DEPARTMENT OF ECOLOGY

February 16, 2000

TO: John Roland, TCP/ERO

FROM: Art Johnson EAP/HQ

SUBJECT: **Results from Analyzing Metals in 1999 Spokane River Fish and Crayfish Samples**
(Waterbody Nos. WA-54-1020 and WA-57-1010)

Manchester Laboratory has completed their analyses for zinc, lead, and cadmium in the Spokane River fish and crayfish samples collected in July, August, and October of 1999. Their data reports and a quality assurance review are attached. These results, without the benefit of interpretation, are being promptly delivered to support the U.S. Environmental Protection Agency *Ecological Risk Assessment* for the Spokane River.

Three tables that summarize the information are attached:

Table 1. Plan of Analysis
Table 2. Location Information and Biological Data
Table 3. Metals Concentrations

A quality assurance project plan (Johnson, 1999) describes how the tissues were prepared. The ages of the fish are being determined from scales and other parts provided to John Sneva of the state Department of Fish and Wildlife. The age data will not be available until sometime this spring.

Only enough crayfish were collected to analyze three whole body samples. Some data already exist on lead in crayfish muscle from samples collected in 1994 (Johnson, 1994).

If there are questions about these data, please call me at (360) 407-6766 or send email to arjo461@ecy.wa.gov.

AJ:smr/jl
Attachments

cc: Flora Goldstein, TCP/ERO
Will Kendra, EAP/HQ
Matt Kadlec, EAP/HQ
Terry Maret, USGS
Koenraad Marien, WDOH

References

Johnson, A., 1994. PCB and Lead Results for 1994 Spokane River Fish Samples. Memorandum to Glen Patrick, Washington State Department of Health. Washington State Department of Ecology, Olympia, WA.

Johnson, A., 1998. Rainbow Abnormalities in Douglas Creek: Results from Chemical Analyses. Memorandum to Terry Jackson, Washington State Department of Fish and Wildlife. Washington State Department of Ecology, Olympia, WA.

Johnson, A., 1999. Metals and PCB Analysis of Spokane River Fish and Crayfish Samples Collected in 1999 - Quality Assurance Project Plan. Washington State Department of Ecology, Olympia, WA.

Table 1. Plan of Analysis for 1999 Spokane River Fish Samples
(Number of samples indicated; whole body samples are composites, fillets are individual fish)

Location	Species	Tissue	Zn, Pb,Cd	Pb only	Aroclor Equivalen	PCB Congeners	Percent Lipid
Stateline	Largescale Sucker	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout*	Whole	1		1		1
	"	Fillet		5	5		5
Plante Ferry Park	Largescale Sucker	Whole	1		1	1	1
	"	Fillet		5	5	3	5
	Rainbow Trout*	Whole	1		1	1	1
	"	Fillet		5	5	3	5
	Crayfish	Whole	1		1	1	1
Greene Street	Largescale Sucker	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout*	Whole	1		1		1
	"	Fillet		5	5		5
	Montain Whitefish	Whole	1		1	1	1
	"	Fillet		5	5	3	5
	Crayfish	Whole	1		1		1
7-Mile Bridge	Largescale Sucker	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout**	Whole	1		1		1
	"	Fillet		5	5		5
	Rainbow Trout*	Fillet		2	2		2
	Montain Whitefish	Whole	1		1		1
	"	Fillet		5	5		5
	Crayfish	Whole	1		1		1
		Total Samples =	13	52	65	13	65

