

**APPENDIX C-1**

**LOGGING ABS AND  
DUFF AND BARK FIELD  
FIELD LOGBOOK SCANS**

2 ~~Asic~~ BARK & DUFF Sampling

August 7<sup>th</sup>, 2012

JCK, JDB, JMP  
Cool, Calm

0730 Meeting

0815 @ Devon Trailer

0845 Health & Safety

- Heat, Slip-Trip-Fall, Traffic -

~~Jon Rod JDB~~

0900 - Gear up

0935 @ CL-A1D (Duff)

CL-A1B (Bark)

N 48.44955° W 115.40742°

3311 FT

21" diameter

0947 @ CL-A2 Duff & Bark

N 48.44959° W 115.40733°

11 1/2" diameter

0954 @ CL-A3 Duff & Bark

N 48.44969° W 115.40736°

8 1/2" diameter

3321 FT

CL-A4 Duff & Bark

0958<sup>7</sup> N 48.44976° W 115.40726°

23 1/2" dia

3326 FT

1001 CL-A5 Duff & Bark

N 48.44978° W 115.40722°

11 1/4" dia

3319 FT

1007 leave site

Comm. Duff & Bark Sampling

3  
August 7<sup>th</sup>, 2012

CL-A - Continued

CL-A - Duff Composite

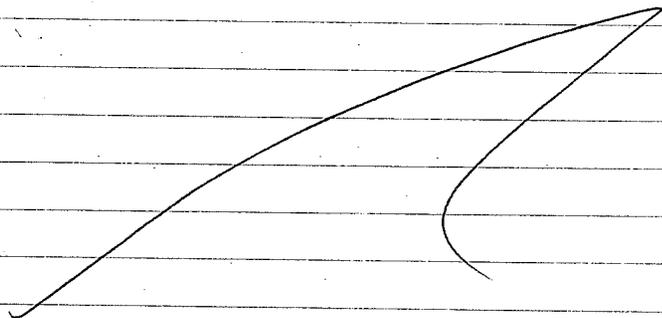
CL-3-0001

CL-3-0001

CL-A - Bark Composite

CL-3-0002

CL-3-0002



## Comm. Duff &amp; Bark Sampling

4

August 7<sup>th</sup> 2012JCK, JDG, JMP  
Warm, Calm

1022 @ CL-B and Dup

1028 CL-B<sub>1</sub> Duff & BarkNE 5367606 EA 0618562  
15<sup>3</sup>/<sub>4</sub>" diameter 1049m1032 CL-B<sub>2</sub> Duff & BarkEA 0618556 NB 5367613  
13<sup>1</sup>/<sub>2</sub>" dia 1051m1035 CL-B<sub>3</sub> Duff & BarkEA 0618567 NE 5367615  
15" dia 1052m1040 CL-B<sub>4</sub> Duff & BarkEA 0618573 NE 5367617  
11" dia 1053m1043 CL-B<sub>5</sub> Duff & BarkEA 0618575 NE 5367606  
15<sup>1</sup>/<sub>2</sub>" dia

1045 Leave Site

## Comm. Duff &amp; Bark Sampling

5

August 7<sup>th</sup>, 2012

JCK, JDG, JMP

CL-B-Continued

CL-B-Duff Composite

CL-3-0003 CL-3-0003

CL-B-Bark Composite

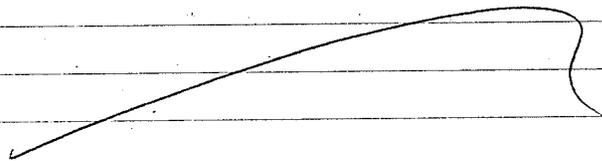
CL-3-0004 CL-3-0004

CL-B-Duff Composite (Dup)

CL-3-0005 CL-3-0005

CL-B-Bark Composite (Dup)

CL-3-0006 CL-3-0006



Comm Duff & Bark Sampling

6

August 7<sup>th</sup>, 2012

JCE, JDG, JMP  
Warm, Calm

1050 @ CL-C **CL-3-0007**  
CL-C-Duff Composite

1052 @ CL-C, Duff & Bark  
EAD 0618598 NE 5367282  
15" dia 1074m

1054 @ CL-C<sub>2</sub> Duff & Bark  
EAD 0618597 NE 5367279  
12 1/2" dia 1074m

1057 @ CL-C<sub>3</sub> Duff & Bark  
EAD 0618604 NE 5367274  
15" diameter 1076m

1059 @ CL-C<sub>4</sub> Duff & Bark  
EAD 0618603 NE 5367274  
11" diameter 1075m

1102 @ CL-C<sub>5</sub> Duff & Bark  
EAD 0618605 NE 5367272  
11" diameter 1077m

CL-C-Bark Composite

1105 leave site **CL-3-0008**

Composite # = CL-3-0008

Comm. Duff & Bark Sampling

7

August 7<sup>th</sup>, 2012

JCE, JDG, JMP

1109 Arrive @ **CL-D**

1112 @ CL-D<sub>1</sub> Duff & Bark  
EAD 0619035 NE 5367245  
11" diameter 1089m

1114 @ CL-D<sub>2</sub> Duff & Bark  
EAD 0619034 NE 5367237  
13" diameter 1087m

1116 @ CL-D<sub>3</sub> Duff & Bark  
EAD 0619030 NE 5367236  
12 1/2" diameter 1087m

1118 @ CL-D<sub>4</sub> Duff & Bark  
EAD 0619027 NE 5367236  
18" diameter 1090m

1120 @ CL-D<sub>5</sub> Duff & Bark  
EAD 0619035 NE 5367227  
17" diameter 1087m

CL-D-Duff Composite

1125 leave site **CL-3-0009**

CL-D-Bark Composite

**CL-3-0010**

## Comm. Duff &amp; Bark Sampling

8

August 7<sup>th</sup>, 2012

JK, SDG, JMP

~~1031~~ Arrive @ CL-E Hot, calm  
JK 1131

1134 @ CL-E,

EAT 0619186

NE 5366907

JK

16 1/2" diameter

1116 m

1138 @ CL-E<sub>2</sub>

EAT 0619178

NE 5366898

17 1/2" diameter

1111 m

1140 @ CL-E<sub>3</sub>

EAT 0619173

NE 5366899

11 1/2" diameter

1112 m

1144 @ CL-E<sub>4</sub>

EAT 0619170

NE 5366906

13 1/2" 70

diam.

