		2400	
Pyrene	ug/kg	238		4,140		50		1,100		3,130		480		1,200		8,110	
BaP equivalency	ug/kg	260		4,600		59		1,700		4,100		940		1,500		5,400	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	2.7	U	2.9	U	3.6	U	2.8	U	3.1	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.5	U	5.7	U	7.2	U	5.6	U	6.3	U						
Arsenic	mg/kg	3		4.5		8.7		2		1.6							
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg	87.8		67.7		84.4		45.3		38.9							
Beryllium	mg/kg	0.22	U	0.23	U	0.29	U	0.23	U	0.25	U						
Cadmium	mg/kg	0.22		0.23	U	0.18	J	0.2	U	0.2	U						
Chromium	mg/kg	44.4		54.2		76.3		37.2		36							
Cobalt	mg/kg	7.5		8		23.1		5.4		4.8							
Copper	mg/kg	24.1		26.2		33.3		21.7		48.3							
Lead	mg/kg	68.2		24.8		31		35.3		30.7							
Molybdenum	mg/kg	0.22	U	0.23	U	0.29	U	0.23	U	0.25	U						
Nickel	mg/kg	40.1		40.2		116		28.2		26.8							
Selenium	mg/kg	0.68		0.4	J	1.2		0.43	J	0.28	J						
Silver	mg/kg	0.55	U	0.57	U	0.72	U	0.56	U	0.63	U						
Thallium	mg/kg	0.55	U	0.57	U	0.72	U	0.56	U	0.63	U						
Vanadium	mg/kg	27.9		41.4		56.4		25.9		24.3							
Zinc	mg/kg	58.9		51.7		91		38.4		31.6							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-083		OU5-083		OU5-083		OU5-084		OU5-084		OU5-084		OU5-084		OU5-085	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5	
Sample ID		181-344		181-345		181-346		181-347		181-348		181-349		181-350		181-351	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1500	U	1500	U	3100	U	1400	U	1400	U	280	U	330	U	2800	U
Acenaphthylene	ug/kg	590	U	580	U	1200	U	550	U	580	U	110	U	130	U	1100	U
Anthracene	ug/kg	15J		120		270		70		160		8J		32		200	
Benzo(a)anthracene	ug/kg	130		400		910		420		660		64		130		1,000	
Benzo(a)pyrene	ug/kg	280		530		1,600		930		1,340		120		376		1,900	
Benzo(b)fluoranthene	ug/kg	140		220		720		390		620		53		170		790	
Benzo(g,h,i)perylene	ug/kg	570		660		1,900		1,100		1,510		190		392		2,000	
Benzo(k)fluoranthene	ug/kg	90		180		560		280		430		42		110		530	
Chrysene	ug/kg	130		440		950		500		700		76		150		1,200	
Dibenz(a,h)anthracene	ug/kg	520		620		1,600		900		1,300		150		350		1,700	
Fluoranthene	ug/kg	300		2,560		5,460		1,860		3,930		267		803		5,480	
Fluorene	ug/kg	59	U	58	U	120	U	55	U	58	U	11	U	13	U	110	U
Indeno(1,2,3-cd)pyrene	ug/kg	310		370		1,300		710		1,100		120		306		1,400	
Naphthalene	ug/kg	1500	U	1500	U	3100	U	1400	U	1400	U	280	U	330	U	2800	U
Phenanthrene	ug/kg	60		740		1400		250		950		32		120		760	
Pyrene	ug/kg	320		1,680		5,270		1,630		3,480		226		1,210		4,620	
BaP equivalency	ug/kg	860		1,300		3,500		2,000		2,900		290		790		3,900	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-085		OU5-085		OU5-086		OU5-086		OU5-086		OU5-087		OU5-087		OU5-087	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-352		181-353		181-354		181-355		181-356		181-357		181-358		181-359	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	280	U	290	U	1400	U	1400	U	1600	U	1300	U	1300	U	3200	U
Acenaphthylene	ug/kg	110	U	120	U	550	U	570	U	630	U	540	U	540	U	1300	U
Anthracene	ug/kg	10		71		140		120		960		100		110		290	
Benzo(a)anthracene	ug/kg	66		190		570		490		1,360		370		430		1,300	
Benzo(a)pyrene	ug/kg	110		301		1,000		790		1,900		560		900		3,540	
Benzo(b)fluoranthene	ug/kg	50		140		420		490		810		250		390		1,700	
Benzo(g,h,i)perylene	ug/kg	160		64		1,190		1,000		1,660		750		1,100		3,460	
Benzo(k)fluoranthene	ug/kg	35		94		290		280		530		160		230		960	
Chrysene	ug/kg	72		190		620		440		1,500		360		510		1,600	
Dibenz(a,h)anthracene	ug/kg	140		280		1,000		770		1,400		660		830		3,000	
Fluoranthene	ug/kg	373		1,690		3,210		1,350		11,400		1,920		2,390		6,460	
Fluorene	ug/kg	11	U	12	U	55	U	57	U	63	U	54	U	54	U	130	U
Indeno(1,2,3-cd)pyrene	ug/kg	120		259		860		620		1,270		450		700		2,960	
Naphthalene	ug/kg	280	U	290	U	1400	U	1400	U	1600	U	1300	U	1300	U	3200	U
Phenanthrene	ug/kg	51		680		640		650		4780		570		550		1000	
Pyrene	ug/kg	298		1,160		2,670		1,720		6,460		1,360		2,100		8,970	
BaP equivalency	ug/kg	270		640		2,200		1,700		3,700		1,300		1,900		7,100	
Cyanide (EPA 9014)																	
Cyanide	mg/kg											2.7	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.2	U	Not Analyzed		Not Analyzed	
Antimony	mg/kg											5.4	U				
Arsenic	mg/kg											2.9					
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg											78.2					
Beryllium	mg/kg											0.22	U				
Cadmium	mg/kg											0.2	U				
Chromium	mg/kg											37.9					
Cobalt	mg/kg											8					
Copper	mg/kg											20.8					
Lead	mg/kg											24.9					
Molybdenum	mg/kg											0.22	U				
Nickel	mg/kg											35.2					
Selenium	mg/kg											0.6					
Silver	mg/kg											0.54	U				
Thallium	mg/kg											0.54	U				
Vanadium	mg/kg											28.2					
Zinc	mg/kg											59.7					

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-087		OU5-087		OU5-088		OU5-088		OU5-088		OU5-089		OU5-089		OU5-089	
Sample Depth (ft)		4.0-8.0		4.0-8.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-360		181-361		181-362		181-363		181-364		181-365		181-366		181-367	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	350	U	280	U	1500	U	280	U	3600	U	2700	U	2800	U	1700	U
Acenaphthylene	ug/kg	140	U	110	U	590	U	110	U	1400	U	1100	U	1100	U	690	U
Anthracene	ug/kg	30		20		150		59		340		200		200		57J	
Benzo(a)anthracene	ug/kg	180		130		620		190		1,100		840		820		400	
Benzo(a)pyrene	ug/kg	400		270		920		267		2,400		2,000		1,500		1,300	
Benzo(b)fluoranthene	ug/kg	180		120		400		120		1,100		1,300		920		860	
Benzo(g,h,i)perylene	ug/kg	520		359		1,100		280		2,600		2,260		2,000		1,750	
Benzo(k)fluoranthene	ug/kg	110		73		260		82		720		690		500		430	
Chrysene	ug/kg	240		170		590		210		1,100		1,200		700		350	
Dibenz(a,h)anthracene	ug/kg	390		240		880		230		2,200		1,600		1,500		1,200	
Fluoranthene	ug/kg	861		613		3,470		1,360		6,640		1,900		2,350		1,470	
Fluorene	ug/kg	14	U	11	U	59	U	11	U	140	U	110	U	110	U	69	U
Indeno(1,2,3-cd)pyrene	ug/kg	350		223		720		210		1,900		1,400		1,300		1,200	
Naphthalene	ug/kg	350	U	280	U	1500	U	280	U	3600	U	2700	U	2800	U	1700	U
Phenanthrene	ug/kg	96		72		710		360		1500		590		760		160	
Pyrene	ug/kg	743		493		2,750		997		7,260		2,510		3,130		2,700	
BaP equivalency	ug/kg	860		560		2,000		550		5,000		4,000		3,300		2,800	
Cyanide (EPA 9014)																	
Cyanide	mg/kg											2.7	U	2.8	U	3.4	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.2	U	0.23J		0.27J	
Antimony	mg/kg											5.4	U	5.6	U	6.9	U
Arsenic	mg/kg											3.7		3		6.3	
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg											76.9		96.5		103	
Beryllium	mg/kg											0.22	U	0.23	U	0.27	U
Cadmium	mg/kg											0.2	U	0.19J		0.27	U
Chromium	mg/kg											31.2		41.3		72.2	
Cobalt	mg/kg											8.1		8.8		12.3	
Copper	mg/kg											25.4		28.5		32.9	
Lead	mg/kg											34.6		39.7		31.4	
Molybdenum	mg/kg											0.22	U	0.23	U	0.27	U
Nickel	mg/kg											36.7		46.2		68.3	
Selenium	mg/kg											0.43	J	0.64		0.69	U
Silver	mg/kg											0.54	U	0.56	U	0.69	U
Thallium	mg/kg											0.54	U	0.56	U	0.69	U
Vanadium	mg/kg											26.6		28.6		49.9	
Zinc	mg/kg											152		77.5		75.4	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-089		OU5-090		OU5-090		OU5-090		OU5-090		OU5-091		OU5-091		OU5-091	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-368		181-369		181-370		181-371		181-372		181-373		181-374		181-375	
Sample Collection Date		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/29/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	340	U	1800	U	2700	U	3000	U	3100	U	2700	U	2700	U	320	U
Acenaphthylene	ug/kg	130	U	730	U	1100	U	1200	U	1200	U	1100	U	1100	U	130	U
Anthracene	ug/kg	57		90		280		200		400		470		440		46	
Benzo(a)anthracene	ug/kg	100		450		1,100		1,200		1,600		1,900		1,600		210	
Benzo(a)pyrene	ug/kg	170		870		3,150		3,680		4,100		3,430		2,920		394	
Benzo(b)fluoranthene	ug/kg	110		550		1,600		2,000		2,200		2,410		2,000		285	
Benzo(g,h,i)perylene	ug/kg	269		1,500		1,400		1,800		1,900		3,900		3,390		545	
Benzo(k)fluoranthene	ug/kg	65		330		740		850		790		1,300		1,100		160	
Chrysene	ug/kg	120		410		1,100		970		2,100		2,100		1,800		260	
Dibenz(a,h)anthracene	ug/kg	200		860		1,900		1,700		2,400		3,000		2,800		390	
Fluoranthene	ug/kg	335		1,100		4,720		4,510		5,850		5,600		4,690		1,140	
Fluorene	ug/kg	13	U	73	U	110	U	120	U	120	U	110	U	110	U	13	U
Indeno(1,2,3-cd)pyrene	ug/kg	180		860		1,900		2,550		2,670		3,070		2,580		405	
Naphthalene	ug/kg	340	U	1800	U	2700	U	3000	U	3100	U	2700	U	2700	U	320	U
Phenanthrene	ug/kg	331		440		1900		1300		2400		1700		2100		210	
Pyrene	ug/kg	444		1,540		5,560		6,910		8,170		7,260		6,910		858	
BaP equivalency	ug/kg	410		1,900		5,500		6,000		7,200		7,200		6,400		880	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	3.4	U														
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.2	U	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	6.7	U														
Arsenic	mg/kg	3.6															
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg	70.9															
Beryllium	mg/kg	0.27	U														
Cadmium	mg/kg	0.2	U														
Chromium	mg/kg	62.5															
Cobalt	mg/kg	9.8															
Copper	mg/kg	23.1															
Lead	mg/kg	11															
Molybdenum	mg/kg	0.27	U														
Nickel	mg/kg	53.4															
Selenium	mg/kg	0.47	J														
Silver	mg/kg	0.67	U														
Thallium	mg/kg	0.67	U														
Vanadium	mg/kg	45.6															
Zinc	mg/kg	54.1															

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-092		OU5-092		OU5-092		OU5-093		OU5-093		OU5-093		OU5-093		OU5-094	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5	
Sample ID		181-376		181-377		181-378		181-379		181-380		181-381		181-382		181-383	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	2900	U	350	U	1900	U	1300	U	1300	U	1400	U	310	U	280	U
Acenaphthylene	ug/kg	1200	U	140	U	750	U	540	U	530	U	540	U	120	U	110	U
Anthracene	ug/kg	200		20		230		260		180		170		51		78	
Benzo(a)anthracene	ug/kg	1,000		79		710		960		700		710		110		259	
Benzo(a)pyrene	ug/kg	2,670		130		980		1,560		1,300		1,100		170		394	
Benzo(b)fluoranthene	ug/kg	2,000		100		860		1,000		870		690		110		271	
Benzo(g,h,i)perylene	ug/kg	3,650		240		1,520		1,800		1,700		970		190		319	
Benzo(k)fluoranthene	ug/kg	1,100		62		580		590		480		390		61		140	
Chrysene	ug/kg	1,200		95		940		1,000		810		730		150		263	
Dibenz(a,h)anthracene	ug/kg	3,200		210		1,300		1,300		1,300		980		190		320	
Fluoranthene	ug/kg	4,910		160		1,880		5,960		2,130		1,920		342		769	
Fluorene	ug/kg	120	U	14	U	75	U	54	U	53	U	54	U	12	U	11	U
Indeno(1,2,3-cd)pyrene	ug/kg	2,800		160		1,200		1,330		1,220		920		170		339	
Naphthalene	ug/kg	2900	U	350	U	1900	U	1300	U	1300	U	1400	U	310	U	280	U
Phenanthrene	ug/kg	630		61		810		1190		830		910		243		408	
Pyrene	ug/kg	6,420		319		2,300		3,820		2,920		2,310		401		888	
BaP equivalency	ug/kg	6,500		370		2,600		3,200		2,900		2,300		400		800	
Cyanide (EPA 9014)																	
Cyanide	mg/kg							2.7	U	2.7	U	2.7	U	3.1	U		
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.27		0.2	U	0.2	U	0.2	U	Not Analyzed	
Antimony	mg/kg							5.4	U	5.3	U	5.4	U	6.2	U		
Arsenic	mg/kg							3.4		3.2		2.8		1.6			
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg							60.1		52		43.4		39.9			
Beryllium	mg/kg							0.21	U	0.21	U	0.22	U	0.25	U		
Cadmium	mg/kg							0.20	U	0.2	U	0.2	U	0.2	U		
Chromium	mg/kg							39.1		36.8		37.2		28.8			
Cobalt	mg/kg							8.4		7.4		9.2		5.9			
Copper	mg/kg							21.3		15.6		14.7		7.5			
Lead	mg/kg							28.5		18.4		18.7		5.3			
Molybdenum	mg/kg							0.21	U	0.21	U	0.22		0.25			
Nickel	mg/kg							43.3		36.9		48.2		28.2			
Selenium	mg/kg							0.46	J	0.48	J	0.27	J	0.62	U		
Silver	mg/kg							0.54	U	0.53	U	0.54	U	0.62	U		
Thallium	mg/kg							0.54	U	0.53	U	0.54	U	0.62	U		
Vanadium	mg/kg							28.1		27.7		24.3		17.7			
Zinc	mg/kg							59.5		44.3		38.9		22			

