Columbia Falls Aluminum Co.

Rite in the Rain®

ALL-WEATHER

JOURNAL

№ 391

Book 1 of 2

Rite in the Rain
ALL-WEATHER WRITING PAPER

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Project CFAC Smelter SA
TDD: 0004/1305-04
Columbia Falls, MT

Cal Gases: 100ppm Iso = Lot#: LTH132-RR-CM
Exp Date: August 2015

Cal Gases: 100ppm Methane = Lot#: LTJ251-MD-CM
Exp. Date: Sept. 2014

Cal Gases: Zero Air = Lot#: LTD182-MD-PG
Exp. Date: April 2015

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook.
Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation

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~~48~~	Photo Log (working backwards)	9/23/13

Personnel
Greg Geras (Weston) = GG
Eric Sandusky (Weston) = ES
Natalie Quiel (Weston) = NQ
Mike Carlam (EPA) = MC
Rob Parker (EPA) = RP
Eric Krantz (RESPEC) = EK
Heather McAdams (RESPEC) = HM

23/13 CFAC TDD: 0004/1305-04

PA SA GRG, NQ, ES, EK, RP Cool, Overcast

730: Leave hotel for site.

810: At facility. Begin to unload supplies and organize. Have Site meeting w/ CFAC personnel.

830: Begin to unload coolers & supplies

120: Conduct H&S meeting. Prep to conduct water level sweep. Depth to Product = DTP Depth to Water = DTW Total Depth = TD

130: ES calibrates TVA-1000 EPA*903251
Zero Gas Cal = Accepted; PID/FID Cal = Accepted
100ppm Methane (FID) = 101ppm (Bump Result)
100ppm Isobut (PID) = 100ppm (Bump Result)

152: Leave to conduct Fluid Level Sweep. Stop to get page with all well depths with Mike

205: Pick up Lonnie Mercer (ERM). He will be with START and collect split samples for CFAC

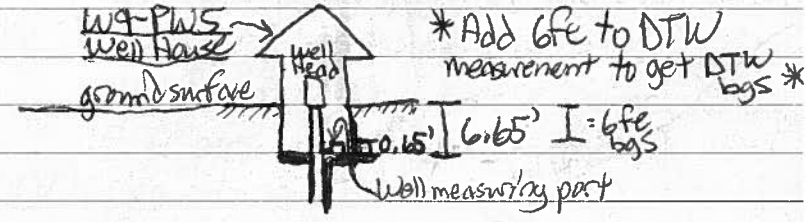
210: At First well location. TW-10.

Well ID	~~Well PID~~ Well PID/FID Readings (ppm) GRG 9/23/13	DTP(ft)	DTW(ft)	TD(ft)
TW-10	PID: 0.17 ppm / FID: 3.07 ppm	—	125.59	147.5
TW-9	PID: 0.27 ppm / FID: 3.71 ppm	—	60.17	69.24
FMW-1	PID: 0.09 / FID: 3.65	—	96.85	153.15
TW-3	* N/A MT DEQ has lock on well. *			
FTW-17	PID: 0.09 / FID: 5.01	—	79.52	82.10
W4-TW21	PID: 0.03 / FID: 4.07	—	78.12	94.74
W3-TW20	PID: N/A / FID: N/A	—	79.97	94.20

CFAC* TDD: 0004/1305-04 9/23/13

EPA SA GRG, NQ, ES, EK, RP Cool, Overcast

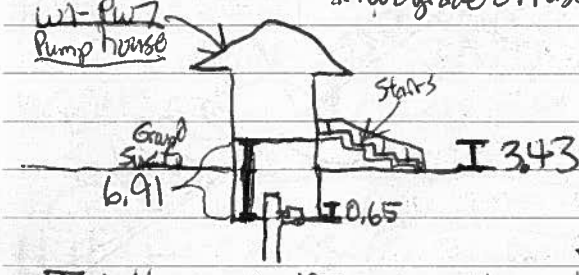
Well ID	*Well PID/FID (ppm)*	DTP(ft)	DTW(ft)	TD(ft)
W5-TW15	N/A / N/A	—	75.79	92.44
W6-TW18		—	76.11	90.17
W0-CFMW2		—	47.92	52.37
W8-TW2	*From bottom casing cover	—	50.15	54.29
TW-1	*From bottom of casing cover	—	65.45	(>200) N/A
W10-TW22		—	35.61	51.31
TW-23		—	26.31	26.86
W7-TW19		—	104.37	106.75
W9-PW5	*well measure port is bgs → *Add feet to get ground surf.	—	108.73	N/A (171 [illegible])



Add 6ft to DTW measurement to get DTW bgs

W1-PW7	N/A / N/A	13.31*	13.99	42.77

*Food grade oil used.



~~TW-16 N/A *Well could not be found* N/A~~ Found @ 1530 GRG 9/23/13

Rite in the Rain

23/13 CFAC TDD: 0004/1305-04

PA SA GRG, NQ, ES, EK, RP Cod, Overcast

Well ID	*Well PID/FID (ppm)*	DTW(ft)	TD(ft)
TW-12	N/A / N/A	76.86	185.75
TW-11	↓ ↓	80.53	162.36
TW-16		68.45	76.32

540: Fluid level sweep completed. Go with Mike to locate Surface Water locations.

630: Surface water locations/paths found. Back to office.

700: Continue prep for SW/SD sampling for next day.

850: Off-site back to hotel.

End Field Notes 9/23/13 [illegible]

CFAC TDD: 0004/1305-04 9/24/13

EPA SA GRG, NQ, ES, EK, RP Cod, Over

0810: At site, sign in at CFAC. Prep for surf. water/sed sampling.

0915: Calibrate Horiba #965856
Initial Cal Readings: pH = 3.92
Manual Cal Reading after: pH = 4.00

0930: Continue prepping for surf/sed samples. EPA deciding which 2 locations to move for SS.

0945: CF-SS-04 and CF-SS-08 have been moved. Will not collect this morning afternoon.

0950: Conduct A&S tailgate with GG, Ekrantz (EK), Lonie Mercer (LM). EPA personnel will come with us.

1000: Leave to sample.

1015: At CF-S-04 location. No water at location. Scout around to find best spot.

1045: Find spillway structure. No water, but will collect SED 04 sample.

1100: Prep to collect CF-SD-04

Sample ID	Field ID	Time	Notes
CF-SD-04	Sediment 04	1105	—

1130: At CF-SS-07 location. Prep to collect sample.

1140: Question as to whether property south of fence is CFAC. Will move inside fence [illegible]

1/24/13 CFAC TDD: 0004/1305-04

EPA SA GRG, NQ, ES, EK, RP Cool, Overcast

Sample ID	Field ID	Time	Notes
CF-SS-07	Surface Soil 07	1151	—

1155: Move to CF-SS-06 to collect samples.