*wild **hatchery

Table 2. Location and Biological Data for 1999 Spokane River Fish Samples

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
Stateline	Rainbow Trout	Fillet	485000	457	855	F	not yet
River Mile 96.0	(wild)	"	485001	405	715	F	determined
USGS #12429500	"	"	485002	453	975	F	
Reach Length 1099 m	"	"	485003	460	895	F	
7/27/99	"	"	485004	335	472	M	
	"	Whole	485005a	365	540	F	
	"	"	485005b	390	660	M	
	"	"	485005c	368	581	M	
	"	"	485005d	385	609	M	
	"	"	485005e	360	557	F	
	Largescale Sucker	Whole	485006a	490	1056	F	
	"	"	485006b	492	1144	F	
	"	"	485006c	485	1196	F	
	"	"	485006d	470	963	M	
	"	"	485006e	460	902	M	
	"	Fillet	485007	490	1214	F	
	"	"	485008	455	969	M	
	"	"	485009	525	1275	F	
	"	"	485010	427	834	M	
	"	"	485011	436	803	F	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
Plante Ferry Site Park	Rainbow Trout	Whole	485012a	346	433	M	
River Mile 85.0	(wild)	"	485012b	438	840	F	
USGS #12420800	"	"	485012c	392	623	F	
Reach Length 1436 m	"	"	485012d	324	387	F	
7/28/99	"	"	485012e	360	479	F	
	"	Fillet	485013	413	754	F	
	"	"	485014	276	235	M	
	"	"	485015	387	538	F	
	"	"	485016	345	438	M	
	"	"	485017	395	584	F	
	Largescale Sucker	Whole	485018a	425	810	M	
	"	"	485018b	405	805	F	
	"	"	485018c	440	925	F	
	"	"	485018d	447	1030	M	
	"	"	485018e	425	780	M	
	"	Fillet	485019	435	963	M	
	"	"	485020	445	1002	M	
	"	"	485021	450	1025	F	
	"	"	485022	395	696	M	
	"	"	485023	445	897	M	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
Greene Street	Rainbow Trout	Fillet	485024	326	353	F	
River Mile 77.0	(wild)	"	485025	270	209	F	
USGS #12422000	"	"	485026	359	476	F	
Reach Length 1300 m	"	"	485027	347	432	M	
7/29/99	"	"	485028	259	202	M	
	"	Whole	485029a	247	184	F	
	"	"	485029b	280	248	M	
	"	"	485029c	265	223	F	
	"	"	485029d	309	392	M	
	"	"	485029e	338	460	F	
	Mountain Whitefish	Fillet	485030	355	436	F	
	"	"	485031	305	320	M	
	"	"	485032	400	641	F	
	"	"	485033	344	426	F	
	"	"	485034	310	311	F	
	"	Whole	485035a	356	489	F	
	"	"	485035b	300	313	F	
	"	"	485035c	302	296	M	
	"	"	485035d	302	284	M	
	"	"	485035e	300	301	F	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
Greene Street	Largescale Sucker	Fillet	485036	435	877	M	
River Mile 77.0	"	"	485037	475	1087	M	
USGS #12422000	"	"	485038	415	731	M	
Reach Length 1300 m	"	"	485039	496	1221	F	
7/29/99	"	"	485040	419	759	F	
	"	Whole	485041a	430	633	M	
	"	"	485041b	450	878	F	
	"	"	485041c	478	1039	M	
	"	"	485041d	430	648	F	
	"	"	485041e	455	753	F	
7-Mile Bridge	Rainbow Trout	Whole	485042a	334	406	F	
River Mile 63.0	(hatchery)	"	485042b	332	383	M	
USGS #1242500	"	"	485042c	324	353	M	
Reach Length 1069 m	"	"	485042d	337	363	F	
7/30/99	"	"	485042e	343	390	F	
	"	Fillet	485043	318	340	F	
	"	"	485044	305	303	M	
	"	"	485045	335	410	M	
	"	"	485046	317	335	F	
	"	"	485047	351	506	F	
	Rainbow Trout	Fillet	485048	368	605	F	
	(wild)	"	485049	502	1300	F	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Total Length (mm)	Weight (grams)	Sex	Age
7-Mile Bridge	Mountain Whitefish	Fillet	485050	374	405	F	
River Mile 63.0	"	"	485051	356	440	M	
USGS #1242500	"	"	485052	375	460	F	
Reach Length 1069 m	"	"	485053	335	351	M	
7/30/99	"	"	485054	353	399	F	
	"	Whole	485055a	353	474	F	
	"	"	485055b	314	339	M	
	"	"	485055c	327	382	F	
	"	"	485055d	328	320	F	
	"	"	485055e	329	309	F	
	Largescale Sucker	Fillet	485056	425	846	M	
	"	"	485057	484	954	F	
	"	"	485058	425	923	M	
	"	"	485059	490	1131	F	
	"	"	485060	444	818	M	
	"	Whole	485061a	479	943	F	
	"	"	485061b	445	914	F	
	"	"	485061c	421	783	M	
	"	"	485061d	430	859	F	
	"	"	485061e	462	1074	M	

Table 2. (continued)