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-094		OU5-094		OU5-095		OU5-095		OU5-095		OU5-095		OU5-095		OU5-096	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		4.0-8.0		0.0-0.5	
Sample ID		181-384		181-385		181-386		181-387		181-390		181-388		181-389		181-391	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1300	U	1500	U	11000	U	1400	U	1500	U	1400	U	7800		2800	U
Acenaphthylene	ug/kg	540	U	610	U	4400	U	570	U	610	U	570	U	1500	U	1100	U
Anthracene	ug/kg	80		35	J	600		150		130		280		8150		1200	
Benzo(a)anthracene	ug/kg	390		360		2,000		540		550		520		5,980		3,290	
Benzo(a)pyrene	ug/kg	620		770		3,300		1,000		980		860		7,130		3,570	
Benzo(b)fluoranthene	ug/kg	410		530		1,900		690		680		580		4,470		2,220	
Benzo(g,h,i)perylene	ug/kg	680		910		3,400		1,100		1,100		890		4,680		2,580	
Benzo(k)fluoranthene	ug/kg	210		230		600		300		300		250		2,200		1,000	
Chrysene	ug/kg	350		260		1,900		620		650		550		8,490		2,580	
Dibenz(a,h)anthracene	ug/kg	640		780		4,700		810		820		720		3,400		2,000	
Fluoranthene	ug/kg	1,000		800		6,100		1,860		1,740		1,980		29,500		10,200	
Fluorene	ug/kg	54	U	61	U	440	U	57	U	61	U	140		4150		550	
Indeno(1,2,3-cd)pyrene	ug/kg	580		760		2,600		150		870		720		4,620		2,440	
Naphthalene	ug/kg	1300	U	1500	U	11000	U	1400	U	1500	U	1400	U	3800	U	2800	U
Phenanthrene	ug/kg	440		90		3100		700		59		1460		26400		7510	
Pyrene	ug/kg	1,140		1,590		6,300		2,020		1,940		2,190		27,200		10,000	
BaP equivalency	ug/kg	1,400		1,700		8,700		2,000		2,000		1,800		12,000		6,400	
Cyanide (EPA 9014)																	
Cyanide	mg/kg					2.7	U	2.8	U			2.9	U	3.8	U	2.8	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.2	U	0.41		Not Analyzed		0.2	U	0.2	U	0.2	U
Antimony	mg/kg					0.15	J	5.7	U			5.7	U	7.6	U	5.7	U
Arsenic	mg/kg					2.9		3.8				1.7		4.9		3.1	
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg					65.2		68.2				30.1		64		59.6	
Beryllium	mg/kg					0.22	U	0.076	J			0.23	U	0.3	U	0.23	U
Cadmium	mg/kg					0.2	U	0.2	U			0.2	U	0.2	U	0.2	U
Chromium	mg/kg					27.1		44.3				27.2		61.4		35.8	
Cobalt	mg/kg					8.9		8.4				5.5		11.6		8.5	
Copper	mg/kg					21.7		24.6				12.2		27.8		20.2	
Lead	mg/kg					34.7		25.2				13		24.4		22.9	
Molybdenum	mg/kg					0.22	U	0.23	U			0.23	U	0.3	U	0.23	U
Nickel	mg/kg					37		45				31.8		64		39.1	
Selenium	mg/kg					0.49	J	0.53	J			0.30	J	0.81		0.44	J
Silver	mg/kg					0.55	U	0.57	U			0.57	U	0.78	U	0.57	U
Thallium	mg/kg					0.55	U	0.57	U			0.57	U	0.8	U	0.57	U
Vanadium	mg/kg					25.7		31.5				17.9		44.5		28.8	
Zinc	mg/kg					54.4		57.9				25.3		63.8	J	49.8	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-096		OU5-096		OU5-096		OU5-096		OU5-097		OU5-097		OU5-097		OU5-098	
Sample Depth (ft)		0.5-2.0		2.0-4.0		2.0-4.0 DUP		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-392		181-393		181-400		181-394		181-395		181-396		181-397		181-398	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	2900	U	1300	U	5900	U	6600	U	5800	U	5800	U	3300	U	5300	U
Acenaphthylene	ug/kg	1200	U	510	U	2300	U	2600	U	2300	U	2300	U	1300	U	2100	U
Anthracene	ug/kg	300		80		180J		2200		400		1900		100		170J	
Benzo(a)anthracene	ug/kg	1,100		340		830		2,400		1,600		4,400		700		950	
Benzo(a)pyrene	ug/kg	1,700		520		1,400		3,200		2,500		5,570		1,200		1,500	
Benzo(b)fluoranthene	ug/kg	1,100		330		870		2,000		1,600		3,400		730		930	
Benzo(g,h,i)perylene	ug/kg	1,600		710		2,400		4,000		3,300		5,400		1,700		2,300	
Benzo(k)fluoranthene	ug/kg	510		200		490		1,300		980		2,300		440		560	
Chrysene	ug/kg	1,100		320		640		3,200		1,500		4,100		610		830	
Dibenz(a,h)anthracene	ug/kg	1,400		590		2,100		3,100		2,700		4,200		1,400		1,900	
Fluoranthene	ug/kg	3,420		820		1,800		6,780		3,800		12,600		2,500		1,900	
Fluorene	ug/kg	120	U	51	U	230	U	260	U	230	U	230	U	130	U	210	U
Indeno(1,2,3-cd)pyrene	ug/kg	1,400		450		1,300		2,600		2,100		4,000		1,000		1,300	
Naphthalene	ug/kg	2900	U	1300	U	5900	U	6600	U	5800	U	5800	U	3300	U	5300	U
Phenanthrene	ug/kg	1400		390		760		9370		2400		8900		720		920	
Pyrene	ug/kg	3,650		1,100		2,700		8,520		4,830		15,000		2,100		2,400	
BaP equivalency	ug/kg	3,500		1,200		3,800		7,000		5,700		11,000		2,800		3,700	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-098		OU5-098		OU5-098		OU5-099		OU5-099		OU5-099		OU5-099		OU5-100	
Sample Depth (ft)		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5	
Sample ID		181-399		181-401		181-402		181-403		181-404		181-405		181-406		181-407	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	5700	U	270	U	7100	U	5600	U	5300	U	280	U	1300	U	290	U
Acenaphthylene	ug/kg	2300	U	110	U	2800	U	2200	U	2100	U	110	U	520	U	110	U
Anthracene	ug/kg	170J		10J		7650		180J		300		43		60		26	
Benzo(a)anthracene	ug/kg	790		20		4,400		1,100		1,300		160		250		120	
Benzo(a)pyrene	ug/kg	1,300		34		5,100		1,700		1,900		244		410		200	
Benzo(b)fluoranthene	ug/kg	740		20		2,800		990		1,200		160		260		140	
Benzo(g,h,i)perylene	ug/kg	2,100		82		3,500		2,000		2,100		292		520		190	
Benzo(k)fluoranthene	ug/kg	500		10		1,700		560		680		83		130		69	
Chrysene	ug/kg	580		10		5,890		980		1,100		150		210		110	
Dibenz(a,h)anthracene	ug/kg	2,000		93		3,300		2,100		2,100		220		530		200	
Fluoranthene	ug/kg	1,600		37		18,300		4,640		3,200		508		690		341	
Fluorene	ug/kg	230	U	11	U	6770		220	U	210	U	11	U	52	U	11	U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100		42		3,100		1,400		1,600		210		380		180	
Naphthalene	ug/kg	5700	U	270	U	55000		5600	U	5300	U	280	U	1300	U	290	U
Phenanthrene	ug/kg	810		30		39500		570		1300		210		340		93	
Pyrene	ug/kg	2,400		36		18,400		3,500		3,400		592		740		383	
BaP equivalency	ug/kg	3,600		140		9,500		4,200		4,400		520		1,000		440	
Cyanide (EPA 9014)																	
Cyanide	mg/kg															2.9	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.2	U
Antimony	mg/kg															5.7	U
Arsenic	mg/kg															2.4	
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg															68.5	
Beryllium	mg/kg															0.23	U
Cadmium	mg/kg															0.2	U
Chromium	mg/kg															32.6	
Cobalt	mg/kg															8.1	
Copper	mg/kg															18.7	
Lead	mg/kg															21.7	
Molybdenum	mg/kg															0.23	U
Nickel	mg/kg															34.3	
Selenium	mg/kg															0.31	J
Silver	mg/kg															0.57	U
Thallium	mg/kg															0.57	U
Vanadium	mg/kg															26.5	
Zinc	mg/kg															38.2	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-100		OU5-100		OU5-100		OU5-101		OU5-101		OU5-101		OU5-102		OU5-102	
Sample Depth (ft)		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0	
Sample ID		181-408		181-409		181-410		181-411		181-412		181-413		181-414		181-415	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	2600	U	310	U	310	U	220	U	220	U	220	U	220	U	140	J
Acenaphthylene	ug/kg	1100	U	120	U	120	U	440	U	430	U	430	U	180	J	170	J
Anthracene	ug/kg	410		35		95		22	U	22	U	22	U	22	U	22	U
Benzo(a)anthracene	ug/kg	720		72		398		490	J	160		64		250		390	J
Benzo(a)pyrene	ug/kg	940		94		496		1000	J	390	J	110		590	J	860	J
Benzo(b)fluoranthene	ug/kg	590		71		353		600	J	230		92		350		530	
Benzo(g,h,i)perylene	ug/kg	1,000		130		539		810	J	300		60		490		630	J
Benzo(k)fluoranthene	ug/kg	300		35		150		380	J	110		58		210		300	J
Chrysene	ug/kg	670		69		448		570	J	200		120		350		550	J
Dibenz(a,h)anthracene	ug/kg	1,000		130		300		440	U	340		43	U	510		440	J
Fluoranthene	ug/kg	2,510		284		1,840		2700	J	220	J	420		1600	J	3300	J
Fluorene	ug/kg	110	U	12	U	12J		44	U	43	U	43	U	44	U	56	
Indeno(1,2,3-cd)pyrene	ug/kg	770		96		398		930	J	330	J	85		550	J	760	J
Naphthalene	ug/kg	2600	U	310	U	290	U	220	U	220	U	220	U	220	U	220	U
Phenanthrene	ug/kg	2200		110		40		610	J	240		140		410		2100	J
Pyrene	ug/kg	2,410		276		2,300		1900	J	680	J	310	J	1100	J	2300	J
BaP equivalency	ug/kg	2,200		250		910		1400	J	800		160		1200		1500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	2.6	U	3.1	U	2.9	U										
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.2	U	0.2	U	0.2	U	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.3	U	6.2	U	5.8	U										
Arsenic	mg/kg	1.5		2.8		1.4											
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg	46.6		48.4		17											
Beryllium	mg/kg	0.21	U	0.25	U	0.23	U										
Cadmium	mg/kg	0.2	U	0.2	U	0.2	U										
Chromium	mg/kg	38		48.6		22.4											
Cobalt	mg/kg	6.6		8.1		3											
Copper	mg/kg	12.6		19.5		5.3											
Lead	mg/kg	15.2		7.8		16.1											
Molybdenum	mg/kg	0.21	U	0.13	J	0.23	U										
Nickel	mg/kg	34.4		49.8		15.7											
Selenium	mg/kg	0.51	J	0.83		0.58	U										
Silver	mg/kg	0.53	U	0.62	U	0.58	U										
Thallium	mg/kg	0.53	U	0.62	U	0.58	U										
Vanadium	mg/kg	24.9		34.6		15.5											
Zinc	mg/kg	30.8		48.9		11.7											

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-102		OU5-102		OU5-103		OU5-103		OU5-103		OU5-104		OU5-104		OU5-104	
Sample Depth (ft)		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-423		181-416		181-417		181-418		181-419		181-420		181-421		181-422	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	120	U	120	U	1300	U	1300	U	290	U	270	U	270	U	60	U
Acenaphthylene	ug/kg	250	U	67	J	540	U	530	U	120	U	110	U	110	U	24	U
Anthracene	ug/kg	12	U	12	U	14J		9J		25		10		10		1J	
Benzo(a)anthracene	ug/kg	82		44		140		110		100		100		95		8	
Benzo(a)pyrene	ug/kg	220		99		240		190		180		180		170		6	
Benzo(b)fluoranthene	ug/kg	140		66		160		120		92		100		98		7	
Benzo(g,h,i)perylene	ug/kg	190		89		420		390		230		242		242		2	U
Benzo(k)fluoranthene	ug/kg	81		41		70		60		57		63		59		4	
Chrysene	ug/kg	110		61		130		90		110		100		97		8	
Dibenz(a,h)anthracene	ug/kg	120	U	99		430		400		180		220		210		6	U
Fluoranthene	ug/kg	470		250		330		210		288		254		250		16	
Fluorene	ug/kg	25	U	25	U	54	U	53	U	12	U	11	U	11	U	2.4	U
Indeno(1,2,3-cd)pyrene	ug/kg	210		97		240		230		170		180		170		2	U
Naphthalene	ug/kg	120	U	120	U	1300	U	1300	U	290	U	270	U	270	U	60	U
Phenanthrene	ug/kg	84		62		90		50J		95		85		72		8.5	
Pyrene	ug/kg	350		160		330		200		425		373		368		17	
BaP equivalency	ug/kg	320		220		720		640		400		440		420		10	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-105		OU5-105		OU5-105		OU5-105		OU5-106		OU5-106		OU5-106	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP	
Sample ID		181-451		181-452		181-453		181-454		181-455		181-456		181-457	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)															
Acenaphthene	ug/kg	280	U	53	U	58	U	19000	U	240	U	110	U	110	U
Acenaphthylene	ug/kg	110	U	21	U	23	U	7400	U	490	U	230	U	220	U
Anthracene	ug/kg	56		11		8.2		5600		24	U	11	U	11	U
Benzo(a)anthracene	ug/kg	233		59		23		7,700		220		92		78	
Benzo(a)pyrene	ug/kg	439		97		25		12,000		540	J	180	J	180	J
Benzo(b)fluoranthene	ug/kg	295		70		21		6,200		350		140		130	
Benzo(g,h,i)perylene	ug/kg	610		62		35		5,600		480		140		160	
Benzo(k)fluoranthene	ug/kg	130		35		12		2,300		200		81		72	
Chrysene	ug/kg	315		83		31		5,100		290		130		100	
Dibenz(a,h)anthracene	ug/kg	480		67		31		4,900		470		150		170	
Fluoranthene	ug/kg	755		132		68		37,500		1300	J	380	J	420	J
Fluorene	ug/kg	11	U	2.1	U	2.3	U	740	U	49	U	23	U	22	U
Indeno(1,2,3-cd)pyrene	ug/kg	439		63		28		7,000		510	J	150		180	J
Naphthalene	ug/kg	280	U	53	U	58	U	19000	U	240	U	110	U	110	U
Phenanthrene	ug/kg	222		46		19		22900		280		93		110	
Pyrene	ug/kg	1,010		172		73		32,600		930	J	240	J	280	J
BaP equivalency	ug/kg	1,000		180		63		19,000		1100		370		390	
Cyanide (EPA 9014)															
Cyanide	mg/kg	2.8	U	2.7	U	2.9	U	3.7	U						
Metals (EPA 6010B/7471A)															
Mercury	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.5	U	5.3	U	5.8	U	7.4	U						
Arsenic	mg/kg	2.5		2.7		1.4		4.2							
Arsenic (EPA 7060A)	mg/kg														
Barium	mg/kg	39.5		47.1		17.3		60.5							
Beryllium	mg/kg	0.22	U	0.21	U	0.23	U	0.3	U						
Cadmium	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U						
Chromium	mg/kg	33.2		38.3		20.7		60.3							
Cobalt	mg/kg	6.8		6.9		3.6		10.8							
Copper	mg/kg	16.6		13.8		4.7		22.9							
Lead	mg/kg	19.4		25.3		8.2		17.3							
Molybdenum	mg/kg	0.22	U	0.21	U	0.042J		0.30J							
Nickel	mg/kg	29.4		31.3		18.4		58.5							
Selenium	mg/kg	0.56	U	0.48J		0.24J		0.73J							
Silver	mg/kg	0.55	U	0.53	U	0.58	U	0.74	U						
Thallium	mg/kg	0.55	U	0.53	U	0.58	U	0.74	U						
Vanadium	mg/kg	27.1		27.2		14.6		45.3							
Zinc	mg/kg	36.1		42.6		12.5		56.2	J						

