

PALOS VERDES LANDFILL
REMEDIAL INVESTIGATION REPORT

APPENDIX A.3.5.1

ANALYTICAL DATA;
GROUND WATER SAMPLES FOR DIOXINS

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	
		EW7	EW9	EW9	EW9	EW9	EW9	M30B	M30B	M30B	M30B
		SJ06909	SJ17018	SJ22076	SJ27587	SJ33032	SJ38416	SJ06793	SJ11517	SJ20196	SJ22260
		12/11/90	06/04/91	09/06/91	12/05/91	03/02/92	06/05/92	12/10/90	02/01/91	08/05/91	09/10/91
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	< 0.11 A	< 0.13	< 0.11	<0.096	<0.045	< 0.18	< 0.18 A	<0.095 A	<0.052	<0.032
PENTACHLORODIBENZODIOXINS	NG/L PCDD	< 0.41 A	< 1.0	< 0.15	< 0.27	< 0.21	< 0.50	< 0.56 A	< 0.15 A	<0.097	< 0.14
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.33 A	< 1.2	< 0.31	< 0.34	< 0.15	< 0.44	< 0.80 A	< 0.24 A	< 0.16	< 0.13
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.39 A	< 0.60	< 0.27	< 0.48	< 0.14	< 0.41	16 A	< 0.28 A	<0.060	<0.094
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 1.5 A	< 1.7	< 1.3	< 1.1	< 0.44	< 0.55	130 A	< 0.57 A	< 0.12	< 1.0
2378TETRACHLORODIBENZODIOXIN	NG/L TCDDI	< 0.11 A	< 0.13		<0.096	<0.045	< 0.18	< 0.18 A			<0.032
12378PENTACHLORODIBENZODIOXIN	NG/L PCDDI	< 0.41 A	< 1.0		< 0.27	< 0.21	< 0.50	< 0.56 A			< 0.14
123478HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.33 A	< 1.2		< 0.34	< 0.15	< 0.44	< 0.80 A			< 0.13
123678HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.33 A	< 1.2		< 0.34	< 0.15	< 0.44	< 0.80 A			< 0.13
123789HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.33 A	< 1.2		< 0.34	< 0.15	< 0.44	< 0.80 A			< 0.13
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.39 A	< 0.60		< 0.48	< 0.14	< 0.41	6.2 A			<0.094
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	< 0.14 A	< 0.16	<0.086	<0.086	<0.035	< 0.10	< 0.16 A	<0.056 A	<0.038	<0.018
PENTACHLORODIBENZOFURANS	NG/L PCDF	< 0.17 A	< 0.28	<0.065	< 0.12	<0.053	< 0.19	< 0.21 A	<0.057 A	< 0.026	<0.035
HEXACHLORODIBENZOFURANS	NG/L HXCDF	< 0.24 A	< 0.52	< 0.17	< 0.28	< 0.14	< 0.28	0.83 A	<0.085 A	<0.065	<0.082
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.47 A	< 0.58	< 0.25	< 0.44	< 0.20	< 0.41	3.5 A	< 0.21 A	<0.087	< 0.11
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 0.98 A	< 2.2	< 1.8	< 1.5	< 0.78	< 0.73	4.7 A	< 0.91 A	< 0.13	< 1.1
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	< 0.14 A	< 0.16		<0.086	<0.035	< 0.10	< 0.16 A			<0.018
12378PENTACHLORODIBENZFUR	NG/L PCDFI	< 0.17 A	< 0.28		< 0.12	<0.053	< 0.19	< 0.21 A			<0.035
23478PENTACHLORODIBENZFUR	NG/L PCDFI	< 0.17 A	< 0.28		< 0.12	<0.053	< 0.19	< 0.21 A			<0.035
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.24 A	< 0.52		< 0.28	< 0.14	< 0.28	< 0.37 A			<0.082
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.24 A	< 0.52		< 0.28	< 0.14	< 0.28	< 0.37 A			<0.082
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.24 A	< 0.52		< 0.28	< 0.14	< 0.28	< 0.37 A			<0.082
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.24 A	< 0.52		< 0.28	< 0.14	< 0.28	< 0.37 A			<0.082
1234678HEPTCHLORODIBENZFUR	NG/L HPCDFI	< 0.47 A	< 0.58		< 0.44	< 0.20	< 0.41	< 1.5 A			< 0.11
1234789HEPTCHLORODIBENZFUR	NG/L HPCDFI	< 0.47 A	< 0.58		< 0.44	< 0.20	< 0.41	< 1.5 A			< 0.11

FOOTNOTES : A-AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL
		M30B SJ27793 12/10/91	M30B SJ33370 03/05/92	M30B SJ38099 06/01/92	M33B SJ06791 12/10/90	M33B SJ06792 12/10/90	M33B SJ17564 06/13/91	M33B SJ22261 09/10/91	M33B SJ27794 12/10/91	M33B SJ33371 03/05/92	M33B SJ33372 03/05/92
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	< 0.13	< 0.16	<0.069 A	< 0.18 A	< 0.18 A	<0.095 A	<0.047	<0.061	< 0.11	< 0.11
PENTACHLORODIBENZODIOXINS	NG/L PCDD	< 0.25	< 0.61	< 0.18 A	< 0.42 A	< 0.49 A	< 0.16 A	< 0.19	< 0.14	< 0.29	< 0.34
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.52	< 0.64	< 0.17 A	< 0.50 A	< 0.65 A	<0.017 A	< 0.17	< 0.26	< 0.37	< 0.47
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.59	< 0.81	< 0.26 A	< 0.61 A	< 0.69 A	< 0.14 A	< 0.17	< 0.23	< 0.44	< 0.48
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 1.0	< 2.0	< 0.82 A	< 1.4 A	< 1.5 A	< 0.36 A	< 0.69	< 0.62	< 1.5	< 1.6
2378TETRCHLORDIBENZDIOXIN	NG/L TCDDI	< 0.13	< 0.16	<0.069 A	< 0.18 A	< 0.18 A	<0.095 A	<0.047	<0.061	< 0.11	< 0.11
12378PENCLHORDIBENZDIOXIN	NG/L PCDDI	< 0.25	< 0.61	< 0.18 A	< 0.42 A	< 0.49 A	< 0.16 A	< 0.19	< 0.14	< 0.29	< 0.34
123478HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.52	< 0.64	< 0.17 A	< 0.50 A	< 0.65 A	< 0.17 A	< 0.17	< 0.26	< 0.37	< 0.47
123678HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.52	< 0.64	< 0.17 A	< 0.50 A	< 0.65 A	< 0.17 A	< 0.17	< 0.26	< 0.37	< 0.47
123789HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.52	< 0.64	< 0.17 A	< 0.50 A	< 0.65 A	< 0.15 A	< 0.17	< 0.26	< 0.37	< 0.47
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.59	< 0.81	< 0.26 A	< 0.61 A	< 0.69 A	< 0.14 A	< 0.17	< 0.23	< 0.44	< 0.48
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	<0.074	< 0.16	<0.053 A	< 0.13 A	<0.091 A	<0.079 A	<0.031	<0.057	<0.081	<0.087
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.087	< 0.20	<0.060 A	< 0.27 A	< 0.23 A	<0.068 A	<0.053	<0.053	< 0.12	< 0.13
HEXACHLORODIBENZOFURANS	NG/L HXCDF	< 0.27	< 0.57	< 0.13 A	< 0.19 A	< 0.21 A	<0.016 A	< 0.10	< 0.12	< 0.26	< 0.32
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.34	< 0.75	< 0.27 A	< 0.77 A	< 0.49 A	< 0.12 A	< 0.15	< 0.19	< 0.34	< 0.40
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 1.8	< 2.9	< 0.69 A	< 1.3 A	< 1.3 A	< 0.44 A	< 0.83	< 0.90	< 2.7	< 2.0
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	<0.074	< 0.16	<0.053 A	< 0.13 A	<0.091 A	<0.079 A	<0.031	<0.057	<0.081	<0.087
12378PENTACHLORODIBENZFUR	NG/L PCDFI	<0.087	< 0.20	<0.060 A	< 0.27 A	< 0.23 A	<0.068 A	<0.053	<0.053	< 0.12	< 0.13
23478PENTACHLORODIBENZFUR	NG/L PCDFI	<0.087	< 0.20	<0.060 A	< 0.27 A	< 0.23 A	<0.068 A	<0.053	<0.053	< 0.12	< 0.13
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.27	< 0.57	< 0.13 A	< 0.19 A	< 0.21 A	< 0.16 A	< 0.10	< 0.12	< 0.26	< 0.32
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.27	< 0.57	< 0.13 A	< 0.19 A	< 0.21 A	< 0.16 A	< 0.10	< 0.12	< 0.26	< 0.32
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.27	< 0.57	< 0.13 A	< 0.19 A	< 0.21 A	< 0.16 A	< 0.10	< 0.12	< 0.26	< 0.32
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.27	< 0.57	< 0.13 A	< 0.19 A	< 0.21 A	< 0.16 A	< 0.10	< 0.12	< 0.26	< 0.32
1234678HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.34	< 0.75	< 0.27 A	< 0.77 A	< 0.49 A	< 0.12 A	< 0.15	< 0.19	< 0.34	< 0.40
1234789HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.34	< 0.75	< 0.27 A	< 0.77 A	< 0.49 A	< 0.12 A	< 0.15	< 0.19	< 0.34	< 0.40

FOOTNOTES : A-AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL
		M33B SJ38098 06/01/92	M33B SJ38100 06/01/92	M35B SJ16970 06/03/91	M35B SJ22178 09/09/91	M35B SJ27725 12/09/91	M35B SJ33840 03/13/92	M35B SJ38156 06/02/92	M37A SJ16971 06/03/91	M37A SJ27726 12/09/91	M37A SJ27727 12/09/91
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	< 0.15 A	<0.061 A	< 0.22	<0.045	<0.091	<0.068	<0.082 A	< 0.14	<0.096	< 0.12
PENTACHLORODIBENZODIOXINS	NG/L PCDD	< 0.23 A	< 0.17 A	< 0.85	< 0.18	< 0.27	< 0.13	< 0.35 A	< 0.77	< 0.24	< 0.43
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.12 A	< 0.10 A	< 0.72	< 0.15	< 0.48	< 0.17	< 0.21 A	< 0.77	< 0.30	< 0.65
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.19 A	< 0.21 A	< 0.46	< 0.10	< 0.65	< 0.18	< 0.36 A	< 0.43	< 0.31	< 1.5
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 1.0 A	< 1.1 A	< 0.84	< 0.82	< 1.6	< 0.62	< 2.4 A	< 1.1	< 1.3	< 2.1
2378TETRACHLORODIBENZODIOXIN	NG/L TCDDI	< 0.15 A	<0.061 A	< 0.22	<0.045	<0.091	<0.068	<0.082 A	< 0.14	<0.096	< 0.12
12378PENCLHORDIBENZDIOXIN	NG/L PCDDI	< 0.23 A	< 0.17 A	< 0.85	< 0.18	< 0.27	< 0.13	< 0.35 A	< 0.77	< 0.24	< 0.43
123478HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.12 A	< 0.10 A	< 0.72	< 0.15	< 0.48	< 0.17	< 0.21 A	< 0.77	< 0.30	< 0.65
123678HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.12 A	< 0.10 A	< 0.72	< 0.15	< 0.48	< 0.17	< 0.21 A	< 0.77	< 0.30	< 0.65
123789HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.12 A	< 0.10 A	< 0.72	< 0.15	< 0.48	< 0.17	< 0.21 A	< 0.77	< 0.30	< 0.65
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.19 A	< 0.21 A	< 0.46	< 0.10	< 0.65	< 0.18	< 0.36 A	< 0.43	< 0.31	< 1.5
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	<0.070 A	<0.046 A	< 0.14	<0.036	< 0.13	<0.038	< 0.10 A	< 0.14	<0.089	< 0.49
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.074 A	<0.053 A	< 0.26	<0.051	< 0.11	<0.049	< 0.11 A	< 0.25	< 0.10	< 0.18
HEXACHLORODIBENZOFURANS	NG/L HXCDF	< 0.11 A	<0.081 A	< 0.43	< 0.12	< 0.37	< 0.14	< 0.17 A	< 0.39	< 0.21	< 0.68
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.24 A	< 0.23 A	< 0.59	< 0.16	< 0.53	< 0.18	< 0.70 A	< 0.50	< 0.32	< 0.74
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 1.2 A	< 0.85 A	< 1.4	< 0.85	< 2.8	< 1.8	< 1.2 A	< 1.6	< 1.9	< 4.5
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	<0.070 A	<0.046 A	< 0.14	<0.036	< 0.13	<0.038	< 0.10 A	< 0.14	<0.089	< 0.49
12378PENTACHLORODIBENZFUR	NG/L PCDFI	<0.074 A	<0.053 A	< 0.26	<0.051	< 0.11	<0.049	< 0.11 A	< 0.25	< 0.10	< 0.18
23478PENTACHLORODIBENZFUR	NG/L PCDFI	<0.074 A	<0.053 A	< 0.26	<0.051	< 0.11	<0.049	< 0.11 A	< 0.25	< 0.10	< 0.18
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.11 A	<0.081 A	< 0.43	< 0.12	< 0.37	< 0.14	< 0.17 A	< 0.39	< 0.21	< 0.68
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.11 A	<0.081 A	< 0.43	< 0.12	< 0.37	< 0.14	< 0.17 A	< 0.39	< 0.21	< 0.68
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.11 A	<0.081 A	< 0.43	< 0.12	< 0.37	< 0.14	< 0.17 A	< 0.39	< 0.21	< 0.68
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.11 A	<0.081 A	< 0.43	< 0.12	< 0.37	< 0.14	< 0.17 A	< 0.39	< 0.21	< 0.68
1234678HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.24 A	< 0.23 A	< 0.59	< 0.16	< 0.53	< 0.18	< 0.70 A	< 0.50	< 0.32	< 0.74
1234789HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.24 A	< 0.23 A	< 0.59	< 0.16	< 0.53	< 0.18	< 0.70 A	< 0.50	< 0.32	< 0.74

FOOTNOTES : A-AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	
		M37A SJ33953 03/17/92	M37A SJ38339 06/04/92	M38A SJ17701 06/17/91	M38A SJ22458 09/12/91	M38A SJ28116 12/16/91	M38A SJ33838 03/13/92	M38A SJ38157 06/02/92	M39A SJ17702 06/17/91	M39A SJ17703 06/17/91	M39A SJ22459 09/12/91
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	<0.045	< 0.38	<0.094	<0.043	< 0.13	<0.044	<0.074 A	<0.077	<0.081	<0.052
PENTACHLORODIBENZODIOXINS	NG/L PCDD	< 0.11	< 0.80	< 0.18	< 0.16	< 0.37	< 0.12	< 0.20 A	< 0.25	< 0.24	<0.099
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.12	< 0.60	< 0.22	< 0.15	< 0.42	< 0.16	< 0.12 A	< 0.27	< 0.22	< 0.13
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.13	< 0.38	< 0.48	< 0.22	< 0.69	< 0.18	< 0.14 A	< 0.57	< 0.50	< 0.18
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 0.59	< 0.84	< 0.54	< 1.3	< 3.9	< 0.65	< 0.87 A	< 0.44	< 0.30	< 0.82
2378TETRACHLORODIBENZODIOXIN	NG/L TCDDI	<0.045	< 0.38	<0.094	<0.043	< 0.13	<0.044	<0.074 A	<0.077	<0.081	<0.052
12378PENTACHLORODIBENZODIOXIN	NG/L PCDDI	< 0.11	< 0.80	< 0.18	< 0.16	< 0.37	< 0.12	< 0.20 A	< 0.25	< 0.24	<0.099
123478HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.12	< 0.60	< 0.22	< 0.15	< 0.42	< 0.16	< 0.12 A	< 0.27	< 0.22	< 0.13
123678HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.12	< 0.60	< 0.22	< 0.15	< 0.42	< 0.16	< 0.12 A	< 0.27	< 0.22	< 0.13
123789HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.12	< 0.60	< 0.22	< 0.15	< 0.42	< 0.16	< 0.12 A	< 0.27	< 0.22	< 0.13
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.13	< 0.38	< 0.48	< 0.22	< 0.69	< 0.18	< 0.14 A	< 0.57	< 0.50	< 0.18
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	<0.030	< 0.15	<0.048	<0.030	<0.091	<0.031	<0.069 A	<0.075	<0.051	<0.030
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.036	< 0.28	<0.063	<0.031	< 0.11	<0.033	<0.066 A	<0.085	<0.078	<0.033
HEXACHLORODIBENZOFURANS	NG/L HXCDF	<0.080	< 0.38	< 0.23	< 0.10	< 0.31	< 0.10	< 0.10 A	< 0.33	< 0.29	<0.066
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.13	< 0.65	< 0.14	< 0.28	< 0.57	< 0.20	< 0.24 A	< 0.20	< 0.20	< 0.12
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 1.1	< 0.88	< 0.54	< 1.6	< 3.7	< 1.2	< 0.75 A	< 0.79	< 0.59	< 1.4
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	<0.030	< 0.15	<0.048	<0.030	<0.091 A	<0.031	<0.069 A	<0.075	<0.051	<0.030
12378PENTACHLORODIBENZOFUR	NG/L PCDFI	<0.036	< 0.28	<0.063	<0.031	< 0.11	<0.033	<0.066 A	<0.085	<0.078	<0.033
23478PENTACHLORODIBENZOFUR	NG/L PCDFI	<0.036	< 0.28	<0.063	<0.031	< 0.11	<0.033	<0.066 A	<0.085	<0.078	<0.033
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.080	< 0.38	< 0.23	< 0.10	< 0.31	< 0.10	< 0.10 A	< 0.33	< 0.29	<0.066
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.080	< 0.38	< 0.23	< 0.10	< 0.31	< 0.10	< 0.10 A	< 0.33	< 0.29	<0.066
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.080	< 0.38	< 0.23	< 0.10	< 0.31	< 0.10	< 0.10 A	< 0.33	< 0.29	<0.066
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.080	< 0.38	< 0.23	< 0.10	< 0.31	< 0.10	< 0.10 A	< 0.33	< 0.29	<0.066
1234678HEPTCHLORDIBENZOFUR	NG/L HPCDFI	< 0.13	< 0.65	< 0.14	< 0.28	< 0.57	< 0.20	< 0.24 A	< 0.20	< 0.20	< 0.12
1234789HEPTCHLORDIBENZOFUR	NG/L HPCDFI	< 0.13	< 0.65	< 0.14	< 0.28	< 0.57	< 0.20	< 0.24 A	< 0.20	< 0.20	< 0.12

FOOTNOTES : A-AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL
		M39A SJ28117 12/16/91	M39A SJ33839 03/13/92	M46A SJ26527 11/12/91	M46A SJ30429 01/10/92	M46A SJ30430 01/10/92	M46A SJ34649 03/27/92	M46A SJ34650 03/27/92	M46A SJ40095 07/08/92	M57B SJ07218 12/18/90	M57B SJ27976 12/12/91
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	<0.078	<0.068	< 0.26	<0.047	<0.040	< 0.13	<0.084	<0.034	< 1.4 A	<0.062
PENTACHLORODIBENZODIOXINS	NG/L PCDD	< 0.23	< 0.18	< 0.40	< 0.22	< 0.11	< 0.27	< 0.34	<0.068	< 6.7 A	< 0.13
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.31	< 0.26	< 0.65	< 0.25	< 0.20	< 0.31	< 0.27	<0.089	< 7.6 A	< 0.26
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.53	< 0.57	< 1.9	< 0.27	< 0.20	< 0.46	< 0.49	<0.056	< 15 A	< 0.22
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 1.9	< 2.3	< 12	< 1.3	< 0.97	< 1.2	< 1.6	< 0.21	< 23 A	< 0.92
2378TETRACHLORODIBENZODIOXIN	NG/L TCDDI	<0.078	<0.068	< 0.26	<0.047	<0.040	< 0.13	< 0.84	<0.034		<0.062
12378PENCLHORDIBENZDIOXIN	NG/L PCDDI	< 0.23	< 0.18	< 0.40	< 0.22	< 0.11	< 0.27	< 0.34	<0.068		< 0.13
123478HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.31	< 0.26	< 0.65	< 0.25	< 0.20	< 0.31	< 0.27	<0.089		< 0.26
123678HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.31	< 0.26	< 0.65	< 0.25	< 0.20	< 0.31	< 0.27	<0.089		< 0.26
123789HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.31	< 0.26	< 0.65	< 0.25	< 0.20	< 0.31	< 0.27	<0.089		< 0.26
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.53	< 0.57	< 1.9	< 0.27	< 0.20	< 0.46	< 0.49	<0.056		< 0.22
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	<0.070	<0.054	< 0.52	<0.029	<0.034	< 0.24	< 0.11	<0.014	< 1.8 A	<0.069
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.092	<0.061	< 0.11	<0.054	<0.050	< 0.13	<0.089	<0.026	< 1.7 A	<0.065
HEXACHLORODIBENZOFURANS	NG/L HXCDF	< 0.18	< 0.21	< 0.41	< 0.14	< 0.12	< 0.22	< 0.23	<0.043	< 4.6 A	< 0.15
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.33	< 0.53	< 1.6	< 0.31	< 0.18	< 0.43	< 0.40	<0.055	< 7.7 A	< 0.20
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 2.4	< 3.5	< 15	< 2.1	< 1.4	< 1.8	< 2.5	< 0.27	< 41 A	< 0.86
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	<0.070 A	<0.054	< 0.52	<0.029	<0.034	< 0.24	< 0.11	<0.014		<0.069
12378PENTACHLORODIBENZFUR	NG/L PCDFI	<0.092	<0.061	< 0.11	<0.054	<0.050	< 0.13	<0.089	<0.026		<0.065
23478PENTACHLORODIBENZFUR	NG/L PCDFI	<0.092	<0.061	< 0.11	<0.054	<0.050	< 0.13	<0.089	<0.026		<0.065
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.18	< 0.21	< 0.41	< 0.14	< 0.12	< 0.22	< 0.23	<0.043		< 0.15
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.18	< 0.21	< 0.41	< 0.14	< 0.12	< 0.22	< 0.23	<0.043		< 0.15
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.18	< 0.21	< 0.41	< 0.14	< 0.12	< 0.22	< 0.23	<0.043		< 0.15
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.18	< 0.21	< 0.41	< 0.14	< 0.12	< 0.22	< 0.23	<0.043		< 0.15
1234678HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.33	< 0.53	< 1.6	< 0.31	< 0.18	< 0.43	< 0.40	<0.055		< 0.20
1234789HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.33	< 0.53	< 1.6	< 0.31	< 0.18	< 0.43	< 0.40	<0.055		< 0.20

FOOTNOTES : A-AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

Date : 09/07/93 Page 6

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	
		M57B SJ31597 02/03/92	M57B SJ31599 02/03/92	M57B SJ36742 05/05/92	M57B SJ36743 05/05/92	M57B SJ41477 08/05/92	M61B SJ07219 12/18/90	M61B SJ27977 12/12/91	M61B SJ31598 02/03/92	M61B SJ33859 03/14/92	M61B SJ36938 05/07/92
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	<0.039	< 0.10	< 0.13	< 0.14	<0.034	< 1.6 A	<0.058	< 0.13	<0.052	<0.098
PENTACHLORODIBENZODIOXINS	NG/L PCDD	<0.091	< 0.42	< 0.32	< 0.31	<0.072	< 4.2 A	< 0.17	< 0.36	< 0.14	< 0.34
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.12	< 0.36	< 0.43	< 0.61	< 0.10	< 9.4 A	< 0.19	< 0.30	< 0.18	< 0.27
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.15	< 0.57	< 0.44	< 0.20	<0.077	< 14 A	< 0.32	< 0.43	< 0.23	< 0.25
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 0.47	< 1.5	< 0.45	< 0.63	< 0.23	< 22 A	< 0.59	< 1.9	< 1.2	< 0.35
2378TETRACHLORODIBENZODIOXIN	NG/L TCDDI	<0.039	< 0.10	< 0.13	< 0.14	< 0.34		<0.058	< 0.13	<0.052	<0.098
12378PENTACHLORODIBENZODIOXIN	NG/L PCDDI	<0.091	< 0.42	< 0.32	< 0.31	< 0.72		< 0.17	< 0.36	< 0.14	< 0.34
123478HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.12	< 0.36	< 0.43	< 0.61	< 0.10		< 0.19	< 0.30	< 0.18	< 0.27
123678HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.12	< 0.36	< 0.43	< 0.61	< 0.10		< 0.19	< 0.30	< 0.18	< 0.27
123789HEXCHLORODIBENZDIOXN	NG/L HXCDDI	< 0.12	< 0.36	< 0.43	< 0.61	< 0.10		< 0.19	< 0.30	< 0.18	< 0.27
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.15	< 0.57	< 0.44	< 0.20	<0.077		< 0.32	< 0.43	< 0.23	< 0.25
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	< 0.10	< 0.11	<0.070	<0.073	<0.020	< 0.88 A	< 0.11	<0.072	<0.034	<0.089
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.033	< 0.13	< 0.14	< 0.11	<0.019	< 1.6 A	< 0.33	< 0.13	<0.049	< 0.11 A
HEXACHLORODIBENZOFURANS	NG/L HXCDF	<0.064	< 0.29	< 0.31	< 0.33	<0.049	< 2.8 A	< 0.15	< 0.17	< 0.12	< 0.17
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.14	< 0.66	< 0.46	< 0.17	<0.060	< 8.0 A	< 0.27	< 0.46	< 0.23	< 0.17
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 0.85	< 3.2	< 0.53	< 0.75	< 0.26	< 29 A	< 0.83	< 2.8	< 1.6	< 0.42
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	< 0.10	< 0.11	<0.070	<0.073	<0.020		< 0.11	<0.072	<0.034	<0.089
12378PENTACHLORODIBENZFUR	NG/L PCDFI	<0.033	< 0.13	< 0.14	< 0.11	<0.019		< 0.33	< 0.13	<0.049	< 0.11 A
23478PENTACHLORODIBENZFUR	NG/L PCDFI	<0.033	< 0.13	< 0.14	< 0.11	<0.019		< 0.33	< 0.13	<0.049	< 0.11
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.064	< 0.29	< 0.31	< 0.33	<0.049		< 0.15	< 0.17	< 0.12	< 0.17
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.064	< 0.29	< 0.31	< 0.33	<0.049		< 0.15	< 0.17	< 0.12	< 0.17
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.064	< 0.29	< 0.31	< 0.33	<0.049		< 0.15	< 0.17	< 0.12	< 0.17
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.064	< 0.29	< 0.31	< 0.33	<0.049		< 0.15	< 0.17	< 0.12	< 0.17
1234678HEPTCHLORODIBENZFUR	NG/L HPCDFI	< 0.14	< 0.66	< 0.46	< 0.17	<0.060		< 0.27	< 0.46	< 0.23	< 0.18
1234789HEPTCHLORODIBENZFUR	NG/L HPCDFI	< 0.14	< 0.66	< 0.46	< 0.17	<0.060		< 0.27	< 0.46	< 0.23	< 0.18

FOOTNOTES A AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

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WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	WELL	
		M61B SJ41623 08/07/92	M61B SJ41624 08/07/92	P4-7 SJ07337 12/20/90	P410 SJ06908 12/11/90	PV3 SJ18675 07/09/91	PV3 SJ18676 07/09/91	PV3 SJ23699 10/08/91	PV3 SJ23700 10/08/91	PV3 SJ28679 12/31/91	PV3 SJ34779 03/31/92
DIOXINS											
TETRACHLORODIBENZODIOXINS	NG/L TCDD	<0.017	<0.025	< 0.63 A	< 0.19 A	<0.092	<0.029	<0.022	<0.035	<0.052	<0.088
PENTACHLORODIBENZODIOXINS	NG/L PCDD	<0.072	<0.057	< 2.1 A	< 0.66 A	< 0.32	< 0.11	< 0.10	< 0.13	< 0.12	< 0.24
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	<0.087	<0.069	< 3.5 A	< 0.56 A	< 0.32	< 0.12	< 0.15	< 0.20	< 0.20	< 0.28
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	<0.065	<0.039	< 5.3 A	< 0.54 A	< 0.12	<0.083	< 0.11	< 0.10	< 0.24	< 0.44
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 0.11	< 0.13	< 17 A	< 2.5 A	< 0.96	< 0.52	< 0.66	< 0.57	< 1.1	< 1.4
2378TETRACHLORODIBENZDIOXIN	NG/L TCDDI	<0.017	<0.025		< 0.19 A			<0.022	<0.035	<0.052	<0.088
12378PENCLHORDIBENZDIOXIN	NG/L PCDDI	<0.072	<0.057		< 0.66 A			< 0.10	< 0.13	< 0.12	< 0.24
123478HEXCHLORDIBENZDIOXN	NG/L HXCDDI	<0.087	<0.069		< 0.56 A			< 0.15	< 0.20	< 0.20	< 0.28
123678HEXCHLORDIBENZDIOXN	NG/L HXCDDI	<0.087	<0.069		< 0.56 A			< 0.15	< 0.20	< 0.20	< 0.28
123789HEXCHLORDIBENZDIOXN	NG/L HXCDDI	<0.087	<0.069		< 0.56 A			< 0.15	< 0.20	< 0.20	< 0.28
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	<0.065	<0.039		< 0.54 A			< 0.11	< 0.10	< 0.24	< 0.44
FURANS											
TETRACHLORODIBENZOFURANS	NG/L TCDF	<0.020	<0.018	< 0.47 A	< 0.15 A	<0.036	<0.035	< 0.75	< 1.4	<0.031	<0.094
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.018	<0.017	< 0.80 A	< 0.25 A	<0.088	<0.031	<0.034	<0.042	<0.031	<0.078
HEXACHLORODIBENZOFURANS	NG/L HXCDF	<0.038	<0.038	< 1.7 A	< 0.25 A	< 0.14	<0.071	<0.084	< 0.11	< 0.14	< 0.18
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	<0.053	<0.046	< 3.4 A	< 0.44 A	< 0.25	< 0.11	<0.079	< 0.10	< 0.18	< 0.33
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 0.13	< 0.16	< 17 A	< 1.6 A	< 0.89	< 0.35	< 0.64	< 0.84	< 1.5	< 1.9
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	<0.020	<0.018		< 0.15 A			< 0.75	< 1.4	<0.031	<0.094
12378PENTACHLORODIBENZFUR	NG/L PCDFI	<0.018	<0.017		< 0.25 A			<0.034	<0.042	<0.031	<0.078
23478PENTACHLORODIBENZFUR	NG/L PCDFI	<0.018	<0.017		< 0.25 A			<0.034	<0.042	<0.031	<0.078
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.038	<0.038		< 0.25 A			<0.084	< 0.11	< 0.14	< 0.18
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.038	<0.038		< 0.25 A			<0.084	< 0.11	< 0.14	< 0.18
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.038	<0.038		< 0.25 A			<0.084	< 0.11	< 0.14	< 0.18
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	<0.038	<0.038		< 0.25 A			<0.084	< 0.11	< 0.14	< 0.18
1234678HEPTCHLORDIBENZFUR	NG/L HPCDFI	<0.053	<0.046		< 0.44 A			<0.079	< 0.10	< 0.18	< 0.33
1234789HEPTCHLORDIBENZFUR	NG/L HPCDFI	<0.053	<0.046		< 0.44 A			<0.079	< 0.10	< 0.18	< 0.33

FOOTNOTES : A-AMENDED TEST RESULT

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

WATER QUALITY MONITORING DATA

PALOS VERDES LANDFILL

CONSTITUENT/WELL NO.	UNITS	WELL	WELL	WELL	SUMP	SUMP	SUMP	SUMP	SUMP	SUMP
		PV3 SJ34780 03/31/92	PV3 SJ40165 07/09/92	S7 SJ07216 12/18/90	S7 SJ17017 06/04/91	S7 SJ22079 09/05/91	S7 SJ22080 09/05/91	S7 SJ27589 12/05/91	S7 SJ33033 03/02/92	S7 SJ38268 06/03/92
DIOXINS										
TETRACHLORODIBENZODIOXINS	NG/L TCDD	<0.060	<0.026	< 0.83 A	< 0.29	< 0.10	<0.070	<0.080	< 0.78	< 0.48 A
PENTACHLORODIBENZODIOXINS	NG/L PCDD	< 0.29	<0.079	< 2.0 A	< 1.0	< 0.16	< 0.20	< 0.25	< 1.6	< 2.3 A
HEXACHLORODIBENZODIOXINS	NG/L HXCDD	< 0.50	<0.070	< 4.1 A	< 1.1	< 0.21	< 0.21	< 0.41	< 1.4	< 1.3 A
HEPTACHLORODIBENZODIOXINS	NG/L HPCDD	< 0.18	<0.047	< 8.2 A	< 0.54	< 0.19	< 0.14	< 0.39	< 2.2	< 1.3 A
OCTACHLORODIBENZODIOXIN	NG/L OCDD	< 0.38	< 0.13	57 A	< 1.6	< 1.0	< 0.72	< 2.6	< 11	< 2.4 A
2378TETRACHLORODIBENZODIOXIN	NG/L TCDDI	<0.060	<0.026		< 0.29			<0.080	< 0.78	< 0.48 A
12378PENCLHORDIBENZDIOXIN	NG/L PCDDI	< 0.29	<0.079		< 1.0			< 0.25	< 1.6	< 2.3 A
123478HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.50	<0.070		< 1.1			< 0.41	< 1.4	< 1.3 A
123678HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.50	<0.070		< 1.1			< 0.41	< 1.4	< 1.3 A
123789HEXCHLORDIBENZDIOXN	NG/L HXCDDI	< 0.50	<0.070		< 1.1			< 0.41	< 1.4	< 1.3 A
1234678HEPCHLRDIBENZDIOXN	NG/L HPCDDI	< 0.18	<0.047		< 0.54			< 0.39	< 2.2	< 1.3 A
FURANS										
TETRACHLORODIBENZOFURANS	NG/L TCDF	<0.044	<0.012	< 0.73 A	< 0.26	<0.094	<0.055	<0.077	< 0.78	< 0.46 A
PENTACHLORODIBENZOFURANS	NG/L PCDF	<0.075	<0.019	< 0.64 A	< 0.34	<0.067	<0.056	< 0.14	< 0.55	< 0.82 A
HEXACHLORODIBENZOFURANS	NG/L HXCDF	< 0.22	<0.041	< 1.0 A	< 0.60	< 0.14	< 0.13	< 0.28	< 1.7	< 1.1 A
HEPTACHLORODIBENZOFURANS	NG/L HPCDF	< 0.17	<0.041	< 6.5 A	< 0.63	< 0.23	< 0.13	< 0.33	< 2.0	< 1.5 A
OCTACHLORODIBENZOFURAN	NG/L OCDF	< 0.48	< 0.14	< 19 A	< 2.4	< 1.5	< 0.89	< 1.4	< 9.3	< 2.4 A
2378TETRACHLORODIBENZOFUR	NG/L TCDFI	<0.044	<0.012		< 0.26			<0.077	< 0.78	< 0.46 A
12378PENTACHLORODIBENZFUR	NG/L PCDFI	<0.075	<0.019		< 0.34			< 0.14	< 0.55	< 0.82 A
23478PENTACHLORODIBENZFUR	NG/L PCDFI	<0.075	<0.019		< 0.34			< 0.14	< 0.55	< 0.82 A
123478HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.22	<0.041		< 0.60			< 0.28	< 1.7	< 1.1 A
123678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.22	<0.041		< 0.60			< 0.28	< 1.7	< 1.1 A
234678HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.22	<0.041		< 0.60			< 0.28	< 1.7	< 1.1 A
123789HEXCHLORODIBENZOFUR	NG/L HXCDFI	< 0.22	<0.041		< 0.60			< 0.28	< 1.7	< 1.1 A
1234678HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.17	<0.041		< 0.63			< 0.33	< 2.0	< 1.5 A
1234789HEPTCHLORDIBENZFUR	NG/L HPCDFI	< 0.17	<0.041		< 0.63			< 0.33	< 2.0	< 1.5 A

FOOTNOTES : A-AMENDED TEST RESULT

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
---- WELL	121090 SJ06792	----- FURANS: TCDFS=<0.091NG/L, PECDFS=<0.23NG/L, HXCDFS=<0.21NG/ HPCDFS=<0.49NG/L, OCDF=<1.3NG/L DIOXINS: TCDDS= <0.18NG/L, PECDDS=<0.49NG/L, HXCDDS=<0.65NG/ HPCDDS=<0.69NG/L, OCDD=<1.5NG/L TESTS 122: +/- 300; 124: +/- 1; 125: +/- 4; 126: +/- 0.3 370: +/- 8; 371: +/- 6 122, 124, 125, 126, 370, & 371 BY TMA TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. RESULTS FOR ISOMERS HAVE ALSO BEEN ADDED TO REPORT. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
---- WELL	121090 SJ06794	FURANS: TCDFS= <0.12NG/L, PECDFS= <0.16NG/L, HXCDFS=1.8NG/L, HPCDFS= <0.43NG/L, OCDF= 11NG/L DIOXINS: TCDDS= <0.13NG/L, PECDDS= <0.42NG/L, HXCDDS= <0.53 NG/L, HPCDDS=26NG/L, OCDD =180NG/L TESTS 122: +/- 300; 124: +/- 1; 125: +/- 4; 126: +/- 0.1 122, 124, 125, 126, 370, & 371 BY TMA TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. RESULTS FOR ISOMERS HAVE ALSO BEEN ADDED TO REPORT. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
---- WELL	121190 SJ06909	FURANS: TCDFS= <0.14NG/L, PECDFS= <0.17NG/L, HXCDFS= <0.24N /L, HPCDFS=<0.47NG/L, OCDF =<0.98NG/L DIOXINS: TCDDS =<0.11NG/L, PECDDS =<0.41NG/L, HXCDDS =<0.33 NG/L, HPCDDS =<0.39NG/L, OCDD =<L.5NG/L TESTS:122: +/-2200; 124: +/- 2; 125: +/- 5; 126: +/- 0.2 370: +/- 30; 371: +/- 14 BY TMA TESTCODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. RESULTS FOR ISOMERS HAVE ALSO BEEN ADDED TO REPORT. LAB CODES CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
---- WELL	121890 SJ07217	FURANS: TCDFS=<0.99NG/L; PECDFS=<1.2NG/L; HXCDFS=<2.2NG/L; HPCDFS=<7.3NG/L; OCDF=<37NG/L DIOXINS: TCDDS=<1.3NG/L; PECDDS=<4.7NG/L; HXCDDS=<7.0NG/L; HPCDDS=<18NG/L; OCDD=<26NG/L ABOVE FROM ENSECO LABS TESTS 122: +/- 300; 124: +/- 1; 125: +/- 4; 126: +/- 0.1

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
----- WELL	121890 SJ07217	370: +/- 1; 371: +/- 4 122, 124, 125, 126, 370, & 371 BY TMA TESST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULT PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
----- WELL	121890 SJ07218	ENSECO LABS: FURANS: TCDFS=<1.8NG/L; PECDFS=<1.7NG/L; HXCDFS=<4.6NG/L; HPCDFS=<7.7NG/L; OCDF=<41NG/L DIOXINS: TCDDS=<1.4NG/L; PECDDS=<6.7NG/L; HXCDDS=<7.6NG/L; HPCDDS=<15NG/L; OCDD=<23NG/L TESTS 122: +/- 300; 124: +/- 0.1; 125: +/-4; 126: +/- 0.1 370: +/- 3; 371: +/- 3 122, 124, 125, 126, 370, & 371 BY TMA TEST CODES FOR DIOXINS/FURANS ARE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
----- WELL	121890 SJ07219	ENSECO LABS: FURANS: TCDFS=<0.88NG/L; PECDFS=<1.6NG/L; HXCDFS=<2.8NG/L; HPCDFS=<8.0NG/L; OCDF=<29NG/L DIOXINS=TCDDS=<1.6NG/L; PECDDS=<4.2NG/L; HXCDDS=<9.4NG/L; HPCDDS=<14NG/L; OCDD=<22NG/L TESTS 122: +/- 300; 124: +/- 125: +/- 4; 126: +/- 0.3 370: +/- 14; 371: +/- 10 122, 124, 125, 126, 370, & 371 BY TMA TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS REPORTED PREVIOUSLY IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
----- WELL	060491 SJ17018	DIOXINS/FURANS = ENSECO LABS
----- BLNK	061391 SJ17565	TOX = MONTGOMERY LABS ARSENIC-SELENIUM = BROWN & CALDWELL DIOXINS/FURANS = ENSECO LABS VOC's 6/17/91 REPORT AMENDED TO ENTER NEW TEST CODES AND CORRECT LAB CODE RESULTS UNCHANGED (HKS)

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
---- BLNK	091091 SJ22264	TOX = MONTGOMERY LABS TEST #710; ANALYZED ON 9/11. 705, 720 = BROWN & CALDWELL VOA'S = MONTGOMERY LABS RADIOACTIVITY = MONTGOMERY LABS ALPHA/2SIGMA 0.4 BNA EXT 09-16-91 INJ 10-02-91 BLANK 812: 23 UG/L
---- BLNK	121091 SJ27797	VOC's 12/11/91
---- BLNK	123191 SJ28680	HEADER INFORMATION MODIFIED ON 11/11/92 TEST CODE .710; SAMPLE 48 HRS OLD - PAST HOLDING TIME. ALPHA/2SIGMA = 0.3, BETA/2SIGMA = 0.5 BNA EXT 01-06-92 INJ 01-13-92 11 NOV 92 - CHANGED SAMPLE TYPE FROM "WELL" TO "BLNK" TO REFLECT INFORMATION ENTERED ON THE SAMPLE REQUEST FORM CHANGE REQUESTED BY E. LADEN. (JPG)
---- BLNK	020392 SJ31600	ALPHA/2SIGMA = 0.3, BETA/2SIGMA = 0.4 BNA EXT 02-04-92 INJ 02-11-92
---- BLNK	031792 SJ33954	HEADER INFORMATION MODIFIED ON 11/11/92 ALPHA/2SIGMA = 0.3 BETA/2SIGMA = 0.6 BNA EXT 03-18-92 INJ 04-04-92 11 NOV 92 - SAMPLE SUBLOCATION CHANGED FROM "M37A" TO "----" TO REFLECT THE INFORMATION ON THE SAMPLE REQUEST FORM. CHANGED REQUESTED BY E. LADEN. (JPG)
---- BLNK	050792 SJ36939	VOC's 5/11/92
---- BLNK	060192 SJ38101	VOC's 6/2/92
---- BLNK	070892 SJ40096	HEADER INFORMATION MODIFIED ON 11/11/92 ALPHA/2SIGMA = 2.4, BETA/2SIGMA = 2.9 BNA EXT 07-09-92 INJ 07-14-92 BLANK 855: 1UG/L 11 NOV 92 - SAMPLE TYPE CHANGED FROM "WELL" TO "BLNK" TO REFLECT THE INFORMATION ON THE SAMPLE REQUEST FORM. CHANGE REQUESTED BY E. LADEN. (JPG)