1205: At CF-SS-06 location. Along powerline road past water tower location.

Sample ID	Field ID	Time	Notes
CF-SS-06	Surface Soil 06	1216	—

1235: At opportunity sample, slightly down gradient of landfills ENE of plant. Will be SED 26. It will be sediment from Cedar Creek Reservoir Overflow drainage.

Sample ID	Field ID	Time	Notes
CF-SD-OP-26	Sediment 26	1250	Opportunity Sample

1258: Go to main area of CFAC plant. Will find roads through landfill areas.

1320: Walk to CF-SS-05 location.

Sample ID	Field ID	Time	Notes
CF-SS-05	Surface Soil 05	1330	—

1340: Drop samples off at home office/base. Weigh VOC vials for CLP lab requirements.

	Initial	Sample	Difference
CF-SD-OP-26:	30.505 grams	35.3 grams	4.795
	30.606 grams	35.7 grams	5.094
	30.606 grams	35.8 grams	5.195
	30.132 grams	35.4 grams	5.268

CFAC TDD: 0004/1305-04 9/24/13

EPA SA GRG, NQ, ES, EK, RP Cool, Overcast

CF-SD-04:	Initial	Sample
Difference: 5.31	30.310 grams	35.6 grams
5.33	30.767 grams	36.1 grams
4.95	30.750 grams	35.7 grams
5.27	30.731 grams	36.0 grams

1710: Leave off site to ship coolers

End Field Notes 9/24/13

9/25/13 CFAC TDD: 0004/1305-04
EPA SA GRG, NQ, ES, HM, RP Cool, Overcast
745: On-site. Begin prep for SW/SD sampling.
850: Conduct HASS tailgate & leave for first location.
915: At CF-SW/SD-05 location for parking. Prep & walk to site.
: At sample location. Collect samples.

Sample ID	Field ID	Time	Notes
CF-SW-05	Surface water 05	0955	—
CF-SD-05	Sediment 05	0935	—

Water Quality Parameters: CF-SW-05
Temp = 17.67°C
pH = 7.59
pH mV = 33
ORP mV = 301
mS/cm = 0.193
mg/L DO = 9.81
g/L TDS = 0.126
ppt = 0.1
925: Off-site. Back to office.
955: Back at office to get knife & cut tubing for dissolved sample.
1000: Samples prepped and left for cooler prep. Gather supplies for next sample.
1130: Leave to collect CF-SW/SD-06 samples.
1145: At stopping point for location trailhead. Pack and begin walk down.

CFAC & TDD: 0004/1305-04 9/25/13
EPA SA GRG, NQ, ES, HM, RP Cool, Overcast
1215: At CF-SW/SD-06 location. Collect GW parameters:
Temp = 12.48
pH = 7.49
pH mV = -16
ORP mV = 283
mS/cm = 0.168
mg/L DO = 11.19
g/L TDS = 0.109
ppt = 0.1

Sample ID	Field ID	Time	Notes
CF-SD-06	Sediment 06	1220	—
CF-SW-06	Surface Water 06	1245	—

1415: At CF-SW/SD-07 location. Call NQ and RP to determine location. RP wants sample collected closer to outwash area in the more stagnant part. Outflow is greater in summer months, but flow currently not flowing. Duplicate = CF-SD-23 & CF-SW-23

Sample ID	Field ID	Time	Notes
CF-SD-07	Sediment 07	1440	Dup Collected
CF-SW-07	Surface Water 07	1455	Dup Collected

GW Parameters: Temp = 12.12°C
pH = 7.79
pH mV = -33 GRG 9/25/13
ORP mV = 264
mS/cm = 0.250
mg/L DO = 7.87
g/L TDS = 0.163
ppt = 0.1

Rite in the Rain

9/25/13 CFAC TDD: 0004/1305-04
EPA SA GRG, NQ, ES, HM, RP Cool, Overcast

530: Begin walk back to car. All bottles preserved and filtered.

550: Drop off coolers and help pack other samples.

700: Leave to go collect additional SW/SD samples. First will be a RP opportunity sample location.

730: Attempt to reach where stagnant water meets w/ river, but rocks are impassable. RP gives ok to not collect. Go to next location.

800: At CF-SW/SD-08 location. Collect samples.

Sample ID	Field ID	Time	Notes
CF-SW-08	Surface Water 08	1820	—
CF-SD-08	Sediment 08	1810	—

Groundwater Parameters:

Temp = 12.28 mg/L = 10.21
pH = 8.00 g/L TDS = 0.115
pH mV = -45 ppt = 0.1
ORP mV = 267
mS/cm = 0.177

845: Collect Field Blank at CF-SW/SD-08 site.

Sample ID	Field ID	Time	Notes
CF-FB-01	—	1850	9/25/13 FB

9/25/13
CFAC TDD: 0004/1305-04
EPA SA GRG, NQ, ES, HM, RP Cool, Overcast

1905: Field blank collected. Back to office.

1925: Begin to help pack remaining coolers. Also, begin to weigh vials.

Jar	Sample ID	Starting	Ending	Sample
1426	SD-07	30.222	35.6	5.378
1560	↓	30.749	36.9	6.151
1559	↓	30.550	36.7	6.15
1558	↓	30.520	35.3	4.78
1506	SD-23 (SD-07 Dup)	30.438	35.9	5.462
1620	↓	30.647	37.1	6.453
1621	↓	30.808	35.3	4.492
1622	↓	30.611	36.7	6.089
1416	SD-05	30.439	37.0	6.561
1554	↓	30.632	37.2	6.568
1555	↓	30.178	37.5	7.322
1562	↓	30.655	37.4	6.745
1421	SD-06	30.753	37.2	6.447
1556	↓	30.379	35.9	5.521
1557	↓	30.642	37.2	6.558
1561	↓	30.621	36.9	6.279
1431	SD-08	30.678	38.5	7.822
1567	↓	30.707	38.0	7.293
1568	↓	30.469	37.2	6.493
1569	↓	30.700	37.6	6.9

Rite in the Rain

CFAC TDD: 0004/1305-04

9/25/13 EPA SA GRG, NQ, ES, HM, RP Cool Overcast.

1300: Organization and cooler prep complete. Leave Site.

End Field Notes 9/25/13

9/26/13 CFAC TDD: 0004/1305-04

EPA SA GRG, NQ, ES, HM, RP Cool, Sunny

0745: At site, begin prep for SW/SD sampling. Conduct HAS tailgate

0810: Calibrate Horiba water quality meter.

