

Arthur D. Little, Inc.

Environmental Monitoring and Analysis

Minerals Management Service - Shelikof Strait and Outermost Cook Inlet

1997 Final Data (Surrogate Corrected) - Liver samples - PAH

Field ID	97-0-F7a-01-00-PHC-T-H1	97-0-F7a-01-00-PHC-T-H2	97-0-F7a-01-00-PHC-T-H3	97-0-F7a-01-00-PHC-T-H4
Lab ID	97C1359REF	97C1360REF	97C1361REF	97C1363REF
SDG	SDGT001	SDGT001	SDGT001	SDGT001
File	DZ3373.D	DZ3374.D	DZ3375.D	DZ3377.D
Sample Type	SAMP	SAMP	SAMP	SAMP
Matrix	Liver Composite	Liver Composite	Liver Composite	Liver Composite
Sample Size	6.1 g	6.36 g	6.23 g	5.57 g
Weight Basis	DRY	DRY	DRY	DRY
Associated Blank	BL-S-64PBREF	BL-S-64PBREF	BL-S-64PBREF	BL-S-64PBREF
Field Date	7/15/1997	7/15/1997	7/15/1997	7/15/1997
Extract Date	8/8/1997	8/8/1997	8/8/1997	8/8/1997
Analysis Date	11/25/1997	11/25/1997	11/25/1997	11/26/1997
Min Reporting Limit	0.0082	0.0079	0.008	0.009
Units	ug/g	ug/g	ug/g	ug/g

PAH

Naphthalene	0.02 B	0.017 B	0.02 B	0.014 B
C1-Naphthalenes	0.0068 JB	0.006 JB	0.009 JB	0.0058 JB
C2-Naphthalenes	0.0065 J	0.0059 J	0.009 J	ND
C3-Naphthalenes	ND	ND	ND	ND
C4-Naphthalenes	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	0.0038 J	0.0028 J	0.004 J	0.0036 J
Biphenyl	0.0037 J	0.0036 J	0.0087 J	0.0044 J
Fluorene	0.0054 J	0.0045 J	0.006 J	0.0053 J
C1-Fluorenes	ND	ND	ND	ND
C2-Fluorenes	ND	ND	ND	ND
C3-Fluorenes	ND	ND	ND	ND
Anthracene	0.00093 J	0.0011 J	0.0015 J	0.001 J
Phenanthrene	0.016 B	0.0092 B	0.034 B	0.016 B
C1-Phenanthrenes/anthracenes	ND	ND	0.0039 J	0.0028 J
C2-Phenanthrenes/anthracenes	ND	ND	ND	ND
C3-Phenanthrenes/anthracenes	ND	ND	ND	ND
C4-Phenanthrenes/anthracenes	ND	ND	ND	ND
Dibenzothiophene	0.0015 J	0.00094 J	0.0019 J	0.0014 J
C1-Dibenzothiophenes	ND	ND	ND	ND
C2-Dibenzothiophenes	ND	ND	ND	ND
C3-Dibenzothiophenes	ND	ND	ND	ND
Fluoranthene	0.0023 J	0.0018 J	0.0028 J	0.0019 J
Pyrene	0.0013 J	0.003 J	0.0015 J	0.0014 J
C1-Fluoranthenes/pyrenes	ND	ND	ND	ND
C2-Fluoranthenes/pyrenes	ND	ND	ND	ND
C3-Fluoranthenes/pyrenes	ND	ND	ND	ND
Benzo[a]anthracene	ND	ND	ND	ND
Chrysene	0.00074 J	ND	0.0021 J	0.001 J
C1-Chrysenes	ND	ND	ND	ND
C2-Chrysenes	ND	ND	ND	ND
C3-Chrysenes	ND	ND	ND	ND
C4-Chrysenes	ND	ND	ND	ND
Benzo[b]fluoranthene	0.00063 J	ND	0.0011 J	0.00078 J
Benzo[k]fluoranthene	0.00022 J	ND	0.00034 J	ND
Benzo[e]pyrene	ND	ND	0.0011 J	ND
Benzo[a]pyrene	ND	ND	ND	ND
Perylene	ND	ND	ND	ND
Indeno[1,2,3,-c,d]pyrene	ND	ND	ND	ND
Dibenzo[a,h]anthracene	ND	ND	ND	ND
Benzo[g,h,i]perylene	0.0019 JB	ND	0.0019 JB	ND