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
----- ---- BLNK	080592 SJ41478	ALPHA/2SIGMA = 1.3, BETA/2SIGMA = 1.2 BNA EXT 08-10-92 INJ 08-19-92
M30B WELL	121090 SJ06793	FURANS: TCDFS= <0.16NG/L, PECDFS=<0.21NG/L, HXCDFS=0.83NG/L HPCDFS= 3.5NG/L, OCDF=4.7NG/L DIOXINS: TCDDS= <0.18NG/L, PECDDS= <0.56NG/L, HXCDDS=<0.80N /L, HPCDDS=16NG/L, OCDD=130NG/L TESTS 122: +/- 350; 124: +/- 1; 125: +/- 4; 126: +/- 0.6 370: +/- 7; 371: +/- 4 122, 124, 125, 126, 370, & 371 BY TMA TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. RESULTS FOR ISOMERS HAVE ALSO BEEN ADDED TO REPORT. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
M30B WELL	020191 SJ11517	SAMPLES ANALYZED BY ENSECO FOR DIOXINS. 13C-2,3,7,8-TCDF 71% RECOVERY 13C-2,3,7,8-TCDD 76% " 13C-1,2,3,7,8-PCDD 91% " 13C-1,2,3,6,7,8-HXCDD 85% " 13C-1,2,3,4,6,7,8-HPCDD 92% " 13-OCDD 56% " THIS REPORT WAS AMENDED AS THE RESULT OF ESTABLISHMENT OF NEW TEST CODES FOR THESE COMPOUNDS, THE RESULTS ARE THE SAME AS THE PREVIOUS REPORT. (HKS)
M30B WELL	061391 SJ17563	DIOXIN SAMPLE LOST IN-TRANSIT TO ENSECO TOX = MONTGOMERY LABS ARSENIC-SELENIUM = BROWN & CALDWELL TEST CODES FOR THE DIOXINS WERE CHANGED, THE RESULTS ARE TH SAME (HKS) VOC's 6/17/91
M30B WELL	080591 SJ20196	DIOXINS/FURANS = ENSECO LABS
M30B WELL	091091 SJ22260	TOX = MONTGOMERY LABS TEST #710; ANALYZED ON 9/11. 705, 720 = BROWN & CALDWELL VOA'S = MONTGOMERY LABS RADIOACTIVITY = MONTGOMERY LABS ALPHA/2SIGMA 1.9 BNA EXT 09-16-91 INJ 09-28-91 BLANK 812: 23 UG/L

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
M30B WELL	121091 SJ27793	VOC's 12/11/91
M30B WELL	030592 SJ33370	ALPHA/2SIGMA = 2.6 BETA/2SIGMA = 2.7 BNA EXT 03-10-92 INJ 03-31-92
M30B WELL	060192 SJ38099	VOC's 6/2/92
M33B WELL	121090 SJ06791	FURANS: TCDFS=<0.13NG/L, PECDFS=<0.27NG/L, HXCDFS=<0.19NG/L HPCDFS=<0.77NG/L, OCDF=<1.3NG/L DIOXINS: TCDDS=<0.18NG/L, PECDDS=<0.42NG/L, HXCDDS=<0.50NG/ HPCDDS=<0.61NG/L, OCDD=<1.4NG/L METHOD BLANK QA: FURANS; TCDFS=<0.044NG/L, PECDFS=<0.093NG/ HXCDFS=<0.097NG/L, HPCDFS=<0.22NG/L, OCDF=<0.78NG/L DIOXINS: TCDDS=<0.073NG/L, PECDDS=<0.18NG/L, HXCDDS=<0.21NG L, HPCDDS=<0.34NG/L, OCDD= <0.69NG/L 122,124,125,126,370,371 BY TMA; TESTS 370: +/- 6; 371: +/- TESTS 122: +/- 300; 124: +/- 1; 125: +/- 4; 126: +/- 0.4 TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. RESULTS FOR ISOMERS HAVE ALSO BEEN ADDED TO THE REPORT. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
M33B WELL	061391 SJ17564	TOX = MONTGOMERY LABS ARSENIC-SELENIUM = BROWN & CALDWELL DIOXIN/FURAN TEST CODES WERE CHANGED, RESULTS ARE THE SAME AS THE ORIGINAL REPORT (HKS). TESTS PERFORMED AT ENSECO LAB VOC's 6/17/91
M33B WELL	091091 SJ22261	TOX = MONTGOMERY LABS TEST #710; ANALYZED ON 9/11. 705, 720 = BROWN & CALDWELL VOA'S = MONTGOMERY LABS RADIOACTIVITY = MONTGOMERY LABS ALPHA/2SIGMA 1.4 BNA EXT 09-16-91 INJ 09-28-91 BLANK 812: 23 UG/L
M33B WELL	121091 SJ27794	VOC's 12/11/91
M33B WELL	030592 SJ33371	ALPHA/2SIGMA = 2.3 BETA/2SIGMA = 3.2

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
M33B WELL	030592 SJ33371	BNA EXT 03-10-92 INJ 03-31-92 B
M33B WELL	030592 SJ33372	ALPHA/2SIGMA = 2.1 BETA/2SIGMA = 3.1 BNA EXT 03-10-92 INJ 03-31-92 BNA FOOTNOTE: #35
M33B WELL	060192 SJ38098	VOC'S 6/2/92 26 MAR 1993 - LESS THAN SIGN ADDED TO ALL POLYCHLORINATED DIOXIN AND FRUAN RESULTS TO CORRECT DATA ENTRY OMISSIO WHEN THE DATA WAS ORIGINALLY ENTERED. ENSECO LAB REPORT LISTS ALL RESULTS AS ND (NOT DETECTED) AND GIVE A DETECTION LIMIT FOR EACH COMPOUND. THIS REPORT WAS INITIALLY APPROVED ON 8/10/92. (JPG)
M33B WELL	060192 SJ38100	VOC'S 6/2/92 26 MAR 1993 - LESS THAN SIGNS ADDED TO ALL POLYCHLORINATED DIOXIN AND FURAN RESULTS TO CORRECT DATA ENTRY OMISSIO WHEN THE DATA WAS ORIGINALLY ENTERED. ENSECO LAB REPORT LISTS ALL RESULTS AS ND (NOT DETECTED) AND GIVE A DETECTION LIMIT FOR EACH COMPOUND. (JPG)
M35B WELL	060391 SJ16970	705, 720 = BROWN & CALDWELL TOX = MONTGOMERY LABS DIOXINS/FURANS = ENSECO LABS VOC's 6/5/91
M35B WELL	090991 SJ22178	257,301,404=LB TOX = MONTGOMERY LABS 705, 720 = BROWN & CALDWELL VOA'S = MONTGOMERY LABS RADIOACTIVITY = MONTGOMERY LABS ALPHA/2SIGMA 2.4 BNA EXT 09-10-91 INJ 09-28-91 BLANK 812: 358 UG/L
M35B WELL	120991 SJ27725	VOC's 12/11/91
M35B WELL	031392 SJ33840	ALPHA/2SIGMA = 4.3 BETA/2SIGMA = 4.4 BNA EXT 03-18-92 INJ 04-03-92

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
M35B WELL	060292 SJ38156	VOC's 6/3/92
M37A WELL	060391 SJ16971	705, 720 = BROWN & CALDWELL TOX = MONTGOMERY LABS DIOXINS/FURANS = ENSECO LABS VOC's 6/5/91 C-1,2-DCE:4.4UG/L;CFC-12:12UG/L CFC-21:57UG/L
M37A WELL	091091 SJ22263	TOX = MONTGOMERY LABS TEST #710; ANALYZED ON 9/11. 705, 720 = BROWN & CALDWELL VOA'S = MONTGOMERY LABS RADIOACTIVITY = MONTGOMERY LABS ALPHA/2SIGMA 7.7 SAMPLE CONTAINER FOR DIOXIN SAMPLE BROKEN IN TRANSIT BNA EXT 09-16-91 INJ 10-02-91 BLANK 812: 23 UG/L
M37A WELL	120991 SJ27726	VOC's 12/10/91
M37A WELL	120991 SJ27727	VOC's 12/10/91
M37A WELL	031792 SJ33953	ALPHA/2SIGMA = 7.7 BETA/2SIGMA = 4.7 BNA EXT 03-18-92 INJ 04-06-92 BNA FOOTNOTE: #35
M37A WELL	060492 SJ38339	VOC's 6/5/92 C-1,2-DCE:4.2UG/L; CFC-21:APPROX.11UG/L
M38A WELL	061791 SJ17701	TOX = MONTGOMERY LABS ARSENIC - SELENIUM = BROWN & CALDWELL DIOXINS/FURANS = ENSECO LABS VOC's 6/20/91 CFC-21:16UG/L C-1,2-DCE:6.6UG/L
M38A WELL	091291 SJ22458	TEST #710; ANALYZED ON 9/13. 370 ALPHA - 2SIGMA 14; 371 BETA - 2 SIGMA 8.1 BNA EXT 09-16-91 INJ 10-02-91 BLANK 812: 23 UG/L BNA FOOTNOTE: #35 MATRIX INTERFERENCE CONFIRMED.
M38A WELL	121691 SJ28116	VOC's 12/17/91 CFC-21: APPROX.33UG/L

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
M38A WELL	031392 SJ33838	ALPHA/2SIGMA 9.7 BETA/2SIGMA 6.6 BNA EXT 03-18-92 INJ 04-03-92
M38A WELL	060292 SJ38157	HG: MATRIX SPIKE INTERFERENCE. VOC's 6/3/92 CFC-21: APPROX. 16UG/L
M39A WELL	061791 SJ17702	TOX = MONTGOMERY LABS ARSENIC - SELENIUM = BROWN & CALDWELL DIOXINS/FURANS = ENSECO LABS VOC's 6/21/91
M39A WELL	061791 SJ17703	TOX = MONTGOMERY LABS ARSENIC-SELENIUM = BROWN & CALDWELL DIOXINS/FURANS = ENSECO LABS VOC's 6/21/91
M39A WELL	091291 SJ22459	TEST #710; ANALYZED ON 9/13. 370 ALPHA - 2 SIGMA 4.7; 371 BETA - 2 SIGMA 3.7 BNA EXT 09-16-91 INJ 10-02-91 BLANK 812: 23 UG/L
M39A WELL	121691 SJ28117	VOC's 12/17/91 CFC-21: APPROX. 6.2 UG/L
M39A WELL	031392 SJ33839	ALPHA/2SIGMA = 17 BETA/2SIGMA = 13 BNA EXT 03-18-92 INJ 04-03-92
M46A WELL	011092 SJ30429	ALPHA/2SIGMA = 4.0, BETA/2SIGMA = 2.7 BNA EXT 01-13-92 INJ 01-21-92
M46A WELL	011092 SJ30430	ALPHA/2SIGMA = 3.5, BETA/2SIGMA = 2.8
M46A WELL	032792 SJ34649	VOC's 4/6/92 C-1,2-DCE:2.5UG/L CFC-21:28 UG/L
M46A WELL	032792 SJ34650	VOC's 4/6/92 C-1,2-DCE:3.2UG/L; CFC-21:21 UG/L
M46A WELL	070892 SJ40095	ALPHA/2SIGMA = 3.5, BETA/2SIGMA = 3.4

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
M46A WELL	070892 SJ40095	BNA EXT 07-09-92 INJ 07-14-92 BLANK 855: 1 UG/L
M57B WELL	020392 SJ31597	ALPHA/2SIGMA = 2.1, BETA/2SIGMA = 1.5 BNA EXT 02-04-92 INJ 02-11-92 BNA FOOTNOTE: #35
M57B WELL	020392 SJ31599	ALPHA/2SIGMA = 2.6, BETA/2SIGMA = 1.5 BNA EXT 02-04-92 INJ 02-11-92
M57B WELL	050592 SJ36742	VOC's 5/6/92
M57B WELL	050592 SJ36743	VOC's 5/6/92
M57B WELL	080592 SJ41477	ALPHA/2SIGMA = 2.0, BETA/2SIGMA = 1.4 BNA EXT 08-10-92 INJ 08-17-92 BNA FOOTNOTE: #35 BNA MI CONFIRMED.
M61B WELL	020392 SJ31598	ALPHA/2SIGMA = 4.2, BETA/2SIGMA = 3.3 BNA EXT 02-04-92 INJ 02-11-92 BNA MATRIX INTERFERENCE CONFIRMED.
M61B WELL	050792 SJ36938	REPORT AMENDED TO CORRECT DATA ENTRY ERROR. RESULTS FOR BOTH TEST CODES F05 AND F17 WERE INCORRECTLY ENTERED AS < .1 NG/L, RATHER THAN < .11 NG/L AS REPORTED BY ENSECO LAB. JPG VOC's 5/11/92
M61B WELL	080792 SJ41623	ALPHA/2SIGMA = 4.3, BETA/2SIGMA = 3.5 BNA EXT 08-10-92 INJ 08-21-92
M61B WELL	080792 SJ41624	ALPHA/2SIGMA = 4.4, BETA/2SIGMA = 3.5 BNA EXT 08-10-92 INJ 08-20-92 BNA FOOTNOTE: #35
PV3 WELL	070991 SJ18675	404=POMR/D TOX & VOA = MONTGOMERY LABS

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
PV3 WELL	070991 SJ18675	DIOXINS/FURANS = ENSECO LABS 705, 720 = BROWN & CALDWELL RADIOACTIVITY ANALYZED BY MONTGOMERY LABS GROSS ALPHA 2SIGM = 13 GROSS BETA 2SIGMA = 9.1 BNA EXT 07-16-91 INJ 07-20-91 BNA MATRIX INTERFERENCE CONFIRMED BY DILUTION
PV3 WELL	070991 SJ18676	404=POMR/D TOX & VOA = MONTGOMERY LABS 705, 720 = BROWN & CALDWELL RADIOACTIVITY ANALYZED BY MONTGOMERY LABS GROSS ALPHA 2SIGM = 12 GROSS BETA 2SIGMA = 11 DIOXINS/FURANS = ENSECO LABS BNA EXT 07-16-91 INJ 07-19-91 BNA FOOTNOTE 35.
PV3 WELL	100891 SJ23699	VOC's 10/10/91 C-1,2-DCE:5.4UG/L; CFC-21:15UG/L THF:APPROX. 100UG/L
PV3 WELL	100891 SJ23700	VOC's 10/10/91 C-1,2-DCE:5.7UG/L; CFC-21:14UG/L THF:APPROX. 110UG/L
PV3 WELL	123191 SJ28679	TEST CODE 710; SAMPLE 48 HRS OLD - PAST HOLDING TIME. ALPHA/2SIGMA = 12, BETA/2SIGMA = 6.4 BNA EXT 01-06-92 INJ 01-13-92
PV3 WELL	033192 SJ34779	VOC's 4/8/92
PV3 WELL	033192 SJ34780	VOC's 4/8/92
PV3 WELL	070992 SJ40165	ALPHA/2SIGMA = 15, BETA/2SIGMA = 9.8 BNA EXT 07-14-92 INJ 07-20-92 BNA FOOTNOTE: #35
P4-7 WELL	122090 SJ07337	ENSECO LABS, FURANS: TCDFS=<0.47NG/L, PECDFS=<.80NG/L, HXCDFS=<L.7NG/L,HPCDFS=<3.4NG/L, OCDF=<17NG/L DIOXINS: TCDDS=<0.63NG/L, PECDDS=<2.1NG/L, HXCDDS=<3.5NG/L HPCDDS=<5.3NG/L, OCDD=<17NG/L TESTS 122: +/- 400; 124: +/- 0.7; 125: +/- 15; 126: +/- 0.1 370 : +/- 87; 371: +/- 29 122, 124, 125, 126, 370, & 371 BY TMA

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
P4-7 WELL	122090 SJ07337	TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
P410 WELL	121190 SJ06908	FURANS: TCDFS =<0.15NG/L, PECDFS= <0.25NG/L, HXCDFS=<0.25NG/ HPCDFS =<0.44NG/L, OCDF=1.6NG/L DIOXINS: TCDDS=<0.19NG/L, PECDDS=<0.66NG/L, HXCDDS=<0.56NG/ HPCDDS=<0.54NG/L, OCDD=2.5NG/L TESTS 122: +/- 300; 124: +/- 1; 125: +/- 18; 126: +/- 0.2 370: +/- 62; 371: +/- 30 BY TMA TEST CODES FOR DIOXINS/FURANS WERE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. RESULTS FOR ISOMERS HAVE ALSO BEEN ADDED TO REPORT. LAB CODE CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. (HKS)
S7 WELL	121890 SJ07216	FURANS: TCDFS=<0.73NG/L; PECDFS=<0.64NG/L; HXCDFS=<1.0NG/L; HPCDFS=<6.5NG/L; OCDF=<19NG/L DIOXINS: TCDDS=<0.83NG/L; PECDDS=<2.0NG/L; HXCDDS=4.1NG/L; HPCDDS=<8.2NG/L; OCDD=57NG/L ABOVE FROM ENSECO LABS TESTS 122: +/- 500; 124: +/- 1; 125: +/- 4; 126: +/- 0.6 370: +/- 21; 371 +/- 32 122, 124, 125, 126, 370, & 371 BY TMA TESTCODES FOR DIOXINS/FURANS ARE ADDED TO REPORT. RESULTS PREVIOUSLY REPORTED IN NOTES TO USERS ARE NOW ASSOCIATED WITH TEST CODES. THERE ARE NO CHANGES IN RESULTS THAT ARE REPORTED. LAB CODES CHANGED FOR ALL RADIOACTIVITY RESULTS FROM SJ TO TA. 2SIGMA = 7.6 GROSS BETA(270) 2SIGMA = 13.0 DIOXINS/FURANS = ENSECO LABS BNA EXT 06-06-91 INJ 06-14-91 BLANK 812: 3 UG/L BNA MATRIX INTERFERENCE CONFIRMED BY DILUTION.
S7 SUMP	090591 SJ22079	VOC's 9/9/91 THF:75UG/L; NON-601/602 PEAKS DETECTED M+P-XYLENES:8.3UG/L; O-XYLENE:7.7UG/L
S7 SUMP	090591 SJ22080	312,314,403,404=POMR/D,206=WN 705, 720 = BROWN & CALDWELL TOX = MONTGOMERY LABS DIOXINS/FURANS =ENSECO LABS

PALOS VERDES LANDFILL - NOTES TO USER FOR THE DIOXIN SAMPLES

LOCATION TYPE	DATE/ JOB	NOTES
S7 SUMP	090591 SJ22080	VOC's 9/9/91 THF:86UG/L; NON-601/602 PEAKS DETECTED M+P-XYLENES:8.0UG/L; O-XYLENE: 8.1UG/L
S7 SUMP	120591 SJ27589	ALPHA/2SIGMA = 9.6, BETA/2SIGMA = 13 BNA EXT 12-09-91 INJ 12-18-91
S7 SUMP	030292 SJ33033	VOC's 3/13/92 XYLENES:38UG/L; MEK:APPROX. 1500UG/L NUMEROUS UNIDENTIFIED NON-HALOGENATED VOC'S DETECTED.
S7 SUMP	060392 SJ38268	HEADER INFORMATION MODIFIED ON 11/11/92 ENGINEER CANCELLED TESTS. WILL HAVE CREW RESAMPLE AT A LATE DATE--INSUFFICIENT SAMPLE COLLECTED TO COMPLETE THE ANALYSE /LK SAMPLE WAS SUBMITTED TO SOME LABS PRIOR TO CANCELLATION DATA REPORTED BY ENSECO LAB FOR POLYCHLORINATED DIOXINS/ FURANS HAVE BEEN ADDED TO REPORT. FOOTNOTE 34 (TEST NOT REQUIRED) REMOVED FROM TEST CODES 151, 206, 312, 314, 408, AND 717, WHERE DATA HAD PREVIOUSLY BEEN ENTERED.(JPG 8/7/92 11 NOV 92 - SAMPLE TYPE CHANGED FROM "WELL" TO "SUMP" TO REFLECT INFORMATION SHOWN ON THE SAMPLE REQUEST FORM. CHANGE REQUESTED BY E. LADEN. 42 PLACED AS FOOTNOTE FOR TEST CODE 305 FOR THIS CHANGE. (JPG)



January 29, 1991
Lab ID: 056170

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the final report for the six aqueous samples for your P.O. #135729 which were received at Enseco-Cal Lab on 20 December 1990. All samples are reported with the 2,3,7,8-substituted isomers as you requested.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

mow

I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
056170-1 thru 6	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheets.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
 for
 San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
056170-0001-SA	06791	AQUEOUS	10 DEC 90	14:10	20 DEC 90
056170-0001-MB	METHOD BLANK	AQUEOUS			20 DEC 90
056170-0002-SA	06792	AQUEOUS	10 DEC 90		20 DEC 90
056170-0003-SA	06793	AQUEOUS	10 DEC 90		20 DEC 90
056170-0004-SA	06794	AQUEOUS	10 DEC 90	17:30	20 DEC 90
056170-0005-SA	06908	AQUEOUS	11 DEC 90	14:30	20 DEC 90
056170-0006-SA	06909	AQUEOUS	11 DEC 90	15:15	20 DEC 90

m 33B

m 33B (duplicate)

m 30B

Equipment Blk

p4-10

EW-7

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056170-0001-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0001-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0001-MB	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0001-MB	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0002-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0002-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0003-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0003-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0004-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0004-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0005-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0005-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0006-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056170-0006-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 21 DEC 90-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.10	9.80	9.45	95	60-140	7.4	50
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	12.0	11.0	11.5	115	60-140	8.7	50
1,2,3,4,6,7,8-HpCDF	10	7.60	8.10	7.85	79	60-140	6.4	50
OCDF	50	40.0	41.0	40.5	81	60-140	2.5	50
2,3,7,8-TCDD	10	8.00	9.30	8.65	87	60-140	15	50
1,2,3,7,8-PeCDD	10	9.00	9.30	9.15	92	60-140	3.3	50
1,2,3,4,7,8-HxCDD	10	8.60	8.80	8.70	87	60-140	2.3	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.70	8.20	82	60-140	12	50
OCDD	50	40.0	42.0	41.0	82	60-140	4.9	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06791

Lab ID: 056170-0001-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

 Sample Amount 0.504L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.13	
PeCDFs (total)	ND	ng/L	0.27	
HxCDFs (total)	ND	ng/L	0.19	
HpCDFs (total)	ND	ng/L	0.77	
OCDF	ND	ng/L	1.3	

Dioxins

TCDDs (total)	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.42	
HxCDDs (total)	ND	ng/L	0.50	
HpCDDs (total)	ND	ng/L	0.61	
OCDD	ND	ng/L	1.4	

% Recovery

13C-2,3,7,8-TCDF	67
13C-2,3,7,8-TCDD ✓	60
13C-1,2,3,7,8-PeCDD	55
13C-1,2,3,6,7,8-HxCDD	60
13C-1,2,3,4,6,7,8-HpCDD	58
13C-OCDD	41

 ND = Not detected
 NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 06791
 Lab ID: 056170-0001-SA
 Matrix: AQUEOUS
 Authorized: 21 DEC 90

Sampled: 10 DEC 90
 Prepared: 04 JAN 91

Received: 20 DEC 90
 Analyzed: 08 JAN 91

Sample Amount 0.504L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.13	
2,3,7,8-TCDF	ND	ng/L	0.13	
PeCDFs (total)	ND	ng/L	0.27	
1,2,3,7,8-PeCDF	ND	ng/L	0.27	
2,3,4,7,8-PeCDF	ND	ng/L	0.27	
HxCDFs (total)	ND	ng/L	0.19	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.19	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.19	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.19	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.19	
HpCDFs (total)	ND	ng/L	0.77	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.77	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.77	
OCDF	ND	ng/L	1.3	
Dioxins				
TCDDs (total)	ND	ng/L	0.18	
2,3,7,8-TCDD	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.42	
1,2,3,7,8-PeCDD	ND	ng/L	0.42	
HxCDDs (total)	ND	ng/L	0.50	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.50	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.50	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.50	
HpCDDs (total)	ND	ng/L	0.61	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.61	
OCDD	ND	ng/L	1.4	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 06791
Lab ID: 056170-0001-SA
Matrix: AQUEOUS
Authorized: 21 DEC 90

Sampled: 10 DEC 90
Prepared: 04 JAN 91

Received: 20 DEC 90
Analyzed: 08 JAN 91

Sample Amount 0.504L
Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	67
13C-2,3,7,8-TCDD	60
13C-1,2,3,7,8-PeCDD	55
13C-1,2,3,6,7,8-HxCDD	60
13C-1,2,3,4,6,7,8-HpCDD	58
13C-OCDD	41

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: METHOD BLANK

Lab ID: 056170-0001-MB

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: NA

Prepared: 04 JAN 91

Received: NA

Analyzed: 08 JAN 91

Sample Amount 1.00L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.044	
PeCDFs (total)	ND	ng/L	0.093	
HxCDFs (total)	ND	ng/L	0.097	
HpCDFs (total)	ND	ng/L	0.22	
OCDF	ND	ng/L	0.78	

Dioxins

TCDDs (total)	ND	ng/L	0.073	
PeCDDs (total)	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.21	
HpCDDs (total)	ND	ng/L	0.34	
OCDD	ND	ng/L	0.69	

% Recovery

13C-2,3,7,8-TCDF	81
13C-2,3,7,8-TCDD	75
13C-1,2,3,7,8-PeCDD	60
13C-1,2,3,6,7,8-HxCDD	69
13C-1,2,3,4,6,7,8-HpCDD	68
13C-OCDD	45

 ND = Not detected
 NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: METHOD BLANK
 Lab ID: 056170-0001-MB
 Matrix: AQUEOUS
 Authorized: 21 DEC 90
 Sampled: NA
 Prepared: 04 JAN 91
 Received: NA
 Analyzed: 08 JAN 91

Sample Amount 1.00L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.044	
2,3,7,8-TCDF	ND	ng/L	0.044	
PeCDFs (total)	ND	ng/L	0.093	
1,2,3,7,8-PeCDF	ND	ng/L	0.093	
2,3,4,7,8-PeCDF	ND	ng/L	0.093	
HxCDFs (total)	ND	ng/L	0.097	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.097	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.097	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.097	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.097	
HpCDFs (total)	ND	ng/L	0.22	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.22	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.22	
OCDF	ND	ng/L	0.78	
Dioxins				
TCDDs (total)	ND	ng/L	0.073	
2,3,7,8-TCDD	ND	ng/L	0.073	
PeCDDs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDD	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.21	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.21	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.21	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.21	
HpCDDs (total)	ND	ng/L	0.34	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.34	
OCDD	ND	ng/L	0.69	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: METHOD BLANK
Lab ID: 056170-0001-MB
Matrix: AQUEOUS
Authorized: 21 DEC 90

Sampled: NA
Prepared: 04 JAN 91

Received: NA
Analyzed: 08 JAN 91

Sample Amount 1.00L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	81
13C-2,3,7,8-TCDD	75
13C-1,2,3,7,8-PeCDD	60
13C-1,2,3,6,7,8-HxCDD	69
13C-1,2,3,4,6,7,8-HpCDD	68
13C-OCDD	45

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 06792
 Lab ID: 056170-0002-SA
 Matrix: AQUEOUS
 Authorized: 21 DEC 90

Sampled: 10 DEC 90
 Prepared: 04 JAN 91

Received: 20 DEC 90
 Analyzed: 08 JAN 91

Sample Amount 0.502L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.091	
PeCDFs (total)	ND	ng/L	0.23	
HxCDFs (total)	ND	ng/L	0.21	
HpCDFs (total)	ND	ng/L	0.49	
OCDF	ND	ng/L	1.3	

Dioxins

TCDDs (total)	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.49	
HxCDDs (total)	ND	ng/L	0.65	
HpCDDs (total)	ND	ng/L	0.69	
OCDD	ND	ng/L	1.5	

% Recovery

13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	72
13C-1,2,3,7,8-PeCDD	61
13C-1,2,3,6,7,8-HxCDD	65
13C-1,2,3,4,6,7,8-HpCDD	62
13C-OCDD	42

ND = Not detected
 NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 06792
 Lab ID: 056170-0002-SA
 Matrix: AQUEOUS
 Authorized: 21 DEC 90

Sampled: 10 DEC 90
 Prepared: 04 JAN 91

Received: 20 DEC 90
 Analyzed: 08 JAN 91

Sample Amount 0.502L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.091	
2,3,7,8-TCDF	ND	ng/L	0.091	
PeCDFs (total)	ND	ng/L	0.23	
1,2,3,7,8-PeCDF	ND	ng/L	0.23	
2,3,4,7,8-PeCDF	ND	ng/L	0.23	
HxCDFs (total)	ND	ng/L	0.21	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.21	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.21	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.21	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.21	
HpCDFs (total)	ND	ng/L	0.49	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.49	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.49	
OCDF	ND	ng/L	1.3	
Dioxins				
TCDDs (total)	ND	ng/L	0.18	
2,3,7,8-TCDD	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.49	
1,2,3,7,8-PeCDD	ND	ng/L	0.49	
HxCDDs (total)	ND	ng/L	0.65	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.65	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.65	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.65	
HpCDDs (total)	ND	ng/L	0.69	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.69	
OCDD	ND	ng/L	1.5	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06792

Lab ID: 056170-0002-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.502L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	72
13C-1,2,3,7,8-PeCDD	61
13C-1,2,3,6,7,8-HxCDD	65
13C-1,2,3,4,6,7,8-HpCDD	62
13C-OCDD	42

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06793

Lab ID: 056170-0003-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.502L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.16	
PeCDFs (total)	ND	ng/L	0.21	
HxCDFs (total)	0.83	ng/L	--	
HpCDFs (total)	3.5	ng/L	--	
OCDF	4.7	ng/L	--	

Dioxins

TCDDs (total)	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.56	
HxCDDs (total)	ND	ng/L	0.80	
HpCDDs (total)	16	ng/L	--	
OCDD	130	ng/L	--	

% Recovery

13C-2,3,7,8-TCDF	73
13C-2,3,7,8-TCDD	64
13C-1,2,3,7,8-PeCDD	64
13C-1,2,3,6,7,8-HxCDD	70
13C-1,2,3,4,6,7,8-HpCDD	66
13C-OCDD	37

ND = Not detected
NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory

Client ID: 06793

Lab ID: 056170-0003-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.502L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.16	
2,3,7,8-TCDF	ND	ng/L	0.16	
PeCDFs (total)	ND	ng/L	0.21	
1,2,3,7,8-PeCDF	ND	ng/L	0.21	
2,3,4,7,8-PeCDF	ND	ng/L	0.21	
HxCDFs (total)	0.83	ng/L	--	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.37	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.37	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.37	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.37	
HpCDFs (total)	3.5	ng/L	--	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	1.5	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	1.5	
OCDF	4.7	ng/L	--	
Dioxins				
TCDDs (total)	ND	ng/L	0.18	
2,3,7,8-TCDD	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.56	
1,2,3,7,8-PeCDD	ND	ng/L	0.56	
HxCDDs (total)	ND	ng/L	0.80	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.80	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.80	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.80	
HpCDDs (total)	16	ng/L	--	
1,2,3,4,6,7,8-HpCDD	6.2	ng/L	--	
OCDD	130	ng/L	--	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06793

Lab ID: 056170-0003-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.502L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	73
13C-2,3,7,8-TCDD	64
13C-1,2,3,7,8-PeCDD	64
13C-1,2,3,6,7,8-HxCDD	70
13C-1,2,3,4,6,7,8-HpCDD	66
13C-OCDD	37

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06794

Lab ID: 056170-0004-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.496L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.12	
PeCDFs (total)	ND	ng/L	0.16	
HxCDFs (total)	1.8	ng/L	--	
HpCDFs (total)	ND	ng/L	0.43	
OCDF	11	ng/L	--	

Dioxins

TCDDs (total)	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.42	
HxCDDs (total)	ND	ng/L	0.53	
HpCDDs (total)	26	ng/L	--	
OCDD	180	ng/L	--	

% Recovery

13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	69
13C-1,2,3,7,8-PeCDD	61
13C-1,2,3,6,7,8-HxCDD	70
13C-1,2,3,4,6,7,8-HpCDD	67
13C-OCDD	44

ND = Not detected
NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory

Client ID: 06794

Lab ID: 056170-0004-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 10 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.496L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.12	
2,3,7,8-TCDF	ND	ng/L	0.12	
PeCDFs (total)	ND	ng/L	0.16	
1,2,3,7,8-PeCDF	ND	ng/L	0.16	
2,3,4,7,8-PeCDF	ND	ng/L	0.16	
HxCDFs (total)	1.8	ng/L	--	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.48	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.48	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.48	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.48	
HpCDFs (total)	ND	ng/L	0.43	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.43	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.43	
OCDF	11	ng/L	--	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.42	
1,2,3,7,8-PeCDD	ND	ng/L	0.42	
HxCDDs (total)	ND	ng/L	0.53	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.53	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.53	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.53	
HpCDDs (total)	26	ng/L	--	
1,2,3,4,6,7,8-HpCDD	12	ng/L	--	
OCDD	180	ng/L	--	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
Client ID: 06794
Lab ID: 056170-0004-SA
Matrix: AQUEOUS
Authorized: 21 DEC 90
Sampled: 10 DEC 90
Prepared: 04 JAN 91
Received: 20 DEC 90
Analyzed: 08 JAN 91

Sample Amount 0.496L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	69
13C-1,2,3,7,8-PeCDD	61
13C-1,2,3,6,7,8-HxCDD	70
13C-1,2,3,4,6,7,8-HpCDD	67
13C-OCDD	44

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak
Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06908

Lab ID: 056170-0005-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 11 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.516L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.15	
PeCDFs (total)	ND	ng/L	0.25	
HxCDFs (total)	ND	ng/L	0.25	
HpCDFs (total)	ND	ng/L	0.44	
OCDF	ND	ng/L	1.6	

Dioxins

TCDDs (total)	ND	ng/L	0.19	
PeCDDs (total)	ND	ng/L	0.66	
HxCDDs (total)	ND	ng/L	0.56	
HpCDDs (total)	ND	ng/L	0.54	
OCDD	ND	ng/L	2.5	

% Recovery

13C-2,3,7,8-TCDF	70
13C-2,3,7,8-TCDD	63
13C-1,2,3,7,8-PeCDD	57
13C-1,2,3,6,7,8-HxCDD	64
13C-1,2,3,4,6,7,8-HpCDD	61
13C-OCDD	39

ND = Not detected
NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 06908
 Lab ID: 056170-0005-SA
 Matrix: AQUEOUS
 Authorized: 21 DEC 90

Sampled: 11 DEC 90
 Prepared: 04 JAN 91

Received: 20 DEC 90
 Analyzed: 08 JAN 91

Sample Amount 0.516L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.15	
2,3,7,8-TCDF	ND	ng/L	0.15	
PeCDFs (total)	ND	ng/L	0.25	
1,2,3,7,8-PeCDF	ND	ng/L	0.25	
2,3,4,7,8-PeCDF	ND	ng/L	0.25	
HxCDFs (total)	ND	ng/L	0.25	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.25	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.25	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.25	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.25	
HpCDFs (total)	ND	ng/L	0.44	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.44	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.44	
OCDF	ND	ng/L	1.6	
Dioxins				
TCDDs (total)	ND	ng/L	0.19	
2,3,7,8-TCDD	ND	ng/L	0.19	
PeCDDs (total)	ND	ng/L	0.66	
1,2,3,7,8-PeCDD	ND	ng/L	0.66	
HxCDDs (total)	ND	ng/L	0.56	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.56	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.56	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.56	
HpCDDs (total)	ND	ng/L	0.54	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.54	
OCDD	ND	ng/L	2.5	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06908

Lab ID: 056170-0005-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 11 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.516L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	70
13C-2,3,7,8-TCDD	63
13C-1,2,3,7,8-PeCDD	57
13C-1,2,3,6,7,8-HxCDD	64
13C-1,2,3,4,6,7,8-HpCDD	61
13C-OCDD	39

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 06909
 Lab ID: 056170-0006-SA
 Matrix: AQUEOUS
 Authorized: 21 DEC 90

Sampled: 11 DEC 90
 Prepared: 04 JAN 91

Received: 20 DEC 90
 Analyzed: 08 JAN 91

Sample Amount 0.502L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.14	
PeCDFs (total)	ND	ng/L	0.17	
HxCDFs (total)	ND	ng/L	0.24	
HpCDFs (total)	ND	ng/L	0.47	
OCDF	ND	ng/L	0.98	

Dioxins

TCDDs (total)	ND	ng/L	0.11	
PeCDDs (total)	ND	ng/L	0.41	
HxCDDs (total)	ND	ng/L	0.33	
HpCDDs (total)	ND	ng/L	0.39	
OCDD	ND	ng/L	1.5	

% Recovery

13C-2,3,7,8-TCDF	81
13C-2,3,7,8-TCDD	77
13C-1,2,3,7,8-PeCDD	66
13C-1,2,3,6,7,8-HxCDD	76
13C-1,2,3,4,6,7,8-HpCDD	75
13C-OCDD	47

ND = Not detected
 NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 06909
 Lab ID: 056170-0006-SA
 Matrix: AQUEOUS
 Authorized: 21 DEC 90

Sampled: 11 DEC 90
 Prepared: 04 JAN 91

Received: 20 DEC 90
 Analyzed: 08 JAN 91

Sample Amount 0.502L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.14	
2,3,7,8-TCDF	ND	ng/L	0.14	
PeCDFs (total)	ND	ng/L	0.17	
1,2,3,7,8-PeCDF	ND	ng/L	0.17	
2,3,4,7,8-PeCDF	ND	ng/L	0.17	
HxCDFs (total)	ND	ng/L	0.24	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.24	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.24	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.24	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.24	
HpCDFs (total)	ND	ng/L	0.47	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.47	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.47	
OCDF	ND	ng/L	0.98	
Dioxins				
TCDDs (total)	ND	ng/L	0.11	
2,3,7,8-TCDD	ND	ng/L	0.11	
PeCDDs (total)	ND	ng/L	0.41	
1,2,3,7,8-PeCDD	ND	ng/L	0.41	
HxCDDs (total)	ND	ng/L	0.33	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.33	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.33	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.33	
HpCDDs (total)	ND	ng/L	0.39	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.39	
OCDD	ND	ng/L	1.5	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 06909

Lab ID: 056170-0006-SA

Matrix: AQUEOUS

Authorized: 21 DEC 90

Sampled: 11 DEC 90

Prepared: 04 JAN 91

Received: 20 DEC 90

Analyzed: 08 JAN 91

Sample Amount 0.502L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	81
13C-2,3,7,8-TCDD	77
13C-1,2,3,7,8-PeCDD	66
13C-1,2,3,6,7,8-HxCDD	76
13C-1,2,3,4,6,7,8-HpCDD	75
13C-OCDD	47

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



February 4, 1991
Lab ID: 056207

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the four aqueous samples for your PO #135729 which were received at Enseco-Cal Lab on 24 December 1990.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Because only one liter of sample was sent, all samples were initially extracted at 500mls. Due to laboratory difficulties samples were re-extracted at 0.125L. Please send two liters of each sample in the future.