Initial Cal Reading = 3.99

Manual Cal Reading = N/A

0845: At CF-SW/SD-09 location, Prep for Sampling

Sample ID	Field ID	Time	Notes
CF-SW-09	Surface Water 09	0855	–
CF-SD-09	Sediment 09	0850	–

Water Quality Parameters:

Temp = 11.24°C

pH = 7.95

pH mV = -59

ORP mV = 254

mS/cm = 0.174

mg/L DO = 10.48

g/L TDS = 0.113

ppt = 0.1

0935: Move to CF-SW/SD-10 location.

0945: Get stopped along coastline. Route to CF-SW/SD-10 is impassible. Only get less than a quarter of the way to CF-SW/SD-10 location from the CF-SW/SD-09 location. Per RP directive, it is OK not to collect sample if route was unsafe. Document w/ photos and will go back to office.

Rite in the Rain.

9/26/13 CFAC TDD: 1305-04 0004

EPA SA GRG, NQ, ES, HM, RP Cool, sunny

1015: Dropped of sample coolers. Discuss plan

025: Collecting GPS points for 2 samples where battery had died when collecting.

035: Collect CF-SD-OP-26 GPS point

040: Collect CF-SS-05 GPS point.

245: Collect vial weights.

Tag	Sample Location	Starting	Ending	Sample
	CF-SD-09	30.490	37.7	7.21
		30.577	37.3	6.723
		30.715	37.2	6.485
		30.715	36.9	6.185

145: Load car with coolers to ship and off-site to FedEx & then airport, Leaving field notebook GRG 9/26/13 at site.

End GRG Field Notes 9/26/13

MW-7 Brent Merritt, Lonnie Mercer, Heather McAdams 9/24/21

Purge rate: 4 gpm

Purge time: 25 min., start 12:29 pm end 12:54 pm

[redacted] Sample time 12:55 pm

GW parameters @ 1:09 pm

temp = 10.92 °C

ph = 7.50

phmv = -45

ORPmv = 228

[redacted]

DO = 13.21 mg/L

TDS = 0.280 g/L

Cond. = 0.431 mS/cm

HM, BM, LM 9/26/2013

MW-6

Purge rate: 4 gpm
Purge time: 15 min start: 1405
end: 14:20

Sample time: 14:25
GW parameters @ 1425
temp = 11.47°C
ph = 7.56
Phmv = -48
ORPmv = 274
DO = 12.94 mg/L
TDS = 0.500 g/L
cond = .781 us/cm

Natalie Quiel 9/26/13

9/27/13

Personell onsite: Natalie Quiel, Eric Sandusky (Weston), HM, and Scott and Lonnie (~~RESP~~ NO ERM)

Weather: 30°F, no wind, partly cloudy, 91% humidity

0700: Arrive at CFAC and begin packing supplies in truck to begin soil sampling.
0800: Depart CFAC to first sample location. CF-SS-04.
0819: Arrive at CF-SS-04 to begin sampling.
0828: Collecting sample CF-SS-04. Moist, dark brown, ~~clay~~ NO gravelly clay. GPS point CF-SS-04.
0832: Depart sample location to CF-SS-08 location
0926: Collecting sample CF-SS-08 Moist, dark brown, gravelly clay, 0-3 in. layer of moss and organics on top of soil.
0945: Depart CF-SS-08 for CFAC.
1000: Arrive at CFAC. Pick up Heather McAdams (RESPEC). Head to ~~Rain~~ the Rain

9/27/13

CF-SS-03.

1032 Collecting CF-SS-03, Root + OM layer ~ 0-3 in. Dark brown, wet, clay. GPS point CF-SS-03.

1115 Collecting CF-SS-01. ~~Clay~~ NQ Clayey gravel, OM layer 0-4 in. bgs. Very ~~dark~~ NQ light grey. GPS point CF-SS-01.

1145 Collecting CF-SS-02, Duplicate + MS/MSD samples. ~~Sug~~ NQ Unintentionally did not collect MS/MSD at CF-SS-01; collecting now on CF-SS-02. Duplicate sample time 0000.

1211 Depart CF-SS-02 for CFAC.

1215 Arrive at CFAC to begin shipping/packing sample coolers.

9/27/13

Tag	Sample ID	(g) Start	(g) end	(g) sample
1521	SS-01	26.294	30.20	3.906
1629		26.279	29.60	3.321
1630		26.208	30.10	3.892
1631		26.305	30.70	4.395
1526	SS02	26.336	30.40	4.064
1632		26.181	30.10	3.919
1633		26.223	29.80	3.577
1634		26.350	29.90	3.55
1541	SS02 DUP	26.429	30.40	3.971
1635		26.339	30.40	4.061
1636		26.326	30.30	3.974
1637		26.269	29.60	3.331
1719	SS-02 MS/MSD	26.290	30.10	3.81
1720		26.274	30.80	4.526
1721		26.206	30.00	3.794
1722		26.156	30.10	3.944
1723		26.249	30.30	4.051
1724		26.230	30.40	4.17
1456	SD-13	30.377	36.90	6.523
1582		30.538	35.90	5.362
1583		30.258	36.30	6.042
1584		30.235	35.80	5.565
1396	SD01	30.387	33.90	3.513
1546		30.534	34.30	3.766
1547		30.524	34.20	3.676
1566		30.558	34.30	3.742

9/27/13

Tag	Sample ID	Start	end	sample
548	SD02	30.406	36.30	5.894
401		30.352	35.20	4.848
565		30.557	35.50	4.943
549		30.720	36.20	5.48
.591	SD-16	30.764	36.30	5.536
471		30.514	36.00	5.486
593		30.685	36.50	5.815
592		30.587	36.10	5.513
511	SD-16 DUP	30.427	36.40	5.973
623		30.648	36.90	6.26
624		30.406	36.40	5.994
625		30.615	36.40	5.785
1741	MS/MSD	30.388	35.90	5.512
1742	SD15 MS/MSD	30.479	36.0	5.521
1743		30.696	36.70	6.004
1744		30.355	36.00	5.645
4660	SD-15	30.405	36.0	5.595
1588		30.710	36.60	5.89
1589		30.663	35.40	4.737
590		30.400	36.10	5.70
1461	SD-14	30.100	36.20	6.10
1585		30.706	37.10	6.394
1586		30.805	37.30	6.495
1587		30.626	36.70	6.074

9/27/13

1647 Depart CFAC to ship samples to Liberty Analytical + Chemtech.

1800 Arrive back at CFAC to put ice on remaining coolers and clean up area.

1830 Depart CFAC. End of day.

Nicholas Quist 9/27/13

Rite in the Rain

9/30/13

Personell onsite: Natalie Quitt, Eric Sandusy (Weston)