1111 m

1147 @ CL-E<sub>5</sub>

EAT 0619159

NE 5366917

24" diameter

1109 m

1152 Leave CL-E site

## Comm DUFF &amp; Bark Sampling

9

August 7<sup>th</sup>, 2012

JK, SDG, JMP

CL-E continued

CL-E-Duff Composite

CL-3-0011

CL-3-0011

CL-E-Bark Composite

CL-3-0012

CL-3-0012

1205 - Decon Area (Mine)

1225 - Decon Trailer

1300 Bark in Libby / OFFICE

JK



# Waste/Soil Inspection

12

August 8, 2012

1225: Pit 9

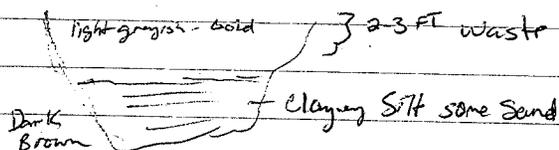
≈ 2 ft Waste Mica Soil

Pit 10 (old) ≈ 2 ft → 3 ft = Mound area

- Pass old Pits

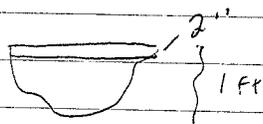
1230

Pit 11 - Downhill in Beem



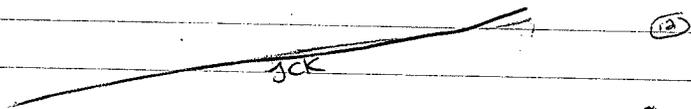
1250

Pit 12 ≈ 80 FT downhill



≈ 2-3 inch of Waste (mix) @ Top

≈ in line with old Power/Tele Poles



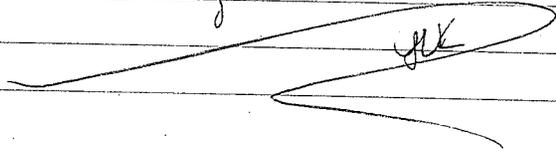
1300 - Decon

1320 - Back @ Decon Trailer - Clean up

1400 -

1440 - Drop off samples @ EMSL

1600 - Back in Lobby



13

ABS-Hand-Felling

Calm, 65°

12  
14  
A

Sept 4<sup>th</sup>, 2012

Ross Grossman

JOG, JCK, MDC, JMP

0700: Arrive @ Deon Tracker  
0715: Careful of saws, ear plugs  
Health & Safety

*Mike Up*  
*Ross Grossman*

12

0800: Sit up - leave Trailer

0900 @ E-TREE LOCATION #0619182E  
5366818N

SET UP - Calibrate Pumps

1<sup>st</sup> Interval

QUICK CAL

12 0936 Pump #4 = 4L = 4.01 START Lpm  
(START) = 4.07 STOP Lpm

CL-30050

#CL-30050

Pump #2 = 2L = 2.01 START Lpm  
= 2.08 STOP Lpm

13 CL-30051

#CL-30051

13  
14 Field Blank

16 CL-30052

#CL-30052

- Sparse Douglas fir in Area

Sept 4<sup>th</sup>, 2012

ABS-Hand-Felling

Calm

15

- 13 TREES MIN. 8" DIAM DOWN AT LOC. "E"  
BY 1005 HRS. - Uphill from Road ≈ 50-100 FT.

E-0619285 N-5367142 ≈ Elev 1110m

1025 - 3 Trees @ above location

1031 - 0619239E 5367178N ≈ Elev 1111m

- 1 Tree on road, 1 down Hill

- All Trees 8-12" diameter.

0619193-E 5367218-N - 1 uphill from Road

0619108-E 5367225-N - 3" "

@ 24 trees 0619077-E 5367246-N - 2" "

- Entering into D-TREE AREA

1100 0619043-E 5367265-N - 2 trees up hill

1105 Calibration Check HL = 4.10 - Quick  
2L = 2.10

@ 31 tree 0619057-E 5367225-N - 5<sup>TR</sup> downhill

@ 32 0619022-E 5367271-N - 1<sup>TR</sup> Uphill

(1136) Check Calibration / STOP Interval #1  
Recal

2 Liter = 2.08 check-End Lpm

2.01 - Re cal Lpm

4 Liter = 4.07 - check-End Lpm

4.00 Re cal Lpm

GPS (NAD 83 UTM)

ABS- Hand Felling

Calm  
≈ 80°

Same crew

12  
A 16  
Sept 4<sup>th</sup>, 2012

2<sup>nd</sup> Interval

Pump #4 = 4L = 4.00 START Lpm  
4.00 END

CL-30053

#CL-30053

12  
Pump #2 = 2L = 2.01 START Lpm  
2.05 END

CL-30054

#CL-30054

1140 START Interval #2

E N

- 12 @ 34<sup>TR</sup> 0619041-E 5367262-N 2<sup>TR</sup> downhill
- 12 @ 36<sup>TR</sup> 0619007-E 5367278-N 2 Trees downhill
- " " " 1 more " "
- 12 @ 45<sup>TR</sup> 0618965 5367283 8 Uphill
- 0618901 5367259 1 Tree on Road
- 12 @ 47<sup>TR</sup> " " 1 Uphill
- 12 @ 52<sup>TR</sup> 0618790 5367242 5 downhill
- 12 @ 56<sup>TR</sup> 0618734 5367239 2 on Road
- 14 @ 58<sup>TR</sup> 0618699 5367240 1 on Road
- 14 @ 62 0618673 5367244 4 Uphill
- 14 @ 64 0618564 5367594 2 @ Rd/Uphill
- 14 @ 67 0618583 5367590 3 @ Rd/Uphill
- 14 @ 68 " " 1 Uphill

ABS- Hand Felling

Calm  
≈ 80°  
17

Sept 4<sup>th</sup>, 2012

JDG, JCK, MDC, JMP, RB

E N

@ Tree 69 0618509-E 5367586-N 1<sup>TR</sup> @ Road/Uphill

1300 Check Cal 2L = 2.02 Lpm  
4L = 3.99 Lpm

Sparse Douglas fir West of B

- @ 71 trees 0618382-E 5367603-N 2<sup>TR</sup> downhill
- @ 73<sup>TR</sup> 0618351-E 5367659-N 2<sup>TR</sup> uphill/Road
- @ 78 " " 5 further Uphill
- @ 80 0618352-E 5367698-N 2 Uphill
- @ 81 0618292-E 5367641-N 1 @ Road/Damhill

