Subbasin Assessment and Total Maximum Daily Loads of the North Fork Coeur d'Alene River (17010301)

November 1, 2001

Idaho Department of Environmental Quality
Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene ID 83814

Appendix A: Metals Water Quality Data and Mine and Mill Site Data for Beaver and Prichard Creeks

MINENAME1	SOURCE	IGS_NO_	MINETYPE	AU_PROD_OZ	OREPROD
Badger	IGS, Vol 4	WL 56	Au	-1	
Buckeye Boy Mine	IGS, Vol 4	WL 48	Au		
Chester Consolidated Min	IGS, Vol 4	WL 70	Au		
Four Square Mine	IGS, Vol 1	WA 72	Au	11130	
Gold Coin	Shenon, 193		Au		
GOLDBACK	IGS, Vol 1	WA 64	Au		
Golden Chest	IGS, Vol 1	WA 75	Au	63000	
Golden Condor	IGS, Vol 4	WL 60	Au		
Golden Dream Claims	IGS, Vol 4	WL 34	Au		
Jenkins	Shenon, 193		Au		
King Mine	IGS, Vol 1	WA 65	Au	10000	
Mother Lode Mine	IGS, Vol 1	WA 89	Au	25000	
Mountain Lion Mine	IGS, Vol 4	WL 68	Au	3500	
Pilot Mine	IGS, Vol 1	WA 58	Au	15	
Pony Gulch	IGS, Vol 3	WA 125	Au		
Raven Group	IGS, Vol 1	WA 119	Au		
Wakeup Jim	Shenon, 193		Au	850	
Amazon - Manhattan	USGS		ZnPb		552
Bear Top Mine	IGS, Vol 1	WA 93	ZnPb		
Black Horse	IGS, Vol 1	WA 114	ZnPb		60
BLUE GROUSE-MOUNTAIN GOA	USGS		ZnPb		303
Anchor	IGS, Vol 4	WL 44	ZnPb		1450
Blue Sky	IGS, Vol 3	WA 197	ZnPb		
Carlisle Mine	IGS, Vol 3	WA 159	ZnPb		79
Consolidated Silver-Lead	IGS, Vol 1	WA 21	ZnPb		
Crystal Lead Mine	IGS, Vol 1	WA 4	ZnPb		11
Currency	IGS, Vol 1	WA 29	ZnPb		
Daisy-Volunteer	IGS, Vol 4	WL 45	ZnPb		
Giant Ledge Mine	IGS, Vol 1	WA 126	ZnPb		
Idora	USGS		ZnPb		6
Ione Mine	IGS, Vol 1	WA 100	ZnPb		
Jack Waite Mine	IGS, Vol 1	WA 28	ZnPb		342
Jewell Prospect	IGS, Vol 4	WL 117	ZnPb		
Kelly Prospect	IGS, Vol 4	WL 2	ZnPb		
Liberty	IGS, Vol 4	WL 51	ZnPb		
Lower Paragon	IGS, Vol 1	WA 120	ZnPb		
Lucky Strike	IGS, Vol 4	WL 74	ZnPb		
Monarch Lower workings	IGS, Vol 1	WA 123	ZnPb		
Monarch Mine Upper Worki	IGS, Vol 1	WA 128	ZnPb		
Nipsic	USGS		ZnPb		57
Orofino Mine	IGS, Vol 1	WA 85	ZnPb		
Upper Paragon Mine	IGS, Vol 1	WA 108	ZnPb		7
Phoenix Property	IGS, Vol 4	WL 127	ZnPb		
Porphyry Group	IGS, Vol 4	WL 25	ZnPb		
Red Monarch Mine	IGS, Vol 3	WA 179	ZnPb		
Silver Crystal Mine	IGS, Vol 1	WA 92	ZnPb		
Silver Scott Mine	IGS, Vol 1	WA 71	ZnPb		
Silver Strike Mine	IGS, Vol 1	WA 137	ZnPb		5
St. James Prospect	IGS, Vol 1	WA 167	ZnPb		
Sunrise Prospect	IGS, Vol 1	WA 164	ZnPb		
Sunset	USGS		ZnPb		256
Sunset-Portland	USGS		ZnPb		434
Terrible Edith	IGS, Vol 1	WA 46	ZnPb		7
Tiger Prospect	IGS, Vol 4	WL 90	ZnPb		
Vendetta Chief Mine	IGS, Vol 1	WA 124	ZnPb		
Washington Mining Co. Pr	IGS, Vol 3	WA 180	ZnPb		
Version 3/3/00--created					

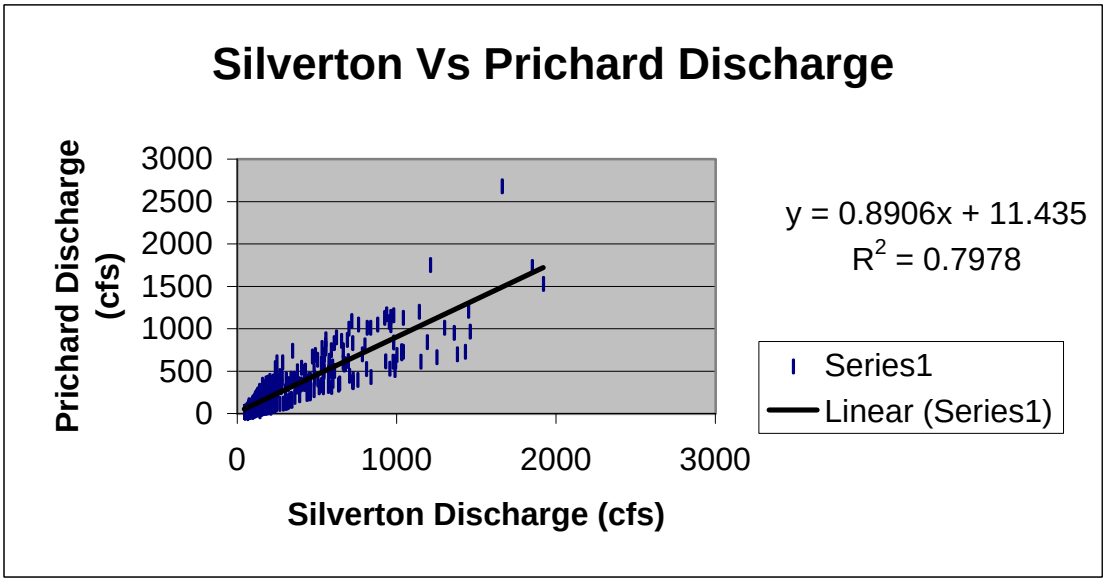
Silverton Vs Prichard Discharge

Regression Statistics	
Multiple R	0.89317196
R Square	0.79775616
Adjusted R Square	0.79740504
Standard Error	128.834197
Observations	578

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	37712007.79	37712008	2272.047	4.5973E-202
Residual	576	9560592.235	16598.25		
Total	577	47272600.03			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	11.4352651	7.035605124	1.625342	0.104637	-2.383297907	25.2538281
X Variable 1	0.89061255	0.018684442	47.666	4.6E-202	0.853914625	0.92731048



Lower 95.0%	*Upper 95.0%*
-2.38329791	25.25382808
0.853914625	0.927310485

Silverton Vs E. Fk Eagle Discharge

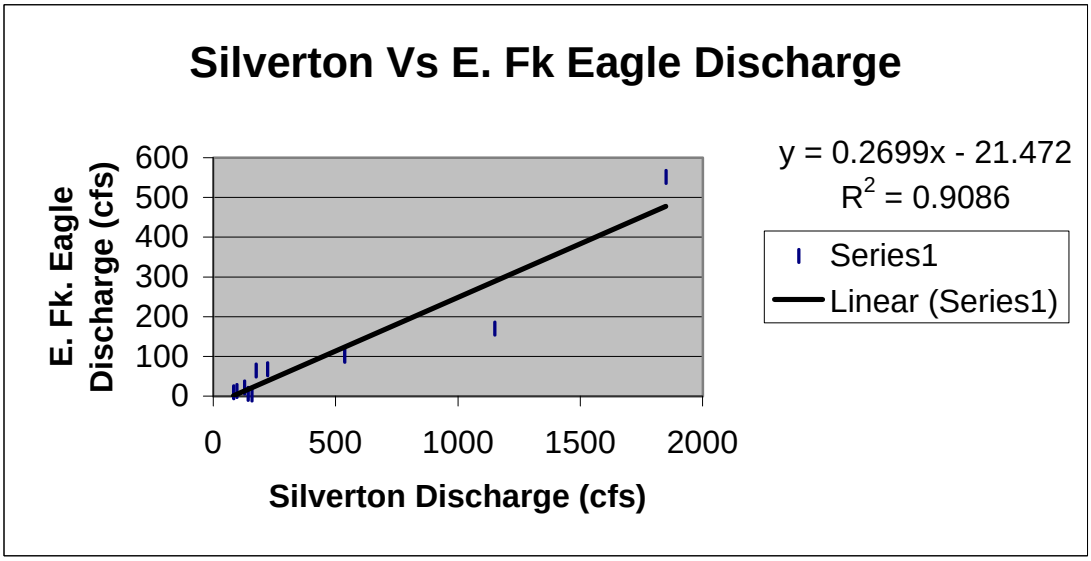
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.95322315
R Square	0.90863437
Adjusted R Square	0.89721367
Standard Error	53.5491948
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	228140.4059	228140.4	79.56028	1.97931E-05
Residual	8	22940.13014	2867.516		
Total	9	251080.536			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-21.4717889	21.79617821	-0.985117	0.353419	-71.73389845	28.790321
X Variable 1	0.26991133	0.030260281	8.919657	1.98E-05	0.200130953	0.3396917



Lower 95.0%	*Upper 95.0%*
-71.7338984	28.79032071
0.20013095	0.33969171

Silverton Vs Beaver Discharge

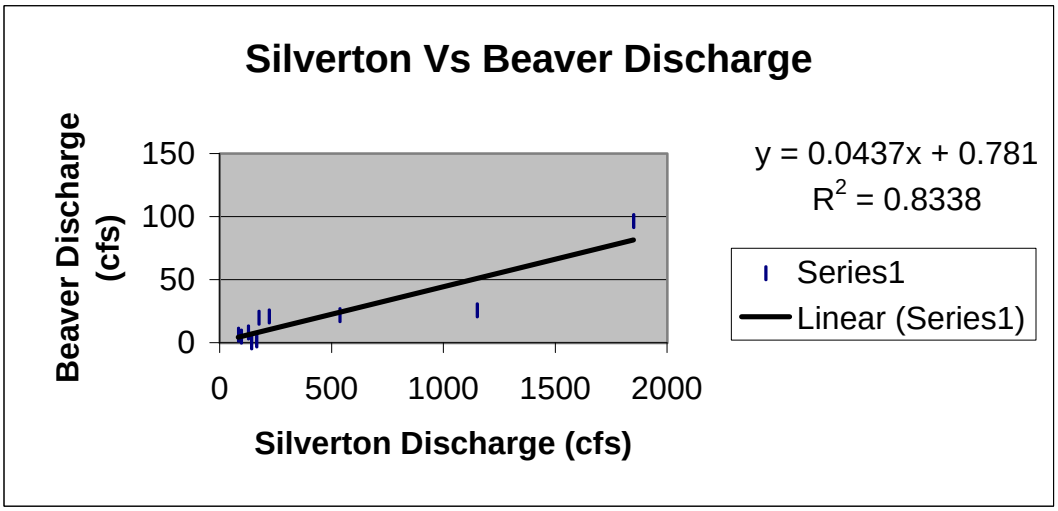
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.91310997
R Square	0.83376981
Adjusted R Square	0.81299104
Standard Error	12.1879573
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5960.574218	5960.574	40.12604	0.000224305
Residual	8	1188.370422	148.5463		
Total	9	7148.94464			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.78100909	4.965824015	0.157277	0.878924	-10.67020903	12.232227
X Variable 1	0.04366056	0.00689249	6.334511	0.000224	0.027766436	0.0595547



Lower 95.0%	*Upper 95.0%*
-10.670209	12.2322272
0.027766436	0.059554677

7Q10, 10Th, 50th and 90Th Percentile Results for NF CDA

Data:

	Silverton	EF Eagle	Beaver above CC	Prichard above M
Square mi (mi^2)	105	22.66	7.69	42.59
Acres	67199.7	14503.599	4922.201	27257.047
7Q10 (cfs)	31	6.690678217	2.270668336	12.57399151
10th percentile flow	48	10.35975982	3.515873553	19.4694062
50th percentile flow	109	23.52528793	7.98396286	44.21177659
90th percentile flow	649	140.0725859	47.53754033	263.2425964

Comments:
The above 7Q10, 10th, 50th, and 90th calculations are based upon the acre to acre ratio with Silverton.

Calculations:

Perameter	7Q10 (cfs)		10Th	
Ratios	Acres:Acres	Mi^2:Mi^2	Acres:Acres	Mi^2:Mi^2
EF Eagle	6.690678217	6.690095238	10.35975982	10.35885714
Beaver above Carbon Center	2.270668336	2.270380952	3.515873553	3.515428571
Prichard above Murrey	12.57399151	12.57419048	19.4694062	19.46971429

Comments:
The 7Q10, 10th, 50th, and 90th calculations have been computed using the acre to acre ratio, as well as th

Murrey

50th		**90th**	
Acres:Acres	Mi^2:Mi^2	Acres:Acres	Mi^2:Mi^2
23.52528793	23.5232381	140.0725859	140.060381
7.98396286	7.982952381	47.53754033	47.53152381
44.21177659	44.21247619	263.2425964	263.2467619

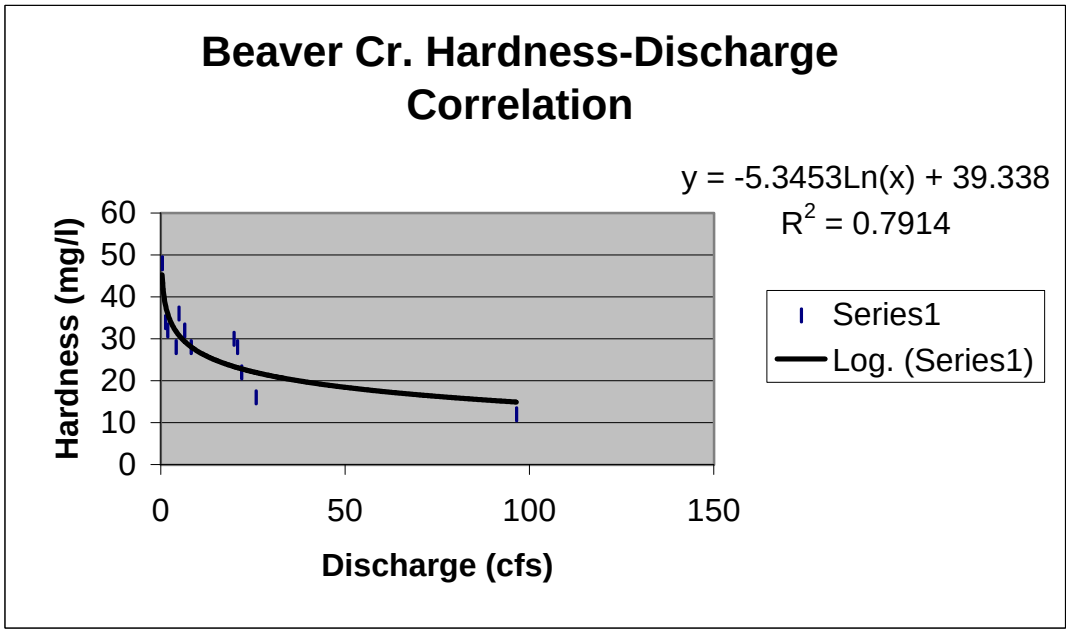
he mi^2 to Mi^2 ratio with Silverton.

Beaver
Date Range In File----
1999.05.25-2000.07.25

Date	Discharge (cfs)	Hardness (mg/l)
1999.05.25	96.45	12
1999.06.18	25.76	16
1999.07.26	1.84	32
1999.10.28	0.33	48
1999.11.18	4.85	36
1999.12.21	19.75	30
2000.01.20	6.4	32
2000.02.23	8.18	28
2000.03.23	20.74	28
2000.04.27	21.86	22
2000.06.28	4.1	28
2000.07.25	1.24	34

Min	0.33
Max	96.45

Flow Tiers	Flow	Ln (Flow)
7Q10	0.33	-1.108662625
10th	1.3	0.262364264
50th	7.29	1.986503546
90th	25.37	3.233567374