Weather: Partly cloudy, 45°F, wind 0.4 mph out of the NW, 90% humidity

0700 Arrive at CFAC to begin loading truck for sampling.

0754 Arrive at parking area for CF-SW-03 + CF-SD-03.

0810 Collecting CF-SW-03. GPS CF-SW-03

0820 Collecting CF-SD-03. Greyish clay, saturated. Water quality readings:

Temp = 10.09°c
pH = 7.69
pHmV = -41
OrpmV = 273
Cond. = 0.352 mS/cm
DO = 10.20 mg/L
TDS = 0.229 g/L
ppt = 0.2
Ot = 0.0
m = 0.15m

0850 Arrive back at truck. Preserving metals samples for CF-SW-03,

0856 Depart parking area to collect

CF-SW-19, CF-SD-19, CF-SD-20, and CF-SW-20:

0920 Collecting CF-SW-19 + CF-SW-19 Duplicate. GPS point CF-SW-19. Sheen coming out of bank where standing to collect samples. Water quality parameters:

Temp = 9.74°c
pH = 6.24
pHmV = 40
ORP = 333 mV
Cond. = 0.084 mS/cm
DO = 8.10 mg/L
TDS = 0.055 g/L

Odor of fuel.

0930 ~~1016~~ NQ Collecting CF-SD-19 + duplicate

1016 Collecting CF-SW-20. GPS point ~~that~~ NQ CF-SW-20. Water quality parameters:

Temp. = 9.20°c
pH = 7.11
pHmV = -9
ORP = 292
Cond. = 0.098 mS/cm
DO = 8.51 mg/L
TDS = 0.064 g/L

1032 Collecting CF-SD-20. Black, organic

9/30/13

matter layer on surface, clayey. Oily sheen on edge of pond where collecting samples; Coming out of soil on pond edge.

1115 Collecting CF-SD-17. Black-gray clayey soil, moist. No surface water present; Sample CF-SW-17 not collected. GPS point CF-SD-17.

1132 Collecting CF-SD-18, Black-gray sandy, clayey. No water present. Sample CF-SW-18 not collected.

1150 Depart North Pond (West) back to CFAC to unload coolers.

1152 Truck stuck in ditch. Head back to CFAC for tow straps.

1250 Pulled truck out. Heading back to CFAC to unload coolers.

1300 Depart CFAC to Sample CF-MW-03 (Eric). Labelling and preparing to ship bottles collected this morning.

1643 Depart CFAC to ship samples at FedEx.

1815 Arrive back at CFAC to prepare samples for shipping tomorrow

9/30/13

Tag	Sample ID	(g) Start	(g) End	(g) Sample
1406	SD-03	30.488	36.1	5.612
1550	↓	30.604	37.5	6.896
1551	↓	30.381	35.1	4.719
1564	↓	30.420	35.6	5.18
1481	WS-18	30.686	33.6	2.914
1601	↓	30.304	33.2	2.896
1602	↓	30.677	33.6	2.923
1603	↓	30.789	34.0	3.211
1486	WS-19	30.493	36.7	6.207
1604	↓	30.683	34.3	3.617
1605	↓	30.377	32.5	2.123
1606	↓	30.557	34.6	4.043
1516	WS-25/	30.409	35.1	4.691
1626	WS-19 Dup	30.158	34.0	3.842
1627	↓	30.393	35.0	4.607
1628	↓	30.658	34.9	4.242
1491	WS-20	30.786	34.9	4.114
1607	↓	30.427	35.1	4.673
1608	↓	30.732	34.0	3.268
1609	↓	30.394	35.7	5.306
1476	WS-17	30.244	34.3	4.056
1598	↓	30.496	34.2	3.704
1599	↓	30.500	34.4	3.9
1600	↓	30.426	34.4	3.974

Rite in the Rain

9/30/13

1930 Depart CFAC for hotel. End of day.

9/30/13

10/1/13

Personell onsite: NQ, ES.
Weather: 43° F, calm, wind 0.4 mph NE, 75% humidity, partly cloudy.

0730 Arrive at CFAC.
0743 Depart CFAC for Surface/sediment samples at South Ponds. Train stopped at Crossing. Called Mike to see if they will move it. Head back to CFAC to clean up.
0811 Train moved heading to sample South Ponds.
0845 Collecting CF-SW-22 + MS/MSD GPS point CF-SW-22. Water quality parameters:
Temp. = 7.20 °C
pH = 7.95
pH mV = -69
ORP = 218 mV
Cond. 0.240 mS/cm
DO = 8.39 mg/L
TDS = 0.156 g/L
ppt = 0.1
Observed baby bear tracks and scat around pond. Deer tracks also.
0920 Collecting CF-SW-22 + MS/MSD

10/1/13

1009 Depart South Ponds to sample residential community well.

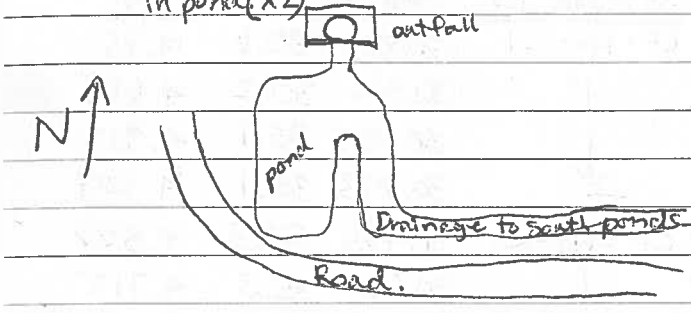
1017 Arrive at 1189 Dorothy. Begin purging pressure tanks. Well installed in 1953. Used to supply H_2O to ~20 homes. Supplies 5 homes currently; hooked up to 6 homes. Pump 1 Association is the well name in Columbia Falls, Mt.

032 Collecting CF-GW-OP-02. GPS CF-GW-OP-02. Collecting through garden hose; unable to fit sample bottles under spigot. Water quality parameters:

Temp. = 8.36 °C
pH = 7.28
pH mV = -32
ORP = 217 mV
Cond. = 0.456 mS/cm
DO = 2.09 mg/L
TDS = 0.297 g/L
ppt = 0.2
σt = 0.1
m = 0.18

1052 Depart 1189 Dorothy to South ponds to collect CF-SW-21.

1130 Collecting CF-SW-21. GPS Point CF-SW-21. Collected sample from pond located at outfall point from site/inflow point to south ponds. Water flowing into pond. Filter debris in pond (x2)



Water clear. No odor.

1140 Collecting CF-~~NS~~ NQ WS-21. Clayey, some OM, dark grey, wet. Water quality parameters:

Temp = 11.57 °C
pH = 7.89
pH mV = -66
ORP = 219 mV
Cond. = 0.252 mS/cm
DO = 6.06 mg/L
TDS = 0.164 g/L
ppt = 0.1
σt = 0.0
m = 0.20

Rite in the Rain

10/1/13

Sheen on surface water from disturbed sediment sampling location.

