

London Borough of Richmond PAH Survey

Annual Mean B[a]P Concentration: **0.14** ng m⁻³

N.D = None detected

UKAS Analysis of USEPA-16 BY GC-MS

Apr-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC0405								ng m⁻³
	Naphthalene	03/05/2005	09:40	16/05/2005	10:20	255.89	72	0.28
	Acenaphthylene	03/05/2005	09:40	16/05/2005	10:20	255.89	11	0.04
	Acenaphthene	03/05/2005	09:40	16/05/2005	10:20	255.89	37	0.14
	Fluorene	03/05/2005	09:40	16/05/2005	10:20	255.89	120	0.47
	Phenanthrene	03/05/2005	09:40	16/05/2005	10:20	255.89	1100	4.30
	Anthracene	03/05/2005	09:40	16/05/2005	10:20	255.89	9.8	0.04
	Fluoranthene	03/05/2005	09:40	16/05/2005	10:20	255.89	400	1.56
	Pyrene	03/05/2005	09:40	16/05/2005	10:20	255.89	260	1.02
	Benz(a)anthracene	03/05/2005	09:40	16/05/2005	10:20	255.89	13	0.05
	Chrysene	03/05/2005	09:40	16/05/2005	10:20	255.89	27	0.11
	Benzo(b)fluoranthene	03/05/2005	09:40	16/05/2005	10:20	255.89	43	0.17
	Benzo(k)fluoranthene	03/05/2005	09:40	16/05/2005	10:20	255.89	11	0.04
	Benzo(a)pyrene	03/05/2005	09:40	16/05/2005	10:20	255.89	13	0.05
	Indeno(1,2,3-cd)pyrene	03/05/2005	09:40	16/05/2005	10:20	255.89	22	0.09
	Dibenz(a,h)anthracene	03/05/2005	09:40	16/05/2005	10:20	255.89	1.7	0.01
	Benzo(g,h,i)perylene	03/05/2005	09:40	16/05/2005	10:20	255.89	27	0.11
	Total PAH (ng m³)							8.47

May-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
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UKAS Analysis of USEPA-16 BY GC-MS

RIC0505								ng m-3
	Naphthalene	01/06/2005	11:00	14/06/2005	10:20	254.80	100	0.39
	Acenaphthylene	01/06/2005	11:00	14/06/2005	10:20	254.80	10	0.04
	Acenaphthene	01/06/2005	11:00	14/06/2005	10:20	254.80	31	0.12
	Fluorene	01/06/2005	11:00	14/06/2005	10:20	254.80	130	0.51
	Phenanthrene	01/06/2005	11:00	14/06/2005	10:20	254.80	1500	5.89
	Anthracene	01/06/2005	11:00	14/06/2005	10:20	254.80	59	0.23
	Fluoranthene	01/06/2005	11:00	14/06/2005	10:20	254.80	660	2.59
	Pyrene	01/06/2005	11:00	14/06/2005	10:20	254.80	440	1.73
	Benz(a)anthracene	01/06/2005	11:00	14/06/2005	10:20	254.80	15	0.06
	Chrysene	01/06/2005	11:00	14/06/2005	10:20	254.80	34	0.13
	Benzo(b)fluoranthene	01/06/2005	11:00	14/06/2005	10:20	254.80	43	0.17
	Benzo(k)fluoranthene	01/06/2005	11:00	14/06/2005	10:20	254.80	12	0.05
	Benzo(a)pyrene	01/06/2005	11:00	14/06/2005	10:20	254.80	13	0.05
	Indeno(1,2,3-cd)pyrene	01/06/2005	11:00	14/06/2005	10:20	254.80	22	0.09
	Dibenz(a,h)anthracene	01/06/2005	11:00	14/06/2005	10:20	254.80	2.9	0.01
	Benzo(g,h,i)perylene	01/06/2005	11:00	14/06/2005	10:20	254.80	37	0.15
	Total PAH (ng m3)							12.20

Jun-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC0605								ng m-3
	Naphthalene	05/07/2005	10:35	20/07/2005	10:00	294.15	90	0.31

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Annual Mean B[a]P Concentration: **0.14** ng m⁻³