Location	Species	Tissue	Sample Number	Carapace Length (mm)	Weight (grams)	Sex	Age
Plante Ferry Site Park	Crayfish	Whole	485062	53	40	--	--
River Mile 84.7	"	"	"	43	32	--	--
10/14/99	"	"	"	48	35	--	--
Trent Ave. Bridge	Crayfish	Whole	485063	65	92	--	--
River Mile 76.3	"	"	"	50	37	--	--
10/14/99	"	"	"	46	30	--	--
	"	"	"	55	47	--	--
	"	"	"	53	37	--	--
7-Mile Bridge	Crayfish	Whole	485064	57	50	--	--
River Mile 62.0	"	"	"	47	25	--	--
10/14/99	"	"	"	50	33	--	--
	"	"	"	37	16	--	--
	"	"	"	43	23	--	--

Table 3. Metals Concentrations in 1999 Spokane River Fish Samples (wet weight basis)

Location	Species	Tissue	Sample Number	Zinc (mg/Kg)	Lead (mg/Kg)	Cadmium (mg/Kg)
Stateline	Rainbow Trout	Fillet	485000	na	0.48	na
River Mile 96.0	(wild)	"	485001	na	0.071	na
USGS #12429500	"	"	485002	na	0.11	na
Reach Length 1099 m	"	"	485003	na	0.32	na
7/27/99	"	"	485004	na	0.12	na
	"	Whole	485005	45.3	0.73	0.24
	Largescale Sucker	Whole	485006	150	4.34	0.35
	"	Fillet	485007	na	0.088	na
	"	"	485008	na	0.21	na
	"	"	485009	na	0.28	na
	"	"	485010	na	0.030	na
	"	"	485011	na	0.036	na
Plante Ferry Site Park	Rainbow Trout	Whole	485012	50.8	1.14	0.27
River Mile 85.0	(wild)	Fillet	485013	na	0.25	na
USGS #12420800	"	"	485013-dup	na	0.21	na
Reach Length 1436 m	"	"	485013-dup	na	0.19	na
7/28/99	"	"	485014	na	0.055	na
	"	"	485015	na	0.32	na
	"	"	485016	na	0.077	na
	"	"	485017	na	0.081	na
	Largescale Sucker	Whole	485018	86.0	1.77	0.25
	"	"	485018-dup	123	2.12	0.25
	"	"	485018-dup	109	2.05	0.26
	"	Fillet	485019	na	0.047	na
	"	"	485020	na	0.077	na
	"	"	485021	na	0.069	na
	"	"	485022	na	0.16	na
	"	"	485023	na	0.088	na
Greene Street	Rainbow Trout	Fillet	485024	na	0.17	na
River Mile 77.0	(wild)	"	485025	na	0.13	na
USGS #12422000	"	"	485026	na	0.11	na
Reach Length 1300 m	"	"	485027	na	0.081	na
7/29/99	"	"	485028	na	0.098	na
	"	Whole	485029	40.2	0.60	0.23
	Mountain Whitefish	Fillet	485030	na	0.02U	na
	"	"	485031	na	0.02U	na
	"	"	485032	na	0.02U	na
	"	"	485033	na	0.02U	na
	"	"	485034	na	0.02U	na
	"	Whole	485035	35.4	0.65	0.16

Table 3. (continued)

Location	Species	Tissue	Sample Number	Zinc (mg/Kg)	Lead (mg/Kg)	Cadmium (mg/Kg)
Greene Street	Largescale Sucker	Fillet	485036	na	0.12	na
River Mile 77.0	"	"	485037	na	0.054	na
USGS #12422000	"	"	485038	na	0.080	na
Reach Length 1300 m	"	"	485039	na	0.059	na
7/29/99	"	"	485040	na	0.094	na
	"	Whole	485041	90.8	3.12	0.19
7-Mile Bridge	Rainbow Trout	Whole	485042	64.0	1.59	0.30
River Mile 63.0	(hatchery)	Fillet	485043	na	0.18	na
USGS #1242500	"	"	485044	na	0.23	na
Reach Length 1069 m	"	"	485045	na	0.082	na
7/30/99	"	"	485046	na	0.21	na
	"	"	485047	na	0.20	na
	Rainbow Trout	Fillet	485048	na	0.025	na
	(wild)	"	485049	na	0.038	na
	Mountain Whitefish	Fillet	485050	na	0.065	na
	"	"	485051	na	0.02U	na
	"	"	485052	na	0.037	na
	"	"	485053	na	0.02U	na
	"	"	485054	na	0.036	na
	"	Whole	485055	28.4	0.56	0.20
	Largescale Sucker	Fillet	485056	na	0.059	na
	"	"	485057	na	0.068	na
	"	"	485058	na	0.02U	na
	"	"	485059	na	0.09	na
	"	"	485060	na	0.046	na
	"	Whole	485061	58.8	1.80	0.21
Plante Ferry Site Park River Mile 84.7 10/14/99	Crayfish	Whole	485062	41.0	1.34	0.44
Trent Ave. Bridge River Mile 76.3 10/14/99	Crayfish	Whole	485063	33.0	0.89	0.37
7-Mile Bridge River Mile 62.0 10/14/99	Crayfish	Whole	485064	29.2	0.34	0.20