Total PAH	0.072	0.056	0.11	0.059
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d8-Naphthalene	95	69	68	85
d10-Acenaphthene	102	85	77	88
d10-Phenanthrene	107	91	85	97
d12-Benzo[a]pyrene	75	58	68	67

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1997 Final Data (Surrogate Corrected) - Liver samples - PAH

Field ID	97-0-F7a-01-00-PHC-T-H5	97-0-F7a-01-00-PHC-T-H6	97-2-14a-01-00-PHC-T-AF1	97-2-14a-01-00-PHC-T-H1
Lab ID	97C1358REF	97C1362REF	97C1327REX	97C1315REF
SDG	SDGT001	SDGT001	SDGT001REX	SDGT001
File	DZ3372.D	DZ3376.D	DZ4138.D	DZ3368.D
Sample Type	SAMP	SAMP	SAMP	SAMP
Matrix	Liver Composite	Liver Composite	Liver Composite	Liver Composite
Sample Size	6.63 g	6.66 g	3.13 g	5.34 g
Weight Basis	DRY	DRY	DRY	DRY
Associated Blank	BL-S-64PBREF	BL-S-64PBREF	BP-S-58PB	BL-S-64PBREF
Field Date	7/16/1997	7/16/1997	7/13/1997	7/13/1997
Extract Date	8/8/1997	8/8/1997	1/7/1998	8/8/1997
Analysis Date	11/25/1997	11/26/1997	2/20/1998	11/25/1997
Min Reporting Limit	0.0075	0.0075	0.016	0.0094
Units	ug/g	ug/g	ug/g	ug/g
PAH				
Naphthalene	0.018 B	0.02 B	0.028 JB	0.02 B
C1-Naphthalenes	0.007 JB	0.0081 JB	ND	0.0099 JB
C2-Naphthalenes	0.0069 J	0.0094 J	ND	ND
C3-Naphthalenes	ND	ND	ND	ND
C4-Naphthalenes	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	0.0032 J	0.0048 J	ND	0.003 J
Biphenyl	0.0095	0.01 J	0.003 J	0.004 J
Fluorene	0.0051 J	0.006 J	0.0054 J	0.0049 J
C1-Fluorenes	ND	ND	ND	ND
C2-Fluorenes	ND	ND	ND	ND
C3-Fluorenes	ND	ND	ND	ND
Anthracene	ND	0.002 J	ND	ND
Phenanthrene	0.034 B	0.036 B	0.011 JB	0.013 B
C1-Phenanthrenes/anthracenes	0.0058 J	0.0046 J	ND	ND
C2-Phenanthrenes/anthracenes	0.005 J	ND	ND	ND
C3-Phenanthrenes/anthracenes	ND	ND	ND	ND
C4-Phenanthrenes/anthracenes	ND	ND	ND	ND
Dibenzothiophene	0.0019 J	0.0022 J	ND	ND
C1-Dibenzothiophenes	0.0021 J	ND	ND	ND
C2-Dibenzothiophenes	ND	ND	ND	ND
C3-Dibenzothiophenes	ND	ND	ND	ND
Fluoranthene	0.0034 J	0.007 J	0.0022 J	0.0022 J
Pyrene	0.002 J	0.004 J	0.0016 J	0.0013 J
C1-Fluoranthenes/pyrenes	ND	ND	ND	ND
C2-Fluoranthenes/pyrenes	ND	ND	ND	ND
C3-Fluoranthenes/pyrenes	ND	ND	ND	ND
Benzo[a]anthracene	ND	0.0028 J	ND	ND
Chrysene	0.0023 J	0.0037 J	ND	ND
C1-Chrysenes	ND	ND	ND	ND
C2-Chrysenes	ND	ND	ND	ND
C3-Chrysenes	ND	ND	ND	ND
C4-Chrysenes	ND	ND	ND	ND
Benzo[b]fluoranthene	0.0012 J	0.0027 J	ND	ND
Benzo[k]fluoranthene	0.00041 J	0.00086 J	ND	ND
Benzo[e]pyrene	0.0013 J	0.003 J	ND	ND
Benzo[a]pyrene	ND	0.0018 J	ND	ND
Perylene	ND	0.00077 J	ND	ND
Indeno[1,2,3,-c,d]pyrene	ND	ND	ND	ND
Dibenzo[a,h]anthracene	ND	ND	ND	ND
Benzo[g,h,i]perylene	0.0043 JB	ND	ND	ND
Total PAH	0.11	0.13	0.051	0.058
d8-Naphthalene	88	66	35 &	79
d10-Acenaphthene	96	73	57	86
d10-Phenanthrene	106	81	62	92
d12-Benzo[a]pyrene	72	61	49	65

