

Appendix B-2

Field Data and Chemical Analyses of  
Stream Sediment Samples Collected from Outcrop Areas of  
the Fox Hills Sandstone, the Inyan Kara Group,  
Tertiary Sedimentary Units, and the Mule Creek Area,  
Newcastle Quadrangle

Compiled by

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## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE

sample	latitude	longitude	LAB. NO.	STATE/CITY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
-----FOX HILLS SANDSTONE-----											
MCZ025	43 4 36	104 40 45	1,099	56,027	781,005	10	20	14	2	21	22
MCZ026	43 4 38	104 39 50	1,081	56,027	781,005	10	20	14	2	22	36
MCZ030	43 4 36	104 36 24	1,100	56,027	781,005	10	20	14	2	21	22
MCZ061	43 9 52	104 26 44	1,164	56,027	781,016	10	20	14	2	22	36
MCZ062	43 42 25	104 22 48	1,138	56,045	781,009	10	20	14	2	22	36
MCZ063	43 37 29	104 23 17	1,152	56,045	781,010	10	20	14	2	22	36
MCZ064	43 39 15	104 24 42	1,123	56,045	781,010	10	20	14	4	20	21
MCZ065	43 39 28	104 25 32	1,146	56,045	781,010	10	20	14	2	22	36
MCZ066	43 39 9	104 25 29	1,115	56,045	781,010	10	20	14	2	22	36
MCZ067	43 39 5	104 25 24	1,148	56,045	781,010	10	20	14	2	22	36
MCZ068	43 43 7	104 23 54	1,116	56,045	781,010	10	20	14	2	22	36
MCZ069	43 41 16	104 25 54	1,121	56,045	781,010	10	20	14	3	20	22
MCZ070	43 39 48	104 23 50	1,139	56,045	781,010	10	20	14	2	22	36
MCZ071	43 40 27	104 23 10	1,125	56,045	781,010	10	20	14	2	22	36
MCZ072	43 42 4	104 28 44	1,151	56,045	781,011	10	20	14	2	22	36
MCZ073	43 42 14	104 27 28	1,150	56,045	781,011	10	20	14	2	22	36
MCZ074	43 42 49	104 26 29	1,128	56,045	781,011	10	20	14	2	22	36
MCZ075	43 44 0	104 27 39	1,131	56,045	781,011	10	20	14	2	22	36
MCZ076	43 46 59	104 25 48	1,118	56,045	781,012	10	20	14	2	20	22
MCZ077	43 45 7	104 25 55	1,127	56,045	781,012	1	20	14	2	22	36
MCZ078	43 45 7	104 25 55	1,130	56,045	781,012	1	20	14	2	22	36
MCZ079	43 45 27	104 26 30	1,147	56,045	781,012	10	20	14	2	22	36
MCZ080	43 45 12	104 27 58	1,140	56,045	781,012	10	20	14	2	22	36
MCZ081	43 48 9	104 28 40	1,120	56,045	781,012	10	20	14	4	20	22
MCZ082	43 48 11	104 26 40	1,129	56,045	781,012	10	20	14	2	22	36
MCZ083	43 47 31	104 26 11	1,143	56,045	781,012	1	20	14	2	22	36
MCZ084	43 47 31	104 26 11	1,141	56,045	781,012	1	20	14	2	22	36
MCZ085	43 47 31	104 24 39	1,126	56,045	781,012	10	20	14	2	20	36
MCZ086	43 48 31	104 28 36	1,134	56,045	781,013	10	20	14	2	20	22
MCZ087	43 49 5	104 27 54	1,137	56,045	781,013	10	20	14	2	22	36
MCZ088	43 52 4	104 28 32	1,117	56,045	781,013	10	20	14	2	22	36
MCZ089	43 52 0	104 27 13	1,153	56,045	781,013	10	20	14	2	22	36
MCZ090	43 51 51	104 27 6	1,149	56,045	781,013	10	20	14	2	22	36
MCZ091	43 50 41	104 26 11	1,114	56,045	781,013	10	20	14	2	20	36
MCZ092	43 49 55	104 24 50	1,144	56,045	781,013	10	20	14	2	22	36
MCZ093	43 49 16	104 24 30	1,119	56,045	781,013	10	20	14	3	20	22
MCZ094	43 48 26	104 23 21	1,133	56,045	781,012	10	20	14	2	22	36
MCZ095	43 45 46	104 22 59	1,136	56,045	781,013	10	20	14	2	22	36
MCZ105	43 6 29	104 22 52	1,192	56,027	781,016	10	20	14	2	22	36
MCZ109	43 9 7	104 27 50	1,221	56,027	781,016	10	20	14	2	22	36

## APPENDIX 4-2: FIELD DATA AND CHEMICAL ANALYSES STREAM SEDIMENT SAMPLES, NEWCASTLE

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR WDTH	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
-----FOX HILLS SANDSTONE-----											
MCZ025	4,400	3	1	6	6	7	6	1	37	1	3
MCZ026	4,320	2	1	6	6	3	6	1	37	1	1
MCZ030	4,280	3	1	6	6	2	6	1	37	1	3
MCZ061	4,170	3	1	8	6	8	6	1	37	3	4
MCZ062	3,804	3	1	6	6	7	6	1	37	3	4
MCZ063	4,123	1	1	6	6	8	6	1	37	3	4
MCZ064	4,052	3	1	6	6	4	6	1	37	1	3
MCZ065	4,150	3	1	8	6	6	6	1	37	3	4
MCZ066	8,054	2	1	6	6	8	6	1	37	1	4
MCZ067	4,040	3	1	8	6	4	6	1	37	3	4
MCZ068	4,058	2	1	8	6	5	6	1	37	1	4
MCZ069	4,050	3	1	6	6	5	6	1	37	1	3
MCZ070	3,870	3	1	6	6	2	6	1	37	3	4
MCZ071	4,030	3	1	8	6	8	6	1	37	3	3
MCZ072	4,052	3	1	6	6	3	6	1	37	3	4
MCZ073	3,940	3	1	6	6	4	6	1	37	3	4
MCZ074	3,991	3	1	6	6	7	6	1	37	3	3
MCZ075	4,012	3	1	6	6	7	6	1	37	3	3
MCZ076	3,995	3	1	6	6	3	6	1	37	1	3
MCZ077	4,150	3	1	6	6	7	6	1	37	3	3
MCZ078	4,150	3	1	6	6	7	6	1	37	3	3
MCZ079	4,082	3	1	8	6	2	6	1	37	3	4
MCZ080	4,066	3	1	6	6	6	6	1	37	3	4
MCZ081	4,040	3	1	6	6	4	6	1	37	1	3
MCZ082	3,965	3	1	8	6	7	6	1	37	3	3
MCZ083	3,975	3	1	6	6	2	6	1	37	3	3
MCZ084	3,975	3	1	6	6	2	6	1	37	3	3
MCZ085	3,967	3	1	6	6	3	6	1	37	3	3
MCZ086	4,028	3	1	6	6	7	6	1	37	1	3
MCZ087	4,035	3	1	6	6	8	6	1	37	3	3
MCZ088	4,027	3	1	8	6	5	6	1	37	1	4
MCZ089	3,945	2	1	6	6	6	6	1	37	3	4
MCZ090	3,950	3	1	8	6	8	6	1	37	3	4
MCZ091	3,968	2	1	6	6	7	6	1	37	1	3
MCZ092	3,918	3	1	6	6	7	6	1	37	3	4
MCZ093	3,950	3	1	6	6	8	6	1	37	1	3
MCZ094	3,925	3	1	6	6	6	6	1	37	3	3
MCZ095	4,920	3	1	6	6	5	6	1	37	3	3
MCZ105	4,266	2	1	6	6	7	6	1	37	3	4
MCZ109	4,055	2	1	6	6	4	6	1	37	3	4

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE

sample	VEG DENS	CONTANN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
-----FOX HILLS SANDSTONE-----											
MCZ025	3	9	1	--	100	3.1	1	N	4	1.5	.50
MCZ026	3	9	1	--	90	4.7	1	N	7	2.0	.70
MCZ030	2	3	1	--	95	4.4	3	N	5	1.5	.50
MCZ051	3	3	1	--	84	2.6	<1	N	7	1.5	1.00
MCZ062	2	3	1	--	66	1.6	1	N	6	1.5	.70
MCZ063	2	3	1	--	98	6.4	<1	N	7	2.0	.50
MCZ064	2	3	1	--	105	6.4	1	N	5	1.5	.50
MCZ065	5	3	1	--	105	6.1	1	N	7	2.0	.70
MCZ066	4	1	1	--	110	4.8	1	N	6	1.5	.50
MCZ067	5	3	1	--	105	5.6	2	N	7	2.0	.70
MCZ068	5	3	1	--	84	4.7	<1	N	6	3.0	.70
MCZ069	3	3	1	--	82	7.6	<1	N	6	2.0	.50
MCZ070	2	3	1	--	84	1.9	<1	N	6	1.5	1.00
MCZ071	2	3	1	--	75	1.4	<1	N	6	1.5	.70
MCZ072	3	3	1	--	72	7.6	2	N	7	3.0	.70
MCZ073	2	3	1	--	70	8.8	2	N	7	2.0	.70
MCZ074	2	3	1	--	74	5.4	<1	N	5	2.0	.70
MCZ075	2	3	1	--	78	4.2	1	N	6	1.5	.50
MCZ076	2	3	1	--	96	3.1	<1	N	6	1.5	1.00
MCZ077	2	3	1	--	92	2.6	<1	N	6	1.5	.70
MCZ078	2	3	1	--	92	3.2	<1	N	6	2.0	.70
MCZ079	5	3	1	--	115	4.0	1	N	7	1.5	.70
MCZ080	2	3	1	--	96	3.1	1	N	6	2.0	.70
MCZ081	2	3	1	--	92	5.9	<1	N	6	2.0	1.00
MCZ082	2	3	1	--	86	4.0	<1	N	7	3.0	1.00
MCZ083	2	3	1	--	82	1.8	1	N	7	1.5	1.00
MCZ084	2	3	1	--	82	1.6	1	N	7	2.0	1.00
MCZ085	2	3	1	--	115	4.1	1	N	6	2.0	.70
MCZ086	2	3	1	--	70	3.0	1	N	6	2.0	1.00
MCZ087	2	3	1	--	92	5.6	<1	N	7	3.0	1.00
MCZ088	3	3	1	--	88	4.0	<1	N	6	2.0	.70
MCZ089	2	3	1	--	110	4.1	<1	N	7	3.0	1.00
MCZ090	4	3	1	--	82	3.8	<1	N	7	2.0	1.00
MCZ091	2	1	1	--	84	4.7	<1	N	7	2.0	.70
MCZ092	2	3	1	--	98	3.3	<1	N	7	2.0	1.00
MCZ093	2	3	1	--	81	5.8	<1	N	6	2.0	.70
MCZ094	2	3	1	--	86	5.0	1	N	7	3.0	.70
MCZ095	2	3	1	--	100	8.6	<1	N	5	1.5	.70
MCZ105	4	3	1	--	98	5.4	<1	N	7	3.0	2.00
MCZ109	4	3	1	--	82	4.3	1	N	7	1.5	.50

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE

sample	CA %	NA %	TI %	MN PPM	AG PPH	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
-----FOX HILLS SANDSTONE-----										
MC2025	.70	.7	.30	200	<.5	N	N	10	700	10
MC2026	1.50	1.0	.30	300	<.5	N	N	10	700	15
MC2030	2.00	1.0	.20	200	<.5	N	N	10	700	10
MC2061	2.00	2.0	.30	100	<.5	N	N	10	700	10
MC2062	2.00	3.0	.50	200	<.5	N	N	10	1,000	15
MC2063	.70	2.0	.50	300	<.5	N	N	10	700	15
MC2064	.70	1.0	.20	200	N	N	N	20	700	15
MC2065	1.50	1.5	.30	500	.5	N	N	20	1,000	15
MC2066	.70	1.0	.30	300	<.5	N	N	20	700	15
MC2067	.70	1.5	.30	100	.5	N	N	20	700	10
MC2068	2.00	1.5	.30	200	N	N	N	20	700	15
MC2069	.70	1.5	.20	100	<.5	N	N	20	700	15
MC2070	3.00	1.0	.30	300	<.5	N	N	10	700	10
MC2071	3.00	1.5	.30	300	N	N	N	10	700	15
MC2072	1.00	2.0	.50	200	.5	N	N	20	700	15
MC2073	1.50	1.0	.30	200	<.5	N	N	20	700	15
MC2074	1.50	1.5	.20	300	<.5	N	N	10	700	15
MC2075	.70	1.5	.30	200	<.5	N	N	10	700	15
MC2076	3.00	1.5	.30	300	<.5	N	N	20	700	15
MC2077	2.00	1.5	.20	300	<.5	N	N	10	700	10
MC2078	2.00	1.5	.30	300	<.5	N	N	10	700	10
MC2079	.70	1.0	.30	100	.5	N	N	10	1,000	10
MC2080	.10	1.5	.30	200	<.5	N	N	10	700	15
MC2081	2.00	1.5	.30	300	<.5	N	N	50	700	15
MC2082	3.00	2.0	.20	300	<.5	N	N	20	1,000	10
MC2083	2.00	2.0	.50	200	.5	N	N	10	700	10
MC2084	3.00	2.0	.30	200	<.5	N	N	10	700	10
MC2085	.70	2.0	.30	100	N	N	N	10	700	10
MC2086	3.00	2.0	.20	300	N	N	N	10	1,000	7
MC2087	1.00	1.5	.50	300	<.5	N	N	10	700	15
MC2088	2.00	1.0	.30	300	N	N	N	20	700	15
MC2089	2.00	2.0	.50	200	N	N	N	20	1,000	15
MC2090	2.00	2.0	.30	100	<.5	N	N	20	1,000	10
MC2091	2.00	1.5	.20	200	N	N	N	20	700	15
MC2092	1.50	2.0	.50	100	.5	N	N	20	1,000	10
MC2093	2.00	1.5	.30	200	<.5	N	N	20	700	15
MC2094	1.00	2.0	.30	300	N	N	N	20	700	10
MC2095	.70	2.0	.20	500	<.5	N	N	10	700	15
MC2105	1.50	3.0	.30	100	<.5	N	N	20	1,000	10
MC2109	.70	1.0	.30	200	N	N	N	10	700	15

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
-----FOX HILLS SANDSTONE-----										
MCZ025	N	N	10	50	15	100	N	N	10	20
MCZ026	N	N	10	70	20	100	N	N	10	30
MCZ030	N	N	10	50	15	100	N	N	10	15
MCZ061	N	N	5	100	10	100	N	N	10	10
MCZ062	N	N	10	70	15	100	N	N	10	20
MCZ063	N	N	10	70	30	100	N	N	10	20
MCZ064	N	N	10	50	20	100	N	N	10	20
MCZ065	N	N	15	70	30	100	N	N	10	20
MCZ066	N	N	10	50	20	100	N	N	10	15
MCZ067	N	N	10	100	30	100	N	N	10	30
MCZ068	N	N	15	100	20	100	N	N	10	30
MCZ069	N	N	10	50	30	100	N	N	10	20
MCZ070	N	N	10	30	15	100	N	N	10	15
MCZ071	N	N	10	70	15	100	N	N	10	15
MCZ072	N	N	15	100	30	100	N	N	10	30
MCZ073	N	N	10	100	30	100	N	N	10	15
MCZ074	N	N	10	50	30	100	N	N	10	20
MCZ075	N	N	10	70	15	100	N	N	10	15
MCZ076	N	N	5	50	15	100	N	N	10	10
MCZ077	N	N	10	70	15	100	N	N	10	15
MCZ078	N	N	10	50	20	100	N	N	10	20
MCZ079	N	N	10	70	20	100	N	N	20	15
MCZ080	N	N	10	50	20	100	N	N	20	20
MCZ081	N	N	15	50	30	100	N	N	20	30
MCZ082	N	N	10	10	15	100	N	N	10	30
MCZ083	N	N	10	70	15	100	N	N	20	10
MCZ084	N	N	10	50	15	100	N	N	20	15
MCZ085	N	N	10	70	20	50	N	N	10	30
MCZ086	N	N	10	70	15	100	N	N	20	15
MCZ087	N	N	10	50	30	100	N	N	30	30
MCZ088	N	N	10	50	15	100	N	N	10	15
MCZ089	N	N	15	100	30	100	N	N	10	30
MCZ090	N	N	10	70	20	100	N	N	10	20
MCZ091	N	N	10	100	30	100	N	N	10	20
MCZ092	N	N	15	100	20	100	N	N	10	30
MCZ093	N	N	10	70	20	100	N	N	10	20
MCZ094	N	N	15	70	20	100	N	N	20	30
MCZ095	N	N	10	50	20	100	N	N	10	15
MCZ105	N	N	15	150	30	100	N	N	10	50
MCZ109	N	N	10	50	15	100	N	N	10	15

APPENDIX D-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE

sample	Pb PPM	Sb PPM	Sc PPM	Sn PPM	Sr PPM	V PPM	W PPM	Y PPM	Zn PPM	Zr PPM
-----FOX HILLS SANDSTONE-----										
MCZ025	30	N	10	N	100	50	N	20	N	300
MCZ026	70	N	15	N	100	30	N	20	N	500
MCZ030	20	N	10	N	300	30	N	10	N	300
MCZ061	30	N	15	N	300	20	N	10	N	700
MCZ062	50	N	15	N	300	20	N	20	N	300
MCZ063	50	N	15	N	100	30	N	50	N	700
MCZ064	30	N	15	N	100	30	N	20	N	200
MCZ065	50	N	15	15	500	30	N	150	N	1,000
MCZ066	30	N	15	N	200	30	N	50	N	300
MCZ067	50	N	15	10	200	30	N	20	N	200
MCZ068	50	N	20	N	200	50	N	20	N	200
MCZ069	50	N	15	N	200	30	N	50	N	300
MCZ070	50	N	15	N	300	20	N	50	N	700
MCZ071	30	N	10	N	300	15	N	20	N	200
MCZ072	50	N	20	70	300	30	N	20	N	300
MCZ073	50	N	20	100	500	50	N	20	N	200
MCZ074	50	N	10	N	300	20	N	50	N	200
MCZ075	50	N	15	N	300	20	N	50	N	300
MCZ076	50	N	10	N	200	30	N	20	N	300
MCZ077	30	N	10	N	200	20	N	10	N	300
MCZ078	50	N	15	N	300	20	N	20	N	300
MCZ079	50	N	15	N	100	30	N	50	N	1,000
MCZ080	50	N	15	N	200	30	N	50	N	700
MCZ081	50	N	20	N	500	50	N	50	<200	200
MCZ082	50	N	10	N	300	20	N	20	N	200
MCZ083	30	N	15	N	100	30	N	70	N	>1,000
MCZ084	50	N	10	N	300	20	N	20	N	300
MCZ085	50	N	15	N	300	30	N	20	N	200
MCZ086	50	N	10	20	300	15	N	20	N	300
MCZ087	50	N	20	N	200	30	N	50	N	700
MCZ088	30	N	15	N	200	30	N	20	N	200
MCZ089	50	N	15	N	500	50	N	50	N	700
MCZ090	50	N	15	N	200	30	N	70	N	700
MCZ091	30	N	15	<10	300	50	N	20	N	300
MCZ092	30	N	15	N	500	30	N	50	N	500
MCZ093	30	N	15	N	300	50	N	20	N	200
MCZ094	30	N	15	N	300	30	N	20	N	200
MCZ095	50	N	10	N	300	20	N	20	N	200
MCZ105	50	N	15	10	300	50	N	20	N	200
MCZ109	30	N	10	N	100	30	N	20	N	500