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
056207-1 thru 4	Cl ₄ -Cl ₈ Dioxins/Furans

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blanks associated with your samples at the reporting limit levels noted on the attached Datasheets in the Analytical Results Section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate-Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Sampled Time	Received Date
056207-0001-SA	07216	Sump 7	AQUEOUS	18 DEC 90		24 DEC 90
056207-0001-MB	Method Blank		AQUEOUS			24 DEC 90
056207-0002-SA	07217	Trip Blank	AQUEOUS	18 DEC 90		24 DEC 90
056207-0002-MB	Method Blank		AQUEOUS			24 DEC 90
056207-0003-SA	07218	m 57	AQUEOUS	18 DEC 90		24 DEC 90
056207-0004-SA	07219	m 61	AQUEOUS	18 DEC 90		24 DEC 90

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056207-0001-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056207-0001-MB	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056207-0002-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056207-0002-MB	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056207-0003-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056207-0004-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 21 DEC 90-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.10	9.80	9.45	95	60-140	7.4	50
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	12.0	11.0	11.5	115	60-140	8.7	50
1,2,3,4,6,7,8-HpCDF	10	7.60	8.10	7.85	79	60-140	6.4	50
OCDF	50	40.0	41.0	40.5	81	60-140	2.5	50
2,3,7,8-TCDD	10	8.00	9.30	8.65	87	60-140	15	50
1,2,3,7,8-PeCDD	10	9.00	9.30	9.15	92	60-140	3.3	50
1,2,3,4,7,8-HxCDD	10	8.60	8.80	8.70	87	60-140	2.3	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.70	8.20	82	60-140	12	50
OCDD	50	40.0	42.0	41.0	82	60-140	4.9	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 07216

Lab ID: 056207-0001-SA

Matrix: AQUEOUS

Authorized: 26 DEC 90

Sampled: 18 DEC 90

Prepared: 25 JAN 91

Received: 24 DEC 90

Analyzed: 30 JAN 91

Sample Amount 0.106L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.73	✓
PeCDFs (total)	ND	ng/L	0.64	✓
HxCDFs (total)	ND	ng/L	1.0	✓
HpCDFs (total)	ND	ng/L	6.5	✓
OCDF	ND	ng/L	19	✓

Dioxins

TCDDs (total)	ND	ng/L	0.83	✓
PeCDDs (total)	ND	ng/L	2.0	✓
HxCDDs (total)	ND	ng/L	4.1	✓
HpCDDs (total)	ND	ng/L	8.2	✓
OCDD	57 ✓	ng/L	--	

% Recovery

13C-2,3,7,8-TCDF	39
13C-2,3,7,8-TCDD	44
13C-1,2,3,7,8-PeCDD	51
13C-1,2,3,6,7,8-HxCDD	49
13C-1,2,3,4,6,7,8-HpCDD	34
13C-OCDD	24

ND = Not detected
NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 056207-0001-MB
 Matrix: AQUEOUS
 Authorized: 26 DEC 90

Sampled: NA
 Prepared: 25 JAN 91

Received: NA
 Analyzed: 30 JAN 91

Sample Amount 0.125L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.40	
PeCDFs (total)	ND	ng/L	0.29	
HxCDFs (total)	ND	ng/L	0.91	
HpCDFs (total)	ND	ng/L	2.9	
OCDF	ND	ng/L	9.4	

Dioxins

TCDDs (total)	ND	ng/L	0.36	
PeCDDs (total)	ND	ng/L	0.90	
HxCDDs (total)	ND	ng/L	1.6	
HpCDDs (total)	ND	ng/L	3.5	
OCDD	ND	ng/L	11	

% Recovery

13C-2,3,7,8-TCDF	59
13C-2,3,7,8-TCDD	67
13C-1,2,3,7,8-PeCDD	82
13C-1,2,3,6,7,8-HxCDD	78
13C-1,2,3,4,6,7,8-HpCDD	74
13C-OCDD	38

ND = Not detected
 NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 07217

Lab ID: 056207-0002-SA

Matrix: AQUEOUS

Authorized: 26 DEC 90

Sampled: 18 DEC 90

Prepared: 23 JAN 91

Received: 24 DEC 90

Analyzed: 25 JAN 91

Sample Amount 0.125L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.99	✓
PeCDFs (total)	ND	ng/L	1.2	✓
HxCDFs (total)	ND	ng/L	2.2	✓
HpCDFs (total)	ND	ng/L	7.3	✓
OCDF	ND	ng/L	37	✓

Dioxins

TCDDs (total)	ND	ng/L	1.3	✓
PeCDDs (total)	ND	ng/L	4.7	✓
HxCDDs (total)	ND	ng/L	7.0	✓
HpCDDs (total)	ND	ng/L	18	✓
OCDD	ND	ng/L	26	✓

% Recovery

13C-2,3,7,8-TCDF	34
13C-2,3,7,8-TCDD	40
13C-1,2,3,7,8-PeCDD	48
13C-1,2,3,6,7,8-HxCDD	49
13C-1,2,3,4,6,7,8-HpCDD	37
13C-OCDD	28

ND = Not detected
NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 056207-0002-MB

Matrix: AQUEOUS

Authorized: 26 DEC 90

Sampled: NA
Prepared: 23 JAN 91

Received: NA
Analyzed: 25 JAN 91

Sample Amount 0.125L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	1.7	
PeCDFs (total)	ND	ng/L	1.5	
HxCDFs (total)	ND	ng/L	3.8	
HpCDFs (total)	ND	ng/L	10	
OCDF	ND	ng/L	35	

Dioxins

TCDDs (total)	ND	ng/L	2.2	
PeCDDs (total)	ND	ng/L	4.9	
HxCDDs (total)	ND	ng/L	6.0	
HpCDDs (total)	ND	ng/L	18	
OCDD	ND	ng/L	25	

% Recovery

13C-2,3,7,8-TCDF	23
13C-2,3,7,8-TCDD	21
13C-1,2,3,7,8-PeCDD	29
13C-1,2,3,6,7,8-HxCDD	30
13C-1,2,3,4,6,7,8-HpCDD	29
13C-OCDD	24

ND = Not detected
NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 07218

Lab ID: 056207-0003-SA

Matrix: AQUEOUS

Authorized: 26 DEC 90

Sampled: 18 DEC 90

Prepared: 23 JAN 91

Received: 24 DEC 90

Analyzed: 25 JAN 91

Sample Amount 0.125L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	1.8	✓
PeCDFs (total)	ND	ng/L	1.7	✓
HxCDFs (total)	ND	ng/L	4.6	✓
HpCDFs (total)	ND	ng/L	7.7	✓
OCDF	ND	ng/L	41	✓

Dioxins

TCDDs (total)	ND	ng/L	1.4	✓
PeCDDs (total)	ND	ng/L	6.7	✓
HxCDDs (total)	ND	ng/L	7.6	✓
HpCDDs (total)	ND	ng/L	15	✓
OCDD	ND	ng/L	23	✓

% Recovery

13C-2,3,7,8-TCDF	19
13C-2,3,7,8-TCDD	24
13C-1,2,3,7,8-PeCDD	28
13C-1,2,3,6,7,8-HxCDD	29
13C-1,2,3,4,6,7,8-HpCDD	29
13C-OCDD	22

ND = Not detected

NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 07219

Lab ID: 056207-0004-SA

Matrix: AQUEOUS

Authorized: 26 DEC 90

Sampled: 18 DEC 90

Prepared: 23 JAN 91

Received: 24 DEC 90

Analyzed: 25 JAN 91

Sample Amount 0.125L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.88 ✓	-
PeCDFs (total)	ND	ng/L	1.6 ✓	
HxCDFs (total)	ND	ng/L	2.8 ✓	
HpCDFs (total)	ND	ng/L	8.0 ✓	
OCDF	ND	ng/L	29 ✓	

Dioxins

TCDDs (total)	ND	ng/L	1.6 ✓	
PeCDDs (total)	ND	ng/L	4.2 ✓	
HxCDDs (total)	ND	ng/L	9.4 ✓	
HpCDDs (total)	ND	ng/L	14 ✓	
OCDD	ND	ng/L	22 ✓	

% Recovery

13C-2,3,7,8-TCDF	28
13C-2,3,7,8-TCDD	25
13C-1,2,3,7,8-PeCDD	29
13C-1,2,3,6,7,8-HxCDD	28
13C-1,2,3,4,6,7,8-HpCDD	32
13C-OCDD	26

ND = Not detected

NA = Not applicable

Reported By: Bruce Lum

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



January 21, 1991
Lab ID: 056275

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the one aqueous sample for your Purchase Order #135729 which was received at Enseco-Cal Lab on 3 January 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Your sample was initially analyzed at 0.50L. Because of poor internal standard recoveries, the sample was re-extracted. The detection limits for octachlorodibenzo-p-dioxin and octachlorodibenzofuran are higher than normal due to the sample size extracted. In the future, please send a back-up liter for situations such as this.

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned below the word "Sincerely,".

Shelly Eyraud
Low Resolution Dioxin Services Manager

jo

I Sample Description

See the attached Sample Description Information.

The sample was not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
056275-1	Cl ₄ -Cl ₈ Dioxins/Furans

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your sample.

No target parameters were detected in the method blank associated with your sample at the reporting limit levels noted on the attached data sheet in the Analytical Result Section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your sample are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
056275-0001-SA	07337	p4-7	AQUEOUS	20 DEC 90		03 JAN 91
056275-0001-MB	Method Blank		AQUEOUS			03 JAN 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056275-0001-SA	AQUEOUS	DXNFUR-A	21 DEC 90-A	-
056275-0001-MB	AQUEOUS	DXNFUR-A	21 DEC 90-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 21 DEC 90-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.10	9.80	9.45	95	60-140	7.4	50
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	12.0	11.0	11.5	115	60-140	8.7	50
1,2,3,4,6,7,8-HpCDF	10	7.60	8.10	7.85	79	60-140	6.4	50
OCDF	50	40.0	41.0	40.5	81	60-140	2.5	50
2,3,7,8-TCDD	10	8.00	9.30	8.65	87	60-140	15	50
1,2,3,7,8-PeCDD	10	9.00	9.30	9.15	92	60-140	3.3	50
1,2,3,4,7,8-HxCDD	10	8.60	8.80	8.70	87	60-140	2.3	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.70	8.20	82	60-140	12	50
OCDD	50	40.0	42.0	41.0	82	60-140	4.9	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 07337
 Lab ID: 056275-0001-SA
 Matrix: AQUEOUS
 Authorized: 03 JAN 91

Sampled: 20 DEC 90
 Prepared: 14 JAN 91

Received: 03 JAN 91
 Analyzed: 17 JAN 91

Sample Amount 0.350L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.47	✓
PeCDFs (total)	ND	ng/L	0.80	✓
HxCDFs (total)	ND	ng/L	1.7	✓
HpCDFs (total)	ND	ng/L	3.4	✓
OCDF	ND	ng/L	17	✓
Dioxins				
TCDDs (total)	ND	ng/L	0.63	✓
PeCDDs (total)	ND	ng/L	2.1	✓
HxCDDs (total)	ND	ng/L	3.5	✓
HpCDDs (total)	ND	ng/L	5.3	✓
OCDD	ND	ng/L	17	✓
% Recovery				
13C-2,3,7,8-TCDF	52			
13C-2,3,7,8-TCDD	51			
13C-1,2,3,7,8-PeCDD	46			
13C-1,2,3,6,7,8-HxCDD	39			
13C-1,2,3,4,6,7,8-HpCDD	53			
13C-OCDD	26			

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787



February 28, 1991
Lab ID: 056817

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the one aqueous sample for your Purchase Order Number 135729, which was received at Enseco-Cal Lab on 11 February 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

sh

I Sample Description

See the attached Sample Description Information.

The sample was received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
056817-0001	Polychlorinated Dioxins/Furans

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your sample.

No target parameters were detected in the method blank associated with your sample at the reporting limit levels noted on the data sheets in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your sample are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled		Received Date
			Date	Time	
056817-0001-SA	11517	AQUEOUS			11 FEB 91
056817-0001-MB	Method Blank	AQUEOUS			11 FEB 91

- M30B

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
056817-0001-SA	AQUEOUS	DXNFUR-A	18 JAN 91-B	-
056817-0001-MB	AQUEOUS	DXNFUR-A	18 JAN 91-B	-

POLYCHLORINATED DIOXINS/FURANS
LOW RESOLUTION
Client Name: San Jose Creek Laboratory
Client ID: 11517
Lab ID: 056817-0001-SA
Matrix: AQUEOUS
Authorized: 11 FEB 91
Sampled: Unknown
Prepared: 20 FEB 91
Received: 11 FEB 91
Analyzed: 21 FEB 91
Sample Amount 0.847L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.056	
PeCDFs (total)	ND	ng/L	0.057	
HxCDFs (total)	ND	ng/L	0.085	
HpCDFs (total)	ND	ng/L	0.21	
OCDF	ND	ng/L	0.91	

Dioxins

TCDDs (total)	ND	ng/L	0.095	
PeCDDs (total)	ND	ng/L	0.15	
HxCDDs (total)	ND	ng/L	0.24	
HpCDDs (total)	ND	ng/L	0.28	
OCDD	ND	ng/L	0.57	

% Recovery

13C-2,3,7,8-TCDF	71
13C-2,3,7,8-TCDD	76
13C-1,2,3,7,8-PeCDD	91
13C-1,2,3,6,7,8-HxCDD	85
13C-1,2,3,4,6,7,8-HpCDD	92
13C-OCDD	56

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak
Approved By: Shelly Eyraud
The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 056817-0001-MB

Matrix: AQUEOUS

Authorized: 11 FEB 91

Sampled: NA
Prepared: 20 FEB 91

Received: NA
Analyzed: 21 FEB 91

Sample Amount 1.00L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.087	
PeCDFs (total)	ND	ng/L	0.12	
HxCDFs (total)	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.32	
OCDF	ND	ng/L	1.2	

Dioxins

TCDDs (total)	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.26	
HpCDDs (total)	ND	ng/L	0.39	
OCDD	ND	ng/L	0.90	

% Recovery

13C-2,3,7,8-TCDF	62
13C-2,3,7,8-TCDD	67
13C-1,2,3,7,8-PeCDD	75
13C-1,2,3,6,7,8-HxCDD	73
13C-1,2,3,4,6,7,8-HpCDD	86
13C-OCDD	51

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



June 26, 1991
Lab ID: 058749

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 7 June 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ak

I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
058749-1,2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results section.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/-3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
058749-0001-SA	16970	<i>m 35B</i>	AQUEOUS	04 JUN 91		07 JUN 91
058749-0001-MB	Method Blank		AQUEOUS			07 JUN 91
058749-0002-SA	16971	<i>m 37A</i>	AQUEOUS	04 JUN 91		07 JUN 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058749-0001-SA	AQUEOUS	DXNFUR-A	03 JUN 91-A	-
058749-0001-MB	AQUEOUS	DXNFUR-A	03 JUN 91-A	-
058749-0002-SA	AQUEOUS	DXNFUR-A	03 JUN 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 03 JUN 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	8.10	7.30	7.70	77	60-140	10	50
1,2,3,7,8-PeCDF	10	8.90	9.20	9.05	91	60-140	3.3	50
1,2,3,4,7,8-HxCDF	10	7.90	8.80	8.35	84	60-140	11	50
1,2,3,4,6,7,8-HpCDF	10	9.70	9.20	9.45	95	60-140	5.3	50
OCDF	50	59.0	58.0	58.5	117	60-140	1.7	50
2,3,7,8-TCDD	10	5.10	5.60	5.35	54	60-140	9.3	50
1,2,3,7,8-PeCDD	10	11.0	10.0	10.5	105	60-140	9.5	50
1,2,3,4,7,8-HxCDD	10	7.30	7.20	7.25	73	60-140	1.4	50
1,2,3,4,6,7,8-HpCDD	10	7.70	7.20	7.45	75	60-140	6.7	50
OCDD	50	45.0	43.0	44.0	88	60-140	4.5	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 058749-0001-MB
 Matrix: AQUEOUS
 Authorized: 07 JUN 91
 Sampled: NA
 Prepared: 12 JUN 91
 Received: NA
 Analyzed: 14 JUN 91

Sample Amount 1.00 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.095	
2,3,7,8-TCDF	ND	ng/L	0.095	
PeCDFs (total)	ND	ng/L	0.16	
1,2,3,7,8-PeCDF	ND	ng/L	0.16	
2,3,4,7,8-PeCDF	ND	ng/L	0.16	
HxCDFs (total)	ND	ng/L	0.22	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.22	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.22	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.22	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.22	
HpCDFs (total)	ND	ng/L	0.31	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.31	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.31	
OCDF	ND	ng/L	0.73	
Dioxins				
TCDDs (total)	ND	ng/L	0.14	
2,3,7,8-TCDD	ND	ng/L	0.14	
PeCDDs (total)	ND	ng/L	0.52	
1,2,3,7,8-PeCDD	ND	ng/L	0.52	
HxCDDs (total)	ND	ng/L	0.58	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.58	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.58	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.58	
HpCDDs (total)	ND	ng/L	0.30	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.30	
OCDD	ND	ng/L	0.74	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 058749-0001-MB

Matrix: AQUEOUS

Authorized: 07 JUN 91

Sampled: NA

Prepared: 12 JUN 91

Received: NA

Analyzed: 14 JUN 91

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	57
13C-2,3,7,8-TCDD	68
13C-1,2,3,7,8-PeCDD	67
13C-1,2,3,6,7,8-HxCDD	65
13C-1,2,3,4,6,7,8-HpCDD	67
13C-OCDD	46

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 16970
 Lab ID: 058749-0001-SA
 Matrix: AQUEOUS
 Authorized: 07 JUN 91
 Sampled: 04 JUN 91
 Prepared: 12 JUN 91
 Received: 07 JUN 91
 Analyzed: 14 JUN 91

Sample Amount 0.499 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.14	
2,3,7,8-TCDF	ND	ng/L	0.14	
PeCDFs (total)	ND	ng/L	0.26	
1,2,3,7,8-PeCDF	ND	ng/L	0.26	
2,3,4,7,8-PeCDF	ND	ng/L	0.26	
HxCDFs (total)	ND	ng/L	0.43	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.43	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.43	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.43	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.43	
HpCDFs (total)	ND	ng/L	0.59	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.59	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.59	
OCDF	ND	ng/L	1.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.22	
2,3,7,8-TCDD	ND	ng/L	0.22	
PeCDDs (total)	ND	ng/L	0.85	
1,2,3,7,8-PeCDD	ND	ng/L	0.85	
HxCDDs (total)	ND	ng/L	0.72	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.72	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.72	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.72	
HpCDDs (total)	ND	ng/L	0.46	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.46	
OCDD	ND	ng/L	0.84	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Dale Walker Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 16970

Lab ID: 058749-0001-SA

Matrix: AQUEOUS

Authorized: 07 JUN 91

Sampled: 04 JUN 91

Prepared: 12 JUN 91

Received: 07 JUN 91

Analyzed: 14 JUN 91

Sample Amount 0.499 L
Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	91
13C-2,3,7,8-TCDD	97
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	79
13C-1,2,3,4,6,7,8-HpCDD	76
13C-OCDD	57

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 16971
Lab ID: 058749-0002-SA
Matrix: AQUEOUS
Authorized: 07 JUN 91

Sampled: 04 JUN 91
Prepared: 12 JUN 91

Received: 07 JUN 91
Analyzed: 14 JUN 91

Sample Amount 0.510 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.14	
2,3,7,8-TCDF	ND	ng/L	0.14	
PeCDFs (total)	ND	ng/L	0.25	
1,2,3,7,8-PeCDF	ND	ng/L	0.25	
2,3,4,7,8-PeCDF	ND	ng/L	0.25	
HxCDFs (total)	ND	ng/L	0.39	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.39	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.39	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.39	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.39	
HpCDFs (total)	ND	ng/L	0.50	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.50	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.50	
OCDF	ND	ng/L	1.6	
Dioxins				
TCDDs (total)	ND	ng/L	0.14	
2,3,7,8-TCDD	ND	ng/L	0.14	
PeCDDs (total)	ND	ng/L	0.77	
1,2,3,7,8-PeCDD	ND	ng/L	0.77	
HxCDDs (total)	ND	ng/L	0.77	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.77	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.77	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.77	
HpCDDs (total)	ND	ng/L	0.43	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.43	
OCDD	ND	ng/L	1.1	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 16971

Lab ID: 058749-0002-SA

Matrix: AQUEOUS

Authorized: 07 JUN 91

Sampled: 04 JUN 91

Prepared: 12 JUN 91

Received: 07 JUN 91

Analyzed: 14 JUN 91

Sample Amount 0.510 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	86
13C-2,3,7,8-TCDD	93
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	78
13C-1,2,3,4,6,7,8-HpCDD	71
13C-OCDD	48

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



June 26, 1991
Lab ID: 058848

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 13 June 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,



Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
058848-1,2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results section.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
058848-0001-SA	17017	-S7	AQUEOUS	04 JUN 91		13 JUN 91
058848-0001-MB	Method Blank		AQUEOUS			13 JUN 91
058848-0002-SA	17018	-FW9	AQUEOUS	04 JUN 91		13 JUN 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058848-0001-SA	AQUEOUS	DXNFUR-A	03 JUN 91-A	-
058848-0001-MB	AQUEOUS	DXNFUR-A	03 JUN 91-A	-
058848-0002-SA	AQUEOUS	DXNFUR-A	03 JUN 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 03 JUN 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	8.10	7.30	7.70	77	60-140	10	50
1,2,3,7,8-PeCDF	10	8.90	9.20	9.05	91	60-140	3.3	50
1,2,3,4,7,8-HxCDF	10	7.90	8.80	8.35	84	60-140	11	50
1,2,3,4,6,7,8-HpCDF	10	9.70	9.20	9.45	95	60-140	5.3	50
OCDF	50	59.0	58.0	58.5	117	60-140	1.7	50
2,3,7,8-TCDD	10	5.10	5.60	5.35	54	60-140	9.3	50
1,2,3,7,8-PeCDD	10	11.0	10.0	10.5	105	60-140	9.5	50
1,2,3,4,7,8-HxCDD	10	7.30	7.20	7.25	73	60-140	1.4	50
1,2,3,4,6,7,8-HpCDD	10	7.70	7.20	7.45	75	60-140	6.7	50
OCDD	50	45.0	43.0	44.0	88	60-140	4.5	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 058848-0001-MB
 Matrix: AQUEOUS
 Authorized: 13 JUN 91
 Sampled: NA
 Prepared: 17 JUN 91
 Received: NA
 Analyzed: 18 JUN 91

Sample Amount 1.00 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.10	
2,3,7,8-TCDF	ND	ng/L	0.10	
PeCDFs (total)	ND	ng/L	0.20	
1,2,3,7,8-PeCDF	ND	ng/L	0.20	
2,3,4,7,8-PeCDF	ND	ng/L	0.20	
HxCDFs (total)	ND	ng/L	0.32	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.32	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.32	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.32	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.32	
HpCDFs (total)	ND	ng/L	0.35	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.35	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.35	
OCDF	ND	ng/L	1.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.56	
1,2,3,7,8-PeCDD	ND	ng/L	0.56	
HxCDDs (total)	ND	ng/L	0.60	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.60	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.60	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.60	
HpCDDs (total)	ND	ng/L	0.30	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.30	
OCDD	ND	ng/L	1.0	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 058848-0001-MB
Matrix: AQUEOUS
Authorized: 13 JUN 91
Sampled: NA
Prepared: 17 JUN 91
Received: NA
Analyzed: 18 JUN 91

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	80
13C-2,3,7,8-TCDD	87
13C-1,2,3,7,8-PeCDD	87
13C-1,2,3,6,7,8-HxCDD	81
13C-1,2,3,4,6,7,8-HpCDD	67
13C-OCDD	46

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 17017
 Lab ID: 058848-0001-SA
 Matrix: AQUEOUS
 Authorized: 13 JUN 91
 Sampled: 04 JUN 91
 Prepared: 17 JUN 91
 Received: 13 JUN 91
 Analyzed: 18 JUN 91

Sample Amount 0.498 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.26	
2,3,7,8-TCDF	ND	ng/L	0.26	
PeCDFs (total)	ND	ng/L	0.34	
1,2,3,7,8-PeCDF	ND	ng/L	0.34	
2,3,4,7,8-PeCDF	ND	ng/L	0.34	
HxCDFs (total)	ND	ng/L	0.60	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.60	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.60	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.60	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.60	
HpCDFs (total)	ND	ng/L	0.63	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.63	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.63	
OCDF	ND	ng/L	2.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.29	
2,3,7,8-TCDD	ND	ng/L	0.29	
PeCDDs (total)	ND	ng/L	1.0	
1,2,3,7,8-PeCDD	ND	ng/L	1.0	
HxCDDs (total)	ND	ng/L	1.1	
1,2,3,4,7,8-HxCDD	ND	ng/L	1.1	
1,2,3,6,7,8-HxCDD	ND	ng/L	1.1	
1,2,3,7,8,9-HxCDD	ND	ng/L	1.1	
HpCDDs (total)	ND	ng/L	0.54	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.54	
OCDD	ND	ng/L	1.6	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17017

Lab ID: 058848-0001-SA

Matrix: AQUEOUS

Authorized: 13 JUN 91

Sampled: 04 JUN 91

Prepared: 17 JUN 91

Received: 13 JUN 91

Analyzed: 18 JUN 91

Sample Amount 0.498 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	77
13C-2,3,7,8-TCDD	79
13C-1,2,3,7,8-PeCDD	81
13C-1,2,3,6,7,8-HxCDD	73
13C-1,2,3,4,6,7,8-HpCDD	60
13C-OCDD	35

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 17018
 Lab ID: 058848-0002-SA
 Matrix: AQUEOUS
 Authorized: 13 JUN 91
 Sampled: 04 JUN 91
 Prepared: 17 JUN 91
 Received: 13 JUN 91
 Analyzed: 18 JUN 91

Sample Amount 0.510 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.16	
2,3,7,8-TCDF	ND	ng/L	0.16	
PeCDFs (total)	ND	ng/L	0.28	
1,2,3,7,8-PeCDF	ND	ng/L	0.28	
2,3,4,7,8-PeCDF	ND	ng/L	0.28	
HxCDFs (total)	ND	ng/L	0.52	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.52	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.52	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.52	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.52	
HpCDFs (total)	ND	ng/L	0.58	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.58	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.58	
OCDF	ND	ng/L	2.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	1.0	
1,2,3,7,8-PeCDD	ND	ng/L	1.0	
HxCDDs (total)	ND	ng/L	1.2	
1,2,3,4,7,8-HxCDD	ND	ng/L	1.2	
1,2,3,6,7,8-HxCDD	ND	ng/L	1.2	
1,2,3,7,8,9-HxCDD	ND	ng/L	1.2	
HpCDDs (total)	ND	ng/L	0.60	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.60	
OCDD	ND	ng/L	1.7	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17018

Lab ID: 058848-0002-SA

Matrix: AQUEOUS

Authorized: 13 JUN 91

Sampled: 04 JUN 91

Prepared: 17 JUN 91

Received: 13 JUN 91

Analyzed: 18 JUN 91

Sample Amount 0.510 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	74
13C-2,3,7,8-TCDD	74
13C-1,2,3,7,8-PeCDD	73
13C-1,2,3,6,7,8-HxCDD	61
13C-1,2,3,4,6,7,8-HpCDD	51
13C-OCDD	35

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

OK
JDL
6/5/91

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: June 05, 1991

Sample I.D. Number(s): 17017, 17018

Sample Type: Landfill wells

Sample Size: 1 liter

To Be Analyzed By (Laboratory or Company): California Analytical Lab

To Be Analyzed For (Constituents): Dioxins by EPA Method 8280.

P.O. #: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(213) 699-0405

Requested By: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Diox 060591
1965 South Workman Mill Road
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 17017, 17018

Date Received: 6/13/91

Laboratory or Company: California Analytical Labs

By: [Signature] Signature

P.O. Number: 135729



July 11, 1991
Lab ID: 059075

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whitter, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729 which were received at Enseco-Cal Lab on 27 June 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Your "sample analysis request" form states sample I.D. numbers: 17563, 17564 and 17565. Sample I.D. 17563 was not received.

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads 'Shelly Eyraud'. The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Services

td

I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
059075-1, 2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blanks associated with your samples at the reporting limit levels noted on the attached data sheet..

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
059075-0001-SA	17564	- M 33B	AQUEOUS	13 JUN 91		27 JUN 91
059075-0001-MB	Method Blank		AQUEOUS			27 JUN 91
059075-0002-SA	17565	- Rinsate Blank	AQUEOUS	13 JUN 91		27 JUN 91

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled Date	Time	Received Date
059075-0001-SA	17564	AQUEOUS	13 JUN 91		27 JUN 91
059075-0001-MB	Method Blank	AQUEOUS			27 JUN 91
059075-0002-SA	17565	AQUEOUS	13 JUN 91		27 JUN 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
059075-0001-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059075-0001-MB	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059075-0002-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry

Analyte	Spiked	Concentration		AVG	Accuracy		Precision		
		DCS1	Measured DCS2		Average (%) DCS	Limits	(RPD) DCS Limit	DCS Limit	
Category: DXNFUR-A									
Matrix: AQUEOUS									
QC Lot: 25 JUN 91-A									
Concentration Units: ng									
2,3,7,8-TCDF	10	7.30	7.40	7.35	74	60-140	1.4	50	
1,2,3,7,8-PeCDF	10	5.30	5.30	5.30	53	60-140	0.0	50	
1,2,3,4,7,8-HxCDF	10	9.10	8.80	8.95	90	60-140	3.4	50	
1,2,3,4,6,7,8-HpCDF	10	9.10	8.70	8.90	89	60-140	4.5	50	
OCDF	50	58.0	68.0	63.0	126	60-140	16	50	
2,3,7,8-TCDD	10	7.80	7.50	7.65	77	60-140	3.9	50	
1,2,3,7,8-PeCDD	10	9.30	9.40	9.35	94	60-140	1.1	50	
1,2,3,4,7,8-HxCDD	10	8.40	8.30	8.35	84	60-140	1.2	50	
1,2,3,4,6,7,8-HpCDD	10	7.70	8.00	7.85	79	60-140	3.8	50	
OCDD	50	46.0	50.0	48.0	96	60-140	8.3	50	

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 059075-0001-MB

Matrix: AQUEOUS

Authorized: 27 JUN 91

Sampled: NA

Prepared: 02 JUL 91

Received: NA

Analyzed: 03 JUL 91

Sample Amount 1.00 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.041	
2,3,7,8-TCDF	ND	ng/L	0.041	
PeCDFs (total)	ND	ng/L	0.040	
1,2,3,7,8-PeCDF	ND	ng/L	0.040	
2,3,4,7,8-PeCDF	ND	ng/L	0.040	
HxCDFs (total)	ND	ng/L	0.059	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.059	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.059	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.059	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.059	
HpCDFs (total)	ND	ng/L	0.080	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.080	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.080	
OCDF	ND	ng/L	0.21	
Dioxins				
TCDDs (total)	ND	ng/L	0.039	
2,3,7,8-TCDD	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDD	ND	ng/L	0.11	
HxCDDs (total)	ND	ng/L	0.11	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.11	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.11	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.11	
HpCDDs (total)	ND	ng/L	0.073	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.073	
OCDD	ND	ng/L	0.18	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 059075-0001-MB

Matrix: AQUEOUS

Authorized: 27 JUN 91

Sampled: NA

Prepared: 02 JUL 91

Received: NA

Analyzed: 03 JUL 91

Sample Amount 1.00 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	81
13C-2,3,7,8-TCDD	82
13C-1,2,3,7,8-PeCDD	93
13C-1,2,3,6,7,8-HxCDD	87
13C-1,2,3,4,6,7,8-HpCDD	76
13C-OCDD	59

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 17564
 Lab ID: 059075-0001-SA
 Matrix: AQUEOUS
 Authorized: 27 JUN 91

Sampled: 13 JUN 91
 Prepared: 02 JUL 91
 Received: 27 JUN 91
 Analyzed: 03 JUL 91

Sample Amount: 0.436 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.079	
2,3,7,8-TCDF	ND	ng/L	0.079	
PeCDFs (total)	ND	ng/L	0.068	
1,2,3,7,8-PeCDF	ND	ng/L	0.068	
2,3,4,7,8-PeCDF	ND	ng/L	0.068	
HxCDFs (total)	ND	ng/L	0.16	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.16	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.16	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.16	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.16	
HpCDFs (total)	ND	ng/L	0.12	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.12	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.12	
OCDF	ND	ng/L	0.44	
Dioxins				
TCDDs (total)	ND	ng/L	0.095	
2,3,7,8-TCDD	ND	ng/L	0.095	
PeCDDs (total)	ND	ng/L	0.16	
1,2,3,7,8-PeCDD	ND	ng/L	0.16	
HxCDDs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.17	
HpCDDs (total)	ND	ng/L	0.14	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.14	
OCDD	ND	ng/L	0.36	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17564

Lab ID: 059075-0001-SA

Matrix: AQUEOUS

Authorized: 27 JUN 91

Sampled: 13 JUN 91

Prepared: 02 JUL 91

Received: 27 JUN 91

Analyzed: 03 JUL 91

Sample Amount 0.436 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	95
13C-2,3,7,8-TCDD	91
13C-1,2,3,7,8-PeCDD	94
13C-1,2,3,6,7,8-HxCDD	77
13C-1,2,3,4,6,7,8-HpCDD	77
13C-OCDD	60

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 17565
Lab ID: 059075-0002-SA
Matrix: AQUEOUS
Authorized: 27 JUN 91

Sampled: 13 JUN 91
Prepared: 02 JUL 91

Received: 27 JUN 91
Analyzed: 03 JUL 91

Sample Amount 0.488 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.066	
2,3,7,8-TCDF	ND	ng/L	0.066	
PeCDFs (total)	ND	ng/L	0.060	
1,2,3,7,8-PeCDF	ND	ng/L	0.060	
2,3,4,7,8-PeCDF	ND	ng/L	0.060	
HxCDFs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.17	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.17	
HpCDFs (total)	ND	ng/L	0.15	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.15	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.15	
OCDF	ND	ng/L	0.53	
Dioxins				
TCDDs (total)	ND	ng/L	0.061	
2,3,7,8-TCDD	ND	ng/L	0.061	
PeCDDs (total)	ND	ng/L	0.21	
1,2,3,7,8-PeCDD	ND	ng/L	0.21	
HxCDDs (total)	ND	ng/L	0.22	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.22	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.22	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.22	
HpCDDs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.18	
OCDD	ND	ng/L	0.40	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17565

Lab ID: 059075-0002-SA

Matrix: AQUEOUS

Authorized: 27 JUN 91

Sampled: 13 JUN 91

Prepared: 02 JUL 91

Received: 27 JUN 91

Analyzed: 03 JUL 91

Sample Amount 0.488 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	89
13C-2,3,7,8-TCDD	86
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	72
13C-1,2,3,4,6,7,8-HpCDD	71
13C-OCDD	57

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



July 2, 1991
Lab ID: 059021

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the three aqueous samples for your Purchase Order Number 135729 which were received at Enseco-Cal Lab on 25 June 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud".

Shelly Eyraud
Low Resolution/Dioxin Services Manager

svf

I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical tests were requested.

<u>Lab ID</u>	<u>Analysis Description</u>
059021-1 thru 3	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8 Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheets in the Analytical Results section.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
059021-0001-SA	17701	- m 38A	AQUEOUS	17 JUN 91		25 JUN 91
059021-0002-SA	17702	- m 38A	AQUEOUS	17 JUN 91		25 JUN 91
059021-0002-MB	Method Blank		AQUEOUS			25 JUN 91
059021-0003-SA	17703	- m 39A	AQUEOUS	17 JUN 91		25 JUN 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
059021-0001-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059021-0002-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059021-0002-MB	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059021-0003-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 25 JUN 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	7.30	7.40	7.35	74	60-140	1.4	50
1,2,3,7,8-PeCDF	10	5.30	5.30	5.30	53	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	9.10	8.80	8.95	90	60-140	3.4	50
1,2,3,4,6,7,8-HpCDF	10	9.10	8.70	8.90	89	60-140	4.5	50
OCDF	50	58.0	68.0	63.0	126	60-140	16	50
2,3,7,8-TCDD	10	7.80	7.50	7.65	77	60-140	3.9	50
1,2,3,7,8-PeCDD	10	9.30	9.40	9.35	94	60-140	1.1	50
1,2,3,4,7,8-HxCDD	10	8.40	8.30	8.35	84	60-140	1.2	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.00	7.85	79	60-140	3.8	50
OCDD	50	46.0	50.0	48.0	96	60-140	8.3	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 17701
 Lab ID: 059021-0001-SA
 Matrix: AQUEOUS
 Authorized: 25 JUN 91
 Sampled: 17 JUN 91
 Prepared: 25 JUN 91
 Received: 25 JUN 91
 Analyzed: 26 JUN 91

Sample Amount 0.555 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.048	
2,3,7,8-TCDF	ND	ng/L	0.048	
PeCDFs (total)	ND	ng/L	0.063	
1,2,3,7,8-PeCDF	ND	ng/L	0.063	
2,3,4,7,8-PeCDF	ND	ng/L	0.063	
HxCDFs (total)	ND	ng/L	0.23	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.23	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.23	
HpCDFs (total)	ND	ng/L	0.14	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.14	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.14	
OCDF	ND	ng/L	0.54	
Dioxins				
TCDDs (total)	ND	ng/L	0.094	
2,3,7,8-TCDD	ND	ng/L	0.094	
PeCDDs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDD	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.22	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.22	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.22	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.22	
HpCDDs (total)	ND	ng/L	0.48	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.48	
OCDD	ND	ng/L	0.54	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 17701
Lab ID: 059021-0001-SA
Matrix: AQUEOUS
Authorized: 25 JUN 91
Sampled: 17 JUN 91
Prepared: 25 JUN 91
Received: 25 JUN 91
Analyzed: 26 JUN 91

Sample Amount 0.555 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	94
13C-2,3,7,8-TCDD	95
13C-1,2,3,7,8-PeCDD	98
13C-1,2,3,6,7,8-HxCDD	87
13C-1,2,3,4,6,7,8-HpCDD	77
13C-OCDD	49

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 059021-0002-MB

Matrix: AQUEOUS

Authorized: 25 JUN 91

Sampled: NA

Prepared: 25 JUN 91

Received: NA

Analyzed: 26 JUN 91

Sample Amount 1.00 L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.029	
2,3,7,8-TCDF	ND	ng/L	0.029	
PeCDFs (total)	ND	ng/L	0.018	
1,2,3,7,8-PeCDF	ND	ng/L	0.018	
2,3,4,7,8-PeCDF	ND	ng/L	0.018	
HxCDFs (total)	ND	ng/L	0.075	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.075	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.075	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.075	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.075	
HpCDFs (total)	ND	ng/L	0.070	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.070	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.070	
OCDF	ND	ng/L	0.30	
Dioxins				
TCDDs (total)	ND	ng/L	0.044	
2,3,7,8-TCDD	ND	ng/L	0.044	
PeCDDs (total)	ND	ng/L	0.070	
1,2,3,7,8-PeCDD	ND	ng/L	0.070	
HxCDDs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.10	
HpCDDs (total)	ND	ng/L	0.15	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.15	
OCDD	ND	ng/L	0.26	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 059021-0002-MB
Matrix: AQUEOUS
Authorized: 25 JUN 91
Sampled: NA
Prepared: 25 JUN 91
Received: NA
Analyzed: 26 JUN 91

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	88
13C-2,3,7,8-TCDD	96
13C-1,2,3,7,8-PeCDD	101
13C-1,2,3,6,7,8-HxCDD	90
13C-1,2,3,4,6,7,8-HpCDD	75
13C-OCDD	56

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 17702
Lab ID: 059021-0002-SA
Matrix: AQUEOUS
Authorized: 25 JUN 91

Sampled: 17 JUN 91
Prepared: 25 JUN 91

Received: 25 JUN 91
Analyzed: 26 JUN 91

Sample Amount 0.501 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.075	
2,3,7,8-TCDF	ND	ng/L	0.075	
PeCDFs (total)	ND	ng/L	0.085	
1,2,3,7,8-PeCDF	ND	ng/L	0.085	
2,3,4,7,8-PeCDF	ND	ng/L	0.085	
HxCDFs (total)	ND	ng/L	0.33	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.33	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.33	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.33	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.33	
HpCDFs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.20	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.20	
OCDF	ND	ng/L	0.79	
Dioxins				
TCDDs (total)	ND	ng/L	0.077	
2,3,7,8-TCDD	ND	ng/L	0.077	
PeCDDs (total)	ND	ng/L	0.25	
1,2,3,7,8-PeCDD	ND	ng/L	0.25	
HxCDDs (total)	ND	ng/L	0.27	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.27	
HpCDDs (total)	ND	ng/L	0.57	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.57	
OCDD	ND	ng/L	0.44	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17702

Lab ID: 059021-0002-SA

Matrix: AQUEOUS

Authorized: 25 JUN 91

Sampled: 17 JUN 91

Prepared: 25 JUN 91

Received: 25 JUN 91

Analyzed: 26 JUN 91

Sample Amount 0.501 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	79
13C-1,2,3,7,8-PeCDD	80
13C-1,2,3,6,7,8-HxCDD	70
13C-1,2,3,4,6,7,8-HpCDD	60
13C-OCDD	44

ND = Not detected

NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17703

Lab ID: 059021-0003-SA

Matrix: AQUEOUS

Authorized: 25 JUN 91

Sampled: 17 JUN 91

Prepared: 25 JUN 91

Received: 25 JUN 91

Analyzed: 26 JUN 91

Sample Amount 0.512 L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.051	
2,3,7,8-TCDF	ND	ng/L	0.051	
PeCDFs (total)	ND	ng/L	0.078	
1,2,3,7,8-PeCDF	ND	ng/L	0.078	
2,3,4,7,8-PeCDF	ND	ng/L	0.078	
HxCDFs (total)	ND	ng/L	0.29	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.29	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.29	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.29	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.29	
HpCDFs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.20	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.20	
OCDF	ND	ng/L	0.59	
Dioxins				
TCDDs (total)	ND	ng/L	0.081	
2,3,7,8-TCDD	ND	ng/L	0.081	
PeCDDs (total)	ND	ng/L	0.24	
1,2,3,7,8-PeCDD	ND	ng/L	0.24	
HxCDDs (total)	ND	ng/L	0.22	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.22	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.22	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.22	
HpCDDs (total)	ND	ng/L	0.50	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.50	
OCDD	ND	ng/L	0.30	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 17703

Lab ID: 059021-0003-SA

Matrix: AQUEOUS

Authorized: 25 JUN 91

Sampled: 17 JUN 91

Prepared: 25 JUN 91

Received: 25 JUN 91

Analyzed: 26 JUN 91

Sample Amount 0.512 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	98
13C-2,3,7,8-TCDD	99
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	84
13C-1,2,3,4,6,7,8-HpCDD	73
13C-OCDD	56

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

JA
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July 24, 1991
Lab ID: 059328

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 16 July 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
059328-1,2	Cl ₄ -Cl ₈ dioxins/Furans

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled		Received
			Date	Time	Date
059328-0001-SA	18675	AQUEOUS	09 JUL 91		16 JUL 91
059328-0001-MB	Method Blank	AQUEOUS			16 JUL 91
059328-0002-SA	18676	AQUEOUS	09 JUL 91		16 JUL 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
059328-0001-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059328-0001-MB	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059328-0002-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG.	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 25 JUN 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	7.30	7.40	7.35	74	60-140	1.4	50
1,2,3,7,8-PeCDF	10	5.30	5.30	5.30	53	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	9.10	8.80	8.95	90	60-140	3.4	50
1,2,3,4,6,7,8-HpCDF	10	9.10	8.70	8.90	89	60-140	4.5	50
OCDF	50	58.0	68.0	63.0	126	60-140	16	50
2,3,7,8-TCDD	10	7.80	7.50	7.65	77	60-140	3.9	50
1,2,3,7,8-PeCDD	10	9.30	9.40	9.35	94	60-140	1.1	50
1,2,3,4,7,8-HxCDD	10	8.40	8.30	8.35	84	60-140	1.2	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.00	7.85	79	60-140	3.8	50
OCDD	50	46.0	50.0	48.0	96	60-140	8.3	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 059328-0001-MB
 Matrix: AQUEOUS
 Authorized: 17 JUL 91
 Sampled: NA
 Prepared: 19 JUL 91
 Received: NA
 Analyzed: 22 JUL 91

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.036	
PeCDFs (total)	ND	ng/L	0.058	
HxCDFs (total)	ND	ng/L	0.11	
HpCDFs (total)	ND	ng/L	0.14	
OCDF	ND	ng/L	0.62	

Dioxins

TCDDs (total)	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.16	
HxCDDs (total)	ND	ng/L	0.25	
HpCDDs (total)	ND	ng/L	0.11	
OCDD	ND	ng/L	0.64	

% Recovery

13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	80
13C-1,2,3,7,8-PeCDD	80
13C-1,2,3,6,7,8-HxCDD	68
13C-1,2,3,4,6,7,8-HpCDD	51
13C-OCDD	33

ND = Not detected
 NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

10/30/91

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 18675
Lab ID: 059328-0001-SA
Matrix: AQUEOUS
Authorized: 17 JUL 91

Sampled: 09 JUL 91
Prepared: 19 JUL 91

Received: 16 JUL 91
Analyzed: 22 JUL 91

Sample Amount: 0.5 L
Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.036	
PeCDFs (total)	ND	ng/L	0.088	
HxCDFs (total)	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.25	
OCDF	ND	ng/L	0.89	
Dioxins				
TCDDs (total)	ND	ng/L	0.092	
PeCDDs (total)	ND	ng/L	0.32	
HxCDDs (total)	ND	ng/L	0.32	
HpCDDs (total)	ND	ng/L	0.12	
OCDD	ND	ng/L	0.96	
% Recovery				
13C-2,3,7,8-TCDF	70			
13C-2,3,7,8-TCDD	70			
13C-1,2,3,7,8-PeCDD	73			
13C-1,2,3,6,7,8-HxCDD	63			
13C-1,2,3,4,6,7,8-HpCDD	46			
13C-OCDD	30			

ND = Not detected
NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 18676
 Lab ID: 059328-0002-SA
 Matrix: AQUEOUS
 Authorized: 17 JUL 91
 Sampled: 09 JUL 91
 Prepared: 19 JUL 91
 Received: 16 JUL 91
 Analyzed: 22 JUL 91

Sample Amount 0.997 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.035	
PeCDFs (total)	ND	ng/L	0.031	
HxCDFs (total)	ND	ng/L	0.071	
HpCDFs (total)	ND	ng/L	0.11	
OCDF	ND	ng/L	0.35	

Dioxins

TCDDs (total)	ND	ng/L	0.029	
PeCDDs (total)	ND	ng/L	0.11	
HxCDDs (total)	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.083	
OCDD	ND	ng/L	0.52	

% Recovery

13C-2,3,7,8-TCDF	59
13C-2,3,7,8-TCDD	56
13C-1,2,3,7,8-PeCDD	67
13C-1,2,3,6,7,8-HxCDD	61
13C-1,2,3,4,6,7,8-HpCDD	45
13C-OCDD	31

ND = Not detected
 NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

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September 17, 1991
Lab ID: 059831

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the one aqueous sample for your P.O. #135729, which was received at Enseco-Cal Lab on 9 August 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See attached Sample Description Information.