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-106		OU5-107		OU5-107		OU5-107		OU5-108		OU5-108		OU5-108		OU5-108	
Sample Depth (ft)		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP	
Sample ID		181-458		181-459		181-460		181-461		181-462		181-463		181-464		181-466	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	130	U	230	U	210	U	650	U	530	U	560	U	130	U	150	U
Acenphthylene	ug/kg	250	U	110	J	350	J	1300	U	310	J	370	J	78	J	300	U
Anthracene	ug/kg	13	U	23	U	21	U	65	U	53	U	56	U	13	U	15	U
Benzo(a)anthracene	ug/kg	6.1	J	280		640	J	600	J	640	J	940		94		59	
Benzo(a)pyrene	ug/kg	15	J	640	J	1300	J	1900	J	1700	J	2100		150	J	180	
Benzo(b)fluoranthene	ug/kg	11	J	430		760	J	1100		1100		1300		170		120	
Benzo(g,h,i)perylene	ug/kg	6.8	J	500		1000	J	1700	J	1400	J	1900	J	150	J	120	J
Benzo(k)fluoranthene	ug/kg	8	J	230		460	J	620		580		740		110		120	
Chrysene	ug/kg	10	J	350	J	780	J	810	J	890	J	1000		140		88	
Dibenz(a,h)anthracene	ug/kg	25	U	520		1100	J	1700	J	1400		1100	U	110		30	U
Fluoranthene	ug/kg	20	J	1900	J	4200	J	3200	J	4300	J	6000		230		170	
Fluorene	ug/kg	25	U	45	U	38	J	130	U	110	U	110	U	27	U	30	U
Indeno(1,2,3-cd)pyrene	ug/kg	11	J	600	J	1100	J	1900	J	1800	J	1900		150		120	
Naphthalene	ug/kg	130	U	230	U	210	U	650	U	530	U	560	U	130	U	150	U
Phenanthrene	ug/kg	9	J	520	J	1400	J	120	J	1200	J	1800		60	J	41	
Pyrene	ug/kg	15	J	1300	J	2800	J	2400	J	3100	J	4000		220		180	
BaP equivalency	ug/kg	30	J	1300		2700	J	4000		3500		3100		300		230	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	6.8	J							0.53	UJ						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.052	J	Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg									10.6	U						
Arsenic	mg/kg									1.41							
Aresenic (EPA 7060A)	mg/kg									1.41							
Barium	mg/kg									27.3							
Beryllium	mg/kg									0.21	J						
Cadmium	mg/kg									0.225	J						
Chromium	mg/kg									33.3							
Cobalt	mg/kg									3.88							
Copper	mg/kg									6.88							
Lead	mg/kg									8.15							
Molybdenum	mg/kg									1.91							
Nickel	mg/kg									22.9							
Selenium	mg/kg									1.06	U						
Silver	mg/kg									1.06	U						
Thallium	mg/kg									2.12							
Vanadium	mg/kg									19.1	J						
Zinc	mg/kg									22.0	J						

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-108		OU5-109		OU5-109		OU5-109		OU5-110		OU5-110		OU5-110		OU5-111	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-465		181-467		181-468		181-469		181-470		181-471		181-472		181-473	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/30/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1500	U	590	U	550	U	240	U	550	U	550	U	1200	U	1100	U
Acenphthylene	ug/kg	3000	U	1200	U	1100	U	120	J	1100	U	1100	U	600	J	1100	J
Anthracene	ug/kg	150	U	59	U	55	U	24	U	48	J	55	U	120	U	110	U
Benzo(a)anthracene	ug/kg	1300		96		200		20	J	350		270		1400		1600	J
Benzo(a)pyrene	ug/kg	3100	J	220		440		61		790	J	640		3500	J	6000	J
Benzo(b)fluoranthene	ug/kg	2100		130		270		36	J	520		370		2500		3400	J
Benzo(g,h,i)perylene	ug/kg	2600	J	170		420	J	62		710	J	540		3500	J	5900	J
Benzo(k)fluoranthene	ug/kg	1100		78		170		19	J	290		220		1300		2000	J
Chrysene	ug/kg	1700		130		250		36		450		340		1500		2300	J
Dibenz(a,h)anthracene	ug/kg	2600		120	U	400		67		680		540		3300		1100	U
Fluoranthene	ug/kg	6300	J	540		1200		210		2000	J	1600		8100	J	6900	J
Fluorene	ug/kg	300	U	120	U	110	U	49	U	110	U	110	U	250	U	210	U
Indeno(1,2,3-cd)pyrene	ug/kg	2500	J	190		410		62		700		540		3300	J	5400	J
Naphthalene	ug/kg	1500	U	590	U	550	U	240	U	550	U	550	U	1200	U	1100	U
Phenanthrene	ug/kg	1800		130		320		54		530		470		2600	J	1400	J
Pyrene	ug/kg	5500	J	350		850	J	110		1400	J	1100		6500	J	6200	J
BaP equivalency	ug/kg	6300		320		930		140		1600		1300		7500		7600	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg															0.529	UJ
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.131	
Antimony	mg/kg															10.6	U
Arsenic	mg/kg															3.2	
Aresenic (EPA 7060A)	mg/kg															3.2	
Barium	mg/kg															55.2	
Beryllium	mg/kg															0.259	J
Cadmium	mg/kg															0.529	U
Chromium	mg/kg															48.2	
Cobalt	mg/kg															7.5	
Copper	mg/kg															28.5	
Lead	mg/kg															18.3	
Molybdenum	mg/kg															0.903	J
Nickel	mg/kg															36.5	
Selenium	mg/kg															1.06	U
Silver	mg/kg															1.06	U
Thallium	mg/kg															0.633	J
Vanadium	mg/kg															27.9	J
Zinc	mg/kg															42.5	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-111		OU5-111		OU5-111		OU5-111		OU5-112		OU5-112		OU5-112		OU5-113	
Sample Depth (ft)		0.5-2.0		0.5-2.0 DUP		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-474		181-477		181-475		181-476		181-488		181-489		181-490		181-491	
Sample Collection Date		05/30/2001		05/30/2001		05/30/2001		05/30/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	560	U	580	U	230	U	1200	U	270	U	280	U	290	U	1300	U
Acenphthylene	ug/kg	290	J	1200	U	460	U	1500	J	110	U	110	U	120	U	530	U
Anthracene	ug/kg	56	U	50	J	23	U	1900	J	23		10J		7J		180	
Benzo(a)anthracene	ug/kg	540		360		47		2800	J	110		56		48		730	
Benzo(a)pyrene	ug/kg	1100	J	760	J	130		5400	J	231		56		44		1310	
Benzo(b)fluoranthene	ug/kg	740		450		78		3100	J	150		47		61		810	
Benzo(g,h,i)perylene	ug/kg	990	J	660	J	130		3800	J	180		100		120		1130	
Benzo(k)fluoranthene	ug/kg	410		270		45		1800	J	49		26		30		360	
Chrysene	ug/kg	690		430		62		3400	J	110		50		47		700	
Dibenz(a,h)anthracene	ug/kg	1000		670		140		2500	U	280		100		130		910	
Fluoranthene	ug/kg	2900	J	1900	J	280		22000	J	325		170		150		2,330	
Fluorene	ug/kg	110	U	120	U	46	U	1200	J	11	U	11	U	12	U	53	U
Indeno(1,2,3-cd)pyrene	ug/kg	980		690		140		4000	J	200		68		100		960	
Naphthalene	ug/kg	560	U	580	U	230	U	1200	U	270	U	280	U	290	U	1300	U
Phenanthrene	ug/kg	720		500		53		11000	J	120		62		37		940	
Pyrene	ug/kg	2400	J	1400	J	190		14000	J	399		190		190		2560	
BaP equivalency	ug/kg	2300		1600		300		7700	J	560		170		200		2500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg															2.7	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.16	J
Antimony	mg/kg															5.3	U
Arsenic	mg/kg															4.2	
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg															69	
Beryllium	mg/kg															0.21	U
Cadmium	mg/kg															0.25	
Chromium	mg/kg															39.7	
Cobalt	mg/kg															8.7	
Copper	mg/kg															22.7	
Lead	mg/kg															28.7	
Molybdenum	mg/kg															0.21	U
Nickel	mg/kg															40.5	
Selenium	mg/kg															0.53	U
Silver	mg/kg															0.53	U
Thallium	mg/kg															0.53	U
Vanadium	mg/kg															31.2	
Zinc	mg/kg															65.7	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-113		OU5-113		OU5-113		OU5-114		OU5-114		OU5-114		OU5-114		OU5-115	
Sample Depth (ft)		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5	
Sample ID		181-492		181-493		181-494		181-495		181-496		181-497		181-498		181-499	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1300	U	270	U	3600	U	270	U	280	U	1400	U	280	U	270	U
Acenphthylene	ug/kg	520	U	110	U	1400	U	110	U	110	U	560	U	110	U	110	U
Anthracene	ug/kg	230		57		1300		65		52		38J		43		35	
Benzo(a)anthracene	ug/kg	700		241		3080		281		210		250		160		293	
Benzo(a)pyrene	ug/kg	1080		385		4070		490		381		410		260		501	
Benzo(b)fluoranthene	ug/kg	650		250		2600		269		249		290		160		306	
Benzo(g,h,i)perylene	ug/kg	950		358		3040		448		341		570		258		447	
Benzo(k)fluoranthene	ug/kg	310		130		1200		150		120		130		83		160	
Chrysene	ug/kg	720		244		2960		314		240		250		200		314	
Dibenz(a,h)anthracene	ug/kg	760		280		2300		320		250		510		190		320	
Fluoranthene	ug/kg	2,500		975		15,400		920		702		670		534		841	
Fluorene	ug/kg	52	UJ	11	UJ	140	UJ	11	UJ	11	UJ	56	UJ	11	UJ	11	UJ
Indeno(1,2,3-cd)pyrene	ug/kg	730		334		2600		355		310		390		200		390	
Naphthalene	ug/kg	1300	U	270	U	3600	U	270	U	280	U	1400	U	280	U	270	U
Phenanthrene	ug/kg	1120		425		660		307		296		200		180		88	
Pyrene	ug/kg	2620		991		19400		1120		727		620		561		943	
BaP equivalency	ug/kg	2100		750		7200		900		710		1000		500		920	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	2.6	U	2.7	U	3.6	U										
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.1	J	0.12	J	0.18	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.2	U	5.3	U	7.2	U										
Arsenic	mg/kg	1.7		1.5		4											
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg	32.4		30.2		63.6											
Beryllium	mg/kg	0.21	U	0.21	U	0.29	U										
Cadmium	mg/kg	0.11	J	0.1	J	0.2	J										
Chromium	mg/kg	33.9		31.2		63											
Cobalt	mg/kg	5.4		5.4		11.1											
Copper	mg/kg	12.1		10.3		24.8											
Lead	mg/kg	13.7		11.3		22.8											
Molybdenum	mg/kg	0.21	U	0.21	U	0.29	U										
Nickel	mg/kg	31.3		28.8		64.5											
Selenium	mg/kg	0.52	U	0.53	U	0.72	U										
Silver	mg/kg	0.52	U	0.53	U	0.72	U										
Thallium	mg/kg	0.52	U	0.53	U	0.72	U										
Vanadium	mg/kg	21.5		21.2		46.3											
Zinc	mg/kg	23.9		22.3		67.1											

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-115		OU5-115		OU5-116		OU5-116		OU5-116		OU5-117		OU5-117		OU5-117	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-500		181-501		181-502		181-503		181-504		181-505		181-506		181-507	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1300	U	2800	U	300	U	280	U	58	U	1300	U	1300	U	1600	U
Acenphthylene	ug/kg	540	U	1100	U	120	U	110	U	23	U	530	U	520	U	620	U
Anthracene	ug/kg	350		530		11J		30		4		110		120		33J	
Benzo(a)anthracene	ug/kg	1270		1100		70		89		24		550		570		320	
Benzo(a)pyrene	ug/kg	1890		1700		130		110		51		1080		1000		810	
Benzo(b)fluoranthene	ug/kg	1130		1100		83		71		33		670		690		610	
Benzo(g,h,i)perylene	ug/kg	1460		1700		200		160		59		1090		990		970	
Benzo(k)fluoranthene	ug/kg	560		470		41		40		15		290		300		260	
Chrysene	ug/kg	1350		1000		76		96		25		610		610		240	
Dibenz(a,h)anthracene	ug/kg	1000		1300		160		150		45		800		790		830	
Fluoranthene	ug/kg	5,000		5,210		200		401		96		1,890		2,030		690	
Fluorene	ug/kg	54	UJ	110	U	12	U	11	U	2.3	U	53	U	52	U	62	U
Indeno(1,2,3-cd)pyrene	ug/kg	1130		1200		120		87		46		780		830		800	
Naphthalene	ug/kg	1300	U	2800	U	300	U	280	U	58	U	1300	U	1300	U	1600	U
Phenanthrene	ug/kg	1790		2380		52		160		23		480		610		100	
Pyrene	ug/kg	5070		5610		200		464		97		2190		2150		1540	
BaP equivalency	ug/kg	3200		3300		320		290		110		2100		2000		1800	
Cyanide (EPA 9014)																	
Cyanide	mg/kg											2.6	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.24		Not Analyzed		Not Analyzed	
Antimony	mg/kg											5.3	U				
Arsenic	mg/kg											3.9					
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg											112					
Beryllium	mg/kg											0.21	U				
Cadmium	mg/kg											0.26					
Chromium	mg/kg											51.2					
Cobalt	mg/kg											10.5					
Copper	mg/kg											24.1					
Lead	mg/kg											45.3					
Molybdenum	mg/kg											0.21	U				
Nickel	mg/kg											67.1					
Selenium	mg/kg											0.53	U				
Silver	mg/kg											0.53	U				
Thallium	mg/kg											0.53	U				
Vanadium	mg/kg											33.9					
Zinc	mg/kg											109					