200 heading back to CFAC to begin packing and shipping coolers, Finished sampling.

Tag	Sample ID	Start (g)	End (g)	Sample (g)
496	CF-WS-21	30.650	35.6	4.75
610	↓	30,516	35.2	4.684
611	↓	30.388	35.1	4.712
612	↓	30,793	35.1	4.307
501	CF-WS-22	30.778	35.3	4.522
613	↓	30,585	35.3	4.715
614	↓	30.774	37.0	6.226
615	↓	30,560	35.1	4.54
616	CF-WS-22 MS/MSD	30,587	35.7	5.113
617	↓	30.321	34.7	4.379
618	↓	30,325	35.4	5.075
619	↓	30,432	35.4	4.968

Natalie [signature] 10/1/13

Rite in the Rain

PHOTO	SITE	NOTE (VIEW)
100-0379	CF-SD-04	downstream (South)
-0380	"	"
-0381	"	High water debris
-0375	"	Downstream
-0376	"	Upstream, EPA (north)
-0377	"	High water debris
-0378	"	"
-0382	deleted	
-0383	deleted	
-0384	CF-SS-07	East
-0385	"	North
-0386	"	West
-0387	"	South
-0388	"	Site
-0389	CF-SS-06	Site
-0390	"	East
-0391	"	South
-0392	"	west
-0393	"	north
-0394	CF-SD-~~OP~~-26	site
-0395	"	East
-0396	"	South
-0397	"	west
-0398	"	north
-0399	"	high water.
-0400	"	-

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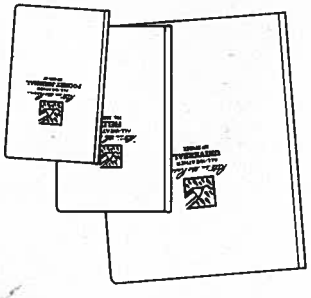
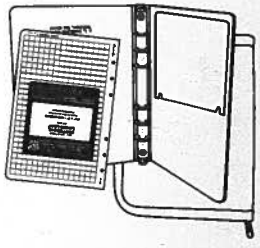
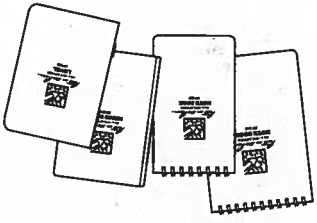

Bound Books


Loose Leaf
with Ring Binder


Memo Books

All-Weather Pens

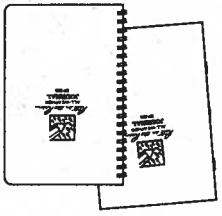

Notebooks

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PHOTO	SITE	NOTE
401-0404		deleted
0405	CF-SS-05	Site
0406	"	east
0407	"	south
0408	"	west
0409	"	north

Photo	Site/Photo	Direction
~~0410~~ 0411	CF-SW-05	site
0412	"	North
0413	"	west
0414	"	South
0415	"	East
0416	CF-SW/SD-06	site
0417		East
0418		North
0419		West
0420		South
0421	CF-SW/SD-07	Site
0422		East
0423		North
0424		West
0425		South
0426		Two seeps North of sample area
0427	Attempt to collect OP-27, but impassable	
0428	" " " " " " "	

(9/25/13 Cont.....)

Photo #	Site/Photo	Direction
0429	CF-SW/SD-08	Site
0430		East
0431		North
0432		West
0433		South

(9/26/13)

Photo #	Photo/Site	Direction
0434	CF-SW/SD-09	Site
0435		East
0436		North
0437		West
0438		South
	~~GRG 09/26/10 CF-SW/SD-10~~	~~Site~~
0439	Blocked passage to CF-SW/SD-10	East
0440		North
0441	Blocked Passage to CF-SW/SD-10	West codes-09 in list
0442		South

9/27/13

Photo 19 + 20	CF-SS-04	East + West
21 + 22	CF-SS-08	SE + NE
23 + 24	CF-SS-03	NW + SE
25 + 26	CF-SS-01	E + N
27 + 28	CF-SS-02	E + S

9/30/13

1950	CF-SW-03	NE

[illegible]	CF-SW-03	N
1952	CF-SW-03	W
1953	CF-SD-03	N
Photo 147	CF-SW-19	NE
148	CF-SW-19	E
149	CF-SW-19	S
150	CF-SW-20	W
151	CF-SW-20	S
152	CF-SD-17	E
153	CF-SD-17	NE
154	North Pond (West)	NE
155	North Pond (West	NW
56	CF-SD-18	S
57	CF-SD-18	W
58	N. Pond culvert/ inlet	S
59	N. Pond inlet	Down
60	N. Pond	W
61+162	N. Pond inlet	E+ NE
63	CF-SD-18	NW
4 NO 10/1/13		
4-167	CF-SW-22	W, E, W, N
68	CF-GW-OP-02/spigot	E
9-172	CF-GW-OP-02	SE, NE, W, S
3-177	CF-SW-21	N, N, N, S, W
78	Outfall to South ponds	N
79	Filter debris at CF-SW-21 pond	Down

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CFAC #2

Book 2 of 2

INCH

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CONTENTS

PAGE	REFERENCE	DATE
1-14	Field Notes	
45-47	Photo ID Log (backwards)	

CFAC 9/24/13

730 - Depart Hotel for CFAC Facility

815 - Arrive at CFAC, pack truck for GW sampling.

weather: Mid 50's cloudy NO wind.

9:52 - Arrive at well MW-01. Grundfos pump Malfunctioning call pine environmental to trouble shoot. Photo # 1 taken facing NW. Need new generator for pump. will continue with sampling of other wells.

11:30 - Depart MW-01 for MW-08

11:47 - Arrive at MW-08. Photo #2 facing W.

11:50 - Turn dedicated pump on.

11:52 - Well pumped dry.

11:55 - Turn dedicated pump on

11:57 - well pumped dry.

12:05 - Sample collected: CF-GW-MW-08.

Parameters	Result
pH	7.23
ORP	92 mV
Conductivity	0.476 ms/cm
~~X~~ Temperature	12.17 °C
Dissolved Oxygen	9.34 mg/L

GPS point recorded, Acid added to Metals bottles, NaOH added to Cyanide bottle.

12:10 - begin raining

12:34 - Depart MW-08 for MW-09

12:38 - Arrive at MW-09. Photo #3 facing E.

12:43 - Turn Dedicated Pump On. 6 Gallon Per Min.