1340 Check Calibration / End Interval #2

Pump #4 = 4.00 Lpm

Pump #2 = 2.05 Lpm

CDM - Andrew & Vivian (Bix) Arrived

3<sup>rd</sup> Interval

Pump #4 = 4L = 4.00 Lpm START

(1356)  
START

CL-30055

#CL-30055

Pump #2 = 2L = 2.05 Lpm START

CL-30056

#CL-30056

ABS-Hand felling

CALM  
Slight breeze  
≈ 80°

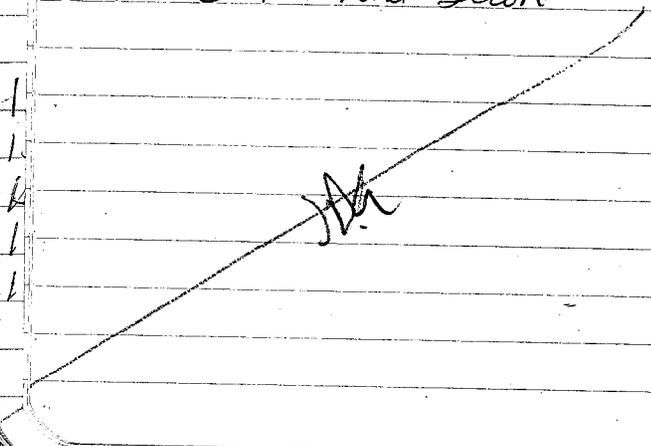
18  
Sept 4<sup>th</sup>, 2012

JOB, JCK, MOC, SMP, RB, AV

	E	N	
1	@82 0618213	5367522	1 <sup>TR</sup> @ Road / Downhill
	@87 "	"	5 Uphill
	@88 0618171	5367517	1 Uphill
	@90 0618011	5367484	2 @ Rd <sup>UP</sup> / <sub>DOWN</sub>
12	@92 "	"	2 Uphill
	@96 0617933	5367510	4 @ Rd downhill
	@97 0617805	5367528	1 @ Rd downhill
	98 0617788	5367509	" "
	99 0617725	5367485	" "
	100 0617713	5367492	" "

12  
1456 Check calibration / End Interval #3  
Pump #4 = 4.01 Lpm  
Pump #2 = 2.01 Lpm

1504 @ Mill Pond Decon



9-05-12 SECOND ACTIVITY - **SKIDDING**

0700 MEET AT DECON TO DRESS OUT. MIKE CHAPMAN, JEREMY PETERSON, ROD BRUSSMAN, JOHN GARR, JOAN KESTER IN LIBBY WORKING ON A COMP. PROGRAM FOR ANOTHER PROJECT.  
0810 MIKE ALL SET TO GO. HE IS WEARING THE PUMPS DURING FIRST 2 HRS.

PUMP #2 CALIBRATED BY DEYCAL 2.00 LPM  
PUMP #4 " " 4.01 LPM  
START AT 0810, WALK TO DOZER AT LANDING  
PUMP #4 CL-30057  
FIRST SET OF 2-HR SAMPLES  
PUMP #2 CL-30058  
FIELD BLANK CL-30059

0925 MIKE ARRIVES AT LANDING WITH 7 TREES SKIDDED FROM AREA "A", WEST-MOST AREA.  
0950 MIKE BACK W/ ANOTHER LOAD. APPROX. 15 TREES AT LANDING  
1010 PUMPS OFF. CHECK CALIBRATION:  
PUMP #2 = 2.03 LPM PUMP #4 = 4.02 LPM  
RECAL. TO 4.00 LPM ± 200 LPM

## SKIDDING, CONT.

1025 ROD BROSSMAN IS NOW SKIDDER  
OPERATOR. STARTS SECOND 2-HR RUN.

PUMP #4 CL-30060 4LPM

SECOND SET OF 2-HR SAMPLES

PUMP #2 CL-30061 2LPM

1225 PUMPS OFF. CHECK FLOW RATES.  
PUMP #2 = 2.05 PUMP #4 = 4.10

RECAL PUMP #2 TO 2.01 LPM  
PUMP #4 TO 4.00 LPM

PUMP #4 CL-30062 4LPM

THIRD SET OF 2-HR SAMPLES

PUMP #2 CL-30063 2LPM

1240 START 3RD SET OF SAMPLES AT 1240 HRS

1253 MIKE RETURNS - LEFT HYDRAULIC CYLINDER

## SKIDDING, CONT.

(BULLDOZER)

HAS BLOWN END RING. ABORT 3RD SET  
CAP SAMPLE CASSETTES AT 13 MINUTES, SAFE  
FOR WHEN WE RESUME.

1347 REPAIR IS MADE, LOST ONLY A SMALL  
AMOUNT OF HYDRAULIC FLUID, RESUME  
THIRD SET OF SAMPLES, START UP AT  
13 MINS ON PUMPS. END WILL BE  
1534 HRS, 120 MINUTES ON CASSETTES.

PUMP CHECK: PUMP #2 = 2.00 PUMP #4 = 3.93

RECAL PUMP #2 = 2.00 PUMP #4 = 4.00

BEGIN 1540 HRS CL-30064

FOURTH SET OF 2-HR SAMPLES

CL-30065

END 1725 HRS - TOO FAR TO LAST LOGS FOR  
ANOTHER TRIP TO GET LOGS.

PUMP CHECK: #4 = 3.96 #2 = 2.00

LEAVE FOR DECON & TOWN

~~AK~~  
4-10-62

Sept 6, 2012

Chapman Crew/SJK, JLG

0700 - At Decon Trailer - Suit Up for Chapman Crew - Going up to set up saw equipment.

- MWH held back to let warm up and dry from light overnight rain

0945 - MWH @ Decon to suit up

1030 - @ Site - No STANDING WATER/slightly moist + Dry

Calibrate Pumps

Pump #4 = 4L = 4.00 Lpm

Pump #2 = 2L = 2.00 Lpm

- Ross Brassman wearing pumps - skidder

1<sup>ST</sup> Interval for Day - Skidding

Pump #4

START - 4.00 Lpm  
STOP - 4.06 Lpm

1100

CL-30066

(START)

#CL-30066

FIFTH SET  
OF 2-HR  
SAMPLES

PUMP #2

CL-30067

START - 2.00 Lpm  
STOP - 2.02 Lpm

CL-30067

CL-30068

9-6-12

Field Blank

1305 - STOP - check lat

Pump 4 = 4.06 Lpm

Pump 2 = 2.02 Lpm

Sept 6, 2012

Chapman Crew/SJK, JLG

- Calibrate Pumps <sup>Pump #</sup>  
4L = 4.00 Lpm  
2L = 2.00 Lpm

2<sup>nd</sup> Interval - Mechanical Processing (Delimb)

Pump #4

START = 4.00 Lpm  
STOP = 4.01 Lpm

1325

(START)

CL-30069

CL-30069

Pump #2

START = 2.00 Lpm  
STOP = 2.04 Lpm

CL-30070

CL-30070

1330 - CDM (Andrew Vivian) arrives for video.

Landing GPS E. 0618379

N. 5367601 ≈ Elev 1022m

1525 STOP Delimb Processing

check Pumps

Pump #4 = 4.01 Lpm

Pump #2 = 2.04 Lpm

- Milled ≈ 12 logs during setup

- During Delimiting process Windows open the whole time  $\frac{1}{3}$  Door ≈ 25% of the time.