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-117		OU5-117		OU5-118		OU5-118		OU5-118		OU5-119		OU5-119		OU5-119	
Sample Depth (ft)		2.0-4.0 DUP		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-508		181-509		181-510		181-511		181-512		181-513		181-514		181-515	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	310	U	2800	U	280	U	290	U	310	U	270	U	270	U	300	U
Acenphthylene	ug/kg	120	U	1100	U	110	U	120	U	130	U	110	U	110	U	120	U
Anthracene	ug/kg	69		370		10		30		11J		4J		20		39	
Benzo(a)anthracene	ug/kg	381		2100		59		180		69		31		110		160	
Benzo(a)pyrene	ug/kg	1010		4850		70		274		120		31		200		302	
Benzo(b)fluoranthene	ug/kg	677		2490		57		170		65		31		110		170	
Benzo(g,h,i)perylene	ug/kg	936		4790		170		407		160		83		290		395	
Benzo(k)fluoranthene	ug/kg	276		1000		31		87		34		20		71		110	
Chrysene	ug/kg	485		3060		91		160		39		25		120		170	
Dibenz(a,h)anthracene	ug/kg	767		2800		110		240		140		100		210		270	
Fluoranthene	ug/kg	1,170		8,470		180		500		180		80		657		903	
Fluorene	ug/kg	12	U	110	U	11	U	12	U	13	U	11	U	11	U	12	U
Indeno(1,2,3-cd)pyrene	ug/kg	906		3280		88		270		120		55		200		293	
Naphthalene	ug/kg	310	U	2800	U	280	U	290	U	310	U	270	U	270	U	300	U
Phenanthrene	ug/kg	283		430		63		120		43		25		130		160	
Pyrene	ug/kg	2330		8510		264		882		332		97		495		845	
BaP equivalency	ug/kg	2000		8500		200		580		290		140		450		640	
Cyanide (EPA 9014)																	
Cyanide	mg/kg											2.7	U	2.7	U	3	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.078	J	0.017	J	0.13	J
Antimony	mg/kg											5.4	U	5.5	U	5.9	U
Arsenic	mg/kg											0.63		0.84		2.3	
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg											15.8		28.8		47	
Beryllium	mg/kg											0.22	U	0.22	U	0.24	U
Cadmium	mg/kg											0.29		0.099	J	0.16	J
Chromium	mg/kg											7.7		30.5		46.1	
Cobalt	mg/kg											1.2		5.7		8.7	
Copper	mg/kg											4.3		8.9		17.9	
Lead	mg/kg											10.9		7.7		16.2	
Molybdenum	mg/kg											0.22	U	0.22	U	0.24	U
Nickel	mg/kg											5.5		28.4		47.6	
Selenium	mg/kg											0.54	U	0.55	U	0.59	U
Silver	mg/kg											0.54	U	0.55	U	0.59	U
Thallium	mg/kg											0.54	U	0.55	U	0.59	U
Vanadium	mg/kg											5.7		22		30.9	
Zinc	mg/kg											21.4		21.1		42.9	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-119		OU5-120		OU5-120		OU5-120		OU5-120		OU5-121		OU5-121		OU5-121	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-516		181-517		181-518		181-519		181-520		181-521		181-522		181-523	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	1500	U	280	U	280	U	280	U	290	U	110	U	32	J	39	J
Acenphthylene	ug/kg	580	U	110	U	110	U	110	U	110	U	32	J	96	J	90	J
Anthracene	ug/kg	310		20		20		27		29		37	J	100		120	
Benzo(a)anthracene	ug/kg	760		50		70		110		110		260	J	840	J	900	J
Benzo(a)pyrene	ug/kg	1320		79		110		190		140		470		1300		1500	
Benzo(b)fluoranthene	ug/kg	610		36		58		96		86		410		1300		1500	
Benzo(g,h,i)perylene	ug/kg	1350		170		180		268		220		530		1300		1600	
Benzo(k)fluoranthene	ug/kg	440		30		43		71		65		180		120		130	
Chrysene	ug/kg	980		52		75		130		110		290		640		710	
Dibenz(a,h)anthracene	ug/kg	1100		98		140		210		170		61	J	160		180	
Fluoranthene	ug/kg	4,250		110		411		627		651		400		1200		1500	
Fluorene	ug/kg	58	U	11	U	11	U	11	U	11	U	110	U	25	J	27	J
Indeno(1,2,3-cd)pyrene	ug/kg	910		89		120		180		160		370		930		1100	
Naphthalene	ug/kg	1500	U	280	U	280	U	280	U	290	U	110	U	40	J	49	J
Phenanthrene	ug/kg	910		100		94		140		150		220		620		910	
Pyrene	ug/kg	3400		227		327		478		540		710		1900		2600	
BaP equivalency	ug/kg	2700		190		280		440		350		640		1800		2000	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	2.9	U														
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.098	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.8	U														
Arsenic	mg/kg	1.2															
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg	76.5															
Beryllium	mg/kg	0.23	U														
Cadmium	mg/kg	0.15	J														
Chromium	mg/kg	34.3															
Cobalt	mg/kg	4.7															
Copper	mg/kg	8.5															
Lead	mg/kg	10.5															
Molybdenum	mg/kg	0.23	U														
Nickel	mg/kg	24.5															
Selenium	mg/kg	0.58	U														
Silver	mg/kg	0.58	U														
Thallium	mg/kg	0.58	U														
Vanadium	mg/kg	21.1															
Zinc	mg/kg	32.8															

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-122		OU5-122		OU5-122		OU5-123		OU5-123		OU5-123		OU5-123		OU5-124	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		0.0-0.5	
Sample ID		181-524		181-525		181-526		181-527		181-528		181-529		181-530		181-531	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	100	U	35	J	350		110	U	91	U	95	U	180		94	U
Acenphthylene	ug/kg	100	U	110		370		34	J	54	J	31	J	230		23	J
Anthracene	ug/kg	100	U	110		760		43	J	59	J	31	J	330		21	J
Benzo(a)anthracene	ug/kg	160	J	700	J	4100	J	330	J	610	J	290	J	3200	J	200	J
Benzo(a)pyrene	ug/kg	220		860		7100		430		770		430		6100		300	
Benzo(b)fluoranthene	ug/kg	260		990		7600		490		690		400		5200		290	
Benzo(g,h,i)perylene	ug/kg	230		800		6200		410		750		430		5500		290	
Benzo(k)fluoranthene	ug/kg	29	J	91	J	490		40	J	330		180		1400		140	
Chrysene	ug/kg	110		520		3300		220		510		310		2600		210	
Dibenz(a,h)anthracene	ug/kg	29	J	120		830		54	J	100		59	J	680		43	J
Fluoranthene	ug/kg	220		1100		6900		500		870		470		4900		330	
Fluorene	ug/kg	100	U	67	J	180		110	U	91	U	95	U	67	J	94	U
Indeno(1,2,3-cd)pyrene	ug/kg	170		610		4900		310		560		320		4300		210	
Naphthalene	ug/kg	100	J	25	J	220		110	U	19	J	95	J	160		94	U
Phenanthrene	ug/kg	140		1300		4200		390		530		330		2000		200	
Pyrene	ug/kg	390		1800		11000		840		1400		770		9100		540	
BaP equivalency	ug/kg	310		1200		9600		600		1100		590		8100		410	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-124		OU5-124		OU5-125		OU5-125		OU5-125		OU5-125		OU5-126		OU5-126	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0	
Sample ID		181-532		181-533		181-534		181-535		181-536		181-537		181-538		181-539	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	97	U	100	U	98	U	93	U	59	J	120	U	93	U	60	J
Acenphthylene	ug/kg	39	J	100	U	81	J	63	J	79	J	120	U	70	J	130	
Anthracene	ug/kg	40	J	100	U	46	J	45	J	130		120	U	61	J	130	
Benzo(a)anthracene	ug/kg	380	J	21	J	420	J	440	J	810	J	85	J	450	J	950	J
Benzo(a)pyrene	ug/kg	530		100	U	750		720		1300		140		670		1600	
Benzo(b)fluoranthene	ug/kg	470		100	U	850		870		1500		170		780		1800	
Benzo(g,h,i)perylene	ug/kg	520		100	U	680		690		1100		130		560		1300	
Benzo(k)fluoranthene	ug/kg	220		100	U	100		94		150		120	U	73	J	230	
Chrysene	ug/kg	280		100	U	490		520		990		89	J	510		1100	
Dibenz(a,h)anthracene	ug/kg	71	J	100	U	95	J	94		150		120	U	84	J	170	
Fluoranthene	ug/kg	570		100	U	1100		1200		3700		240		1300		3800	
Fluorene	ug/kg	97	U	100	U	98	U	93	U	25	J	120	U	93	U	37	J
Indeno(1,2,3-cd)pyrene	ug/kg	390		100	U	510		520		870		94	J	430		1000	
Naphthalene	ug/kg	97	U	100	U	28	J	27	J	34	J	120	U	19	J	42	J
Phenanthrene	ug/kg	360		100	U	300		440		990		63	J	400		990	
Pyrene	ug/kg	940		100	U	1200		1400		3100		350		1300		3200	
BaP equivalency	ug/kg	730		110	J	1000		1000		1800		240		920		2100	
Cyanide (EPA 9014)																	
Cyanide	mg/kg					0.577	U	0.545	U	0.581	U	0.735	U				
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.143		0.083	J	0.157		0.118	J	Not Analyzed		Not Analyzed	
Antimony	mg/kg					4.98	J	10.9	UJ	11.6	UJ	14.7	UJ				
Arsenic	mg/kg																
Aresenic (EPA 7060A)	mg/kg					2.88	J	1.29	J	1.78	J	4.67	J				
Barium	mg/kg					75.1	J	34.9		32.5		50.2					
Beryllium	mg/kg					1.15	U	1.09	U	1.16	U	1.47	U				
Cadmium	mg/kg					0.577	U	0.545	U	0.581	U	0.735	U				
Chromium	mg/kg					37.7		32.1		39.3		52.8					
Cobalt	mg/kg					7.78		4.19		8.01		8.39					
Copper	mg/kg					31.4		7.28		10.7		16.5					
Lead	mg/kg					27.7		12.7		10.8		12.2					
Molybdenum	mg/kg					5.77	U	5.45	U	5.81	U	7.35	U				
Nickel	mg/kg					31		23		33.7		50.6					
Selenium	mg/kg					1.15	U	1.09	U	1.16	U	1.47	U				
Silver	mg/kg					1.15	U	1.09	U	1.16	U	1.47	U				
Thallium	mg/kg					0.688	J	2.18	U	2.33	U	0.925	J				
Vanadium	mg/kg					33.2	J	19.7	J	23.1	J	36.7	J				
Zinc	mg/kg					113	J	21.4	J	24.9	J	47.8	J				