CFAC 9/24/13

1251 - Sample collected: CF-GW-MW-09

Parameters	Result
pH	7.58
ORP	252 mV
Conductivity	0.000 ms/cm
Temperature	12.26 °C
Dissolved Oxygen	8.79 mg/L

GPS point recorded, Nitric Acid added to Metals bottles, NaOH added to Cyanide bottle. One Metals bottled Filtered. Photo #4 facing east.

1318 - Depart MW-09

1422 - Arrive at MW-10 to purge 11 gallons at 6 gpm. GPS collected. Photo #5 facing N, Photo #6 facing S

1425 - Turn on dedicated pump.

1429 - Turn off pump after 24 gallons purged.

1437 - Depart MW-10 for MW-07

1444 - Arrive at MW-07 to purge 97 gallons at 0 gpm. GPS collected. Photo #7 facing S, Photo #8 facing SW. Pump is disassembled. will need Grundfos to purge.

1454 - Depart MW-07 for MW-02

1457 - Arrive at MW-02 to purge 40 gallons at 6 gpm. GPS collected. Photos #9 facing SW, Photo #10 facing SE

1459 - Turn dedicated pump on

1507 - Turn pump off after ~42 gallons purged.

1510 - Depart MW-02 for MW-06

Rite in the Rain.

CFAC 9/24/13

1512 - Arrive at MW-06 to purge ~62 gallons at 0 gpm.
GPS collected. Photo #11 facing S, Photo #12 facing NE
Pump will not run, will need to use grundfos.
1522 - Depart MW-06 for MW-05
1523 - Arrive at MW-05 to purge ~74 gallons at 10 gpm.
GPS collected. Photo #13 facing NE, Photo #14 facing S.
1526 - Turned on dedicated pump
1533 - Turn pump off after ~80 gallons purged
1534 - Depart MW-05 for MW-04.
1535 - Arrive at MW-04 to purge ~74 gallons at 16 gpm.
GPS collected. Photo #15 facing S, Photo #16 facing SE.
1537 - Turned dedicated pump on
1543 - Turn Pump off after ~90 gallons purged.
1545 - Depart MW-04 for MW-03
1546 - Arrive at MW-03 to purge ~12 gallons at 0 gpm.
GPS collected. Photo #17 facing S, Photo #18 facing N.
Pump is dismantled, will need Grundfos to purge
1550 - Depart MW-03 for CFAC office to ship coolers.
1645 - Depart CFAC office for FedEx
1730 - Depart FedEx for Hotel

End of Day

CFAC 9/25/13

0730 - Depart Hotel for CFAC facility
0800 - Arrive at CFAC, pack truck for GW Sampling
Weather: 54°F, Rain
0815 - Depart CFAC office for MW-01.
0827 - Arrive at MW-01 to purge 62 gallons with grundfos Redi flo-2 pump at 3 gallons per min.
0830 - Begin purging MW-01.
0840 - Well purged dry, will wait 15 min and sample.
0855 - Pump not functioning, will trouble shoot.
0925 - Depart MW-01 for MW-10.
0945 - Arrive at MW-10
0948 - Begin purging MW-10 at 6 gpm.
1004 - collect sample CF-GW-MW-10 after ~20 gallons purged. MS/MSD collected.

Parameters	Result
pH	7.74
ORP	222 mV
Conductivity	0.393 mS/cm
Temperature	9.21°C

1045 - Depart MW-10 for MW-02
1050 - Arrive at MW-02
1055 - Turn Dedicated pump on and purge at 6 gpm.
1116 - collect sample CF-GW-MW-02 after ~50 gallons purged. Well dry before Metals samples could be collected. Will return to collect samples.

Rite in the Rain

CFAC 9/25/13

1145 - Depart MW-02 for MW-05

1150 - Arrive at MW-05. *Field Measurements for MW-02

Parameter	result
pH	9.54
ORP	67 mV
Cond	0.615 mS/cm
Temp	10.40°C
DO	0.00 mg/L

1152 - Turn on Dedicated pump and purge at 10gpm.

1205 - collect sample CF-GW-MW-05 after ~100 gallons purged.

Parameters	Results
pH	7.88
ORP	262 mV
Cond	0.858 mS/cm
Temp	9.64°C
D.O.	10.32 mg/L

NH_3 added to total metals and filtered dissolved metals

NaOH added to Cyanide bottle

1220 - Depart MW-05 for MW-03

1222 - Arrive at MW-04

1225 - Turn dedicated pump on and purge at 15gpm.

1235 - collect sample CF-GW-MW-04

Parameters	Result	Parameter	Result
pH	8.57	Temp	9.22°C
ORP	232 mV	DO	7.24 mg/L
Cond	0.714 mS/cm		

CFAC 9/25/13

NH_3 added to total Metals and filtered dissolved metals

NaOH added to Cyanide bottle.

1250 - Depart MW-04 for MW-02 to Collect Metals samples.

1252 - Arrive at MW-02. No water in well.

1254 - Depart MW-02 for MW-11

1258 - Arrive at MW-11

1300 - collect Sample CF-GW-MW-11. MW-11 is a production well, so no purging is necessary.

Parameters	Results
pH	7.94
ORP	236 mV
cond	0.272 mS/cm
Temp	11.64°C
D.O.	7.45 mg/L

NH_3 added to total Metals and filtered dissolved Metals

NaOH added to Cyanide bottle.

1313 - Depart MW-11 for CFAC office to pack and ship coolers

1645 - Depart CFAC for FedEx

1730 - Depart FedEx for CFAC

1800 - Arrive at CFAC to prepare for tomorrow sampling and shipping.

2100 - Depart CFAC for Hotel

2130 - Arrive at Hotel

End of Day

Rite in the Rain

CFAC 9/26/13

0630 - Depart Hotel for CFAC facility
0715 - Arrive at CFAC facility, pack truck for GW Sampling. Weather: 59°F partly Cloudy
0800 - Depart CFAC office for MW-01.
0817 - Arrive at MW-01
0820 - Collect Sample CF-GW-FB-02
0910 - Collect Sample CF-GW-EB-01
0929 - Turn ~~dis~~ on Grundfos Rediflo-2 purge at 4gpm
0940 - Collect Sample CF-GW-MW-01 and Dup.