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	latitude	longitud	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MCZ110	43 10 1	104 27 43	1,186	56,027	781,016	10	20	14	2	22	36
MCZ111	43 10 40	104 27 50	1,239	56,027	781,016	10	20	14	2	22	21
MCZ112	43 11 9	104 26 50	1,224	56,027	781,016	10	20	14	2	20	22
MCZ113	43 11 38	104 25 52	1,258	56,027	781,016	10	20	14	2	22	21
MCZ114	43 11 59	104 26 44	1,167	56,027	781,017	10	20	14	2	22	36
MCZ115	43 13 22	104 25 15	1,203	56,027	781,017	10	20	14	2	22	36
MCZ116	43 12 25	104 21 48	1,229	56,027	781,017	10	20	14	2	22	36
MCZ117	43 13 18	104 21 56	1,219	56,027	781,018	10	20	14	2	20	22
MCZ118	43 15 36	104 23 10	1,255	56,027	781,018	10	20	14	2	22	21
MCZ119	43 15 55	104 24 39	1,243	56,027	781,018	10	20	14	2	22	21
MCZ120	43 14 12	104 23 36	1,231	56,027	781,018	10	20	14	2	20	22
MCZ121	43 15 9	104 22 25	1,191	56,027	781,018	10	20	14	2	22	36
MCZ122	43 19 20	104 21 22	1,207	56,027	781,018	10	20	14	2	22	36
MCZ123	43 18 32	104 19 32	1,170	56,027	781,019	10	20	14	2	22	36
MCZ124	43 15 49	104 19 7	1,185	56,027	781,019	10	20	14	2	22	36
MCZ125	43 16 11	104 21 8	1,230	56,027	781,019	10	20	14	2	22	36
MCZ133	43 21 51	104 15 47	1,172	56,027	781,018	10	20	14	2	20	22
MCZ134	43 21 29	104 18 44	1,213	56,027	781,018	10	20	14	2	22	36
MCZ135	43 21 27	104 19 25	1,162	56,027	781,018	10	20	14	2	20	22
MCZ136	43 20 26	104 15 32	1,165	56,027	781,018	10	20	14	2	22	36
MCZ137	43 18 17	104 17 43	1,253	56,027	781,018	10	20	14	2	22	21
MCZ138	43 18 26	104 17 43	1,215	56,027	781,018	10	20	14	3	20	21
MCZ139	43 18 57	104 15 55	1,199	56,027	781,018	10	20	14	2	20	22
MCZ140	43 18 54	104 16 13	1,174	56,027	781,018	10	20	14	2	20	22
MCZ141	43 20 16	104 16 43	1,259	56,027	781,018	10	20	14	2	22	21
MCZ142	43 19 20	104 18 37	1,214	56,027	781,018	10	20	14	2	20	22
MCZ143	43 15 46	104 17 36	1,223	56,027	781,018	10	20	14	2	20	22
MCZ190	43 5 18	104 37 59	1,233	56,027	781,016	10	20	14	2	22	36
MCZ193	43 5 5	104 32 24	1,228	56,027	781,016	10	20	14	2	20	36
MCZ194	43 5 6	104 30 44	1,205	56,027	781,016	10	20	14	2	22	36
MCZ195	43 7 15	104 30 54	1,179	56,027	781,016	10	20	14	2	22	36
MCZ196	43 7 9	104 30 51	1,171	56,027	781,016	10	20	14	2	22	36
MCZ197	43 8 25	104 30 3	1,166	56,027	781,016	10	20	14	2	22	36
MCZ198	43 10 25	104 30 36	1,240	56,027	781,016	10	20	14	2	21	22
MCZ199	43 9 42	104 30 44	1,227	56,027	781,016	10	20	14	2	22	36
MCZ200	43 8 40	104 20 50	1,195	56,027	781,017	10	20	14	2	20	22
MCZ201	43 9 53	104 20 13	1,225	56,027	781,017	10	20	14	2	20	22
MCZ202	43 14 39	104 18 52	1,182	56,027	781,017	10	20	14	2	20	22
MCZ203	43 9 36	104 18 24	1,232	56,027	781,017	10	20	14	2	20	22
MCZ204	43 10 49	104 15 55	1,251	56,027	781,017	10	20	14	2	22	36
MCZ205	43 12 12	104 15 25	1,204	56,027	781,018	10	20	14	2	20	22
MCZ206	43 13 29	104 16 17	1,247	56,027	781,018	10	20	14	2	22	36
MCZ231	43 59 16	104 36 43	9,072	56,045	790,910	10	20	14	3	20	37
MCZ232	43 59 13	104 36 11	9,091	56,045	790,910	10	20	14	2	36	37
MCZ233	43 59 12	104 34 44	9,085	56,045	790,910	10	20	14	2	36	37



## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STRIP SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR W0TH	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
MC2110	4.055	3	1	8	6	7	6	1	37	3	4
MC2111	4.065	3	1	6	6	5	6	1	37	3	3
MC2112	3.990	2	1	6	6	2	6	1	37	1	4
MC2113	3.975	3	1	6	6	7	6	1	37	1	3
MC2114	3.980	3	1	6	6	4	6	1	37	3	4
MC2115	3.950	2	1	8	6	8	6	1	37	3	4
MC2116	4.020	2	1	6	6	7	6	1	37	3	4
MC2117	3.940	2	1	6	6	5	6	1	37	1	4
MC2118	3.860	3	1	6	6	5	6	1	37	3	3
MC2119	3.860	3	1	6	6	8	6	1	37	3	3
MC2120	3.830	2	1	6	6	8	6	1	37	1	4
MC2121	3.840	2	1	6	6	8	6	1	37	3	4
MC2122	3.760	2	1	6	6	3	6	1	37	3	4
MC2123	3.820	2	1	6	6	8	6	1	37	3	4
MC2124	3.860	3	1	8	6	6	6	1	37	3	4
MC2125	3.870	1	1	6	6	8	6	1	37	3	4
MC2133	3.710	2	1	6	6	5	6	1	37	1	4
MC2134	3.720	2	1	6	6	4	6	1	37	3	4
MC2135	3.720	3	1	6	6	6	6	1	37	1	4
MC2136	3.800	2	1	6	6	8	6	1	37	3	4
MC2137	3.840	3	1	6	6	4	6	1	37	3	3
MC2138	3.820	2	1	6	2	6	1	2	2	1	4
MC2139	3.830	2	1	6	6	7	6	1	37	1	4
MC2140	3.840	3	1	6	6	4	6	1	37	1	4
MC2141	3.740	3	1	6	6	5	6	1	37	1	3
MC2142	3.760	2	1	6	6	5	6	1	37	1	4
MC2143	3.860	2	1	6	6	3	6	1	37	1	4
MC2190	4.290	2	1	6	6	8	6	1	37	3	4
MC2193	4.450	2	1	6	6	8	6	1	37	3	4
MC2194	4.360	2	1	6	6	8	6	1	37	3	4
MC2195	4.220	3	1	8	6	8	6	1	37	3	4
MC2196	4.280	3	1	6	6	8	6	1	37	3	4
MC2197	4.200	3	1	8	6	8	6	1	37	3	4
MC2198	4.200	3	1	6	6	8	6	1	37	3	3
MC2199	4.200	2	1	8	6	8	6	1	37	3	4
MC2200	4.070	2	1	1	6	6	6	1	37	1	4
MC2201	4.055	2	1	1	6	6	6	1	37	1	4
MC2202	3.820	3	1	6	6	4	6	1	37	1	4
MC2203	4.020	2	1	6	6	6	6	1	37	1	4
MC2204	4.000	3	1	6	6	5	6	1	37	3	3
MC2205	3.980	2	1	6	6	8	6	1	37	1	4
MC2206	3.910	3	1	6	6	8	6	1	37	3	3
MC2231	4.120	2	1	6	6	4	6	1	37	1	4
MC2232	4.220	2	1	6	6	4	6	1	37	1	4
MC2233	4.150	2	1	6	6	4	6	1	37	1	4

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG DENS	CONTAMN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MCZ110	4	3	1	--	76	3.8	1	N	7	2.0	.70
MCZ111	3	3	1	--	70	4.1	1	N	6	2.0	.70
MCZ112	3	3	1	--	75	2.6	1	N	5	2.0	.70
MCZ113	3	3	1	--	70	2.9	1	N	7	2.0	1.00
MCZ114	3	3	1	--	85	3.4	<1	N	7	2.0	.70
MCZ115	5	3	1	--	79	3.3	1	N	7	2.0	.70
MCZ116	3	3	1	--	74	1.7	<1	N	5	2.0	1.00
MCZ117	3	3	1	--	84	1.8	1	N	7	2.0	1.00
MCZ118	3	3	1	--	96	5.0	1	N	7	2.0	.70
MCZ119	3	1	1	--	90	3.0	1	N	6	2.0	.70
MCZ120	3	3	1	--	90	2.1	<1	N	6	2.0	1.00
MCZ121	3	3	1	--	80	2.4	<1	N	7	2.0	1.00
MCZ122	4	3	1	--	80	1.6	1	N	6	1.5	.70
MCZ123	4	3	1	--	90	3.5	<1	N	7	2.0	.50
MCZ124	4	3	1	--	100	9.7	1	N	7	3.0	1.00
MCZ125	2	3	1	--	90	3.6	1	N	5	1.5	.70
MCZ133	3	3	1	--	120	4.6	<1	N	7	3.0	.70
MCZ134	4	3	1	--	116	3.6	2	N	7	1.5	.50
MCZ135	2	3	1	--	120	1.5	2	N	6	1.5	.50
MCZ136	3	9	1	--	--	8.8	<1	N	7	3.0	1.00
MCZ137	3	3	1	--	120	2.3	<1	N	6	2.0	.70
MCZ138	3	3	1	--	100	2.9	1	N	7	2.0	.70
MCZ139	4	3	1	--	120	4.2	<1	N	7	3.0	1.00
MCZ140	3	3	1	--	110	2.5	<1	N	7	2.0	.70
MCZ141	3	3	1	--	116	4.0	<1	N	7	2.0	.70
MCZ142	4	9	1	--	120	3.5	1	N	7	2.0	.70
MCZ143	4	3	1	--	120	3.8	<1	N	7	2.0	.70
MCZ190	3	3	1	--	90	3.4	2	N	6	1.5	.70
MCZ193	3	3	1	--	90	4.9	2	N	5	1.5	.70
MCZ194	3	3	1	--	85	4.0	1	N	7	2.0	.70
MCZ195	5	3	1	--	80	4.8	<1	N	6	2.0	.50
MCZ196	4	3	1	--	80	3.4	1	N	7	2.0	.70
MCZ197	4	3	1	--	80	3.8	<1	N	7	2.0	1.00
MCZ198	3	3	1	--	70	2.5	1	N	6	2.0	.70
MCZ199	4	3	1	--	80	3.7	<1	N	5	2.0	.70
MCZ200	2	3	1	--	100	4.4	2	N	7	3.0	1.00
MCZ201	3	9	1	--	100	4.6	<1	N	6	2.0	.70
MCZ202	3	1	1	--	95	7.7	2	N	5	2.0	.70
MCZ203	3	1	1	--	95	12.6	2	N	6	1.5	.50
MCZ204	3	3	1	--	130	6.7	2	N	6	3.0	.50
MCZ205	3	9	1	--	90	3.5	1	N	7	2.0	.70
MCZ206	3	1	1	--	80	4.0	1	N	6	2.0	.70
MCZ231	3	3	2	--	50	5.3	1	N	3	.7	.10
MCZ232	3	9	2	--	51	4.7	1	N	6	3.0	1.00
MCZ233	3	9	3	--	54	3.6	1	N	5	1.5	.70

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MC2110	1.00	1.5	.30	200	.5	N	N	10	700	10
MC2111	3.00	1.0	.30	500	N	N	N	20	700	15
MC2112	2.00	1.5	.30	200	N	N	N	20	700	15
MC2113	2.00	1.5	.30	300	N	N	N	20	700	15
MC2114	1.50	1.5	.20	100	<.5	N	N	10	700	7
MC2115	2.00	1.5	.30	200	<.5	N	N	20	700	15
MC2116	3.00	2.0	.30	200	N	N	N	20	700	15
MC2117	5.00	2.0	.50	200	N	N	N	10	700	15
MC2118	1.50	1.5	.50	200	<.5	N	N	20	700	15
MC2119	1.50	1.5	.50	200	.5	N	N	10	700	15
MC2120	3.00	1.5	.50	200	<.5	N	N	10	700	15
MC2121	3.00	2.0	.30	200	N	N	N	20	1,000	7
MC2122	1.50	1.5	.20	200	<.5	N	N	10	1,000	15
MC2123	2.00	1.0	.30	200	<.5	N	N	N	700	10
MC2124	1.50	1.0	.20	200	.5	N	N	20	700	10
MC2125	2.00	1.0	.30	300	N	N	N	10	700	15
MC2133	.70	1.5	.30	200	<.5	N	N	20	1,000	15
MC2134	1.00	1.0	.30	200	<.5	N	N	10	700	15
MC2135	1.50	1.5	.70	200	<.5	N	N	10	700	10
MC2136	1.50	2.0	.30	200	<.5	N	N	20	1,000	10
MC2137	2.00	1.5	.30	300	N	N	N	10	700	10
MC2138	2.00	2.0	.30	300	N	N	N	10	700	15
MC2139	2.00	2.0	.30	200	<.5	N	N	20	1,500	15
MC2140	2.00	2.0	.30	100	<.5	N	N	20	1,000	15
MC2141	2.00	1.5	.30	200	N	N	N	20	700	15
MC2142	2.00	1.0	.30	300	<.5	N	N	10	700	15
MC2143	2.00	1.5	.30	500	N	N	N	20	700	15
MC2190	2.00	2.0	.30	200	<.5	N	N	10	700	15
MC2193	2.00	1.0	.30	200	N	N	N	10	700	15
MC2194	2.00	1.5	.30	200	<.5	N	N	20	1,000	15
MC2195	2.00	1.0	.30	200	.5	N	N	20	1,000	10
MC2196	2.00	1.5	.50	200	<.5	N	N	<.5	700	15
MC2197	2.00	1.5	.30	300	<.5	N	N	20	1,000	15
MC2198	2.00	1.0	.30	200	N	N	N	10	700	15
MC2199	1.50	1.0	.30	200	N	N	N	10	700	15
MC2200	1.50	3.0	.30	100	<.5	N	N	20	1,000	7
MC2201	1.50	1.5	.30	100	<.5	N	N	20	700	15
MC2202	3.00	1.0	.20	200	<.5	N	N	10	700	10
MC2203	5.00	.7	.30	100	N	N	N	20	500	15
MC2204	3.00	1.0	.50	300	<.5	N	N	20	700	15
MC2205	5.00	1.0	.30	100	<.5	N	N	20	700	10
MC2206	10.00	1.0	.30	100	N	N	N	10	700	10
MC2231	.15	1.0	.20	500	N	N	N	30	200	5
MC2232	2.00	1.5	.30	500	N	N	N	20	700	2
MC2233	.70	1.5	.20	300	N	N	N	20	700	1

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MCZ110	N	N	10	70	20	100	N	N	20	15
MCZ111	N	N	15	70	20	100	N	N	10	30
MCZ112	N	N	5	100	7	100	N	N	10	10
MCZ113	N	N	10	70	20	100	N	N	20	20
MCZ114	N	N	10	100	15	100	N	N	10	15
MCZ115	N	N	10	100	20	100	N	N	20	20
MCZ116	N	N	10	70	10	100	N	N	10	20
MCZ117	N	N	10	150	10	100	N	N	10	20
MCZ118	N	N	10	70	20	100	N	N	20	30
MCZ119	N	N	10	50	20	100	N	N	10	20
MCZ120	N	N	10	50	10	100	N	N	10	15
MCZ121	N	N	10	100	15	100	N	N	10	20
MCZ122	N	N	10	30	15	50	N	N	10	15
MCZ123	N	N	10	70	20	100	N	N	10	15
MCZ124	N	N	15	100	30	100	N	N	10	30
MCZ125	N	N	10	30	20	100	N	N	10	15
MCZ133	N	N	15	150	30	100	N	N	10	30
MCZ134	N	N	5	50	15	100	N	N	10	15
MCZ135	N	N	5	70	15	100	N	N	10	<5
MCZ136	N	N	10	100	30	100	N	N	10	20
MCZ137	N	N	10	50	15	100	N	N	20	20
MCZ138	N	N	15	100	20	100	N	N	10	30
MCZ139	N	N	15	150	30	100	N	N	20	50
MCZ140	N	N	10	70	20	100	N	N	20	20
MCZ141	N	N	10	50	15	100	N	N	10	20
MCZ142	N	N	10	70	20	100	N	N	10	20
MCZ143	N	N	10	70	20	100	N	N	10	20
MCZ190	N	N	10	50	20	100	N	N	10	20
MCZ193	N	N	10	50	20	100	N	N	10	20
MCZ194	N	N	10	70	20	100	N	N	20	30
MCZ195	N	N	10	70	20	100	N	N	20	20
MCZ196	N	N	10	100	20	100	N	N	20	20
MCZ197	N	N	10	100	20	100	N	N	20	20
MCZ198	N	N	10	50	20	100	N	N	10	15
MCZ199	N	N	10	50	20	100	N	N	10	20
MCZ200	N	N	15	150	20	100	N	N	10	30
MCZ201	N	N	10	70	15	100	N	N	10	20
MCZ202	N	N	10	70	30	100	N	N	20	20
MCZ203	N	N	5	30	20	100	N	N	10	15
MCZ204	N	N	10	70	30	100	N	N	20	50
MCZ205	N	N	10	100	20	100	N	N	20	30
MCZ206	N	N	5	50	20	50	N	N	10	20
MCZ231	N	N	N	15	20	50	N	N	<10	7
MCZ232	N	N	5	50	15	50	N	N	N	20
MCZ233	N	N	5	30	15	50	N	N	N	10

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SU PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MCZ110	50	N	15	N	100	20	N	20	N	700
MCZ111	30	N	15	N	500	50	N	20	N	300
MCZ112	30	N	10	N	300	20	N	20	N	300
MCZ113	30	N	15	N	300	50	N	20	N	500
MCZ114	50	N	10	N	100	20	N	50	N	1,000
MCZ115	50	N	15	N	200	30	N	70	N	700
MCZ116	30	N	10	<10	500	30	N	20	N	200
MCZ117	30	N	15	N	300	30	N	20	N	300
MCZ118	50	N	15	N	300	30	N	50	N	500
MCZ119	50	N	10	N	300	30	N	20	N	200
MCZ120	30	N	10	N	200	20	N	20	N	500
MCZ121	50	N	10	N	300	30	N	0	N	1,000
MCZ122	50	N	5	N	300	20	N	10	N	200
MCZ123	50	N	10	N	200	20	N	20	N	>1,000
MCZ124	50	N	20	<10	100	30	N	20	<200	100
MCZ125	30	N	10	N	200	30	N	20	N	200
MCZ133	50	N	20	10	300	50	N	20	N	300
MCZ134	20	N	10	N	100	20	N	20	N	700
MCZ135	50	N	15	N	100	30	N	50	N	>1,000
MCZ136	50	N	15	<10	300	50	N	20	N	300
MCZ137	30	N	10	N	300	30	N	20	N	200
MCZ138	30	N	15	N	300	30	N	70	N	700
MCZ139	50	N	20	N	500	30	N	70	N	700
MCZ140	50	N	15	N	300	30	N	20	N	500
MCZ141	30	N	10	N	300	50	N	10	N	300
MCZ142	30	N	15	50	300	30	N	20	N	300
MCZ143	30	N	15	<10	300	30	N	20	N	200
MCZ190	30	N	10	N	200	30	N	20	N	300
MCZ193	30	N	10	N	200	30	N	50	N	200
MCZ194	50	N	15	N	300	30	N	50	N	700
MCZ195	50	N	15	N	200	30	N	50	N	300
MCZ196	50	N	15	N	200	30	N	50	N	700
MCZ197	50	N	15	N	300	30	N	50	N	>1,000
MCZ198	30	N	10	N	300	30	N	20	N	300
MCZ199	30	N	10	N	200	20	N	10	N	200
MCZ200	50	N	15	N	300	30	N	50	N	500
MCZ201	30	N	15	N	300	30	N	10	N	200
MCZ202	50	N	15	10	500	30	N	20	N	200
MCZ203	20	N	15	N	700	30	N	20	N	70
MCZ204	50	N	20	N	500	100	N	50	N	300
MCZ205	50	N	15	N	300	30	N	20	N	500
MCZ206	30	N	10	N	700	20	N	10	N	200
MCZ231	20	N	N	N	200	30	N	10	<200	100
MCZ232	20	N	10	N	100	100	N	30	N	700
MCZ233	10	N	10	N	100	70	N	10	N	200

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	latitude	longitude	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MCZ234	43 59 40	104 36 6	9,074	56,045	790,910	10	20	14	4	21	37
MCZ235	43 57 36	104 36 54	9,088	56,045	790,910	10	20	14	4	37	37
MCZ236	43 56 20	104 35 50	9,082	56,045	790,910	10	20	14	5	37	37
MCZ237	43 58 20	104 33 57	9,094	56,045	790,910	10	20	14	4	37	37
MCZ238	43 58 53	104 32 52	9,075	56,045	790,910	10	20	14	4	37	37
MCZ239	43 56 37	104 32 6	9,083	56,045	790,910	10	20	14	4	37	37
MCZ240	43 55 49	104 31 17	9,077	56,045	790,910	10	20	14	2	36	37
MCZ241	43 54 42	104 32 32	9,096	56,045	790,910	10	20	14	2	36	37
MCZ242	43 55 15	104 34 47	9,084	56,045	790,910	10	20	14	5	37	37
MCZ243	43 54 48	104 34 55	9,099	56,045	790,910	1	20	14	2	37	37
MCZ244	43 54 48	104 34 55	9,078	56,045	790,910	1	20	14	2	37	37
MCZ245	43 54 22	104 34 36	9,098	56,045	790,910	10	20	14	2	37	37
MCZ246	43 54 5	104 31 6	9,089	56,045	790,910	10	20	14	2	36	37
MCZ247	43 53 54	104 31 24	9,079	56,045	790,910	10	20	14	2	36	37
MCZ248	43 53 27	104 30 25	9,086	56,045	790,911	10	20	14	3	37	37
MCZ249	43 53 29	104 29 52	9,090	56,045	790,911	10	20	14	3	22	37
MCZ250	43 52 41	104 28 44	9,095	56,045	790,911	10	20	14	3	37	37
MCZ251	43 52 50	104 29 24	9,076	56,045	790,911	10	20	14	3	37	37
MCZ252	43 53 52	104 33 37	9,081	56,045	790,911	10	20	14	2	37	37
MCZ253	43 51 27	104 33 6	9,071	56,045	790,911	10	20	14	4	37	37
MCZ254	43 49 42	104 30 33	9,087	56,045	790,912	10	20	14	2	36	37
MCZ255	43 50 38	104 31 58	9,097	56,045	790,912	10	20	14	2	37	37
MCZ256	43 50 38	104 31 39	9,073	56,045	790,912	10	20	14	3	20	37
MCZ257	43 51 16	104 30 0	9,092	56,045	790,912	10	20	14	3	36	37
MCZ285	43 37 38	104 21 18	9,212	56,045	791,008	10	20	14	3	37	37
MCZ286	43 39 9	104 20 43	9,213	56,045	791,008	10	20	14	3	37	37
MCZ287	43 39 37	104 21 7	9,172	56,045	791,008	10	20	14	3	37	37
MCZ288	43 39 52	104 21 2	9,217	56,045	791,008	10	20	14	3	37	37
MCZ289	43 38 36	104 19 21	9,180	56,045	791,008	10	20	14	3	37	37
MCZ290	43 38 5	104 18 59	9,187	56,045	791,008	10	20	14	3	37	37
MCZ291	43 38 5	104 17 55	9,202	56,045	791,009	10	20	14	3	37	37
MCZ292	43 35 44	104 18 48	9,165	56,045	791,009	10	20	14	3	37	37
MCZ293	43 34 27	104 16 28	9,193	56,045	791,009	10	20	14	3	37	37
MCZ294	43 36 51	104 20 28	9,191	56,045	791,009	10	20	14	3	37	37
MCZ295	43 36 42	104 22 0	9,215	56,045	791,009	10	20	14	3	37	37
MCZ296	43 36 7	104 25 52	9,168	56,045	791,009	10	20	14	3	37	37
MCZ297	43 36 7	104 25 21	9,198	56,045	791,009	10	20	14	3	37	37
MCZ298	43 33 30	104 24 50	9,167	56,045	791,009	10	20	14	3	37	37
MCZ299	43 33 44	104 24 53	9,208	56,045	791,009	10	20	14	3	37	37
MCZ300	43 34 20	104 25 34	9,186	56,045	791,009	10	20	14	3	37	37
MCZ301	43 31 28	104 14 23	9,295	56,045	791,006	10	20	14	4	37	37
MCZ302	43 30 29	104 15 7	9,291	56,045	791,006	10	20	14	4	37	37
MCZ303	43 31 40	104 17 7	9,274	56,045	791,006	10	20	14	2	37	37
MCZ304	43 31 2	104 23 10	9,283	56,045	791,006	10	20	14	1	22	37
MCZ305	43 31 9	104 23 10	9,293	56,045	791,006	10	20	14	2	22	37