na = not analyzed U = not detected at or above reported value

Washington Department of Ecology
Manchester Environmental Laboratory
7411 Beach Drive East
Port Orchard, WA 98366

February 9, 2000

TO: Art Johnson
FROM: Jim Ross, Manchester Lab
SUBJECT: Metals Quality Assurance memo for the Spokane River Fish project

SUMMARY

Data for this project met all quality assurance and quality control criteria and can be used without qualification. All analysis were done by ICP-MS (EPA 200.8). Confirmation of sample 485059 was done by GFAA.

SAMPLE RECEIPT

The samples were received by the Manchester Laboratory on 01/03/00

HOLDING TIMES

All analyses were performed within the specified holding time (180 days).

INSTRUMENT CALIBRATION

Instrument calibration was performed before each analytical run and checked by initial calibration verification standards and blanks. Continuing calibration standards and blanks were analyzed at a frequency of 10% during the run and again at the end of the analytical run. All initial and continuing calibration verification standards and blanks were within the relevant control limits.

PROCEDURAL BLANKS

The procedural blanks associated with these samples (M0006BB1, M0007BB1, M0011BB1) showed no analytically significant levels of analyte.

SPIKED SAMPLE ANALYSES

All spike and duplicate spike recoveries met the acceptance criteria (75-125%).

PRECISION DATA

Precision estimates based on dup0licate spike analysis were all within the acceptance criteria for duplicate analysis (±20%) RSD's of triplicate analysis were all lower than 20%.

LABORATORY CONTROL SAMPLE (LCS) ANALYSES

NRCC DORM-2 was used for the LCS. (M0006BL1, M007BL1, M0011BL1) While recoveries were not within +25%, for Cd and Pb, the results were deemed acceptable due to the extremely low level of these analytes in the LCS. Zinc recoveries were 102, 91 and 90%.

Please call Jim Ross at (360) 871-8808 to further discuss this project.

Certified Reference Material

DORM-2 DOLT-2

Dogfish Muscle and Liver Certified Reference Materials for Trace Metals

The following table shows those elements for which certified values have been established for the two dogfish (Squalus acanthias) reference materials. Certified values are based on results of determinations by at least two independent methods of analysis. The uncertainties represent 95 percent tolerance limits for an individual sub-sample of 250 mg or greater.

Trace Elements – (milligrams/kilogram)

	DORM-2			DOLT-2		
Aluminum (d,g,l)†	10.9	±	1.7	25.2	±	2.4
Arsenic (d,g,h,x)	18.0	±	1.1	16.6	±	1.1
Cadmium (g,p)	0.043	±	0.008	20.8	±	0.5
Cobalt (d,g)	0.182	±	0.031	0.24	±	0.05
Chromium (g,I,p)	34.7	±	5.5	0.37	±	0.08
Copper (g,I,p,x)	2.34	±	0.16	25.8	±	1.1
Iron (g,I,p,xx)	142	±	10	1103	±	47
Lead (g,p)	0.065	±	0.007	0.22	±	0.02
Manganese (d,g,I)	3.66	±	0.34	6.88	±	0.56
Mercury (c,p)	4.64	±	0.26	2.14	±	0.28
Nickel (g,I,p)	19.4	±	3.1	0.20	±	0.02
Selenium (g,p)	1.40	±	0.09	6.06	±	0.49
Silver (g,p)	0.041	±	0.013	0.608	±	0.032
Thallium (p)	(0.004)*				---	
Tin (p)	(0.023)*			(0.13)*		
Zinc (f,g,I,p)	25.6	±	2.3	85.8	±	2.5
Methylmercury (as Hg) (e,t)	4.47	±	0.32	0.693	±	0.053

† - see next page for key to coding.
* - information value only.