Parameters	Results
pH	6.69
ORP	183 mV
Cond	0.215 mS/cm
Temp	10.54 °C
D.O.	11.29 mg/L

NH_3 added to total metals and filtered dissolved metals
NaOH added to Cyanide bottles
1010 - Depart MW-01 for CFAC office to go to residential properties. MW-12, MW-13, MW-14 and MW-15.
1040 - Arrive at MW-12.
1042 - Turn spigot on. Sample point ~15 ft from well head. purge ~3 gallons.
1050 - Collect Sample CF-GW-MW-12
NH_3 added to total Metals and filtered Metals
NaOH added to cyanide bottle.
Photo #19 facing W ~~Photo~~ ES

CFAC 9/26/13

1100 - Depart MW-12 for MW-15
1105 - Arrive at MW-15
1107 - begin purging, sample collection point right next to well head. ~10 gallons purged.
1115 - collect sample CF-GW-MW-15. Photo #20 facing SW
NH_3 added to total Metals and filtered dissolved Metals
NaOH added to Cyanide bottle.
1125 - Depart MW-15 for CFAC office to ship coolers.
1200 - Depart CFAC office for MW-14
1210 - Arrive at MW-14
1215 - purge ~10 gallons, sample collection point right next to well head.
1220 - collect sample CF-GW-MW-14

Parameters	Results
pH	7.17
ORP	300 mV
Cond	0.395 mS/cm
Temp	9.76 °C
D.O.	5.42 mg/L

NH_3 added to total Metals and filtered dissolved Metals
NaOH added to Cyanide
1230 - Depart MW-14 for MW-13
1235 - Arrive at MW-13
1240 - Purge ~15 gallons sample collection point ~25 ft from well head.
1245 - Collect sample CF-GW-MW-13

Rite in the Rain

CFAL 9/26/13

Parameters	Results
pH	7.23
ORP	306 mV
Cond	0.413 mS/cm
Temp	11.39 °C
D.O.	4.11 mg/L

NH_3 added to total Metals and filtered dissolved Metals
NaOH added to Cyanide bottle.
Photo #21 facing E, Photo #22 facing S
1255 - Depart MW-13 for CFAL to ship coolers.
1645 - Depart CFAL office for Fed Ex
1735 - Depart FedEx for CFAL office to prepare for sampling tomorrow.
2000 - Depart CFAL office for Hotel
2030 - Arrive at hotel

End of Day

CFAL 9/27/13

0630 - Depart Hotel for CFAL
0715 - Arrive at CFAL office to pack truck for SW sampling
Weather: 53°F Rain
0800 - Depart CFAL office for SW 13
0815 - Arrive at SW-13
0825 - collect samples CF-SW-13 and CF-SD-13

Parameters	Results
pH	7.86
ORP	275 mV
Cond	0.148 mS/cm
Temp	9.39 °C
D.O.	11.63 mg/L

Samples preserved with NH_3 and NaOH
Photo #23 facing SW, Photo #24 facing NE
0855 - Depart SW-13 for SW-14
0857 - Arrive at SW-14
0915 - collect samples CF-SW-14 and CF-SD-14.

Parameters	Results
pH	8.24
ORP	252 mV
Cond	0.139 mS/cm
Temp	11.93 °C
D.O.	5.69 mg/L

NH_3 added to total Metals and filtered dissolved Metals.
NaOH added to Cyanide bottle
Photo #25 facing SW Photo #26 facing NE

CFAC 9/22/13

0940 - Depart SW-14 for SW-16
0955 - Arrive at SW-16
1010 - collect samples CF-SW-16 and CF-SD-16 and a Dup.

Parameters	Results
pH	8.30
ORP	253 mV
Cond	0.142 mS/cm
Temp	7.29 mg/L
D.O.	12.52°C

NH_3 added to total Metals and filtered dissolved Metals.
NaOH added to Cyanide bottle
Photos #27 facing SE, Photo #28 facing NW
1035 - Depart SW-16 for SW-15
1050 - Arrive at SW-15
1120 - collect samples CF-SW-15 and CF-SD-15 and MS/MSD.

Parameters	Results
pH	8.12
ORP	260 mV
Cond	0.186 mS/cm
Temp	8.10°C
D.O.	7.12 mg/L

NH_3 added to total Metals and filtered dissolved Metals
NaOH added to Cyanide bottle.
Photo #29 facing NW Photo #30 facing SE

CFAC 9/22/1

1150 - Depart SW-15 for CFAC office to pack and ship samples
1205 - Arrive at CFAC office
1235 - Depart CFAC office to collect sw samples at SW-02 and SW-01.
1250 - arrive at SW-02. Creek is dry, will collect sed sample from middle of creek bed.
1255 - collect sample CF-SD-02
1305 - Depart SW-02 for SW-01
1310 - Arrive at SW-01. Sample location difficult/dangerous to get to. location moved to just W of road.
1315 - Collect samples CF-SW-01 and CF-SD-01
Photo #31 facing W and Photo #32 facing S.
1335 - Depart SW-01 to take photos of SW-02
Photo #33 facing ~~SE~~ NW, Photo #34 facing SE.
1400 - Arrive at CFAC office to pack and ship samples
1445 - Depart CFAC to ship samples at FedEx
1500 Arrive back at CFAC to prepare for sampling tomorrow
1530 - Depart CFAC. End of Day

Rite in the Rain

CFAC 9/30/12

See logbook #1 for morning activities.

1300 - Depart CFAC office to purge & sample MW-3

1310 - Begin ~~to~~ purging MW-03 at 3gpm for ~12 gallons.

1315 - well pumped dry, will allow to recover for 5 min and collect sample.

1320 - Collect sample CF-GW-MW-03

Parameters	Results
pH	9.98
ORP	44 mV
Cond	17.0 mS/cm
Temp	10.79 °C
DO	10.81 mg/L

NH_3 added to total Metals until reaction occurred. 30mL added & pH still >5. losing sample volume, will leave dissolved metals unpreserved. Lab Notified.

NaOH added to Cyanide bottle

1350 - Depart MW-03 for CFAC office to pack and ship coolers.

* See logbook #1 for evening activities.

End of Entry

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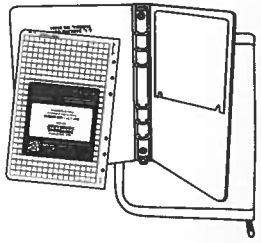
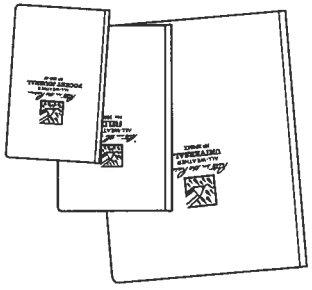
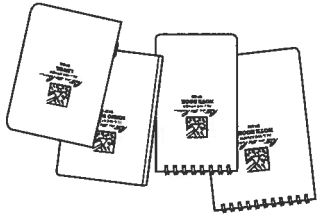


Loose Leaf
with Ring Binder

All-Weather Pens



Bound Books



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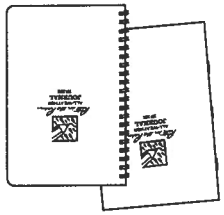

