205326

FIELD OVERSIGHT SUMMARY REPORT
ACS NPL SITE
GRIFFITH, INDIANA

June 1, 1998 - 10, 1998

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6/98

USEPA/ARCS V
BVSPC Oversight Summary

Reporting Period June 1 to 10, 1998 Hours Worked: 222
Site Name/Location: ACS/Griffith, IN BVSPC Project No.: 46517.233
USEPA Work Assignment Manager: Sheri Bianchin, RPM
Site Manager: Steve Mrkvicka

Personnel Summary Affiliation	No. of Personnel	Responsibility
Lee Orsorz, Montgomery Watson, Addison, IL	1	Respondent's General Contractor
Jeff Ramsby, Mark Pauli, John Noyes, Tom Duchek, Jennifer Smith, Alex Ellwood Montgomery-Watson, Madison, WI and Addison, IL	6	Field Sampling Crew (for quarterly groundwater sampling)
Steve Mrkvicka, Carter Helm, Chad Gailey, Black & Veatch Special Projects Corp, (BVSPC)	3	USEPA Oversight Contractor

Summary of field activities:

During the weeks of June 1 and 8, 1998, Montgomery Watson conducted quarterly groundwater sampling at the American Chemical Services (ACS) Site. Two Montgomery Watson field sampling crews were assembled to collect samples from monitoring wells within the ACS site boundary, the wetland area, the City of Griffith Landfill, and the areas that lie north, south, and east of the ACS facility. BVSPC's three-man crew conducted oversight of the field activities and also collected split samples from 12 of the 49 wells. A BVSPC representative accompanied each sampling team to ensure that proper sampling techniques were conducted. The SOP and work plan for low flow groundwater sampling was adhered to by each sampling team. The BVSPC representatives collected the appropriate EPA split sample then maintained custody of previously collected samples, which were stored and packaged on ice at the Perimeter Groundwater Containment System (PGCS) treatment building. BVSPC drafted sample paperwork such as chain of custody forms, custody seals, and sample tagging, in addition

to overview of Montgomery Watson's sample paperwork procedures and decontamination set-up and routine.

Montgomery Watson collected approximately 49 groundwater samples, as well as duplicate samples, matrix spike/matrix spike duplicate (MS/MSD) samples, and field equipment rinsate blanks. The monitoring wells sampled by Montgomery Watson are listed in the field logbook notes, which are attached to this report. Montgomery Watson used the low flow purge technic and monitored for stability of the following groundwater parameters: pH, specific conductance, and temperature. Groundwater turbidity was also monitored and samples were collected when turbidity was 10 NTU's or less.

BVSPC, on behalf of EPA, collected groundwater split samples with the following designations: MW-19 (GW01), MW-28 (GW-02), MW-48 (GW-03), MW-07 (GW-04), MW-11 (GW-05), MW-51 (GW-06), MW-9R (GW-07), MW-06 (GW-08), M-1S (GW-09), M-4S (GW-10), M-4D (GW-11), M-3S (GW-12). One equipment rinsate blank collected by Montgomery Watson was also split by BVSPC to ensure that proper decontamination procedures yielded clean sampling equipment. As required by the EPA-approved Mini-Quality Assurance Project Plan, BVSPC collected one duplicate sample at MW-48 (GW-03) and one MS/MSD sample at MW-9R (GW-07). On June 4, 1998, sampling activities at MW-9R (GW-07) was audited by the EPA Technical Services Branch. The EPA representatives were Patricia Scott and Luba Finkelberg.

Trip blanks accompanied each sample shipment containing samples for volatile organic analysis. A total of five trip blanks were shipped. The samples for the organic analyses were shipped to American Analytical & Technical Services, Broken Arrow, Oklahoma, which was a Contract Laboratory Program (CLP) lab assigned by the Sample Management Office (SMO). The samples for inorganic analyses were shipped to Sentinel, Incorporated, Huntsville, Alabama, which also was a CLP lab assigned by the SMO. All samples were designated for low concentration groundwater analyses.

SMO notified BVSPC that problems occurred during the shipment of two coolers containing samples collected on June 8, 1998. During transit to the inorganic CLP lab, the Federal Express airbill attached to one cooler of samples had been torn off. The cooler arrived at the lab on time; however, Federal Express personnel had broken the chain-of-custody seals and opened the cooler to determine the shipping address. Although it was not determined if the samples had been tampered with, the lab proceeded with analyzing the samples. One of the coolers containing organic samples had also become lost in transit to the lab. The cooler was eventually recovered by Federal Express and delivered to the lab 3 days later; however, the temperature of the samples was above 4°C. These samples were not analyzed.

Montgomery Watson's sampling crew was unable to acquire a sample from well MW-14 using proper SOP procedures. Montgomery Watson decided to purge and sample the well with a bailer. They were informed that a change to SOP requires prior EPA approval. Montgomery Watson tried to contact EPA, but their representatives were apparently unavailable. On June 10, 1998, Montgomery Watson bailed and sampled the well.

BVSPC representatives also noticed many of the sampled monitoring wells did not have a padlock or the padlock was broken and left hanging on the wells' protective tops. BVSPC advised Montgomery Watson that the wells must be secured with a padlock at all times other than during sampling and recommended purchasing new locks.

BVSPC was also noted problems with the tubing used to pump and sample. The tubing was difficult to handle and decontaminate. Numerous kinks were created that hindered flow often. Montgomery Watson reused decontaminated tubing, which is allowed by SOP; however, BVSPC recommended using new or dedicated tubing for each well during the next sampling event.

Signature: _____ Date: June 23, 1998

(138) SMH 4-26-98

0710 Arrive at site. Purpose of today's work is to abandon the last remaining production well IW6, which is located west of the boiler room near the the office.

0800 Drillers arrive onsite. Weather is 60°F cloudy.

Charles Lamb 6-2-98 (139)

Time

6:35 Arrival at site unloaded Coolers & bottles
Carter, Helm, Steve Mikvickis
Arrival 8:00 Am
John Noyes, Alex Ellwood, Jennifer Smith is mp split
Sample team Group Two

Γ First well sampled GW22
we will not splite

09:06 Open well
Team 1 will be Carter Helm, Tom Pushak, Jeff Randy

Split MW 19 - ~~MW1~~ GW01

Time PH cond temp turb

(142) Chad Galey 6/2/98

13:25 Back from Lunch Start setting up MW19 - GW01

13:32 Purge Shallow Well up Aquifer

Time	Ph	Con	Temp	Turb	Redox	Do mg/l
13:34	7.63	3.96	18.46	15.1	75	5.29
13:36	7.46	4.87	18.85	14.0	82	5.06
13:38	7.42	5.00	19.59	16.6	80	4.36
13:40	7.42	5.05	19.45	17.8	81	4.23
13:42	7.40	5.08	19.22	16.4	81	5.14

13:45 Start Sampling Montgomery Watson Removed Hydro Lab

13:50 Started taking Splits

14:00 finished taking splites

14:01 Started Decon procedures

14:16 Done on well MW19 - GW01 Return to water treatment Bld

14:18 Locked Gate

(143) Chad Galey

Time

14:26 - Next set of well will be MW28 + MW15 Back @ water treatment Bld. getting Read for Next trip Still group 2 Jennifer, John, Alex Chad

Splites Next split (EPA) MW28 Deepwell GW02 Lower Aquifer.