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR WDTN	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
MCZ234	4,210	2	1	6	6	5	6	1	37	1	4
MCZ235	4,220	2	1	6	6	4	6	1	37	1	4
MCZ236	4,160	2	1	8	2	4	3	3	4	1	4
MCZ237	4,150	2	1	6	6	4	6	1	37	1	4
MCZ238	4,090	2	1	6	6	5	6	1	37	1	4
MCZ239	4,140	2	1	6	6	4	6	1	37	1	4
MCZ240	4,090	2	1	6	6	5	6	1	37	1	4
MCZ241	4,090	2	1	6	6	5	6	1	37	1	4
MCZ242	4,120	2	1	8	6	5	6	1	37	1	4
MCZ243	4,130	2	1	6	6	5	6	1	37	1	4
MCZ244	4,150	2	1	6	6	5	6	1	37	1	4
MCZ245	4,120	2	1	6	6	3	6	1	37	1	4
MCZ246	4,050	2	1	6	6	4	6	1	37	1	4
MCZ247	4,030	2	1	6	6	5	6	1	37	1	4
MCZ248	4,040	2	1	6	6	5	6	1	37	1	4
MCZ249	4,040	2	1	6	6	4	6	1	37	1	4
MCZ250	3,990	2	1	6	6	5	6	1	37	1	4
MCZ251	3,990	2	1	6	6	4	6	1	37	1	4
MCZ252	4,120	3	1	6	6	4	6	1	37	1	4
MCZ253	4,110	2	1	6	6	3	6	1	37	3	4
MCZ254	4,080	2	1	6	6	5	6	1	37	1	4
MCZ255	4,080	2	1	6	6	5	6	1	37	1	4
MCZ256	4,090	2	1	6	6	5	6	1	37	1	4
MCZ257	4,160	2	1	6	6	4	6	1	37	1	4
MCZ285	4,100	2	1	6	6	2	6	1	37	1	4
MCZ286	4,000	2	1	6	6	6	6	1	37	1	4
MCZ287	4,010	2	1	6	6	5	6	1	37	1	4
MCZ288	3,960	2	1	6	6	5	6	1	37	1	4
MCZ289	3,920	2	1	6	6	4	6	1	37	1	4
MCZ290	3,920	2	1	6	6	4	6	1	37	1	4
MCZ291	3,850	2	1	6	6	5	6	1	37	1	3
MCZ292	3,950	3	1	6	6	4	6	1	37	1	4
MCZ293	3,890	2	1	6	6	4	6	1	37	1	4
MCZ294	4,040	2	1	6	6	4	6	1	37	1	4
MCZ295	4,050	2	1	6	6	4	6	1	37	1	4
MCZ296	4,090	2	1	6	6	4	6	1	37	1	4
MCZ297	4,075	3	1	6	6	5	6	1	37	1	4
MCZ298	3,950	2	1	6	6	6	6	1	37	1	4
MCZ299	3,950	2	1	6	6	4	6	1	37	1	3
MCZ300	3,980	2	1	6	6	3	6	1	37	1	4
MCZ301	3,775	2	1	6	6	5	6	1	37	1	4
MCZ302	3,780	3	1	6	6	8	6	1	37	3	4
MCZ303	3,840	2	1	6	6	7	6	1	37	1	4
MCZ304	3,860	2	1	6	6	5	6	1	37	1	4
MCZ305	3,860	2	1	6	6	5	6	1	37	1	4

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG	DENS	CONTAMN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MC2234	3		3	3	--	50	8.0	2	N	3	.7	.20
MC2235	3		9	2	--	40	9.4	2	N	4	3.0	.70
MC2236	3		9	3	8.15	40	5.1	2	N	7	1.5	1.00
MC2237	3		9	3	--	42	9.0	2	N	7	3.0	1.00
MC2238	3		3	3	--	56	4.3	2	N	5	2.0	.70
MC2239	3		9	2	--	54	5.7	2	N	7	3.0	.70
MC2240	3		9	2	--	52	3.3	1	N	6	2.0	.70
MC2241	3		9	2	--	52	5.9	<1	N	5	2.0	1.00
MC2242	3		9	3	--	40	4.1	3	N	4	1.5	.70
MC2243	3		3	3	--	46	2.3	1	N	5	1.5	.70
MC2244	3		3	3	--	46	2.5	2	N	5	1.5	.70
MC2245	3		3	3	--	46	1.7	<1	N	5	1.5	.70
MC2246	3		3	3	--	60	7.1	1	N	6	3.0	1.00
MC2247	3		9	3	--	60	8.8	1	N	7	2.0	1.00
MC2248	3		9	1	--	48	4.5	1	N	4	2.0	.70
MC2249	3		9	1	--	46	5.5	2	N	7	3.0	1.00
MC2250	3		9	1	--	54	4.0	<1	N	7	3.0	1.00
MC2251	3		3	1	--	56	7.4	3	N	4	1.5	.70
MC2252	4		9	1	--	46	2.4	2	N	5	1.5	.70
MC2253	4		3	1	--	46	7.9	1	N	5	1.0	.20
MC2254	3		9	2	--	46	4.7	3	N	6	3.0	.70
MC2255	3		9	2	--	46	1.4	<1	N	6	2.0	1.00
MC2256	3		3	2	--	52	7.6	2	N	3	.7	.20
MC2257	3		9	2	--	48	6.1	2	N	6	2.0	.70
MC2258	3		9	2	--	56	5.3	2	N	7	2.0	.70
MC2286	3		9	3	--	62	3.6	2	N	7	2.0	1.50
MC2287	3		9	3	--	60	4.3	<1	N	7	3.0	1.50
MC2288	3		9	3	--	60	4.7	2	N	5	2.0	.70
MC2289	3		9	3	--	58	4.3	3	N	7	3.0	1.00
MC2290	3		9	3	--	62	4.8	1	N	7	3.0	1.50
MC2291	3		9	1	--	56	3.3	3	N	7	3.0	1.00
MC2292	3		3	1	--	66	8.8	1	N	6	3.0	1.00
MC2293	3		9	1	--	64	5.7	2	N	7	5.0	1.00
MC2294	3		9	1	--	68	6.9	1	N	7	3.0	1.00
MC2295	3		9	1	--	62	9.3	1	N	4	1.5	.50
MC2296	3		9	1	--	66	6.5	3	N	5	2.0	.70
MC2297	2		9	1	--	60	5.4	3	N	7	3.0	.70
MC2298	3		9	1	--	58	4.5	1	N	6	3.0	1.00
MC2299	3		9	1	--	60	5.8	3	N	6	3.0	.70
MC2300	3		9	1	--	58	5.0	1	N	7	3.0	1.00
MC2301	3		9	1	--	100	4.2	2	N	5	1.5	.70
MC2302	3		9	1	--	100	4.0	1	N	5	2.0	1.00
MC2303	3		9	1	--	90	2.6	2	N	7	2.0	1.00
MC2304	3		3	1	--	75	4.3	4	N	7	3.0	.70
MC2305	3		3	1	--	80	2.9	3	N	6	1.5	.70



## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MC2234	.20	1.0	.15	300	N	N	N	50	300	2
MC2235	2.00	1.0	.20	700	N	N	N	20	700	1
MC2236	3.00	1.0	.30	500	N	N	N	20	700	3
MC2237	1.50	2.0	.20	500	N	N	N	30	700	2
MC2238	.70	1.5	.30	200	N	N	N	30	700	1
MC2239	.70	1.0	.30	500	N	N	N	30	1,000	2
MC2240	1.00	1.5	.30	300	N	N	N	30	700	2
MC2241	3.00	1.0	.30	500	N	N	N	30	700	3
MC2242	.70	3.0	.15	500	N	N	N	20	300	1
MC2243	2.00	1.5	.30	700	<.5	N	N	15	1,000	2
MC2244	1.50	1.5	.20	700	.5	N	N	30	700	2
MC2245	2.00	2.0	.30	300	N	N	N	15	700	2
MC2246	1.50	1.5	.30	300	N	N	N	30	700	2
MC2247	1.00	1.5	.20	300	N	N	N	20	500	2
MC2248	.70	1.0	.20	300	N	N	N	15	500	1
MC2249	2.00	3.0	.30	700	N	N	N	30	1,000	3
MC2250	3.00	2.0	.30	300	N	N	N	30	700	3
MC2251	.70	1.0	.20	500	N	N	N	30	500	2
MC2252	2.00	1.0	.30	300	N	N	N	15	700	3
MC2253	.15	1.0	.20	300	N	N	N	30	200	3
MC2254	.70	1.5	.30	700	N	N	N	15	700	3
MC2255	3.00	2.0	.30	500	N	N	N	20	1,500	2
MC2256	.10	.7	.15	300	.5	N	N	20	100	2
MC2257	1.00	1.5	.30	500	<.5	N	N	20	700	5
MC2285	.70	1.0	.30	500	N	N	N	20	700	2
MC2286	2.00	2.0	.30	300	N	N	N	30	700	3
MC2287	3.00	2.0	.20	700	N	N	N	30	1,000	5
MC2288	1.50	1.5	.30	500	N	N	N	30	700	3
MC2289	1.50	2.0	.20	500	N	N	N	30	1,000	2
MC2290	2.00	3.0	.30	300	N	N	N	30	1,000	3
MC2291	2.00	2.0	.30	300	N	N	N	30	1,000	2
MC2292	2.00	1.5	.30	500	N	N	N	30	700	5
MC2293	1.00	2.0	.30	500	N	N	N	30	1,000	3
MC2294	1.50	1.0	.30	500	N	N	N	20	700	2
MC2295	.50	1.0	.20	700	7.0	N	N	10	500	2
MC2296	.70	1.0	.30	300	N	N	N	20	700	3
MC2297	.70	1.0	.30	200	<.5	N	N	20	700	2
MC2298	1.00	1.5	.70	500	.5	N	N	30	700	3
MC2299	.50	1.0	.30	300	N	N	N	20	500	3
MC2300	1.00	1.5	.30	300	.5	N	N	20	700	2
MC2301	1.00	1.0	.20	300	N	N	N	15	700	2
MC2302	1.50	1.0	.20	300	N	N	N	20	500	2
MC2303	2.00	2.0	.20	300	<.5	N	N	20	700	2
MC2304	3.00	1.0	.30	700	N	N	N	15	1,500	3
MC2305	.70	1.0	.30	200	N	N	N	15	700	2

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MCZ234	N	N	N	15	20	20	N	N	N	10
MCZ235	N	N	5	50	20	50	N	N	N	15
MCZ236	N	N	5	50	20	50	N	N	N	10
MCZ237	N	N	10	100	30	50	N	N	N	30
MCZ238	N	N	5	70	20	50	N	<5.0	N	20
MCZ239	N	N	5	70	20	50	N	N	N	20
MCZ240	N	N	10	70	20	50	N	<5.0	N	30
MCZ241	N	N	5	30	20	50	N	N	N	10
MCZ242	N	N	5	70	20	50	N	<5.0	N	15
MCZ243	N	N	5	50	20	150	N	N	N	15
MCZ244	N	N	5	30	15	50	N	N	N	15
MCZ245	N	N	5	50	15	50	N	<5.0	N	15
MCZ246	N	N	5	70	20	50	N	N	N	20
MCZ247	N	N	5	70	20	50	N	N	N	20
MCZ248	N	N	5	30	20	50	N	N	N	10
MCZ249	N	N	5	150	50	50	N	N	N	20
MCZ250	N	N	10	70	20	50	N	N	N	20
MCZ251	N	N	5	30	20	50	N	N	N	10
MCZ252	N	N	5	30	15	50	N	N	N	15
MCZ253	N	N	N	20	20	50	N	N	<10	7
MCZ254	N	N	5	30	20	50	N	N	N	10
MCZ255	N	N	5	70	10	50	N	N	N	15
MCZ256	N	N	N	15	20	20	N	N	<10	7
MCZ257	N	N	5	100	30	50	N	10.0	N	30
MCZ285	N	N	10	70	20	100	N	N	N	20
MCZ286	N	N	10	70	20	100	N	N	N	20
MCZ287	N	N	10	70	30	100	N	N	N	20
MCZ288	N	N	5	70	20	50	N	N	N	15
MCZ289	N	N	10	100	30	50	N	N	N	30
MCZ290	N	N	10	100	30	100	N	N	N	30
MCZ291	N	N	10	70	20	50	N	N	N	30
MCZ292	N	N	5	70	30	50	N	N	N	20
MCZ293	N	N	10	100	30	50	N	N	N	30
MCZ294	N	N	10	100	30	50	N	N	N	30
MCZ295	N	N	5	30	20	50	N	N	N	15
MCZ296	N	N	5	70	30	100	N	N	10	20
MCZ297	N	N	10	70	50	100	N	N	N	20
MCZ298	N	N	10	100	30	100	N	N	N	30
MCZ299	N	N	10	70	30	50	N	N	N	30
MCZ300	N	N	10	100	50	100	N	N	N	30
MCZ301	N	N	5	70	15	50	N	N	N	15
MCZ302	N	N	5	70	15	50	N	N	N	15
MCZ303	N	N	5	70	20	50	N	N	N	15
MCZ304	N	N	5	100	50	100	N	N	N	20
MCZ305	N	N	5	50	20	50	N	N	N	10

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SB PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MC2234	20	N	N	N	200	50	N	10	<200	50
MC2235	20	N	10	N	300	50	N	20	200	300
MC2236	20	N	10	N	200	50	N	30	N	500
MC2237	30	N	15	N	200	150	N	30	N	100
MC2238	10	N	5	N	200	70	N	20	N	100
MC2239	20	N	15	N	200	150	N	30	N	300
MC2240	10	N	10	N	200	150	N	30	N	300
MC2241	10	N	15	N	100	100	N	30	N	200
MC2242	10	N	5	N	<100	50	N	10	N	100
MC2243	20	N	10	N	100	50	N	50	N	700
MC2244	50	N	5	N	100	50	N	30	N	500
MC2245	10	N	10	N	100	50	N	30	N	700
MC2246	20	N	15	N	100	100	N	30	N	700
MC2247	30	N	10	N	<100	70	N	30	N	300
MC2248	10	N	10	N	<100	70	N	20	N	300
MC2249	30	N	15	50	300	150	N	20	<200	100
MC2250	20	N	15	N	200	100	N	30	N	300
MC2251	10	N	5	N	100	50	N	10	N	100
MC2252	20	N	5	N	200	50	N	20	N	700
MC2253	20	N	N	N	200	30	N	20	<200	150
MC2254	20	N	15	N	100	100	N	30	N	700
MC2255	20	N	5	N	200	50	N	30	N	700
MC2256	20	N	N	N	100	30	N	10	<200	100
MC2257	30	N	15	N	100	100	N	30	N	700
MC2285	20	N	15	N	100	100	N	50	N	500
MC2286	20	N	15	N	200	100	N	50	N	700
MC2287	30	N	15	N	500	100	N	30	N	200
MC2288	10	N	10	N	100	100	N	30	N	200
MC2289	30	N	10	N	200	70	N	30	N	200
MC2290	30	N	15	N	300	100	N	50	<200	100
MC2291	20	N	10	N	300	100	N	30	N	100
MC2292	30	N	15	<10	200	100	N	50	<200	700
MC2293	30	N	15	N	200	150	N	30	<200	200
MC2294	20	N	10	N	100	150	N	30	N	100
MC2295	10	N	5	N	<100	70	N	20	N	100
MC2296	50	N	15	N	100	100	N	50	<200	500
MC2297	20	N	10	N	200	100	N	30	N	100
MC2298	30	N	15	N	100	150	N	70	N	1,000
MC2299	50	N	10	N	100	100	N	20	N	200
MC2300	30	N	15	N	200	100	N	30	<200	100
MC2301	10	N	5	N	200	70	N	20	N	100
MC2302	20	N	10	N	100	50	N	30	N	200
MC2303	30	N	10	N	200	50	N	30	N	500
MC2304	20	N	15	N	200	100	N	30	N	700
MC2305	10	N	10	N	100	50	N	30	N	700

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	latitude	longitud	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MAIL MOD	MATL MOD
MC2306	43 29 52	104 22 33	9,294	56,045	791,006	10	20	14	4	37	37
MC2307	43 30 1	104 22 58	9,288	56,045	791,006	10	20	14	4	37	37
MC2308	43 31 29	104 22 7	9,296	56,045	791,008	10	20	14	4	21	37
MC2309	43 31 19	104 21 56	9,290	56,045	791,008	10	20	14	4	37	37
MC2310	43 30 9	104 20 30	9,264	56,045	791,008	10	20	14	4	21	37
MC2311	43 26 55	104 13 24	9,287	56,027	791,008	10	20	14	5	36	37
MC2312	43 27 42	104 13 38	9,269	56,027	791,008	10	20	14	4	37	37
MC2313	43 29 3	104 13 43	9,271	56,027	791,008	10	20	14	3	22	37
MC2314	43 29 26	104 14 25	9,270	56,027	791,008	10	20	14	3	37	37
MC2315	43 32 33	104 23 40	9,178	56,045	791,009	10	20	14	3	37	37
MC2316	43 34 16	104 21 0	9,209	56,045	791,009	10	20	14	3	37	37
MC2317	43 34 18	104 21 16	9,171	56,045	791,009	10	20	14	3	37	37
MC2318	43 33 42	104 21 43	9,199	56,045	791,009	10	20	14	3	37	37
MC2319	43 33 56	104 21 51	9,189	56,045	791,009	10	20	14	3	37	37
MC2320	43 32 55	104 17 48	9,201	56,045	791,010	10	20	14	3	37	37
MC2321	43 33 11	104 18 44	9,173	56,045	791,010	10	20	14	3	37	37
MC2322	43 33 39	104 19 44	9,211	56,045	791,010	10	20	14	3	37	37
MC2323	43 32 44	104 18 48	9,179	56,045	791,010	10	20	14	2	21	37
MC2324	43 32 22	104 17 58	9,192	56,045	791,010	10	20	14	3	37	37
MC2326	43 28 16	104 15 14	9,265	56,027	791,009		20	14	4	37	37
MC2327	43 28 16	104 15 14	9,273	56,027	791,009	1	20	14	4	37	37
MC2328	43 27 54	104 18 26	9,280	56,027	791,009	10	20	14	2	37	37
MC2329	43 27 36	104 17 27	9,259	56,027	791,009	10	20	14	2	21	37
MC2330	43 29 5	104 16 39	9,285	56,027	791,009	10	20	14	4	21	37
MC2331	43 23 1	104 16 43	9,279	56,027	791,009	10	20	14	4	21	37
MC2332	43 23 41	104 15 47	9,263	56,027	791,009	10	20	14	4	21	37
MC2333	43 24 55	104 15 50	9,282	56,027	791,009	10	20	14	2	37	37
MC2334	43 24 44	104 16 10	9,284	56,027	791,009	10	20	14	4	21	37
MC2335	43 25 3	104 16 28	9,297	56,027	791,009	10	20	14	4	20	37
MC2336	43 25 43	104 14 4	9,262	56,027	791,009	10	20	14	4	21	37
MC2337	43 26 2	104 15 0	9,276	56,027	791,010	10	20	14	4	21	37
MC2338	43 24 18	104 15 13	9,268	56,027	791,010	10	20	14	4	37	37
MC2339	43 24 53	104 18 52	9,286	56,027	791,010	10	20	14	2	21	37
MC2340	43 25 38	104 20 18	9,289	56,027	791,010	10	20	14	3	37	37
MC2341	43 26 38	104 17 16	9,292	56,027	791,010	10	20	14	4	21	37
MC2342	43 26 48	104 19 32	9,272	56,027	791,010	10	20	14	3	22	37
MC2343	43 26 44	104 18 37	9,281	56,027	791,010	10	20	14	3	20	22
MC2344	43 28 7	104 21 56	9,266	56,027	791,010	10	20	14	1	21	20
MC2345	43 26 16	104 20 43	9,275	56,027	791,010	10	20	14	3	37	37
MC2346	43 28 44	104 20 73	9,267	56,027	791,010	10	20	14	4	37	37