NRC · CNRC

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Lead

Project Name: Spokane River Fish – 48 **LIMS Project ID:** 1022-00

Project Officer: Art Johnson **Method:** EPA200.8
Date Reported: 09-FEB-00 **Matrix:** Tissue
Analyte: Lead

Sample	QC	Field ID	Result	Qualifier	Units	Collected	Analyzed
99485000		RM96RBT-F	**0.48**		ug/g ww	07/27/99	01/12/00
99485001		RM96RBT-F	**0.071**		ug/g ww	07/27/99	01/12/00
99485002		RM96RBT-F	**0.11**		ug/g ww	07/27/99	01/12/00
99485003		RM96RBT-F	**0.32**		ug/g ww	07/27/99	01/12/00
99485004		RM96RBT-F	**0.12**		ug/g ww	07/27/99	01/12/00
99485005		RM96RBT-W	**0.73**		ug/g ww	07/27/99	01/12/00
99485006		RM96LSS-W	**4.34**		ug/g ww	07/27/99	01/12/00
99485007		RM96LSS-F	**0.088**		ug/g ww	07/27/99	01/12/00
99485008		RM96LSS-F	**0.21**		ug/g ww	07/27/99	01/12/00
99485009		RM96LSS-F	**0.28**		ug/g ww	07/27/99	01/12/00
99485010		RM96LSS-F	**0.030**		ug/g ww	07/27/99	01/12/00
99485011		RM96LSS-F	**0.036**		ug/g ww	07/27/99	01/12/00
99485012		RM85RBT-W	**1.14**		ug/g ww	07/28/99	01/12/00
99485013		RM85RBT-F	**0.25**		ug/g ww	07/28/99	01/12/00
99485013	Duplicate		**0.21**		ug/g ww	07/28/99	01/12/00
99485014		RM85RBT-F	**0.055**		ug/g ww	07/28/99	01/12/00
99485015		RM85RBT-F	**0.32**		ug/g ww	07/28/99	01/12/00
99485016		RM85RBT-F	**0.077**		ug/g ww	07/28/99	01/12/00
99485017		RM85RBT-F	**0.081**		ug/g ww	07/28/99	01/12/00
99485018		RM85LSS-W	**1.77**		ug/g ww	07/28/99	01/12/00
99485018	Duplicate		**2.12**		ug/g ww	07/28/99	01/12/00
99485018	Duplicate		**2.05**		ug/g ww	07/28/99	01/12/00
99485019		RM85LSS-F	**0.047**		ug/g ww	07/28/99	01/12/00
99485020		RM85LSS-F	**0.077**		ug/g ww	07/28/99	01/12/00
99485021		RM85LSS-F	**0.069**		ug/g ww	07/28/99	01/12/00
99485022		RM85LSS-F	**0.16**		ug/g ww	07/28/99	01/12/00
99485023		RM85LSS-F	**0.088**		ug/g ww	07/28/99	01/12/00
99485024		RM77RBT-F	**0.17**		ug/g ww	07/29/99	01/12/00
99485025		RM77RBT-F	**0.13**		ug/g ww	07/29/99	01/12/00
99485026		RM77RBT-F	**0.11**		ug/g ww	07/29/99	01/12/00
99485027		RM77RBT-F	**0.081**		ug/g ww	07/29/99	01/12/00
99485028		RM77RBT-F	**0.098**		ug/g ww	07/29/99	01/12/00
99485029		RM77RBT-W	**0.60**		ug/g ww	07/29/99	01/12/00
99485030		RM77MWF-F	0.02	U	ug/g ww	07/29/99	01/12/00
99485031		RM77MWF-F	0.02	U	ug/g ww	07/29/99	01/12/00
99485032		RM77MWF-F	0.02	U	ug/g ww	07/29/99	01/12/00
99485033		RM77MWF-F	0.02	U	ug/g ww	07/29/99	01/12/00
99485034		RM77MWF-F	0.02	U	ug/g ww	07/29/99	01/12/00