15:10 Leave water treatment Bld (WTB) to Sample GW28 - GW02 EPA Split it at the House Access site (off site Area) 10002 Reader Rd. well GW28 - GW02

15:20 Setup for sample

15:35 Purgeing well

Time	Ph	Con	temp	turb
15:38	7.58	.711	12.0°C	280
15:40	7.44	.714	12.34	225
15:42	7.41	.715	12.54	158
15:44	7.38	.716	12.64	124
15:46	7.36	.719	12.69	79.7
15:48	7.34	.715	12.67	61.0
15:50	7.34	.715	12.73	46.0
15:52	7.32	.714	12.76	29
15:54	7.32	.715	12.76	20

(146) Chad [illegible] 6/3/98

Splits MW-07 GW04 Deep Well
Hydro Lab

Time	Ph	Con	Temp	turb
8:36	8.13	.713	10.66	183
8:38	7.92	.709	11.3	215
8:40	7.83	.707	11.54	230
8:42	7.75	.707	11.64	196
8:44	7.69	.708	11.64	140
8:46	7.62	.707	11.59	60.3
8:48	7.59	.706	11.56	27.8
8:50	7.56	.704	11.55	19.3
8:52	7.55	.703	11.55	13.0
8:54	7.55	.703	11.55	11.9
8:56	7.54	.703	11.54	10.3
8:58	7.52	.702	11.54	9.3

9:00 Start Sampling well
MW-07, GW04
Take off Hydro Lab
9:04 Picture # 2 Face South
of Well # MW-07
taking Samples
9:25 Done Sampling Start Decon

Chad [illegible] 2/3/98 (147)

9:30 Chad run to water treatment
Bld. to drop off sample
Pick up Rain gear. Drop
off samples
Starting to sprinkle

9:45 Setting up on MW36
Picture # 3 Setting up
on MW-36 Facing NE
to Left is sump
9:55 Purge well MW36
Raining

Time	Ph	Con	Temp	Turb
9:58	7.28	.725	10.61	4.7
10:00	7.24	.795	10.83	2.5
10:02	7.29	.802	11.17	3.4
10:04	7.34	.815	11.31	4.7
10:06	7.36	.818	11.39	3.3
10:08	7.36	[illegible]	[illegible]	2
10:10	7.36	.819	11.44	1.4

10:12 Start Sampling MW36
10:20 Left site to water treatment Bld
to Decon then go to Lunch
10:45 Arrived At water treatment Bld

150 Chad Gailey 6/3/98

17:05 Hydro Lab Reading
Final Pramiters

Time	Ph	Con	Temp	Turb
17:12	7.41	1.035	11.44	3.8

17:20 Sampling MW30 start.
17:25 Picture #8 of Tom, John, Alex
Sampling filling Poly cont
Low flow. NE Direction
Rail Road track 50 feet Left.
17:35 Finish Sampling / heading
to Water treatment Bld.
Decon pack setup for tomorrow

6/4/98

6:45 Weather Sunny 58°F in Garg
No wind, steam from
Plant rises Vertical. Chance
of rain, Few stratus clouds.
Today Jeff Ramsby ~~[illegible]~~ went
back to Wisconsin ~~[illegible]~~ suppose to get
11:30 before 7 Mark Pauli to Replace him also
Newpump is suppose to arrive by 10:30
Fedex.

151

Chad Gailey 6/4/98

07:05 Safety meeting Hospital direction
hydrate yourself, General Safety.
for Montgomery Watson
Visit wells 33, 51
Down to 2 group Tom, John Alex
Chad (EPA oversight) Jennifer doing paperwork
7:20 Setting up on MW 33
7:35 Purging well
Picture #9 Facing North on
well 33 John, Alex, Steve

Time	Ph	Con	Temp	Turb
7:50	6.77	2.98	11.47	0

Final Pramiters
8:00 Start Sampling Sample Procedure
follow SOP VOCs 1st Metal +
Cynide 2nd Last Amber bottles Semi V
turn Volume up on Semi
8:05 Picture 10 facing west to NW
Sampling MW 33 Tom, John
8:10 Finished Sampling
moving 10 feet away to
Sample MW51-GW06 An
EPA Split Sample
South East of MW 33

(154) Chad Gailey 6/4/98

	Ph	Cond	Temp	Turb	MW 52
10:33	7.29	1.52	11.0	48.7	
10:35	7.21	1.62	11.47	32.6	
10:37	7.19	1.49	11.92	31.3	
10:39	7.17	1.47	12.21	26.3	
10:41	7.17	1.46	12.30	23.9	
10:43	7.16	1.46	12.11	20.5	
10:45	7.15	1.46	11.96	19.3	
10:47	7.15	1.46	12.59	16.9	
10:49	7.15	1.46	12.43	16.6	
~~10:51~~	John	Jump Gun		~~15.9~~	Pulled
10:52	7.13	1.6	12.68	16.2	

10:55 Start Sampling MW-52
Not EPA split / Both
auditor gained us 1/2 way
in Hydro Lab result taking.
10:56 Picture # 12 facing West, SW
of John tone Low flow Sampling
11:02 increase flow for Semi Volitils
11:10 Finished at MW52
11:11 Start Decon Setting up on MW53
11:14 Start Purging MW 53
11:15 Picture # 13 Purging MW53
John and Alex

(55) Chad Gailey 6/4/98

10:16 John is going to check on
status of Controler back at
water treatment Bld.
MW-53

	Ph	Cond	Temp	Turb
11:17	7.01 ~~15.2~~	2.97	11.79	52.6
11:19	6.83	3.38	12.21	~~3.38~~ 49.2
11:21	6.78	3.49	12.35	31.0
11:23	6.78	3.62	12.17	13.6
11:25	6.75	3.74	11.97	9.3
11:27	6.70	3.77	12.2	8.1
11:29	6.69	3.83	12.16	8.3

~~11:30~~ 11:30 Start Sampling MW-53
11:33 Picture of Tom taking grab Sample
15 MW-53 Low flow
11:37 Done Sampling Return to
water treatment Bld to Decon
AND Go to Lunch

(158) Chad Gailey 6/4/98

15:20 Sample Time Begonne Sampling

16:15 Finish Sampling MS/MSD
Look well MW9R-GW09
Return to water treatment to
Drop off waste water.

16:30 MW54R MW55
Will Be Next Samples

16:35 Setting up on MW54R
Picture #17 of MW54R
set up John & Alex
This tubing is inadiquite

16:40 Purge MWR54 Not A
EPA Splite
This well is coming up Brown
water But Turbidity coming up
Low / Low Gray Mud color.
The turbidity in the Hydro
Lab seem to have a problem.
@ Data from Hydro Lab.

16:50 Water has odor to it.
We will Check all other Premeters
and Not Turbidity Not working
will check Visualy

(159) Chad Gailey 6/4/98

17:02 The water in hose / tubing
is getting clearer.

	Ph	Con	Temp	Turb
17:05	7.73	1.14	12.67	NA

Final Premeters Visual Turb
by John Noyes

17:06 Start Sampling

17:10 Picture #17 of Alex Sampling
MW54R Facing South
to South, West Doing low
flow VOAs

17:15 Done Sampling MW54R
Decon Pump move to
MW55 15 feet to ~~South~~ North

17:25 Set up on MW55
Picture 18 of John Bailing Pump
in to well.

17:40 Tom, Mark Stop to check
on John & Alex

17:43 Purging well fixed Hydro Lab
with Rinse ate.

	Ph	Conc	Temp	Turb
17:50	8.16	.314	12.39	4.5

Final Premeters

CURVE FORMULAS

$T = R \tan \frac{1}{2} I$	$R = T \cot. \frac{1}{2} I$	Chord def. $= \frac{\text{chord}^2}{R}$
$T = \frac{50 \tan \frac{1}{2} I}{\text{Sin.} \frac{1}{2} D}$	$R = \frac{50}{\text{Sin.} \frac{1}{2} D}$	No. chords $= \frac{I}{D}$
$\text{Sin.} \frac{1}{2} D = \frac{50}{R}$	$E = R \text{ ex. sec } \frac{1}{2} I$	Tan. def. $= \frac{1}{2}$ chord def.
$\text{Sin.} \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$	$E = T \tan \frac{1}{4} I$	

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$; $100 - 3.125 = 96.875 =$ Base.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574 d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{2}{3} d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3, etc. are the discrepancies of various results from the mean, and if Σd^2 = the sum of the squares of these differences and n = the number of observations, then the probable error of the mean $= \pm 0.6745 \sqrt{\frac{\Sigma d^2}{n(n-1)}}$

MINUTES IN DECIMALS OF A DEGREE

1′	.0167	11′	.1833	21′	.3500	31′	.5167	41′	.6833	51′	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

INCHES IN DECIMALS OF A FOOT

1-16	3-32	1/8	3-16	1/4	5-16	3/8	1/2	5/8	3/4	7/8
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729
1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

C Helm 6-2-95 (1)

0800 Arrive at ACS site
70° F, clear, no wind
Help Chad Gailey
& Steve Mrkricka
prepare sample
bottles for splits.

Team 1 (I will work with):
Jeff Ramsby MW-42, 43
Tom Dushek, mont-watson
in cornfield

0845 Go to Walmart
for ice, and other field
supplies

0920 AT MW-42, upper aquifer
well - Met an EPA split

0925 Begin purge at a rate
of 200 ml/min

0936 Final Parameters
(stabilized)

pH	cond (umhos/cm)	turb (NTU)	temp (°C)
6.83	823	11	13.8

(4)

C Helm

C Helm 6-2-98 (5)

1230 Lunch break
1315 At walgreens to purchase more Latex gloves. Prepare for MW-44 Not an epa split
1335 Mobilize to MW-44
1355 Begin Low Flow purge ~ 300 ml/min
Final Parameters

	Temp	pH	cond	turb
1411	10.5	7.52	772	10

1430 Done Sampling
Note 1410 Sample time
1440 While Jeff & Tom were departing MW-44, the all-terrain vehicle (ATV) got a flat tire and needs immediate repair - down time
1515 Tire repair complete
Decon pump & tubing
1540 Mobilize to MW-45
Pump is set at mid-screen

(8)

C Holm 6-2-98 (9)

1701 MW-41 sample collected Nat an EPA split

Note all today's samples were from Upper aquifer and screen - mid area was where pump was lowered to per SOP

1730 Back at Treatment Plant to help Steve Mrkvicka do paperwork & sample packaging per SOP Guidelines

1800 Report - site

1830 Arrive Hotel

C Holm

C Holm

(12)

C Helm 6-3-98 (13)

MW-39 - not an
epa split.
Purge down total 10 gal

1015 Collect mw-39
Final Parameters
(which stabilized):
Temp = 11.9 °C
pH = 6.91
cond = 1492 umhos/cm
D.O. = 0.42
redox = 130
turbidity = 47 NTU's
Back to Treatment
Building to decon & get
out of rain
1100 Help Steve with sample
paperwork. Team 2 has
pump problems
11:30 Lunch
12:30 Back from Lunch, can't repair
1300 Mobilize to mw-48 Team 2 prep.
with Tom, Chad,
Alex, & John

(16)

C Helm 6-4-98 (17)

0715 Depart Hotel
0745 Arrive at ALS site
Since only one
Grundfos pump is
operating; chad is
overseeing that
team & collecting
a split (EPA) at mw-51 & -33 (epa split)
0815 Depart to store
to purchase ice
for sample preservation
0900 Help Steve with paperwork
& errands while chad stays
0940 Luba Finkelberg and
Patricia Scott on site
EPA Region V for
BV audit.
0950 Decon pump & tubing
from mw-51.
1020 While preparing to
purge mw-52, the
controller box had
"burned up" - another
equipment failure
Mont-Watson co. Stazco
for replacement.

(20)

C Weber 6-4-98 (21)

1450 Back at Treatment Building for decon of pump & tubing.

1515 Mobilize to MW-13 with Mark & Tony

1525 Begin low flow purge - This is not an epa split sample.

1545 Purge complete

Final (stable) parameters

Temp = 11.61 °C

pH = 7.36

cond = 695 umhos/cm

turb = 13.7 NTU's

1550 Collect MW-13 gw sample.

1630 Do sample preservation and packing for MW-9R since stem is not present.

1730 Depart site

1800 Arrive at Hotel

C Weber

(24)

C Helm 6-5-98 (25)

1025 Finish Purge
Parameters stabilize
at:
Temp = 12.68°C
pH = 6.89
cond = 945 umhos/cm
turbidity = 7.5 NTU's

1030 Collect MW-46

1100 Recon pump & new tubing in preparation for MW-21
This is a Montgomery MS/MSD sample
Not an epa split sample

1130 Mobilize to MW-21
Not epa split

1140 Begin low flow purge

1202 Purge finished
Parameters stable
Temp = 14.02°C
pH = 10.06

(29) Chad Daily 6/5/98

6:45 Weather overcast misting
Temp 53° Lite wind

8:05 Leaving for well MW-11
EPA Split MW-11, GW-05
Also Doing MW-12
Team 2 is Now John, Alex,
Chad (EPA)
Team 1 is Mark, Tom, Carter (EPA)
Team 1 is sampling well MW-23
Carter is Logging there samples
8:10 Setting up on MW-11 - GW-05
EPA splite, Parked Next to
Rail Road tracks
well is in woods South of
tracks
8:17 John Setting up Hydro Lab
on MW-11
Picture # 19 facing North
tords Rail Road
Colfax is on my Left.
8:25 Start Purging well
water is Rust color
cleans up Rapidly

Chad Daily 6/5/98 (29)

Time	Hydro Lab Data pH	Con	MW-11 Temp	GW-05 Turb.
8:30	8.29	.046	10.67	307
8:32	8.24	.048	10.53	93.9
8:34	8.08	.052	11.04	77.1
8:36	7.92	.052	11.76	120.0
8:38	7.74	.098	12.10	110.0
8:40	7.65	.102	12.15	91.3
8:42	7.51	.146	12.29	66.4
8:44	7.44	.257	12.38	55.6
8:46	7.02	.257	12.17	50.2
8:48	6.88	.257	12.08	43.3
8:50	6.72	.257	12.00	39.0
8:52	6.60	.259	12.01	39.1
8:54	6.53	.259	12.02	38.0

8:55 Sample Time MW-11 - GW05

9:10 Finished Sampling Still Running moving to MW-12 Not an EPA Split.
9:15 Deliver Sample to Steve
9:35 Setting up on MW-12 Decon pump
Putting pump Down well

(32) Chad Gailey 6/5/98

13:56 Setting up on MW-29
After Lunch Steve/Chad
went for supplies.
Picture #22 of John
14:00 Alex Lowering pump into MW29
Carter, Tom, Mark left
for the day after Lunch.
Tom + Mark went to US, Steel.
14:05 John, Ran to Store to get
an extention cord, Tom
mark took all the cords
Grunt Flows Pump
14:55 John is back from store
and Alex and I found
a short in a pump wire.
we taped it and is working
well
Purging Now
Well held constant pramiters
after 3 reading will purge
until 15:10 to feel confident
AND continue to Read Hydro Lab

Time	Ph	Con	Temp	Turb
15:10	7.43	.918	12.78	8.8

Final Pramiters MW-29

Chad Gailey 6/5/98 (33)

15:14 Start Sampling
Disconnected Hydro Lab
Low flow Check
15:15 Picture #23 Alex, John
Grab Sample MW-29 VOA's
15:23 Done Sampling MW-29, Moving
AND pick up. Move to MW34
which is 10 feet from MW-29
These ARE Not EPA splits
MW-34 is South of MW-29
15:30 DeCon Pump in Field and
spod.
15:41 Start purging well / tubing
Kinks increadably bad.
Taking Hydro Lab Data

	pH	Con	Temp	Turb
15:58	5.35	.296	13.33	4.1

16:00 Sampling disconnect Hydro Lab
Picture #24 of Alex, John
Grab Sampling at MW34 doing
Low flow filling metals poly
16:10 Clean up Done, Sampling
Return to water + treat
to Decon pack Samples.

(38) Chad Gailey 6/8/98 M4D GW-11

Time	pH	Con	Temp	Turb
10:26	7.50	.976	13.33	107.0
10:28	7.50	1.022	13.10	258.0
10:30	7.50	1.062	13.42	216.0
10:32	7.51	1.087	13.56	128.0
10:34	7.52	1.102	13.89	104.0
10:36	7.51	1.107	14.45	83.7
10:38	7.51	1.114	14.68	65.8
10:40	7.52	1.113	14.62	59.2
10:42	7.51	1.110	14.69	59.4
10:44	7.51	1.113	14.80	54.5

10:45 Sampling M4D - GW-11
Low flow
Disconnect Hydro Lab
11:02 Finish Sampling
Decon move to
M3S / GW-12
EPA split Land fill
Put Bailer Back in wells
11:10 Lock Locks M4S, M4D

(39) Chad Gailey 6/8/98

11:25 moved to M3S GW12
EPA Sample Land fill
Just off road Setting up
11:30 Purging M3S GW12

Hydro Lab Data

Time	pH	Con	Temp	Turb
11:32	7.15	.332	12.85	68.3
11:34	6.81	.350	12.43	40.8
11:36	6.73	.350	12.44	31.2
11:38	6.66	.351	12.39	22.5
11:40	6.58	.349	12.32	18.9
11:42	6.55	.347	12.26	17.3
11:44	6.51	.349	12.23	16.6
11:46	6.47	.349	12.19	14.6
11:48	6.36	.381	12.17	14.5

11:50 Sampling time M3S GW12
Low flow
Disconnect Hydrolab
12:10 Picture 1 Role 2 of Alex
Removing Hydro lab
12:15 Leaving Land fill Returning
Key to Fred and going to Lunch

(42) Chad Sorley 6/8/98

16:10 MW-08 moving to Deconn Pump, Starting to Rain

16:20 Setting up on MW-08 which is West of MW31;32 By 25-feet

16:25 Purging well
Hydro Lab Data MW-08 Not EPA split

Time	Ph	Con	Temp	Turb
16:26	8.19	.276	11.12	75.9
16:28	8.16	.276	11.32	66.6
16:30	8.12	.277	11.48	52.5
16:32	8.09	.277	11.54	33.1
16:34	8.07	.275	11.61	22.1
16:36	8.06	.275	11.59	18.7
16:38	8.05	.275	11.60	16.3
16:40	8.04	.275	11.67	14.0
16:42	8.02	.276	11.74	13.6

16:45 Start Sampling MW08
Disconnect Hydro lab.

16:55 Finish Sampling Cleaned up
Maid Second scann 3 well to make sure Locked AND Clean.

(43) Chad Sorley 6/8/98

17:05 Dump purg water at water treatment Bld
Steve left for the Day

17:20 Setting up on MW-50
Pump well
Deconing pump
Next to Colfax Rd Across from Dump (City) Land fill (Blue mountain Bld.

17:25 Lowing pump in to well MW-50
Picture #7 John & Alex
Facing N, E

17:27 Purging well MW-50
Hydro lab Data

Time	Ph	Con	Temp	Turb
17:30	7.57	3.10	12.101	275
17:32	7.55	3.16	12.15	340
17:34	7.53	3.19	12.18	274
17:36	7.50	3.24	12.07	195
17:38	7.48	3.21	12.24	172
17:40	7.46	3.14	12.59	166
17:42	7.44	3.03	12.87	212
17:44	7.43	2.89	13.00	255
17:46	7.43	2.72	13.08	346
17:48	7.43	2.70	13.15	339

Chad Daily 6/19/98

7:05 Decon Five sets of hose
7:30 Pull field Blank
Picture #8 John + Alex
Pulling field Blank in water treatment Building for South Door
People Present Jennifer, Alex, John Chad
Water treatment Building personel is George. Lee is on Vacation
7:32 Sample time field Blank
7:45 Pack Van to go to the field
Raining
9:02 Setting up on MW-47
No EPA Split
MW MS/MSD
Shallow well
9:10 Purging well
Hydro Data Read By Alex

9:12	pH	Con	Temp	Turb
9:12	7.73	.0417	14.07	68.9
9:14	7.36	.0452	14.45	50.8
9:16	7.17	.0472	14.61	67.6
9:18	7.03	.0473	14.92	73.0
9:20	7.18	.0571	15.07	54.0
9:22	7.14	.0375	15.18	37.0

Chad Daily 6/19/98

Hydro data MW-47 Read by Alex
Cont. Rain → mist V-2 20

Time	pH	Con	Temp	Turb
9:24	6.98	.0377	15.22	27.5
9:26	6.94	.0372	15.24	25.3
9:28	6.97	.0378	15.25	21.2
9:30	6.94	.0382	15.26	18.4
9:32	6.93	.0384	15.26	18.1

9:35 Sample Time MW-47
Picture #9 of Alex Low flow
Sampling filling VOA's
No EPA split
MW-MS/MSD simple
(Reeli Flo Controller)
9:52 Finish Sampling
Return to WTB Decon Drop off samples
10:15 MW-37, Look for Leaving WTB.
Alex, John, Chad
10:35 Setting up on MW-37
No EPA split
IN River bed!

(50)

Chad Daily 6/9/98

Hyclio lab MW-49

Recal by Alex

Time	pH	Cond	Temp	Turb
13:16	7.48	.596	11.41	24.0
13:18	6.95	.605	12.03	84.6
13:20	6.92	.625	12.13	off scale/612
13:22	6.89	.633	12.27	off scale
13:24	6.88	.632	12.42	199
13:26	6.88	.632	12.58	151
13:28	6.87	.632	12.69	88.1
13:30	6.86	.123	12.81	78.9
13:32	6.91	.119	12.96	55.3
13:34	6.93	.116	13.14	52.0
13:36	6.94	.113	13.26	58.3
13:38	6.94	.110	13.38	~~52.0~~ 52.6

13:40 Sample Time MW-49

13:41 Picture # 13 Alex clis correctly Hyclio Lab facing NE

13:50 Done Sampling

14:00 Decon pump Lock well Mobilizing Next well

14:15 At Water treatment Bld Pulling Field Blank and Dropping off Purge water

Chad Daily 6/9/98 (51)

14:16 Picture # 13 Pulling Field Blank #5 John, Alex in Water treatment Bld.

14:27 Finish Field Blank Pack to go to Next well Jennifer hole time is doing Paper work AND packing

14:35 Moving to MW-10C Setting up

14:47 Purging well, *Problem with pump, put 2 pump on Now trying it Pulled Pump up tried it Decon water / Distilled water test ok.

*14:55

15:00 Purging (Trying) Pull pump up 3ft off Bottom

15:03 Now Purging

54

Chuck Gailey 6/9/98

16:45 MW-14 unable to sample, unable to get pump Down well

Tried for 40 min could only get the pump about 7 foot down

Next to MW9R

MW 34 MW 29

MW14 are Nest.

Behind Pump station water treatment Bld

Well must be Damage

John Noyes is calling Tom Blarr MW Boss To inform him of Problem on MW-14. Alex went to return generator

17:00 Jennifer is finishing Paper processing for Fed ex

Cleaning water treatment Building

Talk to Tom Blarr MW he will send some one out to Bail the well

55

Chuck Gailey 6/9/98

17:05 Try calling Steve Mrkvicka

Day Finish

(58) Check Daily 6/10/95

13:36 PH Temp
13:36 7.35 142
13:37 Decon prob

13:40 Sample Time MW-14
13:55 Picture #5 of Alex package
Sample MW-14 facing North

14:10 Done Sampling Cleanup
Dispose of Garbage
Pack Samples

14:40 Leave ACS
Lock Door
Close gate
No Other Personel present

United States Environmental Protection Agency
Contract Laboratory Program

anic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):

Case N: 26240

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		5	BVSPC	6-5-98	Federal Express

Regional Information: TGB102

Sampler (Name): Steve Mrkvicka

Airbill Number: 8034899007 00

Non-Superfund Program

Sampler Signature: [signature]

5. Ship To: Amer. Analytical & Tech. Services, 1700 West Albany, Suite C, Broken Arrow, OK 74012
ATTN: Harry Borg

Site Name: American Chemical Services

3. Purpose*
Lead: [ ] SF [X] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI
Long-Term Action: [ ] FS [X] RD [X] RA [ ] O&M [ ] NPLD

City, State: Griffith, IN

Site Spill ID: J7

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval, — = Not a QC Sample)
EWT99	2	L	G	1	X				5-132168-73	ACS-GW07-001	6-4-98 1520	MEXA83	SRM	—
EWT99	2	L	G	6		X	X		5-132174-85	↓	↓	↓	↓	—
EARY3	2	L	G	1	X				5-132152,3	ACS-GW05-001	6-5-98 0855	MEXA35	SRM	—
EARY3	2	L	G	6		X	X		5-132154-7	↓	↓	↓	↓	—
EWT78	2	L	G	1	X				5-132198,9	ACS-GW08-001	6-5-98 1140	METB01	SRM	—
EWT78	2	L	G	6		X	X		5-132200-3	↓	↓	↓	↓	—
EACW4	2	L	G	1	X				5-132216,7	ACS-TB04-201	6-5-98 1515	—	SRM	B

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
Y (N)	1 of 1	EWT99		158689, 158690-6

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6-5-98 1530				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-3 REV 3.93

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EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

359299

United States Environmental Protection Agency
Contract Laboratory Program

anic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):

Case N: 26240

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		5	BVSPC	6-2-98	Federal Express

Regional Information: TGB102

Sampler (Name): Steve Mrkvicka

Airbill Number: 5654191130

Non-Superfund Program

Sampler Signature: [signature]

5. Ship To: Am Analytical & Tech. Services, 1700 West Albany, Suite C, Broken Arrow, OK 74012
ATTN: Harry Borg

Site Name: American Chemical Services

3. Purpose*
Lead: [ ] SF [X] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI
Long-Term Action: [X] FS [X] RD [X] RA [ ] O&M [ ] NPLD

City, State: Griffith, IN

Site Spill ID: J7

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform Eval — = Not a QC Sample)
EARX6	2	L	G	1	X				5-132101, 2	ACS-GW01-001	6-2-98 1345	META98	SRM	—
EARX6	2	L	G	6		X	X		5-132103-6	↓	↓	↓	↓	—
EARX7	2	L	G	1	X				5-132109, 10	ACS-GW02-001	6-2-98 1602	META99	SRM	—
EARX7	2	L	G	6		X	X		5-132111-4	↓	↓	↓	↓	—
EARY1	2	L	G	1	X				5-132130, 1	ACS-TB01-201	6-2-98 1445	—	SRM	B

Shipment for Case Complete? (Y/N): Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC:

Additional Sampler Signatures:

Chain of Custody Seal Number(s): 153295, 153296, 153297, 153298

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6-2-98 1730				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

359296

United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):

Case No.: 26240

1. Project Code	
Account Code	
2. Region No.	5
Sampling Co.	BVSPC
4. Date Shipped	6-3-98
Carrier	Federal Express
Regional Information	TGB102
Sampler (Name)	Steve Mrkvicka
Airbill Number	80348990663
Non-Superfund Program	
Sampler Signature	
5. Ship To	Amer. Analytical & Tech. Services, 1700 West Albany, Suite C, Broken Arrow, OK 74012
ATTN:	Harry Borg
Site Name	American Chemical Services
City, State	Griffith, IN
Site Spill ID	J7

3. Purpose*: Lead [ ] SF [X] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI; Long-Term Action [ ] FS [X] RD [X] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval — = Not a QC Sample)
EARY2	2	L	G	1	X				5-132144,5	ACS-EB01-201	6-3-98 0735	MEWZ39	SRM	R
EARY2	2	L	G	6		X	X		5-132146-9	↓	↓	↓	↓	↓
EARYØ	2	L	G	1	X				5-132132,3	ACS-GW04-001	6-3-98 0900	MEWZ38	SRM	—
EARYØ	2	L	G	6		X	X		5-132138-41	ACS-GW04-001	↓	↓	↓	—
EARX8	2	L	G	1	X				5-132117,8	ACS-GW03-001	6-3-98 1340	META87	SRM	—
EARX8	2	L	G	6		X	X		5-132119-22	↓	↓	↓	↓	—
EARX9	2	L	G	1	X				5-132125,6	ACS-GW03-101	6-3-98 1340	META88	SRM	D
EARX9	2	L	G	6		X	X		5-132127-9,34	↓	↓	↓	↓	D
EWT79	2	L	G	1	X				5-132196,7	ACS-TB02-201	6-3-98 1505	—	SRM	B

Shipment for Case Complete? (Y/N): Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC:

Additional Sampler Signatures:

Chain of Custody Seal Number(s): 153299, 153300, 158677, 158678, 158679, 158680

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6-3-98 1535				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-3 REV. 3/93

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EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

359297

United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No.: 26240

1. Project Code	
Account Code	
2. Region No.	5
Sampling Co.	BVSPC
4. Date Shipped	6-8-98
Carrier	Federal Express
Regional Information	TGB102
Sampler (Name)	Steve Mrkvicka
Airbill Number	803489900799
Non-Superfund Program	
Sampler Signature	[signature]
5. Ship To	Sentinel, Inc. 2800 Bob Wallace Ave., Suite L3 Huntsville, AL 35805 ATTN: Beverly Kilgore
Site Name	American Chemical Services
City, State	Griffith, IN
Site Spill ID	J7

3. Purpose*: Lead [ ] SF [X] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI; Long-Term Action [ ] FS [X] RD [X] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
METC27	2	L	G	2		X						5-132212	ACSGW09001	6-8-98 0830	EYB55	SRM	—
METC27	2	L	G	3			X					5-132213	↓	↓	↓	↓	—
META29	2	L	G	2		X						5-132224	ACSGW10001	6-8-98 1000	EARY5	SRM	—
META29	2	L	G	3			X					5-132225	↓	↓	↓	↓	—
META30	2	L	G	2		X						5-132232	ACSGW11001	6-8-98 1045	EARY6	SRM	—
META30	2	L	G	3			X					5-132233	↓	↓	↓	↓	—
META31	2	L	G	2		X						5-132240	ACSGW12001	6-8-98 1150	EARY7	SRM	—
META31	2	L	G	3			X					5-132241	↓	↓	↓	↓	—

Shipment for Case Complete? (Y/N)	Page 1 of 1	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures
Chain of Custody Seal Number(s)	158699, 158700		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6-8-98 1450				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-5 REV 3 93

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EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

357903

United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No.: 26240

1. Project Code	
Account Code	
2. Region No.	5
Sampling Co.	BVSPC
4. Date Shipped	6-3-98
Carrier	Federal Express
Regional Information	TGB102
Sampler (Name)	Steve Mrkvicka
Airbill Number	5654191126
Non-Superfund Program	
Sampler Signature	SMrkvicka
5. Ship To	Sentinel, Inc. 2800 Bob Wallace Ave., Suite L3 Huntsville, AL 35805 ATTN: Beverly Kilgore
Site Name	American Chemical Services
City, State	Griffith, IN
Site Spill ID	J7

3. Purpose*: Lead [ ] SF [X] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI; Long-Term Action [ ] FS [X] RD [X] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval — = Not a QC Sample)
META98	2	L	G	2		X						5-132107	ACSGW01001	6-2-98 1345	EARX6	SRM	—
META98	2	L	G	3			X					5-132108	↓	↓	↓	↓	—
META99	2	L	G	2		X						5-132115	ACSGW02001	6-2-98 1602	EARX7	SRM	—
META99	2	L	G	3			X					5-132116	↓	↓	↓	↓	—
MEWZ39	2	L	G	2		X						5-132150	ACSEB01201	6-3-98 0735	EARYZ	SRM	R
MEWZ39	2	L	G	3			X					5-132151	↓	↓	↓	↓	R
MEWZ38	2	L	G	2		X						5-132142	ACSGW04001	6-3-98 0900	EARYØ	SRM	—
MEWZ38	2	L	G	3			X					5-132143	↓	↓	↓	↓	—
META87	2	L	G	2		X						5-132123	ACSGW03001	6-3-98 1340	EARX8	SRM	—
META87	2	L	G	3			X					5-132124	↓	↓	↓	↓	—

Shipment for Case Complete? (Y/N) Y	Page 1 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures
Chain of Custody Seal Number(s)	153293, 153294		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
SMrkvicka	6-3-98 1610				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-5 REV. 3/93

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - SMO Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 1
Date:6-2-98 Time:16:11
Photographer: Chad Gailey
Description: Photo facing northwest, well MW-28/GW-02 of John Noyes and Jennifer Smith taking a low flow grab sample.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 2
Date:6-3-98 Time: 9:04
Photographer: Chad Gailey
Description: Photo facing south, well MW-07/GW-04 of Alex Ellwood fill a VOA low flow grab sample.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 4
Date: 6-3-98 Time:14:45
Photographer: Chad Gailey
Description: Photo facing southwest, well MW-40, of Alex Ellwood, Tom Duehek, and John Noyes setting up the hydro lab.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 5
Date:6-3-98 Time:15:00
Photographer: Chad Gailey
Description: Photo facing southwest, MW- 40, of Tom Duehek taking a grab sample. John Noyes dismantling the hydro lab, Alex Ellwood packing samples.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 7
Date:6-3-98 Time:16:50
Photographer: Chad Gailey
Description: Photo facing north, well MW-30, sitting up to take a sample, Alex Ellwood nd John Noyes are putting the pump down the well, Tom Duehek is filling out labels.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 9
Date:6-4-98 Time:7:35
Photographer: Chad Gailey
Description: Photo facing north well MW-33 John and Alex are purging the well. Steve Mrkvicka over seeing activities

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo:10
Date:6-4-98 Time: 8:05
Photographer: Chad Gailey
Description: Photo facing northwest, well MW-33, Tom is sampling the well, John is removing the hydro lab.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo:11
Date:6-4-98 Time:8:11
Photographer: Chad Gailey
Description: Photo facing southeast, well MW-51, John and Tom are installing the pump into the well for grab sample.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 12
Date:6-4-98 Time:10:56
Photographer: Chad Gailey
Description: Photo facing southwest well MW-52, John and Tom taking grab samples.

ite: American Chemical Services, Inc. RD/ERA
roject: 46517/46518
hoto: 13
ate:6-4-98 Time:11:15
hotographer: Chad Gailey
escription: Photo facing southwest, well MW-53, John and Alex purging he well and taking hydro lab data.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 15
Date:6-4-98 Time:11:33
Photographer: Chad Gailey
Description: Photo facing south, well MW-53, Tom taking grab sample.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 17
Date:6-4-98 Time:16:35
Photographer: Chad Gailey
Description: Photo facing south, well MW-54R, John and Alex setting up sampling equipment.

ite: American Chemical Services, Inc. RD/ERA
roject: 46517/46518
hoto: 18
)ate:6-4-98 Time:17:10
hotographer: Chad Gailey
)escription: Photo facing south, well MW-54R, Alex sampling fill a VOA.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 19
Date:6-4-98 Time:17:25
Photographer: Chad Gailey
Description: Photo facing north, well MW-55, John and Alex setting up to sample well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 21
Date:6-5-98 Time:9:47
Photographer: Chad Gailey
Description: Photo facing southeast, well MW-12, Alex taking hydro data

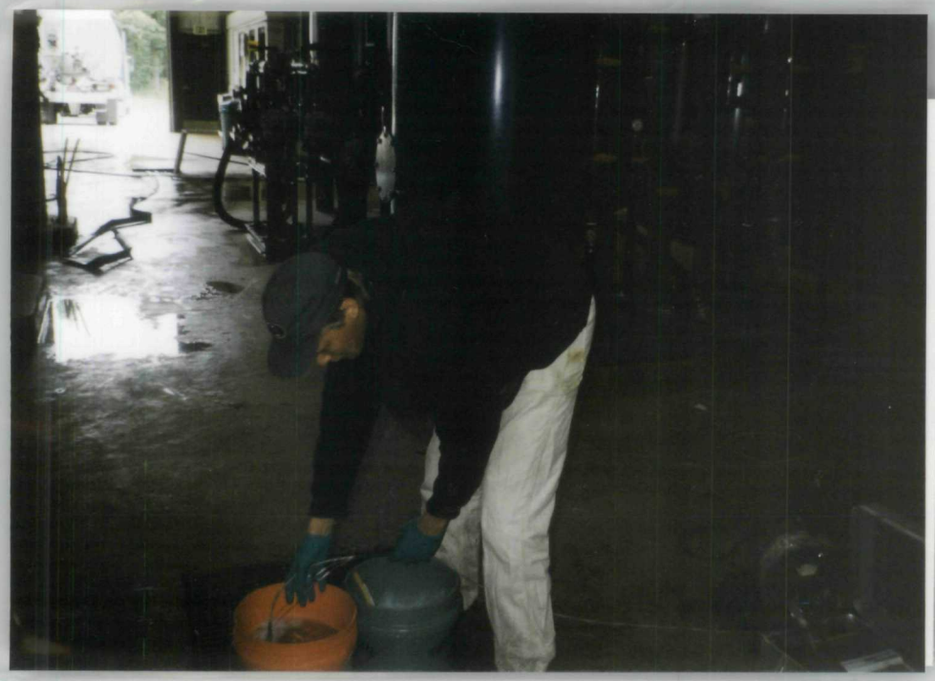
Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 22
Date:6-5-98 Time:11:06
Photographer: Chad Gailey
Description: Photo facing southwest, well MW-06, John and Alex putting the pump and tubing down the well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 23
Date:5-5-98 Time:13:56
Photographer: Chad Gailey
Description: Photo facing east, well MW-29, John and Alex installing pump and tubing into well.

ite: American Chemical Services, Inc. RD/ERA
roject: 46517/46518
'hoto: 26
)ate:6-8-98 Time:8:30
'hotographer: Chad Gailey
)escription: Photo facing southeast, well M-1S in the land fill, John ampling the well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 27
Date:6-8-98 Time:10:00
Photographer: Chad Gailey
Description: Photo facing north, well M-4S in the land fill, Alex sampling the well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo:1 Role:2
Date:6-8-98 Time:12:11
Photographer: Chad Gailey
Description: Photo facing west, well M-3S, Alex removing Hydro lab.



Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 2 Role:2
Date:6-8-98 Time:13:35
Photographer: Chad Gailey
Description: Photo facing north, Alex Deconing pump inside the water treatment building.

ite: American Chemical Services, Inc. RD/ERA
'roject: 46517/46518
'hoto: 3 Role:2
)ate:6-8-98 Time:14:20
hotographer: Chad Gailey
)escription: Photo facing southeast, Jennifer inside the water treatment uilding pack samples to ship.

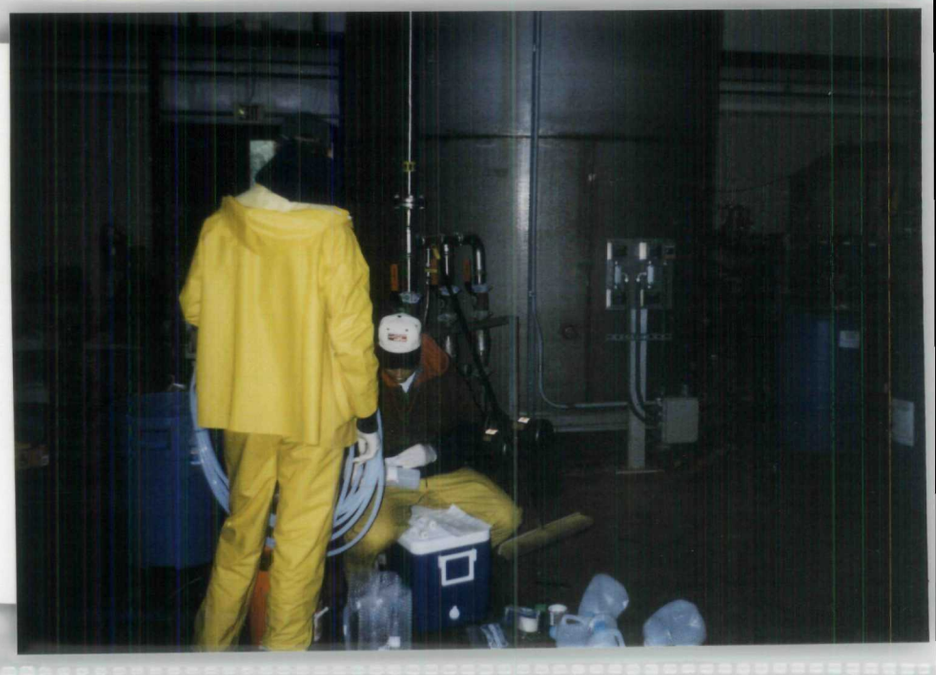
Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 7 Role:2
Date:6-8-98 Time:17:25
Photographer: Chad Gailey
Description: Photo facing Northeast, well MW-50, John and Alex setting up the well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 8 Role:2
Date:6-9-98 Time:7:30
Photographer: Chad Gailey
Description: Photo facing south, in water treatment building, John and Alex pulling a field blank.

'ite: American Chemical Services, Inc. RD/ERA
roject: 46517/46518
'hoto: 9 Role:2
)ate:6-9-98 Time:9:35
hotographer: Chad Gailey
)escription: Photo facing southeast, well MW-47, John and Alex sampling the well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 10 Role:2
Date:6-9-98 Time:10:37
Photographer: Chad Gailey
Description: Photo facing northwest, well MW-37, Alex putting the pump and tubing down well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo: 12 Role:2
Date:6-9-98 Time:13:41
Photographer: Chad Gailey
Description: Photo facing Northeast, well MW-49, Alex disconnecting hydro lab.



ite: American Chemical Services, Inc. RD/ERA
roject: 46517/46518
hoto:13 Role:2
)ate:6-9-98 Time:14:16
'hotographer: Chad Gailey
)escription: Photo facing south, in water treatment building, John and
\lex pulling a Field blank.

Site: American Chemical Services, Inc. RD/ERA
Project: 46517/46518
Photo:14 Role:2
Date:6-9-98 Time:15:35
Photographer: Chad Gailey
Description: Photo facing west, well MW-10C, Alex sampling the well.

Site: American Chemical Services, Inc. RD/ERA
Project: 46518/46518
Photo:1 Time:12:50
Date:6-10-98
Photographer: Chad Gailey
Description: Photo facing north, well MW-14, Alex taking water depth measurements.

Site: American Chemical Services, Inc. RD/ERA
Project: 46518/46518
Photo:3
Date:6-10-98 Time:13:07
Photographer: Chad Gailey
Description:Photo facing north, well MW-14, Alex bailing well.

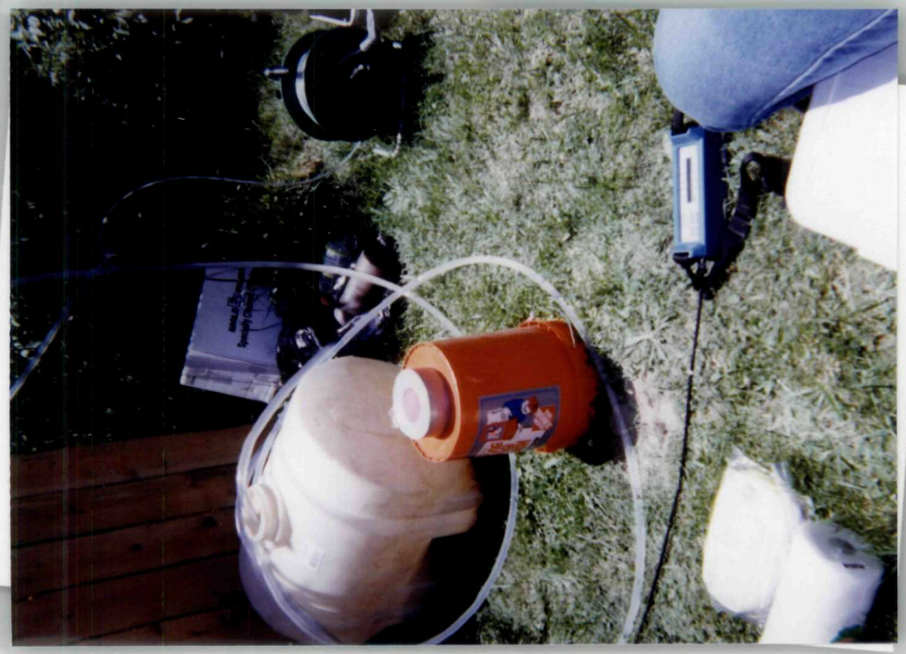
Site: American Chemical Services, Inc. RD/ERA
Project: 46518/46518
Photo:5
Date:6-10-98 Time:13:55
Photographer: Chad Gailey
Description:Photo facing north, well MW-14, Alex filling out labels.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 1
Date: 6-02-98 Time: 0950
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team using the low flow sample collection technique at MW-42 located southeast of the ACS site in a cornfield. Extractable organic containers are being filled, VOA and metals have already been filled following the Region V SOP guidelines and the ACS site WorkPlan.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 2
Date: 6-02-98 Time: 1000
Photographer: Carter Helm
Description: A Northwest view of the Montgomery-Watson groundwater sampling team's setup at MW-42. A Grundfos pump and controller was utilized for sampling both Upper Aquifer and Lower Aquifer wells. The pump was lower to the middle of the screened interval before purge begins.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 3
Date: 6-02-98 Time: 1030
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team 'deconning' the pump and teflon tubing after sampling MW-42 and before mobilizing to MW-43.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #:4
Date: 6-02-98 Time: 1105
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team collecting the groundwater parameters and noting them in their logbook. The Montgomery-Watson groundwater sampling team waited for stability (10% variation) in pH, specific conductance, and temperature, plus low turbidity readings before collecting a sample.



Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 5
Date: 6-02-98 Time: 1150
Photographer: Carter Helm
Description: Closeup view of the other Montgomery-Watson groundwater sampling team's setup at the well cluster MW-19 and MW-22. Purge water was collected in a portable container as pictured. All liquid investigational derived wastes (IDW) were later introduced into the influent at the groundwater treatment building following the sampling Work Plan objectives.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 6
Date: 6-02-98 Time: 1425
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team collecting the MW-44 groundwater sample after the purge parameters have stabilized.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 7
Date: 6-02-98 Time: 1650
Photographer: Carter Helm
Description: North view of the Montgomery-Watson groundwater sampling team initiating purge at MW-41. Nitrile gloves were worn when sampling or handling the tubing or pump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 8
Date: 6-03-98 Time: 0920
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team filling the total metals container at MW-38 located north of the ACS site.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 9
Date: 6-03-98 Time: 1005
Photographer: Carter Helm
Description: North view of the Montgomery-Watson groundwater sampling team purging MW-39 in the rain. Samples were collected in a rain protected manner so as not to introduce precipitation with the sample.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #:10
Date: 6-03-98 Time: 1115
Photographer: Carter Helm
Description: Black & Veatch's Steve Mrkvicka shown packaging EPA split samples and using vermiculite to protect the amber glass containers from breaking during shipment to the CLP lab.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 11
Date: 6-03-98 Time: 1335
Photographer: Carter Helm
Description: North view of the Montgomery-Watson groundwater sampling team collecting groundwater parameters at MW-48.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 12
Date: 6-03-98 Time: 1345
Photographer: Carter Helm
Description: Close-up view of Black & Veatch's Chad Gailey collecting an EPA split sample at MW-48. Low flow sampling and filling of the metals container pictured.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 13
Date: 6-03-98 Time: 1430
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team conducting decon procedures of the pump and tubing following SOP guidelines.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #:14
Date: 6-04-98 Time: 1000
Photographer: Carter Helm
Description: Close-up view of the Montgomery-Watson groundwater sampling team deconning a pump and tubing while EPA Field Audit Representatives Luba Finkelberg and Patricia Scott conduct their overview of Black & Veatch.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 15
Date: 6-04-98 Time: 1540
Photographer: Carter Helm
Description: West view of the Montgomery-Watson groundwater sampling team collecting groundwater parameters at MW-13 located northwest of the ACS site.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 16
Date: 6-04-98 Time: 1551
Photographer: Carter Helm
Description: A close up view of the Montgomery-Watson groundwater sampling team collecting the VOA samples using the low flow sampling technique.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 17
Date: 6-05-98 Time: 0825
Photographer: Carter Helm
Description: An east view of Montgomery-Watson groundwater sampling team collecting groundwater parameters at MW-23 located in the wetlands west of the ACS site.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 46517/46518
Roll: 1 Photo #: 18
Date: 6-05-98 Time: 1042
Photographer: Carter Helm
Description: A close up view of the Montgomery-Watson groundwater sampling team collecting the extractable organic sample at MW-46.

:ite: American Chemical Services, Inc. RD/ERA
'roj. #: 46517/46518
Roll: 1 Photo #: 19
)ate: 6-05-98 Time: 1215
'hotographer: Carter Helm
)escription: Close-up view of Montgomery-Watson groundwater sampling team member collecting a metals container at MW-21 located near the railroad tracks southwest of the groundwater treatment plant.