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1997 Final Data (Surrogate Corrected) - Liver samples - PAH

Field ID	97-2-14a-01-00-PHC-T-H2	97-2-14a-01-00-PHC-T-H3	97-2-14a-01-00-PHC-T-H4	97-3-01a-01-00-PHC-T-BC1
Lab ID	97C1312REF	97C1311REF	97C1310REF	97C1314REF
SDG	SDGT001	SDGT001	SDGT001	SDGT001
File	DZ3365.D	DZ3364.D	DZ3363.D	DZ3367.D
Sample Type	SAMP	SAMP	SAMP	SAMP
Matrix	Liver Composite	Liver Composite	Liver Composite	Liver Composite
Sample Size	4.77 g	3.62 g	3.54 g	6.13 g
Weight Basis	DRY	DRY	DRY	DRY
Associated Blank	BL-S-89PBREF	BL-S-64PBREF	BL-S-64PBREF	BL-S-64PBREF
Field Date	7/13/1997	7/13/1997	7/13/1997	7/10/1997
Extract Date	8/19/1997	8/8/1997	8/8/1997	8/8/1997
Analysis Date	11/25/1997	11/25/1997	11/25/1997	11/25/1997
Min Reporting Limit	0.01	0.014	0.014	0.0082
Units	ug/g	ug/g	ug/g	ug/g
PAH				
Naphthalene	0.032 B	0.04 B	0.035 B	0.02 B
C1-Naphthalenes	0.011 JB	0.014 JB	0.012 JB	0.0092 B
C2-Naphthalenes	0.01 J	ND	ND	0.0084 J
C3-Naphthalenes	ND	ND	ND	ND
C4-Naphthalenes	ND	ND	ND	ND
Acenaphthylene	0.0023 J	ND	ND	ND
Acenaphthene	0.0056 J	0.0052 J	0.0063 J	0.0031 J
Biphenyl	0.0073 J	0.0098 J	0.0052 J	0.0031 J
Fluorene	0.011 J	0.0078 J	0.006 J	0.0047 J
C1-Fluorenes	ND	ND	ND	ND
C2-Fluorenes	ND	ND	ND	ND
C3-Fluorenes	ND	ND	ND	ND
Anthracene	0.0049 J	ND	ND	0.0013 J
Phenanthrene	0.046	0.032 B	0.026 B	0.013 B
C1-Phenanthrenes/anthracenes	ND	ND	ND	ND
C2-Phenanthrenes/anthracenes	ND	ND	ND	ND
C3-Phenanthrenes/anthracenes	ND	ND	ND	ND
C4-Phenanthrenes/anthracenes	ND	ND	ND	ND
Dibenzothiophene	ND	ND	ND	0.0027 J
C1-Dibenzothiophenes	ND	ND	ND	ND
C2-Dibenzothiophenes	ND	ND	ND	ND
C3-Dibenzothiophenes	ND	ND	ND	ND
Fluoranthene	0.024	0.0036 J	0.003 J	0.0021 J
Pyrene	0.018	0.033	ND	0.0016 J
C1-Fluoranthenes/pyrenes	0.009 J	ND	ND	ND
C2-Fluoranthenes/pyrenes	ND	ND	ND	ND
C3-Fluoranthenes/pyrenes	ND	ND	ND	ND
Benzo[a]anthracene	0.0081 J	ND	ND	ND
Chrysene	0.0087 J	ND	ND	ND
C1-Chrysenes	ND	ND	ND	ND
C2-Chrysenes	ND	ND	ND	ND
C3-Chrysenes	ND	ND	ND	ND
C4-Chrysenes	ND	ND	ND	ND
Benzo[b]fluoranthene	0.0082 J	0.0016 J	0.0016 J	ND
Benzo[k]fluoranthene	0.0027 J	ND	ND	ND
Benzo[e]pyrene	0.0056 J	ND	ND	ND
Benzo[a]pyrene	0.0068 J	ND	ND	ND
Perylene	0.0023 J	ND	ND	ND
Indeno[1,2,3,-c,d]pyrene	0.0027 J	ND	ND	ND
Dibenzo[a,h]anthracene	ND	ND	ND	ND
Benzo[g,h,i]perylene	0.0023 JB	ND	ND	ND
Total PAH	0.23	0.15	0.095	0.069
d8-Naphthalene	77	62	60	86
d10-Acenaphthene	82	64	65	96
d10-Phenanthrene	90	73	74	103
d12-Benzo[a]pyrene	77	7 &	3 &	105

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Field ID	97-3-01a-01-00-PHC-T-H1
Lab ID	97C1313REF
SDG	SDGT001
File	DZ3366.D
Sample Type	SAMP
Matrix	Liver Composite
Sample Size	5.15 g
Weight Basis	DRY
Associated Blank	BL-S-64PBREF
Field Date	7/10/1997
Extract Date	8/8/1997
Analysis Date	11/25/1997
Min Reporting Limit	0.0097
Units	ug/g

PAH	
Naphthalene	0.025 B
C1-Naphthalenes	0.012 B
C2-Naphthalenes	ND
C3-Naphthalenes	ND
C4-Naphthalenes	ND
Acenaphthylene	ND
Acenaphthene	0.0041 J
Biphenyl	0.012
Fluorene	0.0066 J
C1-Fluorenes	ND
C2-Fluorenes	ND
C3-Fluorenes	ND
Anthracene	ND
Phenanthrene	0.047
C1-Phenanthrenes/anthracenes	0.0062 J
C2-Phenanthrenes/anthracenes	ND
C3-Phenanthrenes/anthracenes	ND
C4-Phenanthrenes/anthracenes	ND
Dibenzothiophene	0.0035 J
C1-Dibenzothiophenes	ND
C2-Dibenzothiophenes	ND
C3-Dibenzothiophenes	ND
Fluoranthene	0.0065 J
Pyrene	0.0033 J
C1-Fluoranthenes/pyrenes	ND
C2-Fluoranthenes/pyrenes	ND
C3-Fluoranthenes/pyrenes	ND
Benzo[a]anthracene	ND
Chrysene	0.0036 J
C1-Chrysenes	ND
C2-Chrysenes	ND
C3-Chrysenes	ND
C4-Chrysenes	ND
Benzo[b]fluoranthene	0.002 J
Benzo[k]fluoranthene	0.0007 J
Benzo[e]pyrene	0.0019 J
Benzo[a]pyrene	0.0011 J
Perylene	ND
Indeno[1,2,3,-c,d]pyrene	ND
Dibenzo[a,h]anthracene	ND
Benzo[g,h,i]perylene	0.0014 JB

Total PAH	0.14
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d8-Naphthalene	95
d10-Acenaphthene	99
d10-Phenanthrene	110
d12-Benzo[a]pyrene	86