The sample was not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
059831-0001	Cl ₄ -Cl ₈ Dioxins/Furans

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your sample.

No target parameters were detected in the method blank associated with your sample at the reporting limit levels noted on the data sheets in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your sample are on the attached Laboratory Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. These control limits are updated on a quarterly basis. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste sample are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled Date	Time	Received Date
059831-0001-SA	20196	AQUEOUS	05 AUG 91		09 AUG 91
059831-0001-MB	Method Blank	AQUEOUS			09 AUG 91

- m 300

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
059831-0001-SA	AQUEOUS	DXNFUR-A	25 JUN 91-A	-
059831-0001-MB	AQUEOUS	DXNFUR-A	25 JUN 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 25 JUN 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	7.30	7.40	7.35	74	60-140	1.4	50
1,2,3,7,8-PeCDF	10	5.30	5.30	5.30	53	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	9.10	8.80	8.95	90	60-140	3.4	50
1,2,3,4,6,7,8-HpCDF	10	9.10	8.70	8.90	89	60-140	4.5	50
OCDF	50	58.0	68.0	63.0	126	60-140	16	50
2,3,7,8-TCDD	10	7.80	7.50	7.65	77	60-140	3.9	50
1,2,3,7,8-PeCDD	10	9.30	9.40	9.35	94	60-140	1.1	50
1,2,3,4,7,8-HxCDD	10	8.40	8.30	8.35	84	60-140	1.2	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.00	7.85	79	60-140	3.8	50
OCDD	50	46.0	50.0	48.0	96	60-140	8.3	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 059831-0001-MB

Matrix: AQUEOUS

Authorized: 10 AUG 91

Sampled: NA

Prepared: 03 SEP 91

Received: NA

Analyzed: 04 SEP 91

Sample Amount 1.00 L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.040	
PeCDFs (total)	ND	ng/L	0.048	
HxCDFs (total)	ND	ng/L	0.070	
HpCDFs (total)	ND	ng/L	0.083	
OCDF	ND	ng/L	0.14	
Dioxins				
TCDDs (total)	ND	ng/L	0.081	
PeCDDs (total)	ND	ng/L	0.16	
HxCDDs (total)	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.053	
OCDD	ND	ng/L	0.094	
% Recovery				
13C-2,3,7,8-TCDF	37			
13C-2,3,7,8-TCDD	42			
13C-1,2,3,7,8-PeCDD	68			
13C-1,2,3,6,7,8-HxCDD	66			
13C-1,2,3,4,6,7,8-HpCDD	64			
13C-OCDD	60			

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

SEA
 10/30/91

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 20196

Lab ID: 059831-0001-SA

Matrix: AQUEOUS

Authorized: 10 AUG 91

Sampled: 05 AUG 91

Prepared: 03 SEP 91

Received: 09 AUG 91

Analyzed: 04 SEP 91

Sample Amount 0.919 L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.038	
PeCDFs (total)	ND	ng/L	0.026	
HxCDFs (total)	ND	ng/L	0.065	
HpCDFs (total)	ND	ng/L	0.087	
OCDF	ND	ng/L	0.13	
Dioxins				
TCDDs (total)	ND	ng/L	0.052	
PeCDDs (total)	ND	ng/L	0.097	
HxCDDs (total)	ND	ng/L	0.16	
HpCDDs (total)	ND	ng/L	0.060	
OCDD	ND	ng/L	0.12	
% Recovery				
13C-2,3,7,8-TCDF	62			
13C-2,3,7,8-TCDD	66			
13C-1,2,3,7,8-PeCDD	89			
13C-1,2,3,6,7,8-HxCDD	82			
13C-1,2,3,4,6,7,8-HpCDD	73			
13C-OCDD	62			

ND = Not detected
 NA = Not applicable

Reported By: Dale Walker

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



October 16, 1991
Lab ID: 060447

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the three aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 13 September 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in dark ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ak

I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
060447-1 thru 3	Cl ₄ -Cl ₈ Dioxins/Furans

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
060447-0001-SA	22076	-FW9	AQUEOUS	06	SEP 91	13 SEP 91
060447-0001-MB	Method Blank		AQUEOUS			13 SEP 91
060447-0002-SA	22079	- S7	AQUEOUS	06	SEP 91	13 SEP 91
060447-0003-SA	22080	- S7 duplicate	AQUEOUS	06	SEP 91	13 SEP 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
060447-0001-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060447-0001-MB	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060447-0002-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060447-0003-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision
		DCS1	DCS2		DCS	Limits	(RPD) DCS Limit
Category: DXNFUR-A							
Matrix: AQUEOUS							
QC Lot: 28 AUG 91-A							
Concentration Units: ng							
2,3,7,8-TCDF	10	12.0	12.0	12.0	120	60-140	0.0 50
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0 50
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0 50
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0 50
OCDF	50	75.0	79.0	77.0	154	60-140	5.2 50
2,3,7,8-TCDD	10	12.0	12.0	12.0	120	60-140	0.0 50
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0 50
1,2,3,4,7,8-HxCDD	10	10.0	10.0	10.0	100	60-140	0.0 50
1,2,3,4,6,7,8-HpCDD	10	11.0	11.0	11.0	110	60-140	0.0 50
OCDD	50	56.0	57.0	56.5	113	60-140	1.8 50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 060447-0001-MB
 Matrix: AQUEOUS
 Authorized: 14 SEP 91
 Sampled: NA
 Prepared: 21 SEP 91
 Received: NA
 Analyzed: 25 SEP 91

Sample Amount 1.00 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.059	
PeCDFs (total)	ND	ng/L	0.050	
HxCDFs (total)	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.13	
OCDF	ND	ng/L	0.55	
Dioxins				
TCDDs (total)	ND	ng/L	0.065	
PeCDDs (total)	ND	ng/L	0.15	
HxCDDs (total)	ND	ng/L	0.17	
HpCDDs (total)	ND	ng/L	0.12	
OCDD	ND	ng/L	0.36	
% Recovery				
13C-2,3,7,8-TCDF	66			
13C-2,3,7,8-TCDD	67			
13C-1,2,3,7,8-PeCDD	71			
13C-1,2,3,6,7,8-HxCDD	62			
13C-1,2,3,4,6,7,8-HpCDD	60			
13C-OCDD	44			

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 22076
 Lab ID: 060447-0001-SA
 Matrix: AQUEOUS
 Authorized: 14 SEP 91
 Sampled: 06 SEP 91
 Prepared: 21 SEP 91
 Received: 13 SEP 91
 Analyzed: 26 SEP 91

Sample Amount 0.501 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.086	
PeCDFs (total)	ND	ng/L	0.065	
HxCDFs (total)	ND	ng/L	0.17	
HpCDFs (total)	ND	ng/L	0.25	
OCDF	ND	ng/L	1.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.11	
PeCDDs (total)	ND	ng/L	0.15	
HxCDDs (total)	ND	ng/L	0.31	
HpCDDs (total)	ND	ng/L	0.27	
OCDD	ND	ng/L	1.3	
% Recovery				
13C-2,3,7,8-TCDF	81			
13C-2,3,7,8-TCDD	80			
13C-1,2,3,7,8-PeCDD	80			
13C-1,2,3,6,7,8-HxCDD	77			
13C-1,2,3,4,6,7,8-HpCDD	76			
13C-OCDD	49			

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak
 Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 22079
 Lab ID: 060447-0002-SA
 Matrix: AQUEOUS
 Authorized: 14 SEP 91
 Sampled: 06 SEP 91
 Prepared: 21 SEP 91
 Received: 13 SEP 91
 Analyzed: 26 SEP 91

Sample Amount 0.517 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.094	
PeCDFs (total)	ND	ng/L	0.067	
HxCDFs (total)	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.23	
OCDF	ND	ng/L	1.5	

Dioxins

TCDDs (total)	ND	ng/L	0.10	
PeCDDs (total)	ND	ng/L	0.16	
HxCDDs (total)	ND	ng/L	0.21	
HpCDDs (total)	ND	ng/L	0.19	
OCDD	ND	ng/L	1.0	

% Recovery

13C-2,3,7,8-TCDF	73
13C-2,3,7,8-TCDD	74
13C-1,2,3,7,8-PeCDD	75
13C-1,2,3,6,7,8-HxCDD	75
13C-1,2,3,4,6,7,8-HpCDD	74
13C-OCDD	48

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

8/1/92



POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 22080
 Lab ID: 060447-0003-SA
 Matrix: AQUEOUS
 Authorized: 14 SEP 91
 Sampled: 06 SEP 91
 Prepared: 21 SEP 91
 Received: 13 SEP 91
 Analyzed: 26 SEP 91

Sample Amount 0.526 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.055	
PeCDFs (total)	ND	ng/L	0.056	
HxCDFs (total)	ND	ng/L	0.13	
HpCDFs (total)	ND	ng/L	0.13	
OCDF	ND	ng/L	0.89	
Dioxins				
TCDDs (total)	ND	ng/L	0.070	
PeCDDs (total)	ND	ng/L	0.20	
HxCDDs (total)	ND	ng/L	0.21	
HpCDDs (total)	ND	ng/L	0.14	
OCDD	ND	ng/L	0.72	
% Recovery				
13C-2,3,7,8-TCDF	79			
13C-2,3,7,8-TCDD	81			
13C-1,2,3,7,8-PeCDD	78			
13C-1,2,3,6,7,8-HxCDD	79			
13C-1,2,3,4,6,7,8-HpCDD	81			
13C-OCDD	54			

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak
 Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

22261

(2)



October 25, 1991
Lab ID: 060456

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the four aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 16 September 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
060456-1 thru 4	C14-C18 Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
060456-0001-SA	22178	AQUEOUS	09 SEP 91		16 SEP 91
060456-0001-MB	Method Blank	AQUEOUS			16 SEP 91
060456-0002-SA	22260	AQUEOUS	10 SEP 91		16 SEP 91
060456-0003-SA	22261	AQUEOUS	10 SEP 91		16 SEP 91
060456-0004-SA	22264	AQUEOUS	10 SEP 91		16 SEP 91

- m35B
m30B
m30B duplicate
Rinsed blank into m30B

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
060456-0001-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060456-0001-MB	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060456-0002-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060456-0003-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060456-0004-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration		Measured DCS2	AVG	Accuracy Average(%)		Precision (RPD)		
	Spiked	DCS1			DCS	Limits	DCS Limit		
Category: DXNFUR-A									
Matrix: AQUEOUS									
QC Lot: 28 AUG 91-A									
Concentration Units: ng									
2,3,7,8-TCDF	10	12.0	12.0	12.0	120	60-140	0.0	50	
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0	50	
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
OCDF	50	75.0	79.0	77.0	154	60-140	5.2	50	
2,3,7,8-TCDD	10	12.0	12.0	12.0	120	60-140	0.0	50	
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,4,7,8-HxCDD	10	10.0	10.0	10.0	100	60-140	0.0	50	
1,2,3,4,6,7,8-HpCDD	10	11.0	11.0	11.0	110	60-140	0.0	50	
OCDD	50	56.0	57.0	56.5	113	60-140	1.8	50	

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 060456-0001-MB
 Matrix: AQUEOUS
 Authorized: 16 SEP 91
 Sampled: NA
 Prepared: 02 OCT 91
 Received: NA
 Analyzed: 12 OCT 91

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.020	
2,3,7,8-TCDF	ND	ng/L	0.020	
PeCDFs (total)	ND	ng/L	0.043	
1,2,3,7,8-PeCDF	ND	ng/L	0.043	
2,3,4,7,8-PeCDF	ND	ng/L	0.043	
HxCDFs (total)	ND	ng/L	0.089	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.089	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.089	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.089	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.089	
HpCDFs (total)	ND	ng/L	0.12	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.12	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.12	
OCDF	ND	ng/L	0.78	
Dioxins				
TCDDs (total)	ND	ng/L	0.029	
2,3,7,8-TCDD	ND	ng/L	0.029	
PeCDDs (total)	ND	ng/L	0.17	
1,2,3,7,8-PeCDD	ND	ng/L	0.17	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.13	
OCDD	ND	ng/L	0.67	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 060456-0001-MB
Matrix: AQUEOUS
Authorized: 16 SEP 91

Sampled: NA
Prepared: 02 OCT 91

Received: NA
Analyzed: 12 OCT 91

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	101
13C-2,3,7,8-TCDD	103
13C-1,2,3,7,8-PeCDD	100
13C-1,2,3,6,7,8-HxCDD	101
13C-1,2,3,4,6,7,8-HpCDD	78
13C-OCDD	53

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

JA
2/25/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22178
Lab ID: 060456-0001-SA
Matrix: AQUEOUS
Authorized: 16 SEP 91

Sampled: 09 SEP 91
Prepared: 02 OCT 91

Received: 16 SEP 91
Analyzed: 12 OCT 91

Sample Amount 0.864 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.036	
2,3,7,8-TCDF	ND	ng/L	0.036	
PeCDFs (total)	ND	ng/L	0.051	
1,2,3,7,8-PeCDF	ND	ng/L	0.051	
2,3,4,7,8-PeCDF	ND	ng/L	0.051	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.16	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.16	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.16	
OCDF	ND	ng/L	0.85	

Dioxins

TCDDs (total)	ND	ng/L	0.045	
2,3,7,8-TCDD	ND	ng/L	0.045	
PeCDDs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDD	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.10	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.10	
OCDD	ND	ng/L	0.82	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22178
Lab ID: 060456-0001-SA
Matrix: AQUEOUS
Authorized: 16 SEP 91

Sampled: 09 SEP 91
Prepared: 02 OCT 91

Received: 16 SEP 91
Analyzed: 12 OCT 91

Sample Amount 0.864 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	87
13C-2,3,7,8-TCDD	89
13C-1,2,3,7,8-PeCDD	87
13C-1,2,3,6,7,8-HxCDD	86
13C-1,2,3,4,6,7,8-HpCDD	67
13C-OCDD	50

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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JA
 2/25/92

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 22260
 Lab ID: 060456-0002-SA
 Matrix: AQUEOUS
 Authorized: 16 SEP 91
 Sampled: 10 SEP 91
 Prepared: 02 OCT 91
 Received: 16 SEP 91
 Analyzed: 12 OCT 91

Sample Amount 0.922 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.018	
2,3,7,8-TCDF	ND	ng/L	0.018	
PeCDFs (total)	ND	ng/L	0.035	
1,2,3,7,8-PeCDF	ND	ng/L	0.035	
2,3,4,7,8-PeCDF	ND	ng/L	0.035	
HxCDFs (total)	ND	ng/L	0.082	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.082	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.082	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.082	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.082	
HpCDFs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.11	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.11	
OCDF	ND	ng/L	1.1	
Dioxins				
TCDDs (total)	ND	ng/L	0.032	
2,3,7,8-TCDD	ND	ng/L	0.032	
PeCDDs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDD	ND	ng/L	0.14	
HxCDDs (total)	ND	ng/L	0.13	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.13	
HpCDDs (total)	ND	ng/L	0.094	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.094	
OCDD	ND	ng/L	1.0	

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ND = Not detected
 NA = Not applicable

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22260
Lab ID: 060456-0002-SA
Matrix: AQUEOUS
Authorized: 16 SEP 91
Sampled: 10 SEP 91
Prepared: 02 OCT 91
Received: 16 SEP 91
Analyzed: 12 OCT 91

Sample Amount 0.922 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	100
13C-2,3,7,8-TCDD	104
13C-1,2,3,7,8-PeCDD	100
13C-1,2,3,6,7,8-HxCDD	98
13C-1,2,3,4,6,7,8-HpCDD	73
13C-OCDD	43

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 22261
 Lab ID: 060456-0003-SA
 Matrix: AQUEOUS
 Authorized: 16 SEP 91
 Sampled: 10 SEP 91
 Prepared: 02 OCT 91
 Received: 16 SEP 91
 Analyzed: 12 OCT 91

Sample Amount 0.910 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) ✓	ND	ng/L	0.031	
2,3,7,8-TCDF ✓	ND	ng/L	0.031	
PeCDFs (total) ✓	ND	ng/L	0.053	
1,2,3,7,8-PeCDF ✓	ND	ng/L	0.053	
2,3,4,7,8-PeCDF ✓	ND	ng/L	0.053	
HxCDFs (total) ✓	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDF ✓	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDF ✓	ND	ng/L	0.10	
2,3,4,6,7,8-HxCDF ✓	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDF ✓	ND	ng/L	0.10	
HpCDFs (total) ✓	ND	ng/L	0.15	
1,2,3,4,6,7,8-HpCDF ✓	ND	ng/L	0.15	
1,2,3,4,7,8,9-HpCDF ✓	ND	ng/L	0.15	
OCDF ✓	ND	ng/L	0.83	
Dioxins				
TCDDs (total) ✓	ND	ng/L	0.047	
2,3,7,8-TCDD ✓	ND	ng/L	0.047	
PeCDDs (total) ✓	ND	ng/L	0.19	
1,2,3,7,8-PeCDD ✓	ND	ng/L	0.19	
HxCDDs (total) ✓	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDD ✓	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDD ✓	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDD ✓	ND	ng/L	0.17	
HpCDDs (total) ✓	ND	ng/L	0.17	
1,2,3,4,6,7,8-HpCDD ✓	ND	ng/L	0.17	
OCDD ✓	ND	ng/L	0.69	

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ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 22261

Lab ID: 060456-0003-SA

Matrix: AQUEOUS

Authorized: 16 SEP 91

Sampled: 10 SEP 91

Prepared: 02 OCT 91

Received: 16 SEP 91

Analyzed: 12 OCT 91

Sample Amount 0.910 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	102
13C-2,3,7,8-TCDD	99
13C-1,2,3,7,8-PeCDD	98
13C-1,2,3,6,7,8-HxCDD	102
13C-1,2,3,4,6,7,8-HpCDD	84
13C-OCDD	58

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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2/25/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22264
Lab ID: 060456-0004-SA
Matrix: AQUEOUS
Authorized: 16 SEP 91

Sampled: 10 SEP 91
Prepared: 02 OCT 91

Received: 16 SEP 91
Analyzed: 12 OCT 91

Sample Amount 0.90 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.034	
2,3,7,8-TCDF	ND	ng/L	0.034	
PeCDFs (total)	ND	ng/L	0.063	
1,2,3,7,8-PeCDF	ND	ng/L	0.063	
2,3,4,7,8-PeCDF	ND	ng/L	0.063	
HxCDFs (total)	ND	ng/L	0.13	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.13	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.13	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.13	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.13	
HpCDFs (total)	ND	ng/L	0.21	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.21	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.21	
OCDF	ND	ng/L	0.86	
Dioxins				
TCDDs (total)	ND	ng/L	0.052	
2,3,7,8-TCDD	ND	ng/L	0.052	
PeCDDs (total)	ND	ng/L	0.25	
1,2,3,7,8-PeCDD	ND	ng/L	0.25	
HxCDDs (total)	ND	ng/L	0.23	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.23	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.23	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.23	
HpCDDs (total)	ND	ng/L	0.19	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.19	
OCDD	ND	ng/L	1.1	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 22264

Lab ID: 060456-0004-SA

Matrix: AQUEOUS

Authorized: 16 SEP 91

Sampled: 10 SEP 91

Prepared: 02 OCT 91

Received: 16 SEP 91

Analyzed: 12 OCT 91

Sample Amount 0.90 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	69
13C-2,3,7,8-TCDD	80
13C-1,2,3,7,8-PeCDD	77
13C-1,2,3,6,7,8-HxCDD	76
13C-1,2,3,4,6,7,8-HpCDD	60
13C-OCDD	43

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

22458

13

2



October 25, 1991
Lab ID: 060556

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your Purchase Order Number 135729 which were received at Enseco-Cal Lab on 20 September 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Low Resolution/Dioxin Services Manager

svf

I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
060556-1, 2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8 Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled Date	Time	Received Date
060556-0001-SA	22458	AQUEOUS	12 SEP 91		20 SEP 91
060556-0001-MB	Method Blank	AQUEOUS	20 SEP 91		20 SEP 91
060556-0002-SA	22459	AQUEOUS	12 SEP 91		20 SEP 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number * (DCS)	QC Run Number (SCS/BLANK)
060556-0001-SA	AQUEOUS	DXNFUR-A	28 AUG '91-A	-
060556-0001-MB	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060556-0002-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: DXNFUR-A									
Matrix: AQUEOUS									
QC Lot: 28 AUG 91-A									
Concentration Units: ng									
2,3,7,8-TCDF	10	12.0	12.0	12.0	120	60-140	0.0	50	
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0	50	
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
OCDF	50	75.0	79.0	77.0	154	60-140	5.2	50	
2,3,7,8-TCDD	10	12.0	12.0	12.0	120	60-140	0.0	50	
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,4,7,8-HxCDD	10	10.0	10.0	10.0	100	60-140	0.0	50	
1,2,3,4,6,7,8-HpCDD	10	11.0	11.0	11.0	110	60-140	0.0	50	
OCDD	50	56.0	57.0	56.5	113	60-140	1.8	50	

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION



Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 060556-0001-MB
 Matrix: AQUEOUS
 Authorized: 20 SEP 91
 Sampled: NA
 Prepared: 02 OCT 91
 Received: NA
 Analyzed: 12 OCT 91

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.020	
2,3,7,8-TCDF	ND	ng/L	0.020	
PeCDFs (total)	ND	ng/L	0.043	
1,2,3,7,8-PeCDF	ND	ng/L	0.043	
2,3,4,7,8-PeCDF	ND	ng/L	0.043	
HxCDFs (total)	ND	ng/L	0.089	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.089	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.089	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.089	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.089	
HpCDFs (total)	ND	ng/L	0.12	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.12	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.12	
OCDF	ND	ng/L	0.78	
Dioxins				
TCDDs (total)	ND	ng/L	0.029	
2,3,7,8-TCDD	ND	ng/L	0.029	
PeCDDs (total)	ND	ng/L	0.17	
1,2,3,7,8-PeCDD	ND	ng/L	0.17	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.13	
OCDD	ND	ng/L	0.67	

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ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 060556-0001-MB
Matrix: AQUEOUS
Authorized: 20 SEP 91
Sampled: NA
Prepared: 02 OCT 91
Received: NA
Analyzed: 12 OCT 91

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	101
13C-2,3,7,8-TCDD	103
13C-1,2,3,7,8-PeCDD	100
13C-1,2,3,6,7,8-HxCDD	101
13C-1,2,3,4,6,7,8-HpCDD	78
13C-OCDD	53

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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2/25/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22458
Lab ID: 060556-0001-SA
Matrix: AQUEOUS
Authorized: 20 SEP 91

Sampled: 12 SEP 91
Prepared: 02 OCT 91

Received: 20 SEP 91
Analyzed: 17 OCT 91

Sample Amount 0.951 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.030	
2,3,7,8-TCDF	ND	ng/L	0.030	
PeCDFs (total)	ND	ng/L	0.031	
1,2,3,7,8-PeCDF	ND	ng/L	0.031	
2,3,4,7,8-PeCDF	ND	ng/L	0.031	
HxCDFs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.10	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.10	
HpCDFs (total)	ND	ng/L	0.28	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.28	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.28	
OCDF	ND	ng/L	1.6	

Dioxins

TCDDs (total)	ND	ng/L	0.043	
2,3,7,8-TCDD	ND	ng/L	0.043	
PeCDDs (total)	ND	ng/L	0.16	
1,2,3,7,8-PeCDD	ND	ng/L	0.16	
HxCDDs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.22	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.22	
OCDD	ND	ng/L	1.3	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 22458

Lab ID: 060556-0001-SA

Matrix: AQUEOUS

Authorized: 20 SEP 91

Sampled: 12 SEP 91

Prepared: 02 OCT 91

Received: 20 SEP 91

Analyzed: 17 OCT 91

Sample Amount 0.951 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	65
13C-2,3,7,8-TCDD	62
13C-1,2,3,7,8-PeCDD	72
13C-1,2,3,6,7,8-HxCDD	68
13C-1,2,3,4,6,7,8-HpCDD	47
13C-OCDD	26

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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2/25/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22459
Lab ID: 060556-0002-SA
Matrix: AQUEOUS
Authorized: 20 SEP 91
Sampled: 12 SEP 91
Prepared: 02 OCT 91
Received: 20 SEP 91
Analyzed: 17 OCT 91

Sample Amount 0.971 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.030	
2,3,7,8-TCDF	ND	ng/L	0.030	
PeCDFs (total)	ND	ng/L	0.033	
1,2,3,7,8-PeCDF	ND	ng/L	0.033	
2,3,4,7,8-PeCDF	ND	ng/L	0.033	
HxCDFs (total)	ND	ng/L	0.066	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.066	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.066	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.066	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.066	
HpCDFs (total)	ND	ng/L	0.12	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.12	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.12	
OCDF	ND	ng/L	1.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.052	
2,3,7,8-TCDD	ND	ng/L	0.052	
PeCDDs (total)	ND	ng/L	0.099	
1,2,3,7,8-PeCDD	ND	ng/L	0.099	
HxCDDs (total)	ND	ng/L	0.13	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.13	
HpCDDs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.18	
OCDD	ND	ng/L	0.82	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 22459
Lab ID: 060556-0002-SA
Matrix: AQUEOUS
Authorized: 20 SEP 91

Sampled: 12 SEP 91
Prepared: 02 OCT 91

Received: 20 SEP 91
Analyzed: 17 OCT 91

Sample Amount 0.971 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	78
13C-2,3,7,8-TCDD	78
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	93
13C-1,2,3,4,6,7,8-HpCDD	71
13C-OCDD	40

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

23699

California Analytical
Laboratory

SA
14



2

November 18, 1991
Lab ID: 060959

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 15 October 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Sample ID "23700" was extracted at 0.5 L because one amber glass liter was received broken.

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
060959-1,2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results section.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
060959-0001-SA	23699	PV3	AQUEOUS	08 OCT 91		15 OCT 91
060959-0001-MB	Method Blank		AQUEOUS			15 OCT 91
060959-0002-SA	23700	PV3 duplicate	AQUEOUS	08 OCT 91		15 OCT 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
060959-0001-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060959-0001-MB	AQUEOUS	DXNFUR-A	28 AUG 91-A	-
060959-0002-SA	AQUEOUS	DXNFUR-A	28 AUG 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 28 AUG 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	12.0	12.0	12.0	120	60-140	0.0	50
1,2,3,7,8-PeCDF	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
OCDF	50	75.0	79.0	77.0	154	60-140	5.2	50
2,3,7,8-TCDD	10	12.0	12.0	12.0	120	60-140	0.0	50
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,4,7,8-HxCDD	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,4,6,7,8-HpCDD	10	11.0	11.0	11.0	110	60-140	0.0	50
OCDD	50	56.0	57.0	56.5	113	60-140	1.8	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 060959-0001-MB
 Matrix: AQUEOUS
 Authorized: 15 OCT 91
 Sampled: NA
 Prepared: 17 OCT 91
 Received: NA
 Analyzed: 21 OCT 91

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.74	
2,3,7,8-TCDF	ND	ng/L	0.74	
PeCDFs (total)	ND	ng/L	0.017	
1,2,3,7,8-PeCDF	ND	ng/L	0.017	
2,3,4,7,8-PeCDF	ND	ng/L	0.017	
HxCDFs (total)	ND	ng/L	0.033	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.033	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.033	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.033	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.033	
HpCDFs (total)	ND	ng/L	0.048	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.048	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.048	
OCDF	ND	ng/L	0.45	
Dioxins				
TCDDs (total)	ND	ng/L	0.019	
2,3,7,8-TCDD	ND	ng/L	0.019	
PeCDDs (total)	ND	ng/L	0.053	
1,2,3,7,8-PeCDD	ND	ng/L	0.053	
HxCDDs (total)	ND	ng/L	0.065	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.065	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.065	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.065	
HpCDDs (total)	ND	ng/L	0.049	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.049	
OCDD	ND	ng/L	0.36	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 060959-0001-MB
Matrix: AQUEOUS
Authorized: 15 OCT 91
Sampled: NA
Prepared: 17 OCT 91
Received: NA
Analyzed: 21 OCT 91

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	85
13C-2,3,7,8-TCDD	90
13C-1,2,3,7,8-PeCDD	93
13C-1,2,3,6,7,8-HxCDD	86
13C-1,2,3,4,6,7,8-HpCDD	83
13C-OCDD	52

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 23699
 Lab ID: 060959-0001-SA
 Matrix: AQUEOUS
 Authorized: 15 OCT 91
 Sampled: 08 OCT 91
 Prepared: 17 OCT 91
 Received: 15 OCT 91
 Analyzed: 21 OCT 91

Sample Amount 0.912 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.75	
2,3,7,8-TCDF	ND	ng/L	0.75	
PeCDFs (total)	ND	ng/L	0.034	
1,2,3,7,8-PeCDF	ND	ng/L	0.034	
2,3,4,7,8-PeCDF	ND	ng/L	0.034	
HxCDFs (total)	ND	ng/L	0.084	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.084	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.084	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.084	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.084	
HpCDFs (total)	ND	ng/L	0.079	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.079	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.079	
OCDF	ND	ng/L	0.64	
Dioxins				
TCDDs (total)	ND	ng/L	0.022	
2,3,7,8-TCDD	ND	ng/L	0.022	
PeCDDs (total)	ND	ng/L	0.10	
1,2,3,7,8-PeCDD	ND	ng/L	0.10	
HxCDDs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.11	
OCDD	ND	ng/L	0.66	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 23699
Lab ID: 060959-0001-SA
Matrix: AQUEOUS
Authorized: 15 OCT 91
Sampled: 08 OCT 91
Prepared: 17 OCT 91
Received: 15 OCT 91
Analyzed: 21 OCT 91

Sample Amount 0.912 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	97
13C-2,3,7,8-TCDD	103
13C-1,2,3,7,8-PeCDD	82
13C-1,2,3,6,7,8-HxCDD	72
13C-1,2,3,4,6,7,8-HpCDD	79
13C-OCDD	55

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 23700
 Lab ID: 060959-0002-SA
 Matrix: AQUEOUS
 Authorized: 15 OCT 91

Sampled: 08 OCT 91
 Prepared: 17 OCT 91

Received: 15 OCT 91
 Analyzed: 21 OCT 91

Sample Amount 0.551 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	1.4	
2,3,7,8-TCDF	ND	ng/L	1.4	
PeCDFs (total)	ND	ng/L	0.042	
1,2,3,7,8-PeCDF	ND	ng/L	0.042	
2,3,4,7,8-PeCDF	ND	ng/L	0.042	
HxCDFs (total)	ND	ng/L	0.11	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.11	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.11	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.11	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.11	
HpCDFs (total)	ND	ng/L	0.10	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.10	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.10	
OCDF	ND	ng/L	0.84	
Dioxins				
TCDDs (total)	ND	ng/L	0.035	
2,3,7,8-TCDD	ND	ng/L	0.035	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.20	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.20	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.20	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.20	
HpCDDs (total)	ND	ng/L	0.10	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.10	
OCDD	ND	ng/L	0.57	

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ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 23700
Lab ID: 060959-0002-SA
Matrix: AQUEOUS
Authorized: 15 OCT 91
Sampled: 08 OCT 91
Prepared: 17 OCT 91
Received: 15 OCT 91
Analyzed: 21 OCT 91

Sample Amount 0.551 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	76
13C-2,3,7,8-TCDD	77
13C-1,2,3,7,8-PeCDD	65
13C-1,2,3,6,7,8-HxCDD	54
13C-1,2,3,4,6,7,8-HpCDD	56
13C-OCDD	40

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

2



December 18, 1991
Lab ID: 061620

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the three aqueous samples for your P.O. #135729 which were received at Enseco-Cal Lab on 20 November 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Some internal standard recoveries are less than 40%. The chromatographic signal to noise ratio is greater than 10 to 1. This is one of the criteria used to judge acceptance.

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads 'Shelly Eyraud'. The signature is written in black ink and is positioned above the typed name and title.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
061620-1 thru 3	Polychlorinated Dioxins/Furans Isomer Specific Analysis (Cont.)

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blanks associated with your samples at the reporting limit levels noted on the attached data sheet.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
061620-0001-SA	26527	-m45A	AQUEOUS	12 NOV 91		20 NOV 91
061620-0001-MB	Method Blank		AQUEOUS			20 NOV 91
061620-0002-SA	JWO 88004	?	AQUEOUS	12 NOV 91		20 NOV 91
061620-0003-SA	JWO 88005	?	AQUEOUS	12 NOV 91		20 NOV 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
061620-0001-SA	AQUEOUS	DXNFUR-A	15 NOV 91-A	-
061620-0001-MB	AQUEOUS	DXNFUR-A	15 NOV 91-A	-
061620-0002-SA	AQUEOUS	DXNFUR-A	15 NOV 91-A	-
061620-0003-SA	AQUEOUS	DXNFUR-A	15 NOV 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average (%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 15 NOV 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	15.0	14.0	14.5	145	60-140	6.9	50
1,2,3,7,8-PeCDF	10	15.0	13.0	14.0	140	60-140	14	50
1,2,3,4,7,8-HxCDF	10	13.0	12.0	12.5	125	60-140	8.0	50
1,2,3,4,6,7,8-HpCDF	10	15.0	14.0	14.5	145	60-140	6.9	50
OCDF	50	66.0	75.0	70.5	141	60-140	13	50
2,3,7,8-TCDD	10	13.0	12.0	12.5	125	60-140	8.0	50
1,2,3,7,8-PeCDD	10	15.0	13.0	14.0	140	60-140	14	50
1,2,3,4,7,8-HxCDD	10	13.0	13.0	13.0	130	60-140	0.0	50
1,2,3,4,6,7,8-HpCDD	10	15.0	14.0	14.5	145	60-140	6.9	50
OCDD	50	59.0	54.0	56.5	113	60-140	8.8	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: JWO 88004
 Lab ID: 061620-0002-SA
 Matrix: AQUEOUS
 Authorized: 20 NOV 91
 Sampled: 12 NOV 91
 Prepared: 26 NOV 91
 Received: 20 NOV 91
 Analyzed: 04 DEC 91

Sample Amount 0.920 L
 Column Type BD-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.36	
2,3,7,8-TCDF	ND	ng/L	0.36	
PeCDFs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDF	ND	ng/L	0.18	
2,3,4,7,8-PeCDF	ND	ng/L	0.18	
HxCDFs (total)	ND	ng/L	0.64	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.64	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.64	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.64	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.64	
HpCDFs (total)	ND	ng/L	2.1	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	2.1	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	2.1	
OCDF	ND	ng/L	15	
Dioxins				
TCDDs (total)	ND	ng/L	0.20	
2,3,7,8-TCDD	ND	ng/L	0.20	
PeCDDs (total)	ND	ng/L	0.70	
1,2,3,7,8-PeCDD	ND	ng/L	0.70	
HxCDDs (total)	ND	ng/L	0.97	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.97	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.97	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.97	
HpCDDs (total)	ND	ng/L	2.6	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	2.6	
OCDD	ND	ng/L	14	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: JWO 88004

Lab ID: 061620-0002-SA

Matrix: AQUEOUS

Authorized: 20 NOV 91

Sampled: 12 NOV 91

Prepared: 26 NOV 91

Received: 20 NOV 91

Analyzed: 04 DEC 91

Sample Amount 0.920 L

Column Type BD-5

	% Recovery
13C-2,3,7,8-TCDF	46
13C-2,3,7,8-TCDD	57
13C-1,2,3,7,8-PeCDD	43
13C-1,2,3,6,7,8-HxCDD	26
13C-1,2,3,4,6,7,8-HpCDD	ND
13C-OCDD	ND

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: JWO 88005

Lab ID: 061620-0003-SA

Matrix: AQUEOUS

Authorized: 20 NOV 91

Sampled: 12 NOV 91

Prepared: 26 NOV 91

Received: 20 NOV 91

Analyzed: 04 DEC 91

Sample Amount 1.00 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.097	
2,3,7,8-TCDF	ND	ng/L	0.097	
PeCDFs (total)	ND	ng/L	0.040	
1,2,3,7,8-PeCDF	ND	ng/L	0.040	
2,3,4,7,8-PeCDF	ND	ng/L	0.040	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.31	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.31	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.31	
OCDF	ND	ng/L	1.6	
Dioxins				
TCDDs (total)	ND	ng/L	0.039	
2,3,7,8-TCDD	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.17	
1,2,3,7,8-PeCDD	ND	ng/L	0.17	
HxCDDs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.14	
HpCDDs (total)	ND	ng/L	0.24	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.24	
OCDD	ND	ng/L	1.3	

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ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: JWO 88005

Lab ID: 061620-0003-SA

Matrix: AQUEOUS

Authorized: 20 NOV 91

Sampled: 12 NOV 91

Prepared: 26 NOV 91

Received: 20 NOV 91

Analyzed: 04 DEC 91

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	67
13C-2,3,7,8-TCDD	73
13C-1,2,3,7,8-PeCDD	71
13C-1,2,3,6,7,8-HxCDD	63
13C-1,2,3,4,6,7,8-HpCDD	39
13C-OCDD	25

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 061620-0001-MB

Matrix: AQUEOUS

Authorized: 20 NOV 91

Sampled: NA
Prepared: 26 NOV 91

Received: NA
Analyzed: 04 DEC 91

Sample Amount 1.0 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.15	
2,3,7,8-TCDF	ND	ng/L	0.15	
PeCDFs (total)	ND	ng/L	0.030	
1,2,3,7,8-PeCDF	ND	ng/L	0.030	
2,3,4,7,8-PeCDF	ND	ng/L	0.030	
HxCDFs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.10	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.10	
HpCDFs (total)	ND	ng/L	0.23	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.23	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.23	
OCDF	ND	ng/L	1.3	
Dioxins				
TCDDs (total)	ND	ng/L	0.12	
2,3,7,8-TCDD	ND	ng/L	0.12	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.17	
HpCDDs (total)	ND	ng/L	0.36	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.36	
OCDD	ND	ng/L	1.0	

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ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 061620-0001-MB

Matrix: AQUEOUS

Authorized: 20 NOV 91

Sampled: NA

Prepared: 26 NOV 91

Received: NA

Analyzed: 04 DEC 91

Sample Amount 1.0 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	84
13C-2,3,7,8-TCDD	84
13C-1,2,3,7,8-PeCDD	83
13C-1,2,3,6,7,8-HxCDD	71
13C-1,2,3,4,6,7,8-HpCDD	46
13C-OCDD	33

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 26527
 Lab ID: 061620-0001-SA
 Matrix: AQUEOUS
 Authorized: 20 NOV 91
 Sampled: 12 NOV 91
 Prepared: 26 NOV 91
 Received: 20 NOV 91
 Analyzed: 04 DEC 91

Sample Amount 0.950 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.52	
2,3,7,8-TCDF	ND	ng/L	0.52	
PeCDFs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDF	ND	ng/L	0.11	
2,3,4,7,8-PeCDF	ND	ng/L	0.11	
HxCDFs (total)	ND	ng/L	0.41	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.41	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.41	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.41	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.41	
HpCDFs (total)	ND	ng/L	1.6	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	1.6	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	1.6	
OCDF	ND	ng/L	15	
Dioxins				
TCDDs (total)	ND	ng/L	0.26	
2,3,7,8-TCDD	ND	ng/L	0.26	
PeCDDs (total)	ND	ng/L	0.40	
1,2,3,7,8-PeCDD	ND	ng/L	0.40	
HxCDDs (total)	ND	ng/L	0.65	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.65	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.65	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.65	
HpCDDs (total)	ND	ng/L	1.9	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	1.9	
OCDD	ND	ng/L	12	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 26527

Lab ID: 061620-0001-SA

Matrix: AQUEOUS

Authorized: 20 NOV 91

Sampled: 12 NOV 91

Prepared: 26 NOV 91

Received: 20 NOV 91

Analyzed: 04 DEC 91

Sample Amount 0.950 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	62
13C-2,3,7,8-TCDD	63
13C-1,2,3,7,8-PeCDD	49
13C-1,2,3,6,7,8-HxCDD	30
13C-1,2,3,4,6,7,8-HpCDD	11
13C-OCDD	5.0

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

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California Analytical
Laboratory

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January 2, 1992
Lab ID: 061992

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the five aqueous samples for your P.O. #135729, which were received at Enseco-Cal Lab on 16 December 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

All samples were extracted at 0.5 L because only 1.0 L of sample was supplied.