1540 @ Decon Mill Pond

1700 = leave for Town

SJK

Sept 7<sup>th</sup> & 8<sup>th</sup>, 2012

Sept 7<sup>th</sup> - Chapman Crew Decon of  
delimber & Trunk

Sept 8<sup>th</sup>: ABS-Milling

JCK, JDR  
Chapman Crew

0700 @ Decon Trailer

0745 Arrive @ landing prep to  
Slab bark

Time	log	mins
0759	1st Log	-12 min
0811	2nd	8 min
0819	3	-11 min
0830	4	-7 min
0837	5	-6 min
0843	6	-9 min
0852	7	-8
0900	8	-9
0908	9	-9
0917	10	Gas/etc
0919	11	13 min
0932	12	8 min
0940	13	6 min
0946	14	8 min
0952	15	6 min
0958	16	5 min
1003	17	4 min
1007	18	5 "
1012	19	5 "
1017	20	5 "
1022	21	4 "
1026	22	13 "
1038	23	5 "
1043	24	4 "
1047	25	5 "
1052	26	5 "
1057	27	9 "
1106	28	4 "
1110	29	4 "
1114	30	4 "
1118	31	3 "
1121	32	4 "
1125	33	5 "

1315 @ Decon

1415 Bark in Lobby

JCK

Sept 9<sup>th</sup>, 2012

JCK, JDR, Chapman Crew

0700 @ Decon Trailer

0730 @ Site (Landing)

0740 Health & Safety - Ear Plugs

0743 START first Days Log

Time	log	mins
0747	Next	1st log 4 mins
0752	Place 3rd	2 " 5 mins
0756	4th	3 - 4 min
0800	5	4 - 4 min
0804	6	5 - 4 min
0808	7	6 - 4 min
0814	8	7 - 6 min - Add water
0819	9	8 - 5 min
0823	10	9 - 14 min
0827	11	10 - 4 min
0830	12	11 - 3 min
0834	13	12 - 4 min
0838	14	13 - 4 min
0844	15	14 - 16 min
0848	16	15 - 4 min - Add water / Fuel
0854	17	16 - 16 min
0857	18	17 - 3 min
0900	19	18 - 3 min
0903	20	19 - 3 min
0906	21	20 - 3 min
0910	22	21 - 4 min
0913	23	22 - 3 min
0916	24	23 - 3 min
0918	25	24 - 2 min
0922	26	25 - 4 min
0926	27	26 - 4 min
0929	28	27 - 3 min
0932	29	28 - 3 min
0935	30	29 - 3 min
0939	31	30 - 4 min
0943	32	31 - 4 min
0946	33	32 - 3 min
0949	34	33 - 3 min
0952	35	34 - 3 min
0954	36	35 - 2 min
0956	37	36 - 2 min
0958	38	37 - 2 min
1001		38 - 3 min

- Break Down Mill - Cover Bark strips

1045 @ Decon - Mill Pond  
1210 Bark in Lobby @ office

JCK

ABS-chipping

Overcast

26

Sept 10, 2012

JCK, JDG, Chapman Crew

0800 @ Decon Trailer

0830 Health-Safety - Ear Plugs / Flying Objects

0900 On site @ landing

1<sup>st</sup> Interval - Chipping (STATIONARY)

3 = 2 Sets

Calibrate Pumps Pump #1 = 2L = 2.00 Lpm

Pump #2 = 2L = 2.00 Lpm

Pump #3 = 4L = 4.01 Lpm

Pump #4 = 4L = 4.01 Lpm

ABORTED - CHANGE IN PREDOM. WIND DIRECTION w/ STORM FRONT

Near Pumps Pump #3 = 4L = START = 4.01 STOP

(10 FT)

CL-30071

CL-30071

JCK

Pump #1 = 2L = START = 2.00 STOP

CL-30072

CL-30072

FAR Pumps

Pump #4 = 4L = START = 4.01 STOP

(40 FT)

CL-30074

CL-30074

Pump #2 = 2L = START = 2.00 STOP

CL-30075

CL-30075

ABS-chipping

Overcast

27

Sept 10, 2012

JCK, SD6, Chapman Crew

used for Restart (DAY)

Field Blank

CL-30073

CL-30073

START 0945

Calm @ Start (Ground Level)

STOP 0955

no wind to ↓ wind (slight breeze)

Wind 0 mph

40' FAR

10' Near Chipper

JCK

ABORTED AFTER 10 MINUTES - STORM FRONT CHANGED WIND DIRECTION

Change Configuration - Restart

- Wind Pickup

Wind ↓

Wind 1 mph w/

10' Near

Chipper

North

Gusts 3-6 mph

30' FAR

Restart with New Cassettes

Near Pumps Pump #3 = 4L = START = 4.01 Lpm STOP = 3.97

(10 FT)

CL-30077

CL-30077

CL-30077 JCK

Pump #1 = 2L = START = 2.00 Lpm STOP = 2.02

CL-30076

CL-30076

JCK

26

## ABS Chippings

Overcast

Sept 10, 2012

JCK, JDB, Chapman Crew

FAR PUMPS Pump #4 = 4L

START = 4.01  
STOP = 4.0030<sup>JCK</sup>~~40~~ FT

CL-30079

CL-30079

CL-30079<sup>JCK</sup>

Pump #2 = 2L

START = 2.00  
STOP = 2.01

CL-30078

CL-30078<sup>JCK</sup>1005 START PUMPS 1<sup>st</sup> Interval

1102 STOP Pumps

Checks - Pump #1 = 2.02 Lpm

Pump #2 = 2.01 Lpm

Pump #3 = 3.97 Lpm

Pump #4 = 4.02 Lpm

1110 Decon

1140 Break for Lunch

1240 Back @ Decon Trailer / Suit up

1335<sup>JCK</sup> @ landing / Calibrate Pumps

Pump #5 - 2L = 2.01 Lpm

Pump #1 - 2L = 2.01 Lpm

Pump #3 - 4L = 4.00 Lpm

Pump #4 - 4L = 4.00 Lpm

## SITE RESTORATION

\* Field Blank - Still Used #CL-30073

## ABS-Site Restoration

Overcast

Sept 10, 2012

JCK, JDB, Chapman Crew

Dozer Operator Pump #4 4L =

START = 4.00 Lpm  
STOP = 3.99 Lpm

(Red)

CL-30080

#CL-30080

Pump #5 2L =

START = 2.01 Lpm  
STOP = 1.99 Lpm

CL-30081

#CL-30081

Helper (Jeremy) Pump #3 4L =

START = 4.00 Lpm  
STOP = 3.94 Lpm

CL-30082

#CL-30082

Pump #1 2L =

START = 2.01 Lpm  
STOP = 1.99 Lpm

CL-30083

#CL-30083

1315<sup>JCK</sup> START Site Restoration

1350 START

Wind calm @ Ground level - clouds moving west<sup>JCK from</sup>

1450 STOP / check Pumps (site restoration)

Pump #1 = 2L = 1.99 Lpm

Pump #3 = 4L = 3.94 Lpm

Pump #4 = 4L = 3.99 Lpm

Pump #5 = 2L = 1.99 Lpm

DECON & LEAVE SITE FOR DECON TRAILER &  
RIG DOWN. GO TO ROOM FOR PAPERWORK <sup>9-10-12</sup>

**APPENDIX C-2**

**KOOTENAI RIVER ABS AND  
SURFACE WATER AND SEDIMENT SAMPLING  
FIELD LOGBOOK SCANS**

Phase V  
Kootenai River Sampling 4/24/2012

1630 - observed sizable eddy at  
confluence of Rainy Creek and  
the Kootenai River; Rainy Creek  
flow is actually flowing upstream.  
We will move upstream to Grace  
Property. - (photos taken)