Gem Discharge WY 1999

Gem Adit OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
115.35	102.65	104.4	109.55	108.15	123.75	277.85	266.6	282.3
113.9	104.55	106	107.25	109	121.45	265.5	268.25	286.8
114.05	103.5	106.7	108.25	109.2	121.5	240	267.1	289.4
113.05	102.15	106.4	105.8	110.3	122.4	236.4	269.3	291.1
117.3	104.2	106.8	132.8	112.5	121.75	237.55	267.55	289.45
117.65	102.75	106.7	108.965	111.45	121.5	244.35	265.9	293.95
116.9	102.65	107.3	126	111.15	122.4	240.6	262.85	295.9
116.6	101.8	108	97.97	110.45	122.65	235.2	260.65	298.15
116.45	100.75	107.7	111.6	113.75	123.55	238.9	259.7	293.7
115.55	98.32	109.8	104.25	114.35	124.45	242.1	257.9	292.7
114	98.49	110	99.665	116.3	125.7	238.9	256.85	292.95
113.45	99.12	110.6	99.6	115.75	132.05	241.05	255.6	292.55
112.75	101.3	110	81.65	117.85	134.4	245.8	255.15	289.85
112.5	103.6	110.7	102.15	114.75	136.1	244.45	253.25	287.75
113.2	102.5	109.8	104.6	115.5	137.8	243.75	251.3	288.5
112.5	102.15	109.2	102.75	114.3	139.65	242.95	253.3	282.45
110.55	101.2	109.9	106.75	115.2	140.3	243.2	251.7	280.35
110.4	101.3	110.2	102.5	115.8	142.55	242.1	256.1	277.45
110.2	101.2	108.8	102.65	116.3	148.35	242.55	243.9	274
111.67	101.1	109.3	103.5	117.4	157.1	244.6	246.85	272.1
109.85	102	110.5	103.6	115.65	167.5	246.85	248.25	271.25
108.25	103.2	107.3	104.55	116.95	179	251.75	249.3	271.35
107	102.4	109.4	102.4	118.45	293	255.3	248.3	269.45
108.95		111.1	104.4	117.3	364.3	255.3	247.9	268.65
107.8		109.55	104.3	117.7	349.75	257.75	248.65	267.4
105.95		110.75	107.5	118.8	302.35	257.45	244.7	265.5
107.05		109.55	104.5		282.6	256.55	258.95	265
107.4		108.775	107.05			261.05	263.55	265.6
108.05		110.1	108.8			264.25	272.95	266.8
102.95								269.25
112	102	109	106	114	169	248	257	281
0.579016615	0.527989	0.563961	0.547879	0.592945	0.874992	1.285814	1.331981	1.456781

JUL	AUG	SEP
223.25	137.7	105.35
222.75	130.6	103.3
222.15	162.8	99.2
222.5	156.65	98.58
220.85	141.85	102.45
221.25	134.05	92.64
220.65	125.85	98.53
219.7	117.3	91.475
219.15	107.7	107
216.55	107.8	101.8
215.45	107.3	105.3
214.7	108.35	101.175
212.5	112.25	109.85
184.1	113.5	113.3
182.95	114.2	114.3
184.75	104.2	112.25
183.85	98.03	112.2
180.9	91.09	116.5
179.4	89.86	115.85
178.25	89.655	115.2
177.6	92.285	113.47
175.85	91.41	116.5
174.2	88.98	115
173.75	83.08	114.95
173.95	83.625	115
173.2	83.265	113.8
172.05	81.605	113.8
170.3		
169.15		
102.165		
193	109	108
1	0.567276	0.560324

Sum monthly % July Q	9.888959
Mean Monthly %	0.824080

Adit Name	**Discharge**
Mother Lode	0.002
Black Horse	0.011
Monarch (lower workings)	0.018
Orofino	0.016
Red Monarch	0.045
Silver Strike	0.011
Terrible Edith	0.028
Jack Waite	0.111
Carlisle	0.067

Note: Adit discharges were measured in
based on the Gem Adit discharge by calc
monthly discharge of the Gem Adit is of t
discharge percentages of the Gem Adit v
discharges of Beaver, East Fork Eagle a
the weighted average discharge, which is
on a given day.

159

0.824080 9.8889586

wt disch
0.0016
0.0091
0.0148
0.0132
0.0371
0.0091
0.0231
0.0915
0.0552

July. Adit discharge was weighted
culating the percentage that average
the average July discharge. The monthly
were averaged and applied to the adit
and Prichard watersheds to develop
s the best estimate of the adit discharge