N.D = None detected

UKAS Analysis of USEPA-16 BY GC-MS

	Acenaphthylene	05/07/2005	10:35	20/07/2005	10:00	294.15	5.7	0.02	
	Acenaphthene	05/07/2005	10:35	20/07/2005	10:00	294.15	17	0.06	
	Fluorene	05/07/2005	10:35	20/07/2005	10:00	294.15	75	0.25	
	Phenanthrene	05/07/2005	10:35	20/07/2005	10:00	294.15	1700	5.78	
	Anthracene	05/07/2005	10:35	20/07/2005	10:00	294.15	23	0.08	
	Fluoranthene	05/07/2005	10:35	20/07/2005	10:00	294.15	850	2.89	
	Pyrene	05/07/2005	10:35	20/07/2005	10:00	294.15	440	1.50	
	Benz(a)anthracene	05/07/2005	10:35	20/07/2005	10:00	294.15	13	0.04	
	Chrysene	05/07/2005	10:35	20/07/2005	10:00	294.15	34	0.12	
	Benzo(b)fluoranthene	05/07/2005	10:35	20/07/2005	10:00	294.15	43	0.15	
	Benzo(k)fluoranthene	05/07/2005	10:35	20/07/2005	10:00	294.15	11	0.04	
	Benzo(a)pyrene	05/07/2005	10:35	20/07/2005	10:00	294.15	12	0.04	
	Indeno(1,2,3-cd)pyrene	05/07/2005	10:35	20/07/2005	10:00	294.15	22	0.07	
	Dibenz(a,h)anthracene	05/07/2005	10:35	20/07/2005	10:00	294.15	2.9	0.01	
	Benzo(g,h,i)perylene	05/07/2005	10:35	20/07/2005	10:00	294.15	23	0.08	
	Total PAH (ng m3)								11.43

Jul-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC0705								ng m-3
	Naphthalene	02/08/2005	09:30	10/08/2005	10:10	157.68	220	1.40
	Acenaphthylene	02/08/2005	09:30	10/08/2005	10:10	157.68	13	0.08
	Acenaphthene	02/08/2005	09:30	10/08/2005	10:10	157.68	35	0.22

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Annual Mean B[a]P Concentration: **0.14** ng m⁻³

N.D = None detected

UKAS Analysis of USEPA-16 BY GC-MS

	Fluorene	02/08/2005	09:30	10/08/2005	10:10	157.68	170	1.08	
	Phenanthrene	02/08/2005	09:30	10/08/2005	10:10	157.68	1700	10.78	
	Anthracene	02/08/2005	09:30	10/08/2005	10:10	157.68	33	0.21	
	Fluoranthene	02/08/2005	09:30	10/08/2005	10:10	157.68	490	3.11	
	Pyrene	02/08/2005	09:30	10/08/2005	10:10	157.68	250	1.59	
	Benz(a)anthracene	02/08/2005	09:30	10/08/2005	10:10	157.68	11	0.07	
	Chrysene	02/08/2005	09:30	10/08/2005	10:10	157.68	23	0.15	
	Benzo(b)fluoranthene	02/08/2005	09:30	10/08/2005	10:10	157.68	27	0.17	
	Benzo(k)fluoranthene	02/08/2005	09:30	10/08/2005	10:10	157.68	6	0.04	
	Benzo(a)pyrene	02/08/2005	09:30	10/08/2005	10:10	157.68	10	0.06	
	Indeno(1,2,3-cd)pyrene	02/08/2005	09:30	10/08/2005	10:10	157.68	16	0.10	
	Dibenz(a,h)anthracene	02/08/2005	09:30	10/08/2005	10:10	157.68	2	0.01	
	Benzo(g,h,i)perylene	02/08/2005	09:30	10/08/2005	10:10	157.68	23	0.15	
	Total PAH (ng m3)								19.21

Aug-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC0805								ng m-3
	Naphthalene	22/08/2005	09:45	06/09/2005	10:00	294.83	120	0.41
	Acenaphthylene	22/08/2005	09:45	06/09/2005	10:00	294.83	35	0.12
	Acenaphthene	22/08/2005	09:45	06/09/2005	10:00	294.83	73	0.25
	Fluorene	22/08/2005	09:45	06/09/2005	10:00	294.83	220	0.75
	Phenanthrene	22/08/2005	09:45	06/09/2005	10:00	294.83	1800	6.11

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Annual Mean B[a]P Concentration: **0.14** ng m⁻³