UKR-0 - Sampling location @ River  
1645 N.  $48^{\circ}24.546'$   
W.  $115^{\circ}27.476'$

- STAKE Location @ Large Rk (Boulder)  
N.  $48^{\circ}24.549'$   
W.  $115^{\circ}27.471'$

1717 @ KR-1 STAKE  $\frac{1}{2}$  Sampling Location  
N.  $48^{\circ}24.812'$   
W.  $115^{\circ}27.542'$

North  
end - Rip Rap below Parker's Cabin

1732 @ KR-4 STAKE  $\frac{1}{2}$  Sampling Location  
N.  $48^{\circ}25.030'$   
W.  $115^{\circ}27.821'$

North Bank - Middle of Island down  
from pull out  $\perp$  to live Evergreen

Phase I

4

Kootenai River Sampling 4/25/2012

0805: Arrive @ Decon Trailer

0814: Health & Safety - J. GARR,  
K. Barklow, J. Kester and  
Sean Everett (HDR)

0835: Arrive @ KR-4

0840: Blank

#P5-10001

P5-10001

0850: Sample KR-4

#P5-10002

P5-10002

(0800) Dup

#P5-10003

P5-10003

0905: Arrive @ KR-1

0915: Sample KR-1

#P5-10004

P5-10004

0931: Arrive @ UKR-0

0940 Sample UKR-0

#P5-10005

P5-10005

5

Phase II

JCK, KOB, JDR, SAE

Kootenai River Sampling

4/25/2012

0950 Arrive @ LRC-61000 Sample LRC-6  
#P5-10006

P5-10006

-Flume is over flowing

1020 Arrive @ Libby Office  
Chains / Photos etc

Joan  
4/25/12  
1025

Phase IV

JCK, MC

6

Kootenai River Sampling

0805 arrive @ ocean trailer

0815 Health & Safety  
w/ Mike Chapman & Joan Kester

0820: Blank

#P5-10007

P5-10007

0855 @ KR-40905 Sample KR-4  
#P5-10008

P5-10008

(0755) Dup  
#P5-10009

P5-10009

0921 arrive @ KR-1

P5-10010

0933 Sample KR-1  
#P5-100100941 arrive @ UKR-00948 Sample UKR-0  
#P5-10011

P5-10011

0957 - leave UKR-0

7 Phase II

JCK, MC

Kootenai River Sampling

5/2/2012

1001 Arrive @ LRC-6

1007 Sample LRC-6  
#PS-10012

P5-10012

STAFF Gauge: 2.32 Ft.

- sediment on Top of Flume from high water

1017 - @ Rainy Creek for Flow Study

1 Ball drop @ LRC-6 - never resurfaced  
walked River 2 people

1026 - Dropped 4 off @  $\approx 200'$  Bridge  
only one made it - watch ball

1040<sup>xx</sup> went upstream  $\approx 150-200'$  to current  
 $\frac{1}{3}$  headed down.

1040 \* watched ball go left or South of Island

- Dropped 2 more  $\approx 50'$  up Rainy  
creek - Found other 3

2 went upstream banked  $\approx 100'$  on shore  
slight up River wind -

2 more banked  $\approx 150-200'$  to Cove

\* 1 made in to main Flow - This time  
went Right (North of Island)

Phase IV

8

Kootenai River Sampling

~~we~~ got balls from Bank

- through them into upstream  
current - 3 made it to  
downstream - 1 came back to bank

\* watched 3 balls - all went  
to the South (left) of Island and

1133 stayed  $\approx$  center of River - and watched  
last one almost to bend from  
View of Mel's west side of property  
with Binoculars.

- went back to get Banked ball and  
it had just made it into the  
current - through in one more ball  
way into current.

- Wind up stream <sup>Eastish</sup> got stronger -

\* - Both Balls went South (left of Island)

Total 6 (south), 1 (north) of Island

1200 @ Decon Trailer

1220 @ Libby office

- chains, down load photos

1330 drop off samples

JCK



9 Kootenai Phase V KB, JDG, MC

05/09/2012

0800 meet at down trailer

0845 ~~arrive~~ arrive @ KR-05

0850 collect FS grab

P5-10013

0858 GPS point collected  
Easting 115° 46965  
Northing 48° 41821  
elev = 2070'

0904 leave site

0906 arrive @ KR-04

(0800) collect field blank

P5-10014

0920 collect FS

P5-10015

(0900) collect FD

P5-10016

0923 leave site

Kootenai Phase V KB, JDG, MC

10

05/09/2012

0925 arrive @ KE-01

0935 collect FS

P5-10017

0935 leave site

0940 arrive @ UKR-0

0950 collect FS

P5-10018

collected approx. 40 ft. downstream  
in riffle

0953 leave site

1003 arrive @ LRC-06

1025 collect LRC06-DI

P5-10019

1025 collect LRC06-P1

P5-10020

stainless steel  
tube decontam  
with Alconox  
and triple rinse  
with DI water

Kootenai Phase IV

JDC, KB, MC

Kootenai Phase V KB, JDC, MC

12

05/09/12

11 05/09/12

1025<sup>KB</sup> collect LRC06-T1  
1025

P5-10021

- peristaltic pump has 8' of 1/4" polyethylene tubing on suction side and 1' on discharge side,
- water depth in flume is approx. 2'
- sample will be collected at approx. 18" depth (6" off bottom)
- stainless steel tube decontaminated after each use with Alconox and tube rinsed with DI water
- 8" of silicone tubing used in peristaltic pump
- flume reading 1.50', ISCO = 44.38

1032 collect LRC06-D1, D2

P5-10022

1032 collect LRC06-P2

P5-10023

1032 collect LRC06-T2

P5-10024

1040 collect LRC06-D3

P5-10025

1040 collect LRC06-P3

P5-10026

1040 collect LRC06-T3

P5-10027

1100 leave site

1105 field office to download photos and fill out COC

1130 drop off samples to EMSL

05-09-12

KB

13

Kootenai Phase IV JK, MC

5/16/12

0815 Meet @ Decon Trailer  
 0825 Health & Safety JK, MC  
 0835 Field Blank P5-10028  
 #P5-10028

0900 Arrive @ KR-5  
 0910 Sample KR-5 P5-10029  
 #P5-10029

0918 Arrive @ KR-4  
 0925 Sample KR-4 P5-10030  
 #P5-10030

(0940) Field Dup P5-10031  
 #P5-10031

0940 Arrive @ KR-1  
 †  
 0955 Sample KR-1 P5-10032  
 #P5-10032

1003 Arrive @ UKR-0  
 1015 Sample UKR-0 P5-10033  
 #P5-10033

Collected at same location as 05/09/12 JK

Kootenai Phase IV

14

5/16/12

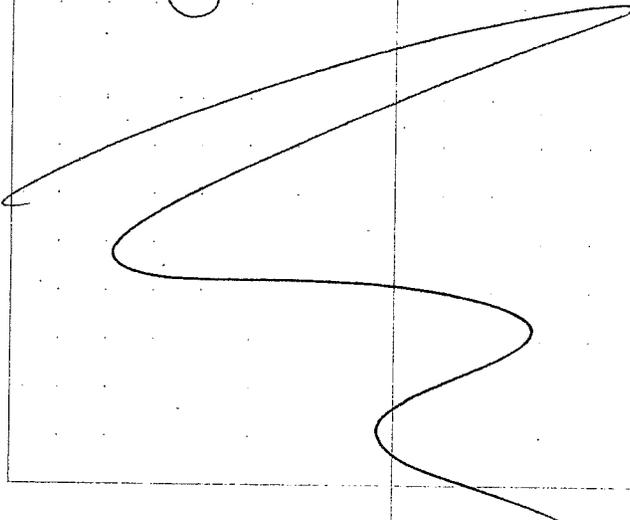
JK, MC

1020 Arrive @ LRC-6  
 1030 Sample LRC-6 P5-10034  
 #P5-10034

Flow = 1.80' @ Plume

1040 @ Decon Trailer  
 1045 - Leave site  
 1050 - @ Libby office to download  
 photos & COC's  
 1145 - Drop off Samples

JK

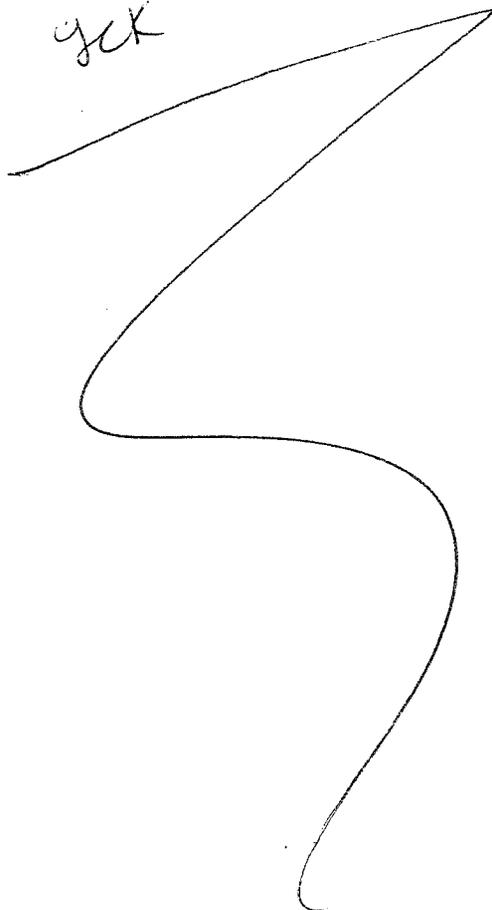


15 Kootenai Phase V KB, JCK, JDG

05/22/2012

- 1435 pick up bottles @ EMSL
- 1450 office to pick up equipment
- Recon. Locations
- 1715 Back in Libby

JCK



Kootenai Phase V

16

05/23/2012

KB, JCK, JDG, MC, SE, KP

- 0900 @ Dock
- 0910 Health & Safety
- 0920 Depart Dock
- 0935 @ KR-16
- KR16-1 GPS: N: 48.39165° - STAKE
- South side W: 115.53590°
- KR16-2 GPS: N: 48.39288° - STAKE
- North Bank W: 115.53555°

0950 @ KR16-2N P5-10035

0955 KR16-2N sample # P5-10035

0958 - Field Blank P5-10036

# P5-10036

1010: Sample KR16-A P5-10037

# P5-10037

1020: Sample KR16-B P5-10038

# P5-10038

1027: Sample KR16-C P5-10039

# P5-10039

## 17 Kootenai Phase IV

05/23/2012

SE, KB, JCK, JDG, MC, KP

1030 Sample KR16-D  
#PS-10040

P5-10040

(	KR16 A	N 48.39275°	<sup>JCK</sup> EW 115.53577°
	KR16 B	N 48.39256°	EW 115.53576°
(	KR16 C	N 48.39226°	EW 115.53577°
	KR16 D	N 48.39207°	EW 115.53578°

1045 @ KR14-N - STAKE location  
N 48.41796° E 115.47604°1050 Sample KR14-N  
#PS-10041

P5-10041

( 1055 @ KR14-S - STAKE location  
N 48.41692° W 115.47591°( 1107 @ KR14-A (sample)  
#PS-10042

P5-10042

N: 48.41788° W: 115.47620°

) 1113 Sample KR14-B  
#PS-10043

P5-10043

N: 48.41743 W: 115.47610°

## Kootenai Phase IV

18

05/23/2012

(1120) Dup @  
KR14-B  
#PS-10044

P5-10044

1125 Sample KR14-C  
#PS-10045

P5-10045

N: 48.41724° W: 115.47603°

1130 Sample KR14-D  
#PS-10046

P5-10046

N: 48.41713° W: 115.47593°

1135 Sample KR14-E  
#PS-10047

P5-10047

N: 48.41766° W: 115.47616°

1305 JK

1305 armw @ KR-15 @ Log (wood)

N: 48.41259° W: 115.50020°

1310 JK

1310 Sample KR15  
#PS-10048

P5-10048

1330 Sample KR-5  
#PS-10049

P5-10049

(1320) Dup KR-5  
#PS-10050

P5-10050

19

Kootenai Phase II

05/23/2012

JCK, KB, JDG

1335 Sample KR-4  
#PS-10051

P5-10051

1340 Sample KR-1  
#PS-10052

P5-10052

1345 Sample VKR-0  
#PS-10053

P5-10053

1358 Sample VKR-1  
#PS-10054

P5-10054

E. 115.42822° N: 48.37200°

1415 Sample VKR-2  
#PS-10055

P5-10055

E. 115.32640° N: 48.36566°

1457 Sample LRC-6  
#PS-10056

P5-10056

Flow LGS

1515 to the field office

1535 drop off samples at the lab

KB

Kootenai Phase II

20

05/23/2012

Phase II

JCK, KB, JDG

4 P5-10051

1 P5-10052

0 P5-10053

1 P5-10054

0 N: 48.37200<sup>o</sup>

2-2 P5-10055

0 N: 48.36566<sup>o</sup>

-6 P5-10056

ice at the lab ————— KB

Kootenai Phase II

JCK, MC

20  
30\*  
05/23/2012

0815 @ Decon Trailer	
0830 Health & Safety JK 1/3 - Joan Kester ; Mike Chapman MC	
0845 Field Blank	
#P5-10057	P5-10057
0900 Sample KR-5	
#P5-10058	P5-10058
0910 Arrive @ KR-4	
0915 Sample KR-4	
#P5-10059	P5-10059
(0930) Dup (KR-4)	
#P5-10060	P5-10060
0940 Sample KR-1	
#P5-10061	P5-10061
0955 Sample UKR-0	
#P5-10062	P5-10062

21

Kootenai Phase V

05/30/2012

JCK, mc

1010 Sample LRC-6  
#P5-10063

P5-10063

STAFF GAUGE 1.54 FT

1025 @ Decon Trailer - QC

1040 @ Libby Office - Download photos  
chains etc.