Authorized By: Release 2/9/00

Manchester Environmental Laboratory

Department of Ecology

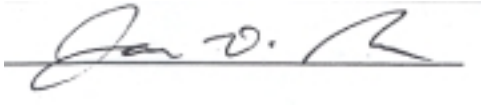
Analysis Report for

Lead

Project Name: Spokane River Fish – 48 **LIMS Project ID:** 1022-00

Project Officer: Art Johnson **Method:** EPA200.8
Date Reported: 09-FEB-00 **Matrix:** Tissue
Analyte: Lead

Sample	QC	Field ID	Result	Qualifier	Units	Collected	Analyzed
99485035		RM77MWF-W	**0.65**		ug/g ww	07/29/99	01/12/00
99485036		RM77LSS-F	**0.12**		ug/g ww	07/29/99	01/12/00
99485037		RM77LSS-F	**0.054**		ug/g ww	07/29/99	01/12/00
99485038		RM77LSS-F	**0.080**		ug/g ww	07/29/99	01/12/00
99485039		RM77LSS-F	**0.059**		ug/g ww	07/29/99	01/12/00
99485040		RM77LSS-F	**0.094**		ug/g ww	07/29/99	01/12/00
99485041		RM77LSS-W	**3.12**		ug/g ww	07/29/99	01/12/00
99485042		RM63RBT-W	**1.59**		ug/g ww	07/30/99	01/12/00
99485042	Matrix Spike		**99%**			07/30/99	01/12/00
99485042	Matrix Spike		**101%**			07/30/99	01/12/00
99485043		RM36RBT-F	**0.18**		ug/g ww	07/30/99	01/12/00
99485044		RM63RBT-F	**0.23**		ug/g ww	07/30/99	01/12/00
99485045		RM63RBT-F	**0.082**		ug/g ww	07/30/99	01/13/00
99485046		RM63RBT-F	**0.21**		ug/g ww	07/30/99	01/13/00
99485047		RM63RBT-F	**0.20**		ug/g ww	07/30/99	01/13/00
99485047	Matrix Spike		**109%**			07/30/99	01/13/00
99485047	Matrix Spike		**108%**			07/30/99	01/13/00
99485048		RM63RBT-F	**0.025**		ug/g ww	07/30/99	01/13/00
99485049		RM63RBT-F	**0.038**		ug/g ww	07/30/99	01/13/00
99485050		RM63MWF-F	**0.065**		ug/g ww	07/30/99	01/13/00
99485051		RM63MWF-F	0.02	U	ug/g ww	07/30/99	01/13/00
99485052		RM63MWF-F	**0.037**		ug/g ww	07/30/99	01/13/00
99485053		RM63MWF-F	0.02	U	ug/g ww	07/30/99	01/13/00
99485054		RM63MWF-F	**0.036**		ug/g ww	07/30/99	01/13/00
99485055		RM63MWF-W	**0.56**		ug/g ww	07/30/99	01/13/00
99485056		RM63LSS-F	**0.059**		ug/g ww	07/30/99	01/13/00
99485057		RM63LSS-F	**0.068**		ug/g ww	07/30/99	01/13/00
99485058		RM63LSS-F	0.02	U	ug/g ww	07/30/99	01/13/00
99485059		RM63LSS-F	**0.09**		ug/g ww	07/30/99	01/13/00
99485060		RM63LSS-F	**0.046**		ug/g ww	07/30/99	01/13/00
99485061		RM63LSS-W	**1.80**		ug/g ww	07/30/99	01/13/00
99485062		RM85CRY-W	**1.34**		ug/g ww	10/14/99	01/13/00
99485063		RM76CRY-W	**0.89**		ug/g ww	10/14/99	01/13/00
99485064		RM62CRY-W	0.34		ug/g ww	10/14/99	01/13/00
M0006BB1			0.02	U	ug/g ww		01/13/00
M0006BL1			**0.081**		ug/g ww		01/13/00
M0007BB1			0.02	U	ug/g ww		01/13/00
M0007BL1			**0.055**		ug/g ww		01/13/00
M0011BB1			0.2	U	ug/g ww		01/13/00

Authorized By:  Release Date: 2/9/00

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Lead

Project Name: Spokane River Fish – 48 **LIMS Project ID:** 1022-00

Project Officer: Art Johnson
Date Reported: 09-FEB-00
Method: EPA200.8
Matrix: Tissue
Analyte: Lead

Sample	QC	Field ID	Result	Qualifier	Units	Collected	Analyzed
M0011BL1			**0.046**		ug/g ww		01/13/00

Authorized By: Release Date: 2/9/00