N.D = None detected

UKAS Analysis of USEPA-16 BY GC-MS

	Anthracene	22/08/2005	09:45	06/09/2005	10:00	294.83	33	0.11	
	Fluoranthene	22/08/2005	09:45	06/09/2005	10:00	294.83	940	3.19	
	Pyrene	22/08/2005	09:45	06/09/2005	10:00	294.83	490	1.66	
	Benz(a)anthracene	22/08/2005	09:45	06/09/2005	10:00	294.83	19	0.06	
	Chrysene	22/08/2005	09:45	06/09/2005	10:00	294.83	77	0.26	
	Benzo(b)fluoranthene	22/08/2005	09:45	06/09/2005	10:00	294.83	50	0.17	
	Benzo(k)fluoranthene	22/08/2005	09:45	06/09/2005	10:00	294.83	6.1	0.02	
	Benzo(a)pyrene	22/08/2005	09:45	06/09/2005	10:00	294.83	11	0.04	
	Indeno(1,2,3-cd)pyrene	22/08/2005	09:45	06/09/2005	10:00	294.83	29	0.10	
	Dibenz(a,h)anthracene	22/08/2005	09:45	06/09/2005	10:00	294.83	3.5	0.01	
	Benzo(g,h,i)perylene	22/08/2005	09:45	06/09/2005	10:00	294.83	40	0.14	
	Total PAH (ng m3)								13.39

Sep-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC0905								ng m-3
	Naphthalene	22/09/2005	11:15	05/10/2005	12:00	255.95	300	1.17
	Acenaphthylene	22/09/2005	11:15	05/10/2005	12:00	255.95	70	0.27
	Acenaphthene	22/09/2005	11:15	05/10/2005	12:00	255.95	31	0.12
	Fluorene	22/09/2005	11:15	05/10/2005	12:00	255.95	120	0.47
	Phenanthrene	22/09/2005	11:15	05/10/2005	12:00	255.95	1600	6.25
	Anthracene	22/09/2005	11:15	05/10/2005	12:00	255.95	55	0.21
	Fluoranthene	22/09/2005	11:15	05/10/2005	12:00	255.95	560	2.19

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UKAS Analysis of USEPA-16 BY GC-MS

	Pyrene	22/09/2005	11:15	05/10/2005	12:00	255.95	370	1.45	
	Benz(a)anthracene	22/09/2005	11:15	05/10/2005	12:00	255.95	35	0.14	
	Chrysene	22/09/2005	11:15	05/10/2005	12:00	255.95	45	0.18	
	Benzo(b)fluoranthene	22/09/2005	11:15	05/10/2005	12:00	255.95	69	0.27	
	Benzo(k)fluoranthene	22/09/2005	11:15	05/10/2005	12:00	255.95	17	0.07	
	Benzo(a)pyrene	22/09/2005	11:15	05/10/2005	12:00	255.95	27	0.11	
	Indeno(1,2,3-cd)pyrene	22/09/2005	11:15	05/10/2005	12:00	255.95	39	0.15	
	Dibenz(a,h)anthracene	22/09/2005	11:15	05/10/2005	12:00	255.95	3.8	0.01	
	Benzo(g,h,i)perylene	22/09/2005	11:15	05/10/2005	12:00	255.95	46	0.18	
	Total PAH (ng m³)								13.24

Oct-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC1005								ng m⁻³
	Naphthalene	20/10/2005	10:35	03/11/2005	11:45	275.94	190	0.69
	Acenaphthylene	20/10/2005	10:35	03/11/2005	11:45	275.94	7.2	0.03
	Acenaphthene	20/10/2005	10:35	03/11/2005	11:45	275.94	11	0.04
	Fluorene	20/10/2005	10:35	03/11/2005	11:45	275.94	34	0.12
	Phenanthrene	20/10/2005	10:35	03/11/2005	11:45	275.94	990	3.59
	Anthracene	20/10/2005	10:35	03/11/2005	11:45	275.94	28	0.10
	Fluoranthene	20/10/2005	10:35	03/11/2005	11:45	275.94	480	1.74
	Pyrene	20/10/2005	10:35	03/11/2005	11:45	275.94	330	1.20
	Benz(a)anthracene	20/10/2005	10:35	03/11/2005	11:45	275.94	18	0.07

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UKAS Analysis of USEPA-16 BY GC-MS