1125 Drop off samples @ Lab



Kootenai Phase V

22

Mike Chapman  
Keith Barklow

06/06/2012

0800 meet at decon trailer

0820 arrive @ KR-5

0825 field blank collected

P5-10064

0830 collect KR-5

P5-10065

0840 arrive KR-4

0845 collect sample

P5-10066

0850 arrive KR-1

0855 collect sample

P5-10067

0900 collect field duplicate

P5-10068

23

## Kootenai Phase V

MC, KB

06/06/12

0910 arrive @ UKR-0

0915 collect sample

P5-10069

0926 arrive @ LRC-6

0930 collect sample

P5-10070

stream guage = 1.55'

0940 back to devon trailer

0950 Libby Field Office

1010 drop off samples to the lab

KB

Overcast, 53°F

## Kootenai Phase VI

24

06/13/12

JCK, MC

0805 - Ice

0815 @ Devon Trailer

0820 Health & Safety - JCK/MC  
Wet Slippery Rocks/Grass - Bottles

0825 Field Blank

P5-10071

# P5-10071

0900 <sup>JCK</sup> KR-5

P5-10072

0905 Sample KR-5

# P5-10072

0910 KR-4

P5-10073

0915 Sample KR-4

# P5-10073

(0925) Dup

# P5-10074

P5-10074

0935 @ KR-1

0940 Sample KR-1

# P5-10075

P5-10075

25

## Kootenai Phase V

Overcast, 60°

06/13/12

JCK, MC

0950 @ UKR-0

0955 Sample UKR-0  
# P5-10076

P5-10076

1005 @ LRC-6

1010 Sample LRC-6  
# P5-10077

P5-10077

Flume 1.47'

1035 @ Libby Office / QC  
Paper work etc.  
Photos

\*Water Pipe Broken in Office

1155 Drop off Samples

Kootenai Phase V  
RiverSlight clouds  
42°

26

Sept 19, 2012

JCK, JDG, Chapman Crew

0800 @ Dock

Sean Everett (HQR)

0815 Health &amp; Safety

Kevin Peck

- life jackets, don't fall in River

for RAs, for [unclear]

[unclear] [unclear]

[unclear]

[unclear]

[unclear]

- Load up Supplies

0840 Depart Dock

0855 Arrive @ KR-16

0900 Field Blank  
# P5-10078

P5-10078

0910 KR16-N  
Sample # P5-10079

WATER

P5-10079

GPS pg. 16

Water

0914 KR16-A  
Sample

P5-10080

GPS pg. 17

Water

# P5-10080

0917 KR16-B  
Sample

P5-10081

GPS pg. 17

Water

# P5-10081

Water

- NOTE: 0745 @ Mac's for ICE

27

Kootenai Phase V

Clear  
55°

Sept 19, 2012

mwit, Chapman, HDR

0925	KR16-C	P5-10082	
	Sample #PS-10082		Water
0928	KR16-D	P5-10083	
	Sample #PS-10083		Water
0930	leave KR16		
0932	Arrive @ KR21 - Sediment Samples		
	#PS-10084	P5-10084	
0950	30 Point Composite		
	Point 1 - Mica Present $\approx$ 5%		Yes
	N 48.393180 W 115.52797°		
	Point 2 - Mica Present $\approx$ 2%		Yes
	N 48.39286° W 115.52818°		
	Point 3 - Mica Present $\approx$ 2%		Yes
	N 48.39294° W 115.52885°		
1005	Point 4 - " " - trace to 2%		Yes
	N 48.39253° W 115.52895°		
1009	Point 5 - " " - TRACE		Yes
	N 48.39266° W 115.52929°		
1010	Point 6 - " " $\approx$ 5%		Yes
	N 48.39246° W 115.52959°		
1013	Point 7 - " " $\approx$ 3%	ELEV. 626m	Yes
	N 48.39272° W 115.53000°		
1016	Point 8 - " " $\approx$ 2%		Yes
	N 48.39297° W 115.53057°		

Kootenai Phase V

Clear  
60°  
CALM 28

Sept 19, 2012

mwit, Chapman, HDR

1020	Point 9	Mica Present = TRACE	Yes
	N 48.39294°	W 115.53089°	626m
1023	Point 10	" " - 2%	Yes
	N 48.39281°	W 115.53091°	625m
1025	Point 11	" " - 5%	Yes
	N 48.39267°	W 115.53099°	
1027	Point 12	" " - 2%	Yes
	N 48.39259°	W 115.53076°	
1029	Point 13	" " - 1-2%	Yes
	N 48.39236°	W 115.53030°	
1031	Point 14	" " - 3%	Yes
	N 48.39247°	W 115.53031°	
1033	Point 15	" " - 5%	Yes
	N 48.39232°	W 115.53063°	
1035	Point 16	" " - 2%	Yes
	N 48.39231°	W 115.53094°	
1037	Point 17	" " - 5%	Yes
	N 48.39248°	W 115.53092°	
1039	Point 18	" " - 5%	Yes
	N 48.39262°	W 115.53120°	
1041	Point 19	" " - 1-2%	Yes
	N 48.39260°	W 115.53163°	
1044	Point 20	" " $\approx$ 3%	Yes
	N 48.39296°	W 115.53145°	

29

## Kootenai Phase II

Clear  
65°

Sept 19, 2012

MWH, Chapman, HDR

1046	Point 21 - Mica Present	1-2%	Yes
	N 48.39276°	W. 115.53201°	
1048	Point 22 - " "	2%	Yes
	N 48.39246°	W 115.53172°	
1051	Point 23 - " "	1%	Yes
	N 48.39234°	W 115.53149°	
1053	Point 24 - " "	2%	Yes
	N 48.39234°	W 115.53162°	
1055	Point 25 clay present	1-2%	Yes
	N 48.39236°	W 115.53181°	
1058	Point 26 " "	2%	Yes
	N 48.39246°	W 115.53206°	
1100	Point 27 " "	1%	Yes
	N 48.39245°	W 115.53239°	
1102	Point 28 " "	≈ 2%	Yes
	N 48.39241°	W 115.53243°	
1104	Point 29 " "	TRACE	Yes
	N 48.39258°	W 115.53252°	
1106	Point 30 " "	TRACE	Yes
	N 48.39248°	W. 115.53281°	
1120	Leave KR21 Island		
1131	Arrive @ KR-15		
1134	Sample KR15	P5-10085	
	GPS - P5 18		
	# P5-10085 - Water		