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED. COLR	WTR FLOW	STR WDTH	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
MC2306	3,860	2	1	6	6	6	6	1	37	1	4
MC2307	3,880	2	1	6	6	5	6	1	37	1	4
MC2308	3,890	2	1	6	6	5	6	1	37	3	4
MC2309	3,890	2	1	6	6	5	6	1	37	3	4
MC2310	3,880	2	1	6	6	8	6	1	37	3	4
MC2311	3,720	2	1	6	6	4	6	1	37	3	4
MC2312	3,710	2	1	6	6	5	6	1	37	3	4
MC2313	3,740	2	1	6	6	6	6	1	37	3	4
MC2314	3,780	2	1	6	6	5	6	1	37	3	4
MC2315	3,910	2	1	6	6	4	6	1	37	1	3
MC2316	3,930	2	1	6	6	4	6	1	37	1	4
MC2317	3,930	2	1	6	6	5	6	1	37	1	4
MC2318	3,960	2	1	6	6	6	6	1	37	1	4
MC2319	3,980	2	1	6	6	6	6	1	37	1	4
MC2320	3,840	2	1	6	6	5	6	1	37	1	4
MC2321	3,860	2	1	6	6	4	6	1	37	1	4
MC2322	3,920	2	1	6	6	6	6	1	37	1	4
MC2323	3,950	2	1	6	6	4	6	1	37	1	4
MC2324	3,840	1	1	6	6	4	6	1	37	1	4
MC2326	3,770	2	1	6	6	5	6	1	37	3	3
MC2327	3,770	2	1	6	6	5	6	1	37	3	3
MC2328	3,870	2	1	6	6	4	6	1	37	1	3
MC2329	3,925	3	1	6	6	7	6	1	37	3	4
MC2330	3,850	3	1	6	6	5	6	1	37	3	3
MC2331	3,730	3	1	6	6	5	6	1	37	3	4
MC2332	3,720	2	1	6	6	4	6	1	37	3	3
MC2333	3,760	3	1	6	6	5	6	1	37	1	4
MC2334	3,720	2	1	6	6	4	6	1	37	3	4
MC2335	3,725	2	1	6	6	8	6	1	37	3	4
MC2336	3,705	3	1	6	6	7	6	1	37	1	4
MC2337	3,778	2	1	6	6	5	6	1	37	3	4
MC2338	3,695	3	1	6	6	5	6	1	37	1	4
MC2339	3,870	3	1	6	6	7	6	1	37	3	4
MC2340	3,960	3	1	6	6	8	6	1	37	3	4
MC2341	3,790	3	1	6	6	7	6	1	37	3	4
MC2342	3,800	2	1	6	6	8	6	1	37	3	4
MC2343	3,790	3	1	6	6	4	6	1	37	3	6
MC2344	3,965	3	1	6	6	5	6	1	37	3	4
MC2345	3,855	3	1	6	6	8	6	1	37	3	4
MC2346	3,855	3	1	6	6	5	6	1	37	3	4

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF SLUDGE SEDIMENT SAMPLES, NEWCASTLE---continued

sample	VEG DENS	CONTAMN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MC2306	3	9	1	--	75	2.2	2	N	6	1.5	.70
MC2307	3	9	1	--	75	3.5	1	N	5	1.5	.70
MC2308	3	9	2	--	92	4.8	2	N	5	1.5	.70
MC2309	3	9	2	--	90	6.5	3	N	5	2.0	.50
MC2310	4	9	2	--	72	2.2	2	N	7	2.0	1.00
MC2311	3	9	2	--	84	4.8	3	N	6	3.0	1.00
MC2312	3	9	3	--	74	11.8	2	N	6	1.5	7.00
MC2313	4	9	3	--	74	3.9	2	N	7	3.0	1.50
MC2314	3	9	3	--	95	3.6	1	N	7	3.0	1.50
MC2315	3	9	1	--	56	5.3	2	N	6	3.0	.70
MC2316	2	9	1	--	54	3.4	3	N	7	3.0	2.00
MC2317	2	9	1	--	52	4.5	2	N	7	3.0	1.00
MC2318	3	9	2	--	56	3.7	1	N	7	3.0	.70
MC2319	3	9	2	--	56	3.2	1	N	7	2.0	1.00
MC2320	3	9	2	--	58	5.4	1	N	6	3.0	1.00
MC2321	3	9	2	--	56	4.0	4	N	6	3.0	1.00
MC2322	3	9	2	--	60	3.2	2	N	3	1.5	1.00
MC2323	3	9	2	--	58	2.1	<1	N	6	3.0	1.00
MC2324	3	9	2	--	56	2.4	2	N	7	3.0	1.50
MC2326	3	9	1	--	94	5.0	2	N	7	3.0	1.00
MC2327	3	9	1	--	94	5.2	1	N	7	3.0	1.00
MC2328	3	9	1	--	84	3.2	2	N	6	3.0	1.00
MC2329	3	9	1	--	82	2.6	2	N	7	1.5	1.50
MC2330	3	9	1	--	100	4.5	2	N	6	2.0	1.00
MC2331	3	9	1	--	70	2.7	1	N	7	3.0	1.00
MC2332	3	9	1	--	88	7.2	2	N	7	3.0	.70
MC2333	3	9	2	--	70	2.3	3	N	5	2.0	.70
MC2334	3	9	2	--	96	4.8	2	N	5	2.0	.70
MC2335	4	9	1	--	95	3.3	3	N	7	2.0	1.00
MC2336	3	9	2	--	80	4.9	2	N	7	3.0	1.00
MC2337	3	9	2	--	84	5.0	2	N	5	3.0	1.00
MC2338	3	9	2	--	74	2.1	4	N	6	2.0	1.00
MC2339	3	9	2	--	70	2.2	2	N	6	1.5	.70
MC2340	3	9	2	--	80	2.6	<1	N	5	2.0	.70
MC2341	3	9	2	--	65	3.8	3	N	6	1.0	.70
MC2342	3	9	2	--	68	1.8	1	N	6	1.5	.70
MC2343	3	9	2	--	74	1.4	3	N	7	2.0	.70
MC2344	3	9	2	--	68	2.0	2	N	7	2.0	.70
MC2345	3	9	2	--	70	3.8	2	N	7	2.0	1.00
MC2346	3	9	2	--	80	3.5	3	N	6	1.5	.70

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MC2306	1.00	1.0	.20	200	<.5	N	N	15	700	2
MC2307	1.00	1.5	.20	500	N	N	N	20	700	2
MC2308	.50	1.0	.30	300	N	N	N	20	700	3
MC2309	.30	.7	.20	500	N	N	N	15	500	2
MC2310	3.00	1.5	.20	500	N	N	N	10	700	2
MC2311	1.50	1.5	.50	300	N	N	N	30	700	2
MC2312	1.00	.7	.20	500	<.5	N	N	20	700	2
MC2313	2.00	2.0	.30	500	.5	N	N	30	700	2
MC2314	2.00	2.0	.30	300	<.5	N	N	30	700	3
MC2315	1.50	1.0	.30	500	<.5	N	N	30	700	3
MC2316	3.00	2.0	.50	700	N	N	N	20	700	3
MC2317	2.00	1.0	.50	700	N	N	N	30	1,000	3
MC2318	1.50	1.5	.30	200	<.5	N	N	20	700	2
MC2319	2.00	1.5	.30	300	N	N	N	20	1,000	2
MC2320	2.00	1.0	.30	300	N	N	N	30	700	2
MC2321	3.00	2.0	.50	300	N	N	N	30	1,000	5
MC2322	1.50	1.0	.20	500	N	N	N	30	300	1
MC2323	2.00	2.0	.30	500	N	N	N	20	700	2
MC2324	3.00	2.0	.30	300	N	N	N	20	700	2
MC2326	3.00	1.0	.30	500	<.5	N	N	30	700	3
MC2327	1.50	2.0	.15	500	<.5	N	N	20	700	1
MC2328	3.00	1.0	.30	300	<.5	N	N	20	700	2
MC2329	2.00	2.0	.20	300	.5	N	N	15	700	3
MC2330	1.50	1.0	.20	300	N	N	N	20	500	2
MC2331	3.00	2.0	.30	500	<.5	N	N	15	700	2
MC2332	1.50	1.0	.30	300	<.5	N	N	20	700	3
MC2333	3.00	1.0	.30	500	N	N	N	30	700	2
MC2334	.70	1.0	.20	300	N	N	N	15	700	2
MC2335	2.00	1.5	.30	300	<.5	N	N	20	700	2
MC2336	2.00	1.0	.20	500	<.5	N	N	15	700	2
MC2337	1.50	1.0	.20	500	N	N	N	20	700	2
MC2338	2.00	1.5	.30	500	<.5	N	N	20	1,000	3
MC2339	1.00	1.0	.50	500	N	N	N	20	700	2
MC2340	1.00	1.0	.30	300	N	N	N	20	700	2
MC2341	.70	1.0	.20	300	N	N	N	15	500	2
MC2342	1.00	1.0	.30	300	<.5	N	N	20	700	2
MC2343	1.50	2.0	.30	300	<.5	N	N	10	700	2
MC2344	1.50	1.5	.15	300	<.5	N	N	10	700	2
MC2345	2.00	2.0	.30	500	<.5	N	N	20	1,000	3
MC2346	.70	1.0	.20	200	<.5	N	N	15	700	2

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MC2306	N	N	5	50	20	50	N	N	N	15
MC2307	N	N	5	70	20	50	N	N	N	15
MC2308	N	N	5	100	30	50	N	N	N	30
MC2309	N	N	5	70	30	50	N	N	N	15
MC2310	N	N	5	70	20	50	N	N	N	15
MC2311	N	N	10	100	20	50	N	N	N	30
MC2312	N	N	5	70	20	50	N	N	N	15
MC2313	N	N	10	100	15	50	N	N	N	20
MC2314	N	N	10	100	15	50	N	N	N	15
MC2315	N	N	10	70	30	100	N	N	N	30
MC2316	N	N	10	70	30	50	N	N	N	30
MC2317	N	N	10	100	50	100	N	N	N	30
MC2318	N	N	10	70	30	100	N	N	10	20
MC2319	N	N	10	70	20	100	N	N	N	20
MC2320	N	N	10	70	20	50	N	N	N	30
MC2321	N	N	10	70	20	50	N	N	N	20
MC2322	N	N	5	30	20	50	N	N	N	15
MC2323	N	N	10	70	20	100	N	N	N	30
MC2324	N	N	10	150	20	50	N	N	N	20
MC2326	N	N	10	70	30	50	N	N	N	20
MC2327	N	N	5	70	30	50	N	N	N	15
MC2328	N	N	10	70	20	100	N	N	N	20
MC2329	N	N	5	50	20	50	N	N	N	10
MC2330	N	N	5	70	20	50	N	N	N	15
MC2331	N	N	10	70	20	50	N	N	N	20
MC2332	N	N	10	70	20	50	N	N	N	20
MC2333	N	N	5	100	15	150	N	N	N	15
MC2334	N	N	5	70	20	50	N	N	N	15
MC2335	N	N	5	70	20	50	N	N	N	20
MC2336	N	N	5	70	15	50	N	N	N	15
MC2337	N	N	10	70	20	50	N	N	N	20
MC2338	N	N	5	70	20	50	N	N	N	15
MC2339	N	N	5	70	20	50	N	N	N	15
MC2340	N	N	5	70	20	50	N	N	N	10
MC2341	N	N	5	50	20	50	N	N	N	7
MC2342	N	N	5	70	10	50	N	N	N	15
MC2343	N	N	5	50	15	50	N	N	N	10
MC2344	N	N	5	70	20	50	N	N	N	15
MC2345	N	N	10	70	30	100	N	N	N	15
MC2346	N	N	5	70	20	50	N	N	N	15



## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SB PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MC2306	10	N	10	N	100	50	N	30	N	300
MC2307	10	N	10	N	200	70	N	30	N	300
MC2308	10	N	10	30	100	50	N	30	N	500
MC2309	10	N	5	N	<100	50	N	20	N	100
MC2310	20	N	10	N	100	70	N	30	N	300
MC2311	20	N	15	N	200	150	N	30	N	500
MC2312	10	N	10	N	100	70	N	30	N	200
MC2313	20	N	15	N	300	150	N	30	N	700
MC2314	20	N	15	N	300	150	N	100	N	700
MC2315	30	N	15	N	200	100	N	50	N	500
MC2316	30	N	15	N	200	100	N	30	N	300
MC2317	50	N	15	N	300	150	N	50	N	700
MC2318	20	N	15	N	200	150	N	50	N	500
MC2319	20	N	10	N	200	100	N	30	N	200
MC2320	20	N	15	N	200	150	N	30	N	100
MC2321	30	N	15	N	300	150	N	30	N	500
MC2322	10	N	5	N	100	70	N	30	N	500
MC2323	20	N	15	N	300	70	N	30	N	500
MC2324	20	N	10	N	300	100	N	50	N	700
MC2326	30	N	15	N	200	100	N	30	N	100
MC2327	30	N	10	N	100	50	N	30	N	300
MC2328	30	N	15	N	200	70	N	50	N	700
MC2329	30	N	10	N	200	30	N	30	N	700
MC2330	10	N	10	N	100	70	N	20	N	200
MC2331	30	N	15	N	200	100	N	30	N	200
MC2332	30	N	15	N	100	150	N	30	N	300
MC2333	10	N	10	N	200	100	N	50	N	700
MC2334	10	N	10	N	<100	50	N	20	N	100
MC2335	30	N	15	N	100	50	N	30	N	300
MC2336	20	N	5	N	100	70	N	30	N	200
MC2337	30	N	10	N	100	70	N	30	N	300
MC2338	20	N	10	N	200	50	N	30	N	700
MC2339	20	N	10	N	100	50	N	50	N	700
MC2340	10	N	10	N	100	70	N	30	N	500
MC2341	10	N	5	N	100	30	N	20	N	100
MC2342	10	N	10	N	100	50	N	30	N	700
MC2343	30	N	10	N	200	50	N	30	N	700
MC2344	20	N	5	N	100	30	N	10	N	100
MC2345	30	N	15	N	300	50	N	70	N	700
MC2346	10	N	10	N	100	70	N	30	N	100

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	Latitude	Longitude	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MC2347	43 28 20	104 16 56	9,260	56,027	791,010	10	20	14	4	21	37
MC2348	43 29 14	104 20 2	9,261	56,027	791,010	10	20	14	3	37	37
MC2349	43 25 28	104 16 54	9,277	56,027	791,010	10	20	14	3	20	37
MC2350	43 26 42	104 16 39	9,278	56,027	791,010	10	20	14	4	21	37
-----INYAD KARA GROUP-----											
MC2037	43 52 18	104 1 39	1,107	46,033	781,009	10	20	14	2	22	36
MC2038	43 53 29	104 1 58	1,096	46,033	781,009	10	20	14	2	21	22
MC2039	43 41 5	104 5 39	1,094	56,045	781,009	10	20	14	2	22	36
MC2040	43 41 59	104 4 51	1,091	56,045	781,009	10	20	14	2	21	22
MC2041	43 42 1	104 5 54	1,101	56,045	781,009	10	20	14	2	22	36
MC2042	43 43 20	104 6 29	1,088	56,045	781,009	10	20	14	2	21	22
MC2043	43 58 22	104 14 19	1,084	56,045	781,010	10	20	14	5	20	22
MC2044	43 58 57	104 11 51	1,104	56,045	781,010	10	20	14	3	21	36
MC2045	43 58 5	104 14 11	1,074	56,045	781,010	10	20	14	5	21	22
MC2046	43 53 40	104 12 43	1,093	56,045	781,010	10	20	14	2	22	36
MC2047	43 54 20	104 12 6	1,092	56,045	781,010	10	20	14	2	22	36
MC2048	43 54 44	104 12 25	1,075	56,045	781,010	10	20	14	2	22	36
MC2049	43 29 52	104 1 17	1,079	46,033	781,011	10	20	14	2	22	36
MC2050	43 55 11	104 3 6	1,098	46,033	781,011	10	20	14	2	21	22
MC2096	43 55 3	104 17 43	1,142	56,045	781,014	10	20	14	2	20	22
MC2097	43 56 57	104 16 17	1,132	56,045	781,014	10	20	14	2	20	22
MC2098	43 57 25	104 16 32	1,124	56,045	781,014	10	20	14	3	20	21
MC2099	43 58 59	104 16 24	1,122	56,045	781,014	10	20	14	3	20	21
MC2100	43 58 37	104 15 50	1,154	56,045	781,014	10	20	14	2	22	36
MC2101	43 52 50	104 17 15	1,145	56,045	781,014	10	20	14	2	20	22
MC2147	43 51 18	104 11 7	9,080	56,045	790,907	10	20	14	2	37	37
MC2148	43 51 3	104 10 34	9,093	56,045	790,907	10	20	14	2	37	37
MC2151	43 55 48	104 4 7	1,108	56,045	781,011	10	20	14	2	22	36
MC2152	43 56 53	104 3 19	1,087	56,045	781,011	10	20	14	2	22	36
MC2153	43 58 16	104 4 51	1,076	56,045	781,011	10	20	14	2	22	36
MC2154	43 57 46	104 4 29	1,097	56,045	781,011	10	20	14	2	22	36
MC2155	43 41 55	104 5 28	1,103	56,045	781,011	10	20	14	2	22	36
MC2156	43 40 27	104 5 39	1,083	56,045	781,011	10	20	14	2	22	36
MC2157	43 39 46	104 4 50	1,078	56,045	781,011	10	20	14	2	22	36
MC2158	43 42 37	104 2 32	1,082	46,033	781,011	10	20	14	2	22	36
MC2159	43 44 28	104 2 43	1,109	46,033	781,011	10	20	14	2	21	22
MC2160	43 44 47	104 3 51	1,246	56,045	781,012	10	20	14	2	22	21
MC2161	43 44 44	104 2 15	1,196	46,033	781,012	10	20	14	2	20	22
MC2162	43 40 3	104 1 2	1,252	46,033	781,012	10	20	14	2	22	36
MC2163	43 39 11	104 0 18	1,245	46,033	781,012	10	20	14	2	22	21

## APPENDIX U-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR WDTH	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
MCZ347	3,795	3	1	6	6	4	6	1	37	3	3
MCZ348	3,810	3	1	6	6	8	6	1	37	3	4
MCZ349	3,760	3	1	6	6	3	6	1	37	1	4
MCZ350	3,753	3	1	6	6	5	6	1	37	3	4
-----INYAN KARA GROUP-----											
MCZ037	3,860	3	1	8	6	4	6	1	37	1	3
MCZ038	3,820	3	1	6	6	3	6	1	37	1	1
MCZ039	4,040	3	1	8	6	5	6	1	37	1	3
MCZ040	4,200	3	1	6	6	3	6	1	37	1	1
MCZ041	4,060	3	1	8	6	5	6	1	37	1	3
MCZ042	4,260	3	1	6	6	6	6	1	37	1	3
MCZ043	5,000	3	1	6	2	3	1	2	1	3	3
MCZ044	5,060	3	1	6	2	3	1	2	2	1	3
MCZ045	5,000	3	1	6	3	5	1	2	2	1	1
MCZ046	4,620	3	1	8	6	5	6	1	37	1	3
MCZ047	4,750	3	1	8	6	7	6	1	37	1	4
MCZ048	4,800	3	1	6	6	5	6	1	37	2	1
MCZ049	3,700	3	1	6	6	4	6	1	37	3	4
MCZ050	3,860	3	1	1	6	8	6	1	37	1	3
MCZ096	4,230	3	1	6	6	6	6	1	37	1	4
MCZ097	4,510	3	1	6	6	4	6	1	37	1	3
MCZ098	4,550	3	1	6	3	2	1	3	1	1	3
MCZ099	4,760	3	1	6	3	2	1	2	1	1	3
MCZ100	4,682	3	1	6	6	6	6	1	37	3	4
MCZ101	4,170	3	1	6	6	7	6	1	37	1	4
MCZ147	4,460	3	1	6	6	4	6	1	37	1	1
MCZ148	4,440	3	1	6	2	2	1	2	1	1	1
MCZ151	3,840	3	1	6	6	5	6	1	37	1	3
MCZ152	3,940	3	1	6	6	8	6	1	37	3	1
MCZ153	3,960	3	1	6	6	5	6	1	37	3	1
MCZ154	3,940	3	1	8	6	5	6	1	37	1	4
MCZ155	4,140	3	1	8	6	4	6	1	37	1	3
MCZ156	4,040	3	1	6	6	7	6	1	37	3	3
MCZ157	4,240	3	1	6	6	5	6	1	37	3	1
MCZ158	4,840	3	1	6	6	7	6	1	37	3	3
MCZ159	4,640	3	1	6	6	7	6	1	37	1	3
MCZ160	4,520	3	1	6	6	4	6	1	37	3	3
MCZ161	4,560	2	1	6	6	4	6	1	37	1	4
MCZ162	4,500	3	1	6	6	7	6	1	37	3	3
MCZ163	4,360	3	1	6	6	5	6	1	37	3	3