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-126		OU5-126		OU5-127		OU5-127		OU5-127		OU5-128		OU5-128		OU5-128	
Sample Depth (ft)		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-540		181-541		181-542		181-543		181-544		181-545		181-546		181-547	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	680		260		110	U	110	U	98	U	96	U	89	U	94	U
Acenphthylene	ug/kg	730		370		110	UJ	110	UJ	98	UJ	120	J	58	J	94	UJ
Anthracene	ug/kg	970		560		110	U	110	U	98	U	66	J	45	J	94	U
Benzo(a)anthracene	ug/kg	4400	J	2700	J	80	J	67	J	33	J	880	J	280	J	27	J
Benzo(a)pyrene	ug/kg	6400		3800		85	J	40	J	98	U	1300		390		94	U
Benzo(b)fluoranthene	ug/kg	7200		4100		140		86	J	20	J	1500		500		94	U
Benzo(g,h,i)perylene	ug/kg	4500		2200		72	J	39	J	98	U	970		310		94	U
Benzo(k)fluoranthene	ug/kg	740		620		23	J	110	U	98	U	150		41	J	94	U
Chrysene	ug/kg	3800		2200	J	110	UJ	110	UJ	98	UJ	1100	J	310	J	94	UJ
Dibenz(a,h)anthracene	ug/kg	690		110	U	110	U	110	U	98	U	96	U	89	U	94	U
Fluoranthene	ug/kg	13000		7900		120		57	J	98	U	1400		720		94	U
Fluorene	ug/kg	260		97	J	110	U	110	U	98	U	96	U	19	J	94	U
Indeno(1,2,3-cd)pyrene	ug/kg	3700		1700		55	J	27	J	98	U	740		240		94	U
Naphthalene	ug/kg	220		190		110	U	110	U	98	U	33	J	18	J	94	U
Phenanthrene	ug/kg	7000		3100		47	J	34	J	98	U	130		490		94	U
Pyrene	ug/kg	13000		7700		150		78	J	98	U	2200		950		94	U
BaP equivalency	ug/kg	8600		4700		170		110	J	110	J	1700		540		110	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg											0.568	U	0.522	U	0.551	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.067	J	0.024	J	0.11	U
Antimony	mg/kg											4.61	J	5.51	J	11	U
Arsenic	mg/kg																
Aresenic (EPA 7060A)	mg/kg											3.64	J	1.41	J	1.42	J
Barium	mg/kg											117		23.1		16.4	
Beryllium	mg/kg											1.14	U	1.04	U	1.1	U
Cadmium	mg/kg											0.568	U	0.522	U	0.551	U
Chromium	mg/kg											43.8		32.7		25.6	
Cobalt	mg/kg											10.4		3.7		3.43	
Copper	mg/kg											18.2		5.18		3.14	
Lead	mg/kg											15.9		10.6		5.89	
Molybdenum	mg/kg											5.68	U	5.22	U	5.51	U
Nickel	mg/kg											43.5		24.5		18.5	
Selenium	mg/kg											1.14	U	1.04	U	1.1	U
Silver	mg/kg											1.14	U	1.04	U	1.1	U
Thallium	mg/kg											0.733	J	2.09	U	2.2	U
Vanadium	mg/kg											31.9	J	17.7	J	16.4	J
Zinc	mg/kg											57.2	J	20.6	J	12	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-128		OU5-129		OU5-129		OU5-129		OU5-129		OU5-130		OU5-130		OU5-130	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-548		181-549		181-550		181-551		181-552		181-553		181-554		181-555	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	100	U	91	U	90	U	91	U	91	U	89	U	91	U	95	U
Acenphthylene	ug/kg	100	UJ	20	J	10	J	91	UJ	91	UJ	15	J	34	J	95	UJ
Anthracene	ug/kg	100	U	48	J	90	U	91	U	91	U	10	J	23	J	95	U
Benzo(a)anthracene	ug/kg	84	J	440	J	85	J	57	J	42	J	100	J	190	J	24	J
Benzo(a)pyrene	ug/kg	69	J	620		87	J	41	J	23	J	140		250		95	U
Benzo(b)fluoranthene	ug/kg	120		880		110		71	J	38	J	200		320		95	U
Benzo(g,h,i)perylene	ug/kg	57	J	420		77	J	42	J	26	J	130		220		95	U
Benzo(k)fluoranthene	ug/kg	25	J	85	J	12	J	91	U	91	U	14	J	21	J	95	U
Chrysene	ug/kg	100	UJ	490	J	90	UJ	91	UJ	91	UJ	110	J	200	J	95	UJ
Dibenz(a,h)anthracene	ug/kg	100	U	91	U	90	U	91	U	91	U	89	U	32	J	95	U
Fluoranthene	ug/kg	90	J	680		110		54	J	33	J	200		420		95	U
Fluorene	ug/kg	100	U	91	U	90	U	91	U	91	U	89	U	91	U	95	U
Indeno(1,2,3-cd)pyrene	ug/kg	42	J	340		54	J	31	J	91	U	94		160		95	U
Naphthalene	ug/kg	100	U	91	U	90	U	91	U	91	U	89	U	91	U	95	U
Phenanthrene	ug/kg	53	J	280		57	J	25	J	91	U	91		150		95	U
Pyrene	ug/kg	130		840		160		68	J	44	J	280		560		95	U
BaP equivalency	ug/kg	140		830		160		100	J	82	J	220		350		110	U
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.608	U									0.525	U	0.535	U	0.558	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.122	U	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.068	J	0.107	U	0.112	U
Antimony	mg/kg	12.2	U									10.5	UJ	10.7	UJ	11.2	UJ
Arsenic	mg/kg																
Aresenic (EPA 7060A)	mg/kg	2.12	J									2.25	J	1.93	J	1.48	J
Barium	mg/kg	22										64.5		49.7		18.9	
Beryllium	mg/kg	1.22	U									1.05	U	1.07	U	1.12	U
Cadmium	mg/kg	0.608	U									0.258	J	0.535	U	0.558	U
Chromium	mg/kg	29.1										37.3		38.2		27.7	
Cobalt	mg/kg	4.72										7.15		5		2.66	
Copper	mg/kg	5.61										11.7		7.69		3.18	
Lead	mg/kg	7.14										20.7		11.1		5.08	
Molybdenum	mg/kg	6.08	U									5.25	U	5.35	U	5.58	U
Nickel	mg/kg	22.7										31.3		28.3		19.2	
Selenium	mg/kg	1.22	U									1.05	U	1.07	U	1.12	U
Silver	mg/kg	1.22	U									1.05	U	1.07	U	1.12	U
Thallium	mg/kg	2.43	U									0.636	J	2.14	U	2.23	U
Vanadium	mg/kg	17.7	J									32.5	J	22.5	J	16.4	J
Zinc	mg/kg	17.8	J									51.6	J	26.2	J	12.6	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-130		OU5-131		OU5-131		OU5-131		OU5-132		OU5-132		OU5-132		OU5-132	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-556		181-557		181-558		181-559		181-560		181-561		181-562		181-563	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001		05/31/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	51	J	91	U	89	U	99	U	100	U	92	U	97	U	1200	J
Acenphthylene	ug/kg	100	UJ	91	U	89	U	32	J	100	U	92	U	97	U	99	U
Anthracene	ug/kg	220		91	U	89	U	64	J	100	U	92	U	97	U	1900	
Benzo(a)anthracene	ug/kg	4700	J	130	J	42	J	830	J	68	J	38	J	86	J	12000	
Benzo(a)pyrene	ug/kg	6100		210		30	J	1100		83	J	30	J	100		17000	J
Benzo(b)fluoranthene	ug/kg	7400		220		38	J	1200		89	J	35	J	110		17000	J
Benzo(g,h,i)perylene	ug/kg	3100		210		36	J	580		75	J	37	J	110		8800	J
Benzo(k)fluoranthene	ug/kg	2100		87	J	89	U	550		35	J	16	J	46	J	8100	
Chrysene	ug/kg	4600	J	150	J	89	UJ	950	J	100	UJ	92	U	97	U	9900	
Dibenz(a,h)anthracene	ug/kg	100	U	91	U	89	U	130		100	U	92	U	97	U	2600	J
Fluoranthene	ug/kg	5000		350		41	J	1200		96	J	40	J	100		14000	
Fluorene	ug/kg	34	J	91	U	89	U	99	U	100	U	92	U	97	U	670	
Indeno(1,2,3-cd)pyrene	ug/kg	2700		150		25	J	470		46	J	26	J	77	J	8200	J
Naphthalene	ug/kg	100	U	91	U	89	U	99	U	100	U	92	U	97	U	570	
Phenanthrene	ug/kg	1000		70	J	89	U	360		33	J	92	U	22	J	6200	
Pyrene	ug/kg	5900		340		54	J	1300		130		54	J	150		16000	J
BaP equivalency	ug/kg	7700		310		85	J	1500		150	J	86	J	180		23000	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.586	U							0.586	U	0.542	U	0.569	U	0.584	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.117	U	Not Analyzed		Not Analyzed		Not Analyzed		0.241		0.22		0.096	J	0.158	
Antimony	mg/kg	11.7	UJ							11.7	UJ	6.81	J	11.4	UJ	11.7	UJ
Arsenic	mg/kg																
Aresenic (EPA 7060A)	mg/kg	1.69	J							5.46	J	4.32	J	2.55	J	1.54	J
Barium	mg/kg	38.3								76.2		51.8		122		15.7	
Beryllium	mg/kg	1.17	U							1.17	U	1.08	U	1.14	U	1.17	U
Cadmium	mg/kg	0.586	U							0.586	U	0.542	U	0.569	U	0.584	U
Chromium	mg/kg	32.9								31		22.5		45		16.5	
Cobalt	mg/kg	3.71								8.03		8.06		7.39		2.34	U
Copper	mg/kg	11.4								30.1		33.3		20.5		9.09	
Lead	mg/kg	5.96								36.5		18		25.5		5.29	
Molybdenum	mg/kg	5.86	U							5.86	U	5.42	U	5.69	U	5.84	U
Nickel	mg/kg	29.5								30.4		19.4		41.1		9.59	
Selenium	mg/kg	1.17	U							1.17	U	1.08	U	1.14	U	1.17	U
Silver	mg/kg	1.17	U							1.17	U	1.08	U	1.14	U	1.17	U
Thallium	mg/kg	2.34	U							0.872	J	0.969	J	0.848	J	2.34	U
Vanadium	mg/kg	19.9	J							31.3	J	23.9	J	34.4	J	12.4	J
Zinc	mg/kg	21	J							132	J	123	J	104	J	39.7	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-133		OU5-133		OU5-133		OU5-133		OU5-134		OU5-134		OU5-134		OU5-135	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5	
Sample ID		181-564		181-565		181-566		181-567		181-568		181-569		181-570		181-571	
Sample Collection Date		05/31/2001		05/31/2001		05/31/2001		05/31/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	96	U	20	J	26	J	47	J	270	U	260	U	56	U	270	U
Acenphthylene	ug/kg	42	J	93	J	46	J	120		110	U	100	U	22	U	110	U
Anthracene	ug/kg	28	J	120		52	J	180		10		10	U	2	J	10	J
Benzo(a)anthracene	ug/kg	230		620		590		1200		83		20		23		88	
Benzo(a)pyrene	ug/kg	340		810		890		1800		92		26		28		180	
Benzo(b)fluoranthene	ug/kg	300		930		1000		2200		58		10		19		160	
Benzo(g,h,i)perylene	ug/kg	290		640		890		1400		120		65		29		200	
Benzo(k)fluoranthene	ug/kg	140		69	J	110		170		26		7	J	9.1		56	
Chrysene	ug/kg	180		490		540		1000		69		8	J	22		389	
Dibenz(a,h)anthracene	ug/kg	96	U	95	J	120		210		130		26	U	28		190	
Fluoranthene	ug/kg	500		1500		1400		3000		180		20		50		190	
Fluorene	ug/kg	96	U	37	J	100	U	49	J	11	U	10	U	2.2	U	11	U
Indeno(1,2,3-cd)pyrene	ug/kg	220		490		690		1200		68		26		20		160	
Naphthalene	ug/kg	96	U	21	J	27	J	50	J	270	U	260	U	56	U	270	U
Phenanthrene	ug/kg	190		760		350		1200		77		8	J	10		37	
Pyrene	ug/kg	630		1700		1800		3800		160		10		57		396	
BaP equivalency	ug/kg	460		1100		1200		2500		240		45		62		410	
Cyanide (EPA 9014)																	
Cyanide	mg/kg															2.7	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.23	
Antimony	mg/kg															5.4	U
Arsenic	mg/kg															2.1	
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg															31.7	
Beryllium	mg/kg															0.21	U
Cadmium	mg/kg															0.075	J
Chromium	mg/kg															34.2	
Cobalt	mg/kg															10.6	
Copper	mg/kg															71.1	
Lead	mg/kg															11.3	
Molybdenum	mg/kg															0.21	U
Nickel	mg/kg															24.3	
Selenium	mg/kg															0.54	U
Silver	mg/kg															0.54	U
Thallium	mg/kg															0.54	U
Vanadium	mg/kg															24.7	
Zinc	mg/kg															51.3	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-135		OU5-135		OU5-135		OU5-135		OU5-136		OU5-136		OU5-136		OU5-136	
Sample Depth (ft)		0.5-2.0		2.0-4.0		2.0-4.0 DUP		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-572		181-573		181-574		181-575		181-576		181-577		181-578		181-579	
Sample Collection Date		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	55	U	270	U	270	U	62	U	260	U	52	U	71	U	61	U
Acenphthylene	ug/kg	22	U	110	U	110	U	25	U	100	U	21	U	28	U	24	U
Anthracene	ug/kg	9.1		8	J	9	J	1	J	4	J	2.1	U	5		4	
Benzo(a)anthracene	ug/kg	29		50		79		11		40		4		39		43	
Benzo(a)pyrene	ug/kg	31		75		99		18		62		2.1	U	79		71	
Benzo(b)fluoranthene	ug/kg	21		56		76		13		42		2		58		49	
Benzo(g,h,i)perylene	ug/kg	30		110		110		25		98		2.1	U	85		68	
Benzo(k)fluoranthene	ug/kg	9		23		36		5.4		20		2.1	U	23		22	
Chrysene	ug/kg	25		50		100		9.9		33		10		41		100	
Dibenz(a,h)anthracene	ug/kg	31		120		120		26		140		5.2	U	72		52	
Fluoranthene	ug/kg	97		120		140		26		87		3		96		138	
Fluorene	ug/kg	2		11	U	11	U	2.5	U	10	U	2.1	U	2.8	U	2.4	U
Indeno(1,2,3-cd)pyrene	ug/kg	21		66		69		16		57		2.1	U	74		53	
Naphthalene	ug/kg	55	U	270	U	270	U	62	U	260	U	52	U	71	U	61	U
Phenanthrene	ug/kg	54		30		35		5		23		2.1	U	20		9.7	
Pyrene	ug/kg	96		130		140		29		84		3		124		169	
BaP equivalency	ug/kg	69		210		240		48		220		4.4		170		140	
Cyanide (EPA 9014)																	
Cyanide	mg/kg									2.6	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.46		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg									5.2	U						
Arsenic	mg/kg									8.5							
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg									57							
Beryllium	mg/kg									0.078	J						
Cadmium	mg/kg									0.44							
Chromium	mg/kg									15.2							
Cobalt	mg/kg									8.3							
Copper	mg/kg									30.4							
Lead	mg/kg									21.5							
Molybdenum	mg/kg									0.21	U						
Nickel	mg/kg									17.3							
Selenium	mg/kg									0.52	J						
Silver	mg/kg									0.52	U						
Thallium	mg/kg									0.52	U						
Vanadium	mg/kg									24.6							
Zinc	mg/kg									161							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-137		OU5-137		OU5-137		OU5-138		OU5-184		OU5-138		OU5-138		OU5-138	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		4.0-8.0 DUP	
Sample ID		181-580		181-581		181-582		181-583		181-584		181-585		181-586		181-587	
Sample Collection Date		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	280	U	290	U	300	U	56	U	270	U	57	U	60	U	59	U
Acenphthylene	ug/kg	110	U	110	U	120	U	22	U	110	U	23	U	24	U	23	U
Anthracene	ug/kg	38		20		44		2	J	26		2	J	5		2	J
Benzo(a)anthracene	ug/kg	257		140		190		9		130		13		31		11	
Benzo(a)pyrene	ug/kg	553		299		353		19		229		21		44		17	
Benzo(b)fluoranthene	ug/kg	372		190		240		13		160		16		32		11	
Benzo(g,h,i)perylene	ug/kg	515		354		436		32		308		36		50		26	
Benzo(k)fluoranthene	ug/kg	160		81		120		7.5		90		9.7		19		7.4	
Chrysene	ug/kg	340		190		190		11		150		21		39		13	
Dibenz(a,h)anthracene	ug/kg	360		200		320		26		230		32		38		24	
Fluoranthene	ug/kg	743		341		530		26		331		29		57		18	
Fluorene	ug/kg	11	U	11	U	12	U	2.2	U	11	U	2.3	U	2.4	U	2.3	U
Indeno(1,2,3-cd)pyrene	ug/kg	479		236		330		20		222		26		33		16	
Naphthalene	ug/kg	280	U	290	U	300	U	56	U	270	U	57	U	60	U	59	U
Phenanthrene	ug/kg	130		52		210		5.7		150		10		19		9	
Pyrene	ug/kg	863		425		657		25		402		40		70		39	
BaP equivalency	ug/kg	1000		560		750		49		510		59		92		45	
Cyanide (EPA 9014)																	
Cyanide	mg/kg							2.8	U								
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.11	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg							0.56	U								
Arsenic	mg/kg							7.3									
Aresenic (EPA 7060A)	mg/kg																
Barium	mg/kg							171									
Beryllium	mg/kg							0.22	U								
Cadmium	mg/kg							0.2	J								
Chromium	mg/kg							46									
Cobalt	mg/kg							11.9									
Copper	mg/kg							27.3									
Lead	mg/kg							50.3									
Molybdenum	mg/kg							0.22	U								
Nickel	mg/kg							50.9									
Selenium	mg/kg							0.56	U								
Silver	mg/kg							0.56	U								
Thallium	mg/kg							0.56	U								
Vanadium	mg/kg							40.8									
Zinc	mg/kg							83.8									

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-139		OU5-139		OU5-139		OU5-140		OU5-140		OU5-140		OU5-140	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-588		181-589		181-590		181-591		181-592		181-593		181-594	
Sample Collection Date		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)															
Acenaphthene	ug/kg	2700	U	280	U	320	U	270	U	290	U	290	U	59	U
Acenphthylene	ug/kg	1100	U	110	U	130	U	110	U	110	U	110	U	24	U
Anthracene	ug/kg	260		11	U	13	U	8	J	11	U	11	U	2.4	U
Benzo(a)anthracene	ug/kg	1100		10		27		43		20		23		2.4	U
Benzo(a)pyrene	ug/kg	3270		43		76		150		52		54		2.4	U
Benzo(b)fluoranthene	ug/kg	1600		10		34		72		24		31		2.4	U
Benzo(g,h,i)perylene	ug/kg	1500		39		68		88		67		51		2.4	U
Benzo(k)fluoranthene	ug/kg	620		8	J	20		31		10		10		2.4	U
Chrysene	ug/kg	2100		10	J	44		87		32		40		2.4	U
Dibenz(a,h)anthracene	ug/kg	1200		50		67		77		50		60		5.9	U
Fluoranthene	ug/kg	4980		45		120		190		56		110		2.4	U
Fluorene	ug/kg	110	U	11	U	13	U	11	U	11	U	11	U	2.4	U
Indeno(1,2,3-cd)pyrene	ug/kg	1900		31		56		100		38		48		2.4	U
Naphthalene	ug/kg	2700	U	280	U	320	U	270	U	290	U	290	U	59	U
Phenanthrene	ug/kg	410		11	J	44		70		20		48		2.4	U
Pyrene	ug/kg	5920		43		97		239		76		130		2.4	U
BaP equivalency	ug/kg	4900		98		150		250		110		120		4.5	U
Cyanide (EPA 9014)															
Cyanide	mg/kg							2.7	U	2.9	U	2.9	U	3	U
Metals (EPA 6010B/7471A)															
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.16	J	0.17	J	0.1	J	0.44	J
Antimony	mg/kg							0.53	U	5.7	U	5.7	U	5.9	U
Arsenic	mg/kg							2.5		4		1.7		1.3	
Aresenic (EPA 7060A)	mg/kg														
Barium	mg/kg							86.9		136		22.6		15.8	
Beryllium	mg/kg							0.21	U	0.23	U	0.23	U	0.24	U
Cadmium	mg/kg							0.17	J	0.22	J	0.23	U	0.065	J
Chromium	mg/kg							39.7		36.9		37.9		34.5	
Cobalt	mg/kg							12.4		9.1		5.9		5.4	
Copper	mg/kg							34.8		26.9		9.1		4.6	J
Lead	mg/kg							20		28.7		8.6		2.2	
Molybdenum	mg/kg							0.21	U	0.23	U	0.23	U	0.24	U
Nickel	mg/kg							36.8		45.8		32.7		31.5	
Selenium	mg/kg							0.47	J	0.57	U	0.57	U	0.59	U
Silver	mg/kg							0.53	U	0.57	U	0.57	U	0.59	U
Thallium	mg/kg							0.53	U	0.57	U	0.57	U	0.59	U
Vanadium	mg/kg							41.1		30.8		25.3		24	
Zinc	mg/kg							65.6		65		22.8		16.7	J

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-141		OU5-141		OU5-141		OU5-141		OU5-141		OU5-142		OU5-142		OU5-142	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-595		181-596		181-597		181-598		181-599		181-600		181-601		181-602	
Sample Collection Date		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	530	U	520	U	550	U	630	U	770	U	520	U	530	U	550	U
Acenaphthylene	ug/kg	1100	U	1000	U	1100	U	1300	U	1500	U	1000	U	1100	U	1100	U
Anthracene	ug/kg	93		140		260		320		39	J	46	J	53	U	110	U
Benzo(a)anthracene	ug/kg	630		790		1200	J	1100	J	140		260		300		560	
Benzo(a)pyrene	ug/kg	670	J	2000	J	2700	J	2500	J	480		790	J	880	J	1500	J
Benzo(b)fluoranthene	ug/kg	910		1100		1700	J	1500	J	310		490		570		970	
Benzo(g,h,i)perylene	ug/kg	1300		1400		2200	J	2200	J	440		650		880	J	1200	
Benzo(k)fluoranthene	ug/kg	540		620		980	J	810	J	190		200		350		540	
Chrysene	ug/kg	870	J	1000	J	1600	J	1400	J	200		420		440		790	J
Dibenz(a,h)anthracene	ug/kg	110	UJ	100	UJ	110	UJ	130	UJ	150	UJ	100	UJ	110	UJ	110	UJ
Fluoranthene	ug/kg	3500	J	4200	J	6500	J	5900	J	820		1400		820		3000	J
Fluorene	ug/kg	110	U	100	U	110	U	130	U	150	U	100	U	110	U	110	U
Indeno(1,2,3-cd)pyrene	ug/kg	1300	J	1400	J	2200	J	2100	J	400		630		840		1300	J
Naphthalene	ug/kg	530	U	520	U	550	U	630	U	770	U	520	U	530	U	550	U
Phenanthrene	ug/kg	750	J	1100	J	1300	J	1500	J	89	J	240		83	J	1000	J
Pyrene	ug/kg	2600	J	3100	J	4800	J	4400	J	870		1000	J	700		2200	J
BaP equivalency	ug/kg	1000		2400		3300	J	3000	J	640		980		1100		1800	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.527	U														
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.184		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	4.13	J														
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	2.92															
Barium	mg/kg	79.4															
Beryllium	mg/kg	1.05	U														
Cadmium	mg/kg	0.527	U														
Chromium	mg/kg	38.3															
Cobalt	mg/kg	7.37															
Copper	mg/kg	18.7															
Lead	mg/kg	31.7															
Molybdenum	mg/kg	5.27	U														
Nickel	mg/kg	36.7															
Selenium	mg/kg	1.05	U														
Silver	mg/kg	1.05	U														
Thallium	mg/kg	0.831	J														
Vanadium	mg/kg	25.4	J														
Zinc	mg/kg	72.7	J														