## Kootenai Phase II

Clear  
water  
65 30

Sept 19, 2012

MWH, Chapman, HDR

1140	Arrive @ KR-14 North		
1150	Sample KR-14	P5-10086	
	GPS P5		
	# P5-10086	Water	
<del>1140</del> (1155)	Dup @ KR-14	P5-10087	
	# P5-10087	water	
	- N. 48.41803	W 115.47526°	
1159	Sample KR14A	P5-10088	
	# P5-10088		
	N 48.41788	W 115.47519°	Water
1203	Sample KR14B	P5-10089	
	# P5-10089	Water	
	N. 48.41762°	W 115.47525°	
1206	Sample KR14C	P5-10090	
	# P5-10090	Water	
	N 48.41736	W 115.47533°	
1208	Sample KR14D	P5-10091	
	# P5-10091	Water	
	N 48.41723°	W 115.47537°	
	Water @ ≈ 2.5'		
1210	Leave for KR-15		



33

## Kootenai Phase IV

Clear  
CALM  
70°

Sept 19, 2012

MwH, Chapman, HDR

Point #28 N 48.41603° W 115.46356°

Point #29 ≈ 1% mica

Point #30 ≈ 2% mica

1340 finish with Soil Sampling @ KR-20

ABS - on ISLAND

Calibrate Pumps Pump #3 4L = 4.00

Pump #4 4L = 3.98

Pump #2 2L = 2.00

Pump #5 2L = 2.00

Sediment Dup:

30 collected w/ John?  
seen w/ HDRTRACE to 5% mica  
Average 2%

1350 field BLANK

#PS-10096

P5-10096

Air

1405 START ABS Island Landings/Fishing

Person #1 3) 4L

START 4.00 Lpm  
STOP 4.09 Lpm

#PS-10097

P5-10097

Air

2) 2L

START 2.00 Lpm  
STOP 2.02 Lpm

#PS-10098

P5-10098

Air

Person #2 4) 4L

START 3.98 Lpm  
STOP 4.05

#PS-10099

P5-10099

Air

5) 2L

START 2.00 Lpm  
STOP 2.03 Lpm

#PS-10100

P5-10100

Air

## Kootenai Phase IV

Clear  
CALM  
75°

34

Sept 19, 2012

MwH, Chapman, HDR

~~1410~~ STOP UNLOADING AROUND BOAT / START1410<sup>0</sup> JUK 9-19-12 Working the Island / Fishing

1500 STOP Fishing / START LOAD UP

1505 STOP ABS on Island

~~1515~~ Leave Island JUK 9-19-12

Calibrated Pumps Pump #3 = 4.09 Lpm

#4 = 4.05 Lpm

#2 = 2.02 Lpm

#5 = 2.03 Lpm

1515 Leave Island - wait for Boat

1523 Arrive @ KR-1

1525 Sample KR-1

#PS-10101

P5-10101

Water

GPS pg 2

Arrive @ UKR-0

1532 Sample UKR-0

#PS-10102

P5-10102

Water

JUK 9-20-12

~~(1535)~~  
1539

Dup

#PS-10103

P5-10103

Water

UKR-0

GPS N 48.40917 W 115.45827° 639<sup>ELEV</sup>m

1536 leave UKR-0 for UKR-1

35

## Kootenai Phase II

Clear  
Slight Breeze  
75°

Sept 19, 2012

1542 Arrive @ UKR-1

1544 Sample UKR-1

#PS-10104

P5-10104

GPS pg 19

1609 Arrive @ UKR-3 - was UKR-2

1610 Sample UKR-3

#PS-10105

P5-10105

GPS pg 19

1611 Leave UKR-3 for Dock

1623 Back @ Dock

1637 Leave Dock for ~~Reservoir~~ LAKE KOOCANUSA

1655 Arrive @ McGillivray

- Boat Dock - Broken Rock only  
not much sediment

1717 @ McGillivray Beach LK-1

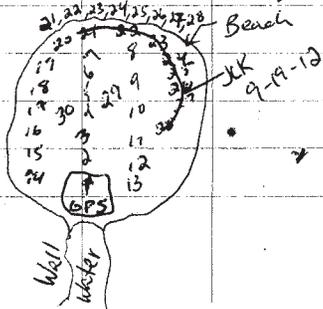
1725 Sample LK-1

#PS-10106

P5-10106

N 48.47934° W. 115.30224°

Elev 749 m

21 through 28 @ Higher  
Elevation of Beach(= Was told the Beach  
was imported)  
BY  
Rod Brossan

## Kootenai Phase I

Clear  
Slight Breeze 36  
70°

Sept 19, 2012

JOG, JCK, Sean  
/HOR

1735 Leave McGillivray Campground

- McGillivray Campground is not the  
same location as LK-1 on Figure 3.2  
in the Sampling Plan (2012)- Went to LK-2 on Figure 3.2 - However  
Moved on as the further North Landmark  
was discussed on phone calls.

Kooconusa Marina Boat Launch

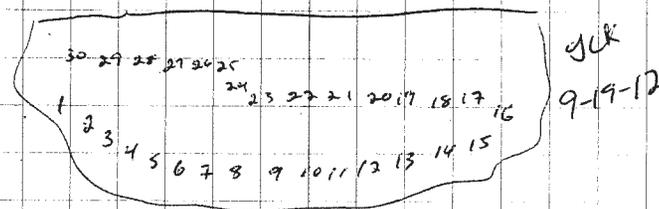
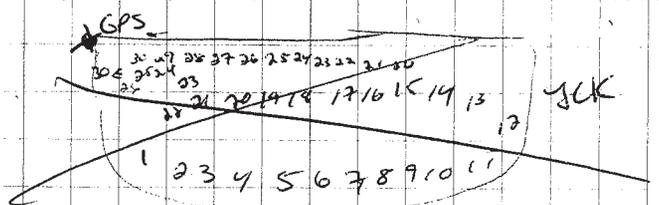
1830 @ Kooconusa Marina Boat Launch  
@ LK-2

1835 Sample LK-2

P5-10107

#PS-10107

N 48.48301° W 115.27082°



1842 Leave LK-2 Marina

- Sediment is of silt and sand

37

Kootenai Phase IV

Clear

Sept 19, 2012

~~Sept 19, 11~~ JKJK, JDG, <sup>Sein</sup> HDR

1905 Arrive @ LRC-6

1907 Sample LRC-6

# P5-10108

P5-10108

GPS on Record

Leave LRC-6 (STAFF = 0.51')

~~STAFF~~  
STAFF

1920 @ Mac's for Ice

1945 Back in Libby

— Down load photos — Other...

JK

38