## APPENDIX D-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG DENS	CONTANN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MC2347	3	9	2	--	88	3.6	4	N	7	3.0	1.00
MC2348	3	9	2	--	70	2.6	<1	N	7	1.5	.70
MC2349	3	9	2	--	66	1.1	2	N	6	1.5	1.00
MC2350	3	9	2	--	70	2.5	1	N	6	3.0	1.00
-----INYAN KARA GROUP-----											
MC2037	2	3	1	--	95	3.9	2	N	4	1.5	.20
MC2038	3	9	1	--	62	2.7	<1	N	7	2.0	.30
MC2039	2	3	1	--	70	5.4	<1	N	6	2.0	.30
MC2040	2	3	1	--	75	5.4	<1	N	6	2.0	.30
MC2041	2	9	1	--	70	6.5	1	N	5	2.0	.30
MC2042	2	3	1	--	40	4.7	<1	N	6	1.5	.70
MC2043	3	3	1	--	60	4.2	1	N	5	1.5	.50
MC2044	2	3	1	--	65	4.4	<1	N	6	2.0	1.00
MC2045	3	3	1	--	65	4.4	<1	N	5	2.0	.70
MC2046	3	3	1	--	62	8.3	1	N	6	1.5	.30
MC2047	1	3	1	--	55	4.2	2	N	6	1.5	.30
MC2048	3	9	1	--	75	6.7	4	N	4	1.5	.30
MC2049	3	3	1	--	145	6.3	2	N	7	2.0	.50
MC2050	3	3	1	--	--	6.9	2	N	4	2.0	.30
MC2096	2	9	1	--	70	8.2	2	N	7	3.0	.70
MC2097	2	3	1	--	60	5.6	1	N	5	2.0	.70
MC2098	2	3	1	--	50	8.2	<1	N	5	1.5	.70
MC2099	3	3	1	--	62	6.0	<1	N	5	1.5	.50
MC2100	2	3	1	--	72	8.9	<1	N	7	2.0	.70
MC2101	2	3	1	--	68	5.7	<1	N	7	2.0	.50
MC2147	3	9	1	--	25	5.8	1	N	5	1.5	.50
MC2148	3	9	1	7.80	25	8.5	2	N	6	1.5	.70
MC2151	2	3	1	--	90	6.7	1	N	4	1.5	.30
MC2152	2	9	1	--	65	3.7	1	N	4	1.0	.20
MC2153	3	3	1	--	70	9.7	2	N	5	1.5	.30
MC2154	4	3	1	--	75	5.7	<1	N	4	1.0	.20
MC2155	2	3	1	--	60	4.8	<1	N	4	2.0	.30
MC2156	3	3	1	--	47	4.6	1	N	4	1.0	.20
MC2157	3	9	1	--	47	10.2	2	N	6	1.5	.30
MC2158	3	3	1	--	75	3.3	<1	N	7	1.5	1.00
MC2159	2	1	1	--	80	2.7	<1	N	7	2.0	2.00
MC2160	3	1	1	--	55	5.6	<1	N	5	2.0	2.00
MC2161	4	3	1	--	55	5.7	<1	N	7	1.5	2.00
MC2162	3	3	1	--	--	3.5	<1	N	6	2.0	2.00
MC2163	3	1	1	--	55	3.2	<1	N	5	1.5	2.00

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MCZ347	2.00	1.0	.20	500	<.5	N	N	20	700	3
MCZ348	1.50	1.0	.20	300	<.5	N	N	15	700	2
MCZ349	2.00	2.0	.30	300	.5	N	N	15	700	2
MCZ350	2.00	1.5	.30	500	<.5	N	N	15	700	2
-----INYAN KARA GROUP-----										
MCZ037	.30	.7	.30	100	<.5	N	N	10	500	10
MCZ038	.20	.5	.30	200	<.5	N	N	20	500	10
MCZ039	.30	.7	.30	200	<.5	N	N	20	700	15
MCZ040	.30	.7	.30	300	<.5	N	N	20	700	15
MCZ041	.50	.7	.30	300	<.5	N	N	20	700	15
MCZ042	5.00	.7	.20	300	N	N	N	10	700	10
MCZ043	5.00	.7	.30	300	<.5	N	N	10	700	10
MCZ044	3.00	1.0	.30	300	N	N	N	20	700	10
MCZ045	2.00	.7	.30	200	<.5	N	N	10	700	15
MCZ046	.70	.7	.30	200	N	N	N	10	500	15
MCZ047	.70	.7	.20	100	N	N	N	10	700	15
MCZ048	1.00	.5	.30	100	<.5	N	N	10	500	15
MCZ049	.70	.7	.30	200	.5	N	N	50	700	15
MCZ050	1.00	.7	.30	200	<.5	N	N	10	700	15
MCZ096	2.00	.7	.30	500	<.5	N	N	20	1,000	15
MCZ097	5.00	.7	.20	300	<.5	N	N	10	700	7
MCZ098	10.00	.7	.20	700	N	N	N	10	700	7
MCZ099	5.00	1.0	.20	500	N	N	N	20	700	10
MCZ100	3.00	1.0	.30	100	<.5	N	N	20	700	10
MCZ101	.50	.7	.30	100	.5	N	N	20	700	10
MCZ147	.50	.7	.30	300	N	N	N	15	500	2
MCZ148	.70	.5	.50	3,000	N	N	N	30	300	7
MCZ151	.30	.7	.30	200	<.5	N	N	20	700	15
MCZ152	.20	.5	.20	30	<.5	N	N	10	500	5
MCZ153	.30	.7	.30	300	N	N	N	10	700	10
MCZ154	.30	.7	.30	100	<.5	N	N	10	700	10
MCZ155	.30	.7	.30	300	<.5	N	N	20	700	15
MCZ156	.20	.7	.30	100	<.5	N	N	10	500	7
MCZ157	.50	.5	.30	200	<.5	N	N	10	700	15
MCZ158	3.00	1.0	.20	300	N	N	N	20	700	15
MCZ159	5.00	1.5	.30	300	N	N	N	10	500	15
MCZ160	10.00	1.0	.30	500	N	N	N	20	700	15
MCZ161	3.00	1.0	.20	300	<.5	N	N	20	700	10
MCZ162	10.00	1.5	.30	300	N	N	N	20	700	15
MCZ163	10.00	1.0	.30	300	N	N	N	20	700	10

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MC2347	N	N	5	70	20	50	N	N	N	15
MC2348	N	N	5	70	15	50	N	N	N	10
MC2349	N	N	5	50	20	50	N	N	N	15
MC2350	N	N	5	70	20	50	N	N	N	20
-----INYAN KARA GROUP-----										
MC2037	N	N	5	50	20	100	N	N	10	10
MC2038	N	N	10	50	20	100	N	N	20	20
MC2039	N	N	10	50	20	100	N	N	10	15
MC2040	N	N	10	50	20	100	N	N	10	20
MC2041	N	N	10	50	20	100	N	N	10	20
MC2042	N	N	5	50	15	100	N	N	10	20
MC2043	N	N	5	50	15	100	N	N	10	5
MC2044	N	N	10	50	15	100	N	N	10	15
MC2045	N	N	10	70	15	100	N	N	10	15
MC2046	N	N	10	50	15	100	N	N	10	20
MC2047	N	N	5	20	15	100	N	N	10	5
MC2048	N	N	10	100	30	100	N	N	10	5
MC2049	N	N	15	100	30	100	N	N	20	30
MC2050	N	N	10	50	30	100	N	N	10	15
MC2096	N	N	15	50	30	100	N	N	10	30
MC2097	N	N	10	50	20	100	N	N	10	20
MC2098	N	N	10	50	15	100	N	N	10	10
MC2099	N	N	10	30	20	100	N	N	10	15
MC2100	N	N	10	70	20	50	N	N	10	15
MC2101	N	N	15	100	30	150	N	N	10	30
MC2147	N	N	5	30	20	50	N	N	N	5
MC2148	N	N	30	70	30	100	N	N	N	150
MC2151	N	N	5	50	20	150	N	N	10	15
MC2152	N	N	N	50	15	50	N	N	10	<5
MC2153	N	N	10	50	20	100	N	N	10	10
MC2154	N	N	10	50	20	100	N	N	10	10
MC2155	N	N	10	50	20	50	N	N	10	20
MC2156	N	N	5	100	10	100	N	N	10	<5
MC2157	N	N	10	100	15	100	N	N	10	5
MC2158	N	N	5	50	15	50	N	N	10	20
MC2159	N	N	5	70	30	50	N	N	10	20
MC2160	N	N	10	100	20	100	N	N	10	20
MC2161	N	N	10	100	30	100	N	N	10	20
MC2162	N	N	10	70	20	100	N	N	20	30
MC2163	N	N	5	50	15	50	N	N	10	20

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SB PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MC2347	20	N	10	N	100	100	N	30	N	700
MC2348	10	N	5	N	100	50	N	30	N	300
MC2349	30	N	10	N	200	50	N	30	N	700
MC2350	30	N	10	N	200	70	N	30	N	700
-----INYAN KARA GROUP-----										
MC2037	30	N	10	N	100	30	N	50	N	500
MC2038	30	N	10	N	100	30	N	20	N	300
MC2039	30	N	15	N	200	50	N	20	N	700
MC2040	30	N	10	N	100	30	N	20	N	300
MC2041	30	N	15	N	100	30	N	100	N	300
MC2042	30	N	10	N	200	20	N	20	N	300
MC2043	30	N	10	N	300	30	N	50	N	>1,000
MC2044	30	N	15	N	300	30	N	20	N	500
MC2045	30	N	10	N	300	30	N	50	N	300
MC2046	50	N	15	N	100	30	N	50	N	200
MC2047	30	N	10	N	100	20	N	20	N	500
MC2048	50	N	10	10	300	20	N	70	N	>1,000
MC2049	50	N	15	N	200	50	N	50	N	200
MC2050	30	N	10	N	100	50	N	20	N	300
MC2096	50	N	15	N	300	30	N	150	N	700
MC2097	30	N	10	N	500	20	N	20	N	700
MC2098	30	N	15	N	1,000	15	N	20	N	300
MC2099	30	N	10	N	700	20	N	20	N	500
MC2100	50	N	15	10	300	20	N	20	N	700
MC2101	50	N	15	N	100	30	N	50	N	700
MC2147	10	N	10	N	<100	50	N	30	N	1,000
MC2148	10	N	15	N	100	70	N	70	200	700
MC2151	50	N	15	N	100	50	N	20	N	300
MC2152	20	N	5	N	100	15	N	10	N	200
MC2153	50	N	10	N	100	30	N	20	N	300
MC2154	30	N	10	N	100	30	N	50	N	700
MC2155	30	N	15	N	100	30	N	20	N	1,000
MC2156	20	N	5	N	100	20	N	20	N	700
MC2157	50	N	10	N	200	30	N	50	N	700
MC2158	30	N	10	N	500	30	N	10	N	200
MC2159	50	N	10	N	700	15	N	20	N	>1,000
MC2160	30	N	10	N	1,000	15	N	20	N	300
MC2161	50	N	15	N	200	15	N	50	N	500
MC2162	30	N	15	N	1,000	30	N	20	N	300
MC2163	30	N	10	N	1,000	20	N	20	N	300

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	latitude	longitude	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MCZ164	43 38 5	104 1 2	1,183	46,033	781,012	10	20	14	2	22	36
MCZ165	43 51 51	104 13 13	1,257	56,045	781,012	10	20	14	2	22	36
MCZ166	43 52 29	104 14 44	1,169	56,045	781,012	10	20	14	2	20	22
MCZ167	43 53 29	104 9 28	1,190	56,045	781,013	10	20	14	2	22	36
MCZ168	43 52 4	104 9 28	1,242	56,045	781,013	10	20	14	2	22	36
MCZ169	43 43 48	104 10 1	1,202	56,045	781,013	10	20	14	2	22	36
MCZ170	43 46 59	104 12 43	1,159	56,045	781,014	10	20	14	2	22	36
MCZ171	43 48 3	104 11 59	1,241	56,045	781,013	10	20	14	2	21	37
MCZ172	43 48 2	104 11 29	1,218	56,045	781,013	10	20	14	2	22	36
MCZ173	43 50 45	104 13 13	1,168	56,045	781,013	10	20	14	2	20	22
MCZ174	43 51 42	104 15 32	1,338	56,045	781,013	10	20	14	2	22	21
MCZ175	43 52 15	104 16 54	1,339	56,045	781,013	10	20	14	2	22	37
MCZ176	43 55 4	104 19 51	1,212	56,045	781,013	10	20	14	2	20	22
MCZ177	43 55 4	104 20 2	1,206	56,045	781,013	10	20	14	2	22	36
MCZ178	43 56 5	104 20 2	1,188	56,045	781,013	10	20	14	2	20	22
MCZ179	43 57 12	104 20 17	1,189	56,045	781,014	10	20	14	2	22	36
MCZ180	43 58 31	104 20 17	1,256	56,045	781,014	10	20	14	2	22	21
MCZ181	43 59 2	104 20 54	1,177	56,045	781,014	10	20	14	2	20	22
MCZ182	43 57 25	104 17 18	1,178	56,045	781,014	10	20	14	2	20	22
MCZ183	43 58 44	104 17 51	1,163	56,045	781,014	10	20	14	2	22	36
MCZ207	43 6 13	104 20 17	1,211	56,027	781,018	10	20	14	2	20	36
MCZ258	43 50 13	104 9 4	9,190	56,045	791,006	10	20	14	3	36	37
MCZ259	43 50 22	104 8 51	9,176	56,045	791,006	10	20	14	2	21	37
MCZ260	43 52 9	104 8 58	9,170	56,045	791,006	10	20	14	3	37	37
MCZ261	43 52 13	104 9 29	9,164	56,045	791,006	10	20	14	2	21	37
MCZ262	43 52 18	104 8 58	9,185	56,045	791,006	10	20	14	2	21	37
MCZ263	43 51 12	104 8 43	9,210	56,045	791,006	10	20	14	3	20	37
MCZ264	43 50 26	104 6 22	9,205	56,045	791,006	10	20	14	1	20	37
MCZ265	43 49 27	104 6 7	9,177	56,045	791,006	10	20	14	3	37	37
MCZ266	43 48 57	104 6 47	9,184	56,045	791,006	10	20	14	3	37	37
MCZ267	43 47 36	104 7 51	9,194	56,045	791,006	10	20	14	3	37	37
MCZ268	43 46 46	104 7 18	9,203	56,045	791,006	10	20	14	3	37	37
MCZ269	43 48 8	104 7 18	9,174	56,045	791,006	10	20	14	3	37	37
MCZ270	43 48 26	104 6 51	9,166	56,045	791,006	10	20	14	3	37	37
MCZ271	43 45 59	104 4 58	9,197	56,045	791,006	1	20	14	3	37	37
MCZ272	43 45 59	104 4 58	9,188	56,045	791,006	1	20	14	3	37	37
MCZ273	43 45 49	104 4 7	9,161	56,045	791,006	10	20	14	3	37	37
MCZ274	43 47 49	104 5 24	9,214	56,045	791,006	10	20	14	3	20	37
MCZ275	43 48 43	104 5 43	9,175	56,045	791,006	10	20	14	2	37	37
MCZ276	43 49 29	104 8 13	9,206	56,045	791,008	10	20	14	2	21	37
MCZ277	43 47 16	104 10 38	9,195	56,045	791,008	10	20	14	3	37	37
MCZ278	43 46 46	104 10 58	9,182	56,045	791,008	10	20	14	2	37	37
MCZ279	43 46 16	104 11 6	9,169	56,045	791,008	10	20	14	4	21	37
MCZ280	43 45 33	104 10 56	9,216	56,045	791,008	10	20	14	3	37	37
MCZ281	43 45 29	104 8 40	9,183	56,045	791,008	10	20	14	3	37	37



## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR WDTH	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
MC2164	4,360	3	1	6	6	8	6	1	37	3	4
MC2165	4,460	3	1	6	6	7	6	1	37	3	1
MC2166	4,700	3	1	6	6	5	6	1	37	1	4
MC2167	4,620	2	1	8	6	8	6	1	37	3	4
MC2168	4,660	3	1	6	6	7	6	1	37	3	3
MC2169	4,240	2	1	8	6	4	6	1	37	3	4
MC2170	4,340	3	1	6	6	4	6	1	37	3	4
MC2171	4,180	3	1	6	6	5	6	1	37	1	3
MC2172	4,180	2	1	6	6	4	6	1	37	3	4
MC2173	4,220	3	1	6	6	6	6	1	37	1	4
MC2174	4,270	3	1	6	6	8	6	1	37	3	3
MC2175	4,230	3	1	6	6	8	6	1	37	3	3
MC2176	4,260	2	1	6	6	8	6	1	37	1	4
MC2177	4,260	2	1	6	6	4	6	1	37	3	4
MC2178	4,300	3	1	6	6	5	6	1	37	1	4
MC2179	4,340	3	1	8	6	4	6	1	37	3	4
MC2180	4,461	3	1	6	6	4	6	1	37	3	3
MC2181	4,500	3	1	6	6	4	6	1	37	1	4
MC2182	4,460	3	1	1	6	4	6	1	37	1	4
MC2183	4,560	3	1	8	6	7	6	1	37	3	4
MC2207	4,140	2	1	6	6	8	6	1	37	3	4
MC2258	4,380	3	1	6	6	4	6	1	37	2	1
MC2259	4,400	3	1	6	6	4	6	1	37	2	1
MC2260	4,530	3	1	6	6	5	6	1	37	3	4
MC2261	4,520	3	1	6	6	5	6	1	37	1	4
MC2262	4,530	3	1	6	6	5	6	1	37	1	4
MC2263	4,460	3	1	6	6	5	6	1	37	1	3
MC2264	4,420	3	1	4	3	4	2	3	1	2	3
MC2265	4,400	3	1	6	6	5	6	1	37	1	3
MC2266	4,340	3	1	6	6	6	6	1	37	1	4
MC2267	4,240	2	1	6	6	4	6	1	37	1	4
MC2268	4,220	2	1	6	6	4	6	1	37	1	4
MC2269	4,290	2	1	6	6	5	6	1	37	1	4
MC2270	4,220	2	1	6	6	4	6	1	37	1	4
MC2271	4,380	2	1	6	6	3	6	1	37	1	4
MC2272	4,360	2	1	6	6	3	6	1	37	1	4
MC2273	4,420	2	1	6	6	4	6	1	37	1	4
MC2274	4,435	3	1	6	6	5	6	1	37	1	4
MC2275	4,390	3	1	4	6	6	6	1	37	1	3
MC2276	4,320	2	1	6	6	5	6	1	37	1	4
MC2277	4,150	2	1	6	6	4	6	1	37	1	4
MC2278	4,100	2	1	6	6	4	6	1	37	1	4
MC2279	4,100	2	1	6	6	5	6	1	37	1	4
MC2280	4,080	2	1	6	6	4	6	1	37	1	4
MC2281	4,110	2	1	6	6	3	6	1	37	1	4

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG DENS	CONTAMN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MCZ164	3	3	1	--	85	2.2	<1	N	7	1.5	2.00
MCZ165	3	9	1	--	65	3.9	<1	N	7	3.0	.50
MCZ166	3	1	1	--	75	12.4	<1	N	7	2.0	.30
MCZ167	5	3	1	--	70	4.1	<1	N	7	2.0	1.00
MCZ168	3	1	1	--	75	2.9	<1	N	6	2.0	.70
MCZ169	5	3	1	--	100	5.8	2	N	7	1.5	.70
MCZ170	2	3	1	--	100	7.0	1	N	7	3.0	.70
MCZ171	3	1	1	--	120	4.2	1	N	6	3.0	.50
MCZ172	5	3	1	--	140	6.0	2	N	7	2.0	.70
MCZ173	2	9	1	--	120	6.6	2	N	7	2.0	.50
MCZ174	3	1	1	--	120	7.7	1	N	7	2.0	.30
MCZ175	3	1	1	--	75	7.5	1	N	7	2.0	.30
MCZ176	3	1	1	--	120	6.6	<1	N	7	2.0	.30
MCZ177	4	3	1	--	100	5.5	1	N	6	3.0	.50
MCZ178	3	1	1	--	120	7.1	2	N	7	3.0	.70
MCZ179	4	3	1	--	100	6.4	<1	N	6	2.0	.30
MCZ180	3	1	1	--	70	5.4	<1	N	5	1.5	.30
MCZ181	3	3	1	--	65	3.5	<1	N	7	2.0	.50
MCZ182	2	3	1	--	45	6.3	<1	N	5	1.5	.30
MCZ183	3	3	1	--	55	4.7	1	N	7	2.0	.70
MCZ207	4	3	1	--	105	7.7	4	N	7	2.0	.50
MCZ258	3	9	1	--	60	7.4	1	N	7	5.0	.70
MCZ259	3	9	1	--	38	5.9	2	N	6	2.0	.50
MCZ260	3	9	1	--	60	5.2	1	N	6	3.0	1.50
MCZ261	3	9	1	--	52	3.5	<1	N	6	2.0	1.50
MCZ262	3	9	1	--	56	3.3	1	N	7	2.0	1.50
MCZ263	2	9	1	--	46	4.1	1	N	3	1.0	.70
MCZ264	4	3	1	6.95	30	3.4	4	N	7	2.0	1.50
MCZ265	3	9	1	--	50	4.3	1	N	4	1.5	1.00
MCZ266	3	3	1	--	42	7.0	1	N	7	5.0	.70
MCZ267	3	9	1	--	36	9.4	3	N	6	3.0	.70
MCZ268	4	9	1	--	42	11.3	3	N	5	2.0	.70
MCZ269	3	9	1	--	38	4.8	<1	N	6	1.5	.70
MCZ270	3	9	1	--	44	8.3	2	N	4	2.0	.70
MCZ271	3	3	1	--	40	4.3	2	N	6	1.5	1.00
MCZ272	3	3	1	--	40	4.2	1	N	5	2.0	1.00
MCZ273	4	9	1	--	38	4.8	1	N	5	2.0	1.50
MCZ274	4	9	1	--	34	4.3	1	N	4	1.5	1.00
MCZ275	3	9	1	--	32	1.9	<1	N	6	2.0	1.50
MCZ276	3	9	2	--	62	5.5	3	N	7	5.0	.70
MCZ277	3	9	2	--	60	5.8	1	N	6	3.0	1.00
MCZ278	3	9	2	--	60	2.5	2	N	7	3.0	1.50
MCZ279	3	9	2	--	58	8.7	1	N	6	3.0	1.00
MCZ280	3	9	2	--	58	4.3	2	N	7	1.5	1.00
MCZ281	3	9	2	--	50	5.0	<1	N	7	3.0	1.50

