

2/23/06

Flow Rate Cales for 5 & 10 min

	5min	10min	60min
Column #1	3.75	7.5	45
Column #2	3.33	6.66	40
Column #3	3.33	6.66	40
Column #4	2.58	5.16	31
Column #5	2.08	4.16	25
Column #6	2.00	4.00	24

2/24/2006

Column #1 - sample time 0732
 gross sample weight = 702.5g
 tare weight = 231g
 net sample weight = 471.5g

Column #2 - sample time 0736
 gross sample weight = 634g
 tare weight = 233.5g
 net weight = 400.5g

Column #3 - sample time 0742
 gross sample weight = 587g
 tare weight = 231g
 net weight = 356g

Column #4 - no sample collected
 17 ml of sample after 12 hr. period

Column #5 - sample time 0747
 gross sample weight = 564.5g
 tare weight = 229.5g
 net weight = 335g

Column #6 - sample time 0750
 gross sample weight = 553g
 tare weight = 233.5g
 net weight = 319.5g

Samples stored in cold storage at 40°F in Bldg 12 - 1st floor Lab

2/24/2006 Barrel pH check

02W04 -

Temp. - 20.7°C

Cond. -

pH - 7.13

ORP - 364.7 mV

TMW-02 -

Temp. - 19.9°C

Cond. -

pH - 6.36

ORP - 364.7 mV

TMW-09 -

Temp. - 20.7°C

Cond. -

pH - 6.88

ORP - 363.6 mV

02W33 -

Temp. - 20.7°C

Cond. -

pH - 6.69

ORP - 355.6 mV

West of Mississippi Rain H₂O

Temp. - 21.3°C

Cond. -

pH - 5.28

ORP - 358.1 mV

**Treatability Testing Sample Shipment and Analysis Schedule for Next Two Weeks
Cimarron Project**

	Sample Shipment Date			Comments
	2/27/2006	3/6/2006	3/10/2006	
Column 1	PV1, PV2, PV4	PV8, PV16	-	All samples for total U analysis with ICP/MS
Column 2	PV1, PV2, PV4	PV8, PV16	-	
Column 3	PV1, PV2, PV4	PV8, PV16	-	
Column 4	PV1, PV2	PV4, PV8	-	
Column 5	PV1, PV2	PV4, PV8	-	
Column 6	PV1, PV2	PV4, PV8	-	
Breakthrough Tests	-	-	20 to 30	Sample ID to be determined.
Total Samples	15	12	20 - 30	

PV1 - Pore Volume Number

2/26/06 0730

Column #1	lots of solids coming over
Column #2	clear
Column #3	clear
Column #4	very slow & clear
Column #5	clear
Column #6	small amount of solids coming over

2/27/2006 Barrel pH check

02W04 -

Temp. - 21.7°C

Cond. -

pH - 6.78 (6.72)

ORP - 394.3 mV

TMW-02 -

Temp. - 20.5°C

Cond. -

pH - 6.20 7.53

ORP - 385.7 mV

TMW-09 -

Temp. - 21.8°C

Cond. -

pH - 6.80 7.7

ORP - 393.8 mV

02W33 -

Temp. - 21.5°C

Cond. -

pH - 6.48 (6.7)

ORP - 381.0 mV

West of Mississippi Ram H₂O -

Temp. - 22.2°C

Cond. -

pH - 4.71 (5.01)

ORP - 316.5 mV

2/27/2006 - Repacking of Column #4 SC-03

Accumulated sample to date is 64g.

Started re-packing column #3 -
empty column weight = 2877.5g
no top filter, nuts or bolts

Packing column with SC-03 dry solids.
Added 1,756.5g to column.

Added 250 mls of TMW-02 to column to facilitate packing.

Boat Tare = 7.09g

Added 80g of Colorado Silica sand as filtering agent with PPE filter.

Pressurized tank to 70 psi at 1536 on 2/27/2006. Initial saturation of column.

-----Original Message-----

From: Cao, Xiaoyun [mailto:xcao@ensr.aecom.com]
Sent: Monday, February 27, 2006 10:58 AM
To: Dennis M. Johnson
Cc: Ferguson, Du'Bois (Joe); Meenan, Michael; Trail, Erin
Subject: Column #4 (SC-03)

Dennis,

I just checked the quantity of clayey soils and it appears that there is sufficient quantity for packing one column. We need to repack column #4 ASAP or we are not going to get any results. Pack the column in small lifts while apply shaking or vibrating to facilitate packing. Do not press the column from top when it is filled. Hopefully, this will improve the flow. Let me know if there is any question.

Thanks,

James

2/28/06 0740

Column #1 added 6836g TMW-02 to P. kettle
Column #2 added 8000g TMW-02 to P. kettle
Column #3 added 4792g of OZW33 to pressure tank.
Column #5 added 2,832g of TMW-02 to pressure tank.
Column #6 added 3,726g of West of Mississippi Rain H₂O to pressure tank.

2/23/2006 - Barrel pH check

02W04 -

Temp. - 17.1°C

Cond. - 1.4 mS

pH - 6.71

ORP - 336 mV

TMW-02 -

Temp. - 16.9°C

Cond. - 0.5 mS

pH - 7.56

ORP - 286 mV

TMW-09 -

Temp. - 16.7°C

Cond. - 1.1 mS

pH - 6.7

ORP - 339 mV

02U33 -

Temp. - 16.9°C

Cond. - 2.4 mS

pH - 6.75

ORP - 273 mV

West of Mississippi Rain H₂O

Temp. - 17.2°C

Cond. - 0.0 mS

pH - 5.0

ORP - 345 mV

2/28/2006 - Leachate sample waste 1st set of buckets

Column #1 - TMW-02/SC-01

pH - 8.33
Cond. - 0.6 mS
ORP - 307 mV
temp. - 17.3°C

Column #2 - TMW-02/SC-02

pH - 8.33
Cond. - 0.6 mS
ORP - 330 mV
temp. - 17.3°C

Column #3 -

pH - 7.84
Cond. - 2.3 mS
ORP - 334 mV
temp. - 17.2°C

Column #4 - 02W33/SC-02

pH - 8.30
Cond. - 0.6 mS
ORP - 311 mV
temp. - 17.2°C

Column #5 - TMW02/SC-04

pH - 8.34
Cond. - 0.6 mS
ORP - 278 mV
temp. - 17.2°C

Column #6 - West of Mississippi Rain H₂O / SC-01 and SC-05

pH - 7.61
Cond. - 0.2 mS
ORP - 285 mV
temp. - 17.3°C

2/28/2006 - Total Leachate Waste Collected to date:

Column #1 - PVI to PV9 = 6026g

Column #2 - PVI to PV9 = 6961.5g

Column #3 - PVI to PV9 = 4105.1g

Column #4 - 1163.5g

Column #5 = PVI to PV5 = 2333.5g

Column #6 = PVI to PV5 = 2755g

Leachate stored at 4°C in Bldg #4.

2/28/2006 -

Column #1 sample - PVI0 duplicate for storage (252.5 mls)

pH - 8.37

Cond. - 0.6 mS

2 Y

ORP - 293 mV

Column #2 sample - PVI0 duplicate for storage (164.5 mls)

pH - 8.49

Cond. - 0.5 mS

2 Y

ORP - 290 mV

Column #3 sample - PVI0 duplicate for storage (250.5 mls)

pH - 7.91

Cond. - 2.2 mS

2 Y

ORP - 303 mV

Excess sample added to 2 gal. container.

Samples stored at 4°C in Bldg. #4

3/1/2006 - Duplicate Samples for Storage

Column #1 sample - PVII

pH -
Cond. -
ORP -

} not enough sample

Column #2 sample - PVII

pH -
Cond -
ORP -

} not enough sample

Column #3 sample - PVII

pH -
Cond. -
ORP -

} not enough sample

Column #4 sample - PV

pH -
Cond -
ORP -

} not enough sample

Column #5 sample - PV6

pH - 8.44
Cond - 347 μ S
ORP - 0.5 mV

24

Column #6 sample - PV6

pH - 7.52
Cond - 0.1 mS
ORP - 241 mV

24

3/1/2006 Estimated Remainder of sample solids

Column #1 -

SC-01 - 2,577.5g

Column #2 -

SC-02 - 3,822.0g

Column #3 -

SC-02 - 3,939.5g

Column #4 -

SC-03 - 1,576.5g

Column #5 -

SC-04 - 411.0g

Column #6 -

SC-05 - 4616.0g

3/1/2006 - 500 ml samples taken of sample waters

TMW-02 - sampled at 1316

02W04 - sampled at 1310

TMW-09 - sampled at 1318

02W33 - sampled at 1321

Sampled stored at 4°C in bldg. #4.

3/1/2006 Barrel pH check

02W04-

Temp. - 23.5°C (74.8°F)
Cond. - 1.5 mS
pH - 6.74 (6.72)
ORP - 488.0 mV

TMW-02-

Temp. - 22.4°C (72.0°F)
Cond. - 0.5 mS
pH - 7.98 (7.53)
ORP - 481.6 mV

3/1/2006 Sparged 20 gal. of sample
water TMW-02 for 30 sec. with O_2 ,
pH dropped from 7.98 to 7.58.

TMW-09-

Temp. - 23.4°C (74.5°F)
Cond. - 1.1 mS
pH - 6.83 (6.7)
ORP - 467.4 mV

02W33-

Temp. - 23.0°C (73.5°F)
Cond. - 2.2 mS
pH - 6.81 (6.7)
ORP - 472.4 mV

West of Mississippi Rain H_2O

Temp. - 24.1°C (75.7°F)
Cond. - 0.0 mS
pH - 5.07 (5.01)
ORP - 441.7 mV

3/1/2006 - Duplicate Samples for storage

Column #1 sample - time collected: 1931

pH - 7.71

cond. - 0.8 mS

ORP - 244.6 mV

temp. - 22.6°C (72.0°F)

Amount collected: 253 mls

Column #2 sample - time collected: 1957

pH - 8.10

cond - 0.7 mS

ORP - 252.9 mV

temp. - 22.5°C (71.7°F)

Amount collected: 258.5 mls

Column #3 sample - time collected: 2023

pH - 7.92

cond - 2.3 mS

ORP - 272.1 mV

temp - 22.2°C (72.4°F)

Amount collected: 246.5 mls

Excess sample added to 2 gal. container

Samples stored at 4°C in bldg. #4

3/2/06 Duplicate Samples for storage

Column #	pH	ORP (mV)	Cond (mS)	Temp
1	7.90	229.5	0.8 mS	21.2
2	8.05	221.6	0.9 mS	21.0
3	7.58	205.0	2.3	21.0
4	8.46	187.9	0.7	21.0
5	8.41	190.8	0.5	21.0
6	7.42	187.4	0.1	21.0

3/2/2006 Barrel pH check

02W04 -

Temp. - 23.2°C (74.0°F)

Cond. - 1.5 mS

pH - 6.81 (6.72)

ORP - 370.6 mV

TMW-02 -

Temp. - 21.9°C (71.6°F)

Cond. - 0.5 mS

pH - 7.68 (7.55)

ORP - 340.4 mV

TMW-09 -

Temp. - 23.1°C (73.9°F)

Cond. - 1.1 mS

pH - 6.78 (6.7)

ORP - 342.1 mV

02W33 -

Temp. - 22.5°C (72.7°F)

Cond. - 2.2 mS

pH - 6.86 (6.7)

ORP - 348.8 mV

West of Mississippi Rain H₂O -

Temp. - 22.7°C (73.4°F)

Cond. - 0.0 mS

pH - 5.0 (5.0)

ORP - 323.7 mV

3/2/2006 Duplicate Samples for Storage

Column #:	pH:	ORP (mV):	Cond. (mS):	Temp.:
1	7.65	286.7	0.8	21.5°C (70.8°F)
2	7.88	278.8	0.9	21.4°C (70.8°F)
3	7.85	275.5	2.3	21.1°C (70.3°F)

Excess sampled added to 2nd container

Samples stored at 4°C in bldg #4.

10354 3/3/06

0730 Return Samples

Column #	pH	EMF	Cond.	Temp.
1	7.75	278.0	0.8	21.0
2	7.83	278.1	0.8	21.0
3	7.65	270.3	2.3	21.0
4	8.51	261.5	0.7	21.0
5	8.73	262.6	0.5	21.0
6	7.55	232.1	0.1	21.0

3/3/06

Column #4 added 2970g of TMW-02 to pressure vessel.

Column #6 added 3034g of West of Mississippi Rain H₂O to pressure vessel.

Increased PSI in column #6 pressure vessel from 5 to 20 psi. Bubbles have developed in the line slowing or stopping the flow rate. Bubbles are from the column.

Bubbles cleared from tubing, continuous flow rate resumed.

3/3/2006 - Duplicate Samples for storage

Column #:	pH	ORP (mV)	Cond. (mS)	Temp.:
1	7.69	260.9	0.8	21.6°C (71.2°F)
2	7.76	262.6	0.8	21.5°C (71.0°F)
3	7.94	252.6	2.2	21.3°C (70.7°F)

Green samples added to 2 gal container

Samples stored at 5°C in fridge #4.

3/4/06 0700

Column #	pH	EMF	Cond.	Temp.
1	7.68	247.0	0.8	21.3
2	off	—	—	—
3	off	—	—	—
4	off	—	—	—
5	8.28	267.0	0.1	21.3
6	7.51	190.3	0.1	21.3

not enough sample

3/4/06 - Duplicate sample for storage

Column #:	pH:	ORP (mV):	Cond. (mS):	Temp.:
1	8.10	252.6	0.6	21.3°C

2 and 3 off

Sample stored at 4°C in 6 bag #4.

3/5/06 0710 Sampling by T.C. (Standardize pH probe)

Column #	pH	MV	Cond	Temp
1	7.87	250.2	0.8	21.3
2	off			
3	off			
4	not enough sample			
5	8.41	270.0	0.5	21.4
6	7.68	262.1	0.2	21.6

Refilled Column #1 PV with 8000g 0750 3/5/06
Column #4 Pressure increased to 90 psi.

3/5/06 1900 Sampling by M.H. (Duplicate sample for storage)

Column #:	pH:	ORP (mV):	Cond. (mS):	Temp.:
1	7.57	310.8	0.6	21.4°C

3/5/06 2 and 3 off

1958 - Pressure increased to 20 psi for Column #1 to maintain constant flow rate.

3/6/06

Column #	pH	MV	Cond	Temp
1	7.64	305.2	0.8	21.2
2	off			
3	off			
4	8.27			Low volume
5	8.22	300.7	0.5	21.2
6	7.61	256.0	0.1	21.2