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-143		OU5-143		OU5-143		OU5-144		OU5-144		OU5-144		OU5-144		OU5-144	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0		4.0-8.0	
Sample ID		181-603		181-604		181-605		181-606		181-607		181-608		181-609		181-610	
Sample Collection Date		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001		06/01/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	110	U	590	U	1100	U	210	U	530	U	530	U	1100	U	1500	U
Acenaphthylene	ug/kg	220	U	1200	U	2300	U	420	U	1100	U	1100	U	2300	U	2900	U
Anthracene	ug/kg	11	U	44	J	140		17	J	31	J	56		160		96	J
Benzo(a)anthracene	ug/kg	5.1	J	270		1400		150		190		120		1900	J	740	
Benzo(a)pyrene	ug/kg	13		670		3600	J	390	J	590		410		5900	J	2000	J
Benzo(b)fluoranthene	ug/kg	8.8	J	420		2300		250		390		340		3600	J	1400	
Benzo(g,h,i)perylene	ug/kg	22	U	580		3200	J	380		470		400		5600	J	1800	
Benzo(k)fluoranthene	ug/kg	11	U	260		1200		140	J	220		140		2200	J	770	
Chrysene	ug/kg	11	J	370		1900	J	200		330		280		2700	J	1000	
Dibenz(a,h)anthracene	ug/kg	22	UJ	120	UJ	230	UJ	370	J	110	UJ	110	UJ	4900	J	290	UJ
Fluoranthene	ug/kg	30		1300		6900	J	760	J	1200		920		8100	J	3900	JJ
Fluorene	ug/kg	22	U	120	U	230	U	42	U	110	U	110	U	230	U	290	U
Indeno(1,2,3-cd)pyrene	ug/kg	14		620		3000	J	350		450		380		5500	J	1700	
Naphthalene	ug/kg	110	U	590	U	1100	U	210	U	530	U	530	U	1100	U	1500	U
Phenanthrene	ug/kg	8.1	J	320		1300		150		310		190		1200	J	660	
Pyrene	ug/kg	26		1000	J	5400	J	580	J	890	J	610		6600	J	3700	J
BaP equivalency	ug/kg	27		860		4400		840		750		550		12000	J	2500	
Cyanide (EPA 9014)																	
Cyanide	mg/kg							0.526	U								
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.086	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg							10.5	U								
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg							2.66									
Barium	mg/kg							53.8									
Beryllium	mg/kg							1.05	U								
Cadmium	mg/kg							0.526	U								
Chromium	mg/kg							31									
Cobalt	mg/kg							6.65									
Copper	mg/kg							16.4									
Lead	mg/kg							14.5									
Molybdenum	mg/kg							5.26	U								
Nickel	mg/kg							28.9									
Selenium	mg/kg							1.05	U								
Silver	mg/kg							1.05	U								
Thallium	mg/kg							2.11	U								
Vanadium	mg/kg							22.3	J								
Zinc	mg/kg							53	J								

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-145		OU5-145		OU5-145		OU5-146		OU5-146		OU5-146		OU5-147		OU5-147	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0	
Sample ID		181-611		181-612		181-613		181-614		181-615		181-616		181-617		181-618	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	26	U	27	U	28	U	26	U	26	U	27	U	15	J	26	U
Acenaphthylene	ug/kg	26	U	61		28	U	26	U	26	U	130		24	J	78	
Anthracene	ug/kg	26	U	27	J	28	U	26	U	26	U	42		42		61	
Benzo(a)anthracene	ug/kg	57		180		48		18	J	37		370		140		310	
Benzo(a)pyrene	ug/kg	87		340		72		20	J	65		683		230		480	
Benzo(b)fluoranthene	ug/kg	100		340		72		26		66		707		270		544	
Benzo(g,h,i)perylene	ug/kg	75		280		48		14	J	44		470		130		280	
Benzo(k)fluoranthene	ug/kg	43		160		41		21	J	44		290		130		240	
Chrysene	ug/kg	46	J	150	J	38	J	14	J	39	J	270	J	130	J	240	J
Dibenz(a,h)anthracene	ug/kg	26	U	25	J	28	U	26	U	26	U	43		26	U	30	
Fluoranthene	ug/kg	130		310		100		22	J	63		721		370		640	
Fluorene	ug/kg	26	U	27	U	28	U	26	U	26	U	27	U	26	U	26	U
Indeno(1,2,3-cd)pyrene	ug/kg	62		210		42		12	J	36		370		120		250	
Naphthalene	ug/kg	26	U	14	J	28	U	26	U	26	U	24	J	26	U	18	J
Phenanthrene	ug/kg	57		73		51		26	U	16	J	180		230		260	
Pyrene	ug/kg	200	J	390	J	160	J	41	J	110	J	747	J	480	J	670	J
BaP equivalency	ug/kg	120		440		100		39		92		870		300		620	
Cyanide (EPA 9014)																	
Cyanide	mg/kg													2.6	U		
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.26		Not Analyzed	
Antimony	mg/kg													5.2	U		
Arsenic	mg/kg													5.5			
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg													47.6			
Beryllium	mg/kg													0.37	J		
Cadmium	mg/kg													0.4			
Chromium	mg/kg													24.1	J		
Cobalt	mg/kg													9.6	J		
Copper	mg/kg													62.2			
Lead	mg/kg													22.2			
Molybdenum	mg/kg													0.21	U		
Nickel	mg/kg													23.7	J		
Selenium	mg/kg													0.39	J		
Silver	mg/kg													0.52	U		
Thallium	mg/kg													0.52	U		
Vanadium	mg/kg													25.9			
Zinc	mg/kg													153	J		

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-147		OU5-147		OU5-147		OU5-148		OU5-148		OU5-148		OU5-148		OU5-149	
Sample Depth (ft)		2.0-4.0		2.0-4.0 DUP		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5	
Sample ID		181-619		181-633D		181-620		181-621		181-622		181-623		181-624		181-625	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	28	U	29	U	29	U	130		28	U	35	U	22	J	27	U
Acenaphthylene	ug/kg	140		190		29	U	668		180		32	J	35	U	27	U
Anthracene	ug/kg	33		84		29	U	673		68		22	J	19	J	27	U
Benzo(a)anthracene	ug/kg	260		420		35		3,110		400		160		84		69	
Benzo(a)pyrene	ug/kg	582		781		56		4,360		733		270		160		110	
Benzo(b)fluoranthene	ug/kg	520		701		49		4,770		782		270		170		120	
Benzo(g,h,i)perylene	ug/kg	603		1,010	J	51		2,030		540		190		110		78	
Benzo(k)fluoranthene	ug/kg	230		220	J	28	J	1,230		310		140		86		49	
Chrysene	ug/kg	220	J	450		30	J	2,030	J	390	J	160	J	74	J	56	J
Dibenz(a,h)anthracene	ug/kg	83		120	J	29	U	822		28	U	32	J	17	J	12	J
Fluoranthene	ug/kg	450		2,050		72		7,470		729		300		160		170	
Fluorene	ug/kg	28	U	29	U	29	U	170		28	U	35	U	35	U	27	U
Indeno(1,2,3-cd)pyrene	ug/kg	450		684	J	39		1,750		420		170		96		66	
Naphthalene	ug/kg	24	J	45		29	U	110		45		35	U	200		27	U
Phenanthrene	ug/kg	90		140		15	J	4040		220		68		52		59	
Pyrene	ug/kg	520	J	962		110	J	6,450	J	572	J	350	J	280	J	220	J
BaP equivalency	ug/kg	790		1,100		83		6,200		910		360		210		150	
Cyanide (EPA 9014)																	
Cyanide	mg/kg							2.7	U	2.8	U	3.5	U	3.5	U		
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		0.11	J	0.12	J	0.19	J	0.13	J	Not Analyzed	
Antimony	mg/kg							5.3	U	5.5	U	7	U	6.9	U		
Arsenic	mg/kg							3.4		3.8		3.9		3.2			
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg							79.9		110		63.6		66.7			
Beryllium	mg/kg							0.21	U	0.22	U	0.28	U	0.28	U		
Cadmium	mg/kg							0.24		0.31		0.064	J	0.14	J		
Chromium	mg/kg							38.6	J	45.6	J	69.4	J	64.9	J		
Cobalt	mg/kg							8.8	J	9.5	J	10.7	J	12.8	J		
Copper	mg/kg							22.5		25.3		33.5		21.1			
Lead	mg/kg							37.6		39.3		17.5		13.1			
Molybdenum	mg/kg							0.21	U	0.22	U	0.28	U	0.28	U		
Nickel	mg/kg							37.2	J	40.4	J	55.5	J	69.1	J		
Selenium	mg/kg							0.45	J	0.43	J	0.7	U	0.65	J		
Silver	mg/kg							0.53	U	0.55	U	0.7	U	0.69	U		
Thallium	mg/kg							0.53	U	0.55	U	0.7	U	0.69	U		
Vanadium	mg/kg							34.6		39.9		52.3		46.0			
Zinc	mg/kg							57.8	J	70.0	J	61.1	J	68.1	J		

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-149		OU5-149		OU5-150		OU5-150		OU5-150		OU5-150		OU5-150		OU5-151	
Sample Depth (ft)		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		4.0-8.0 DUP		0.0-0.5	
Sample ID		181-626		181-627		181-628		181-629		181-630		181-631		181-632		181-633	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	28	U	28	U	26	U	28	U	28	U	33	U	30	U	120	U
Acenaphthylene	ug/kg	77		29		26	U	58		200		33	U	30	U	240	U
Anthracene	ug/kg	35		15	J	26	U	37		140		17	J	17	J	12	U
Benzo(a)anthracene	ug/kg	190		100		26	U	220		390		66		94		4	J
Benzo(a)pyrene	ug/kg	370		210		14	J	380		673		99		120		9.3	J
Benzo(b)fluoranthene	ug/kg	420		210		21	J	390		738		99		130		6.9	J
Benzo(g,h,i)perylene	ug/kg	280		130		11	J	260		470		150	J	120	J	10	J
Benzo(k)fluoranthene	ug/kg	180		110		26	U	220		290		36	J	39	J	3.4	J
Chrysene	ug/kg	160	J	99	J	26	U	180	J	310	J	58		84		6.1	J
Dibenz(a,h)anthracene	ug/kg	44		22	J	26	U	41		83		24	J	23	J	2.3	J
Fluoranthene	ug/kg	360		190		21	J	460		953		300		470		23	J
Fluorene	ug/kg	28	U	28	U	26	U	28	U	59		33	U	30	U	24	U
Indeno(1,2,3-cd)pyrene	ug/kg	230		110		10	J	220		380		98	J	90	J	10	J
Naphthalene	ug/kg	20	J	28	U	26	U	21	J	89		22	J	30	U	120	U
Phenanthrene	ug/kg	110		54		26	U	160		804		42		37		6.2	J
Pyrene	ug/kg	410	J	270	J	28	J	500	J	877	J	180	J	210		24	
BaP equivalency	ug/kg	500		280		32	J	510		910		150		170		14	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg					2.6	U									0.598	U
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.11	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		0.03	J
Antimony	mg/kg					5.3	U									12	U
Arsenic	mg/kg					1.5											
Arsenic (EPA 7060A)	mg/kg															1.39	
Barium	mg/kg					21.4										45.1	
Beryllium	mg/kg					0.21	U									0.141	J
Cadmium	mg/kg					0.058	J									0.598	U
Chromium	mg/kg					24.2	J									20.7	
Cobalt	mg/kg					16.9	J									4.61	
Copper	mg/kg					54.4										5.47	
Lead	mg/kg					5.4										5.61	J
Molybdenum	mg/kg					0.21	U									5.98	U
Nickel	mg/kg					29.3	J									26.2	
Selenium	mg/kg					0.22	J									1.2	U
Silver	mg/kg					0.53	U									1.2	U
Thallium	mg/kg					0.53	U									2.39	U
Vanadium	mg/kg					20.5										13.1	
Zinc	mg/kg					43.0	J									19.2	

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-151		OU5-151		OU5-151		OU5-152		OU5-152		OU5-152		OU5-153		OU5-153	
Sample Depth (ft)		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0	
Sample ID		181-634		181-635		181-636		181-637		181-638		181-639		181-640		181-641	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	600	U	150	U	120	U	540	U	110	U	130	U	100	U	100	U
Acenaphthylene	ug/kg	1200	U	310	U	240	U	1100	U	210	U	260	U	210	U	210	U
Anthracene	ug/kg	180		15	U	5	J	54	U	17		4.5	UJ	5.4	J	10	U
Benzo(a)anthracene	ug/kg	330		25		64		95		120	J	46		54	J	23	
Benzo(a)pyrene	ug/kg	550		93		180	J	220		270	J	130		140		67	
Benzo(b)fluoranthene	ug/kg	330		78		130		140		210	J	80		98	J	42	
Benzo(g,h,i)perylene	ug/kg	400		110		220		190		270	J	110		130	J	60	
Benzo(k)fluoranthene	ug/kg	210		43		75		84		120	J	48		49	J	24	
Chrysene	ug/kg	420		45		97		130		160	J	68		80	J	35	
Dibenz(a,h)anthracene	ug/kg	390		94		210	U	160		220	J	120		210	U	21	U
Fluoranthene	ug/kg	1700	J	140		310		490		620	J	230		210		120	
Fluorene	ug/kg	120	U	31	U	24	U	110	U	21	UJ	26	U	210	U	21	U
Indeno(1,2,3-cd)pyrene	ug/kg	400		100		180	J	210		260	J	110		130		56	
Naphthalene	ug/kg	600	U	150	U	120	U	540	U	110	J	130	U	100	U	100	U
Phenanthrene	ug/kg	790		25	J	47		100	J	140	J	38		42	J	22	
Pyrene	ug/kg	1100	J	140		210	J	410		450	J	180	J	320	J	94	
BaP equivalency	ug/kg	1000		210		320		430		550	J	270		270		90	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-153		OU5-153		OU5-154		OU5-154		OU5-154		OU5-154		OU5-155		OU5-155	
Sample Depth (ft)		0.5-2.0 DUP		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0	
Sample ID		181-643		181-642		181-644		181-645		181-646		181-647		181-648		181-649	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	100	U	120	U	1100	U	110	U	110	U	1300	U	100	U	110	U
Acenaphthylene	ug/kg	210	U	230	U	2200	U	210	U	220	U	2600	U	210	U	220	U
Anthracene	ug/kg	10	U	12	U	110	U	11	U	11	U	130	U	10	U	11	U
Benzo(a)anthracene	ug/kg	26		2.6	J	320		71		2.4	J	840		6.9	J	22	
Benzo(a)pyrene	ug/kg	76		5.6	J	730		190	J	3	J	1600	J	11		66	
Benzo(b)fluoranthene	ug/kg	47		5.1	J	450		160		4.3	J	1400		9.3	J	42	
Benzo(g,h,i)perylene	ug/kg	66		7.7	J	700		130		7.9	J	1900		12	J	59	
Benzo(k)fluoranthene	ug/kg	28		2.7	J	280		110		2.5	J	710		5.4	J	25	
Chrysene	ug/kg	39		4.2	J	430		150	J	4	J	1100	J	10	J	36	
Dibenz(a,h)anthracene	ug/kg	70		4.2	J	590		21	U	22	U	1900		21	U	22	U
Fluoranthene	ug/kg	120		9	J	1700		390	J	17	J	4100	J	44		98	
Fluorene	ug/kg	21	U	23	U	220	U	21	U	22	U	260	U	21	U	22	U
Indeno(1,2,3-cd)pyrene	ug/kg	66		7.2	J	680		180	J	6.5	J	1500	J	11		56	
Naphthalene	ug/kg	100	U	120	U	1100	U	110	U	110	U	1300	U	100	U	110	U
Phenanthrene	ug/kg	24		3.1	J	270		72		22	U	280		9.6	J	17	J
Pyrene	ug/kg	100		6.8	J	1200		190	J	9.9	J	3300		32		78	
BaP equivalency	ug/kg	160		11	J	1500		240		15	J	3900		24		89	
Cyanide (EPA 9014)																	
Cyanide	mg/kg					0.541	U	0.527	U	0.548	U	0.649	U	0.519	U		
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.12		0.041	J	0.11	U	0.039	J	0.346		Not Analyzed	
Antimony	mg/kg					10.8	U	10.5	U	11	U	13	U	10.4	U		
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg					2.55	J	2.39	J	1.6	J	2.68	J	8.19	J		
Barium	mg/kg					42.5		54.2		36.9		44.6		35			
Beryllium	mg/kg					0.111	J	0.184	J	0.139	J	0.191	J	0.236	J		
Cadmium	mg/kg					0.541	U	0.527	U	0.548	U	0.649	U	0.322	J		
Chromium	mg/kg					41.5		28.5		28		41.5		2.46			
Cobalt	mg/kg					13.3		6.17		4.43		5.92		5.82			
Copper	mg/kg					52.7		13.1		4.96		13.4		39.7			
Lead	mg/kg					14.9		16	J	4.65	J	11.9	J	9.98	J		
Molybdenum	mg/kg					5.41	U	5.27	U	5.19	U	6.49	U	5.19	U		
Nickel	mg/kg					37.4		30.2		27.2		39		4.02			
Selenium	mg/kg					1.08	U	1.05	U	1.1	U	1.3	U	1.04	U		
Silver	mg/kg					1.08	U	1.05	U	1.1	U	1.3	U	1.04	U		
Thallium	mg/kg					2.16	U	0.68	J	2.19	U	0.812	J	1.46	J		
Vanadium	mg/kg					22.9		20.2		15		25.4		16.2			
Zinc	mg/kg					53.3		31.5		15.3		31.6		168			