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MCZ164	5.00	2.0	.20	200	<.5	N	N	10	700	7
MCZ165	.70	.7	.70	500	N	N	N	20	700	15
MCZ166	.50	.5	.30	200	<.5	N	N	20	700	10
MCZ167	3.00	1.5	.30	300	<.5	N	N	20	1,000	7
MCZ168	5.00	.7	.30	300	N	N	N	20	700	15
MCZ169	5.00	1.5	.15	100	<.5	N	N	20	700	7
MCZ170	2.00	1.5	.20	200	.5	N	N	20	1,000	10
MCZ171	2.00	1.0	.50	200	N	N	N	20	700	15
MCZ172	.70	1.0	.30	100	N	N	N	20	700	15
MCZ173	15.00	.7	.30	100	<.5	N	N	20	700	15
MCZ174	.20	.5	.50	50	<.5	N	N	20	500	15
MCZ175	1.50	.7	.30	700	<.5	N	N	20	500	15
MCZ176	.70	.7	.30	300	<.5	N	N	20	700	15
MCZ177	.50	.7	.30	500	<.5	N	N	20	700	15
MCZ178	.50	1.0	.70	300	<.5	N	N	20	700	10
MCZ179	.20	.7	.50	200	N	N	N	20	700	5
MCZ180	.30	.5	.50	300	N	N	N	20	500	15
MCZ181	1.00	1.0	.50	200	.5	N	N	20	700	10
MCZ182	5.00	.2	.20	2,000	N	N	N	20	700	15
MCZ183	3.00	1.0	.20	200	<.5	N	N	10	700	7
MCZ207	1.50	1.0	.20	100	.5	N	N	20	700	10
MCZ258	1.00	.7	.50	300	N	N	N	30	700	3
MCZ259	.50	.7	.30	200	<.5	N	N	20	500	2
MCZ260	7.00	1.0	.30	700	N	N	N	50	700	3
MCZ261	5.00	1.0	.30	700	N	N	N	30	700	2
MCZ262	5.00	1.0	.30	500	N	N	N	50	700	2
MCZ263	5.00	.7	.15	500	N	N	N	30	300	<1
MCZ264	10.00	.7	.30	500	N	N	N	30	500	1
MCZ265	7.00	1.0	.30	500	N	N	N	30	700	1
MCZ266	.70	1.0	.30	700	<.5	N	N	50	700	2
MCZ267	2.00	1.0	.30	300	N	N	N	50	1,000	3
MCZ268	1.00	.7	.30	300	N	N	N	30	700	2
MCZ269	5.00	1.0	.30	200	<.5	N	N	30	1,000	5
MCZ270	3.00	1.0	.20	300	N	N	N	50	700	3
MCZ271	7.00	1.0	.30	500	<.5	N	N	30	700	2
MCZ272	7.00	1.0	.30	500	N	N	N	30	700	2
MCZ273	5.00	1.0	.30	700	N	N	N	50	500	3
MCZ274	3.00	1.0	.20	700	N	N	N	30	300	1
MCZ275	7.00	1.0	.30	500	N	N	N	30	700	1
MCZ276	.70	.7	.70	700	N	N	N	50	700	3
MCZ277	2.00	1.5	.30	200	N	N	N	30	700	3
MCZ278	3.00	2.0	.30	300	N	N	N	30	1,000	3
MCZ279	2.00	1.5	.50	300	N	N	N	30	1,000	2
MCZ280	1.50	2.0	.20	300	N	N	N	20	700	2
MCZ281	1.50	1.5	.20	300	N	N	N	30	700	2

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	GI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MCZ164	N	N	10	100	20	50	N	N	20	30
MCZ165	N	N	15	100	30	100	N	N	20	50
MCZ166	N	N	10	100	50	100	N	N	20	30
MCZ167	N	N	5	100	15	50	N	N	10	20
MCZ168	N	N	10	50	15	100	N	N	10	15
MCZ169	N	N	10	100	30	100	N	N	20	30
MCZ170	N	N	15	100	30	50	N	N	10	30
MCZ171	N	N	10	70	30	100	N	N	10	30
MCZ172	N	N	15	150	30	100	N	N	10	50
MCZ173	N	N	10	100	30	100	N	10.0	20	30
MCZ174	N	N	5	50	30	100	N	N	10	15
MCZ175	N	N	20	50	20	50	N	N	10	30
MCZ176	N	N	15	70	30	100	N	N	10	30
MCZ177	N	N	15	70	30	50	N	N	10	30
MCZ178	N	N	15	150	50	100	N	N	30	50
MCZ179	N	N	10	100	30	100	N	N	30	30
MCZ180	N	N	10	30	15	100	N	N	20	20
MCZ181	N	N	10	100	30	100	N	N	20	20
MCZ182	N	N	30	20	15	50	N	N	10	20
MCZ183	N	N	10	100	20	100	N	N	10	10
MCZ207	N	N	10	100	50	50	N	N	10	30
MCZ258	N	N	10	100	50	100	N	N	N	30
MCZ259	N	N	5	70	20	50	N	N	10	20
MCZ260	N	N	15	70	30	50	N	N	N	20
MCZ261	N	N	5	70	20	50	N	N	N	20
MCZ262	N	N	5	50	20	100	N	N	N	20
MCZ263	N	N	N	30	20	50	N	N	N	10
MCZ264	N	N	5	100	30	50	N	N	N	20
MCZ265	N	N	5	70	20	50	N	N	N	20
MCZ266	N	N	10	100	30	50	N	N	N	50
MCZ267	N	N	5	70	50	50	N	N	N	30
MCZ268	N	N	5	70	30	100	N	N	N	30
MCZ269	N	N	5	70	50	100	N	N	N	15
MCZ270	N	N	5	70	30	50	N	N	N	30
MCZ271	N	N	5	70	20	50	N	N	N	10
MCZ272	N	N	5	50	20	50	N	N	N	20
MCZ273	N	N	10	70	30	50	N	N	N	30
MCZ274	N	N	5	50	20	50	N	N	N	15
MCZ275	N	N	10	70	30	50	N	N	10	20
MCZ276	N	N	15	70	30	50	N	N	N	30
MCZ277	N	N	5	70	30	50	N	N	N	20
MCZ278	N	N	10	100	50	50	N	N	N	30
MCZ279	N	N	10	100	50	50	N	N	N	30
MCZ280	N	N	5	50	20	100	N	N	N	15
MCZ281	N	N	10	150	50	50	N	N	N	30

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SB PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MCZ164	50	N	15	N	300	15	N	50	N	500
MCZ165	50	N	15	N	300	50	N	70	N	700
MCZ166	50	N	15	10	100	30	N	20	N	300
MCZ167	50	N	10	N	200	20	N	10	N	>1,000
MCZ168	50	N	10	N	300	30	N	20	N	300
MCZ169	50	N	15	N	500	30	N	20	N	500
MCZ170	50	N	15	N	300	50	N	20	N	200
MCZ171	30	N	15	N	300	200	N	20	N	100
MCZ172	50	N	20	10	200	100	N	20	N	100
MCZ173	50	N	15	N	700	50	N	50	N	300
MCZ174	50	N	15	N	100	50	N	20	N	300
MCZ175	30	N	10	<10	300	30	N	10	N	300
MCZ176	50	N	15	N	100	100	N	50	N	200
MCZ177	50	N	15	N	100	30	N	50	N	300
MCZ178	50	N	30	N	100	50	N	70	N	>1,000
MCZ179	50	N	15	N	100	30	N	50	N	>1,000
MCZ180	30	N	15	10	200	30	N	20	N	700
MCZ181	50	N	15	N	100	30	N	50	N	1,000
MCZ182	20	N	10	N	500	20	N	50	N	1,000
MCZ183	50	N	15	N	100	15	N	50	N	1,000
MCZ207	50	N	15	<10	700	200	N	10	<200	200
MCZ258	20	N	15	N	200	150	N	50	N	700
MCZ259	20	N	15	N	100	100	N	50	N	1,000
MCZ260	20	N	15	N	300	100	N	50	N	200
MCZ261	20	N	15	N	200	70	N	50	N	700
MCZ262	20	N	5	N	200	70	N	30	N	500
MCZ263	10	N	5	N	500	30	N	20	N	100
MCZ264	20	N	10	N	200	50	N	30	N	700
MCZ265	10	N	10	N	200	70	N	30	N	700
MCZ266	50	N	15	N	200	100	N	30	N	500
MCZ267	20	N	15	N	300	200	N	30	<200	700
MCZ268	50	N	15	20	200	100	N	30	N	200
MCZ269	30	N	15	N	700	150	N	50	N	700
MCZ270	20	N	15	N	200	150	N	30	N	500
MCZ271	10	N	10	N	300	50	N	30	N	700
MCZ272	10	N	10	N	300	70	N	30	N	300
MCZ273	20	N	15	N	200	70	N	30	N	1,000
MCZ274	10	N	10	N	100	70	N	20	N	200
MCZ275	20	N	10	N	500	70	N	50	N	1,000
MCZ276	30	N	15	N	100	150	N	70	N	700
MCZ277	20	N	15	N	200	150	N	50	N	200
MCZ278	30	N	15	N	300	150	N	30	N	300
MCZ279	30	N	15	N	200	150	N	30	N	300
MCZ280	20	N	15	N	200	100	N	30	N	500
MCZ281	30	N	15	N	100	150	N	50	N	300

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	latitude	longitud	LAB. NO.	STATE/CY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MC2282	43 46 7	104 7 21	9,204	56,045	791,008	10	20	14	2	21	37
MC2283	43 45 46	104 8 14	9,207	56,045	791,008	10	20	14	5	36	37
MC2284	43 45 38	104 7 54	9,176	56,045	791,008	10	20	14	5	36	37
-----TERTIARY UNITS-----											
MC2001	43 0 59	105 54 13	1,055	56,009	780,929	10	20	14	2	37	37
MC2002	43 1 48	105 54 14	1,062	56,009	780,929	10	20	14	2	21	22
MC2003	43 2 1	105 54 16	1,071	56,009	780,929	10	20	14	2	21	22
MC2004	43 3 8	105 52 51	1,052	56,009	780,929	10	20	14	2	37	37
MC2005	43 9 5	105 52 54	1,067	56,009	780,930	10	20	14	2	22	36
MC2006	43 7 22	105 54 51	1,061	56,009	780,930	10	20	14	2	37	37
MC2007	43 7 31	105 55 7	1,065	56,009	780,930	10	20	14	2	22	36
MC2008	43 8 1	105 53 58	1,068	56,009	780,930	10	20	14	2	22	36
MC2009	43 4 7	105 59 29	1,070	56,009	780,930	10	20	14	2	22	36
MC2010	43 4 31	105 59 47	1,063	56,009	780,930	10	20	14	2	21	22
MC2011	43 5 49	105 53 50	1,069	56,009	780,930	10	20	14	2	20	21
MC2012	43 5 20	105 53 39	1,059	56,009	780,930	10	20	14	2	37	37
MC2013	43 4 31	105 55 0	1,056	56,009	780,930	10	20	14	2	37	37
MC2014	43 2 55	105 58 52	1,053	56,009	780,930	10	20	14	2	37	37
MC2015	43 2 36	105 59 13	1,073	56,009	780,930	10	20	14	2	21	22
MC2016	43 0 20	105 56 44	1,058	56,009	781,010	10	20	14	2	37	37
MC2017	43 9 9	105 56 18	1,057	56,009	781,001	10	20	14	2	37	37
MC2018	43 10 3	105 56 36	1,054	56,009	781,010	10	20	14	2	37	37
MC2019	43 12 14	105 56 59	1,066	56,009	781,001	10	20	14	2	22	36
MC2020	43 11 55	105 55 58	1,060	56,009	781,001	1	20	14	2	22	36
MC2021	43 11 53	105 55 56	1,072	56,009	781,001	1	20	14	2	22	36
MC2022	43 1 22	104 41 7	1,111	56,027	781,905	10	20	14	2	22	36
MC2023	43 0 42	104 43 13	1,102	56,027	781,004	10	20	14	2	21	22
MC2024	43 0 55	104 43 24	1,090	56,027	781,005	10	20	14	2	21	22
MC2027	43 4 12	104 36 17	1,110	56,027	781,005	10	20	14	3	20	36
MC2028	43 1 7	104 36 21	1,089	56,027	781,005	1	20	14	2	21	22
MC2029	43 1 7	104 36 21	1,077	56,027	781,005	1	20	14	2	20	22
MC2031	43 0 1	104 30 55	1,106	56,027	781,006	10	20	14	3	21	36
MC2032	43 0 49	104 30 40	1,080	56,027	781,006	10	20	14	2	21	22
MC2033	43 4 5	104 32 8	1,085	56,027	781,006	10	20	14	2	21	22
MC2034	43 0 18	104 32 34	1,086	56,027	781,007	10	20	14	2	21	22
MC2035	43 1 2	104 36 13	1,105	56,027	781,007	10	20	14	2	21	22
MC2036	43 0 46	104 36 19	1,095	56,027	781,007	10	20	14	2	21	22
MC2051	43 1 22	104 25 52	1,217	56,027	781,005	10	20	14	2	20	22
MC2052	43 1 12	104 22 56	1,160	56,027	781,005	10	20	14	2	20	22

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE---continued

sample	ELLV	RELIEF	ROCK TYC	SED COLR	WTR FLOW	STR WDTH	WTR DPTH	WTR LEVEL	WTR COLR	STR CHAN	VEG TYPE
MC2282	4,160	2	1	6	6	4	6	1	37	1	4
MC2283	4,100	2	1	6	6	3	6	1	37	1	4
MC2284	4,100	2	1	6	3	3	2	3	1	1	4
-----TERTIARY UNITS-----											
MC2001	5,520	3	1	1	6	3	6	1	37	1	3
MC2002	5,560	3	1	1	6	5	6	1	37	1	4
MC2003	5,565	3	1	1	6	4	6	1	37	1	3
MC2004	5,570	3	1	1	6	4	6	1	37	1	3
MC2005	5,590	3	1	8	6	6	6	1	37	3	4
MC2006	5,750	3	1	1	6	6	6	1	37	1	3
MC2007	5,660	3	1	8	6	4	6	1	37	3	4
MC2008	5,790	3	1	6	6	4	6	1	37	3	4
MC2009	5,790	3	1	6	6	5	6	1	37	3	4
MC2010	5,770	3	1	1	6	4	6	1	37	1	4
MC2011	5,630	3	1	1	6	4	6	1	37	1	2
MC2012	5,750	3	1	1	6	5	6	1	37	1	3
MC2013	5,670	3	1	1	6	3	6	1	37	1	3
MC2014	5,610	3	1	1	6	2	6	1	37	1	3
MC2015	5,610	3	1	6	6	2	6	1	37	1	3
MC2016	5,370	3	1	1	6	5	6	1	37	1	3
MC2017	5,775	3	1	1	6	5	6	1	37	1	3
MC2018	5,890	3	1	1	6	7	6	1	37	1	3
MC2019	5,770	3	1	8	6	4	6	1	37	3	4
MC2020	5,750	3	1	6	6	6	6	1	37	3	4
MC2021	5,750	3	1	6	6	6	6	1	37	3	4
MC2022	4,500	3	1	6	6	3	6	1	37	1	3
MC2023	4,480	3	1	6	6	5	6	1	37	1	3
MC2024	4,478	3	1	6	6	5	6	1	37	1	3
MC2027	4,280	3	1	6	6	6	1	2	2	1	3
MC2028	4,440	3	1	6	6	7	6	1	37	1	3
MC2029	4,440	3	1	1	6	6	6	1	37	1	3
MC2031	4,470	3	1	6	2	5	1	2	2	1	3
MC2032	4,470	3	1	6	6	4	6	1	37	1	3
MC2033	4,400	3	1	6	6	5	6	1	37	1	3
MC2034	4,580	3	1	6	6	3	6	1	37	1	3
MC2035	4,560	3	1	6	6	6	6	1	37	1	3
MC2036	4,560	3	1	1	6	5	6	1	37	1	3
MC2051	4,510	2	1	6	6	7	6	1	37	1	4
MC2052	4,250	3	1	6	6	1	6	1	37	3	4

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG DENS	CONTAMN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	HG %
MCZ282	3	9	2	--	50	5.2	2	N	7	3.0	.70
MCZ283	3	9	2	--	52	7.9	4	N	5	1.5	.70
MCZ284	3	9	2	7.80	42	4.4	4	N	5	3.0	.70
-----TERTIARY UNITS-----											
MCZ001	2	1	2	--	92	2.1	3	N	5	3.0	.30
MCZ002	3	3	1	--	100	1.7	2	N	5	2.0	.30
MCZ003	2	3	1	--	82	1.7	2	N	6	2.0	.30
MCZ004	2	1	1	--	150	1.1	1	N	4	1.5	.20
MCZ005	3	3	1	--	66	1.7	3	N	6	1.5	.20
MCZ006	2	1	2	--	96	2.7	2	N	7	1.5	.30
MCZ007	4	3	1	--	75	3.0	<1	N	6	1.0	.30
MCZ008	2	3	2	--	82	2.3	3	N	7	1.5	.30
MCZ009	3	3	2	--	82	3.3	3	N	7	2.0	.30
MCZ010	3	3	1	--	83	4.2	3	N	7	2.0	.50
MCZ011	2	7	1	--	75	1.0	2	N	5	.7	.20
MCZ012	2	1	1	--	80	2.6	3	N	7	1.5	.30
MCZ013	2	1	1	--	76	1.7	2	N	6	2.0	.50
MCZ014	2	1	1	--	92	3.0	3	N	7	2.0	.50
MCZ015	2	3	1	--	92	1.9	3	N	6	2.0	.30
MCZ016	2	1	1	--	92	2.4	3	N	6	2.0	.30
MCZ017	2	1	1	--	125	1.7	5	N	7	2.0	.50
MCZ018	2	1	1	--	84	2.5	3	N	5	1.5	.30
MCZ019	3	3	2	--	100	1.5	<1	N	4	1.0	.20
MCZ020	3	3	2	--	62	.9	2	N	5	.7	.15
MCZ021	3	3	2	--	62	.7	3	N	5	1.0	.20
MCZ022	2	9	1	--	125	5.4	2	N	6	1.5	.70
MCZ023	2	3	1	--	125	3.1	2	N	5	1.5	.50
MCZ024	2	3	1	--	90	3.5	1	N	6	1.5	.50
MCZ027	2	9	1	--	90	4.9	<1	N	6	3.0	1.00
MCZ028	2	3	1	--	115	3.3	2	N	7	3.0	.50
MCZ029	2	1	1	--	115	3.5	<1	N	6	3.0	.50
MCZ031	2	3	1	--	115	5.9	2	N	7	3.0	1.00
MCZ032	3	3	1	--	100	5.5	1	N	7	2.0	.70
MCZ033	2	3	1	--	90	4.2	<1	N	7	2.0	.70
MCZ034	2	9	1	--	115	4.2	2	N	7	2.0	.70
MCZ035	2	1	1	--	100	3.8	2	N	6	1.5	.70
MCZ036	2	3	1	--	95	3.1	3	N	7	1.5	.50
MCZ051	4	3	1	--	125	1.9	<1	N	7	2.0	.70
MCZ052	2	1	1	--	110	8.4	2	N	6	1.5	.70



APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MCZ282	.50	1.0	.50	300	<.5	N	N	20	700	2
MCZ283	5.00	1.0	.20	300	N	N	N	30	300	2
MCZ284	5.00	1.0	.50	1,500	N	N	N	30	700	2
-----TERTIARY UNITS-----										
MCZ001	.30	.5	>1.00	300	N	N	N	50	700	15
MCZ002	.50	.5	.70	200	N	N	N	10	700	15
MCZ003	.70	.5	.70	200	<.5	N	N	10	700	10
MCZ004	.20	.7	.50	100	N	N	N	N	700	7
MCZ005	.15	.5	.50	100	<.5	N	N	N	700	7
MCZ006	.50	1.0	.50	100	<.5	N	N	10	700	10
MCZ007	.50	1.0	.50	100	N	N	N	N	700	15
MCZ008	.20	7.0	.30	100	<.5	N	N	N	700	7
MCZ009	.50	.7	.50	200	<.5	N	N	10	700	10
MCZ010	.50	.7	.20	100	N	N	N	10	700	10
MCZ011	.20	.7	.70	100	N	N	N	N	700	10
MCZ012	.50	1.0	.70	100	N	N	N	10	700	10
MCZ013	.70	.5	.70	100	<.5	N	N	20	700	15
MCZ014	1.00	.7	.30	100	N	N	N	10	700	10
MCZ015	.20	.5	.50	100	N	N	N	10	700	7
MCZ016	.50	.7	1.00	200	.5	N	N	20	700	10
MCZ017	.50	1.0	>1.00	100	N	N	N	20	700	15
MCZ018	.20	.7	.50	100	N	N	N	10	700	15
MCZ019	.20	7.0	.50	100	<.5	N	N	N	700	7
MCZ020	.15	.5	.50	100	<.5	N	N	N	500	7
MCZ021	.15	.5	.50	100	N	N	N	N	700	7
MCZ022	10.00	1.5	.20	500	<.5	N	N	10	700	15
MCZ023	3.00	1.0	.20	200	<.5	N	N	20	1,000	15
MCZ024	2.00	.7	.30	200	<.5	N	N	20	700	10
MCZ027	2.00	1.5	.30	300	<.5	N	N	20	1,000	15
MCZ028	3.00	1.0	.30	500	<.5	N	N	20	1,000	10
MCZ029	3.00	1.0	.50	500	N	N	N	20	1,000	10
MCZ031	15.00	2.0	.20	300	<.5	N	N	20	5,000	15
MCZ032	3.00	1.0	.50	200	N	N	N	10	700	15
MCZ033	2.00	1.0	.20	200	N	N	N	10	1,500	15
MCZ034	7.00	1.5	.50	500	<.5	N	N	10	1,000	15
MCZ035	5.00	2.0	.50	300	<.5	N	N	10	2,000	10
MCZ036	7.00	1.0	.30	300	<.5	N	N	10	2,000	15
MCZ051	3.00	3.0	.50	200	N	N	N	10	700	10
MCZ052	10.00	1.5	.20	500	.5	N	N	10	700	10

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MCZ282	N	N	10	150	30	100	N	N	N	20
MCZ283	N	N	5	50	30	50	N	20.0	N	30
MCZ284	N	N	10	50	30	50	N	<5.0	N	20
-----TERTIARY UNITS-----										
MCZ001	N	N	10	150	20	200	N	N	30	5
MCZ002	N	N	10	50	15	100	N	N	20	10
MCZ003	N	N	<5	50	20	50	N	N	20	10
MCZ004	N	N	5	70	15	100	N	N	10	N
MCZ005	N	N	<5	70	15	100	N	N	10	5
MCZ006	N	N	10	150	15	50	N	N	20	5
MCZ007	N	N	<5	50	15	100	N	N	10	10
MCZ008	N	N	<5	70	15	100	N	N	10	5
MCZ009	N	N	10	150	20	150	N	N	10	15
MCZ010	N	N	10	100	20	100	N	N	10	30
MCZ011	N	N	<5	50	15	100	N	N	20	5
MCZ012	N	N	10	70	15	100	N	N	20	15
MCZ013	N	N	5	50	15	50	N	N	10	10
MCZ014	N	N	5	70	20	100	N	N	10	15
MCZ015	N	N	<5	150	15	100	N	N	20	10
MCZ016	N	N	10	100	15	100	N	N	20	15
MCZ017	N	N	10	150	15	700	N	N	50	150
MCZ018	N	N	5	150	15	150	N	N	20	10
MCZ019	N	N	<5	100	15	100	N	N	20	5
MCZ020	N	N	N	50	10	100	N	N	10	N
MCZ021	N	N	<5	20	10	50	N	N	10	N
MCZ022	N	N	10	50	20	100	N	N	10	15
MCZ023	N	N	10	20	15	100	N	N	10	15
MCZ024	N	N	5	50	15	100	N	N	10	15
MCZ027	N	N	10	70	30	100	N	N	10	30
MCZ028	N	N	15	70	15	150	N	N	10	15
MCZ029	N	N	15	70	15	100	N	N	10	10
MCZ031	N	N	15	70	30	100	N	N	20	30
MCZ032	N	N	10	50	15	100	N	N	10	15
MCZ033	N	N	5	50	15	100	N	N	10	15
MCZ034	N	N	5	200	15	150	N	N	10	10
MCZ035	N	N	10	50	20	100	N	N	10	15
MCZ036	N	N	5	50	20	150	N	N	10	10
MCZ051	N	N	10	100	10	100	N	N	10	10
MCZ052	N	N	5	30	15	100	N	N	10	5

APPENDIX U-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SU PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MCZ282	20	N	15	N	100	100	N	50	N	700
MCZ283	10	N	10	N	500	100	N	20	N	300
MCZ284	20	N	10	N	700	70	N	30	N	700
-----TERTIARY UNITS-----										
MCZ001	50	N	30	N	200	50	N	100	N	1,000
MCZ002	50	N	10	<10	100	50	N	70	N	>1,000
MCZ003	30	N	10	N	100	30	N	20	N	>1,000
MCZ004	30	N	N	N	100	75	N	20	N	700
MCZ005	30	N	5	N	100	15	N	20	N	>1,000
MCZ006	50	N	10	10	100	30	N	50	N	>1,000
MCZ007	30	N	10	N	100	30	N	20	N	500
MCZ008	50	N	5	<10	100	20	N	50	N	1,000
MCZ009	50	N	10	N	100	50	N	50	N	1,000
MCZ010	50	N	10	N	100	50	N	10	N	700
MCZ011	50	N	10	N	100	20	N	70	N	>1,000
MCZ012	50	N	10	<10	100	30	N	70	N	>1,000
MCZ013	30	N	10	N	100	30	N	70	N	700
MCZ014	50	N	10	N	200	30	N	70	N	700
MCZ015	30	N	10	N	100	30	N	20	N	1,000
MCZ016	30	N	10	N	100	30	N	70	N	>1,000
MCZ017	50	N	30	N	200	30	N	150	N	>1,000
MCZ018	30	N	10	N	100	20	N	20	N	1,000
MCZ019	30	N	10	<10	100	20	N	20	N	>1,000
MCZ020	20	N	5	N	100	20	N	20	N	>1,000
MCZ021	30	N	10	N	100	20	N	50	N	>1,000
MCZ022	50	N	10	N	500	30	N	20	N	200
MCZ023	30	N	10	N	500	30	N	20	N	200
MCZ024	30	N	10	N	200	20	N	20	N	200
MCZ027	50	N	15	10	300	50	N	20	N	300
MCZ028	30	N	15	N	300	50	N	70	<200	700
MCZ029	30	N	15	N	500	50	N	50	N	1,000
MCZ031	50	N	20	15	700	30	N	50	N	200
MCZ032	50	N	15	N	300	30	N	20	N	300
MCZ033	30	N	10	N	300	30	N	10	N	100
MCZ034	50	N	10	N	500	30	N	70	N	500
MCZ035	50	N	15	N	500	30	N	50	N	300
MCZ036	50	N	10	N	500	20	N	50	N	300
MCZ051	50	N	10	N	700	20	N	20	N	300
MCZ052	50	N	10	N	500	20	N	20	N	300

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	latitude	longitud	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MCZ053	43 1 34	104 23 25	1,205	56,027	781,050	10	20	14	2	22	36
MCZ055	43 4 20	104 24 41	1,181	56,027	781,006	10	20	14	2	22	36
MCZ056	43 4 1	104 27 17	1,216	56,027	781,006	10	20	14	2	22	36
MCZ057	43 3 24	104 29 14	1,175	56,027	781,006	10	20	14	2	22	36
MCZ058	43 5 28	104 22 47	1,220	56,027	781,006	10	20	14	2	22	36
MCZ059	43 5 5	104 22 55	1,237	56,027	781,007	1	20	14	2	22	21
MCZ060	43 5 6	104 22 55	1,236	56,027	781,007	1	20	14	2	22	21
MCZ102	43 1 41	104 27 39	1,184	56,027	781,016	10	20	14	2	20	22
MCZ103	43 3 12	104 25 2	1,249	56,027	781,016	10	20	14	2	22	36
MCZ104	43 5 27	104 24 42	1,180	56,027	781,016	10	20	14	2	20	22
MCZ106	43 6 42	104 26 43	1,260	56,027	781,016	10	20	14	2	22	21
MCZ107	43 6 25	104 28 2	1,173	56,027	781,016	10	20	14	2	22	36
MCZ108	43 5 37	104 29 36	1,161	56,027	781,016	10	20	14	2	22	36
MCZ126	43 2 22	104 19 51	1,226	56,027	781,017	10	20	14	2	20	22
MCZ127	43 1 24	104 20 24	1,235	56,027	781,017	10	20	14	2	22	36
MCZ128	43 1 4	104 17 50	1,209	56,027	781,017	10	20	14	3	20	21
MCZ129	43 1 13	104 17 52	1,222	56,027	781,017	10	20	14	2	20	22
MCZ130	43 5 6	104 18 22	1,244	56,027	781,017	10	20	14	2	22	36
MCZ131	43 4 20	104 17 44	1,201	56,027	781,017	10	20	14	2	22	36
MCZ132	43 3 18	104 16 11	1,187	56,027	781,017	10	20	14	2	22	36
MCZ144	43 14 0	105 57 28	1,155	56,009	781,019	10	20	14	2	20	22
MCZ145	43 13 12	105 57 10	1,261	56,009	781,019	10	20	14	2	22	21
MCZ146	43 15 55	105 56 58	1,158	56,009	781,019	10	20	14	2	20	22
MCZ184	43 1 50	104 42 43	1,193	56,027	781,016	10	20	14	2	22	36
MCZ185	43 3 2	104 42 2	1,254	56,027	781,016	10	20	14	2	22	21
MCZ186	43 3 26	104 40 54	1,176	56,027	781,016	10	20	14	2	22	36
MCZ187	43 2 1	104 39 39	1,248	56,027	781,016	10	20	14	2	22	21
MCZ188	43 2 38	104 38 43	1,197	56,027	781,016	10	20	14	3	20	21
MCZ189	43 2 12	104 36 27	1,238	56,027	781,016	10	20	14	2	22	36
MCZ191	43 3 12	104 33 59	1,234	56,027	781,016	10	20	14	2	22	36
MCZ192	43 2 42	104 31 21	1,194	56,027	781,016	10	20	14	2	22	36
MCZ208	43 7 14	104 16 28	1,200	56,027	781,018	10	20	14	2	22	36
MCZ209	43 21 53	105 57 28	1,156	56,009	781,019	10	20	14	2	22	36
MCZ210	43 20 55	105 57 39	1,210	56,009	781,019	10	20	14	2	20	22
MCZ211	43 18 59	105 56 45	1,262	56,009	781,019	10	20	14	2	22	21
MCZ212	43 17 51	105 58 3	1,112	56,009	781,019	10	20	14	2	20	22
MCZ213	43 17 57	105 58 5	1,263	56,009	781,019	10	20	14	2	22	21
MCZ214	43 16 46	105 57 21	1,157	56,009	781,019	10	20	14	2	20	22
-----MULE CREEK AREA-----											
MCZ149	43 19 42	104 14 28	9,068	56,027	790,908	10	20	14	4	21	37
MCZ150	43 19 42	104 14 28	9,058	56,027	790,908	10	20	14	5	37	37
MCZ215	43 18 21	104 14 52	9,067	56,027	790,908	10	20	14	1	20	37
MCZ216	43 19 51	104 9 28	9,062	56,027	790,908	10	20	14	4	21	37
MCZ217	43 19 29	104 10 8	9,055	56,027	790,908	10	20	14	5	37	37

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR WDTH	WTR DPTH	WTR LEVEL	WTR COLR	STR CHAN	VEG TYPE
MCZ053	4,250	2	1	8	6	6	6	1	37	3	4
MCZ055	4,255	3	1	8	6	8	6	1	37	3	4
MCZ056	4,372	2	1	8	6	5	6	1	37	3	4
MCZ057	4,390	3	1	8	6	5	6	1	37	3	4
MCZ058	4,150	2	1	6	6	2	6	1	37	3	4
MCZ059	4,150	3	1	6	6	5	6	1	37	3	3
MCZ060	4,150	3	1	6	6	5	6	1	37	3	3
MCZ102	4,372	3	1	6	6	7	6	1	37	1	4
MCZ103	4,270	3	1	6	6	6	6	1	37	3	3
MCZ104	4,252	3	1	6	6	5	6	1	37	1	4
MCZ106	4,176	3	1	8	1	5	1	2	2	1	3
MCZ107	4,198	3	1	6	6	6	6	1	37	3	4
MCZ108	4,225	3	1	8	6	5	6	1	37	3	4
MCZ126	4,220	2	1	1	6	5	6	1	37	1	4
MCZ127	4,240	3	1	6	6	7	6	1	37	3	3
MCZ128	4,320	2	1	6	2	5	1	2	1	1	4
MCZ129	4,240	2	1	6	6	6	6	1	37	1	4
MCZ130	4,200	3	1	6	6	5	6	1	37	3	3
MCZ131	4,260	2	1	8	6	8	6	1	37	3	4
MCZ132	4,260	3	1	8	6	8	6	1	37	3	4
MCZ144	5,820	3	1	6	6	6	6	1	37	1	4
MCZ145	5,820	3	1	6	6	5	6	1	37	2	1
MCZ146	5,640	3	1	6	6	7	6	1	37	1	4
MCZ184	4,450	2	1	6	6	7	6	1	37	3	4
MCZ185	3,990	3	1	6	6	8	6	1	37	3	3
MCZ186	4,390	3	1	8	6	1	6	1	37	3	4
MCZ187	4,440	3	1	6	6	4	6	1	37	3	3
MCZ188	4,360	2	1	6	2	4	1	2	1	1	4
MCZ189	4,490	3	1	6	6	5	6	1	37	3	3
MCZ191	4,460	1	1	6	6	4	6	1	37	3	4
MCZ192	4,480	2	1	6	6	5	6	1	37	3	4
MCZ208	4,150	2	1	8	6	8	6	1	37	3	4
MCZ209	5,410	3	1	6	6	5	6	1	37	3	4
MCZ210	5,440	2	1	6	6	5	6	1	37	1	4
MCZ211	5,560	3	1	6	6	6	6	1	37	3	3
MCZ212	5,600	3	1	6	6	6	6	1	37	1	3
MCZ213	5,600	3	1	6	6	6	6	1	37	2	3
MCZ214	5,640	3	1	6	6	6	6	1	37	1	4
-----MULE CREEK AREA-----											
MCZ149	3,840	2	1	6	6	5	6	1	37	1	4
MCZ150	3,840	2	1	6	6	6	6	1	37	1	4
MCZ215	3,910	3	1	6	6	5	6	1	37	2	4
MCZ216	3,900	2	1	6	6	4	6	1	37	1	4
MCZ217	3,870	2	1	6	6	5	6	1	37	1	3

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG DENS	CONTAHN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MC2053	5	3	1	--	130	3.6	2	N	7	2.0	.70
MC2055	5	3	1	--	115	4.2	2	N	6	1.5	.70
MC2056	5	3	1	--	92	4.5	2	N	7	2.0	.70
MC2057	4	3	1	--	90	4.2	1	N	7	2.0	.70
MC2058	3	3	1	--	84	4.1	1	N	7	2.0	.70
MC2059	3	3	1	--	100	3.9	<1	N	7	3.0	1.00
MC2060	3	3	1	--	100	4.1	<1	N	5	2.0	.50
MC2102	3	3	1	--	120	8.5	2	N	7	2.0	1.00
MC2103	3	3	1	--	100	8.2	2	N	7	3.0	1.00
MC2104	3	3	1	--	100	5.6	<1	N	7	3.0	.70
MC2106	3	3	1	--	70	5.7	<1	N	7	2.0	.70
MC2107	4	3	1	--	90	5.9	<1	N	7	3.0	.70
MC2108	5	3	1	--	80	6.7	2	N	7	2.0	1.00
MC2126	3	9	1	--	150	2.3	1	N	5	1.5	.50
MC2127	3	9	1	--	150	4.0	2	N	6	2.0	.70
MC2128	3	3	1	--	156	4.4	3	N	7	1.5	.70
MC2129	3	3	1	--	184	2.4	2	N	7	2.0	.50
MC2130	3	3	1	--	140	10.8	4	N	6	3.0	.50
MC2131	5	3	1	--	140	2.8	2	N	7	2.0	.70
MC2132	4	3	1	--	140	1.5	2	N	7	1.5	.70
MC2144	2	3	1	--	75	2.2	2	N	5	1.5	.20
MC2145	3	3	1	--	84	3.5	2	N	6	1.0	.30
MC2146	2	3	1	--	86	5.2	2	N	6	1.0	.30
MC2184	4	3	1	--	100	8.0	1	N	7	1.5	.70
MC2185	3	3	1	--	100	8.1	2	N	6	2.0	.70
MC2186	3	3	1	--	115	5.2	2	N	7	2.0	.70
MC2187	3	9	1	--	110	4.9	1	N	7	3.0	.70
MC2188	3	3	1	--	105	8.8	1	N	7	3.0	1.00
MC2189	3	3	1	--	105	8.3	2	N	7	2.0	.70
MC2191	3	9	1	--	100	8.5	1	N	6	2.0	1.00
MC2192	4	3	1	--	100	5.1	<1	N	7	1.5	.70
MC2208	4	3	1	--	110	6.3	2	N	7	3.0	.70
MC2209	2	3	1	--	110	6.9	1	N	7	1.5	.50
MC2210	3	3	1	--	80	2.2	2	N	5	1.5	.30
MC2211	3	1	1	--	100	1.8	<1	N	5	1.0	.20
MC2212	2	1	1	--	100	2.0	2	N	5	1.0	.20
MC2213	3	1	1	--	80	1.4	1	N	4	1.0	.15
MC2214	2	3	1	--	90	1.7	1	N	5	1.0	.20
-----MULE CREEK AREA-----											
MC2149	3	3	1	--	54	5.8	4	N	7	5.0	1.00
MC2150	3	3	1	--	48	6.8	3	N	7	5.0	1.50
MC2215	3	3	1	--	54	3.2	2	N	6	7.0	1.50
MC2216	3	3	1	--	62	4.3	9	N	3	2.0	.70
MC2217	3	3	2	--	56	8.9	9	N	5	5.0	.70

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MC2053	7.00	2.0	.20	300	<.5	N	N	10	1,000	10
MC2055	2.00	2.0	.20	200	<.5	N	10	10	1,000	10
MC2056	1.50	1.0	.30	300	<.5	N	N	10	1,500	15
MC2057	2.00	1.5	.30	200	<.5	N	N	20	1,500	10
MC2058	2.00	2.0	.30	200	N	N	N	20	700	15
MC2059	5.00	1.5	.50	700	<.5	N	N	20	1,000	15
MC2060	5.00	1.0	.30	500	N	N	N	20	700	15
MC2102	5.00	2.0	.20	200	<.5	N	N	10	1,000	10
MC2103	3.00	1.0	.50	300	<.5	N	N	10	700	15
MC2104	1.00	1.5	.50	200	<.5	N	N	20	1,000	10
MC2106	1.00	1.5	.30	300	N	N	N	20	700	10
MC2107	2.00	1.5	.20	300	<.5	N	N	20	1,500	10
MC2108	3.00	2.0	.30	200	<.5	N	N	20	1,500	10
MC2126	3.00	1.5	.30	300	N	N	N	10	700	15
MC2127	5.00	1.5	.30	500	N	N	N	10	1,000	15
MC2128	10.00	2.0	.50	500	<.5	N	N	10	1,000	30
MC2129	3.00	2.0	.30	500	N	N	N	10	700	15
MC2130	1.00	1.0	.30	300	N	N	N	10	700	15
MC2131	5.00	1.5	.20	300	<.5	N	N	10	1,000	10
MC2132	5.00	3.0	.20	300	.5	N	N	10	1,000	10
MC2144	.70	.7	.70	70	<.5	N	N	10	700	7
MC2145	.20	.5	.30	100	<.5	N	N	N	700	10
MC2146	.30	.5	.30	30	<.5	N	N	N	700	7
MC2184	1.00	.7	.20	200	N	N	N	10	700	7
MC2185	2.00	.7	.50	300	N	N	N	20	700	20
MC2186	1.50	1.0	.30	100	<.5	N	10	20	700	10
MC2187	7.00	1.5	.50	300	<.5	N	N	10	1,000	15
MC2188	5.00	1.5	.20	500	<.5	N	N	20	3,000	7
MC2189	5.00	1.0	.50	500	<.5	N	N	20	700	15
MC2191	3.00	1.0	.30	300	N	N	N	20	700	15
MC2192	1.00	2.0	.20	200	N	N	N	20	1,000	7
MC2208	1.00	1.5	.20	300	.5	N	N	20	700	15
MC2209	.50	1.0	.30	100	<.5	N	N	10	700	10
MC2210	.50	.5	.30	100	<.5	N	N	10	700	10
MC2211	.20	.5	.20	50	<.5	N	N	N	500	7
MC2212	.30	.5	.30	70	<.5	N	N	20	700	10
MC2213	.15	.5	.50	70	<.5	N	N	10	500	7
MC2214	.20	.5	.20	50	<.5	N	N	N	700	7
-----MULE CREEK AREA-----										
MC2149	2.00	2.0	.30	500	N	N	N	50	1,000	2
MC2150	1.50	3.0	.30	500	N	N	N	30	700	2
MC2215	7.00	2.0	.30	1,000	N	N	N	30	1,000	2
MC2216	10.00	.7	.20	200	<.5	N	N	50	700	2
MC2217	1.50	1.0	.20	500	1.0	N	N	50	1,000	3

APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MC2053	N	N	10	50	15	100	N	N	20	15
MC2055	N	N	5	50	15	100	N	N	10	5
MC2056	N	N	15	100	20	100	N	N	10	30
MC2057	N	N	10	100	20	100	N	N	10	20
MC2058	N	N	10	70	30	100	N	N	10	30
MC2059	N	N	15	70	30	100	N	N	10	30
MC2060	N	N	10	30	15	100	N	N	10	20
MC2102	N	N	15	100	30	100	N	N	20	30
MC2103	N	N	10	50	20	100	N	N	20	20
MC2104	N	N	10	100	30	50	N	N	10	30
MC2106	N	N	15	100	30	100	N	N	20	30
MC2107	N	N	15	100	30	100	N	N	10	30
MC2108	N	N	10	100	20	50	N	N	10	30
MC2126	N	N	5	20	30	50	N	N	10	<5
MC2127	N	N	10	50	20	100	N	N	10	15
MC2128	N	N	5	20	20	150	N	N	10	5
MC2129	N	N	10	50	15	100	N	N	10	10
MC2130	N	N	10	70	20	100	N	N	10	20
MC2131	N	N	10	50	20	100	N	N	10	15
MC2132	N	N	10	70	15	100	N	N	20	10
MC2144	N	N	5	70	15	150	N	N	20	10
MC2145	N	N	5	30	10	50	N	N	N	7
MC2146	N	N	5	50	15	100	N	N	10	10
MC2184	N	N	10	100	30	100	N	N	10	20
MC2185	N	N	10	70	30	100	N	N	20	30
MC2186	N	N	10	100	30	100	N	N	20	20
MC2187	N	N	10	70	20	100	N	N	20	20
MC2188	N	N	15	150	30	50	N	N	10	30
MC2189	N	N	10	50	30	100	N	N	20	20
MC2191	N	N	10	50	30	100	N	N	10	20
MC2192	N	N	10	100	20	50	N	N	10	20
MC2208	N	N	15	150	30	100	N	N	20	50
MC2209	N	N	10	70	15	100	N	N	10	15
MC2210	N	N	5	50	10	50	N	N	20	5
MC2211	N	N	N	10	5	20	N	N	10	N
MC2212	N	N	5	50	20	50	N	N	10	<5
MC2213	N	N	5	20	5	100	N	N	20	<5
MC2214	N	N	5	150	15	100	N	N	10	N
-----MULE CREEK AREA-----										
MC2149	N	N	15	150	50	50	N	N	N	50
MC2150	N	N	10	100	50	50	N	N	N	50
MC2215	N	N	15	70	20	50	N	<5.0	N	50
MC2216	N	N	10	50	30	50	N	20.0	N	70
MC2217	N	N	15	100	70	50	N	20.0	N	100



APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SB PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MCZ053	50	N	15	N	700	20	N	20	N	300
MCZ055	50	N	10	N	500	20	N	20	N	500
MCZ056	50	N	15	10	500	30	N	20	N	300
MCZ057	50	N	15	N	300	30	N	20	N	300
MCZ058	30	N	15	N	300	50	N	20	N	200
MCZ059	50	N	15	N	500	70	N	20	N	200
MCZ060	30	N	15	N	500	50	N	50	N	300
MCZ102	50	N	15	N	300	30	N	50	N	300
MCZ103	50	N	15	N	500	30	N	20	N	300
MCZ104	50	N	15	20	200	50	N	20	N	300
MCZ106	50	N	15	10	300	50	N	10	N	300
MCZ107	50	N	15	<10	300	30	N	20	N	300
MCZ108	50	N	15	15	500	30	N	50	N	300
MCZ126	30	N	10	N	700	15	N	10	N	200
MCZ127	50	N	15	N	700	30	N	50	N	200
MCZ128	50	N	15	N	700	20	N	50	N	500
MCZ129	30	N	10	N	700	20	N	20	N	200
MCZ130	50	N	15	N	300	50	N	20	N	300
MCZ131	50	N	15	N	700	30	N	50	N	300
MCZ132	50	N	10	N	700	20	N	20	N	500
MCZ144	30	N	15	N	100	30	N	70	N	>1,000
MCZ145	30	N	5	N	100	30	N	20	N	300
MCZ146	30	N	10	N	100	30	N	20	N	200
MCZ184	50	N	15	<10	100	20	N	20	N	100
MCZ185	50	N	20	10	300	50	N	50	N	200
MCZ186	50	N	15	N	100	30	N	20	N	300
MCZ187	50	N	15	N	500	20	N	50	N	300
MCZ188	50	N	15	30	700	30	N	10	N	300
MCZ189	50	N	15	<10	300	50	N	50	N	300
MCZ191	30	N	15	N	300	30	N	20	N	200
MCZ192	50	N	10	N	300	20	N	10	N	300
MCZ208	50	N	15	10	500	30	N	50	N	300
MCZ209	50	N	15	N	100	30	N	20	N	300
MCZ210	50	N	5	N	100	20	N	10	N	>1,000
MCZ211	N	N	5	N	100	20	N	10	N	500
MCZ212	30	N	5	N	100	30	N	10	N	1,000
MCZ213	30	N	5	N	100	20	N	10	N	>1,000
MCZ214	30	N	5	N	100	15	N	10	N	>1,000
-----MULE CREEK AREA-----										
MCZ149	30	N	15	<10	300	150	N	30	<200	300
MCZ150	20	N	15	N	300	100	N	30	N	500
MCZ215	30	N	15	N	500	150	N	50	N	500
MCZ216	10	N	15	N	700	300	N	30	200	100
MCZ217	30	N	15	N	500	300	N	30	300	300

## APPENDIX D-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	Latitude	Longitude	LAB. NO.	STATECTY	COL DATE	REP SPL	SPL CHAR	SPL MATL	NAT MATL	MATL MOD	MATL MOD
MCZ218	43 18 33	104 10 47	9,064	56,027	790,908	10	20	14	4	21	37
MCZ219	43 17 57	104 6 4	9,063	56,027	790,908	10	20	14	3	37	37
MCZ220	43 17 42	104 5 33	9,070	56,027	790,908	10	20	14	3	37	37
MCZ221	43 18 5	104 5 44	9,053	56,027	790,908	10	20	14	3	37	37
MCZ222	43 17 29	104 4 29	9,056	56,027	790,908	10	20	14	5	37	37
MCZ223	43 17 22	104 3 17	9,059	56,027	790,908	10	20	14	5	37	37
MCZ224	43 17 33	104 1 45	9,069	46,047	790,908	10	20	14	4	21	37
MCZ225	43 19 55	104 2 16	9,065	46,047	790,908	10	20	14	3	37	37
MCZ226	43 20 2	104 1 13	9,054	46,047	790,908	10	20	14	5	37	37
MCZ227	43 19 27	104 4 3	9,060	56,027	790,908	10	20	14	3	37	37
MCZ228	43 19 20	104 4 51	9,057	56,027	790,908	10	20	14	3	37	37
MCZ229	43 19 49	104 6 3	9,066	56,027	790,908	10	20	14	3	37	37
MCZ230	43 19 53	104 6 19	9,061	56,027	790,908	10	20	14	3	37	37

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	ELEV	RELIEF	ROCK TYP	SED COLR	WTR FLOW	STR WOTH	WTR DPTH	WTR LEVL	WTR COLR	STR CHAN	VEG TYPE
MCZ218	3,850	2	1	6	1	5	2	2	5	1	3
MCZ219	3,980	2	1	6	6	3	6	1	37	3	4
MCZ220	3,950	2	1	6	6	5	6	1	37	3	4
MCZ221	3,970	2	1	6	6	6	6	1	37	1	3
MCZ222	3,915	3	1	6	6	6	6	1	37	2	3
MCZ223	3,910	3	1	6	6	7	6	1	37	3	3
MCZ224	3,860	2	1	6	6	4	6	1	37	3	4
MCZ225	3,750	2	1	6	6	5	6	1	37	3	4
MCZ226	3,715	2	1	6	1	5	3	2	1	2	3
MCZ227	3,840	1	1	6	6	8	6	1	37	1	4
MCZ228	3,860	1	1	6	6	4	6	1	37	1	4
MCZ229	3,890	1	1	6	6	4	6	1	37	1	4
MCZ230	3,900	2	1	6	6	4	6	1	37	1	4

B-2-B

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	VEG DENS	CONTAMN	WEATHER	PH	SCN CPS	LOI	U PPM	TH PPM	AL %	FE %	MG %
MCZ218	3	3	2	3.15	48	8.0	6	N	6	3.0	1.00
MCZ219	4	3	2	--	68	9.2	8	N	6	5.0	.70
MCZ220	4	3	1	--	58	10.1	9	N	6	5.0	.70
MCZ221	3	3	2	--	52	8.0	8	N	3	1.5	.50
MCZ222	4	3	2	--	54	16.1	16	N	3	7.0	.30
MCZ223	3	3	2	--	40	5.3	9	N	5	3.0	1.50
MCZ224	3	3	2	--	56	8.5	6	N	6	3.0	.70
MCZ225	3	3	2	--	44	4.4	2	N	6	3.0	1.00
MCZ226	4	3	1	7.50	50	4.9	4	N	7	3.0	1.00
MCZ227	3	3	1	--	48	8.0	1	N	7	5.0	1.00
MCZ228	3	3	1	--	52	6.8	4	N	7	3.0	.70
MCZ229	4	3	1	--	42	5.0	10	N	6	3.0	.70
MCZ230	3	3	1	--	50	6.3	8	N	3	3.0	.70

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## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	CA %	NA %	TI %	MN PPM	AG PPM	AS PPM	AU PPM	B PPM	BA PPM	BE PPM
MCZ218	.70	1.5	.20	700	.5	N	N	50	700	5
MCZ219	1.00	1.0	.30	300	1.0	N	N	50	1,000	2
MCZ220	.50	1.0	.30	150	1.0	N	N	50	700	2
MCZ221	5.00	.5	.20	200	<.5	N	N	30	700	1
MCZ222	.20	.7	.20	100	<.5	N	N	50	500	2
MCZ223	10.00	1.5	.30	300	1.0	N	N	70	1,000	2
MCZ224	5.00	1.0	.30	300	.5	N	N	70	1,000	5
MCZ225	3.00	1.5	.30	200	N	N	N	30	1,000	2
MCZ226	1.00	1.0	.50	200	<.5	N	N	50	1,000	3
MCZ227	3.00	1.0	.30	300	1.0	N	N	30	1,000	2
MCZ228	5.00	.7	.20	300	.5	N	N	70	1,000	5
MCZ229	15.00	1.0	.20	200	.5	N	N	50	700	2
MCZ230	5.00	.7	.30	200	.5	N	N	50	700	2

B-2-2

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	BI PPM	CD PPM	CO PPM	CR PPM	CU PPM	LA PPM	LI PPM	MO PPM	NB PPM	NI PPM
MC2218	N	N	15	70	70	50	N	<5.0	N	50
MC2219	N	N	10	100	70	50	N	20.0	N	70
MC2220	N	N	5	70	70	50	N	20.0	N	30
MC2221	N	N	5	50	30	50	N	<5.0	N	20
MC2222	N	N	5	50	50	50	N	<5.0	N	70
MC2223	N	N	10	100	50	50	N	15.0	N	70
MC2224	N	N	10	100	70	100	N	20.0	N	100
MC2225	N	N	10	70	20	50	N	N	N	30
MC2226	N	N	10	100	30	100	N	N	N	50
MC2227	N	N	15	100	50	50	N	20.0	N	100
MC2228	N	N	10	100	30	100	N	10.0	N	70
MC2229	N	N	10	100	70	50	N	70.0	N	100
MC2230	N	N	10	70	30	50	N	30.0	N	70

## APPENDIX B-2: FIELD DATA AND CHEMICAL ANALYSES OF STREAM SEDIMENT SAMPLES, NEWCASTLE--continued

sample	PB PPM	SB PPM	SC PPM	SN PPM	SR PPM	V PPM	W PPM	Y PPM	ZN PPM	ZR PPM
MCZ216	30	N	15	10	300	150	N	30	300	100
MCZ219	30	N	15	N	300	500	N	50	300	500
MCZ220	20	N	15	N	300	300	N	20	<200	200
MCZ221	10	N	5	N	300	300	N	10	200	50
MCZ222	10	N	10	N	100	200	N	30	300	70
MCZ223	30	N	15	N	700	200	N	30	300	300
MCZ224	30	N	15	N	300	300	N	50	300	200
MCZ225	30	N	15	N	200	100	N	30	N	300
MCZ226	30	N	15	<10	200	200	N	30	<200	300
MCZ227	50	N	15	N	200	200	N	70	200	300
MCZ228	20	N	15	N	100	300	N	30	300	700
MCZ229	30	N	15	N	700	500	N	30	300	100
MCZ230	20	N	10	N	300	500	N	20	200	100

Explanation of codes used in columnar entries for  
Appendix of Field Data and Chemical Analyses of  
Stream Sediment Samples

SAMPLE

Field sample number.

LATITUDE

Latitude North, in degrees, minutes and seconds.

LONGITUD

Longitude West, in degrees, minutes and seconds.

LAB. NO.

Assigned tag number for inclusion in the U.S.G.S. RASS data storage system.

Numbers published in the "Appendix of Field Data and Chemical Analyses ...." are in an abbreviated form of the RASS tag numbers. Correct RASS numbers consist of seven characters; a six digit number prefixed with the letter "N". To convert abbreviated lab numbers as published to the proper RASS number form, the published lab number is prefixed with an "N" and the appropriate number of zeros to make a total of six digits.

STATECTY

State and county codes, as listed in "Counties and County Equivalents of the States of the United States" Federal Information Processing Standard 6-1, June 15, 1970.



COL DATE

Sample collection date, ordered year/month/day.

The comma in the middle of this column is not significant.

REP SPL

Replicate sample.

10=No

1=Yes

37=No information

SPL CHAR

Character of sample.

20 indicates a composite sample typical of a larger population at the sample site.

SPL MATL

Sample material.

14 indicates an unconsolidated sediment.

NAT MATL

Nature of material sampled.

1=Gravel

8=Precipitate

2=Sand

9=Peat

3=Silt

37=No information

4=Clay

5=Mud (silt and/or clay)

6=Ooze

7=Marl

MATL MOD

Material modifier, two columns of codes, in order of predominance.

11=Laminated	24=Dolomitic	1=Cherty
12=Massive	26=Bentonitic	2=Tuffaceous
13=Clastic	27=Ferruginous	3=Volcanic
14=Bioclastic	28=Manganiferous	4=Zeolitic
15=Concretionary	29=Carbonaceous	5=Petroliferous
16=Nodular	(organic)	6=Sulphatic (gypsum, anhydrite, etc.)
17=Oolitic	30=Glaucinitic	7=Chloridic (halite, sylvite, etc.)
18=Pelletal	31=Arkosic	8=Carbonatic
20=Sandy	32=Lithic	(nahcolite, etc.)
21=Silty	33=Micaceous	
22=Clayey	34=Phosphatic	
23=Calcareous	35=Siliceous	
	36=Other	
	37=No information	

ELEV

Elevation at sample site, in feet.

RELIEF

A subjective evaluation of the topographic relief within a few hundred feet of the sample location.

- 1=Flat
- 2=Low (<50 ft)
- 3=Gentle (50-200 ft)
- 4=Moderate (200-1000 ft)
- 5=High (>1000 ft)
- 6=Other
- 37=No information

ROCK TYP

Rock type; a general description of the predominant lithologic regime at or near the sample location.

- 1=Sedimentary
- 2=Metamorphic
- 3=Intrusive
- 4=Volcanic
- 5=Unknown
- 37=No information

SED COLOR

Sediment color; the predominant color of the stream bottom sediment at the sample site.

1=White/Buff	6=Brown
2=Yellow	7=Gray
3=Orange	8=Black
4=Pink/Red	9=Other
5=Green	37=No information

WTR FLOW

Water flow; a subjective evaluation of the stream water movement at the sample location at the time of sampling.

1=Stagnant	5=Torrent
2=Slow	6=Dry
3=Moderate	37=No information
4=Fast	

STR WIDTH

Stream width; a subjective estimate of the width of the active stream channel.

1=<1/2 ft.	6=8-16 ft.
2=1/2-1 ft.	7=16-32 ft.
3=1-2 ft.	8=>32 ft.
4=2-4 ft.	37=No information
5=4-8 ft.	

WTR DPTH

Water depth; a subjective estimate of stream water depth at the sample site.

1=<1/2 ft.	5=>4 ft.
2=1/2-1 ft.	6=Dry
3=1-2 ft.	37=No information
4=2-4 ft.	

WATR LEVL

Water level; a subjective evaluation of water level, relative to the usual level at the sample site.

1=Dry	4=High
2=Low	5=Flood
3=Normal	37=No information

WTR COLR

Water color; a subjective estimation of suspended load in the sample water.

1=Clear	5=Algal
2=Murky	6=Other
3=Cloudy	37=No information
4=Muddy	

STR CHAN

Stream channel; a subjective evaluation of the stream channel character at the sample locality.

1=Depositing	4=Unknown
2=Eroding	37=No information
3=Stable	

VEG TYPE

Vegetation type; a subjective evaluation of the dominant plant type in the vicinity of the sample site.

1=Conifers	5=Moss
2=Deciduous	6=Marsh
3=Brush	7=Other
4=Grass	37=No information

VEG DENS

Vegetation density; a subjective estimation of the amount of plant cover in the vicinity of the sample site.

1=Barren	4=Dense
2=Sparse	5=Very dense
3=Moderate	37=No information

CONTAMN

Contaminants; indicates known or suspected local factors of contamination likely to influence analytical results.

- |                             |  |
|-----------------------------|--|
| 1=None                      | 6=Power generation                             |
| 2=Mining                    | 7=Urban  |
| 3=Agriculture/<br>livestock | 8=Recreation                                   |
| 4=Industry                  | 9=Other, such as dumps or high<br>stream banks |
| 5=Sewage                    | 37=No information                              |

WEATHER

Weather; the observed climatic condition at the sample site at the time of sampling.

- |                 |                   |
|-----------------|-------------------|
| 1=Clear         | 5=Snowy           |
| 2=Partly cloudy | 6=Other           |
| 3=Overcast      | 37=No information |
| 4=Rainy         |                   |

PH

Stream pH, measured to the nearest five hundredths of a pH unit, at the sample site, at the time of sampling.

SCN CPS

Scintillometer reading in counts per second.

LOI

Loss on ignition; weight loss of sample in percent, upon ignition at 550°C for 10 minutes.

U PPM

Uranium: Lower limit of Detection (LLD) = 1 part per million (ppm).

TH PPM

Thorium: LLD = 100 ppm

AL %

Aluminum: LLD = 0.5%

FE %

Iron: LLD = 0.05%

MG %

Magnesium: LLD = 0.02%

CA %

Calcium: LLD = 0.05%

NA %

Sodium: LLD = 0.15%

TI %

Titanium: LLD = 0.002%

MN PPM

Manganese: LLD = 10 ppm

AG PPM

Silver: LLD = 0.5 ppm

AS PPM

Arsenic: LLD = 200 ppm

AU PPM

Gold: LLD = 10 ppm



B PPM

Boron: LLD = 10 ppm

BA PPM

Barium: LLD = 20 ppm

BE PPM

Beryllium: LLD = 1 ppm

BI PPM

Bismuth: LLD = 10 ppm

CD PPM

Cadmium: LLD = 20 ppm

CO PPM

Cobalt: LLD = 5 ppm

CR PPM

Chromium: LLD = 10 ppm

CU PPM

Copper: LLD = 5 ppm

LA PPM

Lanthanum: LLD = 20 ppm

LI PPM

Lithium: LLD = 100 ppm

MO PPM

Molybdenum: LLD = 5 ppm

NB PPM

Niobium: LLD = 10 ppm

NI PPM

Nickel: LLD = 5 ppm

PB PPM

Lead: LLD = 10 ppm

SB PPM

Antimony: LLD = 100 ppm

SC PPM

Scandium: LLD = 5 ppm

SN PPM

Tin: LLD = 10 ppm

SR PPM

Strontium: LLD = 100 ppm

V PPM

Vanadium: LLD = 10 ppm

W PPM

Tungsten: LLD = 50 ppm

Y PPM

Yttrium: LLD = 10 ppm

ZN PPM

Zinc: LLD = 200 ppm

ZR PPM

Zirconium: LLD = 10 ppm

Explanation of Qualified Analytical Results

N - Not detected at the lower limit of determination

< - Detected, but below the lower limit of determination

> - Detected, but at a value greater than the upper  
limit of detection

B - Analyses not performed