	Chrysene	20/10/2005	10:35	03/11/2005	11:45	275.94	38	0.14	
	Benzo(b)fluoranthene	20/10/2005	10:35	03/11/2005	11:45	275.94	50	0.18	
	Benzo(k)fluoranthene	20/10/2005	10:35	03/11/2005	11:45	275.94	6.7	0.02	
	Benzo(a)pyrene	20/10/2005	10:35	03/11/2005	11:45	275.94	9.4	0.03	
	Indeno(1,2,3-cd)pyrene	20/10/2005	10:35	03/11/2005	11:45	275.94	29	0.11	
	Dibenz(a,h)anthracene	20/10/2005	10:35	03/11/2005	11:45	275.94	1.5	0.01	
	Benzo(g,h,i)perylene	20/10/2005	10:35	03/11/2005	11:45	275.94	38	0.14	
	Total PAH (ng m3)								8.19

Nov-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC1105								ng m-3
	Naphthalene	24/11/2005	11:10	08/12/2005	10:20	274.30	210	0.77
	Acenaphthylene	24/11/2005	11:10	08/12/2005	10:20	274.30	100	0.36
	Acenaphthene	24/11/2005	11:10	08/12/2005	10:20	274.30	45	0.16
	Fluorene	24/11/2005	11:10	08/12/2005	10:20	274.30	180	0.66
	Phenanthrene	24/11/2005	11:10	08/12/2005	10:20	274.30	1900	6.93
	Anthracene	24/11/2005	11:10	08/12/2005	10:20	274.30	130	0.47
	Fluoranthene	24/11/2005	11:10	08/12/2005	10:20	274.30	1100	4.01
	Pyrene	24/11/2005	11:10	08/12/2005	10:20	274.30	800	2.92
	Benz(a)anthracene	24/11/2005	11:10	08/12/2005	10:20	274.30	110	0.40
	Chrysene	24/11/2005	11:10	08/12/2005	10:20	274.30	140	0.51
	Benzo(b)fluoranthene	24/11/2005	11:10	08/12/2005	10:20	274.30	270	0.98

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	Benzo(k)fluoranthene	24/11/2005	11:10	08/12/2005	10:20	274.30	59	0.22	
	Benzo(a)pyrene	24/11/2005	11:10	08/12/2005	10:20	274.30	72	0.26	
	Indeno(1,2,3-cd)pyrene	24/11/2005	11:10	08/12/2005	10:20	274.30	150	0.55	
	Dibenz(a,h)anthracene	24/11/2005	11:10	08/12/2005	10:20	274.30	13	0.05	
	Benzo(g,h,i)perylene	24/11/2005	11:10	08/12/2005	10:20	274.30	140	0.51	
	Total PAH (ng m³)								19.76

Dec-05

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC1205								ng m⁻³
	Naphthalene	21/12/2005	11:15	05/01/2006	11:00	294.42	130	0.44
	Acenaphthylene	21/12/2005	11:15	05/01/2006	11:00	294.42	34	0.12
	Acenaphthene	21/12/2005	11:15	05/01/2006	11:00	294.42	24	0.08
	Fluorene	21/12/2005	11:15	05/01/2006	11:00	294.42	120	0.41
	Phenanthrene	21/12/2005	11:15	05/01/2006	11:00	294.42	1900	6.45
	Anthracene	21/12/2005	11:15	05/01/2006	11:00	294.42	130	0.44
	Fluoranthene	21/12/2005	11:15	05/01/2006	11:00	294.42	990	3.36
	Pyrene	21/12/2005	11:15	05/01/2006	11:00	294.42	830	2.82
	Benz(a)anthracene	21/12/2005	11:15	05/01/2006	11:00	294.42	99	0.34
	Chrysene	21/12/2005	11:15	05/01/2006	11:00	294.42	170	0.58
	Benzo(b)fluoranthene	21/12/2005	11:15	05/01/2006	11:00	294.42	240	0.82
	Benzo(k)fluoranthene	21/12/2005	11:15	05/01/2006	11:00	294.42	14	0.05
	Benzo(a)pyrene	21/12/2005	11:15	05/01/2006	11:00	294.42	62	0.21

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UKAS Analysis of USEPA-16 BY GC-MS

	Indeno(1,2,3-cd)pyrene	21/12/2005	11:15	05/01/2006	11:00	294.42	110	0.37
	Dibenz(a,h)anthracene	21/12/2005	11:15	05/01/2006	11:00	294.42	15	0.05
	Benzo(g,h,i)perylene	21/12/2005	11:15	05/01/2006	11:00	294.42	140	0.48
	Total PAH (ng m3)							17.01

Jan-06

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour
RIC0106								ng m-3
	Naphthalene	26/01/2006	11:00	07/02/2006	11:25	236.04	220	0.93
	Acenaphthylene	26/01/2006	11:00	07/02/2006	11:25	236.04	40	0.17
	Acenaphthene	26/01/2006	11:00	07/02/2006	11:25	236.04	26	0.11
	Fluorene	26/01/2006	11:00	07/02/2006	11:25	236.04	190	0.80
	Phenanthrene	26/01/2006	11:00	07/02/2006	11:25	236.04	4800	20.34
	Anthracene	26/01/2006	11:00	07/02/2006	11:25	236.04	260	1.10
	Fluoranthene	26/01/2006	11:00	07/02/2006	11:25	236.04	1600	6.78
	Pyrene	26/01/2006	11:00	07/02/2006	11:25	236.04	1200	5.08
	Benz(a)anthracene	26/01/2006	11:00	07/02/2006	11:25	236.04	240	1.02
	Chrysene	26/01/2006	11:00	07/02/2006	11:25	236.04	350	1.48
	Benzo(b)fluoranthene	26/01/2006	11:00	07/02/2006	11:25	236.04	320	1.36
	Benzo(k)fluoranthene	26/01/2006	11:00	07/02/2006	11:25	236.04	70	0.30
	Benzo(a)pyrene	26/01/2006	11:00	07/02/2006	11:25	236.04	110	0.47
	Indeno(1,2,3-cd)pyrene	26/01/2006	11:00	07/02/2006	11:25	236.04	220	0.93
	Dibenz(a,h)anthracene	26/01/2006	11:00	07/02/2006	11:25	236.04	22	0.09

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Annual Mean B[a]P Concentration: **0.14** ng m⁻³

N.D = None detected

UKAS Analysis of USEPA-16 BY GC-MS

	Benzo(g,h,i)perylene	26/01/2006	11:00	07/02/2006	11:25	236.04	190	0.80	
	Total PAH (ng m3)								41.76

Feb-06

Sample No	Compound	Date On	Time On	Date Off	Time Off	Volume	Conc (ng)	Combined Particulate and Vapour	
RIC0206								ng m-3	
	Naphthalene	21/02/2006	11:25	07/03/2006	11:00	274.64	190	0.69	
	Acenaphthylene	21/02/2006	11:25	07/03/2006	11:00	274.64	63	0.23	
	Acenaphthene	21/02/2006	11:25	07/03/2006	11:00	274.64	35	0.13	
	Fluorene	21/02/2006	11:25	07/03/2006	11:00	274.64	220	0.80	
	Phenanthrene	21/02/2006	11:25	07/03/2006	11:00	274.64	2700	9.83	
	Anthracene	21/02/2006	11:25	07/03/2006	11:00	274.64	120	0.44	
	Fluoranthene	21/02/2006	11:25	07/03/2006	11:00	274.64	840	3.06	
	Pyrene	21/02/2006	11:25	07/03/2006	11:00	274.64	680	2.48	
	Benz(a)anthracene	21/02/2006	11:25	07/03/2006	11:00	274.64	80	0.29	
	Chrysene	21/02/2006	11:25	07/03/2006	11:00	274.64	160	0.58	
	Benzo(b)fluoranthene	21/02/2006	11:25	07/03/2006	11:00	274.64	110	0.40	
	Benzo(k)fluoranthene	21/02/2006	11:25	07/03/2006	11:00	274.64	45	0.16	
	Benzo(a)pyrene	21/02/2006	11:25	07/03/2006	11:00	274.64	66	0.24	
	Indeno(1,2,3-cd)pyrene	21/02/2006	11:25	07/03/2006	11:00	274.64	100	0.36	
	Dibenz(a,h)anthracene	21/02/2006	11:25	07/03/2006	11:00	274.64	12	0.04	
	Benzo(g,h,i)perylene	21/02/2006	11:25	07/03/2006	11:00	274.64	160	0.58	
	Total PAH (ng m3)								20.32