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-155		OU5-155		OU5-156		OU5-156		OU5-156		OU5-156		OU5-157		OU5-157	
Sample Depth (ft)		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.5-2.0	
Sample ID		181-650		181-651		181-652		181-653		181-654		181-655		181-656		181-657	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	530	U	110	U	52	U	26	U	26	U	26	U	110	U	110	U
Acenaphthylene	ug/kg	1100	U	230	U	52	U	26	U	26	U	26	U	210	U	220	U
Anthracene	ug/kg	53	U	11	U	52	U	26	U	26	U	26	U	11	U	11	U
Benzo(a)anthracene	ug/kg	120		14		92		51		26	U	26	U	62		45	
Benzo(a)pyrene	ug/kg	240		33		150		86		26	U	26	U	180	J	120	
Benzo(b)fluoranthene	ug/kg	150		25		160		87		26	U	26	U	120		72	
Benzo(g,h,i)perylene	ug/kg	210		36		83		82		26	U	26	U	170		98	
Benzo(k)fluoranthene	ug/kg	92		16		110		45		26	U	26	U	64		44	
Chrysene	ug/kg	200		21		89	J	44	J	26	UJ	26	UJ	86	J	62	J
Dibenz(a,h)anthracene	ug/kg	110	U	23	U	52	U	26	U	26	U	26	U	140		120	
Fluoranthene	ug/kg	940		72		210		110		26	U	26	U	320	J	210	
Fluorene	ug/kg	110	U	23	U	52	U	26	U	26	U	26	U	21	U	22	U
Indeno(1,2,3-cd)pyrene	ug/kg	190		32		71		64		26	U	26	U	170	J	100	
Naphthalene	ug/kg	530	U	110	U	52	U	26	U	26	U	26	U	110	U	110	U
Phenanthrene	ug/kg	300		15	J	100		34		26	U	26	U	72		44	
Pyrene	ug/kg	560		66		330	J	160	J	12	J	26	UJ	270	J	180	J
BaP equivalency	ug/kg	340		52		210		120		30	U	30	U	360		260	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-157		OU5-158		OU5-158		OU5-158		OU5-158		OU5-159		OU5-159		OU5-159	
Sample Depth (ft)		2.0-4.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-658		181-659		181-660		181-661		181-662		181-663		181-664		181-665	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	550	U	27	U	26	U	27	U	35	U	52	U	27	U	31	U
Acenaphthylene	ug/kg	1100	U	27	U	26	U	27	U	35	U	52	U	27	U	31	U
Anthracene	ug/kg	55	U	27	U	26	U	27	U	35	U	52	U	27	U	31	U
Benzo(a)anthracene	ug/kg	98		41		26	U	27	U	47		52	U	21	J	31	U
Benzo(a)pyrene	ug/kg	290		60		26	U	27	U	110		52	U	30		15	J
Benzo(b)fluoranthene	ug/kg	160		69		26	U	27	U	97		52	U	29		31	U
Benzo(g,h,i)perylene	ug/kg	240		50		26	U	27	U	110		52	U	31		16	J
Benzo(k)fluoranthene	ug/kg	77		37		26	U	27	U	48		52	U	19	J	31	U
Chrysene	ug/kg	140	J	36	J	26	UJ	27	UJ	49	J	52	UJ	22	J	31	UJ
Dibenz(a,h)anthracene	ug/kg	110	U	27	U	26	U	27	U	35	U	52	U	27	U	31	U
Fluoranthene	ug/kg	460		96		26	U	27	U	120		52	U	35		31	U
Fluorene	ug/kg	110	U	27	U	26	U	27	U	35	U	52	U	27	U	31	U
Indeno(1,2,3-cd)pyrene	ug/kg	230		42		26	U	27	U	81		52	U	23	J	11	J
Naphthalene	ug/kg	550	U	27	U	26	U	27	U	35	U	52	U	27	U	31	U
Phenanthrene	ug/kg	76	J	42		26	U	27	U	21	J	52	U	27	U	31	U
Pyrene	ug/kg	360	J	140	J	26	UJ	27	UJ	290	J	52	UJ	57	J	24	J
BaP equivalency	ug/kg	390		89		30	U	31	U	150		60	U	51		35	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg			2.7	U												
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		0.077	J	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg			0.26	J												
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg			2.8													
Barium	mg/kg			87													
Beryllium	mg/kg			0.21	U												
Cadmium	mg/kg			0.33													
Chromium	mg/kg			35.6													
Cobalt	mg/kg			7.9													
Copper	mg/kg			20.3													
Lead	mg/kg			35.9													
Molybdenum	mg/kg			0.21	U												
Nickel	mg/kg			30.9													
Selenium	mg/kg			0.45	J												
Silver	mg/kg			0.53	U												
Thallium	mg/kg			0.53	U												
Vanadium	mg/kg			30.9													
Zinc	mg/kg			83.5													

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-159		OU5-160		OU5-160		OU5-160		OU5-160		OU5-161		OU5-161		OU5-161	
Sample Depth (ft)		2.0-4.0 DUP		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		181-666		181-667		181-668		181-669		181-670		181-671		181-672		181-673	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	29	U	52	U	27	U	33	U	35	U	27	U	27	U	32	U
Acenaphthylene	ug/kg	29	U	52	U	22	J	33	U	35	U	27	U	27	U	32	U
Anthracene	ug/kg	29	U	52	U	18	J	33	U	35	U	27	U	27	U	32	U
Benzo(a)anthracene	ug/kg	29	U	52	U	92		33	U	55		27	U	23	J	32	U
Benzo(a)pyrene	ug/kg	29	U	52	U	150		19	J	98		27	U	28		21	J
Benzo(b)fluoranthene	ug/kg	29	U	52	U	150		23	J	89		27	U	31		20	J
Benzo(g,h,i)perylene	ug/kg	10	J	52	U	130		20	J	90		13	J	44		22	J
Benzo(k)fluoranthene	ug/kg	29	U	52	U	82		33	U	54		27	U	19	J	32	U
Chrysene	ug/kg	29	UJ	52	UJ	99	J	33	UJ	53	J	27	UJ	22	J	32	UJ
Dibenz(a,h)anthracene	ug/kg	29	U	52	U	21	J	33	U	35	U	27	U	27	U	32	U
Fluoranthene	ug/kg	29	U	52	U	180		22	J	130		27	U	28		25	J
Fluorene	ug/kg	29	U	52	U	27	U	33	U	35	U	27	U	27	U	32	U
Indeno(1,2,3-cd)pyrene	ug/kg	29	U	52	U	100		14	J	70		27	U	30		16	J
Naphthalene	ug/kg	29	U	52	U	27	U	33	U	35	U	27	U	27	U	32	U
Phenanthrene	ug/kg	29	U	52	U	70		33	U	36		27	U	27	U	32	U
Pyrene	ug/kg	17	J	52	UJ	300	J	29	J	250	J	14	J	40	J	37	J
BaP equivalency	ug/kg	34	U	60	U	210		41	J	140		31	U	50		42	J
Cyanide (EPA 9014)																	
Cyanide	mg/kg					2.7	U	3.3	U	3.5	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		0.091	J	0.056	J	0.098	J	Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg					5.4	U	6.5	U	6.9	U						
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg					3.4		1.9		2.1							
Barium	mg/kg					40.2		36.7		55.3							
Beryllium	mg/kg					0.22	U	0.26	U	0.28	U						
Cadmium	mg/kg					0.17	J	0.086	J	0.071	J						
Chromium	mg/kg					21.1		33.6		38.6							
Cobalt	mg/kg					6.6		6.9		6.4							
Copper	mg/kg					25.8		8		11.7							
Lead	mg/kg					9.2		7		8.8							
Molybdenum	mg/kg					0.22	U	0.26	U	0.28	U						
Nickel	mg/kg					18.9		39.4		32.8							
Selenium	mg/kg					0.39	J	0.34	J	0.44	J						
Silver	mg/kg					0.54	U	0.65	U	0.69	U						
Thallium	mg/kg					0.54	U	0.65	U	0.69	U						
Vanadium	mg/kg					20.7		25		28.6							
Zinc	mg/kg					80.9		25.4		37.9							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-162		OU5-162		OU5-162		OU5-162		OU5-163		OU5-163		OU5-163		OU5-163	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP	
Sample ID		181-674		181-675		181-676		181-677		181-678		181-679		181-680		181-682	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	26	U	26	U	27	U	34	U	26	U	26	U	28	U	27	U
Acenaphthylene	ug/kg	26	U	26	U	27	U	34	U	26	U	26	U	28	U	27	U
Anthracene	ug/kg	26	U	26	U	27	U	34	U	26	U	26	U	28	U	27	U
Benzo(a)anthracene	ug/kg	42		26	U	27	U	92		43		26	U	28	U	27	U
Benzo(a)pyrene	ug/kg	63		17	J	27	U	180		54		26	U	28	U	27	U
Benzo(b)fluoranthene	ug/kg	64		18	J	27	U	180		57		26	U	28	U	27	U
Benzo(g,h,i)perylene	ug/kg	64		23	J	27	UJ	210	J	62	J	26	UJ	28	UJ	27	UJ
Benzo(k)fluoranthene	ug/kg	37		26	UJ	27	UJ	53	J	18	J	26	UJ	28	UJ	27	UJ
Chrysene	ug/kg	33	J	26	U	27	U	95		39		26	U	28	U	27	U
Dibenz(a,h)anthracene	ug/kg	26	U	26	UJ	27	UJ	24	J	9	J	26	UJ	28	UJ	27	UJ
Fluoranthene	ug/kg	89		58		27	U	580		310		26	U	28	U	27	U
Fluorene	ug/kg	26	U	26	U	27	U	34	U	26	U	26	U	28	U	27	U
Indeno(1,2,3-cd)pyrene	ug/kg	49		16	J	27	UJ	150	J	44	J	26	UJ	28	UJ	27	UJ
Naphthalene	ug/kg	26	U	26	U	27	U	34	U	26	U	26	U	28	U	27	U
Phenanthrene	ug/kg	37		26	U	27	U	46		49		26	U	28	U	27	U
Pyrene	ug/kg	150	J	31		27	U	390		110		26	U	28	U	27	U
BaP equivalency	ug/kg	92		35	J	31	U	250		78		30	U	32	U	31	U
Cyanide (EPA 9014)																	
Cyanide	mg/kg	2.6	U	2.6	U	2.7	U	3.4	U	2.6	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.13	J	0.06	J	0.022	J	0.082	J	0.071	J	Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	5.3	U	0.16	J	5.4	U	6.8	U	5.2	U						
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	3.5		1.7		1.5		3.2		2.4							
Barium	mg/kg	86.7		30.3		22.3		57.4		58							
Beryllium	mg/kg	0.21	U	0.21	U	0.21	U	0.27	U	0.21	U						
Cadmium	mg/kg	0.43		0.037	U	0.08	J	0.08	J	0.1	J						
Chromium	mg/kg	43.3		33.9		40.1		62.6		38.5							
Cobalt	mg/kg	8.5		5.3		5.7		10.1		7							
Copper	mg/kg	22.9		6.8		6.2		19.7		14.4							
Lead	mg/kg	20.8		7.8		9.3		18.4		21.9							
Molybdenum	mg/kg	0.21	U	0.21	U	0.21	U	0.27	U	0.21	U						
Nickel	mg/kg	39.2		28.4		30.3		59.7		36.6							
Selenium	mg/kg	0.48	J	0.2	J	0.33	J	0.72		0.53							
Silver	mg/kg	0.77		0.51	U	0.54	U	0.68	U	0.52	U						
Thallium	mg/kg	0.53	U	0.51	U	0.54	U	0.68	U	0.52	U						
Vanadium	mg/kg	31.9		24		28.2		43		28							
Zinc	mg/kg	62.5		20.9		20.2		49.9		39.1							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-163		OU5-164		OU5-164		OU5-164		OU5-165		OU5-165		OU5-165		OU5-165	
Sample Depth (ft)		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-0.5		0.5-2.0		0.5-2.0 DUP		2.0-4.0	
Sample ID		181-681		181-683		181-684		181-685		181-686		181-687		181-688		181-689	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	38	U	26	U	26	U	26	U	19	J	26	U	26	U	28	U
Acenaphthylene	ug/kg	38	U	28		26	U	26	U	61		26	U	26	U	28	U
Anthracene	ug/kg	38	U	32		26	U	26	U	73		26	U	26	U	28	U
Benzo(a)anthracene	ug/kg	89		170		17	J	26	U	380		27		26	U	28	U
Benzo(a)pyrene	ug/kg	200		230		15	J	26	U	510		30		26	U	28	U
Benzo(b)fluoranthene	ug/kg	200		260		15	J	26	U	530		32		26	U	28	U
Benzo(g,h,i)perylene	ug/kg	240	J	260	J	16	J	26	UJ	632	J	38	J	26	UJ	28	UJ
Benzo(k)fluoranthene	ug/kg	57	J	64	J	26	UJ	26	UJ	140	J	26	UJ	26	UJ	28	UJ
Chrysene	ug/kg	89		150		26	U	26	U	310		16	J	26	U	28	U
Dibenz(a,h)anthracene	ug/kg	25	J	38	J	26	UJ	26	UJ	93	J	26	UJ	26	UJ	28	UJ
Fluoranthene	ug/kg	610		1360		72		26	U	1380		86		26	U	28	U
Fluorene	ug/kg	38	U	26	U	26	U	26	U	13	J	26	U	26	U	28	U
Indeno(1,2,3-cd)pyrene	ug/kg	160	J	190	J	11	J	26	UJ	450	J	27	J	26	UJ	28	UJ
Naphthalene	ug/kg	38	U	26	U	26	U	26	U	18	J	26	U	26	U	28	U
Phenanthrene	ug/kg	50		190		26	J	26	U	390		18	J	26	U	28	U
Pyrene	ug/kg	430		440		33		26	U	881		53		26	U	28	U
BaP equivalency	ug/kg	270		330		32		30	U	740		52		30	U	32	U
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-166		OU5-166		OU5-166		OU5-166		OU5-167		OU5-167		OU5-167		OU5-167	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0	
Sample ID		181-690		181-691		181-692		181-693		181-694		181-695		181-696		181-697	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001		06/04/2001	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	550	U	110	U	120	U	120	U	520	U	110	U	130	U	310	U
Acenaphthylene	ug/kg	1100	U	220	U	250	U	240	U	1000	U	210	U	270	U	610	U
Anthracene	ug/kg	55	U	11	U	12	U	12	U	52	U	38		13	U	20	J
Benzo(a)anthracene	ug/kg	1100	J	3.3	J	8.6	J	46		200		79		6.1	J	57	
Benzo(a)pyrene	ug/kg	2000	J	6.5	J	14		110		470		120		44		220	
Benzo(b)fluoranthene	ug/kg	1200		5.1	J	12	J	70		300		98		30		150	
Benzo(g,h,i)perylene	ug/kg	1500	J	11	J	14	J	110		440		130		42		210	
Benzo(k)fluoranthene	ug/kg	760		2.4	J	9	J	41		180		56		15		92	
Chrysene	ug/kg	1200	J	4.6	J	13		66		230		110		11	J	88	
Dibenz(a,h)anthracene	ug/kg	110	U	22	U	25	U	24	U	100	U	21	U	27	U	61	U
Fluoranthene	ug/kg	7000	J	20	J	54		250		1100		570	J	34		350	
Fluorene	ug/kg	94	J	22	U	25	U	24	U	100	U	15	J	27	U	61	U
Indeno(1,2,3-cd)pyrene	ug/kg	1500	J	7	J	16		110		450		120		36		200	
Naphthalene	ug/kg	550	U	110	U	120	U	120	U	520	U	110	U	130	U	310	U
Phenanthrene	ug/kg	2800	J	6	J	18	J	65		330		270	J	10	J	150	
Pyrene	ug/kg	4800	J	13	J	35		180	J	830	J	360	J	32		420	J
BaP equivalency	ug/kg	2400		19	J	30		150		620		160		65		290	
Cyanide (EPA 9014)																	
Cyanide	mg/kg	0.546	U	0.548	U	0.617	U	0.591	U	0.524	U						
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	0.116		0.11	U	0.055	J	0.061	J	0.11		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg	0.5	U	11	U	12.3	U	11.8	U	10.5	U						
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg	2.15		1.56		3.01		1.91	J	2.78							
Barium	mg/kg	71.3		18.9		42.2		28.4		60							
Beryllium	mg/kg	0.239	J	0.112	J	0.201	J	0.164	J	0.207	J						
Cadmium	mg/kg	0.546	U	0.548	U	0.617	U	0.591	U	0.524	U						
Chromium	mg/kg	35.5		33.7		47.8		34		31.7							
Cobalt	mg/kg	6.96		4.46		5.13		5.41		6.03							
Copper	mg/kg	16.1		4.9		12.4		6.83		16							
Lead	mg/kg	26.7		2.95		9.93		4.59		21.8							
Molybdenum	mg/kg	5.0	U	5.48	U	6.17	U	5.91	U	5.0	U						
Nickel	mg/kg	33.9		28.7		36.2		35.4		30.4							
Selenium	mg/kg	1.09	U	1.1	U	1.23	U	1.18	U	1.05	U						
Silver	mg/kg	1.09	U	1.1	U	1.23	U	1.18	U	1.05	U						
Thallium	mg/kg	0.841	J	2.19	U	2.47	U	2.36	U	0.849	J						
Vanadium	mg/kg	26.6		19.5		32.2		19.7		23.1							
Zinc	mg/kg	58.6		20.5		31.4		21.6		55							

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-168		OU5-168		OU5-168		OU5-168		OU5-169		OU5-170		OU5-171		OU5-172	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		2.0-4.0 DUP		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
Sample ID		181-698		181-699		181-700		181-701		181-809		181-810		181-811		180-0005	
Sample Collection Date		06/04/2001		06/04/2001		06/04/2001		06/04/2001		09/26/2001		09/26/2001		09/26/2001		10/13/01	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	110	U	110	U	120	U	110	U	560	U	110	U	120	U	120	U
Acenaphthylene	ug/kg	220	U	210	U	230	U	220	U	1100	U	230	U	230	U	240	U
Anthracene	ug/kg	11	U	11	U	72		11	U	270		45		49		12	U
Benzo(a)anthracene	ug/kg	120		27		220	J	32		670		180		170		12	J
Benzo(a)pyrene	ug/kg	300	J	88		390	J	52		1500		510		460		17	
Benzo(b)fluoranthene	ug/kg	200		56		240		38		970		220		240		33	
Benzo(g,h,i)perylene	ug/kg	290		100		300	J	43		1200		460		500		28	
Benzo(k)fluoranthene	ug/kg	110		31		140		24		480		100		120		12	U
Chrysene	ug/kg	160	J	43		330	J	53		770		240		210		21	
Dibenz(a,h)anthracene	ug/kg	22	U	21	U	300		22	U	920		240		280		24	U
Fluoranthene	ug/kg	620	J	120		1500	J	220		3600		970		850		72	
Fluorene	ug/kg	22	U	21	U	23	U	22	U	110	U	23	U	23	U	24	U
Indeno(1,2,3-cd)pyrene	ug/kg	260	J	89		270		39		1200		440		450		30	
Naphthalene	ug/kg	110	U	110	U	120	U	110	U	560	U	110	U	120	U	120	U
Phenanthrene	ug/kg	140	J	19	J	300	J	56		850		220	J	210		21	J
Pyrene	ug/kg	450	J	90		970	J	140		2600		990		640		150	
BaP equivalency	ug/kg	370		120		760		74		**2,700**		**840**		**830**		**37**	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-172		OU5-173		OU5-173		OU5-173		OU5-173		OU5-174		OU5-174		OU5-174	
Sample Depth (ft)		0.5-2.0		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		180-0006		180-0004		180-0007		180-0010		180-0011		180-0008		180-0009		180-0012	
Sample Collection Date		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01	
Parameter	**Units**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	110	U	130	U	110	U	120	U	170	U	130	U	120	U	700	U
Acenaphthylene	ug/kg	56	J	270	U	230	U	250	U	130	J	250	U	230	U	1400	U
Anthracene	ug/kg	69	J	13	U	11	U	30		32		13	U	23	J	210	J
Benzo(a)anthracene	ug/kg	180	J	13	U	42		330		99		77		160	J	1700	J
Benzo(a)pyrene	ug/kg	160	J	3	J	86		520	J	400	J	330	J	510	J	4000	J
Benzo(b)fluoranthene	ug/kg	200	J	2.7	J	120		900		300		330		210	J	3500	J
Benzo(g,h,i)perylene	ug/kg	160	J	27	U	120		130		370		280		130	J	4700	J
Benzo(k)fluoranthene	ug/kg	100	J	13	U	37		92		100		150		93	J	1400	J
Chrysene	ug/kg	230	J	3	J	89		340		180		210		250	J	2400	J
Dibenz(a,h)anthracene	ug/kg	22	U	27	U	23	U	25	U	250		25	U	23	U	1400	U
Fluoranthene	ug/kg	610	J	27	U	200		230		540		350		520	J	7200	J
Fluorene	ug/kg	37	J	27	U	23	U	25	U	34	U	25	U	23	U	140	U
Indeno(1,2,3-cd)pyrene	ug/kg	130	J	4.2	J	86		260		360		290		120	J	5000	J
Naphthalene	ug/kg	110	U	130	U	110	U	120	U	170	U	130	U	120	U	710	U
Phenanthrene	ug/kg	240	J	27	U	55		160		90		100		99	J	800	J
Pyrene	ug/kg	440	J	4.7	J	260		360		470		359		420	J	5200	J
BaP equivalency	ug/kg	**220**		**18**		**120**		**680**		**730**		**410**		**570**		**5700**	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-175		OU5-176		OU5-177		OU5-177		OU5-177	
Sample Depth (ft)		0.0-0.5		0.0-0.5		0.0-0.5		0.5-2.0		2.0-4.0	
Sample ID		179-0015		179-0016		179-0021		179-0022		179-0023	
Sample Collection Date		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)											
Acenaphthene	ug/kg	110	U	1100	U	110	U	110	U	110	U
Acenaphthylene	ug/kg	210	U	2100	U	220	U	220	U	230	U
Anthracene	ug/kg	26		85	J	84	J	22		42	
Benzo(a)anthracene	ug/kg	110		360		320	J	83		110	
Benzo(a)pyrene	ug/kg	420	J	1100		870	J	260	J	270	J
Benzo(b)fluoranthene	ug/kg	230		680		490	J	130		130	
Benzo(g,h,i)perylene	ug/kg	370	J	1100		640	J	180		160	
Benzo(k)fluoranthene	ug/kg	68		240		240	J	65		68	
Chrysene	ug/kg	180		510		390	J	110		130	
Dibenz(a,h)anthracene	ug/kg	250		210	U	220	U	150		120	
Fluoranthene	ug/kg	760		1900		1900	J	510		660	
Fluorene	ug/kg	21	U	210	U	22	U	22	U	23	U
Indeno(1,2,3-cd)pyrene	ug/kg	330		1000		720	J	210		190	
Naphthalene	ug/kg	110	U	1100	U	110	U	110	U	110	U
Phenanthrene	ug/kg	110		350		360	J	96		140	
Pyrene	ug/kg	470		1400		1300	J	350		460	
BaP equivalency	ug/kg	**740**		**1400**		**1100**		**450**		**430**	
Cyanide (EPA 9014)											
Cyanide	mg/kg										
Metals (EPA 6010B/7471A)											
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg										
Arsenic	mg/kg										
Arsenic (EPA 7060A)	mg/kg										
Barium	mg/kg										
Beryllium	mg/kg										
Cadmium	mg/kg										
Chromium	mg/kg										
Cobalt	mg/kg										
Copper	mg/kg										
Lead	mg/kg										
Molybdenum	mg/kg										
Nickel	mg/kg										
Selenium	mg/kg										
Silver	mg/kg										
Thallium	mg/kg										
Vanadium	mg/kg										
Zinc	mg/kg										

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		OU5-178		OU5-178		OU5-178		OU5-178		OU5-179		OU5-179		OU5-179		OU5-180	
Sample Depth (ft)		0.0-0.5		0.5-2.0		2.0-4.0		4.0-8.0		0.0-0.5		0.5-2.0		2.0-4.0		0.0-1.0	
Sample ID		179-0024		179-0025		179-0026		179-0030		179-0027		179-0028		179-0029		179-0017	
Sample Collection Date		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01		10/13/01	
Parameter	Units	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
PNAs (EPA 8310)																	
Acenaphthene	ug/kg	110	U	110	U	130	U	160	U	120	U	110	U	110	U	110	U
Acenaphthylene	ug/kg	210	U	210	U	250	U	320	U	57	J	220	U	220	U	210	U
Anthracene	ug/kg	26		4.7	J	9.4	J	66		110	J	23		11		43	
Benzo(a)anthracene	ug/kg	110		20		25		120		350	J	82		33		140	
Benzo(a)pyrene	ug/kg	300	J	51		83		520	J	870	J	230	J	59		450	J
Benzo(b)fluoranthene	ug/kg	170		33		51		290		500	J	110		42		230	
Benzo(g,h,i)perylene	ug/kg	210		37		58		360		580	J	130		34		340	J
Benzo(k)fluoranthene	ug/kg	84		19		21		110		210	J	58		23		120	
Chrysene	ug/kg	150		27		35		180		450	J	110		44		220	
Dibenz(a,h)anthracene	ug/kg	160		21	U	47		350		230	U	110		22	U	250	
Fluoranthene	ug/kg	640		88		94		780		2000	J	470		150		840	
Fluorene	ug/kg	21	U	21	U	25	U	32	U	22	J	22	U	22	U	21	U
Indeno(1,2,3-cd)pyrene	ug/kg	240		41		63		380		620	J	140		37		330	
Naphthalene	ug/kg	110	U	110	U	130	U	160	U	120	U	110	U	110	U	110	U
Phenanthrene	ug/kg	210		18	J	27		160		660	J	100		36		190	
Pyrene	ug/kg	470		61	J	65	J	730		1400	J	340		87	J	580	
BaP equivalency	ug/kg	**510**		**71**		**140**		**950**		**1100**		**370**		**81**		**770**	
Cyanide (EPA 9014)																	
Cyanide	mg/kg																
Metals (EPA 6010B/7471A)																	
Mercury	mg/kg	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Antimony	mg/kg																
Arsenic	mg/kg																
Arsenic (EPA 7060A)	mg/kg																
Barium	mg/kg																
Beryllium	mg/kg																
Cadmium	mg/kg																
Chromium	mg/kg																
Cobalt	mg/kg																
Copper	mg/kg																
Lead	mg/kg																
Molybdenum	mg/kg																
Nickel	mg/kg																
Selenium	mg/kg																
Silver	mg/kg																
Thallium	mg/kg																
Vanadium	mg/kg																
Zinc	mg/kg																

Continue

Table D-1
Operable Unit 5 Soil Analytical Results

Sample Location		Decon Area		Decon Area	
Sample Depth (ft)		-		-	
Sample ID		181-702-R		181-706-R	
Sample Collection Date		06/04/2001		06/05/2001	
Parameter	Units	Result	Qual.	Result	Qual.
PNAs (EPA 8310)					
Acenaphthene	ug/L	5	U	5	U
Acenaphthylene	ug/L	2	U	2	U
Anthracene	ug/L	0.2	U	0.2	U
Benzo(a)anthracene	ug/L	0.2	U	0.2	U
Benzo(a)pyrene	ug/L	0.2	U	0.2	U
Benzo(b)fluoranthene	ug/L	0.2	U	0.2	U
Benzo(g,h,i)perylene	ug/L	0.2	U	0.2	U
Benzo(k)fluoranthene	ug/L	0.2	U	0.2	U
Chrysene	ug/L	0.2	U	0.2	U
Dibenz(a,h)anthracene	ug/L	0.5	U	0.5	U
Fluoranthene	ug/L	0.2	U	0.2	U
Fluorene	ug/L	1	U	1	U
Indeno(1,2,3-cd)pyrene	ug/L	0.2	U	0.2	U
Naphthalene	ug/L	5	U	5	U
Phenanthrene	ug/L	1	U	1	U
Pyrene	ug/L	0.2	U	0.2	U
BaP equivalency	ug/L	0.38	U	0.38	U
Cyanide (EPA 9014)					
Cyanide	mg/L	0.05	U	0.05	U
Metals (EPA 6010B/7471A)					
Mercury	ug/L	0.25	J	0.41	J
Antimony	ug/L	10	U	10	U
Arsenic	ug/L	5	U	5	U
Barium	ug/L	20.7		1.8	J
Beryllium	ug/L	2	U	2	U
Cadmium	ug/L	0.27	J	2	U
Chromium	ug/L	86.1		4.2	J
Cobalt	ug/L	0.64	J	5	U
Copper	ug/L	11.2		10	U
Lead	ug/L	2.2	J	6.3	
Molybdenum	ug/L	4.2	J	5	U
Nickel	ug/L	41.9		2.1	J
Selenium	ug/L	10	U	10	U
Silver	ug/L	10	U	10	U
Thallium	ug/L	10	U	10	U
Vanadium	ug/L	1.8	J	10	U
Zinc	ug/L	27.2		7.6	J