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ak

Enseco Incorporated
2544 Industrial Boulevard
West Sacramento, California 95691
916/372-1393 Fax: 916/372-7768

I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
061992-1 thru 5	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8-Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the data sheet in the Analytical Results Section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
061992-0001-SA	27587	EW9	AQUEOUS	05 DEC 91		16 DEC 91
061992-0001-MB	Method Blank		AQUEOUS			16 DEC 91
061992-0002-SA	27589	S7	AQUEOUS	05 DEC 91		16 DEC 91
061992-0003-SA	27725	m35B	AQUEOUS			16 DEC 91
061992-0004-SA	27726	m37A	AQUEOUS			16 DEC 91
061992-0005-SA	27727	m37A duplicate	AQUEOUS			16 DEC 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
061992-0001-SA	AQUEOUS	DXNFUR-A	10 DEC 91-A	-
061992-0001-MB	AQUEOUS	DXNFUR-A	10 DEC 91-A	-
061992-0002-SA	AQUEOUS	DXNFUR-A	10 DEC 91-A	-
061992-0003-SA	AQUEOUS	DXNFUR-A	10 DEC 91-A	-
061992-0004-SA	AQUEOUS	DXNFUR-A	10 DEC 91-A	-
061992-0005-SA	AQUEOUS	DXNFUR-A	10 DEC 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 10 DEC 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	8.70	8.60	8.65	87	60-140	1.2	50
1,2,3,7,8-PeCDF	10	8.80	9.20	9.00	90	60-140	4.4	50
1,2,3,4,7,8-HxCDF	10	9.20	9.50	9.35	94	60-140	3.2	50
1,2,3,4,6,7,8-HpCDF	10	9.00	9.60	9.30	93	60-140	6.5	50
OCDF	50	42.0	40.0	41.0	82	60-140	4.9	50
2,3,7,8-TCDD	10	8.00	8.10	8.05	81	60-140	1.2	50
1,2,3,7,8-PeCDD	10	9.20	9.70	9.45	95	60-140	5.3	50
1,2,3,4,7,8-HxCDD	10	8.50	8.50	8.50	85	60-140	0.0	50
1,2,3,4,6,7,8-HpCDD	10	8.70	9.10	8.90	89	60-140	4.5	50
OCDD	50	35.0	34.0	34.5	69	60-140	2.9	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 061992-0001-MB
 Matrix: AQUEOUS
 Authorized: 17 DEC 91
 Sampled: NA
 Prepared: 19 DEC 91
 Received: NA
 Analyzed: 20 DEC 91

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.12	
2,3,7,8-TCDF	ND	ng/L	0.12	
PeCDFs (total)	ND	ng/L	0.093	
1,2,3,7,8-PeCDF	ND	ng/L	0.093	
2,3,4,7,8-PeCDF	ND	ng/L	0.093	
HxCDFs (total)	ND	ng/L	0.33	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.33	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.33	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.33	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.33	
HpCDFs (total)	ND	ng/L	0.57	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.57	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.57	
OCDF	ND	ng/L	1.7	
Dioxins				
TCDDs (total)	ND	ng/L	0.079	
2,3,7,8-TCDD	ND	ng/L	0.079	
PeCDDs (total)	ND	ng/L	0.28	
1,2,3,7,8-PeCDD	ND	ng/L	0.28	
HxCDDs (total)	ND	ng/L	0.39	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.39	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.39	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.39	
HpCDDs (total)	ND	ng/L	0.52	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.52	
OCDD	ND	ng/L	0.89	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 061992-0001-MB

Matrix: AQUEOUS

Authorized: 17 DEC 91

Sampled: NA

Prepared: 19 DEC 91

Received: NA

Analyzed: 20 DEC 91

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	88
13C-2,3,7,8-TCDD	91
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	79
13C-1,2,3,4,6,7,8-HpCDD	62
13C-OCDD	57

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 27587
 Lab ID: 061992-0001-SA
 Matrix: AQUEOUS
 Authorized: 17 DEC 91
 Sampled: 05 DEC 91
 Prepared: 19 DEC 91
 Received: 16 DEC 91
 Analyzed: 20 DEC 91

Sample Amount: 0.945 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.086	
2,3,7,8-TCDF	ND	ng/L	0.086	
PeCDFs (total)	ND	ng/L	0.12	
1,2,3,7,8-PeCDF	ND	ng/L	0.12	
2,3,4,7,8-PeCDF	ND	ng/L	0.12	
HxCDFs (total)	ND	ng/L	0.28	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.28	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.28	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.28	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.28	
HpCDFs (total)	ND	ng/L	0.44	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.44	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.44	
OCDF	ND	ng/L	1.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.096	
2,3,7,8-TCDD	ND	ng/L	0.096	
PeCDDs (total)	ND	ng/L	0.27	
1,2,3,7,8-PeCDD	ND	ng/L	0.27	
HxCDDs (total)	ND	ng/L	0.34	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.34	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.34	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.34	
HpCDDs (total)	ND	ng/L	0.48	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.48	
OCDD	ND	ng/L	1.1	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27587
Lab ID: 061992-0001-SA
Matrix: AQUEOUS
Authorized: 17 DEC 91
Sampled: 05 DEC 91
Prepared: 19 DEC 91
Received: 16 DEC 91
Analyzed: 20 DEC 91

Sample Amount 0.945 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	92
13C-2,3,7,8-TCDD	90
13C-1,2,3,7,8-PeCDD	87
13C-1,2,3,6,7,8-HxCDD	78
13C-1,2,3,4,6,7,8-HpCDD	61
13C-OCDD	55

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 27589
 Lab ID: 061992-0002-SA
 Matrix: AQUEOUS
 Authorized: 17 DEC 91
 Sampled: 05 DEC 91
 Prepared: 19 DEC 91
 Received: 16 DEC 91
 Analyzed: 20 DEC 91

Sample Amount 0.897 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.077	
2,3,7,8-TCDF	ND	ng/L	0.077	
PeCDFs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDF	ND	ng/L	0.14	
2,3,4,7,8-PeCDF	ND	ng/L	0.14	
HxCDFs (total)	ND	ng/L	0.28	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.28	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.28	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.28	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.28	
HpCDFs (total)	ND	ng/L	0.33	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.33	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.33	
OCDF	ND	ng/L	1.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.080	
2,3,7,8-TCDD	ND	ng/L	0.080	
PeCDDs (total)	ND	ng/L	0.25	
1,2,3,7,8-PeCDD	ND	ng/L	0.25	
HxCDDs (total)	ND	ng/L	0.41	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.41	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.41	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.41	
HpCDDs (total)	ND	ng/L	0.39	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.39	
OCDD	ND	ng/L	2.6	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27589
Lab ID: 061992-0002-SA
Matrix: AQUEOUS
Authorized: 17 DEC 91
Sampled: 05 DEC 91
Prepared: 19 DEC 91
Received: 16 DEC 91
Analyzed: 20 DEC 91

Sample Amount 0.897 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	66
13C-2,3,7,8-TCDD	71
13C-1,2,3,7,8-PeCDD	68
13C-1,2,3,6,7,8-HxCDD	57
13C-1,2,3,4,6,7,8-HpCDD	52
13C-OCDD	48

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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2/25/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27725
Lab ID: 061992-0003-SA
Matrix: AQUEOUS
Authorized: 17 DEC 91

Sampled: Unknown
Prepared: 19 DEC 91

Received: 16 DEC 91
Analyzed: 20 DEC 91

Sample Amount 0.941 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.13	
2,3,7,8-TCDF	ND	ng/L	0.13	
PeCDFs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDF	ND	ng/L	0.11	
2,3,4,7,8-PeCDF	ND	ng/L	0.11	
HxCDFs (total)	ND	ng/L	0.37	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.37	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.37	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.37	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.37	
HpCDFs (total)	ND	ng/L	0.53	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.53	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.53	
OCDF	ND	ng/L	2.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.091	
2,3,7,8-TCDD	ND	ng/L	0.091	
PeCDDs (total)	ND	ng/L	0.27	
1,2,3,7,8-PeCDD	ND	ng/L	0.27	
HxCDDs (total)	ND	ng/L	0.48	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.48	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.48	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.48	
HpCDDs (total)	ND	ng/L	0.65	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.65	
OCDD	ND	ng/L	1.6	

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ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27725
Lab ID: 061992-0003-SA
Matrix: AQUEOUS
Authorized: 17 DEC 91

Sampled: Unknown
Prepared: 19 DEC 91

Received: 16 DEC 91
Analyzed: 20 DEC 91

Sample Amount 0.941 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	80
13C-1,2,3,7,8-PeCDD	76
13C-1,2,3,6,7,8-HxCDD	67
13C-1,2,3,4,6,7,8-HpCDD	51
13C-OCDD	47

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 27726
 Lab ID: 061992-0004-SA
 Matrix: AQUEOUS
 Authorized: 17 DEC 91

Sampled: Unknown
 Prepared: 19 DEC 91

Received: 16 DEC 91
 Analyzed: 23 DEC 91

Sample Amount 0.951 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.089	
2,3,7,8-TCDF	ND	ng/L	0.089	
PeCDFs (total)	ND	ng/L	0.10	
1,2,3,7,8-PeCDF	ND	ng/L	0.10	
2,3,4,7,8-PeCDF	ND	ng/L	0.10	
HxCDFs (total)	ND	ng/L	0.21	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.21	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.21	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.21	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.21	
HpCDFs (total)	ND	ng/L	0.32	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.32	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.32	
OCDF	ND	ng/L	1.9	
Dioxins				
TCDDs (total)	ND	ng/L	0.096	
2,3,7,8-TCDD	ND	ng/L	0.096	
PeCDDs (total)	ND	ng/L	0.24	
1,2,3,7,8-PeCDD	ND	ng/L	0.24	
HxCDDs (total)	ND	ng/L	0.30	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.30	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.30	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.30	
HpCDDs (total)	ND	ng/L	0.31	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.31	
OCDD	ND	ng/L	1.3	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27726
Lab ID: 061992-0004-SA
Matrix: AQUEOUS
Authorized: 17 DEC 91
Sampled: Unknown
Prepared: 19 DEC 91
Received: 16 DEC 91
Analyzed: 23 DEC 91

Sample Amount 0.951 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	80
13C-2,3,7,8-TCDD	75
13C-1,2,3,7,8-PeCDD	78
13C-1,2,3,6,7,8-HxCDD	71
13C-1,2,3,4,6,7,8-HpCDD	52
13C-OCDD	47

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 27727
 Lab ID: 061992-0005-SA
 Matrix: AQUEOUS
 Authorized: 17 DEC 91
 Sampled: Unknown
 Prepared: 19 DEC 91
 Received: 16 DEC 91
 Analyzed: 23 DEC 91

Sample Amount 0.982 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.49	
2,3,7,8-TCDF	ND	ng/L	0.49	
PeCDFs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDF	ND	ng/L	0.18	
2,3,4,7,8-PeCDF	ND	ng/L	0.18	
HxCDFs (total)	ND	ng/L	0.68	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.68	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.68	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.68	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.68	
HpCDFs (total)	ND	ng/L	0.74	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.74	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.74	
OCDF	ND	ng/L	4.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.12	
2,3,7,8-TCDD	ND	ng/L	0.12	
PeCDDs (total)	ND	ng/L	0.43	
1,2,3,7,8-PeCDD	ND	ng/L	0.43	
HxCDDs (total)	ND	ng/L	0.65	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.65	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.65	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.65	
HpCDDs (total)	ND	ng/L	1.5	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	1.5	
OCDD	ND	ng/L	2.1	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27727
Lab ID: 061992-0005-SA
Matrix: AQUEOUS
Authorized: 17 DEC 91

Sampled: Unknown
Prepared: 19 DEC 91

Received: 16 DEC 91
Analyzed: 23 DEC 91

Sample Amount 0.982 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	71
13C-2,3,7,8-TCDD	69
13C-1,2,3,7,8-PeCDD	72
13C-1,2,3,6,7,8-HxCDD	57
13C-1,2,3,4,6,7,8-HpCDD	41
13C-OCDD	38

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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27976



January 6, 1992
Lab ID: 062027

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the five aqueous samples which were received at Enseco-Cal Lab on 18 December 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution/Dioxins

svf

I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
062027-1 thru 5	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8 Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
062027-0001-SA	27976	<i>m378</i>	AQUEOUS	12 DEC 91		18 DEC 91
062027-0001-MB	Method Blank		AQUEOUS			18 DEC 91
062027-0002-SA	27977	<i>m518</i>	AQUEOUS	12 DEC 91		18 DEC 91
062027-0003-SA	27993	<i>m308</i>	AQUEOUS	10 DEC 91		18 DEC 91
062027-0004-SA	27994	<i>m308 dup head</i>	AQUEOUS	10 DEC 91		18 DEC 91
062027-0005-SA	27997	<i>Rinsed blank after m333</i>	AQUEOUS	10 DEC 91		18 DEC 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
062027-0001-SA	AQUEOUS	DXNFUR-A	19 DEC 91-A	-
062027-0001-MB	AQUEOUS	DXNFUR-A	19 DEC 91-A	-
062027-0002-SA	AQUEOUS	DXNFUR-A	19 DEC 91-A	-
062027-0003-SA	AQUEOUS	DXNFUR-A	19 DEC 91-A	-
062027-0004-SA	AQUEOUS	DXNFUR-A	19 DEC 91-A	-
062027-0005-SA	AQUEOUS	DXNFUR-A	19 DEC 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average (%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 19 DEC 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,7,8-PeCDF	10	9.40	10.0	9.70	97	60-140	6.2	50
1,2,3,4,7,8-HxCDF	10	9.40	10.0	9.70	97	60-140	6.2	50
1,2,3,4,6,7,8-HpCDF	10	8.50	9.30	8.90	89	60-140	9.0	50
OCDF	50	49.0	54.0	51.5	103	60-140	9.7	50
2,3,7,8-TCDD	10	10.0	11.0	10.5	105	60-140	9.5	50
1,2,3,7,8-PeCDD	10	9.90	11.0	10.4	105	60-140	11	50
1,2,3,4,7,8-HxCDD	10	9.40	10.0	9.70	97	60-140	6.2	50
1,2,3,4,6,7,8-HpCDD	10	9.80	10.0	9.90	99	60-140	2.0	50
OCDD	50	45.0	46.0	45.5	91	60-140	2.2	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 062027-0001-MB
 Matrix: AQUEOUS
 Authorized: 18 DEC 91
 Sampled: NA
 Prepared: 27 DEC 91
 Received: NA
 Analyzed: 30 DEC 91

Sample Amount 1.00 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.031	
2,3,7,8-TCDF	ND	ng/L	0.031	
PeCDFs (total)	ND	ng/L	0.045	
1,2,3,7,8-PeCDF	ND	ng/L	0.045	
2,3,4,7,8-PeCDF	ND	ng/L	0.045	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.11	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.11	
OCDF	ND	ng/L	0.53	
Dioxins				
TCDDs (total)	ND	ng/L	0.051	
2,3,7,8-TCDD	ND	ng/L	0.051	
PeCDDs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDD	ND	ng/L	0.14	
HxCDDs (total)	ND	ng/L	0.16	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.16	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.16	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.16	
HpCDDs (total)	ND	ng/L	0.10	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.10	
OCDD	ND	ng/L	0.42	

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ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 062027-0001-MB
Matrix: AQUEOUS
Authorized: 18 DEC 91
Sampled: NA
Prepared: 27 DEC 91
Received: NA
Analyzed: 30 DEC 91

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	69
13C-2,3,7,8-TCDD	60
13C-1,2,3,7,8-PeCDD	71
13C-1,2,3,6,7,8-HxCDD	66
13C-1,2,3,4,6,7,8-HpCDD	59
13C-OCDD	61

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: ~~27883~~ 27793
 Lab ID: 062027-0003-SA
 Matrix: AQUEOUS
 Authorized: 18 DEC 91

Sampled: 10 DEC 91
 Prepared: 27 DEC 91

Received: 18 DEC 91
 Analyzed: 30 DEC 91

Sample Amount 0.857 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.074	
2,3,7,8-TCDF	ND	ng/L	0.074	
PeCDFs (total)	ND	ng/L	0.087	
1,2,3,7,8-PeCDF	ND	ng/L	0.087	
2,3,4,7,8-PeCDF	ND	ng/L	0.087	
HxCDFs (total)	ND	ng/L	0.27	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.27	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.27	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.27	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.27	
HpCDFs (total)	ND	ng/L	0.34	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.34	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.34	
OCDF	ND	ng/L	1.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.25	
1,2,3,7,8-PeCDD	ND	ng/L	0.25	
HxCDDs (total)	ND	ng/L	0.52	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.52	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.52	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.52	
HpCDDs (total)	ND	ng/L	0.59	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.59	
OCDD	ND	ng/L	1.0	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 27993

Lab ID: 062027-0003-SA

Matrix: AQUEOUS

Authorized: 18 DEC 91

Sampled: 10 DEC 91

Prepared: 27 DEC 91

Received: 18 DEC 91

Analyzed: 30 DEC 91

Sample Amount 0.857 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	70
13C-2,3,7,8-TCDD	60
13C-1,2,3,7,8-PeCDD	63
13C-1,2,3,6,7,8-HxCDD	57
13C-1,2,3,4,6,7,8-HpCDD	45
13C-OCDD	45

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: ~~27994~~ 27784
 Lab ID: 062027-0004-SA
 Matrix: AQUEOUS
 Authorized: 18 DEC 91

Sampled: 10 DEC 91 Received: 18 DEC 91
 Prepared: 27 DEC 91 Analyzed: 30 DEC 91

Sample Amount 0.876 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.057	
2,3,7,8-TCDF	ND	ng/L	0.057	
PeCDFs (total)	ND	ng/L	0.053	
1,2,3,7,8-PeCDF	ND	ng/L	0.053	
2,3,4,7,8-PeCDF	ND	ng/L	0.053	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.19	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.19	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.19	
OCDF	ND	ng/L	0.90	
Dioxins				
TCDDs (total)	ND	ng/L	0.061	
2,3,7,8-TCDD	ND	ng/L	0.061	
PeCDDs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDD	ND	ng/L	0.14	
HxCDDs (total)	ND	ng/L	0.26	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.26	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.26	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.26	
HpCDDs (total)	ND	ng/L	0.23	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.23	
OCDD	ND	ng/L	0.62	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 27994

Lab ID: 062027-0004-SA

Matrix: AQUEOUS

Authorized: 18 DEC 91

Sampled: 10 DEC 91

Prepared: 27 DEC 91

Received: 18 DEC 91

Analyzed: 30 DEC 91

Sample Amount 0.876 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	68
13C-2,3,7,8-TCDD	63
13C-1,2,3,7,8-PeCDD	73
13C-1,2,3,6,7,8-HxCDD	69
13C-1,2,3,4,6,7,8-HpCDD	59
13C-OCDD	54

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: ~~27997~~ *27997*
 Lab ID: 062027-0005-SA
 Matrix: AQUEOUS
 Authorized: 18 DEC 91

Sampled: 10 DEC 91 Received: 18 DEC 91
 Prepared: 27 DEC 91 Analyzed: 30 DEC 91

Sample Amount 0.898 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.062	
2,3,7,8-TCDF	ND	ng/L	0.062	
PeCDFs (total)	ND	ng/L	0.068	
1,2,3,7,8-PeCDF	ND	ng/L	0.068	
2,3,4,7,8-PeCDF	ND	ng/L	0.068	
HxCDFs (total)	ND	ng/L	0.22	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.22	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.22	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.22	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.22	
HpCDFs (total)	ND	ng/L	0.30	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.30	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.30	
OCDF	ND	ng/L	1.3	
Dioxins				
TCDDs (total)	ND	ng/L	0.091	
2,3,7,8-TCDD	ND	ng/L	0.091	
PeCDDs (total)	ND	ng/L	0.20	
1,2,3,7,8-PeCDD	ND	ng/L	0.20	
HxCDDs (total)	ND	ng/L	0.27	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.27	
HpCDDs (total)	ND	ng/L	0.29	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.29	
OCDD	ND	ng/L	0.84	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 27997

Lab ID: 062027-0005-SA

Matrix: AQUEOUS

Authorized: 18 DEC 91

Sampled: 10 DEC 91

Prepared: 27 DEC 91

Received: 18 DEC 91

Analyzed: 30 DEC 91

Sample Amount 0.898 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	69
13C-2,3,7,8-TCDD	62
13C-1,2,3,7,8-PeCDD	70
13C-1,2,3,6,7,8-HxCDD	63
13C-1,2,3,4,6,7,8-HpCDD	52
13C-OCDD	49

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 27976
 Lab ID: 062027-0001-SA
 Matrix: AQUEOUS
 Authorized: 18 DEC 91
 Sampled: 12 DEC 91
 Prepared: 27 DEC 91
 Received: 18 DEC 91
 Analyzed: 30 DEC 91

Sample Amount 0.905 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.069	
2,3,7,8-TCDF	ND	ng/L	0.069	
PeCDFs (total)	ND	ng/L	0.065	
1,2,3,7,8-PeCDF	ND	ng/L	0.065	
2,3,4,7,8-PeCDF	ND	ng/L	0.065	
HxCDFs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.15	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.15	
HpCDFs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.20	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.20	
OCDF	ND	ng/L	0.86	
Dioxins				
TCDDs (total)	ND	ng/L	0.062	
2,3,7,8-TCDD	ND	ng/L	0.062	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.26	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.26	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.26	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.26	
HpCDDs (total)	ND	ng/L	0.22	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.22	
OCDD	ND	ng/L	0.92	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak Approved By: Shelly Eyraud

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 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27976
Lab ID: 062027-0001-SA
Matrix: AQUEOUS
Authorized: 18 DEC 91

Sampled: 12 DEC 91
Prepared: 27 DEC 91

Received: 18 DEC 91
Analyzed: 30 DEC 91

Sample Amount 0.905 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	73
13C-2,3,7,8-TCDD	67
13C-1,2,3,7,8-PeCDD	75
13C-1,2,3,6,7,8-HxCDD	68
13C-1,2,3,4,6,7,8-HpCDD	53
13C-OCDD	49

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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Rev 230787

3/5/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 27977
Lab ID: 062027-0002-SA
Matrix: AQUEOUS
Authorized: 18 DEC 91

Sampled: 12 DEC 91
Prepared: 27 DEC 91

Received: 18 DEC 91
Analyzed: 30 DEC 91

Sample Amount 0.882 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.11	
2,3,7,8-TCDF	ND	ng/L	0.11	
PeCDFs (total)	ND	ng/L	0.33	
1,2,3,7,8-PeCDF	ND	ng/L	0.33	
2,3,4,7,8-PeCDF	ND	ng/L	0.33	
HxCDFs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.15	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.15	
HpCDFs (total)	ND	ng/L	0.27	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.27	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.27	
OCDF	ND	ng/L	0.83	
Dioxins				
TCDDs (total)	ND	ng/L	0.058	
2,3,7,8-TCDD	ND	ng/L	0.058	
PeCDDs (total)	ND	ng/L	0.17	
1,2,3,7,8-PeCDD	ND	ng/L	0.17	
HxCDDs (total)	ND	ng/L	0.19	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.19	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.19	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.19	
HpCDDs (total)	ND	ng/L	0.32	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.32	
OCDD	ND	ng/L	0.59	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 27977

Lab ID: 062027-0002-SA

Matrix: AQUEOUS

Authorized: 18 DEC 91

Sampled: 12 DEC 91

Prepared: 27 DEC 91

Received: 18 DEC 91

Analyzed: 30 DEC 91

Sample Amount 0.882 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	72
13C-2,3,7,8-TCDD	65
13C-1,2,3,7,8-PeCDD	73
13C-1,2,3,6,7,8-HxCDD	68
13C-1,2,3,4,6,7,8-HpCDD	56
13C-OCDD	54

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

24
JEF
12/10/91

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: December 10, 1991

Sample I.D. Number(s): 27793, 27794, 27797

Sample Type: PVLW Wells

Sample Size: 1 liter

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 12/10/91
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 27793, 27794, 27797

Date Received: 12-18-91 1300

Laboratory or Company: ENSECO

By: [Signature] Signature

P.O. Number: 135729

915
12/11/91

OK
9/28
12/31/91

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: December 12, 1991

Sample I.D. Number(s): 27976, 27977

Sample Type: PVLW Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 12/12/91
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 27976, 27977

Date Received: 12-18-91 1300

Laboratory or Company: ENSECO

By: [Signature] (TELLERS)
Signature

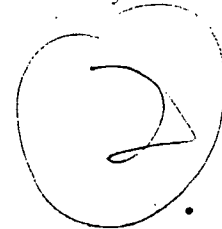
P.O. Number: 135729

OSB
12/13/91

28116

California Analytical
Laboratory

21
12



January 7, 1992
Lab ID: 062095

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples which were received at Enseco-Cal Lab on 24 December 1991.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution/Dioxins

svf

I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
062095-1, 2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8 Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
062095-0001-SA	28116	<i>m38A</i>	AQUEOUS	16 DEC 91		24 DEC 91
062095-0001-MB	Method Blank		AQUEOUS			24 DEC 91
062095-0002-SA	28117	<i>m39A</i>	AQUEOUS	16 DEC 91		24 DEC 91

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
062095-0001-SA	AQUEOUS	DXNFUR-A	26 DEC 91-A	-
062095-0001-MB	AQUEOUS	DXNFUR-A	26 DEC 91-A	-
062095-0002-SA	AQUEOUS	DXNFUR-A	26 DEC 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average (%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: DXNFUR-A									
Matrix: AQUEOUS									
QC Lot: 26 DEC 91-A									
Concentration Units: ng									
2,3,7,8-TCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,7,8-PeCDF	10	9.80	10.0	9.90	99	60-140	2.0	50	
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0	50	
OCDF	50	50.0	49.0	49.5	99	60-140	2.0	50	
2,3,7,8-TCDD	10	10.0	10.0	10.0	100	60-140	0.0	50	
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50	
1,2,3,4,7,8-HxCDD	10	9.20	9.40	9.30	93	60-140	2.2	50	
1,2,3,4,6,7,8-HpCDD	10	9.60	9.60	9.60	96	60-140	0.0	50	
OCDD	50	43.0	42.0	42.5	85	60-140	2.4	50	

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 062095-0001-MB
 Matrix: AQUEOUS
 Authorized: 26 DEC 91
 Sampled: NA
 Prepared: 02 JAN 92
 Received: NA
 Analyzed: 03 JAN 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.062	
2,3,7,8-TCDF	ND	ng/L	0.062	
PeCDFs (total)	ND	ng/L	0.10	
1,2,3,7,8-PeCDF	ND	ng/L	0.10	
2,3,4,7,8-PeCDF	ND	ng/L	0.10	
HxCDFs (total)	ND	ng/L	0.34	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.34	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.34	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.34	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.34	
HpCDFs (total)	ND	ng/L	0.67	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.67	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.67	
OCDF	ND	ng/L	5.6	
Dioxins				
TCDDs (total)	ND	ng/L	0.068	
2,3,7,8-TCDD	ND	ng/L	0.068	
PeCDDs (total)	ND	ng/L	0.38	
1,2,3,7,8-PeCDD	ND	ng/L	0.38	
HxCDDs (total)	ND	ng/L	0.52	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.52	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.52	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.52	
HpCDDs (total)	ND	ng/L	0.74	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.74	
OCDD	ND	ng/L	3.8	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Jennifer Kealy

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 062095-0001-MB
Matrix: AQUEOUS
Authorized: 26 DEC 91
Sampled: NA
Prepared: 02 JAN 92
Received: NA
Analyzed: 03 JAN 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	59
13C-2,3,7,8-TCDD	56
13C-1,2,3,7,8-PeCDD	53
13C-1,2,3,6,7,8-HxCDD	44
13C-1,2,3,4,6,7,8-HpCDD	27
13C-OCDD	18

ND = Not detected
NA = Not applicable

Reported By: Jennifer Kealy

Approved By: Shelly Eyraud

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 28116
 Lab ID: 062095-0001-SA
 Matrix: AQUEOUS
 Authorized: 26 DEC 91
 Sampled: 16 DEC 91
 Prepared: 02 JAN 92
 Received: 24 DEC 91
 Analyzed: 03 JAN 92

Sample Amount 0.945 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.091	
2,3,7,8-TCDF	ND	ng/L	0.091	
PeCDFs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDF	ND	ng/L	0.11	
2,3,4,7,8-PeCDF	ND	ng/L	0.11	
HxCDFs (total)	ND	ng/L	0.31	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.31	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.31	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.31	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.31	
HpCDFs (total)	ND	ng/L	0.57	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.57	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.57	
OCDF	ND	ng/L	3.7	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.37	
1,2,3,7,8-PeCDD	ND	ng/L	0.37	
HxCDDs (total)	ND	ng/L	0.42	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.42	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.42	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.42	
HpCDDs (total)	ND	ng/L	0.69	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.69	
OCDD	ND	ng/L	3.9	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Jennifer Kealy

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 28116

Lab ID: 062095-0001-SA

Matrix: AQUEOUS

Authorized: 26 DEC 91

Sampled: 16 DEC 91

Prepared: 02 JAN 92

Received: 24 DEC 91

Analyzed: 03 JAN 92

Sample Amount 0.945 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	62
13C-2,3,7,8-TCDD	57
13C-1,2,3,7,8-PeCDD	61
13C-1,2,3,6,7,8-HxCDD	52
13C-1,2,3,4,6,7,8-HpCDD	34
13C-OCDD	22

ND = Not detected

NA = Not applicable

Reported By: Jennifer Kealy

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 28117
 Lab ID: 062095-0002-SA
 Matrix: AQUEOUS
 Authorized: 26 DEC 91
 Sampled: 16 DEC 91
 Prepared: 02 JAN 92
 Received: 24 DEC 91
 Analyzed: 03 JAN 92

Sample Amount 0.920 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.070	
2,3,7,8-TCDF	ND	ng/L	0.070	
PeCDFs (total)	ND	ng/L	0.092	
1,2,3,7,8-PeCDF	ND	ng/L	0.092	
2,3,4,7,8-PeCDF	ND	ng/L	0.092	
HxCDFs (total)	ND	ng/L	0.18	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.18	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.18	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.18	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.18	
HpCDFs (total)	ND	ng/L	0.33	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.33	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.33	
OCDF	ND	ng/L	2.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.078	
2,3,7,8-TCDD	ND	ng/L	0.078	
PeCDDs (total)	ND	ng/L	0.23	
1,2,3,7,8-PeCDD	ND	ng/L	0.23	
HxCDDs (total)	ND	ng/L	0.31	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.31	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.31	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.31	
HpCDDs (total)	ND	ng/L	0.53	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.53	
OCDD	ND	ng/L	1.9	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Jennifer Kealy

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 28117
Lab ID: 062095-0002-SA
Matrix: AQUEOUS
Authorized: 26 DEC 91

Sampled: 16 DEC 91
Prepared: 02 JAN 92

Received: 24 DEC 91
Analyzed: 03 JAN 92

Sample Amount 0.920 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	61
13C-2,3,7,8-TCDD	57
13C-1,2,3,7,8-PeCDD	58
13C-1,2,3,6,7,8-HxCDD	50
13C-1,2,3,4,6,7,8-HpCDD	31
13C-OCDD	20

ND = Not detected
NA = Not applicable

Reported By: Jennifer Kealy

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: December 16, 1991

Sample I.D. Number(s): 28116, 28117

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 12/16/91
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 28116, 28117

Date Received: 12-24-91 0820

Laboratory or Company: Enseco Calif. Analytical
By: Robert Bonaly
Signature

543
12/24/91

28679

2



January 16, 1992
Lab ID: 062217

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your Purchase Order Number 135729 which were received at Enseco-Cal Lab on 8 January 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads 'Shelly Eyraud'. The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

svf

I Sample Description

See the attached Sample Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
062217-1, 2	Cl ₄ -Cl ₈ Dioxins/Furans plus 2,3,7,8 Substituted Isomers

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet in the Analytical Results section.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
 for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
062217-0001-SA	28679	<i>PV3</i>	AQUEOUS	31 DEC 91		08 JAN 92
062217-0001-MB	Method Blank		AQUEOUS			08 JAN 92
062217-0002-SA	28680	<i>Direct Blank of the PV3</i>	AQUEOUS	31 DEC 91		08 JAN 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
062217-0001-SA	AQUEOUS	DXNFUR-A	26 DEC 91-A	-
062217-0001-MB	AQUEOUS	DXNFUR-A	26 DEC 91-A	-
062217-0002-SA	AQUEOUS	DXNFUR-A	26 DEC 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS Limit	DCS Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 26 DEC 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,7,8-PeCDF	10	9.80	10.0	9.90	99	60-140	2.0	50
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
OCDF	50	50.0	49.0	49.5	99	60-140	2.0	50
2,3,7,8-TCDD	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,4,7,8-HxCDD	10	9.20	9.40	9.30	93	60-140	2.2	50
1,2,3,4,6,7,8-HpCDD	10	9.60	9.60	9.60	96	60-140	0.0	50
OCDD	50	43.0	42.0	42.5	85	60-140	2.4	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 062217-0001-MB
 Matrix: AQUEOUS
 Authorized: 08 JAN 92

Sampled: NA
 Prepared: 10 JAN 92

Received: NA
 Analyzed: 13 JAN 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.037	
2,3,7,8-TCDF	ND	ng/L	0.037	
PeCDFs (total)	ND	ng/L	0.067	
1,2,3,7,8-PeCDF	ND	ng/L	0.067	
2,3,4,7,8-PeCDF	ND	ng/L	0.067	
HxCDFs (total)	ND	ng/L	0.11	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.11	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.11	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.11	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.11	
HpCDFs (total)	ND	ng/L	0.23	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.23	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.23	
OCDF	ND	ng/L	1.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.060	
2,3,7,8-TCDD	ND	ng/L	0.060	
PeCDDs (total)	ND	ng/L	0.15	
1,2,3,7,8-PeCDD	ND	ng/L	0.15	
HxCDDs (total)	ND	ng/L	0.18	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.18	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.18	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.18	
HpCDDs (total)	ND	ng/L	0.25	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.25	
OCDD	ND	ng/L	1.4	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 062217-0001-MB

Matrix: AQUEOUS

Authorized: 08 JAN 92

Sampled: NA
Prepared: 10 JAN 92

Received: NA
Analyzed: 13 JAN 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	66
13C-2,3,7,8-TCDD	68
13C-1,2,3,7,8-PeCDD	74
13C-1,2,3,6,7,8-HxCDD	69
13C-1,2,3,4,6,7,8-HpCDD	55
13C-OCDD	45

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 28679
 Lab ID: 062217-0001-SA
 Matrix: AQUEOUS
 Authorized: 08 JAN 92
 Sampled: 31 DEC 91
 Prepared: 10 JAN 92
 Received: 08 JAN 92
 Analyzed: 13 JAN 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.031	
2,3,7,8-TCDF	ND	ng/L	0.031	
PeCDFs (total)	ND	ng/L	0.031	
1,2,3,7,8-PeCDF	ND	ng/L	0.031	
2,3,4,7,8-PeCDF	ND	ng/L	0.031	
HxCDFs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.14	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.18	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.18	
OCDF	ND	ng/L	1.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.052	
2,3,7,8-TCDD	ND	ng/L	0.052	
PeCDDs (total)	ND	ng/L	0.12	
1,2,3,7,8-PeCDD	ND	ng/L	0.12	
HxCDDs (total)	ND	ng/L	0.20	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.20	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.20	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.20	
HpCDDs (total)	ND	ng/L	0.24	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.24	
OCDD	ND	ng/L	1.1	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 28679

Lab ID: 062217-0001-SA

Matrix: AQUEOUS

Authorized: 08 JAN 92

Sampled: 31 DEC 91

Prepared: 10 JAN 92

Received: 08 JAN 92

Analyzed: 13 JAN 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	71
13C-2,3,7,8-TCDD	65
13C-1,2,3,7,8-PeCDD	74
13C-1,2,3,6,7,8-HxCDD	69
13C-1,2,3,4,6,7,8-HpCDD	51
13C-OCDD	40

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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3/5/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 28680
Lab ID: 062217-0002-SA
Matrix: AQUEOUS
Authorized: 08 JAN 92

Sampled: 31 DEC 91
Prepared: 10 JAN 92

Received: 08 JAN 92
Analyzed: 13 JAN 92

Sample Amount: 0.997 L
Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.046	
2,3,7,8-TCDF	ND	ng/L	0.046	
PeCDFs (total)	ND	ng/L	0.059	
1,2,3,7,8-PeCDF	ND	ng/L	0.059	
2,3,4,7,8-PeCDF	ND	ng/L	0.059	
HxCDFs (total)	ND	ng/L	0.16	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.16	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.16	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.16	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.16	
HpCDFs (total)	ND	ng/L	0.33	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.33	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.33	
OCDF	ND	ng/L	2.0	
Dioxins				
TCDDs (total)	ND	ng/L	0.063	
2,3,7,8-TCDD	ND	ng/L	0.063	
PeCDDs (total)	ND	ng/L	0.20	
1,2,3,7,8-PeCDD	ND	ng/L	0.20	
HxCDDs (total)	ND	ng/L	0.23	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.23	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.23	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.23	
HpCDDs (total)	ND	ng/L	0.36	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.36	
OCDD	ND	ng/L	1.1	

ND = Not detected
NA = Not applicable

(continued on following page)

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 28680

Lab ID: 062217-0002-SA

Matrix: AQUEOUS

Authorized: 08 JAN 92

Sampled: 31 DEC 91

Prepared: 10 JAN 92

Received: 08 JAN 92

Analyzed: 13 JAN 92

Sample Amount 0.997 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	61
13C-2,3,7,8-TCDD	58
13C-1,2,3,7,8-PeCDD	64
13C-1,2,3,6,7,8-HxCDD	59
13C-1,2,3,4,6,7,8-HpCDD	44
13C-OCDD	33

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

MA
11/29/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: December 31, 1991

Sample I.D. Number(s): 28679, 28680

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 12/31/91
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 28679, 28680

Date Received: January 8 1992

Laboratory or Company: Enseco- Callab

By: Diana Brook
Signature

beb
01/01/92

30429

California Analytical
Laboratory

28
20

3



January 31, 1992
Lab ID: 062412

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your PVL
Wells Project, under P.O. #135729, which were received at Enseco-Cal Lab
on 21 January 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Some internal standards have recoveries less than 40%. The
chromatographic signal to noise ratio is greater than 10-to-1. This is
one of the criteria used to judge acceptance.

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ks

Enseco Incorporated
2544 Industrial Boulevard
West Sacramento, California 95691
916/372-1393 Fax: 916/372-7768

I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
062412-1, 2	Polychlorinated Dioxins/Furans Isomer specific Analysis

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blanks associated with your samples at the reporting limit levels noted on the attached data sheets.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
062412-0001-SA	30429	<i>m45A</i>	AQUEOUS	10 JAN 92		21 JAN 92
062412-0001-MB	Method Blank		AQUEOUS			21 JAN 92
062412-0002-SA	30430	<i>m45A (dup)</i>	AQUEOUS	10 JAN 92		21 JAN 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
062412-0001-SA	AQUEOUS	DXNFUR-A	26 DEC 91-A	-
062412-0001-MB	AQUEOUS	DXNFUR-A	26 DEC 91-A	-
062412-0002-SA	AQUEOUS	DXNFUR-A	26 DEC 91-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Spiked	Concentration		AVG.	Accuracy		Precision	
		DCS1	Measured DCS2		Average(%)	DCS Limits	(RPD)	DCS Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 26 DEC 91-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,7,8-PeCDF	10	9.80	10.0	9.90	99	60-140	2.0	50
1,2,3,4,7,8-HxCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,4,6,7,8-HpCDF	10	11.0	11.0	11.0	110	60-140	0.0	50
OCDF	50	50.0	49.0	49.5	99	60-140	2.0	50
2,3,7,8-TCDD	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50
1,2,3,4,7,8-HxCDD	10	9.20	9.40	9.30	93	60-140	2.2	50
1,2,3,4,6,7,8-HpCDD	10	9.60	9.60	9.60	96	60-140	0.0	50
OCDD	50	43.0	42.0	42.5	85	60-140	2.4	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 062412-0001-MB
Matrix: AQUEOUS
Authorized: 21 JAN 92
Sampled: NA
Prepared: 23 JAN 92
Received: NA
Analyzed: 27 JAN 92

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	72
13C-2,3,7,8-TCDD	74
13C-1,2,3,7,8-PeCDD	67
13C-1,2,3,6,7,8-HxCDD	54
13C-1,2,3,4,6,7,8-HpCDD	35
13C-OCDD	21

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 30429
 Lab ID: 062412-0001-SA
 Matrix: AQUEOUS
 Authorized: 21 JAN 92

Sampled: 10 JAN 92
 Prepared: 23 JAN 92

Received: 21 JAN 92
 Analyzed: 27 JAN 92

Sample Amount 0.860 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.029	
2,3,7,8-TCDF	ND	ng/L	0.029	
PeCDFs (total)	ND	ng/L	0.054	
1,2,3,7,8-PeCDF	ND	ng/L	0.054	
2,3,4,7,8-PeCDF	ND	ng/L	0.054	
HxCDFs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.14	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.31	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.31	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.31	
OCDF	ND	ng/L	2.1	

Dioxins

TCDDs (total)	ND	ng/L	0.047	
2,3,7,8-TCDD	ND	ng/L	0.047	
PeCDDs (total)	ND	ng/L	0.22	
1,2,3,7,8-PeCDD	ND	ng/L	0.22	
HxCDDs (total)	ND	ng/L	0.25	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.25	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.25	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.25	
HpCDDs (total)	ND	ng/L	0.27	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.27	
OCDD	ND	ng/L	1.3	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 30429
Lab ID: 062412-0001-SA
Matrix: AQUEOUS
Authorized: 21 JAN 92
Sampled: 10 JAN 92
Prepared: 23 JAN 92
Received: 21 JAN 92
Analyzed: 27 JAN 92

Sample Amount 0.860 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	56
13C-2,3,7,8-TCDD	56
13C-1,2,3,7,8-PeCDD	51
13C-1,2,3,6,7,8-HxCDD	48
13C-1,2,3,4,6,7,8-HpCDD	34
13C-OCDD	24

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

3/10/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 30430
Lab ID: 062412-0002-SA
Matrix: AQUEOUS
Authorized: 21 JAN 92

Sampled: 10 JAN 92
Prepared: 23 JAN 92

Received: 21 JAN 92
Analyzed: 27 JAN 92

Sample Amount 0.866 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.034	
2,3,7,8-TCDF	ND	ng/L	0.034	
PeCDFs (total)	ND	ng/L	0.050	
1,2,3,7,8-PeCDF	ND	ng/L	0.050	
2,3,4,7,8-PeCDF	ND	ng/L	0.050	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.18	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.18	
OCDF	ND	ng/L	1.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.040	
2,3,7,8-TCDD	ND	ng/L	0.040	
PeCDDs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDD	ND	ng/L	0.11	
HxCDDs (total)	ND	ng/L	0.20	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.20	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.20	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.20	
HpCDDs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.20	
OCDD	ND	ng/L	0.97	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 30430

Lab ID: 062412-0002-SA

Matrix: AQUEOUS

Authorized: 21 JAN 92

Sampled: 10 JAN 92

Prepared: 23 JAN 92

Received: 21 JAN 92

Analyzed: 27 JAN 92

Sample Amount 0.866 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	73
13C-2,3,7,8-TCDD	72
13C-1,2,3,7,8-PeCDD	69
13C-1,2,3,6,7,8-HxCDD	64
13C-1,2,3,4,6,7,8-HpCDD	50
13C-OCDD	37

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

88
1/13/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: January 10, 1992

Sample I.D. Number(s): 30429, 30430

Sample Type: PVLW Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 01/10/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 30429, 30430

Date Received: 1-20-92 @ 1100
RB ③ 1-21-92

Laboratory or Company: Enseco Calif. Analytical

By: Robert Bonaly
Signature

88
1-15-92

315977

21



February 26, 1992
Lab ID: 062740

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the four aqueous samples for your P.O. #135729 which were received at Enseco Cal Lab on 11 February 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Because 1.0 L was received for samples #31598 and #31599, 0.5 L was extracted.

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ks

I Sample Description

See the attached Sample Description Information.

The samples were not received under chain-of-custody.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
062740-1 thru 4	Polychlorinated Dioxins/Furans Isomer Specific Analysis

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled		Received Date
			Date	Time	
062740-0001-SA	31597	<i>m57B</i> AQUEOUS			11 FEB 92
062740-0001-MB	Method Blank	AQUEOUS			11 FEB 92
062740-0002-SA	31598	<i>m218</i> AQUEOUS			11 FEB 92
062740-0003-SA	31599	<i>m57 (d-p)</i> AQUEOUS			11 FEB 92
062740-0004-SA	31600	<i>Route blank for m61</i> AQUEOUS			11 FEB 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
062740-0001-SA	AQUEOUS	DXNFUR-A	12 FEB 92-A	-
062740-0001-MB	AQUEOUS	DXNFUR-A	12 FEB 92-A	-
062740-0002-SA	AQUEOUS	DXNFUR-A	12 FEB 92-A	-
062740-0003-SA	AQUEOUS	DXNFUR-A	12 FEB 92-A	-
062740-0004-SA	AQUEOUS	DXNFUR-A	12 FEB 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average (%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS Limit		
Category: DXNFUR-A									
Matrix: AQUEOUS									
QC Lot: 12 FEB 92-A									
Concentration Units: ng									
2,3,7,8-TCDF	10	8.70	9.00	8.85	89	60-140	3.4	50	
1,2,3,7,8-PeCDF	10	8.00	9.30	8.65	87	60-140	0.0	50	
1,2,3,4,7,8-HxCDF	10	8.80	9.10	8.95	90	60-140	3.4	50	
1,2,3,4,6,7,8-HpCDF	10	8.70	9.20	8.95	90	60-140	5.6	50	
OCDF	50	50.0	47.0	48.5	97	60-140	6.2	50	
2,3,7,8-TCDD	10	8.30	8.40	8.35	84	60-140	1.2	50	
1,2,3,7,8-PeCDD	10	9.20	10.0	9.60	96	60-140	8.3	50	
1,2,3,4,7,8-HxCDD	10	7.60	8.60	8.10	81	60-140	12	50	
1,2,3,4,6,7,8-HpCDD	10	7.70	8.90	8.30	83	60-140	14	50	
OCDD	50	41.0	38.0	39.5	79	60-140	7.6	50	

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 062740-0001-MB

Matrix: AQUEOUS

Authorized: 11 FEB 92

Sampled: NA

Prepared: 13 FEB 92

Received: NA

Analyzed: 20 FEB 92

Sample Amount 1.00 L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.036	
2,3,7,8-TCDF	ND	ng/L	0.036	
PeCDFs (total)	ND	ng/L	0.045	
1,2,3,7,8-PeCDF	ND	ng/L	0.045	
2,3,4,7,8-PeCDF	ND	ng/L	0.045	
HxCDFs (total)	ND	ng/L	0.084	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.084	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.084	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.084	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.084	
HpCDFs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.11	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.11	
OCDF	ND	ng/L	0.48	
Dioxins				
TCDDs (total)	ND	ng/L	0.048	
2,3,7,8-TCDD	ND	ng/L	0.048	
PeCDDs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDD	ND	ng/L	0.14	
HxCDDs (total)	ND	ng/L	0.11	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.11	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.11	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.11	
HpCDDs (total)	ND	ng/L	0.16	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.16	
OCDD	ND	ng/L	0.47	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 062740-0001-MB

Matrix: AQUEOUS

Authorized: 11 FEB 92

Sampled: NA

Prepared: 13 FEB 92

Received: NA

Analyzed: 20 FEB 92

Sample Amount 1.00 L
Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	82
13C-2,3,7,8-TCDD	82
13C-1,2,3,7,8-PeCDD	77
13C-1,2,3,6,7,8-HxCDD	77
13C-1,2,3,4,6,7,8-HpCDD	57
13C-OCDD	46

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 31597
 Lab ID: 062740-0001-SA
 Matrix: AQUEOUS
 Authorized: 11 FEB 92
 Sampled: Unknown
 Prepared: 13 FEB 92
 Received: 11 FEB 92
 Analyzed: 20 FEB 92

Sample Amount 0.935 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.10	
2,3,7,8-TCDF	ND	ng/L	0.10	
PeCDFs (total)	ND	ng/L	0.033	
1,2,3,7,8-PeCDF	ND	ng/L	0.033	
2,3,4,7,8-PeCDF	ND	ng/L	0.033	
HxCDFs (total)	ND	ng/L	0.064	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.064	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.064	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.064	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.064	
HpCDFs (total)	ND	ng/L	0.14	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.14	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.14	
OCDF	ND	ng/L	0.85	
Dioxins				
TCDDs (total)	ND	ng/L	0.039	
2,3,7,8-TCDD	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.091	
1,2,3,7,8-PeCDD	ND	ng/L	0.091	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.15	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.15	
OCDD	ND	ng/L	0.47	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 31597

Lab ID: 062740-0001-SA

Matrix: AQUEOUS

Authorized: 11 FEB 92

Sampled: Unknown

Prepared: 13 FEB 92

Received: 11 FEB 92

Analyzed: 20 FEB 92

Sample Amount 0.935 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	72
13C-2,3,7,8-TCDD	75
13C-1,2,3,7,8-PeCDD	69
13C-1,2,3,6,7,8-HxCDD	74
13C-1,2,3,4,6,7,8-HpCDD	51
13C-OCDD	38

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 31598
 Lab ID: 062740-0002-SA
 Matrix: AQUEOUS
 Authorized: 11 FEB 92
 Sampled: Unknown
 Prepared: 13 FEB 92
 Received: 11 FEB 92
 Analyzed: 20 FEB 92

Sample Amount 0.508 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.072	
2,3,7,8-TCDF	ND	ng/L	0.072	
PeCDFs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDF	ND	ng/L	0.13	
2,3,4,7,8-PeCDF	ND	ng/L	0.13	
HxCDFs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.17	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.17	
HpCDFs (total)	ND	ng/L	0.46	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.46	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.46	
OCDF	ND	ng/L	2.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.36	
1,2,3,7,8-PeCDD	ND	ng/L	0.36	
HxCDDs (total)	ND	ng/L	0.30	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.30	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.30	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.30	
HpCDDs (total)	ND	ng/L	0.43	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.43	
OCDD	ND	ng/L	1.9	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 31598

Lab ID: 062740-0002-SA

Matrix: AQUEOUS

Authorized: 11 FEB 92

Sampled: Unknown

Prepared: 13 FEB 92

Received: 11 FEB 92

Analyzed: 20 FEB 92

Sample Amount 0.508 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	65
13C-2,3,7,8-TCDD	64
13C-1,2,3,7,8-PeCDD	60
13C-1,2,3,6,7,8-HxCDD	66
13C-1,2,3,4,6,7,8-HpCDD	45
13C-OCDD	32

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 31599
 Lab ID: 062740-0003-SA
 Matrix: AQUEOUS
 Authorized: 11 FEB 92

Sampled: Unknown
 Prepared: 13 FEB 92
 Received: 11 FEB 92
 Analyzed: 20 FEB 92

Sample Amount 0.519 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.11	
2,3,7,8-TCDF	ND	ng/L	0.11	
PeCDFs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDF	ND	ng/L	0.13	
2,3,4,7,8-PeCDF	ND	ng/L	0.13	
HxCDFs (total)	ND	ng/L	0.29	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.29	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.29	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.29	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.29	
HpCDFs (total)	ND	ng/L	0.66	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.66	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.66	
OCDF	ND	ng/L	3.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.10	
2,3,7,8-TCDD	ND	ng/L	0.10	
PeCDDs (total)	ND	ng/L	0.42	
1,2,3,7,8-PeCDD	ND	ng/L	0.42	
HxCDDs (total)	ND	ng/L	0.36	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.36	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.36	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.36	
HpCDDs (total)	ND	ng/L	0.57	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.57	
OCDD	ND	ng/L	1.5	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 31599

Lab ID: 062740-0003-SA

Matrix: AQUEOUS

Authorized: 11 FEB 92

Sampled: Unknown

Prepared: 13 FEB 92

Received: 11 FEB 92

Analyzed: 20 FEB 92

Sample Amount 0.519 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	68
13C-2,3,7,8-TCDD	69
13C-1,2,3,7,8-PeCDD	64
13C-1,2,3,6,7,8-HxCDD	69
13C-1,2,3,4,6,7,8-HpCDD	45
13C-OCDD	33

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 31600
 Lab ID: 062740-0004-SA
 Matrix: AQUEOUS
 Authorized: 11 FEB 92

Sampled: Unknown
 Prepared: 13 FEB 92

Received: 11 FEB 92
 Analyzed: 20 FEB 92

Sample Amount 0.926 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.036	
2,3,7,8-TCDF	ND	ng/L	0.036	
PeCDFs (total)	ND	ng/L	0.039	
1,2,3,7,8-PeCDF	ND	ng/L	0.039	
2,3,4,7,8-PeCDF	ND	ng/L	0.039	
HxCDFs (total)	ND	ng/L	0.083	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.083	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.083	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.083	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.083	
HpCDFs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.20	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.20	
OCDF	ND	ng/L	0.74	
Dioxins				
TCDDs (total)	ND	ng/L	0.040	
2,3,7,8-TCDD	ND	ng/L	0.040	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.13	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.13	
HpCDDs (total)	ND	ng/L	0.16	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.16	
OCDD	ND	ng/L	0.58	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 31600

Lab ID: 062740-0004-SA

Matrix: AQUEOUS

Authorized: 11 FEB 92

Sampled: Unknown

Prepared: 13 FEB 92

Received: 11 FEB 92

Analyzed: 20 FEB 92

Sample Amount 0.926 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	57
13C-2,3,7,8-TCDD	58
13C-1,2,3,7,8-PeCDD	58
13C-1,2,3,6,7,8-HxCDD	60
13C-1,2,3,4,6,7,8-HpCDD	40
13C-OCDD	29

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

OK
2/03
2/4/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: February 03, 1992

Sample I.D. Number(s): 31597, 31598, 31599, 31600

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 02/03/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 31597, 31598, 31599, 31600

Date Received: 2-1-92 1210

Laboratory or Company: Enseco Calif. Analytical

By: Robert Bonaly
Signature

RB
2/11/92

3
33032



March 26, 1992
Lab ID: 063143

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729 which were received at Enseco Cal Lab on 9 March 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Sample ID "33033" was initially extracted at 1.0 L. The sample was re-extracted at 0.5 L because of low internal standard recoveries.

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ks

I Sample Description

See the attached Sample Description Information.

The samples were received with request for analysis.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
063143-1, 2	Polychlorinated Dioxins/Furans Isomer Specific Analysis

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blanks associated with your samples at the reporting limit levels noted on the attached data sheets.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
063143-0001-SA	33032	EW9	AQUEOUS	02	MAR 92	09 MAR 92
063143-0001-MB	Method Blank		AQUEOUS			09 MAR 92
063143-0002-SA	33033	S7	AQUEOUS	02	MAR 92	09 MAR 92
063143-0002-MB	Method Blank		AQUEOUS			09 MAR 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
063143-0001-SA	AQUEOUS	DXNFUR-A	09 MAR 92-A	-
063143-0001-MB	AQUEOUS	DXNFUR-A	09 MAR 92-A	-
063143-0002-SA	AQUEOUS	DXNFUR-A	09 MAR 92-A	-
063143-0002-MB	AQUEOUS	DXNFUR-A	09 MAR 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS Limit	DCS Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 09 MAR 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	8.40	8.50	8.45	85	60-140	1.2	50
1,2,3,7,8-PeCDF	10	8.80	9.20	9.00	90	60-140	4.4	50
1,2,3,4,7,8-HxCDF	10	6.80	4.80	5.80	58	60-140	34	50
1,2,3,4,6,7,8-HpCDF	10	5.60	3.60	4.60	46	60-140	43	50
OCDF	50	51.0	34.0	42.5	85	60-140	40	50
2,3,7,8-TCDD	10	7.20	7.60	7.40	74	60-140	5.4	50
1,2,3,7,8-PeCDD	10	9.40	10.0	9.70	97	60-140	6.2	50
1,2,3,4,7,8-HxCDD	10	7.70	7.90	7.80	78	60-140	2.6	50
1,2,3,4,6,7,8-HpCDD	10	7.60	7.70	7.65	77	60-140	1.3	50
OCDD	50	41.0	39.0	40.0	80	60-140	5.0	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 063143-0001-MB

Matrix: AQUEOUS

Authorized: 09 MAR 92

Sampled: NA

Prepared: 13 MAR 92

Received: NA

Analyzed: 17 MAR 92

Sample Amount 1.0 L

Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.033	
2,3,7,8-TCDF	ND	ng/L	0.033	
PeCDFs (total)	ND	ng/L	0.045	
1,2,3,7,8-PeCDF	ND	ng/L	0.045	
2,3,4,7,8-PeCDF	ND	ng/L	0.045	
HxCDFs (total)	ND	ng/L	0.065	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.065	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.065	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.065	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.065	
HpCDFs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.11	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.11	
OCDF	ND	ng/L	0.53	
Dioxins				
TCDDs (total)	ND	ng/L	0.047	
2,3,7,8-TCDD	ND	ng/L	0.047	
PeCDDs (total)	ND	ng/L	0.12	
1,2,3,7,8-PeCDD	ND	ng/L	0.12	
HxCDDs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.10	
HpCDDs (total)	ND	ng/L	0.15	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.15	
OCDD	ND	ng/L	0.39	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 063143-0001-MB

Matrix: AQUEOUS

Authorized: 09 MAR 92

Sampled: NA

Prepared: 13 MAR 92

Received: NA

Analyzed: 17 MAR 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	64
13C-2,3,7,8-TCDD	63
13C-1,2,3,7,8-PeCDD	69
13C-1,2,3,6,7,8-HxCDD	68
13C-1,2,3,4,6,7,8-HpCDD	61
13C-OCDD	76

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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05/11/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 33032
Lab ID: 063143-0001-SA
Matrix: AQUEOUS
Authorized: 09 MAR 92

Sampled: 02 MAR 92
Prepared: 13 MAR 92

Received: 09 MAR 92
Analyzed: 17 MAR 92

Sample Amount 0.849 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.035	
2,3,7,8-TCDF	ND	ng/L	0.035	
PeCDFs (total)	ND	ng/L	0.053	
1,2,3,7,8-PeCDF	ND	ng/L	0.053	
2,3,4,7,8-PeCDF	ND	ng/L	0.053	
HxCDFs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.14	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.20	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.20	
OCDF	ND	ng/L	0.78	

Dioxins

TCDDs (total)	ND	ng/L	0.045	
2,3,7,8-TCDD	ND	ng/L	0.045	
PeCDDs (total)	ND	ng/L	0.21	
1,2,3,7,8-PeCDD	ND	ng/L	0.21	
HxCDDs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.14	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.14	
OCDD	ND	ng/L	0.44	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33032

Lab ID: 063143-0001-SA

Matrix: AQUEOUS

Authorized: 09 MAR 92

Sampled: 02 MAR 92

Prepared: 13 MAR 92

Received: 09 MAR 92

Analyzed: 17 MAR 92

Sample Amount 0.849 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	69
13C-2,3,7,8-TCDD	66
13C-1,2,3,7,8-PeCDD	69
13C-1,2,3,6,7,8-HxCDD	64
13C-1,2,3,4,6,7,8-HpCDD	67
13C-OCDD	85

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 063143-0002-MB
 Matrix: AQUEOUS
 Authorized: 09 MAR 92
 Sampled: NA
 Prepared: 19 MAR 92
 Received: NA
 Analyzed: 25 MAR 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.12	
2,3,7,8-TCDF	ND	ng/L	0.12	
PeCDFs (total)	ND	ng/L	0.16	
1,2,3,7,8-PeCDF	ND	ng/L	0.16	
2,3,4,7,8-PeCDF	ND	ng/L	0.16	
HxCDFs (total)	ND	ng/L	0.34	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.34	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.34	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.34	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.34	
HpCDFs (total)	ND	ng/L	0.59	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.59	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.59	
OCDF	ND	ng/L	2.6	
Dioxins				
TCDDs (total)	ND	ng/L	0.096	
2,3,7,8-TCDD	ND	ng/L	0.096	
PeCDDs (total)	ND	ng/L	0.39	
1,2,3,7,8-PeCDD	ND	ng/L	0.39	
HxCDDs (total)	ND	ng/L	0.53	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.53	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.53	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.53	
HpCDDs (total)	ND	ng/L	0.73	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.73	
OCDD	ND	ng/L	1.9	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 063143-0002-MB

Matrix: AQUEOUS

Authorized: 09 MAR 92

Sampled: NA

Prepared: 19 MAR 92

Received: NA

Analyzed: 25 MAR 92

Sample Amount 1.0 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	71
13C-2,3,7,8-TCDD	70
13C-1,2,3,7,8-PeCDD	74
13C-1,2,3,6,7,8-HxCDD	60
13C-1,2,3,4,6,7,8-HpCDD	51
13C-OCDD	43

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33033
 Lab ID: 063143-0002-SA
 Matrix: AQUEOUS
 Authorized: 09 MAR 92

Sampled: 02 MAR 92
 Prepared: 19 MAR 92

Received: 09 MAR 92
 Analyzed: 25 MAR 92

Sample Amount 0.5 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.78	
2,3,7,8-TCDF	ND	ng/L	0.78	
PeCDFs (total)	ND	ng/L	0.55	
1,2,3,7,8-PeCDF	ND	ng/L	0.55	
2,3,4,7,8-PeCDF	ND	ng/L	0.55	
HxCDFs (total)	ND	ng/L	1.7	
1,2,3,4,7,8-HxCDF	ND	ng/L	1.7	
1,2,3,6,7,8-HxCDF	ND	ng/L	1.7	
2,3,4,6,7,8-HxCDF	ND	ng/L	1.7	
1,2,3,7,8,9-HxCDF	ND	ng/L	1.7	
HpCDFs (total)	ND	ng/L	2.0	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	2.0	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	2.0	
OCDF	ND	ng/L	9.3	
Dioxins				
TCDDs (total)	ND	ng/L	0.78	
2,3,7,8-TCDD	ND	ng/L	0.78	
PeCDDs (total)	ND	ng/L	1.6	
1,2,3,7,8-PeCDD	ND	ng/L	1.6	
HxCDDs (total)	ND	ng/L	1.4	
1,2,3,4,7,8-HxCDD	ND	ng/L	1.4	
1,2,3,6,7,8-HxCDD	ND	ng/L	1.4	
1,2,3,7,8,9-HxCDD	ND	ng/L	1.4	
HpCDDs (total)	ND	ng/L	2.2	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	2.2	
OCDD	ND	ng/L	11	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33033

Lab ID: 063143-0002-SA

Matrix: AQUEOUS

Authorized: 09 MAR 92

Sampled: 02 MAR 92

Prepared: 19 MAR 92

Received: 09 MAR 92

Analyzed: 25 MAR 92

Sample Amount 0.5 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	61
13C-2,3,7,8-TCDD	56
13C-1,2,3,7,8-PeCDD	64
13C-1,2,3,6,7,8-HxCDD	53
13C-1,2,3,4,6,7,8-HpCDD	48
13C-OCDD	41

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

OK
8030
3/3/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: March 02, 1992

Sample I.D. Number(s): 33032, 33033

Sample Type: PVLW Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 03/02/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 33032, 33033

Date Received: March 9, 1992

Laboratory or Company: Enseco - Callab

By: Diana L. Brock
Signature

850
3/3/92

33370

California Analytical
Laboratory

22

3



April 2, 1992
Lab ID: 063225

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the three aqueous samples for your P.O. #135729 which were received at Enseco Cal Lab on 13 March 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Due to low internal standard recoveries in the initial extractions, all samples were re-extracted at 0.5 L.

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned above the typed name and title.

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ks

I Sample Description

See the attached Sample Description Information.

The samples were received with request for analysis.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
063225-1 thru 3	Polychlorinated Dioxins/Furans Isomer Specific Analysis

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
063225-0001-SA	33370	<i>m 308</i>	AQUEOUS	05 MAR 92		13 MAR 92
063225-0001-MB	Method Blank		AQUEOUS			13 MAR 92
063225-0002-SA	33371	<i>m 378</i>	AQUEOUS	05 MAR 92		13 MAR 92
063225-0003-SA	33372	<i>m 338 (dup)</i>	AQUEOUS	05 MAR 92		13 MAR 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
063225-0001-SA	AQUEOUS	DXNFUR-A	09 MAR 92-A	-
063225-0001-MB	AQUEOUS	DXNFUR-A	09 MAR 92-A	-
063225-0002-SA	AQUEOUS	DXNFUR-A	09 MAR 92-A	-
063225-0003-SA	AQUEOUS	DXNFUR-A	09 MAR 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average (%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 09 MAR 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	8.40	8.50	8.45	85	60-140	1.2	50
1,2,3,7,8-PeCDF	10	8.80	9.20	9.00	90	60-140	4.4	50
1,2,3,4,7,8-HxCDF	10	6.80	4.80	5.80	58	60-140	34	50
1,2,3,4,6,7,8-HpCDF	10	5.60	3.60	4.60	46	60-140	43	50
OCDF	50	51.0	34.0	42.5	85	60-140	40	50
2,3,7,8-TCDD	10	7.20	7.60	7.40	74	60-140	5.4	50
1,2,3,7,8-PeCDD	10	9.40	10.0	9.70	97	60-140	6.2	50
1,2,3,4,7,8-HxCDD	10	7.70	7.90	7.80	78	60-140	2.6	50
1,2,3,4,6,7,8-HpCDD	10	7.60	7.70	7.65	77	60-140	1.3	50
OCDD	50	41.0	39.0	40.0	80	60-140	5.0	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 063225-0001-MB
 Matrix: AQUEOUS
 Authorized: 13 MAR 92
 Sampled: NA
 Prepared: 20 MAR 92
 Received: NA
 Analyzed: 25 MAR 92

Sample Amount 0.5 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.10	
2,3,7,8-TCDF	ND	ng/L	0.10	
PeCDFs (total)	ND	ng/L	0.15	
1,2,3,7,8-PeCDF	ND	ng/L	0.15	
2,3,4,7,8-PeCDF	ND	ng/L	0.15	
HxCDFs (total)	ND	ng/L	0.43	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.43	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.43	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.43	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.43	
HpCDFs (total)	ND	ng/L	0.76	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.76	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.76	
OCDF	ND	ng/L	2.9	
Dioxins				
TCDDs (total)	ND	ng/L	0.11	
2,3,7,8-TCDD	ND	ng/L	0.11	
PeCDDs (total)	ND	ng/L	0.37	
1,2,3,7,8-PeCDD	ND	ng/L	0.37	
HxCDDs (total)	ND	ng/L	0.64	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.64	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.64	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.64	
HpCDDs (total)	ND	ng/L	0.71	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.71	
OCDD	ND	ng/L	2.0	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 063225-0001-MB
Matrix: AQUEOUS
Authorized: 13 MAR 92
Sampled: NA
Prepared: 20 MAR 92
Received: NA
Analyzed: 25 MAR 92

Sample Amount 0.5 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	78
13C-2,3,7,8-TCDD	76
13C-1,2,3,7,8-PeCDD	58
13C-1,2,3,6,7,8-HxCDD	39
13C-1,2,3,4,6,7,8-HpCDD	50
13C-OCDD	43

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33370

Lab ID: 063225-0001-SA

Matrix: AQUEOUS

Authorized: 13 MAR 92

Sampled: 05 MAR 92

Prepared: 20 MAR 92

Received: 13 MAR 92

Analyzed: 25 MAR 92

Sample Amount 0.501 L
Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	65
13C-2,3,7,8-TCDD	67
13C-1,2,3,7,8-PeCDD	73
13C-1,2,3,6,7,8-HxCDD	62
13C-1,2,3,4,6,7,8-HpCDD	66
13C-OCDD	69

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33371
 Lab ID: 063225-0002-SA
 Matrix: AQUEOUS
 Authorized: 13 MAR 92

Sampled: 05 MAR 92
 Prepared: 20 MAR 92

Received: 13 MAR 92
 Analyzed: 25 MAR 92

Sample Amount 0.498 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.081	
2,3,7,8-TCDF	ND	ng/L	0.081	
PeCDFs (total)	ND	ng/L	0.12	
1,2,3,7,8-PeCDF	ND	ng/L	0.12	
2,3,4,7,8-PeCDF	ND	ng/L	0.12	
HxCDFs (total)	ND	ng/L	0.26	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.26	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.26	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.26	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.26	
HpCDFs (total)	ND	ng/L	0.34	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.34	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.34	
OCDF	ND	ng/L	2.7	
Dioxins				
TCDDs (total)	ND	ng/L	0.11	
2,3,7,8-TCDD	ND	ng/L	0.11	
PeCDDs (total)	ND	ng/L	0.29	
1,2,3,7,8-PeCDD	ND	ng/L	0.29	
HxCDDs (total)	ND	ng/L	0.37	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.37	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.37	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.37	
HpCDDs (total)	ND	ng/L	0.44	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.44	
OCDD	ND	ng/L	1.5	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33371

Lab ID: 063225-0002-SA

Matrix: AQUEOUS

Authorized: 13 MAR 92

Sampled: 05 MAR 92

Prepared: 20 MAR 92

Received: 13 MAR 92

Analyzed: 25 MAR 92

Sample Amount 0.498 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	90
13C-2,3,7,8-TCDD	98
13C-1,2,3,7,8-PeCDD	96
13C-1,2,3,6,7,8-HxCDD	84
13C-1,2,3,4,6,7,8-HpCDD	72
13C-OCDD	61

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 33372
 Lab ID: 063225-0003-SA
 Matrix: AQUEOUS
 Authorized: 13 MAR 92

Sampled: 05 MAR 92
 Prepared: 20 MAR 92

Received: 13 MAR 92
 Analyzed: 25 MAR 92

Sample Amount 0.475 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.087	
2,3,7,8-TCDF	ND	ng/L	0.087	
PeCDFs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDF	ND	ng/L	0.13	
2,3,4,7,8-PeCDF	ND	ng/L	0.13	
HxCDFs (total)	ND	ng/L	0.32	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.32	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.32	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.32	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.32	
HpCDFs (total)	ND	ng/L	0.40	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.40	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.40	
OCDF	ND	ng/L	2.0	
Dioxins				
TCDDs (total)	ND	ng/L	0.11	
2,3,7,8-TCDD	ND	ng/L	0.11	
PeCDDs (total)	ND	ng/L	0.34	
1,2,3,7,8-PeCDD	ND	ng/L	0.34	
HxCDDs (total)	ND	ng/L	0.47	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.47	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.47	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.47	
HpCDDs (total)	ND	ng/L	0.48	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.48	
OCDD	ND	ng/L	1.6	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33372

Lab ID: 063225-0003-SA

Matrix: AQUEOUS

Authorized: 13 MAR 92

Sampled: 05 MAR 92

Prepared: 20 MAR 92

Received: 13 MAR 92

Analyzed: 25 MAR 92

Sample Amount 0.475 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	78
13C-2,3,7,8-TCDD	82
13C-1,2,3,7,8-PeCDD	80
13C-1,2,3,6,7,8-HxCDD	67
13C-1,2,3,4,6,7,8-HpCDD	68
13C-OCDD	67

ND = Not detected

NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

JK

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: March 05, 1992

Sample I.D. Number(s): 33370, 33371, 33372

Sample Type: PVLf Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 03/05/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 33370, 33371, 33372

Date Received: 3/13/92 1400

Laboratory or Company: ENSECO

By: [Signature]
Signature

JK
3/13/92
aw

33850

3



April 8, 1992
Lab ID: 063363

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the four aqueous samples for your P.O. #135729 which were received at Enseco Cal Lab on 24 March 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

Some internal standards have recoveries less than 40%. The chromatographic signal to noise ratio is greater than 10-to-1. This is one of the criteria used to judge acceptance.

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

ks

I Sample Description

See the attached Sample Description Information.

The samples were received with a request for analysis.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
063363-1 thru 4	Polychlorinated Dioxins/Furans Isomer Specific Analysis

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
063363-0001-SA	33838	<i>m 38A</i>	AQUEOUS	13 MAR 92		24 MAR 92
063363-0001-MB	Method Blank		AQUEOUS			24 MAR 92
063363-0002-SA	33839	<i>m 39A</i>	AQUEOUS	13 MAR 92		24 MAR 92
063363-0003-SA	33840	<i>m 35B</i>	AQUEOUS	13 MAR 92		24 MAR 92
063363-0004-SA	33859	<i>m 51B</i>	AQUEOUS	13 MAR 92		24 MAR 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
063363-0001-SA	AQUEOUS	DXNFUR-A	25 MAR 92-A	-
063363-0001-MB	AQUEOUS	DXNFUR-A	25 MAR 92-A	-
063363-0002-SA	AQUEOUS	DXNFUR-A	25 MAR 92-A	-
063363-0003-SA	AQUEOUS	DXNFUR-A	25 MAR 92-A	-
063363-0004-SA	AQUEOUS	DXNFUR-A	25 MAR 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG.	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 25 MAR 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.00	9.00	9.00	90	60-140	0.0	50
2,3,4,7,8-PeCDF	10	8.80	8.70	8.75	88	60-140	1.1	50
1,2,3,4,7,8-HxCDF	10	6.50	9.20	7.85	79	60-140	34	50
1,2,3,4,6,7,8-HpCDF	10	4.80	8.30	6.55	66	60-140	53	50
OCDF	50	30.0	36.0	33.0	66	60-140	18	50
2,3,7,8-TCDD	10	8.30	8.10	8.20	82	60-140	2.4	50
1,2,3,7,8-PeCDD	10	9.40	9.40	9.40	94	60-140	0.0	50
1,2,3,4,7,8-HxCDD	10	8.50	8.40	8.45	85	60-140	1.2	50
1,2,3,4,6,7,8-HpCDD	10	8.30	8.00	8.15	82	60-140	3.7	50
OCDD	50	29.0	28.0	28.5	57	60-140	3.5	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 063363-0001-MB
 Matrix: AQUEOUS
 Authorized: 24 MAR 92
 Sampled: NA
 Prepared: 30 MAR 92
 Received: NA
 Analyzed: 31 MAR 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.027	
2,3,7,8-TCDF	ND	ng/L	0.027	
PeCDFs (total)	ND	ng/L	0.038	
1,2,3,7,8-PeCDF	ND	ng/L	0.038	
2,3,4,7,8-PeCDF	ND	ng/L	0.038	
HxCDFs (total)	ND	ng/L	0.075	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.075	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.075	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.075	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.075	
HpCDFs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.13	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.13	
OCDF	ND	ng/L	1.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.039	
2,3,7,8-TCDD	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.13	
OCDD	ND	ng/L	0.57	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 063363-0001-MB

Matrix: AQUEOUS

Authorized: 24 MAR 92

Sampled: NA

Prepared: 30 MAR 92

Received: NA

Analyzed: 31 MAR 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	83
13C-2,3,7,8-TCDD	89
13C-1,2,3,7,8-PeCDD	89
13C-1,2,3,6,7,8-HxCDD	84
13C-1,2,3,4,6,7,8-HpCDD	79
13C-OCDD	92

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33828
 Lab ID: 063363-0001-SA
 Matrix: AQUEOUS
 Authorized: 24 MAR 92

Sampled: 13 MAR 92
 Prepared: 30 MAR 92

Received: 24 MAR 92
 Analyzed: 31 MAR 92

Sample Amount: 0.916 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.031	
2,3,7,8-TCDF	ND	ng/L	0.031	
PeCDFs (total)	ND	ng/L	0.033	
1,2,3,7,8-PeCDF	ND	ng/L	0.033	
2,3,4,7,8-PeCDF	ND	ng/L	0.033	
HxCDFs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.10	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.10	
HpCDFs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.20	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.20	
OCDF	ND	ng/L	1.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.044	
2,3,7,8-TCDD	ND	ng/L	0.044	
PeCDDs (total)	ND	ng/L	0.12	
1,2,3,7,8-PeCDD	ND	ng/L	0.12	
HxCDDs (total)	ND	ng/L	0.16	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.16	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.16	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.16	
HpCDDs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.18	
OCDD	ND	ng/L	0.65	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 33838
Lab ID: 063363-0001-SA
Matrix: AQUEOUS
Authorized: 24 MAR 92
Sampled: 13 MAR 92
Prepared: 30 MAR 92
Received: 24 MAR 92
Analyzed: 31 MAR 92

Sample Amount 0.916 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	80
13C-2,3,7,8-TCDD	85
13C-1,2,3,7,8-PeCDD	93
13C-1,2,3,6,7,8-HxCDD	83
13C-1,2,3,4,6,7,8-HpCDD	81
13C-OCDD	86

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33839
 Lab ID: 063363-0002-SA
 Matrix: AQUEOUS
 Authorized: 24 MAR 92

Sampled: 13 MAR 92
 Prepared: 30 MAR 92

Received: 24 MAR 92
 Analyzed: 01 APR 92

Sample Amount: 0.952 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.054	
2,3,7,8-TCDF	ND	ng/L	0.054	
PeCDFs (total)	ND	ng/L	0.061	
1,2,3,7,8-PeCDF	ND	ng/L	0.061	
2,3,4,7,8-PeCDF	ND	ng/L	0.061	
HxCDFs (total)	ND	ng/L	0.21	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.21	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.21	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.21	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.21	
HpCDFs (total)	ND	ng/L	0.53	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.53	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.53	
OCDF	ND	ng/L	3.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.068	
2,3,7,8-TCDD	ND	ng/L	0.068	
PeCDDs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDD	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.26	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.26	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.26	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.26	
HpCDDs (total)	ND	ng/L	0.57	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.57	
OCDD	ND	ng/L	2.3	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33839

Lab ID: 063363-0002-SA

Matrix: AQUEOUS

Authorized: 24 MAR 92

Sampled: 13 MAR 92

Prepared: 30 MAR 92

Received: 24 MAR 92

Analyzed: 01 APR 92

Sample Amount 0.952 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	76
13C-2,3,7,8-TCDD	79
13C-1,2,3,7,8-PeCDD	68
13C-1,2,3,6,7,8-HxCDD	57
13C-1,2,3,4,6,7,8-HpCDD	34
13C-OCDD	21

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33840
 Lab ID: 063363-0003-SA
 Matrix: AQUEOUS
 Authorized: 24 MAR 92
 Sampled: 13 MAR 92
 Prepared: 30 MAR 92
 Received: 24 MAR 92
 Analyzed: 31 MAR 91

Sample Amount 0.926 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.038	
2,3,7,8-TCDF	ND	ng/L	0.038	
PeCDFs (total)	ND	ng/L	0.049	
1,2,3,7,8-PeCDF	ND	ng/L	0.049	
2,3,4,7,8-PeCDF	ND	ng/L	0.049	
HxCDFs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.14	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.18	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.18	
OCDF	ND	ng/L	1.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.068	
2,3,7,8-TCDD	ND	ng/L	0.068	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.17	
HpCDDs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.18	
OCDD	ND	ng/L	0.62	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 33840
Lab ID: 063363-0003-SA
Matrix: AQUEOUS
Authorized: 24 MAR 92
Sampled: 13 MAR 92
Prepared: 30 MAR 92
Received: 24 MAR 92
Analyzed: 31 MAR 91

Sample Amount 0.926 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	70
13C-2,3,7,8-TCDD	76
13C-1,2,3,7,8-PeCDD	83
13C-1,2,3,6,7,8-HxCDD	80
13C-1,2,3,4,6,7,8-HpCDD	82
13C-OCDD	103

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33859
 Lab ID: 063363-0004-SA
 Matrix: AQUEOUS
 Authorized: 24 MAR 92
 Sampled: 13 MAR 92
 Prepared: 30 MAR 92
 Received: 24 MAR 92
 Analyzed: 31 MAR 91

Sample Amount 0.890 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.034	
2,3,7,8-TCDF	ND	ng/L	0.034	
PeCDFs (total)	ND	ng/L	0.049	
1,2,3,7,8-PeCDF	ND	ng/L	0.049	
2,3,4,7,8-PeCDF	ND	ng/L	0.049	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.23	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.23	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.23	
OCDF	ND	ng/L	1.6	
Dioxins				
TCDDs (total)	ND	ng/L	0.052	
2,3,7,8-TCDD	ND	ng/L	0.052	
PeCDDs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDD	ND	ng/L	0.14	
HxCDDs (total)	ND	ng/L	0.18	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.18	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.18	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.18	
HpCDDs (total)	ND	ng/L	0.23	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.23	
OCDD	ND	ng/L	1.2	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33859

Lab ID: 063363-0004-SA

Matrix: AQUEOUS

Authorized: 24 MAR 92

Sampled: 13 MAR 92

Prepared: 30 MAR 92

Received: 24 MAR 92

Analyzed: 31 MAR 91

Sample Amount 0.890 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	80
13C-2,3,7,8-TCDD	81
13C-1,2,3,7,8-PeCDD	84
13C-1,2,3,6,7,8-HxCDD	75
13C-1,2,3,4,6,7,8-HpCDD	66
13C-OCDD	76

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

OK
3/16/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: March 16, 1992

Sample I.D. Number(s): 33838, 33839, 33840, 33859

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 03/16/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 33838, 33839, 33840, 33859

Date Received: 3-24-92

Laboratory or Company: Enseco California Analytical Laboratory

By: Robert James Bonaly
Signature

3/15
3/17/92

33953

California Analytical
Laboratory

JA
25

3



April 8, 1992
Lab ID: 063382

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

Enclosed is the report for the two aqueous samples for your P.O. #135729 which were received at Enseco Cal Lab on 25 March 1992.

The report consists of the following sections:

- I Sample Description
- II Analysis Request
- III Quality Control Report
- IV Analysis Results

If you have any questions, please feel free to call.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

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I Sample Description

See the attached Sample Description Information.

The samples were received with request for analysis.

II Analysis Request

The following analytical test was requested.

<u>Lab ID</u>	<u>Analysis Description</u>
063382-1, 2	Polychlorinated Dioxins/Furans Isomer Specific Analysis

III Quality Control

- A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.
- B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

No target parameters were detected in the method blank associated with your samples at the reporting limit levels noted on the attached data sheet.

- C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

IV Analysis Results

Test methods may include minor modifications of published EPA Methods such as reporting limits or parameter lists. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis; i.e., no correction is made for moisture content, unless the method requires or the client requests that such correction be made.

Results are on the attached data sheets.

SAMPLE DESCRIPTION INFORMATION
 for
 San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date Time	Received Date
063382-0001-SA	33953	<i>M37A</i>	AQUEOUS	17 MAR 92	25 MAR 92
063382-0001-MB	Method Blank		AQUEOUS		25 MAR 92
063382-0002-SA	33954	<i>Revised B/L for M37A</i>	AQUEOUS	17 MAR 92	25 MAR 92

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
063382-0001-SA	AQUEOUS	DXNFUR-A	26 MAR 92-A	-
063382-0001-MB	AQUEOUS	DXNFUR-A	26 MAR 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average (%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS Limit	DCS Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 26 MAR 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	8.70	9.70	9.20	92	60-140	11	50
2,3,4,7,8-PeCDF	10	7.70	8.70	8.20	82	60-140	12	50
1,2,3,4,7,8-HxCDF	10	8.60	8.90	8.75	88	60-140	3.4	50
1,2,3,4,6,7,8-HpCDF	10	7.20	7.00	7.10	71	60-140	2.8	50
OCDF	50	34.0	40.0	37.0	74	60-140	16	50
2,3,7,8-TCDD	10	7.80	7.60	7.70	77	60-140	2.6	50
1,2,3,7,8-PeCDD	10	8.40	9.30	8.85	89	60-140	10	50
1,2,3,4,7,8-HxCDD	10	8.10	8.80	8.45	85	60-140	8.3	50
1,2,3,4,6,7,8-HpCDD	10	7.70	8.40	8.05	81	60-140	8.7	50
OCDD	50	28.0	31.0	29.5	59	60-140	10	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 063382-0001-MB
 Matrix: AQUEOUS
 Authorized: 25 MAR 92
 Sampled: NA
 Prepared: 30 MAR 92
 Received: NA
 Analyzed: 31 MAR 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.027	
2,3,7,8-TCDF	ND	ng/L	0.027	
PeCDFs (total)	ND	ng/L	0.038	
1,2,3,7,8-PeCDF	ND	ng/L	0.038	
2,3,4,7,8-PeCDF	ND	ng/L	0.038	
HxCDFs (total)	ND	ng/L	0.075	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.075	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.075	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.075	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.075	
HpCDFs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.13	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.13	
OCDF	ND	ng/L	1.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.039	
2,3,7,8-TCDD	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.15	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.15	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.15	
HpCDDs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.13	
OCDD	ND	ng/L	0.57	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 063382-0001-MB

Matrix: AQUEOUS

Authorized: 25 MAR 92

Sampled: NA

Prepared: 30 MAR 92

Received: NA

Analyzed: 31 MAR 92

Sample Amount 1.0 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	83
13C-2,3,7,8-TCDD	89
13C-1,2,3,7,8-PeCDD	89
13C-1,2,3,6,7,8-HxCDD	84
13C-1,2,3,4,6,7,8-HpCDD	79
13C-OCDD	92

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 33953
 Lab ID: 063382-0001-SA
 Matrix: AQUEOUS
 Authorized: 25 MAR 92
 Sampled: 17 MAR 92
 Prepared: 30 MAR 92
 Received: 25 MAR 92
 Analyzed: 31 MAR 92

Sample Amount: 0.945 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.030	
2,3,7,8-TCDF	ND	ng/L	0.030	
PeCDFs (total)	ND	ng/L	0.036	
1,2,3,7,8-PeCDF	ND	ng/L	0.036	
2,3,4,7,8-PeCDF	ND	ng/L	0.036	
HxCDFs (total)	ND	ng/L	0.080	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.080	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.080	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.080	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.080	
HpCDFs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.13	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.13	
OCDF	ND	ng/L	1.1	
Dioxins				
TCDDs (total)	ND	ng/L	0.045	
2,3,7,8-TCDD	ND	ng/L	0.045	
PeCDDs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDD	ND	ng/L	0.11	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.13	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.13	
OCDD	ND	ng/L	0.59	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33953

Lab ID: 063382-0001-SA

Matrix: AQUEOUS

Authorized: 25 MAR 92

Sampled: 17 MAR 92

Prepared: 30 MAR 92

Received: 25 MAR 92

Analyzed: 31 MAR 92

Sample Amount 0.945 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	84
13C-2,3,7,8-TCDD	89
13C-1,2,3,7,8-PeCDD	97
13C-1,2,3,6,7,8-HxCDD	90
13C-1,2,3,4,6,7,8-HpCDD	92
13C-OCDD	117

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

5/11/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 33954
Lab ID: 063382-0002-SA
Matrix: AQUEOUS
Authorized: 25 MAR 92
Sampled: 17 MAR 92
Prepared: 30 MAR 92
Received: 25 MAR 92
Analyzed: 31 MAR 92

Sample Amount 0.942 L
Column Type DB-5

Parameter Result Units Detection Limit Data Qualifiers

Furans

TCDFs (total)	ND	ng/L	0.024	
2,3,7,8-TCDF	ND	ng/L	0.024	
PeCDFs (total)	ND	ng/L	0.032	
1,2,3,7,8-PeCDF	ND	ng/L	0.032	
2,3,4,7,8-PeCDF	ND	ng/L	0.032	
HxCDFs (total)	ND	ng/L	0.095	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.095	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.095	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.095	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.095	
HpCDFs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.18	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.18	
OCDF	ND	ng/L	0.93	

Dioxins

TCDDs (total)	ND	ng/L	0.042	
2,3,7,8-TCDD	ND	ng/L	0.042	
PeCDDs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDD	ND	ng/L	0.11	
HxCDDs (total)	ND	ng/L	0.11	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.11	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.11	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.11	
HpCDDs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.11	
OCDD	ND	ng/L	0.50	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 33954

Lab ID: 063382-0002-SA

Matrix: AQUEOUS

Authorized: 25 MAR 92

Sampled: 17 MAR 92

Prepared: 30 MAR 92

Received: 25 MAR 92

Analyzed: 31 MAR 92

Sample Amount 0.942 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	85
13C-2,3,7,8-TCDD	92
13C-1,2,3,7,8-PeCDD	100
13C-1,2,3,6,7,8-HxCDD	95
13C-1,2,3,4,6,7,8-HpCDD	91
13C-OCDD	100

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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OK
JSP
JSP
3/20/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: March 17, 1992

Sample I.D. Number(s): 33953, 33954

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO (Cal. Analytical Lab.)

To Be Analyzed For (Constituents): DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 03/17/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 33953, 33954

Date Received: 3/25/92

Laboratory or Company: ENSECO

By: [Signature]
Signature

BBB
3/20/92

34649

~~24~~
25

3



April 23, 1992
ENSECO CAL LAB PROJECT NUMBER: 063562
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the four aqueous samples which were received under chain of custody by Enseco Cal Lab on 7 April 1992.

The case narrative is an integral part of this report.

Some internal standards have recoveries less than 40%. The chromatographic signal to noise ratio is greater than 10-to-1. This is one of the criteria used to judge acceptance.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

Shelly Eyraud
Manager of Low Resolution Dioxin Services

du

TABLE OF CONTENTS**ENSECO CAL LAB PROJECT NUMBER 063562****Case Narrative****Quality Assurance Program****Sample Description Information****Sample Analysis Request****Polychlorinated Dioxins/Furans Isomer Specific Analysis****Includes Samples: 1 through 4****Duplicate Control Sample Report****Method Blank Report/Sample Data Sheets**

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 063562

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM**Laboratory Control Samples - The LCS Program**

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration})}{(\text{actual concentration})} \times 100$$

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$\text{RPD} = \frac{(\% \text{ recovery test 1} - \% \text{ recovery test 2})}{(\% \text{ recovery test 1} + \% \text{ recovery test 2})/2} \times 100$$

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/-3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. In cases where there is not enough historical data, EPA limits or advisory limits are set, with the approval of the Quality Assurance department.

SAMPLE DESCRIPTION INFORMATION
 for
 San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled Date Time	Received Date
063562-0001-SA	34649	AQUEOUS	27 MAR 92	07 APR 92
063562-0001-MB	Method	AQUEOUS		07 APR 92
063562-0002-SA	34650	AQUEOUS	27 MAR 92	07 APR 92
063562-0003-SA	34779	AQUEOUS	31 MAR 92	07 APR 92
063562-0004-SA	34780	AQUEOUS	31 MAR 92	07 APR 92

nysa
nysa (d'p)
RV3
RV3 (d'p)

3/31/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: March 27, 1992

Sample I.D. Number(s): 34649, 34650

Sample Type: PVLW Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 03/27/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 34649, 34650

Date Received: 4-7-92 1200

Laboratory or Company: Cal Lab (ENSECO)

By: Peter Baulf
Signature

3/31/92

4/11/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: March 31, 1992

Sample I.D. Number(s): 34779, 34780

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12373Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 03/31/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 34779, 34780

Date Received: 4-7-92 1200

Laboratory or Company: Cal Lab (ENSECO)

By: Peter Gault
Signature

4/11/92

Polychlorinated Dioxins/Furans
Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
063562-0001-SA	AQUEOUS	DXNFUR-A	06 APR 92-B	-
063562-0001-MB	AQUEOUS	DXNFUR-A	06 APR 92-B	-
063562-0002-SA	AQUEOUS	DXNFUR-A	06 APR 92-B	-
063562-0003-SA	AQUEOUS	DXNFUR-A	06 APR 92-B	-
063562-0004-SA	AQUEOUS	DXNFUR-A	06 APR 92-B	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 06 APR 92-B								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.00	9.10	9.05	91	60-140	1.1	50
2,3,4,7,8-PeCDF	10	9.40	9.80	9.60	96	60-140	4.2	50
1,2,3,4,7,8-HxCDF	10	10.0	9.80	9.90	99	60-140	2.0	50
1,2,3,4,6,7,8-HpCDF	10	10.0	9.50	9.75	98	60-140	5.1	50
OCDF	50	48.0	48.0	48.0	96	60-140	0.0	50
2,3,7,8-TCDD	10	8.60	8.20	8.40	84	60-140	4.8	50
1,2,3,7,8-PeCDD	10	10.0	10.0	10.0	100	60-140	0.0	50
1,2,3,4,7,8-HxCDD	10	9.30	9.50	9.40	94	60-140	2.1	50
1,2,3,4,6,7,8-HpCDD	10	8.90	8.90	8.90	89	60-140	0.0	50
OCDD	50	42.0	43.0	42.5	85	60-140	2.4	50

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 063562-0001-MB
 Matrix: AQUEOUS
 Authorized: 07 APR 92

Sampled: NA
 Prepared: 13 APR 92

Received: NA
 Analyzed: 14 APR 92

Sample Amount: 1.00 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.032	
2,3,7,8-TCDF	ND	ng/L	0.032	
PeCDFs (total)	ND	ng/L	0.045	
1,2,3,7,8-PeCDF	ND	ng/L	0.045	
2,3,4,7,8-PeCDF	ND	ng/L	0.045	
HxCDFs (total)	ND	ng/L	0.077	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.077	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.077	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.077	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.077	
HpCDFs (total)	ND	ng/L	0.058	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.058	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.058	
OCDF	ND	ng/L	0.30	
Dioxins				
TCDDs (total)	ND	ng/L	0.056	
2,3,7,8-TCDD	ND	ng/L	0.056	
PeCDDs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDD	ND	ng/L	0.13	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.043	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.043	
OCDD	ND	ng/L	0.21	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 063562-0001-MB
Matrix: AQUEOUS
Authorized: 07 APR 92

Sampled: NA
Prepared: 13 APR 92

Received: NA
Analyzed: 14 APR 92

Sample Amount 1.00 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	96
13C-2,3,7,8-TCDD	90
13C-1,2,3,7,8-PeCDD	96
13C-1,2,3,6,7,8-HxCDD	88
13C-1,2,3,4,6,7,8-HpCDD	89
13C-OCDD	110

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 34649
 Lab ID: 063562-0001-SA
 Matrix: AQUEOUS
 Authorized: 07 APR 92

Sampled: 27 MAR 92
 Prepared: 13 APR 92

Received: 07 APR 92
 Analyzed: 15 APR 92

Sample Amount 0.943 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.24	
2,3,7,8-TCDF	ND	ng/L	0.24	
PeCDFs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDF	ND	ng/L	0.13	
2,3,4,7,8-PeCDF	ND	ng/L	0.13	
HxCDFs (total)	ND	ng/L	0.22	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.22	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.22	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.22	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.22	
HpCDFs (total)	ND	ng/L	0.43	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.43	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.43	
OCDF	ND	ng/L	1.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.27	
1,2,3,7,8-PeCDD	ND	ng/L	0.27	
HxCDDs (total)	ND	ng/L	0.31	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.31	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.31	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.31	
HpCDDs (total)	ND	ng/L	0.46	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.46	
OCDD	ND	ng/L	1.2	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 34649
Lab ID: 063562-0001-SA
Matrix: AQUEOUS
Authorized: 07 APR 92

Sampled: 27 MAR 92
Prepared: 13 APR 92

Received: 07 APR 92
Analyzed: 15 APR 92

Sample Amount 0.943 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	72
13C-2,3,7,8-TCDD	74
13C-1,2,3,7,8-PeCDD	71
13C-1,2,3,6,7,8-HxCDD	65
13C-1,2,3,4,6,7,8-HpCDD	55
13C-OCDD	39

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 34650
 Lab ID: 063562-0002-SA
 Matrix: AQUEOUS
 Authorized: 07 APR 92
 Sampled: 27 MAR 92
 Prepared: 13 APR 92
 Received: 07 APR 92
 Analyzed: 15 APR 92

Sample Amount 0.946 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.11	
2,3,7,8-TCDF	ND	ng/L	0.11	
PeCDFs (total)	ND	ng/L	0.089	
1,2,3,7,8-PeCDF	ND	ng/L	0.089	
2,3,4,7,8-PeCDF	ND	ng/L	0.089	
HxCDFs (total)	ND	ng/L	0.23	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.23	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.23	
HpCDFs (total)	ND	ng/L	0.40	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.40	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.40	
OCDF	ND	ng/L	2.5	
Dioxins				
TCDDs (total)	ND	ng/L	0.084	
2,3,7,8-TCDD	ND	ng/L	0.084	
PeCDDs (total)	ND	ng/L	0.34	
1,2,3,7,8-PeCDD	ND	ng/L	0.34	
HxCDDs (total)	ND	ng/L	0.27	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.27	
HpCDDs (total)	ND	ng/L	0.49	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.49	
OCDD	ND	ng/L	1.6	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 34650

Lab ID: 063562-0002-SA

Matrix: AQUEOUS

Authorized: 07 APR 92

Sampled: 27 MAR 92

Prepared: 13 APR 92

Received: 07 APR 92

Analyzed: 15 APR 92

Sample Amount 0.946 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	60
13C-2,3,7,8-TCDD	62
13C-1,2,3,7,8-PeCDD	56
13C-1,2,3,6,7,8-HxCDD	44
13C-1,2,3,4,6,7,8-HpCDD	35
13C-OCDD	20

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 34779
 Lab ID: 063562-0003-SA
 Matrix: AQUEOUS
 Authorized: 07 APR 92

Sampled: 31 MAR 92
 Prepared: 13 APR 92

Received: 07 APR 92
 Analyzed: 15 APR 92

Sample Amount 0.991 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.094	
2,3,7,8-TCDF	ND	ng/L	0.094	
PeCDFs (total)	ND	ng/L	0.078	
1,2,3,7,8-PeCDF	ND	ng/L	0.078	
2,3,4,7,8-PeCDF	ND	ng/L	0.078	
HxCDFs (total)	ND	ng/L	0.18	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.18	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.18	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.18	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.18	
HpCDFs (total)	ND	ng/L	0.33	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.33	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.33	
OCDF	ND	ng/L	1.9	
Dioxins				
TCDDs (total)	ND	ng/L	0.088	
2,3,7,8-TCDD	ND	ng/L	0.088	
PeCDDs (total)	ND	ng/L	0.24	
1,2,3,7,8-PeCDD	ND	ng/L	0.24	
HxCDDs (total)	ND	ng/L	0.28	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.28	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.28	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.28	
HpCDDs (total)	ND	ng/L	0.44	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.44	
OCDD	ND	ng/L	1.4	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 34779

Lab ID: 063562-0003-SA

Matrix: AQUEOUS

Authorized: 07 APR 92

Sampled: 31 MAR 92

Prepared: 13 APR 92

Received: 07 APR 92

Analyzed: 15 APR 92

Sample Amount 0.991 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	68
13C-2,3,7,8-TCDD	66
13C-1,2,3,7,8-PeCDD	60
13C-1,2,3,6,7,8-HxCDD	48
13C-1,2,3,4,6,7,8-HpCDD	36
13C-OCDD	23

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

34780

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 34780
Lab ID: 063562-0004-SA
Matrix: AQUEOUS
Authorized: 07 APR 92
Sampled: 31 MAR 92
Prepared: 13 APR 92
Received: 07 APR 92
Analyzed: 16 APR 92

Sample Amount 0.905 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	74
13C-2,3,7,8-TCDD	72
13C-1,2,3,7,8-PeCDD	62
13C-1,2,3,6,7,8-HxCDD	39
13C-1,2,3,4,6,7,8-HpCDD	64
13C-OCDD	103

ND = Not detected
NA = Not applicable

Reported By: Dale Walker Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

36938



June 10, 1992
ENSECO CAL LAB PROJECT NUMBER: 064183
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the four aqueous samples which were received under chain of custody by Enseco Cal Lab on 19 May 1992. These samples are from your PVLf Wells Project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Eyraud". The signature is written in black ink and is positioned above the typed name.

Shelly Eyraud
Manager Low Resolution Dioxin Services

ks

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Polychlorinated Dioxins/Furans Isomer Specific Analysis

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Method Blank Report/Sample Data Sheets

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 064183

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM

Enseco Cal Lab has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documental quality. A key element of this program is Enseco's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

Laboratory Control Samples - (LCS)

Laboratory Control Samples (LCS) are well-characterized, laboratory generated samples used to monitor the laboratory's day-to-day performance of routine analytical methods. The results of the LCS are compared to well-defined laboratory acceptance criteria to determine whether the laboratory system is "in control". Three types of LCS are routinely analyzed: Duplicate Control Samples (DCS), Single Control Samples (SCS), and method blanks. Each of these LCS are described below.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID	Matrix	Sampled		Received Date
			Date	Time	
064183-0001-SA	36938	M61	07 MAY 92		19 MAY 92
064183-0001-MB	Method Blank	AQUEOUS			19 MAY 92
064183-0002-SA	36939	Rins to blank of M61	07 MAY 92		19 MAY 92
064183-0003-SA	36742	M57	05 MAY 92		19 MAY 92
064183-0004-SA	36743	M57 (dup)	05 MAY 92		19 MAY 92

OK
5/11/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: May 08, 1992

Sample I.D. Number(s): 36938, 36939

Sample Type: PVLF Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 05/08/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 36938, 36939

Date Received: 051992 @ 1400

Laboratory or Company: Enseco

By: Robert Bonaly
Signature

VCRW

SAMPLE ANALYSIS REQUEST

CK
JEX
5/10/92

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: May 05, 1992

Sample I.D. Number(s): 36742, 36743

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 05/05/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 36742, 36743

Date Received: 051992 @ 1400

Laboratory or Company: Enseco

By: Robert Bonaly
Signature

Handwritten initials

Polychlorinated Dioxins/Furans Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
064183-0001-SA	AQUEOUS	DXNFUR-A	14 MAY 92-A	-
064183-0001-MB	AQUEOUS	DXNFUR-A	14 MAY 92-A	-
064183-0002-SA	AQUEOUS	DXNFUR-A	14 MAY 92-A	-
064183-0003-SA	AQUEOUS	DXNFUR-A	14 MAY 92-A	-
064183-0004-SA	AQUEOUS	DXNFUR-A	14 MAY 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 14 MAY 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	12.0	11.0	11.5	115	60-140	8.7	50.0
2,3,4,7,8-PeCDF	10	11.0	9.10	10.0	101	60-140	19	50.0
1,2,3,4,7,8-HxCDF	10	9.40	10.0	9.70	97	60-140	6.2	50.0
1,2,3,4,6,7,8-HpCDF	10	12.0	14.0	13.0	130	60-140	15	50.0
OCDF	50	71.0	70.0	70.5	141#	60-140	1.4	50.0
2,3,7,8-TCDD	10	10.0	9.90	9.95	100	60-140	1.0	50.0
1,2,3,7,8-PeCDD	10	12.0	9.40	10.7	107	60-140	24	50.0
1,2,3,4,7,8-HxCDD	10	9.70	9.70	9.70	97	60-140	0.0	50.0
1,2,3,4,6,7,8-HpCDD	10	9.80	12.0	10.9	109	60-140	20	50.0
OCDD	50	63.0	63.0	63.0	126	60-140	0.0	50.0

= Recovery outside QC Limits

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 064183-0001-MB
 Matrix: AQUEOUS
 Authorized: 19 MAY 92

Sampled: NA
 Prepared: 22 MAY 92

Received: NA
 Analyzed: 26 MAY 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.029	
2,3,7,8-TCDF	ND	ng/L	0.029	
PeCDFs (total)	ND	ng/L	0.049	
1,2,3,7,8-PeCDF	ND	ng/L	0.049	
2,3,4,7,8-PeCDF	ND	ng/L	0.049	
HxCDFs (total)	ND	ng/L	0.094	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.094	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.094	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.094	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.094	
HpCDFs (total)	ND	ng/L	0.084	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.084	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.084	
OCDF	ND	ng/L	0.19	
Dioxins				
TCDDs (total)	ND	ng/L	0.049	
2,3,7,8-TCDD	ND	ng/L	0.049	
PeCDDs (total)	ND	ng/L	0.12	
1,2,3,7,8-PeCDD	ND	ng/L	0.12	
HxCDDs (total)	ND	ng/L	0.13	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.13	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.13	
HpCDDs (total)	ND	ng/L	0.089	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.089	
OCDD	ND	ng/L	0.17	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 064183-0001-MB
Matrix: AQUEOUS
Authorized: 19 MAY 92
Sampled: NA
Prepared: 22 MAY 92
Received: NA
Analyzed: 26 MAY 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	88
13C-2,3,7,8-TCDD	85
13C-1,2,3,7,8-PeCDD	89
13C-1,2,3,6,7,8-HxCDD	87
13C-1,2,3,4,6,7,8-HpCDD	92
13C-OCDD	95

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 36938
 Lab ID: 064183-0001-SA
 Matrix: AQUEOUS
 Authorized: 19 MAY 92
 Sampled: 07 MAY 92
 Prepared: 22 MAY 92
 Received: 19 MAY 92
 Analyzed: 26 MAY 92

Sample Amount: 0.909 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.089	
2,3,7,8-TCDF	ND	ng/L	0.089	
PeCDFs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDF	ND	ng/L	0.11	
2,3,4,7,8-PeCDF	ND	ng/L	0.11	
HxCDFs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.17	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.17	
HpCDFs (total)	ND	ng/L	0.18	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.18	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.18	
OCDF	ND	ng/L	0.42	
Dioxins				
TCDDs (total)	ND	ng/L	0.098	
2,3,7,8-TCDD	ND	ng/L	0.098	
PeCDDs (total)	ND	ng/L	0.34	
1,2,3,7,8-PeCDD	ND	ng/L	0.34	
HxCDDs (total)	ND	ng/L	0.27	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.27	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.27	
HpCDDs (total)	ND	ng/L	0.25	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.25	
OCDD	ND	ng/L	0.35	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 36938

Lab ID: 064183-0001-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 07 MAY 92

Prepared: 22 MAY 92

Received: 19 MAY 92

Analyzed: 26 MAY 92

Sample Amount 0.909 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	68
13C-2,3,7,8-TCDD	77
13C-1,2,3,7,8-PeCDD	86
13C-1,2,3,6,7,8-HxCDD	92
13C-1,2,3,4,6,7,8-HpCDD	93
13C-OCDD	85

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 36939
 Lab ID: 064183-0002-SA
 Matrix: AQUEOUS
 Authorized: 19 MAY 92

Sampled: 07 MAY 92
 Prepared: 22 MAY 92

Received: 19 MAY 92
 Analyzed: 26 MAY 92

Sample Amount 0.911 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.049	
2,3,7,8-TCDF	ND	ng/L	0.049	
PeCDFs (total)	ND	ng/L	0.061	
1,2,3,7,8-PeCDF	ND	ng/L	0.061	
2,3,4,7,8-PeCDF	ND	ng/L	0.061	
HxCDFs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.12	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.12	
HpCDFs (total)	ND	ng/L	0.11	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.11	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.11	
OCDF	ND	ng/L	0.34	
Dioxins				
TCDDs (total)	ND	ng/L	0.062	
2,3,7,8-TCDD	ND	ng/L	0.062	
PeCDDs (total)	ND	ng/L	0.16	
1,2,3,7,8-PeCDD	ND	ng/L	0.16	
HxCDDs (total)	ND	ng/L	0.18	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.18	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.18	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.18	
HpCDDs (total)	ND	ng/L	0.14	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.14	
OCDD	ND	ng/L	0.20	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 36939

Lab ID: 064183-0002-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 07 MAY 92

Prepared: 22 MAY 92

Received: 19 MAY 92

Analyzed: 26 MAY 92

Sample Amount 0.911 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	74
13C-2,3,7,8-TCDD	68
13C-1,2,3,7,8-PeCDD	82
13C-1,2,3,6,7,8-HxCDD	85
13C-1,2,3,4,6,7,8-HpCDD	98
13C-OCDD	59

ND = Not detected

NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 36742
 Lab ID: 064183-0003-SA
 Matrix: AQUEOUS
 Authorized: 19 MAY 92
 Sampled: 05 MAY 92
 Prepared: 22 MAY 92
 Received: 19 MAY 92
 Analyzed: 26 MAY 92

Sample Amount 0.944 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.070	
2,3,7,8-TCDF	ND	ng/L	0.070	
PeCDFs (total)	ND	ng/L	0.14	
1,2,3,7,8-PeCDF	ND	ng/L	0.14	
2,3,4,7,8-PeCDF	ND	ng/L	0.14	
HxCDFs (total)	ND	ng/L	0.31	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.31	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.31	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.31	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.31	
HpCDFs (total)	ND	ng/L	0.46	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.46	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.46	
OCDF	ND	ng/L	0.53	
Dioxins				
TCDDs (total)	ND	ng/L	0.13	
2,3,7,8-TCDD	ND	ng/L	0.13	
PeCDDs (total)	ND	ng/L	0.32	
1,2,3,7,8-PeCDD	ND	ng/L	0.32	
HxCDDs (total)	ND	ng/L	0.43	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.43	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.43	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.43	
HpCDDs (total)	ND	ng/L	0.44	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.44	
OCDD	ND	ng/L	0.45	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 36742
Lab ID: 064183-0003-SA
Matrix: AQUEOUS
Authorized: 19 MAY 92

Sampled: 05 MAY 92
Prepared: 22 MAY 92

Received: 19 MAY 92
Analyzed: 26 MAY 92

Sample Amount 0.944 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	60
13C-2,3,7,8-TCDD	63
13C-1,2,3,7,8-PeCDD	52
13C-1,2,3,6,7,8-HxCDD	48
13C-1,2,3,4,6,7,8-HpCDD	35
13C-OCDD	121

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 36743
 Lab ID: 064183-0004-SA
 Matrix: AQUEOUS
 Authorized: 19 MAY 92
 Sampled: 05 MAY 92
 Prepared: 22 MAY 92
 Received: 19 MAY 92
 Analyzed: 26 MAY 92

Sample Amount 0.928 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.073	
2,3,7,8-TCDF	ND	ng/L	0.073	
PeCDFs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDF	ND	ng/L	0.11	
2,3,4,7,8-PeCDF	ND	ng/L	0.11	
HxCDFs (total)	ND	ng/L	0.33	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.33	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.33	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.33	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.33	
HpCDFs (total)	ND	ng/L	0.17	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.17	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.17	
OCDF	ND	ng/L	0.75	
Dioxins				
TCDDs (total)	ND	ng/L	0.14	
2,3,7,8-TCDD	ND	ng/L	0.14	
PeCDDs (total)	ND	ng/L	0.31	
1,2,3,7,8-PeCDD	ND	ng/L	0.31	
HxCDDs (total)	ND	ng/L	0.61	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.61	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.61	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.61	
HpCDDs (total)	ND	ng/L	0.20	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.20	
OCDD	ND	ng/L	0.63	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San José Creek Laboratory
Client ID: 36743
Lab ID: 064183-0004-SA
Matrix: AQUEOUS
Authorized: 19 MAY 92

Sampled: 05 MAY 92
Prepared: 22 MAY 92

Received: 19 MAY 92
Analyzed: 26 MAY 92

Sample Amount 0.928 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	68
13C-2,3,7,8-TCDD	68
13C-1,2,3,7,8-PeCDD	59
13C-1,2,3,6,7,8-HxCDD	34
13C-1,2,3,4,6,7,8-HpCDD	79
13C-OCDD	67

ND = Not detected
NA = Not applicable

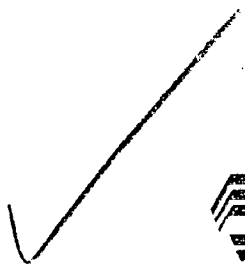
Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

38098

28



July 1, 1992
ENSECO CAL LAB PROJECT NUMBER: 064475
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the six aqueous samples which were received with a Sample Analysis Request by Enseco Cal Lab on 10 June 1992. These samples are from your PVLF Wells Project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

Shelly Eyraud
Manager Low Resolution Dioxin Services

ks

TABLE OF CONTENTS

ENSECO CAL LAB PROJECT NUMBER 064475

Case Narrative

Quality Assurance Program

Sample Description Information

Sample Analysis Request

Polychlorinated Dioxins/Furans Isomer Specific Analysis

Includes Samples: 1 through 6

Duplicate Control Sample Report

Method Blank Report/Sample Data Sheets

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 064475

General Comments:

One container for sample ID "38101" was received broken therefore, 0.5 L was extracted.

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM

Enseco Cal Lab has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documental quality. A key element of this program is Enseco's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

Laboratory Control Samples - (LCS)

Laboratory Control Samples (LCS) are well-characterized, laboratory generated samples used to monitor the laboratory's day-to-day performance of routine analytical methods. The results of the LCS are compared to well-defined laboratory acceptance criteria to determine whether the laboratory system is "in control". Three types of LCS are routinely analyzed: Duplicate Control Samples (DCS), Single Control Samples (SCS), and method blanks. Each of these LCS are described below.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

SAMPLE DESCRIPTION INFORMATION
 for
 San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
064475-0001-SA	38098	<i>m 33B</i>	AQUEOUS	01 JUN 92		10 JUN 92
064475-0001-MB	Method Blank		AQUEOUS			10 JUN 92
064475-0002-SA	38099	<i>m 30B</i>	AQUEOUS	01 JUN 92		10 JUN 92
064475-0003-SA	38100	<i>m 33B (dup)</i>	AQUEOUS	01 JUN 92		10 JUN 92
064475-0004-SA	38101	<i>Rinse Blk. to m 30B</i>	AQUEOUS	01 JUN 92		10 JUN 92
064475-0005-SA	38156	<i>m 35B</i>	AQUEOUS	01 JUN 92		10 JUN 92
064475-0006-SA	38157	<i>m 38A</i>	AQUEOUS	01 JUN 92		10 JUN 92

OK
9/2

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: June 02, 1992

Sample I.D. Number(s): 38156, 38157

Sample Type: PVLW Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 06/02/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

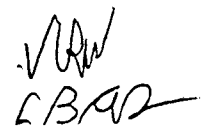
Sample I.D. Number: 38156, 38157

Date Received: 6/10/92 1230pm

Laboratory or Company: ENSECO

By: 
Signature

P.O. Number: 135729



4
EJA

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: June 01, 1992

Sample I.D. Number(s): 38098, 38099, 38100, 38101

Sample Type: PVLW Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Please mail results to >>>>

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Requested by: _____

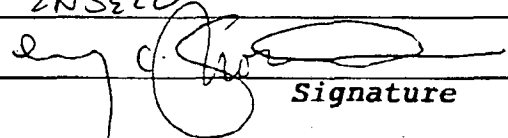
PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 06/01/92
Whittier, California 90601
F A X: (213) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 38098, 38099, 38100, 38101

Date Received: 6/10/92 1230pm

Laboratory or Company: ENSECO

By: 
Signature

VCPW
6/2/92

Polychlorinated Dioxins/Furans Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
064475-0001-SA	AQUEOUS	DXNFUR-A	08 JUN 92-A	-
064475-0001-MB	AQUEOUS	DXNFUR-A	08 JUN 92-A	-
064475-0002-SA	AQUEOUS	DXNFUR-A	08 JUN 92-A	-
064475-0003-SA	AQUEOUS	DXNFUR-A	08 JUN 92-A	-
064475-0004-SA	AQUEOUS	DXNFUR-A	08 JUN 92-A	-
064475-0005-SA	AQUEOUS	DXNFUR-A	08 JUN 92-A	-
064475-0006-SA	AQUEOUS	DXNFUR-A	08 JUN 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 08 JUN 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.40	9.40	9.40	94	60-140	0.0	50.0
2,3,4,7,8-PeCDF	10	9.40	9.60	9.50	95	60-140	2.1	50.0
1,2,3,4,7,8-HxCDF	10	10.0	10.0	10.0	100	60-140	0.0	50.0
1,2,3,4,6,7,8-HpCDF	10	9.30	9.60	9.45	95	60-140	3.2	50.0
OCDF	50	58.0	59.0	58.5	117	60-140	1.7	50.0
2,3,7,8-TCDD	10	8.90	8.60	8.75	88	60-140	3.4	50.0
1,2,3,7,8-PeCDD	10	10.0	9.60	9.80	98	60-140	4.1	50.0
1,2,3,4,7,8-HxCDD	10	9.60	10.0	9.80	98	60-140	4.1	50.0
1,2,3,4,6,7,8-HpCDD	10	8.80	8.90	8.85	89	60-140	1.1	50.0
OCDD	50	50.0	50.0	50.0	100	60-140	0.0	50.0

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 064475-0001-MB
 Matrix: AQUEOUS
 Authorized: 10 JUN 92
 Sampled: NA
 Prepared: 16 JUN 92
 Received: NA
 Analyzed: 22 JUN 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.074	
2,3,7,8-TCDF	ND	ng/L	0.074	
PeCDFs (total)	ND	ng/L	0.081	
1,2,3,7,8-PeCDF	ND	ng/L	0.081	
2,3,4,7,8-PeCDF	ND	ng/L	0.081	
HxCDFs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.14	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.14	
HpCDFs (total)	ND	ng/L	0.25	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.25	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.25	
OCDF	ND	ng/L	0.92	
Dioxins				
TCDDs (total)	ND	ng/L	0.069	
2,3,7,8-TCDD	ND	ng/L	0.069	
PeCDDs (total)	ND	ng/L	0.23	
1,2,3,7,8-PeCDD	ND	ng/L	0.23	
HxCDDs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.17	
HpCDDs (total)	ND	ng/L	0.19	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.19	
OCDD	ND	ng/L	0.99	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 064475-0001-MB

Matrix: AQUEOUS

Authorized: 10 JUN 92

Sampled: NA

Prepared: 16 JUN 92

Received: NA

Analyzed: 22 JUN 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	59
13C-2,3,7,8-TCDD	68
13C-1,2,3,7,8-PeCDD	74
13C-1,2,3,6,7,8-HxCDD	71
13C-1,2,3,4,6,7,8-HpCDD	60
13C-OCDD	44

ND = Not detected
NA = Not applicable

Reported By: Robert Hrabak

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 38098
 Lab ID: 064475-0001-SA
 Matrix: AQUEOUS
 Authorized: 10 JUN 92

Sampled: 01 JUN 92
 Prepared: 16 JUN 92

Received: 10 JUN 92
 Analyzed: 22 JUN 92

Sample Amount 0.942 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.070	
2,3,7,8-TCDF	ND	ng/L	0.070	
PeCDFs (total)	ND	ng/L	0.074	
1,2,3,7,8-PeCDF	ND	ng/L	0.074	
2,3,4,7,8-PeCDF	ND	ng/L	0.074	
HxCDFs (total)	ND	ng/L	0.11	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.11	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.11	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.11	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.11	
HpCDFs (total)	ND	ng/L	0.24	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.24	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.24	
OCDF	ND	ng/L	1.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.15	
2,3,7,8-TCDD	ND	ng/L	0.15	
PeCDDs (total)	ND	ng/L	0.23	
1,2,3,7,8-PeCDD	ND	ng/L	0.23	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.19	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.19	
OCDD	ND	ng/L	1.0	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 38098

Lab ID: 064475-0001-SA

Matrix: AQUEOUS

Authorized: 10 JUN 92

Sampled: 01 JUN 92

Prepared: 16 JUN 92

Received: 10 JUN 92

Analyzed: 22 JUN 92

Sample Amount 0.942 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	63
13C-2,3,7,8-TCDD	69
13C-1,2,3,7,8-PeCDD	74
13C-1,2,3,6,7,8-HxCDD	68
13C-1,2,3,4,6,7,8-HpCDD	64
13C-OCDD	48

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 38099
 Lab ID: 064475-0002-SA
 Matrix: AQUEOUS
 Authorized: 10 JUN 92

Sampled: 01 JUN 92
 Prepared: 16 JUN 92

Received: 10 JUN 92
 Analyzed: 22 JUN 92

Sample Amount 0.963 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.053	
2,3,7,8-TCDF	ND	ng/L	0.053	
PeCDFs (total)	ND	ng/L	0.060	
1,2,3,7,8-PeCDF	ND	ng/L	0.060	
2,3,4,7,8-PeCDF	ND	ng/L	0.060	
HxCDFs (total)	ND	ng/L	0.13	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.13	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.13	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.13	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.13	
HpCDFs (total)	ND	ng/L	0.27	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.27	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.27	
OCDF	ND	ng/L	0.69	
Dioxins				
TCDDs (total)	ND	ng/L	0.069	
2,3,7,8-TCDD	ND	ng/L	0.069	
PeCDDs (total)	ND	ng/L	0.18	
1,2,3,7,8-PeCDD	ND	ng/L	0.18	
HxCDDs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.17	
HpCDDs (total)	ND	ng/L	0.26	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.26	
OCDD	ND	ng/L	0.82	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 38099

Lab ID: 064475-0002-SA

Matrix: AQUEOUS

Authorized: 10 JUN 92

Sampled: 01 JUN 92

Prepared: 16 JUN 92

Received: 10 JUN 92

Analyzed: 22 JUN 92

Sample Amount 0.963 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	64
13C-2,3,7,8-TCDD	69
13C-1,2,3,7,8-PeCDD	73
13C-1,2,3,6,7,8-HxCDD	57
13C-1,2,3,4,6,7,8-HpCDD	61
13C-OCDD	50

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 38100
 Lab ID: 064475-0003-SA
 Matrix: AQUEOUS
 Authorized: 10 JUN 92

Sampled: 01 JUN 92
 Prepared: 16 JUN 92

Received: 10 JUN 92
 Analyzed: 23 JUN 92

Sample Amount 0.931 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.046	
2,3,7,8-TCDF	ND	ng/L	0.046	
PeCDFs (total)	ND	ng/L	0.053	
1,2,3,7,8-PeCDF	ND	ng/L	0.053	
2,3,4,7,8-PeCDF	ND	ng/L	0.053	
HxCDFs (total)	ND	ng/L	0.081	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.081	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.081	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.081	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.081	
HpCDFs (total)	ND	ng/L	0.23	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.23	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.23	
OCDF	ND	ng/L	0.85	
Dioxins				
TCDDs (total)	ND	ng/L	0.061	
2,3,7,8-TCDD	ND	ng/L	0.061	
PeCDDs (total)	ND	ng/L	0.17	
1,2,3,7,8-PeCDD	ND	ng/L	0.17	
HxCDDs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.10	
HpCDDs (total)	ND	ng/L	0.21	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.21	
OCDD	ND	ng/L	1.1	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION



Client Name: San Jose Creek Laboratory

Client ID: 38100

Lab ID: 064475-0003-SA

Matrix: AQUEOUS

Authorized: 10 JUN 92

Sampled: 01 JUN 92

Prepared: 16 JUN 92

Received: 10 JUN 92

Analyzed: 23 JUN 92

Sample Amount 0.931 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	51
13C-2,3,7,8-TCDD	60
13C-1,2,3,7,8-PeCDD	65
13C-1,2,3,6,7,8-HxCDD	65
13C-1,2,3,4,6,7,8-HpCDD	59
13C-OCDD	44

ND = Not detected

NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 38101
 Lab ID: 064475-0004-SA
 Matrix: AQUEOUS
 Authorized: 10 JUN 92

Sampled: 01 JUN 92
 Prepared: 16 JUN 92

Received: 10 JUN 92
 Analyzed: 23 JUN 92

Sample Amount 0.501 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.11	
2,3,7,8-TCDF	ND	ng/L	0.11	
PeCDFs (total)	ND	ng/L	0.13	
1,2,3,7,8-PeCDF	ND	ng/L	0.13	
2,3,4,7,8-PeCDF	ND	ng/L	0.13	
HxCDFs (total)	ND	ng/L	0.23	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.23	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.23	
HpCDFs (total)	ND	ng/L	0.57	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.57	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.57	
OCDF	ND	ng/L	1.8	
Dioxins				
TCDDs (total)	ND	ng/L	0.17	
2,3,7,8-TCDD	ND	ng/L	0.17	
PeCDDs (total)	ND	ng/L	0.41	
1,2,3,7,8-PeCDD	ND	ng/L	0.41	
HxCDDs (total)	ND	ng/L	0.30	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.30	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.30	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.30	
HpCDDs (total)	ND	ng/L	0.47	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.47	
OCDD	ND	ng/L	2.1	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 38101
Lab ID: 064475-0004-SA
Matrix: AQUEOUS
Authorized: 10 JUN 92

Sampled: 01 JUN 92
Prepared: 16 JUN 92

Received: 10 JUN 92
Analyzed: 23 JUN 92

Sample Amount 0.501 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	70
13C-2,3,7,8-TCDD	76
13C-1,2,3,7,8-PeCDD	79
13C-1,2,3,6,7,8-HxCDD	72
13C-1,2,3,4,6,7,8-HpCDD	64
13C-OCDD	53

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 38156

Lab ID: 064475-0005-SA

Matrix: AQUEOUS

Authorized: 10 JUN 92

Sampled: 01 JUN 92

Prepared: 16 JUN 92

Received: 10 JUN 92

Analyzed: 23 JUN 92

Sample Amount 0.930 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.10	
2,3,7,8-TCDF	ND	ng/L	0.10	
PeCDFs (total)	ND	ng/L	0.11	
1,2,3,7,8-PeCDF	ND	ng/L	0.11	
2,3,4,7,8-PeCDF	ND	ng/L	0.11	
HxCDFs (total)	ND	ng/L	0.17	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.17	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.17	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.17	
HpCDFs (total)	ND	ng/L	0.70	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.70	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.70	
OCDF	ND	ng/L	1.2	
Dioxins				
TCDDs (total)	ND	ng/L	0.082	
2,3,7,8-TCDD	ND	ng/L	0.082	
PeCDDs (total)	ND	ng/L	0.35	
1,2,3,7,8-PeCDD	ND	ng/L	0.35	
HxCDDs (total)	ND	ng/L	0.21	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.21	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.21	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.21	
HpCDDs (total)	ND	ng/L	0.36	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.36	
OCDD	ND	ng/L	2.4	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 38156
Lab ID: 064475-0005-SA
Matrix: AQUEOUS
Authorized: 10 JUN 92

Sampled: 01 JUN 92
Prepared: 16 JUN 92

Received: 10 JUN 92
Analyzed: 23 JUN 92

Sample Amount 0.930 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	59
13C-2,3,7,8-TCDD	66
13C-1,2,3,7,8-PeCDD	71
13C-1,2,3,6,7,8-HxCDD	56
13C-1,2,3,4,6,7,8-HpCDD	53
13C-OCDD	35

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

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**POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 38157
 Lab ID: 064475-0006-SA
 Matrix: AQUEOUS
 Authorized: 10 JUN 92

Sampled: 01 JUN 92
 Prepared: 16 JUN 92

Received: 10 JUN 92
 Analyzed: 23 JUN 92

Sample Amount 0.895 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.069	
2,3,7,8-TCDF	ND	ng/L	0.069	
PeCDFs (total)	ND	ng/L	0.066	
1,2,3,7,8-PeCDF	ND	ng/L	0.066	
2,3,4,7,8-PeCDF	ND	ng/L	0.066	
HxCDFs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.10	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.10	
HpCDFs (total)	ND	ng/L	0.24	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.24	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.24	
OCDF	ND	ng/L	0.75	
Dioxins				
TCDDs (total)	ND	ng/L	0.074	
2,3,7,8-TCDD	ND	ng/L	0.074	
PeCDDs (total)	ND	ng/L	0.20	
1,2,3,7,8-PeCDD	ND	ng/L	0.20	
HxCDDs (total)	ND	ng/L	0.12	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.12	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.12	
HpCDDs (total)	ND	ng/L	0.14	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.14	
OCDD	ND	ng/L	0.87	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 38157
Lab ID: 064475-0006-SA
Matrix: AQUEOUS
Authorized: 10 JUN 92

Sampled: 01 JUN 92
Prepared: 16 JUN 92

Received: 10 JUN 92
Analyzed: 23 JUN 92

Sample Amount 0.895 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	61
13C-2,3,7,8-TCDD	67
13C-1,2,3,7,8-PeCDD	74
13C-1,2,3,6,7,8-HxCDD	71
13C-1,2,3,4,6,7,8-HpCDD	64
13C-OCDD	53

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

38268

California Analytical
Laboratory

[Handwritten initials]
2-3
1



July 15, 1992
ENSECO CAL LAB PROJECT NUMBER: 064642
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the three aqueous samples which were received with a sample analysis request by Enseco Cal Lab on 18 June 1992. These samples are associated with your PVLV Wells Project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

Shelly Eyraud
Manager Low Resolution Dioxin Services

ks

Enseco Incorporated
2544 Industrial Boulevard
West Sacramento, California 95691
916/372-1393 Fax: 916/372-7768

TABLE OF CONTENTS

ENSECO CAL LAB PROJECT NUMBER 064642

Case Narrative

Quality Assurance Program

Sample Description Information

Sample Analysis Request

Polychlorinated Dioxins/Furans Isomer Specific Analysis

Includes Samples: 1 through 3

Duplicate Control Sample Report

Method Blank Report/Sample Data Sheets

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 064642

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM

Enseco Cal Lab has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documental quality. A key element of this program is Enseco's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

Laboratory Control Samples - (LCS)

Laboratory Control Samples (LCS) are well-characterized, laboratory generated samples used to monitor the laboratory's day-to-day performance of routine analytical methods. The results of the LCS are compared to well-defined laboratory acceptance criteria to determine whether the laboratory system is "in control". Three types of LCS are routinely analyzed: Duplicate Control Samples (DCS), Single Control Samples (SCS), and method blanks. Each of these LCS are described below.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
064642-0001-SA	38268	S7	AQUEOUS	08 JUN 92		19 JUN 92
064642-0001-MB	Method Blank		AQUEOUS			19 JUN 92
064642-0002-SA	38339	m37A	AQUEOUS	08 JUN 92		19 JUN 92
064642-0003-SA	38416	FW9	AQUEOUS	08 JUN 92		19 JUN 92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: June 08, 1992

Sample I.D. Number(s): 38268, 38339, 38416

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents):DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzidioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

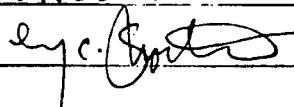
PLEASE COMPLETE AND DETACH THIS PORTION.

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 06/08/92
Whittier, California 90601
F A X: (310) 699-3368
Attn: Lorrie Losorelli

Sample I.D. Number: 38268, 38339, 38416

Date Received: 18 Jun 92

Laboratory or Company: ENSECO

By:  Signature

P.O. Number: 135729

Polychlorinated Dioxins/Furans Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
064642-0001-SA	AQUEOUS	DXNFUR-A	15 JUN 92-B	-
064642-0001-MB	AQUEOUS	DXNFUR-A	15 JUN 92-B	-
064642-0002-SA	AQUEOUS	DXNFUR-A	15 JUN 92-B	-
064642-0003-SA	AQUEOUS	DXNFUR-A	15 JUN 92-B	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 15 JUN 92-B								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.70	9.70	9.70	97	60-140	0.0	50.0
2,3,4,7,8-PeCDF	10	8.80	9.10	8.95	90	60-140	3.4	50.0
1,2,3,4,7,8-HxCDF	10	5.00	5.40	5.20	52#	60-140	7.7	50.0
1,2,3,4,6,7,8-HpCDF	10	4.40	4.90	4.65	47#	60-140	11	50.0
OCDF	50	53.0	53.0	53.0	106	60-140	0.0	50.0
2,3,7,8-TCDD	10	9.10	8.90	9.00	90	60-140	2.2	50.0
1,2,3,7,8-PeCDD	10	9.90	10.0	9.95	100	60-140	1.0	50.0
1,2,3,4,7,8-HxCDD	10	8.50	8.50	8.50	85	60-140	0.0	50.0
1,2,3,4,6,7,8-HpCDD	10	8.90	8.10	8.50	85	60-140	9.4	50.0
OCDD	50	57.0	55.0	56.0	112	60-140	3.6	50.0

= Recovery outside QC Limits

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 064642-0001-MB
 Matrix: AQUEOUS
 Authorized: 19 JUN 92
 Sampled: NA
 Prepared: 23 JUN 92
 Received: NA
 Analyzed: 25 JUN 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.082	
2,3,7,8-TCDF	ND	ng/L	0.082	
PeCDFs (total)	ND	ng/L	0.10	
1,2,3,7,8-PeCDF	ND	ng/L	0.10	
2,3,4,7,8-PeCDF	ND	ng/L	0.10	
HxCDFs (total)	ND	ng/L	0.23	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.23	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.23	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.23	
HpCDFs (total)	ND	ng/L	0.24	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.24	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.24	
OCDF	ND	ng/L	1.0	
Dioxins				
TCDDs (total)	ND	ng/L	0.084	
2,3,7,8-TCDD	ND	ng/L	0.084	
PeCDDs (total)	ND	ng/L	0.41	
1,2,3,7,8-PeCDD	ND	ng/L	0.41	
HxCDDs (total)	ND	ng/L	0.33	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.33	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.33	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.33	
HpCDDs (total)	ND	ng/L	0.29	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.29	
OCDD	ND	ng/L	0.78	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: Method Blank
Lab ID: 064642-0001-MB
Matrix: AQUEOUS
Authorized: 19 JUN 92
Sampled: NA
Prepared: 23 JUN 92
Received: NA
Analyzed: 25 JUN 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	67
13C-2,3,7,8-TCDD	80
13C-1,2,3,7,8-PeCDD	76
13C-1,2,3,6,7,8-HxCDD	81
13C-1,2,3,4,6,7,8-HpCDD	75
13C-OCDD	66

ND = Not detected
NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 38268
 Lab ID: 064642-0001-SA
 Matrix: AQUEOUS
 Authorized: 19 JUN 92
 Sampled: 08 JUN 92
 Prepared: 23 JUN 92
 Received: 19 JUN 92
 Analyzed: 09 JUL 92

Sample Amount 0.964 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.46	
2,3,7,8-TCDF	ND	ng/L	0.46	
PeCDFs (total)	ND	ng/L	0.82	
1,2,3,7,8-PeCDF	ND	ng/L	0.82	
2,3,4,7,8-PeCDF	ND	ng/L	0.82	
HxCDFs (total)	ND	ng/L	1.1	
1,2,3,4,7,8-HxCDF	ND	ng/L	1.1	
1,2,3,6,7,8-HxCDF	ND	ng/L	1.1	
2,3,4,6,7,8-HxCDF	ND	ng/L	1.1	
1,2,3,7,8,9-HxCDF	ND	ng/L	1.1	
HpCDFs (total)	ND	ng/L	1.5	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	1.5	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	1.5	
OCDF	ND	ng/L	2.4	
Dioxins				
TCDDs (total)	ND	ng/L	0.48	
2,3,7,8-TCDD	ND	ng/L	0.48	
PeCDDs (total)	ND	ng/L	2.3	
1,2,3,7,8-PeCDD	ND	ng/L	2.3	
HxCDDs (total)	ND	ng/L	1.3	
1,2,3,4,7,8-HxCDD	ND	ng/L	1.3	
1,2,3,6,7,8-HxCDD	ND	ng/L	1.3	
1,2,3,7,8,9-HxCDD	ND	ng/L	1.3	
HpCDDs (total)	ND	ng/L	1.3	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	1.3	
OCDD	ND	ng/L	2.4	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 38268

Lab ID: 064642-0001-SA

Matrix: AQUEOUS

Authorized: 19 JUN 92

Sampled: 08 JUN 92

Prepared: 23 JUN 92

Received: 19 JUN 92

Analyzed: 09 JUL 92

Sample Amount 0.964 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	50
13C-2,3,7,8-TCDD	52
13C-1,2,3,7,8-PeCDD	57
13C-1,2,3,6,7,8-HxCDD	59
13C-1,2,3,4,6,7,8-HpCDD	42
13C-OCDD	34

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 38339
 Lab ID: 064642-0002-SA
 Matrix: AQUEOUS
 Authorized: 19 JUN 92
 Sampled: 08 JUN 92
 Prepared: 23 JUN 92
 Received: 19 JUN 92
 Analyzed: 09 JUL 92

Sample Amount 0.991 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.15	
2,3,7,8-TCDF	ND	ng/L	0.15	
PeCDFs (total)	ND	ng/L	0.28	
1,2,3,7,8-PeCDF	ND	ng/L	0.28	
2,3,4,7,8-PeCDF	ND	ng/L	0.28	
HxCDFs (total)	ND	ng/L	0.38	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.38	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.38	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.38	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.38	
HpCDFs (total)	ND	ng/L	0.65	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.65	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.65	
OCDF	ND	ng/L	0.88	
Dioxins				
TCDDs (total)	ND	ng/L	0.38	
2,3,7,8-TCDD	ND	ng/L	0.38	
PeCDDs (total)	ND	ng/L	0.80	
1,2,3,7,8-PeCDD	ND	ng/L	0.80	
HxCDDs (total)	ND	ng/L	0.60	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.60	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.60	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.60	
HpCDDs (total)	ND	ng/L	0.38	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.38	
OCDD	ND	ng/L	0.84	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 38339

Lab ID: 064642-0002-SA

Matrix: AQUEOUS

Authorized: 19 JUN 92

Sampled: 08 JUN 92

Prepared: 23 JUN 92

Received: 19 JUN 92

Analyzed: 09 JUL 92

Sample Amount 0.991 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	82
13C-2,3,7,8-TCDD	82
13C-1,2,3,7,8-PeCDD	80
13C-1,2,3,6,7,8-HxCDD	90
13C-1,2,3,4,6,7,8-HpCDD	70
13C-OCDD	64

ND = Not detected

NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 38416
 Lab ID: 064642-0003-SA
 Matrix: AQUEOUS
 Authorized: 19 JUN 92
 Sampled: 08 JUN 92
 Prepared: 23 JUN 92
 Received: 19 JUN 92
 Analyzed: 09 JUL 92

Sample Amount 0.971 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.10	
2,3,7,8-TCDF	ND	ng/L	0.10	
PeCDFs (total)	ND	ng/L	0.19	
1,2,3,7,8-PeCDF	ND	ng/L	0.19	
2,3,4,7,8-PeCDF	ND	ng/L	0.19	
HxCDFs (total)	ND	ng/L	0.28	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.28	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.28	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.28	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.28	
HpCDFs (total)	ND	ng/L	0.41	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.41	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.41	
OCDF	ND	ng/L	0.73	
Dioxins				
TCDDs (total)	ND	ng/L	0.18	
2,3,7,8-TCDD	ND	ng/L	0.18	
PeCDDs (total)	ND	ng/L	0.50	
1,2,3,7,8-PeCDD	ND	ng/L	0.50	
HxCDDs (total)	ND	ng/L	0.44	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.44	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.44	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.44	
HpCDDs (total)	ND	ng/L	0.41	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.41	
OCDD	ND	ng/L	0.55	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 38416

Lab ID: 064642-0003-SA

Matrix: AQUEOUS

Authorized: 19 JUN 92

Sampled: 08 JUN 92

Prepared: 23 JUN 92

Received: 19 JUN 92

Analyzed: 09 JUL 92

Sample Amount 0.971 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	75
13C-2,3,7,8-TCDD	76
13C-1,2,3,7,8-PeCDD	81
13C-1,2,3,6,7,8-HxCDD	89
13C-1,2,3,4,6,7,8-HpCDD	69
13C-OCDD	67

ND = Not detected

NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



August 11, 1992
ENSECO CAL LAB PROJECT NUMBER: 064985
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the two aqueous samples which were not received under chain of custody by Enseco Cal Lab on 15 July 1992. These samples are associated with your PVLW Wells Project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

Shelly Eyraud
Manager Low Resolution Dioxin Services

ks

TABLE OF CONTENTS

ENSECO CAL LAB PROJECT NUMBER 064985

Case Narrative

Quality Assurance Program

Sample Description Information

Sample Analysis Request

Polychlorinated Dioxins/Furans Isomer Specific Analysis

Includes Samples: 1, 2

Duplicate Control Sample Report

Method Blank Report/Sample Data Sheets

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 064985

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM

Enseco Cal Lab has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documental quality. A key element of this program is Enseco's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

Laboratory Control Samples - (LCS)

Laboratory Control Samples (LCS) are well-characterized, laboratory generated samples used to monitor the laboratory's day-to-day performance of routine analytical methods. The results of the LCS are compared to well-defined laboratory acceptance criteria to determine whether the laboratory system is "in control". Three types of LCS are routinely analyzed: Duplicate Control Samples (DCS), Single Control Samples (SCS), and method blanks. Each of these LCS are described below.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
064985-0001-SA	40095	<i>m46A</i>	AQUEOUS	08 JUL 92		15 JUL 92
064985-0001-MB	Method Blank		AQUEOUS			15 JUL 92
064985-0002-SA	40096	<i>Rinse Blank for m46A</i>	AQUEOUS	08 JUL 92		15 JUL 92

Polychlorinated Dioxins/Furans Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
064985-0001-SA	AQUEOUS	DXNFUR-A	13 JUL 92-A	-
064985-0001-MB	AQUEOUS	DXNFUR-A	13 JUL 92-A	-
064985-0002-SA	AQUEOUS	DXNFUR-A	13 JUL 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 13 JUL 92-A								
Concentration Units: ng								
2,3,7,8-TCDF	10	9.40	9.20	9.30	93	60-140	2.2	50.0
2,3,4,7,8-PeCDF	10	10.0	9.60	9.80	98	60-140	4.1	50.0
1,2,3,4,7,8-HxCDF	10	9.00	8.20	8.60	86	60-140	9.3	50.0
1,2,3,4,6,7,8-HpCDF	10	8.80	6.90	7.85	79	60-140	24	50.0
OCDF	50	56.0	56.0	56.0	112	60-140	0.0	50.0
2,3,7,8-TCDD	10	9.00	8.90	8.95	90	60-140	1.1	50.0
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50.0
1,2,3,4,7,8-HxCDD	10	9.70	9.30	9.50	95	60-140	4.2	50.0
1,2,3,4,6,7,8-HpCDD	10	8.60	8.70	8.65	87	60-140	1.2	50.0
OCDD	50	47.0	46.0	46.5	93	60-140	2.2	50.0

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 064985-0001-MB
 Matrix: AQUEOUS
 Authorized: 15 JUL 92
 Sampled: NA
 Prepared: 21 JUL 92
 Received: NA
 Analyzed: 23 JUL 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.031	
2,3,7,8-TCDF	ND	ng/L	0.031	
PeCDFs (total)	ND	ng/L	0.032	
1,2,3,7,8-PeCDF	ND	ng/L	0.032	
2,3,4,7,8-PeCDF	ND	ng/L	0.032	
HxCDFs (total)	ND	ng/L	0.069	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.069	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.069	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.069	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.069	
HpCDFs (total)	ND	ng/L	0.085	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.085	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.085	
OCDF	ND	ng/L	0.32	
Dioxins				
TCDDs (total)	ND	ng/L	0.044	
2,3,7,8-TCDD	ND	ng/L	0.044	
PeCDDs (total)	ND	ng/L	0.093	
1,2,3,7,8-PeCDD	ND	ng/L	0.093	
HxCDDs (total)	ND	ng/L	0.14	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.14	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.14	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.14	
HpCDDs (total)	ND	ng/L	0.058	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.058	
OCDD	ND	ng/L	0.18	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 064985-0001-MB

Matrix: AQUEOUS

Authorized: 15 JUL 92

Sampled: NA

Prepared: 21 JUL 92

Received: NA

Analyzed: 23 JUL 92

Sample Amount 1.0 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	90
13C-2,3,7,8-TCDD	96
13C-1,2,3,7,8-PeCDD	103
13C-1,2,3,6,7,8-HxCDD	102
13C-1,2,3,4,6,7,8-HpCDD	98
13C-OCDD	88

ND = Not detected

NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 40095
 Lab ID: 064985-0001-SA
 Matrix: AQUEOUS
 Authorized: 15 JUL 92
 Sampled: 08 JUL 92
 Prepared: 21 JUL 92
 Received: 15 JUL 92
 Analyzed: 29 JUL 92

Sample Amount: 0.833 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.014	
2,3,7,8-TCDF	ND	ng/L	0.014	
PeCDFs (total)	ND	ng/L	0.026	
1,2,3,7,8-PeCDF	ND	ng/L	0.026	
2,3,4,7,8-PeCDF	ND	ng/L	0.026	
HxCDFs (total)	ND	ng/L	0.043	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.043	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.043	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.043	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.043	
HpCDFs (total)	ND	ng/L	0.055	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.055	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.055	
OCDF	ND	ng/L	0.27	
Dioxins				
TCDDs (total)	ND	ng/L	0.034	
2,3,7,8-TCDD	ND	ng/L	0.034	
PeCDDs (total)	ND	ng/L	0.068	
1,2,3,7,8-PeCDD	ND	ng/L	0.068	
HxCDDs (total)	ND	ng/L	0.089	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.089	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.089	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.089	
HpCDDs (total)	ND	ng/L	0.056	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.056	
OCDD	ND	ng/L	0.21	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 40095

Lab ID: 064985-0001-SA

Matrix: AQUEOUS

Authorized: 15 JUL 92

Sampled: 08 JUL 92

Prepared: 21 JUL 92

Received: 15 JUL 92

Analyzed: 29 JUL 92

Sample Amount 0.833 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	88
13C-2,3,7,8-TCDD	86
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	89
13C-1,2,3,4,6,7,8-HpCDD	91
13C-OCDD	81

ND = Not detected

NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 40096
 Lab ID: 064985-0002-SA
 Matrix: AQUEOUS
 Authorized: 15 JUL 92
 Sampled: 08 JUL 92
 Prepared: 21 JUL 92
 Received: 15 JUL 92
 Analyzed: 29 JUL 92

Sample Amount: 0.921 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.017	
2,3,7,8-TCDF	ND	ng/L	0.017	
PeCDFs (total)	ND	ng/L	0.020	
1,2,3,7,8-PeCDF	ND	ng/L	0.020	
2,3,4,7,8-PeCDF	ND	ng/L	0.020	
HxCDFs (total)	ND	ng/L	0.040	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.040	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.040	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.040	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.040	
HpCDFs (total)	ND	ng/L	0.050	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.050	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.050	
OCDF	ND	ng/L	0.18	
Dioxins				
TCDDs (total)	ND	ng/L	0.020	
2,3,7,8-TCDD	ND	ng/L	0.020	
PeCDDs (total)	ND	ng/L	0.058	
1,2,3,7,8-PeCDD	ND	ng/L	0.058	
HxCDDs (total)	ND	ng/L	0.063	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.063	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.063	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.063	
HpCDDs (total)	ND	ng/L	0.059	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.059	
OCDD	ND	ng/L	0.18	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
 Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 40096

Lab ID: 064985-0002-SA

Matrix: AQUEOUS

Authorized: 15 JUL 92

Sampled: 08 JUL 92

Prepared: 21 JUL 92

Received: 15 JUL 92

Analyzed: 29 JUL 92

Sample Amount 0.921 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	86
13C-2,3,7,8-TCDD	87
13C-1,2,3,7,8-PeCDD	92
13C-1,2,3,6,7,8-HxCDD	88
13C-1,2,3,4,6,7,8-HpCDD	86
13C-OCDD	78

ND = Not detected

NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787



August 11, 1992
ENSECO CAL LAB PROJECT NUMBER: 065045
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Road
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the one aqueous sample which was not received under chain of custody by Enseco Cal Lab on 20 July 1992. This sample is associated with your PVLV Wells Project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

Shelly Eyraud
Manager Low Resolution Dioxin Services

ks

TABLE OF CONTENTS

ENSECO CAL LAB PROJECT NUMBER 065045

Case Narrative

Quality Assurance Program

Sample Description Information

Sample Analysis Request

Polychlorinated Dioxins/Furans Isomer Specific Analysis

Includes Samples: 1

Duplicate Control Sample Report

Method Blank Report/Sample Data Sheets

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 065045

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM

Enseco Cal Lab has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documental quality. A key element of this program is Enseco's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

Laboratory Control Samples - (LCS)

Laboratory Control Samples (LCS) are well-characterized, laboratory generated samples used to monitor the laboratory's day-to-day performance of routine analytical methods. The results of the LCS are compared to well-defined laboratory acceptance criteria to determine whether the laboratory system is "in control". Three types of LCS are routinely analyzed: Duplicate Control Samples (DCS), Single Control Samples (SCS), and method blanks. Each of these LCS are described below.

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

SAMPLE DESCRIPTION INFORMATION
for
San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled Date	Time	Received Date
065045-0001-SA	40165	PV3	AQUEOUS	09 JUL 92		20 JUL 92
065045-0001-MB	Method Blank		AQUEOUS			20 JUL 92

Polychlorinated Dioxins/Furans Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
065045-0001-SA	AQUEOUS	DXNFUR-A	13 JUL 92-A	-
065045-0001-MB	AQUEOUS	DXNFUR-A	13 JUL 92-A	-

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: DXNFUR-A									
Matrix: AQUEOUS									
QC Lot: 13 JUL 92-A									
Concentration Units: ng									
2,3,7,8-TCDF	10	9.40	9.20	9.30	93	60-140	2.2	50.0	
2,3,4,7,8-PeCDF	10	10.0	9.60	9.80	98	60-140	4.1	50.0	
1,2,3,4,7,8-HxCDF	10	9.00	8.20	8.60	86	60-140	9.3	50.0	
1,2,3,4,6,7,8-HpCDF	10	8.80	6.90	7.85	79	60-140	24	50.0	
OCDF	50	56.0	56.0	56.0	112	60-140	0.0	50.0	
2,3,7,8-TCDD	10	9.00	8.90	8.95	90	60-140	1.1	50.0	
1,2,3,7,8-PeCDD	10	11.0	11.0	11.0	110	60-140	0.0	50.0	
1,2,3,4,7,8-HxCDD	10	9.70	9.30	9.50	95	60-140	4.2	50.0	
1,2,3,4,6,7,8-HpCDD	10	8.60	8.70	8.65	87	60-140	1.2	50.0	
OCDD	50	47.0	46.0	46.5	93	60-140	2.2	50.0	

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 065045-0001-MB
 Matrix: AQUEOUS
 Authorized: 20 JUL 92
 Sampled: NA
 Prepared: 22 JUL 92
 Received: NA
 Analyzed: 02 AUG 92

Sample Amount 1.0 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.015	
2,3,7,8-TCDF	ND	ng/L	0.015	
PeCDFs (total)	ND	ng/L	0.019	
1,2,3,7,8-PeCDF	ND	ng/L	0.019	
2,3,4,7,8-PeCDF	ND	ng/L	0.019	
HxCDFs (total)	ND	ng/L	0.037	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.037	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.037	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.037	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.037	
HpCDFs (total)	ND	ng/L	0.040	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.040	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.040	
OCDF	ND	ng/L	0.19	
Dioxins				
TCDDs (total)	ND	ng/L	0.027	
2,3,7,8-TCDD	ND	ng/L	0.027	
PeCDDs (total)	ND	ng/L	0.068	
1,2,3,7,8-PeCDD	ND	ng/L	0.068	
HxCDDs (total)	ND	ng/L	0.085	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.085	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.085	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.085	
HpCDDs (total)	ND	ng/L	0.040	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.040	
OCDD	ND	ng/L	0.20	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 065045-0001-MB

Matrix: AQUEOUS

Authorized: 20 JUL 92

Sampled: NA

Prepared: 22 JUL 92

Received: NA

Analyzed: 02 AUG 92

Sample Amount 1.0 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	93
13C-2,3,7,8-TCDD	99
13C-1,2,3,7,8-PeCDD	98
13C-1,2,3,6,7,8-HxCDD	103
13C-1,2,3,4,6,7,8-HpCDD	102
13C-OCDD	90

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 40165
 Lab ID: 065045-0001-SA
 Matrix: AQUEOUS
 Authorized: 20 JUL 92
 Sampled: 09 JUL 92
 Prepared: 22 JUL 92
 Received: 20 JUL 92
 Analyzed: 02 AUG 92

Sample Amount: 0.948 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.012	
2,3,7,8-TCDF	ND	ng/L	0.012	
PeCDFs (total)	ND	ng/L	0.019	
1,2,3,7,8-PeCDF	ND	ng/L	0.019	
2,3,4,7,8-PeCDF	ND	ng/L	0.019	
HxCDFs (total)	ND	ng/L	0.041	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.041	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.041	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.041	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.041	
HpCDFs (total)	ND	ng/L	0.041	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.041	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.041	
OCDF	ND	ng/L	0.14	
Dioxins				
TCDDs (total)	ND	ng/L	0.026	
2,3,7,8-TCDD	ND	ng/L	0.026	
PeCDDs (total)	ND	ng/L	0.079	
1,2,3,7,8-PeCDD	ND	ng/L	0.079	
HxCDDs (total)	ND	ng/L	0.070	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.070	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.070	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.070	
HpCDDs (total)	ND	ng/L	0.047	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.047	
OCDD	ND	ng/L	0.13	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Andrea Parrish Approved By: Shelly Eyraud

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 40165
Lab ID: 065045-0001-SA
Matrix: AQUEOUS
Authorized: 20 JUL 92
Sampled: 09 JUL 92
Prepared: 22 JUL 92
Received: 20 JUL 92
Analyzed: 02 AUG 92

Sample Amount 0.948 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	84
13C-2,3,7,8-TCDD	91
13C-1,2,3,7,8-PeCDD	100
13C-1,2,3,6,7,8-HxCDD	104
13C-1,2,3,4,6,7,8-HpCDD	111
13C-OCDD	102

ND = Not detected
NA = Not applicable

Reported By: Andrea Parrish

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
Rev 230787

[Handwritten signature]
32



September 15, 1992
ENSECO CAL LAB PROJECT NUMBER: 065410
PO/CONTRACT: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill road
Whittier, CA 90601

Dear Ms. Losorelli:

This report contains the analytical results for the four aqueous samples which were received with a Sample Analysis Request by Enseco Cal Lab on 14 August 1992. These samples are associated with your PVLf Wells Project.

The case narrative is an integral part of this report.

If you have any questions, please call me at (916) 374-4300.

Sincerely,

Shelly Eyraud
Manager Low Resolution Dioxin Services

ks

TABLE OF CONTENTS

ENSECO CAL LAB PROJECT NUMBER 065410

Case Narrative

Quality Assurance Program

Sample Description Information

Sample Analysis Request

Polychlorinated Dioxins/Furans Isomer Specific Analysis

Includes Samples: 1 through 4

Duplicate Control Sample Report

Method Blank Report/Sample Data Sheets

CASE NARRATIVE

ENSECO CAL LAB PROJECT NUMBER 065410

There were no anomalies associated with this report.

ENSECO CAL LAB'S QUALITY ASSURANCE PROGRAM

Enseco Cal Lab has implemented an extensive Quality Assurance (QA) program to ensure the production of scientifically sound, legally defensible data of known documental quality. A key element of this program is Enseco's Laboratory Control Sample (LCS) system. Controlling lab operations with LCS (as opposed to matrix spike/matrix spike duplicate samples), allows the lab to differentiate between bias as a result of procedural errors versus bias due to matrix effects. The analyst can then identify and implement the appropriate corrective actions at the bench level, without waiting for extensive senior level review or costly and time-consuming sample re-analyses. The LCS program also provides our client with information to assess batch, and overall laboratory performance.

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Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand, sodium sulfate or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits.

Single Control Samples. An SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g. metals or conventional analyses) a single control sample identical to the DCS serves as the control sample. An SCS is prepared for each sample lot. Accuracy is calculated identically to the DCS.

Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

SAMPLE DESCRIPTION INFORMATION
 for
 San Jose Creek Laboratory

Lab ID	Client ID		Matrix	Sampled		Received
				Date	Time	
065410-0001-SA	41477	<i>m57</i>	AQUEOUS	05	AUG 92	14 AUG 92
065410-0001-MB	Method Blank		AQUEOUS			14 AUG 92
065410-0002-SA	41478	<i>Rinsed filter of m57</i>	AQUEOUS	05	AUG 92	14 AUG 92
065410-0003-SA	41623	<i>m 61B</i>	AQUEOUS	07	AUG 92	14 AUG 92
065410-0004-SA	41624	<i>m 61B (dry)</i>	AQUEOUS	07	AUG 92	14 AUG 92

OK
8/14/92

SAMPLE ANALYSIS REQUEST

San Jose Creek Water Quality Laboratory
1965 South Workman Mill Road
Whittier, California 90601

Date: August 05, 1992

Sample I.D. Number(s): 41477, 41478

Sample Type: PVLV Wells

Sample Size: 1 liter x 2

To Be Analyzed By (Laboratory or Company): ENSECO(Cal. Analytical Lab.)

To Be Analyzed For (Constituents): DIOXINS/FURANS using EPA Method 8280

- | | |
|------------------------------------|-------------------------------------|
| (1) Tetrachlorodibenzodioxin | (14) Hexachlorodibenzofuran |
| (2) Pentachlorodibenzodioxin | (15) Heptachlorodibenzofuran |
| (3) Hexachlorodibenzodioxin | (16) Octachlorodibenzofuran |
| (4) Heptachlorodibenzodioxin | (17) 2378Tetrachlorodibenzofuran |
| (5) Octachlorodibenzodioxin | (18) 12378Pentachlorodibenzofuran |
| (6) 2378Tetrachlorodibenzodioxin | (19) 23478Pentachlorodibenzofuran |
| (7) 12378Pentachlorodibenzodioxin | (20) 123789Hexachlorodibenzofuran |
| (8) 12347Hexachlorodibenzodioxin | (21) 123678Hexachlorodibenzofuran |
| (9) 123678Hexachlorodibenzodioxin | (22) 1234789Hexachlorodibenzofuran |
| (10) 123789Hexachlorodibenzodioxin | (23) 123789Hexachlorodibenzofuran |
| (11) 123467Hexachlorodibenzodioxin | (24) 123467Heptachlorodibenzofuran |
| (12) Tetrachlorodibenzofuran | (25) 1234789Heptachlorodibenzofuran |
| (13) Pentachlorodibenzofuran | |

P.O. Number: 135729

Lorrie Losorelli
San Jose Creek Laboratory
1965 Workman Mill Rd.
Whittier, CA 90601
(310) 699-0405

Please mail results to >>>>

Requested by: _____

PLEASE COMPLETE AND DETACH THIS PORTION

Return to : San Jose Creek Water Quality Laboratory Dioxin/Furan
1965 South Workman Mill Road 08/06/92
Whittier, California 90601
F A X: (310) 699-3300
Attn: Lorrie Losorelli

Sample I.D. Number: 41477, 41478

Date Received: 8/14/92 12:45

Laboratory or Company: Enseco Cal Labs

By: Kathleen Sawyer
Signature

P.O. Number: 135729

AKW
8/14/92

Polychlorinated Dioxins/Furans Isomer Specific Analysis

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
065410-0001-SA	AQUEOUS	DXNFUR-A	14 AUG 92-B	-
065410-0001-MB	AQUEOUS	DXNFUR-A	14 AUG 92-B	-
065410-0002-SA	AQUEOUS	DXNFUR-A	14 AUG 92-B	-
065410-0003-SA	AQUEOUS	DXNFUR-A	14 AUG 92-B	-
065410-0004-SA	AQUEOUS	DXNFUR-A	14 AUG 92-B	-

DUPLICATE CONTROL SAMPLE REPORT
 Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 14 AUG 92-B								
Concentration Units: ng								
2,3,7,8-TCDF	10	10.0	9.90	9.95	100	60-140	1.0	50.0
2,3,4,7,8-PeCDF	10	10.0	9.80	9.90	99	60-140	2.0	50.0
1,2,3,4,7,8-HxCDF	10	12.0	12.0	12.0	120	60-140	0.0	50.0
1,2,3,4,6,7,8-HpCDF	10	12.0	12.0	12.0	120	60-140	0.0	50.0
OCDF	50	69.0	73.0	71.0	142#	60-140	5.6	50.0
2,3,7,8-TCDD	10	11.0	10.0	10.5	105	60-140	9.5	50.0
1,2,3,7,8-PeCDD	10	12.0	11.0	11.5	115	60-140	8.7	50.0
1,2,3,4,7,8-HxCDD	10	11.0	11.0	11.0	110	60-140	0.0	50.0
1,2,3,4,6,7,8-HpCDD	10	12.0	11.0	11.5	115	60-140	8.7	50.0
OCDD	50	58.0	58.0	58.0	116	60-140	0.0	50.0

= Recovery outside QC Limits

Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: Method Blank
 Lab ID: 065410-0001-MB
 Matrix: AQUEOUS
 Authorized: 14 AUG 92
 Sampled: NA
 Prepared: 24 AUG 92
 Received: NA
 Analyzed: 27 AUG 92

Sample Amount 1.000 L
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.022	
2,3,7,8-TCDF	ND	ng/L	0.022	
PeCDFs (total)	ND	ng/L	0.024	
1,2,3,7,8-PeCDF	ND	ng/L	0.024	
2,3,4,7,8-PeCDF	ND	ng/L	0.024	
HxCDFs (total)	ND	ng/L	0.055	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.055	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.055	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.055	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.055	
HpCDFs (total)	ND	ng/L	0.063	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.063	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.063	
OCDF	ND	ng/L	0.23	
Dioxins				
TCDDs (total)	ND	ng/L	0.036	
2,3,7,8-TCDD	ND	ng/L	0.036	
PeCDDs (total)	ND	ng/L	0.074	
1,2,3,7,8-PeCDD	ND	ng/L	0.074	
HxCDDs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.10	
HpCDDs (total)	ND	ng/L	0.073	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.073	
OCDD	ND	ng/L	0.18	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Chuck Pudwill Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: Method Blank

Lab ID: 065410-0001-MB

Matrix: AQUEOUS

Authorized: 14 AUG 92

Sampled: NA

Prepared: 24 AUG 92

Received: NA

Analyzed: 27 AUG 92

Sample Amount 1.000 L

Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	72
13C-2,3,7,8-TCDD	77
13C-1,2,3,7,8-PeCDD	83
13C-1,2,3,6,7,8-HxCDD	77
13C-1,2,3,4,6,7,8-HpCDD	74
13C-OCDD	59

ND = Not detected
NA = Not applicable

Reported By: Chuck Pudwill

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
 Client ID: 41477
 Lab ID: 065410-0001-SA
 Matrix: AQUEOUS
 Authorized: 14 AUG 92
 Sampled: 05 AUG 92
 Prepared: 24 AUG 92
 Received: 14 AUG 92
 Analyzed: 27 AUG 92

Sample Amount: 0.782 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
-----------	--------	-------	-----------------	-----------------

Furans

TCDFs (total)	ND	ng/L	0.020	
2,3,7,8-TCDF	ND	ng/L	0.020	
PeCDFs (total)	ND	ng/L	0.019	
1,2,3,7,8-PeCDF	ND	ng/L	0.019	
2,3,4,7,8-PeCDF	ND	ng/L	0.019	
HxCDFs (total)	ND	ng/L	0.049	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.049	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.049	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.049	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.049	
HpCDFs (total)	ND	ng/L	0.060	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.060	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.060	
OCDF	ND	ng/L	0.26	

Dioxins

TCDDs (total)	ND	ng/L	0.034	
2,3,7,8-TCDD	ND	ng/L	0.034	
PeCDDs (total)	ND	ng/L	0.072	
1,2,3,7,8-PeCDD	ND	ng/L	0.072	
HxCDDs (total)	ND	ng/L	0.10	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.10	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.10	
HpCDDs (total)	ND	ng/L	0.077	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.077	
OCDD	ND	ng/L	0.23	

(continued on following page)

ND = Not detected
 NA = Not applicable

Reported By: Chuck Pudwill
 Approved By: Shelly Eyraud

The cover letter is an integral part of this report.
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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 41477

Lab ID: 065410-0001-SA

Matrix: AQUEOUS

Authorized: 14 AUG 92

Sampled: 05 AUG 92

Prepared: 24 AUG 92

Received: 14 AUG 92

Analyzed: 27 AUG 92

Sample Amount 0.782 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	79
13C-2,3,7,8-TCDD	83
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	82
13C-1,2,3,4,6,7,8-HpCDD	78
13C-OCDD	68

ND = Not detected

NA = Not applicable

Reported By: Chuck Pudwill

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

9/24/92

**POLYCHLORINATED DIOXINS/FURANS
 ISOMER SPECIFIC ANALYSIS
 LOW RESOLUTION**

Client Name: San Jose Creek Laboratory
 Client ID: 41478
 Lab ID: 065410-0002-SA
 Matrix: AQUEOUS
 Authorized: 14 AUG 92

Sampled: 05 AUG 92
 Prepared: 24 AUG 92

Received: 14 AUG 92
 Analyzed: 27 AUG 92

Sample Amount: 0.877 L
 Column Type: DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.020	
2,3,7,8-TCDF	ND	ng/L	0.020	
PeCDFs (total)	ND	ng/L	0.019	
1,2,3,7,8-PeCDF	ND	ng/L	0.019	
2,3,4,7,8-PeCDF	ND	ng/L	0.019	
HxCDFs (total)	ND	ng/L	0.048	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.048	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.048	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.048	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.048	
HpCDFs (total)	ND	ng/L	0.048	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.048	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.048	
OCDF	ND	ng/L	0.18	
Dioxins				
TCDDs (total)	ND	ng/L	0.034	
2,3,7,8-TCDD	ND	ng/L	0.034	
PeCDDs (total)	ND	ng/L	0.070	
1,2,3,7,8-PeCDD	ND	ng/L	0.070	
HxCDDs (total)	ND	ng/L	0.098	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.098	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.098	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.098	
HpCDDs (total)	ND	ng/L	0.051	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.051	
OCDD	ND	ng/L	0.20	

(continued on following page)

ND = Not detected
 NA = Not applicable

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Approved By: Shelly Eyraud

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Rev 230787

POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 41478

Lab ID: 065410-0002-SA

Matrix: AQUEOUS

Authorized: 14 AUG 92

Sampled: 05 AUG 92

Prepared: 24 AUG 92

Received: 14 AUG 92

Analyzed: 27 AUG 92

Sample Amount 0.877 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	83
13C-2,3,7,8-TCDD	84
13C-1,2,3,7,8-PeCDD	93
13C-1,2,3,6,7,8-HxCDD	83
13C-1,2,3,4,6,7,8-HpCDD	80
13C-OCDD	68

ND = Not detected
NA = Not applicable

Reported By: Chuck Pudwill

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.

Rev 230787

9/27/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 41623
Lab ID: 065410-0003-SA
Matrix: AQUEOUS
Authorized: 14 AUG 92

Sampled: 07 AUG 92
Prepared: 24 AUG 92

Received: 14 AUG 92
Analyzed: 27 AUG 92

Sample Amount 0.949 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
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Furans

TCDFs (total)	ND	ng/L	0.020	
2,3,7,8-TCDF	ND	ng/L	0.020	
PeCDFs (total)	ND	ng/L	0.018	
1,2,3,7,8-PeCDF	ND	ng/L	0.018	
2,3,4,7,8-PeCDF	ND	ng/L	0.018	
HxCDFs (total)	ND	ng/L	0.038	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.038	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.038	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.038	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.038	
HpCDFs (total)	ND	ng/L	0.053	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.053	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.053	
OCDF	ND	ng/L	0.13	

Dioxins

TCDDs (total)	ND	ng/L	0.017	
2,3,7,8-TCDD	ND	ng/L	0.017	
PeCDDs (total)	ND	ng/L	0.072	
1,2,3,7,8-PeCDD	ND	ng/L	0.072	
HxCDDs (total)	ND	ng/L	0.087	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.087	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.087	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.087	
HpCDDs (total)	ND	ng/L	0.065	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.065	
OCDD	ND	ng/L	0.11	

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ND = Not detected
NA = Not applicable

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory

Client ID: 41623

Lab ID: 065410-0003-SA

Matrix: AQUEOUS

Authorized: 14 AUG 92

Sampled: 07 AUG 92

Prepared: 24 AUG 92

Received: 14 AUG 92

Analyzed: 27 AUG 92

Sample Amount 0.949 L

Column Type DB-5

% Recovery

13C-2,3,7,8-TCDF	70
13C-2,3,7,8-TCDD	76
13C-1,2,3,7,8-PeCDD	88
13C-1,2,3,6,7,8-HxCDD	82
13C-1,2,3,4,6,7,8-HpCDD	81
13C-OCDD	77

ND = Not detected

NA = Not applicable

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Approved By: Shelly Eyraud

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Rev 230787

9/24/92



POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 41624
Lab ID: 065410-0004-SA
Matrix: AQUEOUS
Authorized: 14 AUG 92

Sampled: 07 AUG 92
Prepared: 24 AUG 92

Received: 14 AUG 92
Analyzed: 27 AUG 92

Sample Amount 0.952 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.018	
2,3,7,8-TCDF	ND	ng/L	0.018	
PeCDFs (total)	ND	ng/L	0.017	
1,2,3,7,8-PeCDF	ND	ng/L	0.017	
2,3,4,7,8-PeCDF	ND	ng/L	0.017	
HxCDFs (total)	ND	ng/L	0.038	
1,2,3,4,7,8-HxCDF	ND	ng/L	0.038	
1,2,3,6,7,8-HxCDF	ND	ng/L	0.038	
2,3,4,6,7,8-HxCDF	ND	ng/L	0.038	
1,2,3,7,8,9-HxCDF	ND	ng/L	0.038	
HpCDFs (total)	ND	ng/L	0.046	
1,2,3,4,6,7,8-HpCDF	ND	ng/L	0.046	
1,2,3,4,7,8,9-HpCDF	ND	ng/L	0.046	
OCDF	ND	ng/L	0.16	
Dioxins				
TCDDs (total)	ND	ng/L	0.025	
2,3,7,8-TCDD	ND	ng/L	0.025	
PeCDDs (total)	ND	ng/L	0.057	
1,2,3,7,8-PeCDD	ND	ng/L	0.057	
HxCDDs (total)	ND	ng/L	0.069	
1,2,3,4,7,8-HxCDD	ND	ng/L	0.069	
1,2,3,6,7,8-HxCDD	ND	ng/L	0.069	
1,2,3,7,8,9-HxCDD	ND	ng/L	0.069	
HpCDDs (total)	ND	ng/L	0.039	
1,2,3,4,6,7,8-HpCDD	ND	ng/L	0.039	
OCDD	ND	ng/L	0.13	

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POLYCHLORINATED DIOXINS/FURANS
ISOMER SPECIFIC ANALYSIS (CONT.)
LOW RESOLUTION

Client Name: San Jose Creek Laboratory
Client ID: 41624
Lab ID: 065410-0004-SA
Matrix: AQUEOUS
Authorized: 14 AUG 92
Sampled: 07 AUG 92
Prepared: 24 AUG 92
Received: 14 AUG 92
Analyzed: 27 AUG 92

Sample Amount 0.952 L
Column Type DB-5

	% Recovery
13C-2,3,7,8-TCDF	75
13C-2,3,7,8-TCDD	85
13C-1,2,3,7,8-PeCDD	91
13C-1,2,3,6,7,8-HxCDD	86
13C-1,2,3,4,6,7,8-HpCDD	84
13C-OCDD	82

ND = Not detected
NA = Not applicable

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