Notebooks

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CPAC Photo ID. Log

Photo # (as listed in logbook)	Photo ID (computer)
1	IMG_0001
2	IMG_0002
3	IMG_0003
4	IMG_0004
5	IMG_0005
6	IMG_0006
7	IMG_0007
8	IMG_0008
9	IMG_0009
10	IMG_0010
11	IMG_0011
12	IMG_0012
13	IMG_0013
14	IMG_0014
15	IMG_0015
16	IMG_0016
17	IMG_0017
18	IMG_0018
19	IMG_1515
20	IMG_1516
21	IMG_1520
22	IMG_1521
23	IMG_1524
24	IMG_1525
25	IMG_1528

CFAR Photo ID Log

Photo #	Photo ID
26	IMG_1529
27	IMG_1531
28	IMG_1532
29	IMG_1535
30	IMG_1536
31	IMG_1538
32	IMG_1539
33	IMG_1540
34	IMG_1541

Sample Collection Field Sheet
U.S. EPA Region 8

Project Name: CFAC
Project Number: 0004/1305-04
Site Name: CF-SD-04
Personnel On-Site: Greg Geras, Eric Krantz
Sampling Date: 9/24/13
Weather: Overcast, dewy, 55°F, No wind

Sample ID: CF-SD-04
Sample Location: Stream bed
Field ID: Sediment 04 (GPS)
Latitude:
Matrix: SW Sediment
Longitude:
Collection Date: 9/24/13
Collection Time: 11:05 am

Sampler Signature:
Date: 9/24/13

Laboratory Analyses: VOCs, SVOCs/PAHs, TAL Metals and cyanide, Fluoride, pesticides/PCBs

Container: Multiple.
Perservative:
Filtration: N/A
Holding Time:

Equipment Used: Spatula, terracore, (both disposable)

Groundwater Well Information (If applicable)

Well ID:
Top of Casing Elevation:
Depth to Product:
Groundwater Elevation:
Depth to Water:
Casing Volume:
Product Thickness:
Purge Method:
Total Depth:
Purge Start Time:
Height of Water Column:
Purge End Time:

Cond	pH	Temp (C)	DO (mg/L)	ORP	Turbidity (NTU)

Additional Comments: No Flow. Stream channel 5-10 ft wide. High water debris approx 1' up stems. Channel full of grasses and shrubs, no water. No SW sample collected.

Sample Collection Field Sheet
U.S. EPA Region 8

Project Name: CFAC
Project Number:
Site Name: CF-SS-07
Personnel On-Site: Greg Geras, Eric Krantz
Sampling Date: 9/24/13
Weather: Overcast, 55°F, East wind 4mph

Sample ID: CF-SS-07
Sample Location: Inside fence line
Field ID: Surface soil 07
Latitude:
Matrix: Soil
Longitude:
Collection Date: 9/24/13
Collection Time: 11:51

Sampler Signature:
Date: 9/24/13

Laboratory Analyses:

Container:
Perservative:
Filtration:
Holding Time:

Equipment Used: disposable spatula

Groundwater Well Information (If applicable)

Well ID:
Top of Casing Elevation:
Depth to Product:
Groundwater Elevation:
Depth to Water:
Casing Volume:
Product Thickness:
Purge Method:
Total Depth:
Purge Start Time:
Height of Water Column:
Purge End Time:

Cond	pH	Temp (C)	DO (mg/L)	ORP	Turbidity (NTU)

Additional Comments: Matrix appears to be fill material - berm between factory and RR. Sampled top of berm, 3 ft inside fence

Sample Collection Field Sheet
U.S. EPA Region 8

Project Name: CFAC

Project Number:

Site Name:

Personnel On-Site: Greg Geras, Eric Krantz

Sampling Date: 9/24/13

Weather: Overcast, 52°F, No wind

Sample ID: CF-SS-06

Sample Location:

Field ID: Surface soil 06

Latitude:

Matrix: Soil

Longitude:

Collection Date: 9/24/13

Collection Time: 12:16

Sampler Signature:

Date: 9/24/13

Laboratory Analyses:

Container:

Perservative:

Filtration:

Holding Time:

Equipment Used: disposable spatula

Groundwater Well Information (If applicable)

Well ID:

Top of Casing Elevation:

Depth to Product:

Groundwater Elevation:

Depth to Water:

Casing Volume:

Product Thickness:

Purge Method:

Total Depth:

Purge Start Time:

Height of Water Column:

Purge End Time:

Cond	pH	Temp (C)	DO (mg/L)	ORP	Turbidity (NTU)

Additional Comments: Entrance to site on U-curve road, past water tank, then continue on powerline access road

Sample Collection Field Sheet
U.S. EPA Region 8

Project Name: CFAC

Project Number:

Site Name:

Personnel On-Site: Greg Geeras, Eric Kronte

Sampling Date:

Weather: Overcast, sprinkles, 52°F, no wind

Sample ID: ~~CF-SD-26~~ CF-SD-OP-26

Sample Location:

Field ID: Sediment-26

Latitude:

Matrix: SW sediment

Longitude:

Collection Date: 9/24/13

Collection Time: 12:50

Sampler Signature:

Date: 9/24/13

Laboratory Analyses:

Container:

Perservative:

Filtration:

Holding Time:

Equipment Used: disposable spatula, disposable terracore

Groundwater Well Information (If applicable)

Well ID:

Top of Casing Elevation:

Depth to Product:

Groundwater Elevation:

Depth to Water:

Casing Volume:

Product Thickness:

Purge Method:

Total Depth:

Purge Start Time:

Height of Water Column:

Purge End Time:

Cond	pH	Temp (C)	DO (mg/L)	ORP	Turbidity (NTU)

Additional Comments: Sign here says "Asbestos disposal"; new site added; No GPS; downstream of weir structure 150'

Sample Collection Field Sheet
U.S. EPA Region 8

Project Name: CFAC

Project Number:

Site Name:

Personnel On-Site: Greg Geras, Eric Krontz

Sampling Date: 9/24/13

Weather: Overcast, sprinkles, 52°F, no wind

Sample ID: CF-SS-05

Sample Location:

Field ID: Surface Soil 05

Latitude:

Matrix: Soil

Longitude:

Collection Date: 9/24/13

Collection Time: 13:30

Sampler Signature:

Date: 9/24/13

Laboratory Analyses: Fluoride only

Container:

Perservative:

Filtration:

Holding Time:

Equipment Used: disposable scoop

Groundwater Well Information (If applicable)

Well ID:

Top of Casing Elevation:

Depth to Product:

Groundwater Elevation:

Depth to Water:

Casing Volume:

Product Thickness:

Purge Method:

Total Depth:

Purge Start Time:

Height of Water Column:

Purge End Time:

Cond	pH	Temp (C)	DO (mg/L)	ORP	Turbidity (NTU)

Additional Comments: