Scanned 13:14:20 03/25/2014

TECHNOLOGY LABORATORY, INC.
1012 CENTRE AVENUE
FORT COLLINS, CO 80526
(970) 490-1414
www.techlabusa.com sales@techlabusa.com

8/5

W.O. NUMBER 16520

CHAIN-OF-CUSTODY REPORT

Please fill in all highlighted fields Keep pink copy!

NAME: CGRS - WDRR
MANAGER: Abby ADAMS
NUMBER:
LOCATION OR NAME: CEANCE BASIN
SIGNATURE:

SAMPLE ID	DATE/TIME SAMPLED	SAMPLE MATRIX: SOIL (S) AQUEOUS (W) AIR (A) OTHER (O)	NUMBER OF CONTAINERS	BTEX / MTBE / TVPH	TEPH (DRO)	TRPH 418.1	Oil & Grease 413.1 / 1664	VOC 624 / 8260 TOTAL / TCLP	SVOC 625 / 8270 / PAH	pH / ~~TDS~~ TDS	RCRA 8 METALS (TOTAL / TCLP / DISSOLVED)	Reactl. / Ignitib. / Corr. / Paint Filter	TO-1 / TO-14 / TO-15 / TVPH	NITRATE / NITRITE / AMMONIA	BOD / COD	FIXED GASES (N_2, O_2, CO_2, CH_4)	PCBs	ICP Scan	Anion Scan	Alkalinity	SAR	OTHER	OTHER	OTHER	HOLD AFTER ANALYSIS	HOLD, DON'T ANALYZE
ready Sh 1/2 2 DEL VL 1 AG FRED	7/15/08 8:45 AM	W	3							X								X	X	X	X					
ENC BC 1 AG FRED	7/15/08 9:05 AM																									
1) DL HC 3 FB	7/16/08 8:25 AM	W	1							X								X	X	X	X					
2) NOB 4 FRED W	7/16/08 3:15 PM	W	1							X								X	X	X	X					
3) NOB 5 AG FRED	7/16/08 3:40 PM	W	1							X								X	X	X	X					

1 OF 1

AROUND TIME
IAL (5-10 working days)
(100% Surcharge)
(50% Surcharge)

D.C. #133

COMMENTS:

LOGGED IN BY: Jana Kuhn

Sample Preservative: ☒ 4°C ☐ None ☐ Other ☐ Acid

RELINQUISHED BY: Dale Packard	DATE:	RECEIVED BY:	
COMPANY: CGRS	TIME:	COMPANY:	
RELINQUISHED BY:	DATE: 7/17/08	RECEIVED BY: Jana Kuhn	
COMPANY:	TIME: 1000	COMPANY: TLI	

CHECK ONE! Sign here

Scanned 13:14:24 03/25/2014

TECHNOLOGY LABORATORY, INC.

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

04

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10
Analyzed: 02/12/10

Sample ID: Composite
Laboratory ID: 9952-07

Project No.: 11727AA
Method: EPA-8260B
Matrix: Water

CAS Number	Parameter	Result µg/L	MDL µg/L	CAS Number	Parameter	Result µg/L	MDL µg/L
71-43-2	Benzene	4580	0.5	108-88-3	Toluene	8040	0.5
100-41-4	Ethylbenzene	711	0.5	1330-20-7	Total Xylenes	5570	0.5
91-20-3	Naphthalene	< 0.5	0.5	75-01-4	Vinyl Chloride	< 0.5	0.5
74-87-3	Chloromethane	< 0.5	0.5	74-83-9	Bromomethane	< 0.5	0.5
75-00-3	Chloroethane	< 0.5	0.5	75-69-4	Trichlorofluoromethane	< 0.5	0.5
75-35-4	1,1-Dichloroethene	< 0.5	0.5	156-60-5	trans-1,2-Dichloroethene	< 0.5	0.5
156-59-2	cis-1,2-Dichloroethene	< 0.5	0.5	75-09-2	Methylene Chloride	< 0.5	0.5
75-34-3	1,1-Dichloroethane	< 0.5	0.5	74-97-5	Bromochloromethane	< 0.5	0.5
67-66-3	Chloroform	< 0.5	0.5	71-55-6	1,1,1-Trichloroethane	< 0.5	0.5
56-23-5	Carbon Tetrachloride	< 0.5	0.5	107-06-2	1,2-Dichloroethane	< 0.5	0.5
79-01-6	Trichloroethene	< 0.5	0.5	78-87-5	1,2-Dichloropropane	< 0.5	0.5
75-27-4	Bromodichloromethane	< 0.5	0.5	74-95-3	Dibromomethane	< 0.5	0.5
79-00-5	1,1,2-Trichloroethane	< 0.5	0.5	142-28-9	1,3-Dichloropropane	< 0.5	0.5
590-20-7	2,2-Dichloropropane	< 0.5	0.5	563-58-6	1,1-Dichloropropene	< 0.5	0.5
10061-01-5	cis-1,3-Dichloropropene	< 0.5	0.5	10061-02-6	trans-1,3-Dichloropropene	< 0.5	0.5
127-18-4	Tetrachloroethene	< 0.5	0.5	106-93-4	1,2-Dibromoethane (EDB)	< 0.5	0.5
124-48-1	Dibromochloromethane	< 0.5	0.5	108-90-7	Chlorobenzene	< 0.5	0.5
630-20-6	1,1,1,2-Tetrachloroethane	< 0.5	0.5	100-42-5	Styrene	< 0.5	0.5
75-25-2	Bromoform	< 0.5	0.5	79-34-5	1,1,2,2-Tetrachloroethane	< 0.5	0.5
98-82-8	Isopropylbenzene	83.7	0.5	108-86-1	Bromobenzene	< 0.5	0.5
103-65-1	n-Propylbenzene	81.6	0.5	95-49-8	2-Chlorotoluene	< 0.5	0.5
106-43-4	4-Chlorotoluene	< 0.5	0.5	108-67-8	1,3,5-Trimethylbenzene	1011	0.5
95-63-6	1,2,4-Trimethylbenzene	1219	0.5	98-06-6	tert-Butylbenzene	< 0.5	0.5
135-98-8	sec-Butylbenzene	1404	0.5	541-73-1	1,3-Dichlorobenzene	< 0.5	0.5
106-46-7	1,4-Dichlorobenzene	< 0.5	0.5	99-87-6	4-Isopropyltoluene	70.1	0.5
104-51-8	n-Butylbenzene	< 0.5	0.5	120-82-1	1,2,4-Trichlorobenzene	< 0.5	0.5
87-61-6	1,2,3-Trichlorobenzene	< 0.5	0.5	87-68-3	Hexachlorobutadiene	< 0.5	0.5
95-50-1	1,2-Dichlorobenzene	< 0.5	0.5				

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	113	68-120
Toluene-d8	97	81-128
Bromofluorobenzene	108	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:29 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK
1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

EN
METHANO
WELLS

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: EN-1
Laboratory ID 9952-01

Project No.: 11727AA
Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	6.68	Units	EPA-150.1	02/09/10
	Total Dissolved Solids (TDS)	18760	mg/L	EPA-160.1	02/02/10
N/A	TSS	41	mg/L	EPA-160.2	02/02/10
N/A	DRO (TEPH)	18.4	mg/L	EPA-8015B	02/06/10
	Methanol	89.9	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	6.83	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	18.0	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	1.22	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	18.3	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	58.9	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	4.0	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	96	68-120
Toluene-d8	104	81-128
Bromofluorobenzene	86	70-113

Bice Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:34 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: EN-2
Laboratory ID 9952-02

Project No.: 11727AA
Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	6.98	Units	EPA-150.1	02/09/10
	Total Dissolved Solids (TDS)	17800	mg/L	EPA-160.1	02/02/10
N/A	TSS	27	mg/L	EPA-160.2	02/02/10
N/A	DRO (TEPH)	15.1	mg/L	EPA-8015B	02/06/10
	Methanol	120	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	10.4	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	40.3	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	3.82	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	58.5	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	167	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	9.69	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	93	68-120
Toluene-d8	103	81-128
Bromofluorobenzene	97	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:39 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK
1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: EN-3
Laboratory ID 9952-03

Project No.: 11727AA
Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	6.83	Units	EPA-150.1	02/09/10
	Total Dissolved Solids (TDS)	16910	mg/L	EPA-160.1	02/02/10
N/A	TSS	54	mg/L	EPA-160.2	02/02/10
N/A	DRO (TEPH)	16.0	mg/L	EPA-8015B	02/06/10
	Methanol	344	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	2.93	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	4.37	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	< 1.0	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	2.82	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	10.1	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	< 1.0	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	93	68-120
Toluene-d8	103	81-128
Bromofluorobenzene	85	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:43 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK
1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: EN-4
Laboratory ID 9952-04

Project No.: 11727AA
Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	7.10	Units	EPA-150.1	02/09/10
	Total Dissolved Solids (TDS)	19380	mg/L	EPA-160.1	02/02/10
N/A	TSS	27	mg/L	EPA-160.2	02/02/10
N/A	DRO (TEPH)	168	mg/L	EPA-8015B	02/06/10
	Methanol	4189	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	4.43	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	8.77	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	< 1.0	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	5.41	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	18.6	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	< 1.0	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	92	68-120
Toluene-d8	103	81-128
Bromofluorobenzene	85	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:47 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: EN-5
Laboratory ID 9952-05

Project No.: 11727AA
Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	6.97	Units	EPA-150.1	02/09/10
	Total Dissolved Solids (TDS)	17640	mg/L	EPA-160.1	02/02/10
N/A	TSS	27	mg/L	EPA-160.2	02/02/10
N/A	DRO (TEPH)	29.1	mg/L	EPA-8015B	02/06/10
	Methanol	86.4	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	23.7	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	137	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	15.6	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	252	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	1977	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	37.2	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	93	68-120
Toluene-d8	101	81-128
Bromofluorobenzene	88	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:52 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: EN-6

Project No.: 11727AA

Laboratory ID 9952-06

Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	6.80	Units	EPA-150.1	02/09/10
	Total Dissolved Solids (TDS)	19190	mg/L	EPA-160.1	02/02/10
N/A	TSS	5867	mg/L	EPA-160.2	02/02/10
N/A	DRO (TEPH)	26.2	mg/L	EPA-8015B	02/06/10
	Methanol	118	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	5.83	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	14.1	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	< 1.0	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	13.2	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	110	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	< 1.0	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	95	68-120
Toluene-d8	102	81-128
Bromofluorobenzene	84	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

Scanned 13:14:56 03/25/2014

TECHNOLOGY LABORATORY, INC.

CENTRE PROFESSIONAL PARK

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

CERTIFICATE OF ANALYSIS

CGRS, INC.
PO Box 1489
Fort Collins, CO 80522

Sampled: 01/28/10
Received: 01/29/10

Sample ID: Composite
Laboratory ID 9952-07

Project No.: 11727AA
Matrix: Water

CAS Number	Parameter	Result	Units	Method	Date Analyzed
N/A	pH	7.03	Units	EPA-150.1	02/09/10
N/A	DRO (TEPH)	208	mg/L	EPA-8015B	02/08/10
	Methanol	859	mg/L	EPA-8015B Modified	02/09/10
71-43-2	Benzene	4.58	mg/L	EPA-8260B	02/09/10
108-88-3	Toluene	8.04	mg/L	EPA-8260B	02/09/10
100-41-4	Ethylbenzene	< 1.0	mg/L	EPA-8260B	02/09/10
1330-20-7	Total Xylenes	5.57	mg/L	EPA-8260B	02/09/10
N/A	GRO (TVPH)	65.3	mg/L	EPA-8260B	02/09/10
540-84-1	Iso-octane	< 1.0	mg/L	EPA-8260B	02/09/10
110-54-3	n-Hexane	< 1.0	mg/L	EPA-8260B	02/09/10

QA/QC SURROGATE RECOVERIES

Compound	% Recovery	% Rec. Limits
Dibromofluoromethane	96	68-120
Toluene-d8	102	81-128
Bromofluorobenzene	83	70-113

Bill Emery
TECHNOLOGY LABORATORY, INC.

TECHNOLOGY LABORATORY, INC.
1012 CENTRE AVENUE
FORT COLLINS, CO 80526
Phone: (970) 490-1414 Fax: (970) 472 5488
www.techlabusa.com sales@techlabusa.com

W.O. NUMBER 9952

CHAIN-OF-CUSTODY REPORT

COMPANY NAME: CGRS, INC.
PROJECT MANAGER: J. ADAMS
PROJECT NUMBER: 11727AA
PROJECT LOCATION OR NAME: GREENBACK PRODUCED WATER LLC.
SAMPLERS SIGNATURE: [signature]

LAB #	SAMPLE ID	DATE/TIME SAMPLED	SAMPLE MATRIX: SOIL (S) AIR (A) AQUEOUS (W) OTHER (O)	NUMBER OF CONTAINERS	BTEX / ~~MTBE~~ / TVPH	TEPH (DRO)	TRPH 418.1	Oil & Grease 413.1 / 1664	VOC 624 / 8260 TOTAL / TCLP	SVOC 625 / 8270 / PAH	pH / TSS / TDS	RCRA 8 METALS (TOTAL / TCLP / DISSOLVED)	React. / Ignita. / Corr. / Paint Filter	TO-1 / TO-14 / TO-15 / TVPH	NITRATE / NITRITE / AMMONIA	BOD / COD	FIXED GASES (N_2, O_2, CO_2, CH_4)	PCBs								HOLD AFTER ANALYSIS	HOLD, DON'T ANALYZE
	EN-1	01/28/2010	W	4	X	X					X																
	EN-2		W	4	X	X					X																
	EN-3		W	4	X	X					X																
	EN-4		W	4	X	X					X																
	EN-5		W	4	X	X					X																
	EN-6		W	4	X	X					X																
	~~EN-7~~ N/A																										

PAGE 1 OF 1

TURNAROUND TIME
- ☒ Normal (5-10 working days)
- ☐ 3 day (1.5x Normal Rates)
- ☐ 24 hr (2x Normal Rates)
- ☐ Same day (4x Normal Rates)

COMMENTS:

LOGGED IN BY:

Sample Preservative: ☒ 4°C ☐ None ☐ Other ☐ Acid

RELINQUISHED BY:	DATE: 1/29/10	RECEIVED BY: Bill Emary	
COMPANY:	TIME: 11:30	COMPANY: TLI	
RELINQUISHED BY: [signature]	DATE:	RECEIVED BY:	
COMPANY: CGRS	TIME:	COMPANY:	

D.C. #133

Scanned 13:15:00 03/25/2014

Scanned 13:15:04 03/25/2014

Analytical Results - Condensate

Scanned 13:15:09 03/25/2014

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: SAMPLE 2
Pace Project No.: 6070736

Sample: SAMPLE 2 **Lab ID: 6070736001** Collected: 12/07/09 19:45 Received: 12/09/09 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	1000000	100000		12/20/09 14:35	67-64-1	
Benzene	**3980000**	ug/L	100000	100000		12/20/09 14:35	71-43-2	
Bromobenzene	ND	ug/L	100000	100000		12/20/09 14:35	108-86-1	
Bromochloromethane	ND	ug/L	100000	100000		12/20/09 14:35	74-97-5	
Bromodichloromethane	ND	ug/L	100000	100000		12/20/09 14:35	75-27-4	
Bromoform	ND	ug/L	100000	100000		12/20/09 14:35	75-25-2	
Bromomethane	ND	ug/L	100000	100000		12/20/09 14:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	1000000	100000		12/20/09 14:35	78-93-3	
n-Butylbenzene	**467000**	ug/L	100000	100000		12/20/09 14:35	104-51-8	
sec-Butylbenzene	**211000**	ug/L	100000	100000		12/20/09 14:35	135-98-8	
tert-Butylbenzene	ND	ug/L	100000	100000		12/20/09 14:35	98-06-6	
Carbon disulfide	ND	ug/L	500000	100000		12/20/09 14:35	75-15-0	
Carbon tetrachloride	ND	ug/L	100000	100000		12/20/09 14:35	56-23-5	
Chlorobenzene	ND	ug/L	100000	100000		12/20/09 14:35	108-90-7	
Chloroethane	ND	ug/L	100000	100000		12/20/09 14:35	75-00-3	
Chloroform	ND	ug/L	100000	100000		12/20/09 14:35	67-66-3	
Chloromethane	ND	ug/L	100000	100000		12/20/09 14:35	74-87-3	
?-Chlorotoluene	ND	ug/L	100000	100000		12/20/09 14:35	95-49-8	
Chlorotoluene	ND	ug/L	100000	100000		12/20/09 14:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	250000	100000		12/20/09 14:35	96-12-8	
Dibromochloromethane	ND	ug/L	100000	100000		12/20/09 14:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	100000	100000		12/20/09 14:35	106-93-4	
Dibromomethane	ND	ug/L	100000	100000		12/20/09 14:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	100000	100000		12/20/09 14:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	100000	100000		12/20/09 14:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	100000	100000		12/20/09 14:35	106-46-7	
Dichlorodifluoromethane	ND	ug/L	100000	100000		12/20/09 14:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	100000	100000		12/20/09 14:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	100000	100000		12/20/09 14:35	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	100000	100000		12/20/09 14:35	540-59-0	
1,1-Dichloroethene	ND	ug/L	100000	100000		12/20/09 14:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	100000	100000		12/20/09 14:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	100000	100000		12/20/09 14:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	100000	100000		12/20/09 14:35	78-87-5	
1,3-Dichloropropane	ND	ug/L	100000	100000		12/20/09 14:35	142-28-9	
2,2-Dichloropropane	ND	ug/L	100000	100000		12/20/09 14:35	594-20-7	
1,1-Dichloropropene	ND	ug/L	100000	100000		12/20/09 14:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	100000	100000		12/20/09 14:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	100000	100000		12/20/09 14:35	10061-02-6	
Ethylbenzene	**4610000**	ug/L	100000	100000		12/20/09 14:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	100000	100000		12/20/09 14:35	87-68-3	
2-Hexanone	ND	ug/L	1000000	100000		12/20/09 14:35	591-78-6	
Isopropylbenzene (Cumene)	**773000**	ug/L	100000	100000		12/20/09 14:35	98-82-8	
p-Isopropyltoluene	**317000**	ug/L	100000	100000		12/20/09 14:35	99-87-6	
Methylene chloride	ND	ug/L	100000	100000		12/20/09 14:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1000000	100000		12/20/09 14:35	108-10-1	
ethyl-tert-butyl ether	ND	ug/L	100000	100000		12/20/09 14:35	1634-04-4	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Scanned 13:15:13 03/25/2014

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: SAMPLE 2
Pace Project No.: 6070736

Sample: SAMPLE 2 **Lab ID: 6070736001** Collected: 12/07/09 19:45 Received: 12/09/09 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Naphthalene	ND	ug/L	1000000	100000		12/20/09 14:35	91-20-3	
n-Propylbenzene	**1120000**	ug/L	100000	100000		12/20/09 14:35	103-65-1	
Styrene	ND	ug/L	100000	100000		12/20/09 14:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	100000	100000		12/20/09 14:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	100000	100000		12/20/09 14:35	79-34-5	
Tetrachloroethene	ND	ug/L	100000	100000		12/20/09 14:35	127-18-4	
Toluene	**34600000**	ug/L	100000	100000		12/20/09 14:35	108-88-3	E
1,2,3-Trichlorobenzene	ND	ug/L	100000	100000		12/20/09 14:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	100000	100000		12/20/09 14:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	100000	100000		12/20/09 14:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	100000	100000		12/20/09 14:35	79-00-5	
Trichloroethene	ND	ug/L	100000	100000		12/20/09 14:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	100000	100000		12/20/09 14:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	250000	100000		12/20/09 14:35	96-18-4	
1,2,4-Trimethylbenzene	**7590000**	ug/L	100000	100000		12/20/09 14:35	95-63-6	
1,3,5-Trimethylbenzene	**7850000**	ug/L	100000	100000		12/20/09 14:35	108-67-8	
Vinyl chloride	ND	ug/L	100000	100000		12/20/09 14:35	75-01-4	
Xylene (Total)	**52800000**	ug/L	300000	100000		12/20/09 14:35	1330-20-7	E
Bromofluorobenzene (S)	108	%	87-115	100000		12/20/09 14:35	460-00-4	
Dibromofluoromethane (S)	90	%	87-113	100000		12/20/09 14:35	1868-53-7	
1,2-Dichloroethane-d4 (S)	83	%	81-121	100000		12/20/09 14:35	17060-07-0	
Toluene-d8 (S)	117	%	89-111	100000		12/20/09 14:35	2037-26-5	P2,S2
Preservation pH	**1.0**		0.10	100000		12/20/09 14:35		
8260 MSV GRO and Oxygenates	Analytical Method: EPA 8260							
TPH-GRO	**590000000**	ug/L	50000000	100000		12/20/09 14:35		
HEM, Oil and Grease	Analytical Method: EPA 1664A							
Oil and Grease	**115000**	mg/L	5.0	1		12/14/09 15:55		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**3300**	mg/L	5.0	1		12/10/09 21:48		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**140**	mg/L	5.0	1		12/10/09 22:01		
5540C MBAS Surfactants	Analytical Method: SM 5540C							
Surfactants	ND	mg/L	0.80	1		12/09/09 20:00		D3,H1
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Methanol	ND	mg/L	500	100		12/15/09 11:08	67-56-1	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Scanned 13:15:18 03/25/2014

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: SAMPLE 2
Pace Project No.: 6070736

Sample: SAMPLE 2 **Lab ID: 6070736003** Collected: 12/07/09 19:45 Received: 12/09/09 09:15 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015B Diesel Range Organics	Analytical Method: EPA 8015B Preparation Method: EPA 3546							
TPH-DRO	**202000**	mg/kg	5940	20	12/10/09 00:00	12/16/09 10:36		
n-Tetracosane (S)	0	%	41-130	20	12/10/09 00:00	12/16/09 10:36	646-31-1	1e,D4
p-Terphenyl (S)	0	%	39-130	20	12/10/09 00:00	12/16/09 10:36	92-94-4	1e
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	83-32-9	
Acenaphthylene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	208-96-8	
Anthracene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	120-12-7	
Benzo(a)anthracene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	56-55-3	
Benzo(a)pyrene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	207-08-9	
Benzoic acid	ND	ug/kg	5010000	10	12/15/09 00:00	12/16/09 20:51	65-85-0	
Benzyl alcohol	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	101-55-3	
Butylbenzylphthalate	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	85-68-7	
Chloro-3-methylphenol	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	59-50-7	
4-Chloroaniline	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	39638-32-9	
2-Chloronaphthalene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	91-58-7	
2-Chlorophenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	7005-72-3	
Chrysene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	53-70-3	
Dibenzofuran	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	120-83-2	
Diethylphthalate	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	105-67-9	
Dimethylphthalate	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	131-11-3	
Di-n-butylphthalate	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	5010000	10	12/15/09 00:00	12/16/09 20:51	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	5010000	10	12/15/09 00:00	12/16/09 20:51	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	606-20-2	
Di-n-octylphthalate	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	117-81-7	
Fluoranthene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	206-44-0	
Fluorene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	87-68-3	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Scanned 13:15:22 03/25/2014

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: SAMPLE 2
Pace Project No.: 6070736

Sample: SAMPLE 2 **Lab ID: 6070736003** Collected: 12/07/09 19:45 Received: 12/09/09 09:15 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Hexachlorobenzene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	77-47-4	
Hexachloroethane	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	193-39-5	
Isophorone	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	78-59-1	
2-Methylnaphthalene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51		
Naphthalene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	91-20-3	
2-Nitroaniline	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	88-74-4	
3-Nitroaniline	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	99-09-2	
4-Nitroaniline	ND	ug/kg	1980000	10	12/15/09 00:00	12/16/09 20:51	100-01-6	
Nitrobenzene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	98-95-3	
2-Nitrophenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	88-75-5	
4-Nitrophenol	ND	ug/kg	5010000	10	12/15/09 00:00	12/16/09 20:51	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	86-30-6	
ntachlorophenol	ND	ug/kg	5010000	10	12/15/09 00:00	12/16/09 20:51	87-86-5	
Phenanthrene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	85-01-8	
Phenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	108-95-2	
Pyrene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	990000	10	12/15/09 00:00	12/16/09 20:51	88-06-2	
Nitrobenzene-d5 (S)	0	%	20-107	10	12/15/09 00:00	12/16/09 20:51	4165-60-0	D3,P3, S4
2-Fluorobiphenyl (S)	0	%	36-105	10	12/15/09 00:00	12/16/09 20:51	321-60-8	S4
Terphenyl-d14 (S)	0	%	46-130	10	12/15/09 00:00	12/16/09 20:51	1718-51-0	S4
Phenol-d6 (S)	0	%	38-102	10	12/15/09 00:00	12/16/09 20:51	13127-88-3	S4
2-Fluorophenol (S)	0	%	33-105	10	12/15/09 00:00	12/16/09 20:51	367-12-4	S4
2,4,6-Tribromophenol (S)	0	%	38-102	10	12/15/09 00:00	12/16/09 20:51	118-79-6	S4

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1323545

Section A Required Client Information:

Company: CGRS
Address: 1301 ACADEMY CT. PO BOX 1489, FT COLLINS CO 80522
Email To: JOBY@CGRS.COM
Phone: 970 493 7780 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: JOBY ADAMS
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: COLLEEN KOTORC
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: COLORADO

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D. 60 70736

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 - VOCs + GRO	8270 - SVOCs	8015 - DRO	1664 - OIL + GREASE	METHANOL	TSS	TDS	SURFACTANTS				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SAMPLE 2	WW		12/7	7:10 PM	12/7	7:45 PM		13				X	X					X	X	X	X	X	X	X	X		2(DEPN)		2(8015) 4(8011) 2(8270) 1(8260) 1(DEPN) 1(DEPN)	
2																															
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
				[signature] / Pace	12/9/09	915	1.4	Y	Y	Y

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: DANIEL T. PACKARD
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12/7/2009

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Scanned 13:15:26 03/25/2014

Scanned 13:15:31 03/25/2014

Appendix A Analytical Profiles of Influent and/or Process Water Samples (May 15, 2010)

Sample Identification - GreenBack Shaeffer Ranch Produced Water Treatment Plant
01—DLHC3FB Raw Produced Water 07/16/08
02—NOB4PRODW Raw Produced Water 07/16/08
03—NOB5AGPOLFD Raw Produced Water 07/16/08
04—Composite Raw Produced Water-1/28/10
05—RO Model - Feed Water
06—RO Model – Permeate (to discharge)
07—RO Model – Concentrate

Table A.1 General Parameters

Parameter				Sample Identification and Data						
Name	Units	CAS #	PQL	01	02	03	04	05	06	07
Alkalinity	mg/l	NA	10	780	1903	1927				
Chlorine, Total Residual (TRC)	mg/l	7782-50-5	0.05							
Coli , E.	#/100 ml	NA	NA							
Coliform, Fecal	#/100 ml	NA	NA							
Flow	MGD	NA	NA						0.105	
Flow	gpm	NA	NA					125	75	50
Hardness as CaCO3	mg/l	NA	10							
Oil and Grease	mg/l	NA	5							
Oxygen Demand, Biochemical (BOD)	mg/l	NA	1							
Oxygen Demand, Chemical (COD)	mg/l	NA	30							
Oxygen, Dissolved	mg/l	7782-44-7	NA							
pH	s.u.	NA	NA	6.8	7.98	7.49		7.7	6.2	8.0
Solids, Total Dissolved (TDS)	mg/l	NA	10	**48420**	**16020**	**27990**		11037	207	27281
Solids, Total Suspended (TSS)	mg/l	NA	10							
Temperature	C	NA	NA							

Table A.2 Radionuclides

Parameter				Sample Identification and Data						
Name	Units	CAS #	PQL	01	02	03	04	05	06	07
Americium 241	pCi/l	7440-35-39								
Cesium 134	pCi/l	7440-46-2								
Plutonium 239 and 240	pCi/l	7440-07-5								
Radium 226 and 228	pCi/l	7440-14-4	8							
Radioactivity, Gross Alpha	pCi/l	NA	0.3							
Radioactivity, Gross Beta	pCi/l	NA								
Strontium 90	pCi/l	7440-24-6								
Thorium 230 and 232	pCi/l	7440-29-1								
Tritium	pCi/l	10028-17-8								

Table A.3 Metals

Parameter				Sample Identification and Data						
Name	Units	CAS #	PQL	01	02	03	04	05	06	07
Aluminum , Total Recoverable	µg/l	7429-90-5								
Aluminum, Dissolved	µg/l	7429-90-5	10	300	680	<10				
Antimony	µg/l	7440-36-0		<10	<10	<10				
Arsenic, Total	µg/l	7440-38-2	0.01							
Arsenic, Dissolved	µg/l	7440-38-2		<10	<10	<10				
Barium	µg/l	7440-39-3		131000	63600	2800		0	0	0

Scanned 13:15:36 03/25/2014

Beryllium	µg/l	7440-41-7		<10	<10	<10				
Boron	µg/l	7440-42-8	0.05	**6900**	**2300**	**7400**		7.95	5.0	12.36
Cadmium, Total Recoverable	µg/l	7440-43-9	0.0004							
Cadmium, Dissolved	µg/l	7440-43-9		<10	<10	<10				
Chromium, Hexavalent	µg/l	18540-29-9	0.025							
Chromium, Trivalent	µg/l	16065-83-1	0.05							
Chromium, Total	µg/l	7440-47-3	0.005							
Chromium, Dissolved	µg/l	7440-47-3		<10	<10	<10				
Cobalt	µg/l	7440-48-4	0.006	<10	<10	<10				
Copper, Potentially Dissolved	µg/l	7440-50-8	0.005	<10	<10	<10				
Copper, Total Recoverable	µg/l	7440-50-8	0.005							
Cyanide, Weak Acid Dissociable	µg/l	74-90-8	0.01							
Cyanide, Total	µg/l	74-90-8	0 01							
Iron, Dissolved	µg/l	7439-89-6	0.3	<10	<10	<10				
Iron, Total Recoverable	µg/l	7439-89-6	0.3							
Lead, Potentially Dissolved	µg/l	7439-92-1	0.005	80	40	<10				
Lead, Total Recoverable	µg/l	7439-92-1	0.005							
Manganese, Total Recoverable	µg/l	7439-96-5	0.05							
Manganese, Dissolved	µg/l	7439-96-5	0.05	480	100	420				
Mercury, Total	µg/l	7439-97-6	0.00025							
Mercury, Dissolved	µg/l	7439-97-6		<2	<2	<2				
Molybdenum	µg/l	7439-98-7		<10	<10	<10				
Nickel, Potentially Dissolved	µg/l	7440-02-0	0.05	<10	<10	<10				
Nickel, Total, mg/l	µg/l	7440-02-0	0.05							
Potassium, Dissolved	µg/l	7440-09-7		2010000	269000	1330000		707	15.2	1745
Selenium, Total Recoverable	µg/l	7782-49-2	0.002							
Selenium, Dissolved	µg/l	7782-49-2		<10	<10	<10				
Silver, Potentially Dissolved	µg/l	7440-22-4	0.0002	<10	<10	<10				
Silver, Total Recoverable	µg/l	7440-22-4	0.0002							
Strontium, Dissolved	µg/l	7440-24-6		125000	21100	31300		27	0.097	67
Thallium	µg/l	7440-66-6		<10	<10	<10				
Tin	µg/l	7440-31-5								
Titanium	µg/l	7440-32-6								
Uranium, Total Recoverable	µg/l	7440-61-1	0.03							
Vanadium	µg/l	7440-62-2		<10	<10	<10				
Zinc, Potentially Dissolved	µg/l	7400-66-6	0.05	<10	<10	<10				
Zinc, Total Recoverable	µg/l	7400-66-6	0.05							
Zirconium	µg/l	7440-67-7								

Table A.4 Nutrients and Other Non-metal Inorganics

Parameter				Sample Identification and Data						
Name	**Units**	**CAS #**	**PQL**	**01**	**02**	**03**	**04**	**05**	**06**	**07**
Acetate	mg/l			182	48.2	194				
Bromide	mg/l	7726-95-6		244	85.7	161				
Chloride	mg/l	16887-00-6	5	**26388**	**9461**	**15043**		5730	93	14186
Fluoride, Total	mg/l	NA	0.1	<0.05	1.1	<0.05		12	0.4	30
Nitrogen, Total Ammonia, as N	mg/l	7664-41-7	0.05					0	0	0
Nitrogen, Nitrate	mg/l	84145-82-4	0 1	<0.05	<0.05	<0.05		125	15	291
Nitrogen, Nitrite	mg/l	14797-65-0	0 002	<0.05	<0.05	<0.05				
Nitrogen, Total Organic	mg/l	NA	1							
Phosphorus, Total	mg/l	7723-14-0	0.05							
Phosphate - P	mg/			<0.05	5.3	<0.05				
Sulfate	mg/l	18785-72-3	5	0.8	1.1	318		252	1	629
Sulfide, as H2S	mg/l	7783-06-4	0.1							
Sulfite	mg/l	14265-45-3								

Table A.5 Parameters from Policies

Parameter				Sample Identification and Data						
Name	**Units**	**CAS #**	**PQL**	**01**	**02**	**03**	**04**	**05**	**06**	**07**
WHOLE EFFLUENT TOXICITY (WET)										

WET, Acute, Pimephales Toxicty	NA	NA	NA							
WET, Acute, Ceriodaphnia Toxicty	NA	NA	NA							
WET, Chronic, Pimephales Lethality	NA	NA	NA							
WET, Chronic, Ceriodaphnia Lethality	NA	NA	NA							
WET, Chronic, Pimephales Toxicty	NA	NA	NA							
WET, Chronic, Ceriodaphnia Toxicty	NA	NA	NA							
PROTECTION OF IRRIGATED CROPS										
Electrical Conductivity (EC)	dS/cm	NA	NA							
Sodium Absorption Ratio (SAR)	NA	NA	NA	**107**	**123**	**106**		276	79	432
Sodium, Dissolved	mg/l	7440-23-5		13100	5660	7590		3650	63	9029
Calcium, Dissolved	mg/l	7440-70-2		923	126	308		5	0.018	12.5
Magnesium, Dissolved	mg/l	7439-95-4		124	21.4	48.7		5	0 018	12.5

Table A.6 Organics (Name Sort)

Parameter				Sample Identification and Data						
Name	**Units**	**CAS #**	**PQL**	**01**	**02**	**03**	**04**	**05**	**06**	**07**
Acenaphthene	µg/l	83-32-9								
Acenaphthylene	µg/l	208-96-8								
Acetaldehyde	µg/l	75-07-0								
Acetochlor	µg/l	34256-82-1								
Acrolein	µg/l	107-02-8								
Acrylamide	µg/l	79-06-1								
Acrylonitrile	µg/l	107-13-1								
Alachlor	µg/l	15972-60-8								
Aldicarb	µg/l	116-06-3								
Aldicarb Sulfone	µg/l	1646-88-4								
Aldicarb Sulfoxide	µg/l	1646-87-3								
Aldrin	µg/l	309-00-2								
Allyl alcohol	µg/l	107-18-6								
Allyl chloride	µg/l	107-05-1								
Amyl acetate	µg/l	628-63-7								
Aniline	µg/l	62-53-3								
Anthracene	µg/l	120-12-7								
Aramite	µg/l	140-57-8								
Atrazine	µg/l	1912-24-9								
Azobenzene	µg/l	103-33-3								
Benzene	µg/l	71-43-2					4580			
Benzidine	µg/l	92-87-5								
Benzo(a)anthracene (PAH)	µg/l	56-55-3								
Benzo(a)pyrene (PAH)	µg/l	50-32-8								
Benzo(b)fluoranthene (PAH)	µg/l	205-99-2								
Benzo(g,h,i)perylene (PAH)	µg/l	191-24-2								
Benzo(k)fluoranthene (PAH)	µg/l	207-08-9								
Benzotrichloride	µg/l	98-07-7								
Benzonitrile	µg/l	100-47-0								
Benzyl chloride	µg/l	100-44-7								
delta-BHC	µg/l	319-86-6								
Bis(chloromethyl)ether (BCME)	µg/l	542-88-1								
Bromate	µg/l	15541-45-4								
Bromobenzene	µg/l	108-86-1					<0.5			
Bromochloromethane	µg/l	74-97-5					<0 5			
Bromodichloromethane (HM)	µg/l	75-27-4					<0.5			
Bromoform (HM)	µg/l	75-25-2					<0 5			
Bromomethane	µg/l	74-83-9					<0 5			
4-Bromophenyl phenyl ether	µg/l	101-55-3								
Butyl acetate	µg/l	123-86-4								
Butylamine	µg/l	109-73-9								
sec-Butylbenzene	µg/l	135-98-8					1404			
n-Butylbenzene	µg/l	104-51-8					<0.5			
tert-Butylbenzene	µg/l	98-06-6					<0.5			
Butyl benzyl phthalate	µg/l	85-68-7								
Captan	µg/l	133-06-2								
Carbaryl	µg/l	63-25-2								

Scanned 13:15:44 03/25/2014

Carbofuran	µg/l	1563-66-2								
Carbon disulfide	µg/l	75-15-0								
Carbon tetrachloride	µg/l	56-23-5					<0.5			
Chlordane	µg/l	57-74-9								
Chlorethyl ether (BIS-2)	µg/l	111-44-4								
4-Chloroaniline	µg/l	106-47-8								
Chlorobenzene	µg/l	108-90-7					<0.5			
Chlorodibromomethane (HM)	µg/l	124-48-1					<0.5			
Chloroethane	µg/l	75-00-3					<0.5			
2-Chloroethyl vinyl ether	µg/l	110-75-8								
Chloroform (HM)	µg/l	67-66-3					<0.5			
Chloroisipropyl ether (BIS-2)	µg/l	108-60-1								
Chloromethane	µg/l	74-87-3					<0.5			
4-Chloro-3-methylphenol	µg/l	59-50-7								
Chloronapthalene	µg/l	91-58-7								
Chlorophenol or (2-Chlorophenol)	µg/l	95-57-8								
4-Chlorophenyl phenyl ether	µg/l	7005-72-3								
4-Chlorotoluene	µg/l	106-43-4					<0 5			
2-Chlorotoluene	µg/l	95-49-8					<0.5			
Chlorpyrifos	µg/l	2921-88-2								
Chrysene (PAH)	µg/l	218-01-9								
Coumaphos	µg/l	56-72-4								
Cresol	µg/l	95-48-7								
Crotonaldehyde	µg/l	4170-30-3								
Cyclohexane	µg/l	110-82-7								
DDD , 4,4	µg/l	72-54-8								
DDE , 4,4	µg/l	72-55-9								
DDT , 4,4 and TDE	µg/l	50-92-3								
Demeton	µg/l	8065-48-3								
Diazinon	µg/l	333-41-5								
Dibenzo(a,h)anthracene (PAH)	µg/l	53-70-3								
1,2 Dibromo-3-Chloropropane (DBCP)	µg/l	96-12-8								
Dicamba	µg/l	1918-00-9								
Dibromomethane	µg/l	74-95-3					<0.5			
Dichlone	µg/l	117-80-6								
Dichloroacetic acid	µg/l	79-43-6								
Dichlorobenil	µg/l	1194-65-6								
Dichlorobenzene 1,2	µg/l	95-50-1					<0.5			
Dichlorobenzene 1,3	µg/l	541-73-1					<0.5			
Dichlorobenzene 1,4	µg/l	106-46-7					<0.5			
Dichlorobenzidine	µg/l	91-94-1								
Dichlorodifluoromethane	µg/l	75-71-8								
Dichloroethane 1,2	µg/l	107-06-2					<0 5			
Dichloroethylene 1,1	µg/l	75-35-4					<0.5			
Dichloroethane 1,1	µg/l	75-34-3					<0.5			
Dichloroethylene 1,2 cıs	µg/l	156-59-2					<0.5			
Dichloroethylene 1,2 trans	µg/l	156-60-50					<0 5			
Dichlorophenol 2,4	µg/l	120-83-2								
Dichlorophenoxyacetic acid (2,4-D)	µg/l	94-75-7								
Dichloropropane 1,2	µg/l	78-87-5					<0.5			
Dichloropropane 1,3	µg/l	142-28-9					<0.5			
Dichloropropane 2,2	µg/l	590-20-7					<0.5			
1,1 Dichloropropene	µg/l	563-58-6					<0.5			
cis-1,3 Dichloropropene	µg/l	10061-01-5					<0.5			
trans-1,3- Dichloropropene	µg/l	10061-02-6					<0.5			
2,2-Dichloropropionic acid, Dalapon	µg/l	75-99-0								
Dichloropropylene 1,3	µg/l	542-75-6								
Dichlorvos	µg/l	62-73-7								
Dieldrin	µg/l	60-57-1								
Diethylamine	µg/l	109-89-7								
Dimethylamine	µg/l	124-40-3								
Diethyl phthalate	µg/l	84-66-2								
Diisopropylmethylphosphonate (DIMP)	µg/l	1445-75-6								
Dimethylphenol 2,4	µg/l	105-67-9								
Dimethyl phthalate	µg/l	131-11-3								
Di-n-butyl phthalate	µg/l	84-74-2								

Scanned 13:15:49 03/25/2014

Di-n-octyl phthalate	µg/l	117-84-0								
Dinitrobenzene	µg/l	25154-54-5								
Dinitrophenol 2,4	µg/l	51-28-5								
Dinitro-o-cresol 4,6	µg/l	534-52-1								
Dinitrotoluene 2,4	µg/l	121-14-2								
Dinitrotoluene 2,6	µg/l	606-20-2								
Dinoseb	µg/l	88-85-7								
Dioxane 1,	µg/l	123-91-1								
Dioxin (2,3,7,8 TCDD)	µg/l	1746-01-6								
Diphenylhydrazine 1,2	µg/l	122-66-7								
Di(2-ethylhexyl)adipate	µg/l	103-23-1								
Disulfoton	µg/l	298-04-4								
Diuron	µg/l	330-54-1								
Diquat	µg/l	85-00-7								
Endosulfan	µg/l	115-29-7								
Endosulfan, alpha	µg/l	959-98-8								
Endosulfan, beta	µg/l	33213-65-9								
Endosulfan, sulfate	µg/l	1031-07-8								
Endothall	µg/l	145-73-3								
Endrin	µg/l	72-20-8								
Endrin aldehyde	µg/l	7421-93-4								
Epichlorohydrin	µg/l	106-89-8								
Ethion	µg/l	563-12-2								
Ethylbenzene	µg/l	100-41-4					**711**			
Ethylene diamine	µg/l	107-15-3								
Ethylene dibromide EDB	µg/l	106-93-4					<0.5			
Ethylhexyl phthalate (BIS-2)(DEHP)	µg/l	117-81-7								
Fluoranthene (PAH)	µg/l	206-44-0								
Fluorene (PAH)	µg/l	86-73-7								
Folpet	µg/l	133-07-3								
Formaldehyde	µg/l	50-00-0								
Furmecyclox	µg/l	60568-05-0								
Furfural	µg/l	98-01-1								
Glyphosate	µg/l	1071-83-6								
Guthion	µg/l	86-50-0								
Heptachlor	µg/l	76-44-8								
Heptachlor epoxide	µg/l	1024-57-3								
Hexachlorobenzene	µg/l	118-74-1								
Hexachlorobutadiene	µg/l	87-68-3					<0.5			
Hexachlorocyclohexane, alpha BHC	µg/l	319-84-6								
Hexachlorocyclohexane, beta , BHC	µg/l	319-85-7								
Hexachlorocyclohexane, gama ,BHC Lindane	µg/l	58-89-9								
Hexachlorocyclohexane, technical	µg/l	608-73-1								
Hexachlorocyclopentadiene (HCCPD)	µg/l	77-47-4								
Hexachlorodibenzo-p-dioxin	µg/l	19408-74-3								
Hexachloroethane	µg/l	62-72-1								
Hydrazine	µg/l	302-01-2								
Indeno(1,2,3-cd)pyrene (PAH)	µg/l	193-39-5								
Isophorone	µg/l	78-59-1								
Isopropanolamine	µg/l	78-96-6								
Isopropylbenzene	µg/l	98-82-8					83.7			
Isopropyltoluene	µg/l	99-87-6					70.1			
Kelthane	µg/l	115-32-2								
Kepone	µg/l	143-50-0								
Malathion	µg/l	121-75-5								
Mercaptodimethur	µg/l	2032-65-7								
Methoxychlor	µg/l	72-43-5								
4,4- Methylene bis (N,N'-dimethly)aniline	µg/l	101-61-1								
Methylene chloride	µg/l	75-09-2					<0.5			
Methyl mercaptan	µg/l	74-93-1								
Methyl methacrylate	µg/l	80-62-6								
Methyl parathion	µg/l	298-00-0								
Metribuzin	µg/l	21087-64-9								
Mevinphos	µg/l	7786-34-7								
Mexacarbate	µg/l	315-18-4								
Mirex	µg/l	2385-85-5								

Monoethyl amine	µg/l	75-04-7								
Monomethyl amine	µg/l	74-89-5								
Naled	µg/l	300-76-5								
Naphthalene (PAH)	µg/l	91-20-3					<0.5			
Naphthenic acid	µg/l	1338-24-5								
Nitrobenzene	µg/l	98-95-3								
Nitrophenol	µg/l	100-07-2								
Nitrosodibutylamine N	µg/l	924-16-3								
Nitrosodiethylamine N	µg/l	55-18-5								
Nitrosodimethylamine N	µg/l	62-75-9								
N-Nitrosodiethanolamine	µg/l	1116-54-7								
Nitrosodiphenylamine N	µg/l	86-30-6								
N-Nitroso-n-methylethylamine	µg/l	10595-95-6								
2-Nitrophenol	µg/l	88-75-5								
Nitrosopyrrolidine N 2	µg/l	930-55-2								
N-Nitrosodi-n-propylamine	µg/l	621-64-7								
Nitrotoluene	µg/l	99-08-1								
Nonylphenol	µg/l	25154-52-3								
Oxamyl (vydate)	µg/l	23135-22-0								
PCBs	µg/l	1136-36-3								
PCB Aroclor 1016	µg/l	12674-11-2								
PCB Aroclor 1221	µg/l	11104-28-2								
PCB Aroclor 1232	µg/l	11141-16-5								
PCB Aroclor 1242	µg/l	53469-21-9								
PCB Aroclor 1248	µg/l	12672-29-6								
PCB Aroclor 1254	µg/l	11097-69-1								
PCB Aroclor 1260	µg/l	11096-82-5								
Parathion	µg/l	56-38-2								
Phenanthrene	µg/l	85-01-8								
Pentachlorobenzene	µg/l	608-93-5								
Pentachlorophenol	µg/l	87-86-5								
Phenol	µg/l	108-95-2								
Phenolsulfonate	µg/l	8003-34-7								
Phosgene	µg/l	75-44-5								
Picloram	µg/l	1918-02-1								
Prometon	µg/l	1610-18-0								
Propargite	µg/l	2312-35-8								
n-Propylbenzene	µg/l	103-65-1					81.6			
Propylene oxide	µg/l	75-56-9								
Pyrene (PAH)	µg/l	129-00-0								
Pyrethrins	µg/l	121-21-1								
Quinoline	µg/l	91-22-5								
Resorcinol	µg/l	108-46-3								
Simazine	µg/l	122-34-9								
Strychnine	µg/l	57-24-9								
Styrene	µg/l	100-42-5					<0.5			
Trichlorofluoromethane	µg/l	75-69-4					<0.5			
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	µg/l	93-76-5								
Tetrachlorobenzene 1,2,4,5	µg/l	95-94-3								
Tetrachloroethane 1,1,2,2	µg/l	79-34-5					<0.5			
Tetrachloroethylene (PCE)	µg/l	127-18-4					<0.5			
Toluene	µg/l	108-88-3					8040			
Toxaphene	µg/l	8001-35-2								
Tributyltin (TBT)	µg/l	56573-85-4								
Trichlorobenzene 1,2,4	µg/l	87-61-6					<0.5			
Trichlorobenzene 1,2,4	µg/l	120-82-1					<0.5			
Trichloroethane 1,1,1 (1,1,1-TCA)	µg/l	71-55-6					<0.5			
Trichloroethane 1,1,2 (1,1,2-TCA)	µg/l	79-00-5					<0.5			
Trichloroethane 1,1,1,2	µg/l	630-20-6					<0.5			
Triethanolamine dodecylbenzenesulfonate	µg/l	27323-41-7								
Triethylamine	µg/l	121-44-8								
Trimethylamine	µg/l	75-50-3								
Trichloroethylene (TCE)	µg/l	79-01-6					<0.5			
Trichlorofon	µg/l	52-68-6								
Trichlorophenol 2,4,5	µg/l	95-95-4								
Trichlorophenol 2,4,	µg/l	88-06-2								

Trichlorophenoxypropionic acid (2,4,5-tp)	µg/l	93-72-1								
Trihalomethanes, total (sum of compounds)	µg/l	NA								
1,2,4-Trimethylbenzene	µg/l	95-63-6					1219			
1,3,5-Trimethylbenzene	µg/l	108-67-8					1011			
Vinyl acetate	µg/l	108-05-4								
Vinyl chloride	µg/l	75-01-4					<0.5			
Xylenes, Total	µg/l	1330-20-7					5570			
Xylenol	µg/l	1300-71-6								

Table A.6 Organics (CAS Sort) just CAS # only

Parameter				Sample Identification and Data				
Name	Units	CAS #	PQL	01	02	03	04	05
Trihalomethanes, total (sum of several compounds)		NA						
Formaldehyde		50000						
Benzo(a)pyrene (PAH)		50328						
DDT , 4,4 and TDE		50923						
Dinitrophenol 2,4		51285						
Trichlorofon		52686						
Dibenzo(a,h)anthracene (PAH)		53703						
Nitrosodiethylamine N		55185						
Carbon tetrachloride		56235						
Parathion		56382						
Benzo(a)anthracene (PAH)		56553						
Coumaphos		56724						
Strychnine		57249						
Chlordane		57749						
Hexachlorocyclohexane, gama ,BHC Lindane		58899						
4-Chloro-3-methylphenol		59507						
Dieldrin		60571						
Aniline		62533						
Hexachloroethane		62721						
Dichlorvos		62737						
Nitrosodimethylamine N		62759						
Carbaryl		63252						
Chloroform (HM)		67663						
Benzene		71432						
Trichloroethane 1,1,1 (1,1,1-TCA)		71556						
Endrin		72208						
Methoxychlor		72435						
DDD , 4,4		72548						
DDE , 4,4		72559						

Bromomethane		74839						
Chloromethane		74873						
Monomethyl amine		74895						
Methyl mercaptan		74931						
Chloroethane		75003						
Vinyl chloride		75014						
Monoethyl amine		75047						
Acetaldehyde		75070						
Methylene chloride		75092						
Carbon disulfide		75150						
Bromoform (HM)		75252						
Bromodichloromethane (HM)		75274						
Dichloroethylene 1,1		75354						
Phosgene		75445						
Trimethylamine		75503						
Propylene oxide		75569						
Trichlorofluoromethane		75694						
Dichlorodifluoromethane		75718						
2,2-Dichloropropionic acid, Dalapon		75990						
Heptachlor		76448						
Hexachlorocyclopentadiene (HCCPD)		77474						
Isophorone		78591						
Dichloropropane 1,2		78875						
Isopropanolamine		78966						
Trichloroethane 1,1,2 (1,1,2-TCA)		79005						
Trichloroethylene (TCE)		79016						
Acrylamide		79061						
Tetrachloroethane 1,1,2,2		79345						
Dichloroacetic acid		79436						
Methyl methacrylate		80626						
Acenaphthene		83329						
Diethyl phthalate		84662						
Di-n-butyl phthalate		84742						
Diquat		85007						
Phenanthrene		85018						
Butyl benzyl phthalate		85687						
Nitrosodiphenylamine N		86306						
Guthion		86500						
Fluorene (PAH)		86737						
Hexachlorobutadiene		87683						
Pentachlorophenol		87865						
Trichlorophenol 2,4,		88062						
2-Nitrophenol		88755						
Dinoseb		88857						
Naphthalene (PAH)		91203						
Quinoline		91225						
Chloronapthalene		91587						
Dichlorobenzidine		91941						
Benzidine		92875						
Trichlorophenoxypropionic acid (2,4,5-tp)		93721						
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)		93765						
Dichlorophenoxyacetic acid (2,4-D)		94757						
Cresol		95487						
Dichlorobenzene 1,2		95501						
Chlorophenol or (2-Chlorophenol)		95578						
Tetrachlorobenzene 1,2,4,5		95943						
Trichlorophenol 2,4,5		95954						
1,2 Dibromo-3-Chloropropane (DBCP)		96128						
Furfural		98011						
Benzotrichloride		98077						
Nitrobenzene		98953						
Nitrotoluene		99081						
Nitrophenol		100072						
Ethylbenzene		100414						
Styrene		100425						
Benzyl chloride		100447						

Benzonitrile		100470						
4-Bromophenyl phenyl ether		101553						
4,4- Methylene bis (N,N'-dimethly)aniline		101611						
Di(2-ethylhexyl)adipate		103231						
Azobenzene		103333						
Dimethylphenol 2,4		105679						
Dichlorobenzene 1,4		106467						
4-Chloroaniline		106478						
Epichlorohydrin		106898						
Ethylene dibromide		106934						
Acrolein		107028						
Allyl chloride		107051						
Dichloroethane 1,2		107062						
Acrylonitrile		107131						
Ethylene diamine		107153						
Allyl alcohol		107186						
Vinyl acetate		108054						
Resorcinol		108463						
Chloroisipropyl ether (BIS-2)		108601						
Toluene		108883						
Chlorobenzene		108907						
Phenol		108952						
Butylamine		109739						
Diethylamine		109897						
2-Chloroethyl vinyl ether		110758						
Cyclohexane		110827						
Chlorethyl ether (BIS-2)		111444						
Endosulfan		115297						
Kelthane		115322						
Aldicarb		116063						
Dichlone		117806						
Ethylhexyl phthalate (BIS-2)(DEHP)		117817						
Di-n-octyl phthalate		117840						
Hexachlorobenzene		118741						
Anthracene		120127						
Trichlorobenzene 1,2,4		120821						
Dichlorophenol 2,4		120832						
Dinitrotoluene 2,4		121142						
Pyrethrins		121211						
Triethylamine		121448						
Malathion		121755						
Simazine		122349						
Diphenylhydrazine 1,2		122667						
Butyl acetate		123864						
Dioxane 1,		123911						
Dimethylamine		124403						
Chlorodibromomethane (HM)		124481						
Tetrachloroethylene (PCE)		127184						
Pyrene (PAH)		129000						
Dimethyl phthalate		131113						
Captan		133062						
Folpet		133073						
Aramite		140578						
Kepone		143500						
Endothall		145733						
Dichloroethylene 1,2 cis		156592						
Benzo(g,h,i)perylene (PAH)		191242						
Indeno(1,2,3-cd)pyrene (PAH)		193395						
Benzo(b)fluoranthene (PAH)		205992						
Fluoranthene (PAH)		206440						
Benzo(k)fluoranthene (PAH)		207089						
Acenaphthylene		208968						
Chrysene (PAH)		218019						
Methyl parathion		298000						
Disulfoton		298044						
Naled		300765						

Hydrazine		302012						
Aldrin		309002						
Mexacarbate		315184						
Hexachlorocyclohexane, alpha BHC		319846						
Hexachlorocyclohexane, beta , BHC		319857						
delta-BHC		319866						
Diuron		330541						
Diazinon		333415						
Dinitro-o-cresol 4,6		534521						
Dichlorobenzene 1,3		541731						
Dichloropropylene 1,3		542756						
Bis(chloromethyl)ether (BCME)		542881						
Ethion		563122						
Dinitrotoluene 2,6		606202						
Hexachlorocyclohexane, technical		608731						
Pentachlorobenzene		608935						
N-Nitrosodi-n-propylamine		621647						
Amyl acetate		628637						
Nitrosodibutylamine N		924163						
Nitrosopyrrolidine N 2		930552						
Endosulfan, alpha		959988						
Heptachlor epoxide		1024573						
Endosulfan, sulfate		1031078						
Glyphosate		1071836						
N-Nitrosodiethanolamine		1116547						
PCBs		1136363						
Dichlorobenil		1194656						
Xylenol		1300716						
Xylenes, Total		1330207						
Naphthenic acid		1338245						
Diisopropylmethylphosphonate (DIMP)		1445756						
Carbofuran		1563662						
Dichloroethylene 1,2 trans		1566050						
Prometon		1610180						
Aldicarb Sulfoxide		1646873						
Aldicarb Sulfone		1646884						
Dioxin (2,3,7,8 TCDD)		1746016						
Atrazine		1912249						
Dicamba		1918009						
Picloram		1918021						
Mercaptodimethur		2032657						
Propargite		2312358						
Mirex		2385855						
Chlorpyrifos		2921882						
Crotonaldehyde		4170303						
4-Chlorophenyl phenyl ether		7005723						
Endrin aldehyde		7421934						
Mevinphos		7786347						
Toxaphene		8001352						
Phenolsulfonate		8003347						
Demeton		8065483						
cis-1,3 Dichloropropene		10061015						
trans-1,3- Dichloropropene		10061026						
N-Nitroso-n-methylethylamine		10595956						
PCB Aroclor 1260		11096825						
PCB Aroclor 1254		11097691						
PCB Aroclor 1221		11104282						
PCB Aroclor 1232		11141165						
PCB Aroclor 1248		12672296						
PCB Aroclor 1016		12674112						
Bromate		15541454						
Alachlor		15972608						
Hexachlorodibenzo-p-dioxin		19408743						
Metribuzin		21087649						
Oxamyl (vydate)		23135220						
Nonylphenol		25154523						

Dinitrobenzene		25154545						
Triethanolamine dodecylbenzenesulfonate		27323417						
Endosulfan, beta		33213659						
Acetochlor		34256821						
PCB Aroclor 1242		53469219						
Tributyltin (TBT)		56573854						
Furmecyclox		60568050						

Scanned 13:16:19 03/25/2014

Table X. Water Quality Standard for Receiving Water (Segment 4a, Lower Colorado River Basin)
Source: Regulation No. 31 (Effective November 30, 2009)

Water Quality Standard						Produced Water	
Parameter			Standard			Untreated	Treated
			Units	Non-TVS	TVS		
Physical and Biological							
Dissolved Oxygen			mg/l	6.0	-		
Dissolved Oxygen (sp)				7.0	-		
E. coli			#/100 ml	630	-		
Temperature: Cold Stream Tier II	April-October	MWAT	NA	18.2	-		
		DM		23.8	-		
	November - March	MWAT		9.0	-		
		DM		13.0	-		
Inorganic							
Ammonia, acute, as nitrogen			mg/l	TVS		<0.05	0
Ammonia, chronic, as nitrogen				TVS		<0.05	
Chlorine, acute			mg/l	0.019	-		
Chlorine, chronic				0.011	-		
Cyanide			mg/l	0.005	-		
Metals							
Hardness, as CaCO3 for use in TVS equations			mg/l	NA	350		
Arsenic, acute			mg/l	340	-	<10	
Arsenic, chronic, Trec				0.02-10	-	<10	
Boron			mg/l	0.75	-		
Cadmium, acute			ug/l	TVS	8.1	<10	
Cadmium, chronic				TVS	1.1	<10	
Chloride			mg/l	250	-	5730	93
Chromium, Trivalent, acute, Trec			mg/l	50	-		
Chromium, Hexavalent, acute			ug/l	16	-	<10	
Chromium, Hexavalent, chronic				11	-	<10	
Copper, acute			ug/l	TVS	44	<10	
Copper, chronic				TVS	26	<10	
Iron, chronic, water supply, dissolved			ug/l	300	-		
Iron, chronic, Trec			mg/l	1000	-		
Lead, acute			ug/l	TVS	245	80	
Lead, chronic				TVS	9.5		
Manganese, chronic, water supply, dissolved			ug/l	50	-		
Manganese, acute			ug/l	TVS	4532	480	
Manganese, chronic				TVS	2504		
Mercury, chronic, Total			mg/l	0.01	-	<0.002	
Nickel, acute			ug/l	TVS	1351	<10	
Nickel, chronic				TVS	150		
Nitrate			mg/l	0.05	-		
Nitrite			mg/l	10	-		
Selenium, acute			ug/l	18.4	-	<10	
Selenium, chronic				4.6			
Silver, acute			ug/l	TVS	18	<10	
Silver, chronic				TVS	2.8		
Sulfate, water supply			mg/l	250	-	252	1
Sulfur			mg/l	0.002	-		
Zinc, acute			ug/l	TVS	414	<10	
Zinc, chronic				TVS	362		

Table IV
Table Value Standards for Selected Hardnesses
(concentration in ug/L, dissolved)

					Mean Hardness	In	mg/L	calcium	carbonate				
		25	50	75	100	150		200		250		300	350	400
Cadmium	Acute trout	0.5	0.9	1.3	1.7	2.4		3.1		3.8		4.4	5.1	5.7
	Acute	0.8	1.5	2.1	2.7	3.9		5.0		6.1		7.1	8.1	9.1
	Chronic	.15	.25	0.34	0.42	0.58		0.72		0.85		0.97	1.1	1.2
Chromium III	Acute	183	323	450	570	794		1005		1207		1401	1590	1773
	Chronic	24	42	59	74	103		131		157		182	207	231
Copper	Acute	3.6	7.0	10	13	20		26		32		38	44	50
	Chronic	2.7	5.0	7.0	9.0	13		16		20		23	26	29
Lead	Acute	14	30	47	65	100		136		172		209	245	281
	Chronic	0.5	1.2	1.8	2.5	3.9		5.3		6.7		8.1	9.5	11
Manganese	Acute	1881	2370	2713	2986	3417		3761		4051		4305	4532	4738
	Chronic	1040	1310	1499	1650	1888		2078		2238		2379	2504	2618
Nickel	Acute	145	260	367	468	660		842		1017		1186	1351	1513
	Chronic	16	29	41	52	72		94		113		132	150	168
Silver	Acute	0.19	0.62	1.2	2.0	4.1		6.7		9.8		13	18	22
	Chronic Trout	0.01	0.02	0.05	0.08	0.15		0.25		0.36		0.50	0.65	0.81
	Chronic	0.03	0.10	0.20	0.32	0.64		1.0		1.6		2.1	2.8	3.5
Uranium	Acute	521	1119	1750	2402	3756		5157		6595		8062	9555	11070
	Chronic	326	699	1093	1501	2346		3221		4119		5036	5968	6915
Zinc	Acute	44	79	112	143	201		257		311		363	414	464
	Chronic	38	69	97	124	176		224		271		317	362	405

Shaded values exceed drinking water supply standards.

Scanned 13:16:23 03/25/2014

Scanned 13:16:28 03/25/2014

5-52 may be classified as indicating methane of thermogenic origin, or of biogenic (microbial) origin. The curved bands on Figure 5-53 denote these classifications. Notice that stations with thermogenic methane (e.g., 704093 and 704279) were previously reported to have BTEX compounds, and elevated methane concentrations above 1 mg/L in their water. Thus the detection of BTEX in water may be one of the simplest indicators of water contamination from nearby gas wells.

Surface water station 703895 is classified as a pond on West Divide Creek in T7S R92W Sec 12. The isotopic ratios of water at station 703895 indicate that the methane may have a mixed origin, partly biogenic and partly thermogenic.

5.6.6 Descriptive Statistics and Comparisons Against Water Quality Standards

Table 5-16 contains descriptive statistics for surface water quality. The statistics are grouped by type of surface water (i.e., pond, stream, or spring), and then by analyte. Besides mean concentrations, the table shows the percentage of detected concentrations, three sets of water quality standards, and the percentages of the data that exceed each standard. In Table 5-16 the code "MCL" refers to the EPA drinking water maximum contaminant level or MCL. Code "COGW" means Colorado basic groundwater standards for drinking water, and "COSW" refers to Colorado basic surface water standards for drinking water supply. For example, nitrate in pond waters did not exceed any of these standards, but nitrate concentrations in spring water exceeded each standard about 12 percent of the time.

The percentage of wells that exceed Colorado basic surface water standards is summarized in Table 5-17.

5.6.7 Hardness of Surface Water

Surface water hardness is of concern if the water is to be used for household uses. Hard water causes scaling problems in hot water heaters and excessive consumption of soaps. Figure 5-53 is a quantile plot of calculated hardness values for 61 surface water locations. It shows that most surface waters are very hard, with a median hardness of about 360 mg/L as $CaCO_3$. More than 90 percent of these surface waters fall in the hardness range of 210 to about 700 mg/L.

5.6.8 Quality of Spring Water

Data identified as coming from springs are classified as surface water in this report. It could be argued that if spring water is carefully sampled by peristaltic pump immediately as it emerges on the surface, or from a driven pipe before it contacts the atmosphere, then its properties may be closely similar to those measured in nearby groundwater wells screened in the same lithology. However, many of the "spring" analyses in the dataset may derive from samples collected from shallow depressions, or which otherwise have altered chemistry from processes such as: gas exchange, precipitation, oxidation from contacting air, or uptake of nutrients by surficial plants and organisms.

Figure 5-54 is a piper diagram of the major ion chemistry of spring waters. Notice that the lower left-hand triangular region holds many scattered points, rather than a nice linear band as was seen earlier for groundwater (see Figure 5-37). The diamond shaped region in Figure 5-54 also shows less variation in TDS than was seen for groundwater.

Scanned 13:16:33 03/25/2014

Table 4.3 - Summary of Task 2 Produced Water Sample Results
Mamm Creek Phase II Hydrogeologic Characterization

Site ID	Sample Date	Field pH	Field Cond (µS/cm)	Field Temp (°C)	Field DO (mg/L)	Calcium, dissolved	Magnesium, dissolved	Sodium, dissolved	Potassium, dissolved	Iron, dissolved	Bicarbonate as $CaCO_3$	Carbonate as CaCO3	Chloride	Sulfate	NO_3/NO_2 as N	Fluoride	Bromide	Boron, dissolved	Strontium, dissolved	Sum of Anions (meq/L)	Sum of Cations (meq/L)	Ion Balance (%)	TDS, @180 deg	Hardness as $CaCO_3$
05-045-06934	12/6/2007	6.37	12050	1.29	5.92	174	18	4490	73	207	813	2 U	7100	10 U	0.2 U	2 U	52	2.8	47.6	216	222	1.4	14700	509
05-045-07155	12/6/2007	7.62	1294	3.1	22.6	19.3	1.4	220	2.2	0.06	142	2 U	311	0.5 U	0.02 U	0.2 B	2.1	0.57	4.42	11.6	10.9	-3.1	690	54
05-045-07366	12/6/2007	6.88	14740	1.75	19.3	818	44	5090	173	197	415	2 U	10000	10 U	0.2 U	2 U	63	1.13	121	289	286	-0.5	17600	2230
05-045-07585	12/6/2007	6.45	24780	17.2	10.28	414	28	6390	80	897	1630	2 U	11500 H	10 U	0.44	2 U	54	4	64.2	355	355	0	21000 H	1150
05-045-07627	12/6/2007	7.44	9197	14.61	3.62	85	9	2590	55	16.5	1460	2 U	3210	5 U	0.02 U	1 U	15	3.7	19.6	120	122	0.8	7390	249
05-045-09123	12/6/2007	7.28	14100	3.61	19.4	260	15	2680	40	3.7	452	2 U	4620	3 U	0.02 U	1.4 B	30	0.44	39.1	139	134	-1.8	8430	712
05-045-09156	12/6/2007	7.12	9622	12.9	7.73	140	7	3160	50	13.3	3730	2 U	2740	5 U	0.02 U	1 U	13	3.5	14.9	151	149	-0.7	8850	379
05-045-09158	12/6/2007	7.33	12780	3.44	18.33	282	21	4350	81	44	725	2 U	7610	10 U	0.16	2 U	35	2.2	55.7	228	213	-3.4	14200	791
05-045-09162	12/6/2007	7.5	25020	32.9	4.73	183	18	4680	44	14.2	1760	2 U	6450	10 U	0.02 U	2 U	32	1.9	35.4	217	219	0.5	13900	531
05-045-09275	12/6/2007	6.98	17540	17.54	4.5	672	60	4120	139	155	667	2 U	7200	10 U	0.2 U	2 U	36	0.38	94	215	234	4.2	13400	1930
05-045-09418	12/5/2007	8.16	16900	5.03	26.75	730	67	6640	1400	1.7	291	2 U	11800	10 U	0.02 U	2 U	38	1.14	145	337	374	5.2	21700	2100
05-045-10106	12/6/2007	6.58	22570	20.62	5.04	626	25	4090	97	0.2 U	1190	2 U	9860	9 B	0.05 B	1 U	31	2.6	149	300	219	-15.6	16300	1670
05-045-10260	12/6/2007	6.5	29700	30.23	7	528	32	5410	68	4.4	640	2 U	9450	5 U	0.04 B	1 U	53	1.36	130	278	272	-1.1	17200	1450
05-045-10760	12/5/2007	7.7	11930	20.38	7.15	21	3 B	4010	44	1.4	6010	2 U	1600	5 U	0.02 U	1 U	6	4.7	5.4	165	179	4.1	10100	65
05-045-10817	12/5/2007	7.18	9230	16.43	4.24	25	3 B	2940	37	0.3	5570	2 U	1070	6 B	0.02 U	0.5 U	4	3.8	4.5	142	132	-3.6	8630	75
05-045-11402	12/5/2007	7.49	9452	18	3.44	23	3 B	2370	24	1.8	6110	2 U	918	5 U	0.02 U	1 U	4 B	2.1	5.37	148	107	-16.1	8870	70
05-045-09158-A	12/6/2007					288	22	4480	84	110	763	2 U	7410	10 U	0.02 U	2 U	35	2.7	55.9	223	223	0	14300	810
05-045-11402-A	12/5/2007					34	4 B	3160	36	1.8	6060	2 U	925	5 U	0.02 U	1 U	4 B	2.7	7.4	147	142	-1.7	8930	101

Notes:
Except as indicated, all units are mg/L
U = Parameter not detected at concentration shown.
B = Parameter detected at approximate concentration between Minimum Detection Level and Quantitation Level
H = Hold time for sample exceeded
A for Site ID designates duplicate sample.

STREAM CLASSIFICATIONS and WATER QUALITY STANDARDS

REGION:11 **BASIN: Lower Colorado River** Stream Segment Description	Desig	Classifications	NUMERIC STANDARDS PHYSICAL and BIOLOGICAL	INORGANIC mg/l		METALS ug/l			TEMPORARY MODIFICATIONS AND QUALIFIERS
1. Mainstem of the Colorado River from the confluence with the Roaring Fork River to immediately below the confluence with Rifle Creek.		Aq Life Cold 1 Recreation E Water Supply Agriculture	T=TVS(CS-II) °C D.O. = 6.0 mg/l D.O.(sp)=7.0 mg/l pH=6.5-9.0 E.Coli=126/100ml	NH_3(ac/ch)=TVS Cl_2(ac)=0.019 Cl_2(ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=10 Cl=250 SO_4=WS	As(ac)=340 As(ch)=0.02(Trec) Cd(ac)=TVS(tr) Cd(ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac)=TVS Ag(ch)=TVS(tr) Zn(ac/ch)=TVS	
2a. Mainstem of the Colorado River from immediately below the confluence with Rifle Creek to immediately above the confluence of Rapid Creek.		Aq Life Warm 1 Recreation E Water Supply Agriculture	T=TVS(WS-II) °C D.O. = 5.0 mg/l pH = 6.5-9.0 E.Coli=126/100ml	NH_3(ac/ch)=TVS Cl_2(ac)=0.019 Cl_2(ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=10 Cl=250 SO_4=WS	As(ac)=340 As(ch)=0.02(Trec) Cd(ac/ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	Temporary modification: NH_3(ac)=TVS(old) NH_3(ch)=0.06 (Type i). Expiration date of 12/31/2011.
2b. Mainstem of the Colorado River from a point immediately above the confluence with Rapid Creek to immediately above the confluence of the Gunnison River.		Aq Life Warm 1 Recreation E Water Supply Agriculture	T=TVS(WS-II) °C D.O. = 5.0 mg/l pH = 6.5-9.0 E.Coli=126/100ml	NH_3(ac/ch)=TVS Cl_2(ac)=0.019 Cl_2(ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=10 Cl=250 SO_4=WS	As(ac)=340 As(ch)=0.02(Trec) Cd(ac/ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	Temporary modification: NH_3(ac)=TVS(old) NH_3(ch)=0.06 (Type i). Expiration date of 12/31/2011.
3. Mainstem of the Colorado River from immediately above the confluence of the Gunnison River to the Colorado-Utah state line.		Aq Life Warm 1 Recreation E Agriculture	T=TVS(WS-II) °C D.O. =5.0 mg/l pH = 6.5-9.0 E.Coli=126/100ml	NH_3(ac/ch)=TVS Cl_2(ac)=0.019 Cl_2(ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=100	As(ac)=340 As(ch)=7.6(Trec) Cd(ac/ch)=TVS CrIII(ac/ch)=TVS CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	
4a. All tributaries, including wetlands, to the Colorado River from the confluence with the Roaring Fork River to a point immediately below the confluence with Parachute Creek except for the specific listings in Segments 4b, 4c, 4d, 4e, 5, 6, 7a, 7b, 8, 9a, 9c, 10, 11a - h, and 12a.		Aq Life Cold 2 Recreation N Water Supply Agriculture	T=TVS(CS-II) °C D.O.=6.0 mg/l D.O.(sp)=7.0 mg/l pH=6.5-9.0 E.Coli=630/100ml	NH_3(ac/ch)=TVS Cl_2(ac)=0.019 Cl_2(ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=10 Cl=250 SO_4=WS	As(ac)=340 As(ch)=0.02-10(Trec) Cd(ac/ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	
4b. South Canyon Hot Springs.		Aq Life Warm 2 Recreation E	D.O.=5.0 mg/l pH=6.5-9.0 E.Coli=126/100ml	NH_3(ac/ch)=TVS Cl_2(ac)=0.019 Cl_2(ch)=0.011 CN=0.005	S=0.002	As(ac)=340 As(ch)=100(Trec) Cd(ac/ch)=TVS CrIII(ac/ch)=TVS CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	
4c. The mainstem of South Canyon Creek from the South Canyon Hot Springs to the confluence with the Colorado River.		Aq Life Warm 1 Recreation E Water Supply Agriculture	T=TVS(WS-IV) °C D.O.=5.0 mg/l pH=6.5-9.0 E.Coli=126/100ml	NH_3(ac/ch)=TVS Cl_2 (ac)=0.019 Cl_2 (ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=10 Cl=250 SO_4=WS	As(ac)=340 As(ch)=0.02(Trec) Cd(ac/ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	
4d. The mainstem of Dry Hollow Creek, including all tributaries and wetlands, from the source to the confluence with the Colorado River.		Aq Life Cold 2 Recreation N Water Supply Agriculture	T=TVS(CS-II) °C D.O.= 5.0 mg/l pH=6.5-9.0 E.Coli=630/100ml	NH_3(ac/ch)=TVS Cl_2 (ac)=0.019 Cl_2 (ch)=0.011 CN=0.005	S=0.002 B=0.75 NO_2=0.05 NO_3=10 Cl=250 SO_4=WS	As(ac)=340 As(ch)=0.02-10(Trec) Cd(ac/ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS	Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(tot)	Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac/ch)=TVS Zn(ac/ch)=TVS	

Scanned 13:16:37 03/25/2014

iTouchMap.com
Mobile and Desktop Maps

Maps | Country - State | Places | Google Earth | Cities | Earthquakes | I Am Here | Lat - Long

Home » Latitude and Longitude of a Point

To find the latitude and longitude of a point **Click** on the map, **Drag** the marker, or enter the...

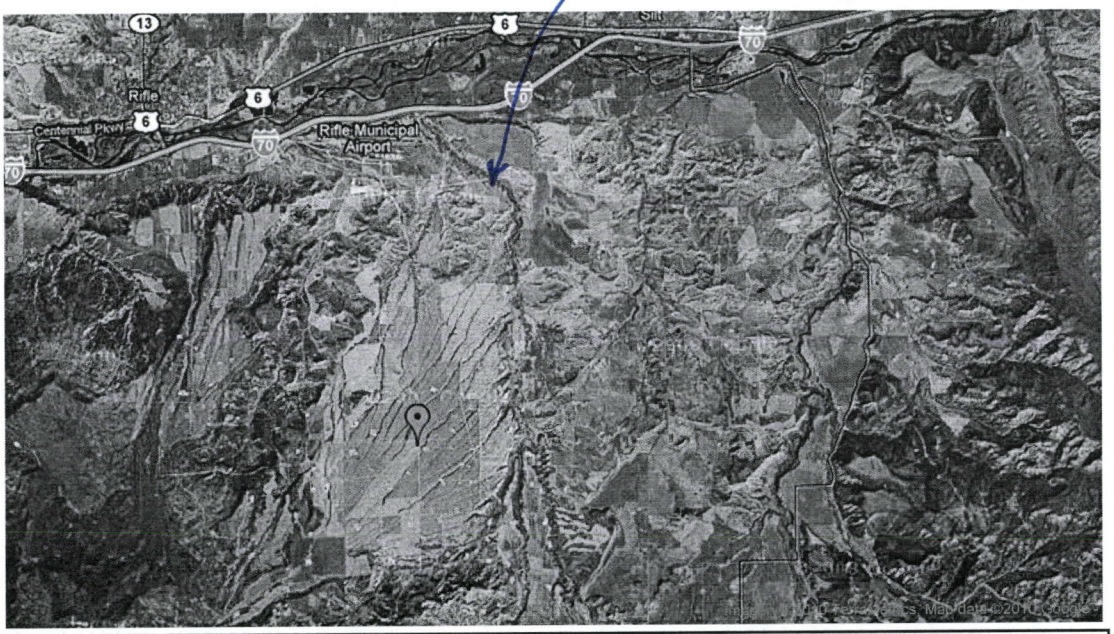
Address: 123 Street, City State/Country Go

Map Center: Get Address - Land Plat Size - Street View - Google Earth 3D - Area Photographs

Try out the Google Earth Plug-in. Google Earth gives you a 3D look of the area around the center of the map, which is usually your last click point, and includes latitude, longitude and elevation information.

Latitude and Longitude of a Point

Mamm Creek



Note: Right click on a **blue marker** to remove it.

Clear/Reset All Markers | Center Red Marker

Get the Latitude and Longitude of a Point

When you click on the map, move the marker or enter an address the latitude and longitude coordinates of the point are inserted in the boxes below.

Latitude:

Longitude:

	Degrees	Minutes	Seconds
Latitude:			
Longitude:			

Show Point from Latitude and Longitude

Use this if you know the latitude and longitude coordinates of a point and want to see where on the map the point is.

Use: **+** for *N* Lat or *E* Long **-** for *S* Lat or *W* Long.
Example: +40.689060 -74.044636
Note: Your entry should not have any embedded spaces.

Decimal Deg. Latitude:

Decimal Deg. Longitude:

Show Point

Example: **+34 40 50.12** for *34N 40' 50.12"*

	Degrees	Minutes	Seconds
Latitude:	39	27	59.11
Longitude:	-107	42	52.84

Show Point

Do you own a business?
Be found on Google for free
Claim your free listing today ►
Google places
Google.com/places
Ads by Google

© iTouchMap.com 2007-2010

iTouchMap.com
Mobile and Desktop Maps

Maps | Country - State | Places | Google Earth | Cities | Earthquakes | I Am Here | Lat - Long

Home » Latitude and Longitude of a Point

To find the latitude and longitude of a point **Click** on the map, **Drag** the marker, or enter the...

Address: 123 Street, City State/Country Go

Map Center: Get Address - Land Plat Size - Street View - Google Earth 3D - Area Photographs

Try out the Google Earth Plug-in. Google Earth gives you a 3D look of the area around the center of the map, which is usually your last click point, and includes latitude, longitude and elevation information.

Do you own a business?
Be found on Google for free
Claim your free listing today ►
Google places
Google.com/places
Ads by Google

Latitude and Longitude of a Point

Note: Right click on a **blue marker** to remove it.

Clear/Reset All Markers | Center Red Marker

Get the Latitude and Longitude of a Point

When you click on the map, move the marker or enter an address the latitude and longitude coordinates of the point are inserted in the boxes below.

Latitude: 39.48635632275806

Longitude: -107.75691032409668

	Degrees	Minutes	Seconds
Latitude:	39	29	10.8816
Longitude:	-107	45	24.876

Show Point from Latitude and Longitude

Use this if you know the latitude and longitude coordinates of a point and want to see where on the map the point is.

Use: **+** for *N* Lat or *E* Long **-** for *S* Lat or *W* Long.
Example: +40.689060 -74.044636
Note: Your entry should not have any embedded spaces.

Decimal Deg. Latitude:

Decimal Deg. Longitude:

Show Point

Example: **+34 40 50.12** for *34N 40' 50.12"*

	Degrees	Minutes	Seconds
Latitude:	39	27	59.11
Longitude:	-107	42	52.84

Show Point

© iTouchMap.com 2007-2010

Scanned 13:16:53 03/25/2014

AMENDMENT NO. 2 TO CERTIFICATION
AUTHORIZATION TO DISCHARGE UNDER THE
CDPS INDUSTRIAL GENERAL MINIMAL DISCHARGE PERMIT
Category 26, Subcategory 2, General Permits, Current fee $448/certification (CRS 25-8-502)
Amendment fee = $112 (25% of Annual fee)
SIC Code: 1311

This permit specifically authorizes: *Encana Oil & Gas (USA), Incorporated*
Joel Fox, Team Leader, South Piceance
370 17th Street, Suite 1700
Denver, CO 80011
(303) 623-2300 Fax (720) 876-6012

with the facility contact of: *Mark Thrush, Facilities Engineer (720) 876-5012*

to discharge from the ***Encana Oil & Gas (USA), Incorporated*** *facility, located in the SE ¼ of the SE ¼ of Section 1, T7S, R93W, in Garfield County, Rifle, Colorado; as shown in Figure 1 of the permit, from Outfalls 001A-002A, as shown in Figures 2-3 of the permit. Outfall 001A is the discharge of produced water from experimental natural gas production wells, which is treated and then discharged to West Mamm Creek, with the maximum flow rate of 600 gpm. Outfall 002A, is the discharge of produced water from experimental natural gas production wells, which is treated, and then pumped to the Lake Fox Lined Holding Pond, which may ultimately enter West Mamm Creek via the spillway, with the design flow of 145 gpm. Either one of these outfalls may choose an alternate use of the treated water in lieu of discharging to West Mamm Creek. This may be used for various plant operations within the Grass Mesa and Hunter Mesa fields such as dust suppression, and well completion activities, etc.*

The discharges are to West Mamm Creek, that leads to the Colorado River; Segment 4a of the Lower Colorado River Sub-basin and Basin, found in Classifications and Numeric Standards for the Lower Colorado River Basin, Regulation No. 37; last update effective January 20, 2004. Segment 4a is classified for the following uses: Recreation, Class 2; Aquatic Life, Class 2 (Cold); Agriculture: Water Supply.

Applicable limitations and monitoring requirements for Outfall 001A and 002A are listed in the following table.

Parameter	***Discharge Limitation***			***Frequency***	***Sample Type***
	30-day avg.	***7-day avg.***	***Daily max.***		
Flow, gpm	*Report*	*NA*	*Report*	*Monthly*	*Instantaneous*
Total Suspended Solids, mg/L	*30*	*45*	*NA*		*Grab*
pH, su. (minimum-maximum)	*NA*	*NA*	*6.5-9.0*		*Grab*
Oil & Grease, mg/L	*NA*	*NA*	*10*		*Visual*
Total Dissolved Solids, mg/L	*Report*	*NA*	*Report*	*Quarterly*	*Grab*

Phosphorous monitoring ***will not*** *be required for this discharge.*
Salinity (TDS) monitoring of the discharge ***will*** *be required.*
Antidegradation review ***does*** *apply to this permit because Mamm Creek is a reviewable stream. However, coverage by this activity has already been considered under this permit that the discharge will have an insignificant impact upon water quality; therefore, no further review is necessary.*
Best Management Practices, as discussed in Part I.E.5. of the permit, shall be followed for the duration of the discharge.

If groundwater contamination is encountered, then the permittee is to contact the Division and, if appropriate, the owner of the collection system receiving the discharge. Since the discharge of contaminated groundwater is not covered under this permit, the permittee shall immediately apply for a groundwater remediation certification, which will include appropriate requirements for additional discharge monitoring and on-site environmental response capabilities.

The permittee will use the following chemicals: hydrochloric acid, Filterpure® (Acid Cleaner, Desulf., & TF), and caustic soda.

The following amendment to this certification is to add an outfall, 002A, the discharge of from a lined pond (Lake Fox) that will be used for various plant operations, such as dust suppression, fracing, and well completion.

The permittee shall provide the Division with any additional monitoring data on the permitted discharge collected for entities other than the Division. This will be supplied to the Division within 48 hours of the receipt of the data by the permittee.

All correspondence relative to this facility should reference the specific facility number, COG-600633.

Christopher L. Gates
Amended on August 30, 2005

AMENDED AND EFFECTIVE SEPTEMBER 1, 2005 **EXPIRATION DATE JULY 31, 2006**

Scanned 13:16:57 03/25/2014

FIGURE 1
ENCANA OIL & GAS (USA), INC
MINIMAL DISCHARGE ACTIVITIES
COG-600633
PAGE 23

FIGURE 2
ENCANA OIL & GAS (USA), INC
MINIMAL DISCHARGE ACTIVITIES
COG-600633
PAGE 24

FIGURE 3
ENCANA OIL & GAS (USA), INC
MINIMAL DISCHARGE ACTIVITIES
COG-600633
PAGE 25

MS-3
COG-600633
ENCANA OIL & GAS (USA), INC.

Scanned 13:17:01 03/25/2014

AMENDMENT NO. 1 TO CERTIFICATION
AUTHORIZATION TO DISCHARGE UNDER THE
CDPS INDUSTRIAL GENERAL MINIMAL DISCHARGE PERMIT
Category 26, Subcategory 2, General Permits, Current fee $448/certification (CRS 25-8-502)
Amendment fee = $112 (25% of Annual fee)
SIC Code: 1311

This permit specifically authorizes: *Encana Oil & Gas (USA), Incorporated*
Joel Fox, Team Leader, South Piceance
370 17th Street, Suite 1700
Denver, CO 80011
(303) 623-2300 Fax (720) 876-6012

with the facility contact of: *Mark Thrush, Facilities Engineer (720) 876-5012*

to discharge from the ***Encana Oil & Gas (USA), Incorporated*** *facility, located in the SE ¼ of the SE ¼ of Section 1, T7S, R93W, in Garfield County, Rifle, Colorado; as shown in Figure 1 of the permit, from Outfall 001A, as shown in Figures 2-3 of the permit. Outfall 001A is the discharge of produced water from experimental natural gas production wells, which is treated and then discharged to Mamm Creek, with the maximum flow rate of 600 gpm.*

The discharge is to Mamm Creek that leads to the Colorado River; Segment 4a of the Lower Colorado River Sub-basin and Basin, found in Classifications and Numeric Standards for the Lower Colorado River Basin, Regulation No. 37; last update effective January 20, 2004. Segment 4a is classified for the following uses: Recreation, Class 2; Aquatic Life, Class 2 (Cold); Agriculture: Water Supply.

Applicable limitations and monitoring requirements for Outfall 001A are listed in the following table.

Parameter	Discharge Limitation			Frequency	Sample Type
	30-day avg.	7-day avg.	Daily max.		
Flow, gpm	Report	NA	Report	Monthly	Instantaneous
Total Suspended Solids, mg/L	30	45	NA		Grab
pH, su. (minimum-maximum)	NA	NA	6.5-9.0		Grab
Oil & Grease, mg/L	NA	NA	10		Visual
Total Dissolved Solids, mg/L	Report	NA	Report	Quarterly	Grab

Phosphorous monitoring ***will not*** *be required for this discharge.*
Salinity (TDS) monitoring of the discharge ***will*** *be required.*
Antidegradation review ***does*** *apply to this permit because Mamm Creek is a reviewable stream. However, coverage by this activity has already been considered under this permit that the discharge will have an insignificant impact upon water quality; therefore, no further review is necessary.*
Best Management Practices, as discussed in Part I.E.5. of the permit, shall be followed for the duration of the discharge.

If groundwater contamination is encountered, then the permittee is to contact the Division and, if appropriate, the owner of the collection system receiving the discharge. Since the discharge of contaminated groundwater is not covered under this permit, the permittee shall immediately apply for a groundwater remediation certification, which will include appropriate requirements for additional discharge monitoring and on-site environmental response capabilities.

The permittee will use the following chemicals: hydrochloric acid, Filterpure® (Acid Cleaner, Desulf., & TF), and caustic soda.

The following amendment to this certification is to change the duration of the discharge activity from a short-term to a long-term discharge activity.

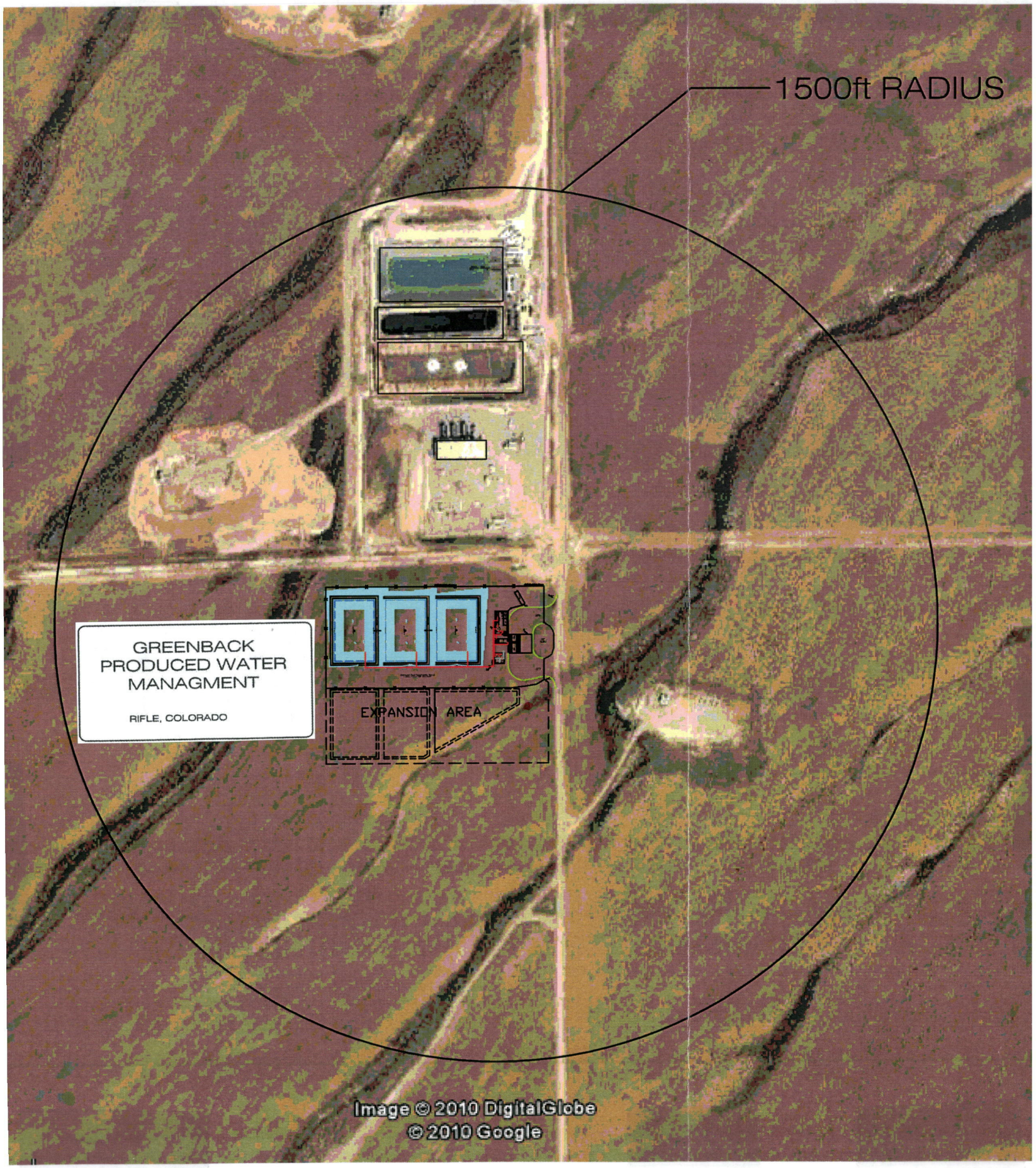
The permittee shall provide the Division with any additional monitoring data on the permitted discharge collected for entities other than the Division. This will be supplied to the Division within 48 hours of the receipt of the data by the permittee.

All correspondence relative to this facility should reference the specific facility number, COG-600633.

Christopher L. Gates
Amended on July 7, 2005

AMENDED AND EFFECTIVE: JULY 7, 2005 **EXPIRATION: JULY 31, 2006**

Corrected: July 18, 2005

Scanned 13:17:06 03/25/2014

Scanned 13:17:11 03/25/2014